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Market study into the retail fuel sector

Draft report

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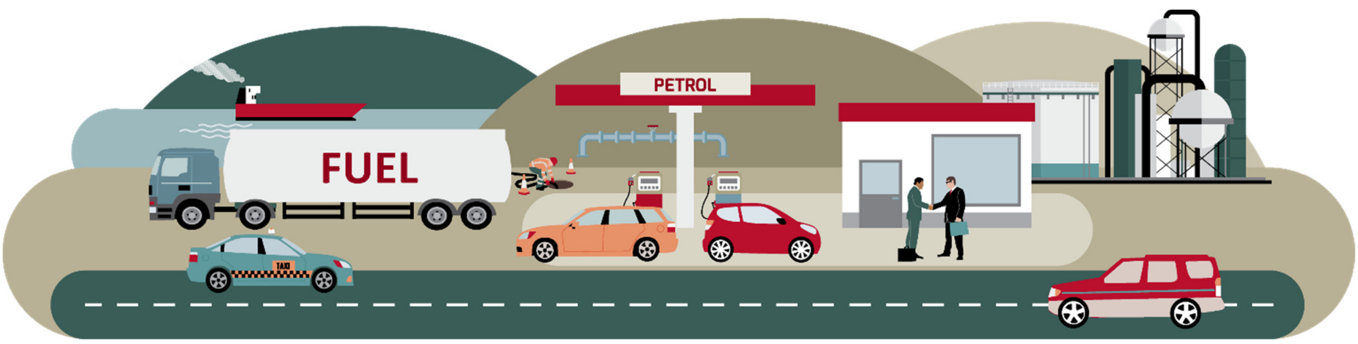

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Associated documents

Publication date	Reference	Title
12 December 2018	ISBN 978-1-869456-74-0	Draft market studies guidelines
12 December 2018	ISBN 978-1-869456-75-7	Market Study into the Retail Fuel Sector – Statement of Process: Our intended process and how you can contribute
31 January 2019	ISBN 978-1-869456-81-8	Market study into the retail fuel sector: Invitation to comment on preliminary issues
18 April 2019	ISBN 978-1-869456-92-4	Market Study into the Retail Fuel Sector: Working paper – Focus areas
18 April 2019	ISBN 978-1-869456-91-7	Market Study into the Retail Fuel Sector: Working paper on assessing profitability

Commerce Commission
Wellington, New Zealand

Confidential material in this report has been removed. Its location in the document is denoted by [ ].

Contents

Acronyms and abbreviations

AA	New Zealand Automobile Association
The Act	The Commerce Act 1986
Allied	Allied Petroleum Limited
Board price	The fuel price displayed on large price boards outside retail sites
BP	BP Oil New Zealand Limited (BP)
Caltex Australia	Caltex Australia Limited
cpl	Cents per litre
Challenge	Dealer Co (NZ) Limited, whose owners trade under the brand name "Challenge"
Chevron	Chevron New Zealand (acquired by Z Energy in 2016)
COLL	Coastal Oil Logistics Limited
Commission	Commerce Commission
Importer owned and operated sites	Retail sites that are directly owned by one of the majors or Gull. These sites are also typically operated by the majors or Gull or through an agent
Competition study	The term used under the Commerce Act 1986 to describe a market study, which is the term we use in this document
Dealer sites or Dealer-owned sites	Retail sites that carry the brand of one of the major fuel firms or Gull but are owned and operated by individual owners who generally set the retail price
Dealers	The individual owners of dealer retail sites
Discounts	Discounts off the board price for fuel. These discounts may be offered through discount and loyalty programmes or through fuel cards
Discount and loyalty programmes	Programmes that offer discounts off the board price for fuel and may provide other benefits or rewards unrelated to fuel (for example, the accumulation of Fly Buys points or Air New Zealand AirPoints). These programmes are typically targeted at households rather than businesses. Examples include AA Smartfuel, supermarket discount vouchers, and Mobil Smiles

Distributors	Firms that acquire fuel on a wholesale basis then sell and distribute that fuel to commercial customers and/or through their own network of truck stops and retail sites that carry their brand. Examples include Allied, Waitomo, NPD, McKeown and Farmlands
Farmlands	Farmlands Co-operative Society Limited
Foodstuffs	Collective term for Foodstuffs (N.Z) Limited, Foodstuffs South Island Limited and Brands Limited. Foodstuffs North Island Limited and Foodstuffs South Island Limited own Foodstuffs (N.Z) Limited and Brands Limited
Fuel	Petrol and diesel fuels (unless specified otherwise)
Fuel cards	A card that enables fuel (and other products) to be purchased on credit at affiliated retail sites at a discount. Fuel cards are targeted at, and sometimes restricted to, business customers.
GAS	Gasoline Alley Services Limited
Gull	Gull New Zealand Limited
Importers	Collective term used for BP, Mobil, Z Energy and Gull. These companies each import fuel to New Zealand.
Majors	Collective term for BP, Mobil and Z Energy
Market study	The term used in this document to describe the study and commonly used to describe studies of this nature. A market study is referred to as a “competition study” in Part 3A of the Commerce Act. The term used to describe the study does not affect our approach to it.
McFall	McFall Fuel Limited
McKeown	McKeown Group Limited
Mobil	Mobil Oil New Zealand Limited
NPD	Nelson Petroleum Distributors Limited
Premium petrol or premium fuel	91 octane and 95 octane fuel
RAP	Refinery to Auckland Pipeline
RD	RD Petroleum Limited
Refinery	Refinery operated by Refining NZ
Refining NZ	The New Zealand Refining Company Limited

Regular petrol	91 octane petrol
Reseller	All firms selling fuel at retail sites other than the structurally vertically integrated majors or Gull
Retail sites	Collective term used to refer to a broad range of sites selling fuel, including: service stations, unmanned sites and some truck stops (only those that are accessible to the public and light passenger vehicles)
Rural Fuel	Rural Fuel Limited (acquired by McFall in 2017)
Shell	Shell New Zealand (now Z Energy)
Singapore benchmark cost index data	This benchmark cost index provides an estimate of the per litre landed cost in NZD for each type of refined fuel retailed in New Zealand. It relies on the daily Mean of Platts Singapore (MOPS) price. The average daily USD/NZD exchange rate is used to adjust the daily MOPS price to estimate the daily per litre landed cost in NZD for each type of refined fuel retailed in New Zealand.
Southfuels	Southfuels Limited
Service stations	Retail sites that provide a full service that could include a convenience store, takeaway food, barista coffee, toilets and/or a car wash
Study	The Commission’s market study into retail fuel markets
TOSL	Timaru Oil Services Limited
Truck stop	A fuel station often on a major highway where truck drivers stop for fuel. Some truck stops are accessible to the public and light passenger vehicles, while others are only accessible to larger vehicles and payment can only be made by a fuel card
Unmanned sites	Retail sites that offer no additional services, or very few, and provide pay-at-pump facilities allowing the customer to fill their own tank
Waitomo	Waitomo Petroleum Limited
Wealleans	Wealleans Allied Petroleum Limited
WOSL	Wiri Oil Services Limited
Z Energy	Z Energy Limited

Chapter 1 Introduction

1.1 This draft report sets out the preliminary findings of the New Zealand Commerce Commission (Commission) competition or market study into retail fuel markets (study).[1]

1.2 The Minister of Commerce and Consumer Affairs initiated the study under the Commerce Act 1986 (Act) through the issue of terms of reference that are described below.

1.3 The purpose of the study is to identify and assess factors that may affect competition for the supply or acquisition of retail fuel, and to make any recommendations that we consider may improve competition.[2]

1.4 The study focuses on the retail supply of petrol and diesel for use in land transport. It is not concerned with other fuels, such as aviation and marine fuel, but it does consider wholesale supply and the whole supply chain that delivers petrol and diesel to retail markets.

1.5 Motor transport plays a key role in our day-to-day lives, for example, getting us to work, to school and away on holiday. Many businesses also rely on fuel. Each year New Zealanders spend around 1.4 million hours travelling in total, and 83% of that time travelling is spent as a driver or a passenger in a car or van.[3]

1.6 Fuel is a homogeneous product and can be described as an essential "grudge purchase" that many people make frequently. Because of this, and because of the major role that motor transport plays in our lives, New Zealanders tend to pay attention to the price of fuel at the pump.[4]

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[1] We are publishing this draft report in accordance with section 51C(1). A market study is referred to as a "competition study" in Part 3A of the Act. We refer to the study as a market study because this is a term commonly used to describe studies of this nature. The term used to describe the study does not affect our approach to it.

[2] Section 51 and section 51A of the Act.

[3] The Ministry of Transport "Household Travel Survey (2015-2018)" <https://www.transport.govt.nz/mot-resources/household-travel-survey/>. (Viewed on 26 June 2019).

[4] For example, see https://www.ipsos.com/en-nz/ipsos-nz-issues-monitor-fuel-price-concerns>. (Viewed on 28 July 2019); Consumer Magazine, Issue 595 February/March 2019, at 48. Data from a nationally representative survey of 1069 New Zealanders aged 18 years and over, carried out online in December 2018; and The AA "Member Research – Spring 2018 Petrol Price Spike Response Survey" (October 2018), at 27.

1.7 This is particularly the case when prices rise above recent norms and because retail fuel prices can vary quite significantly over short periods of time.[5] Public attention and concern about high fuel prices was particularly evident when board prices for regular petrol reached highs of about $2.50 a litre in October 2018, before falling towards the end of the month. This compared to $2.23 a litre three months prior.[6]

1.8 Various news reports have drawn attention to the high prices of fuel in New Zealand, compared to other countries, and to price differences between regions within the country.[7] Questions about whether New Zealanders are getting a fair deal at the pump have also raised queries about the state of competition in retail fuel markets. Well-functioning retail fuel markets are important, given the key role retail fuel plays in our day-to-day lives.

1.9 This draft report draws on evidence that we have collected so far and identifies market features that we consider may be hindering competition, and affecting retail fuel prices. We have outlined some preliminary recommendations that we consider could potentially improve outcomes for New Zealand consumers and we have identified other proposals for further analysis.

1.10 Our findings and recommendations are preliminary at this stage. We are seeking comment on these. Please see Attachment A for information on how to provide comment.

What are we studying?

1.11 On 5 December 2018 the Hon Kris Faafoi, Minister of Commerce and Consumer Affairs (Minister), published a notice under section 51(1) of the Act requiring the Commission to undertake a study into the factors affecting competition within the retail fuel market.

1.12 The Minister issued terms of reference for the study, setting out matters we may analyse and report on, and the timeframe for doing so.[8] A copy of the terms of reference for the study is provided in the box below.

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5 See Figure 2.3: Quarterly retail fuel prices (January 2006 – March 2019) in Chapter 2 of this draft report.

6 This price comparison reflects the main port price in the week ending 12 October 2018 and 13 July 2018. The main port price is based on a weekly average of retail prices in Auckland, Hamilton, Wellington, and Christchurch. MBIE weekly fuel price monitoring available at: <https://www.mbie.govt.nz/assets/Data-Files/Energy/Weekly-fuel-price-monitoring/6e61ec855b/weekly-table.csv>. (Viewed on 20 June 2019).

7 For example, see: "AA calls on petrol companies to explain price discrepancies to motorists" <https://www.stuff.co.nz/motoring/news/85156243/aa-calls-on-petrol-companies-to-explain-price-discrepancies-to-motorists>; "NZ motorists pay a high price with petrol the most expensive in the OECD – report" <https://www.stuff.co.nz/business/industries/99574344/minister-joins-aa-call-for-petrol-price-cut>; "Big variations in South Island petrol prices unexplained by big companies" <https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=12058390>. (Viewed on 8 August 2019).

8 "Terms of reference for competition study into retail fuel markets" (5 December 2018) *New Zealand Gazette* No 2018-go6158 (terms of reference).

Terms of reference for competition study into retail fuel markets

I, Kris Faafoi, Minister of Commerce and Consumer Affairs, pursuant to section 51(1) in Part 3A of the Commerce Act 1986, require the Commerce Commission to carry out a competition study into any factors that may affect competition for the supply of retail petrol and diesel used for land transport throughout New Zealand.

Matters to be considered in the study may include, but are not restricted to:

1. the structure of the industry;
2. the extent of competition at the refinery, wholesale and retail levels, including the role of imports;
3. any factors that may hinder competition between industry participants;
4. the conditions for entry by potential competitors, including independent suppliers, and/or the conditions for expansion;
5. whether wholesale and retail price and service offerings of petrol and diesel are consistent with those expected in workably competitive markets; and
6. features of retail petrol and diesel markets that are not in the long-term interests of consumers.

The Commerce Commission must make its final report for this study publicly available by 5 December 2019.

1.13 The Minister considered it would be in the public interest to require a study into retail fuel markets, given such things as:[9]

1.13.1 the more than doubling of petrol and diesel importer margins over the past decade;

1.13.2 the size of the market (around 6 billion litres of petrol and diesel are consumed for land transport use annually); and

1.13.3 the inability of previous studies to definitively answer whether or not there is a competition problem in the market.

9 Cabinet Paper, "Initiation of the first market study to be carried out by the Commerce Commission" (December 2018) at [5]. This is available at: <https://www.mbie.govt.nz/business-and-employment/business/competition-regulation-and-policy/market-studies/. Section 51(1) of the Act provides that the Minister may require the Commission to carry out a competition study if the Minister considers it to be in the public interest to do so>.

1.14 The most recent study that looked at competition in the New Zealand fuel market – prior to the present – was the 2017 New Zealand fuel market financial performance study, commissioned by MBIE (the 2017 Fuel Study). That study concluded that:[10]

> We cannot definitely say that fuel prices in New Zealand are reasonable, and we have reason to believe that they might not be.

1.15 The Minister cited this conclusion as an indication of a potential competition problem in the market.[11]

Our framework for analysing competition

Competition that works well for consumers

1.16 The study considers whether competition is working well for retail fuel consumers. We must carry out the study in accordance with the terms of reference.[12]

1.17 The purpose of the study is to identify and assess factors that may affect competition for the supply of retail petrol and diesel used for land transport throughout New Zealand, and to make any recommendations that we consider may improve competition.[13] We are not evaluating competition in the supply of other fuels such as aviation or marine.

1.18 The study does not enquire into compliance with the provisions of the Act relating to anticompetitive conduct or mergers. Therefore, a conclusion that particular conduct affects competition, and may be the subject of a recommendation, is not a conclusion that it breaches other provisions of the Act. The Commission retains the ability to separately investigate anticompetitive conduct if information collected during the study, or outside of it, gives the Commission reason to believe that anticompetitive conduct may be occurring.

1.19 The overriding aim of the study is the same as the purpose of the Act itself: to promote competition in markets for the long-term benefit of consumers within New Zealand.[14]

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10 The 2017 Fuel Study identified limits in the time available for the study and the ability to obtain data as factors that prevented it from reaching more definitive conclusions. NZIER, Grant Thornton, Cognitus Economic Insight "New Zealand fuel market financial performance study" (prepared for the Ministry of Business, Innovation and Employment, 29 May 2017) at i. Available at: <https://www.mbie.govt.nz/building-and-energy/energy-and-naturalresources/energy-generation-and-markets/liquid-fuel-market/fuel-market-financial-performance-study2017/>.

11 "Initiation of the first market study to be carried out by the Commerce Commission" (December 2018) at [14.1].

12 Section 51A(4) of the Act.

13 Sections 48, 51A and 51B of the Act and our terms of reference.

14 Section 1A of the Act. This was emphasised by the Transport and Infrastructure Select Committee in its report-back to Parliament on the draft market studies legislation - Commerce Amendment Bill 2018 (45-

1.20 Competition is defined in the Act as meaning "workable or effective competition".[15] It does not mean the theoretical concept of *perfect competition*. The Court has noted that there is no consensus on precise conditions that define *workable competition*, rather:[16]

> … workable competition is a practical description of the state of an industry where government intervention to make the market work better is not justified because the socially desirable outcomes generated by competition already exist to a satisfactory degree.

1.21 What matters when considering workably competitive markets, is their tendency over time towards the outcomes that would be expected in strongly competitive markets.[17] Our Draft Market Studies Guidelines describe in more detail some outcomes that may be observed in competitive markets that are working well and those that may be observed in markets that are not working well. They also describe market features that could affect competition that are relevant to the study.[18] In summary, when markets work well for the long-term benefit of consumers, firms compete to win customers based on factors such as price, quality, choice, and service.

1.22 Whether consumers consider fuel prices to be high or low does not necessarily mean the market is, or is not, workably competitive. However, one important outcome that can be expected over the long run in a workably competitive market is that firms will tend to earn normal rates of return and prices reflect normal rates of return, after covering firms' efficient costs. Considering this outcome is an important part of the study. The Court has elaborated upon this as follows:[19]

> … what matters is that workably competitive markets have a tendency towards generating certain outcomes. These outcomes include the earning by firms of normal rates of return, and the existence of prices that reflect such normal rates of return, after covering the firms' efficient costs.
>
> Of course, firms may earn higher than normal rates of return for extended periods. On the other hand, firms may earn rates of return less than they expected and less than commensurate with the risks faced by their owners when they made their investments. They may even make losses for extended periods. Prices in workably competitive markets may never exactly reflect efficient costs, including a normal rate of return.

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2) (Select Committee report) at 1. Available at <https://www.parliament.nz/en/pb/sc/reports/document/SCR_80263/commerceamendment-bill>.

15 Section 3(1) of the Act.

16 *Wellington International Airport Ltd and Others v Commerce Commission* [2013] NZHC 3289 at [13].

17 Ibid, at [20]-[23].

18 Commerce Commission "Draft Market Studies Guidelines" (12 December 2018) at [12-20].

19 *Wellington International Airport Ltd and Others v Commerce Commission* [2013] NZHC 3289 at [18]-[22].

> But the tendencies in workably competitive markets are towards such returns and prices. By themselves, these tendencies will also lead towards incentives for efficient investment (investment that is reasonably expected to earn at least a normal rate of return) and innovation. That is to say, the prices that tend to be generated in workably competitive markets will provide incentives for efficient investment and for innovation.
>
> The same tendencies towards prices based on efficient costs and reasonable rates of return will lead also to improved efficiency, provision of services reflecting consumer demands, sharing of the benefits of efficiency gains with consumers, and limited ability to extract excessive profits.
>
> In short, the tendencies in workably competitive markets will be towards the outcomes produced in strongly competitive markets. The process of rivalry is what creates incentives for efficient investment, for innovation, and for improved efficiency. The process of rivalry prevents the keeping of all the gains of improved efficiency from consumers, and similarly limits the ability to extract excessive profits.

1.23 Our approach to assessing profitability (Attachment B) explains further how the profitability of firms is relevant to our consideration of whether the prices for retail fuel are consistent with those expected in a workably competitive market.[20] In summary, in a workably competitive market, the prices for goods and services will tend towards the efficient costs of supplying them. Firms that cannot achieve efficient costs will be undercut by competitors offering lower prices and will lose market share.

1.24 When firms' profits are persistently above a minimum level required to keep the business operating (a normal rate of return), this may indicate that competition is not working effectively for the long-term benefit of consumers.[21]

1.25 Nevertheless, prices in workably competitive markets may never exactly reflect efficient costs, including a normal rate of return. Real markets demonstrate varying levels of competition, and no two markets are the same.[22] As noted above, when looking for workable competition in a market, what is important is its tendency over time to move towards the outcomes that would be produced in strongly competitive markets.

Our approach to assessing competition in this market

1.26 Therefore, our assessment of whether competition is working well asks whether the current level of competition in the retail fuel market can be expected to move the market towards efficient outcomes for the long-term benefit of consumers.

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[20] In April 2019, we published a working paper on assessing profitability. Attachment B of this Draft Report *Our approach to assessing profitability* updates that working paper to reflect submissions and our response to those submissions, and notes changes to our approach since that working paper was issued.

[21] See Attachment B.

[22] *Wellington International Airport Ltd and Others v Commerce Commission* [2013] NZHC 3289 at [16] and [24(c)].

1.27 We do this by focusing on:[23]

1.27.1 the outcomes we are observing in the retail fuel market; and

1.27.2 the factors affecting competition in retail fuel markets.

1.28 We then draw these components together to make recommendations that we consider may improve competition for the long-term benefit of New Zealand retail fuel consumers.

1.29 Our approach is summarised in Figure 1.1 below.

Figure 1.1 Summary of our approach to assessing competition

- Chapter 3: What are the competitive **outcomes** we are observing in retail fuel markets?

Prices | Choice | Quality | Investment and innovation | Profitabiliy

- Chapters 4-7: What types of **factors** are affecting competition in retail fuel markets, leading to the outcomes we are observing?

Chapter 4: Structural and regulatory conditions of entry and expansion

Chapter 5: Infrastructure sharing arrangements

Chapter 6: Wholesale supply arrangements

Chapter 7: The retail price and product offer

- Chapter 8: Preliminary recommendations that we consider could potentially improve outcomes for New Zealand consumers and other proposals for further analysis.

Structure of this report

1.30 The remainder of this draft report is structured in the following way:

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[23] Commerce Commission "Market Study into the Retail Fuel Sector: Working paper – Focus areas" (April 2019) at [20]-[22].

1.30.1 Chapter 2: *Characteristics of the New Zealand retail fuel markets* provides information on the New Zealand retail fuel market as relevant context to the chapters that follow.

1.30.2 Chapter 3: *Outcomes in retail fuel markets* discusses the outcomes we are observing in the retail fuel market over time, based on the information collected so far, and the extent to which these outcomes are consistent with those we would expect to see in a workably competitive market.

1.30.3 Chapter 4: *Structural and regulatory conditions of entry and expansion* examines the structural conditions and regulatory requirements that are associated with the technologies, resources or inputs a firm would need to enter or expand in the retail fuel supply chain.

1.30.4 Chapter 5: *Infrastructure sharing arrangements* examines the infrastructure sharing arrangements between the major fuel firms, and discusses our preliminary views on how these arrangements may affect competition between existing firms and affect new entry and/or the expansion of firms.

1.30.5 Chapter 6: *Wholesale supply arrangements* examines the contractual and non-contractual features of the relationships between the firms that import fuel and the firms that sell fuel to end consumers. This chapter discusses our preliminary views on how these relationships may affect both competition between existing firms and new entry and/or the expansion of market participants.

1.30.6 Chapter 7: *The retail price and product offer* draws our analysis together, identifying how the features of the wholesale market affect competition in the retail fuel markets, as well as features of the retail fuel markets themselves.

1.30.7 Chapter 8: *Preliminary views on options for reform* outlines some preliminary recommendations that we consider could potentially improve outcomes for New Zealand consumers and identifies areas for further analysis.

1.30.8 Attachment A: *How you can have your say* provides information on how to provide feedback on this draft report, including opportunities to provide written comments and attend our consultation conference.

1.30.9 Attachment B: *Our approach to assessing profitability* discusses why we assess the profitability of firms supplying retail fuel. It updates our approach to assessing profitability that was previously published in a working paper (April 2019) to reflect submissions and our response to those submissions, and notes changes to our approach since that working paper was issued.

1.30.10 Attachment C: *Estimating the level of normal returns in the fuel sector* explains how we have estimated a normal rate of return for firms in the New Zealand fuel sector (the weighted average cost of capital (WACC)). This estimate of WACC is used as a benchmark to compare against the actual and expected level of returns being made by firms in the New Zealand fuel sector.

1.30.11 Attachment D: *Measures of the profitability of firms in the retail fuel sector* discusses whether we consider the profitability of the retail fuel sector to be in excess of a normal or competitive level.

1.30.12 Attachment E: *The persistence of excess returns* discusses the extent to which we consider excess levels of profitability in the fuel sector to be persistent rather than temporary.

1.30.13 Attachment F: *Econometric and empirical analysis* provides technical detail on the empirical analysis we undertook to assess the following features of the New Zealand retail fuel market: the pass-through rate of replacement costs of fuel into retail fuel prices; the impact of loyalty schemes (ie discount schemes and loyalty reward programmes) used at retail fuel sites on retail fuel prices; regional variations in retail fuel prices and margins over time; and the impact of new entry by fuel retailers on prices of existing fuel stations in local markets.

1.30.14 Attachment G: *Overview of retail fuel distributors* provides further information on the distributors that operate in the retail fuel markets.

1.30.15 Attachment H: *The impact of Electric Vehicles (EVs) on future fuel demand* provides further information on the impact of EVs, which is discussed in Chapter 2.

Our process to date

Papers we have published

1.31 On 12 December 2018 we released our statement of process, outlining the process we intend to follow over the course of the study.[24]

1.32 On 31 January 2019 we released our preliminary issues paper, seeking responses from interested parties on preliminary issues we may explore during our study.[25] Public submissions we received are available on our website.

[24] Commerce Commission "Market Study into the Retail Fuel Sector – Statement of Process: Our intended process and how you can contribute" (12 December 2018).

[25] Commerce Commission "Market study into the retail fuel sector: Invitation to comment on preliminary issues" (31 January 2019).

1.33 On 18 April 2019 we released our Working paper – Focus areas; and Working paper on assessing profitability. Public submissions we received on these working papers are available on our website.

Information collection

1.34 We have collected information and documents from a wide range of sources and met with a range of parties.[26] This includes industry participants, consumer and motoring industry representatives, and government agencies.

1.35 We will continue to collect information throughout the study, as we pursue enquiries, receive comments, conduct a conference to hear the views of interested parties, and deliberate on the content of our final report.

Confidential information shared with us

1.36 We are making this draft report publicly available in accordance with statutory requirements.[27]

1.37 We have endeavoured to make it as accessible to readers as possible. However, much of the information we have collected in the course of our study is considered confidential or commercially sensitive by the supplying party, and therefore cannot be included within the material that is made publicly available. It is important that interested parties and sources of relevant information continue to feel confident participating in the study and supplying us with information that we can use to develop our views.

1.38 We balance these considerations against our competing obligations to adhere to the principles of natural justice, operate transparently where practicable, and comply with our legal obligations under the Official Information Act 1982 (OIA).

1.39 Accordingly, we note that some information within this report must of necessity be redacted from view, as is indicated by the use of square brackets like this: [ ].

1.40 The release of information in this draft report to any person will be controlled by the Commission by applying the principles of the OIA.

Next steps

Participation opportunities

1.41 We invite interested parties to comment on our draft report. We will have regard to any comments received on the draft report within the time allowed.

1.42 Comment can be provided within the following dates:

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26 We have issued some compulsory information notices under section 98 of the Act as well as being provided with information voluntarily by interested parties and sources.

27 Section 51C(1) of the Act.

1.42.1 Written comments on this draft report are due **4pm, Friday 13 September 2019**.

1.42.2 We have scheduled a consultation conference to be held at **Intercontinental Hotel**, 2 Grey St, Wellington, 6011, from **Tuesday 24th September to Friday 27th September 2019**.

1.42.3 Further comments, including comment on matters raised at the conference and in published comments made by others, are due **4pm, Friday 11 October 2019**.

1.43 Please see **Attachment A** for further information on how to provide written comments and on our consultation conference.

Publishing our final report

1.44 In accordance with the terms of reference, we must publish our final report by 5 December 2019.[28]

1.45 Our final report will set out the findings of our study, and any recommendations that we decide to make to the Minister to improve competition, having had regard to comments we have received on our draft report.

1.46 The Commission is not obliged to recommend that any actions be taken by the Government or any other person.[29] The types of recommendations that may be made are described in section 51B(3) of the Act.

1.47 In Chapter 8, this draft report records some preliminary options for recommendations that the Commission is considering making. These draft recommendations are subject to the further consultation process on this draft, further analysis and deliberation, and the Commission may alter or remove any recommendation in the final report.

1.48 The Minister is required to respond to our final report within a reasonable time after it is made publicly available.[30]

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28 We are required to make our final report available to the Minister at least five working days prior to publishing our final report on 5 December 2019 (see section 51D(1)) of the Act.

29 Section 51B(2) of the Act.

30 Section 51E of the Act.

Chapter 2 Characteristics of the New Zealand retail fuel markets

Introduction to this chapter

2.1 This chapter provides information about the New Zealand retail fuel markets as relevant context to the chapters that follow.

Structure of this chapter

2.2 This chapter discusses the following matters:

2.2.1 New Zealand's reliance on the motor vehicle;

2.2.2 retail fuel consumption in New Zealand;

2.2.3 the price of fuel at the pump;

2.2.4 the retail fuel offering;

2.2.5 overview of the fuel retailers and wholesaling of fuel;

2.2.6 the fuel supply chain; and

2.2.7 factors affecting future retail fuel demand.

New Zealand's reliance on the motor vehicle

2.3 New Zealand is heavily reliant on motor vehicles. We own a lot of cars per capita compared to other countries and spend a large share of our income on fuel.[31] According to Bloomberg, New Zealanders spend more income on fuel each year than people in 55 other countries (out of a total of 61 countries) with the average New Zealand driver purchasing 673 litres of fuel a year, making up 2.5% of the typical salary.[32]

2.4 Table 2.1 below compares the typical weekly household expenditure on petrol for different income groups, and compares this to other household necessities, electricity and food.

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[31] In 2015 New Zealand had the third highest number of passenger cars per 1000 people compared to other OECD countries at 617 vehicles. International Transport Forum <https://www.itf-oecd.org/search/statistics-and-data?f%255B0%255D=field_publication_type%3A648>. (Viewed on 9 July 2019). Ministry of Transport at: <https://www.transport.govt.nz/news/land/we-are-driving-further-and-more-than-ever-before/>. (Viewed on 28 June 2019).

[32] Bloomberg <https://www.bloomberg.com/graphics/gas-prices/#20191:New-Zealand:NZD:l>. (Viewed on 9 July 2019).

Table 2.1 Typical weekly household expenditure on petrol, electricity and food

Typical weekly consumption	Lowest income	Middle income	Highest income
Petrol	$21.00 (4.1%)	$51.90 (4.7%)	$63.80 (3.7%)
Electricity	$40.30 (7.9%)	$49.10 (4.4%)	$57.00 (3.3%)
Food[33]	$109.50 (21.3%)	$221.00 (19.8%)	$319.70 (18.3%)

Source: Commerce Commission analysis of Statistics New Zealand data.[34]

2.5 In 2017 there were 0.79 light passenger vehicles per person on New Zealand's roads and over 4 million vehicles registered.[35] About 96% of these 4 million vehicles were light passenger vehicles or motorcycles[36] and nearly all (about 99.8%) primarily relied on petrol or diesel.[37]

2.6 New Zealand's population is small and spread over a relatively large area, compared to other countries. This means that mobility is particularly important and large public transport networks may be less viable, compared to other countries with larger populations that are less dispersed. These conditions may also support a higher reliance on motor transport and vehicle ownership.

Retail fuel consumption in New Zealand

2.7 In New Zealand there are, broadly speaking, two main groups of retail consumers that purchase fuel from retail sites. The first are households (or private vehicle owners), and the second are small-medium sized businesses (SMEs).

2.8 We use the term "retail sites" to include a broad range of sites selling fuel, including:

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33 Food includes the following subcategories: grocery food, fruit and vegetables, meat, poultry and fish, non-alcoholic beverages, and restaurant meals and ready-to-eat food.

34 Statistics New Zealand "Explore living-costs in New Zealand" <https://statisticsnz.shinyapps.io/livingcostsexplorer/>. (Viewed on 16 August 2019). Note that "Lowest income" includes annual income less than $17,943, "Middle income" includes annual income between $19,892 and $55,367, and "Highest income" includes annual income of $$55,368 and above.

35 Ministry of Transport "New Zealand Fleet Statistics 2017 data" (2018) <https://www.transport.govt.nz/news/land/we-are-driving-further-and-more-than-ever-before>. (Viewed on June 12 2019).

36 The Ministry of Transport notes that the light fleet is made up of cars, vans, utes, four wheel drives, sports utility vehicles (SUVs), buses and motor caravans (camper vans) with a gross vehicle mass up to 3.5 tonnes. For our purposes, we have also included motorcycles and mopeds when we refer to "light vehicles". Ministry of Transport "Annual fleet statistics 2017" (2017) at 6 and Table 10 at 57 <https://www.transport.govt.nz/assets/Uploads/Research/Documents/Fleet-reports/1b33252a3d/The-NZ-Vehicle-Fleet-2017-Web.pdf>. (Viewed on 16 August 2019).

37 Based on Ministry of Transport "Annual fleet statistics 2017" (2017) Table 6 at 46.

2.8.1 service stations, which provide a full service that could include a convenience store, takeaway food, barista coffee, toilets and/or a car wash;

2.8.2 unmanned sites, which offer no additional services, or very few, and provide pay-at-pump facilities; and

2.8.3 truck stops or fuel stops that are accessible to the public and light passenger vehicles but primarily cater to heavier vehicles, such as trucks.

2.9 About 3.2 billion litres of petrol and 3.6 billion litres of diesel are consumed annually in New Zealand.

2.9.1 Fuel purchased at service stations and truck stops accounts for about 98% of the petrol and 73% of the diesel consumed annually (see Table 2.2 below).

2.9.2 The remaining 2% of petrol consumption and 27% of diesel consumption mostly relates to fuel sold to business. Most of this is likely sold under commercial contracts. This is shown in Table 2.2 below.

2.9.2.1 Some large businesses do not buy fuel from retail sites and instead receive bulk deliveries of petrol and diesel from a terminal to their own storage facility.

2.9.2.2 Customers of bulk deliveries include transport firms, construction sites, power generators, loggers, mining operations, and small rural farmers who have a storage tank on the farm.

Table 2.2 Retail fuel consumption in 2018

		Petrol			Diesel
		Regular	Premium	Total	
Total consumption - billion litres[38]		2.484b	0.729b	3.213b	3.607b
Retail consumers	Fuel purchased at service stations, unmanned sites and truck stops[39]	2.426b (97.6%)	0.724b (99.4%)	3.150b (98.0%)	2.647b (73.4%)
Commercial consumers	Agriculture, forestry and fishing	0.034b (1.4%)	0.001b (0.2%)	0.036b (1.1%)	0.416b (11.5%)
	Industrial[40]	0.003b (0.1%)	0.000b (0.1%)	0.003b (0.1%)	0.378b (10.5%)
	Commercial and public services	0.021b (0.9%)	0.002b (0.3%)	0.023b (0.7%)	0.163b (4.5%)

Source: Commerce Commission analysis of MBIE data.[41]

2.10 Consistent with the terms of reference for the study, we are focusing on the two main groups of retail customers we have identified - households and SMEs, rather than large commercial customers.[42] We refer to these groups when we refer more generally to "consumers" in the context of the study.

2.11 Figure 2.1 below breaks down retail fuel consumption by fuel type from 2000 to 2018. Diesel consumption has grown by about 80% over this period.[43]

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38 We understand that in addition to the categories in this table, residential consumption accounts for less than 0.1% of petrol and diesel consumption.

39 MBIE "Data tables for oil" (2018) <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/oil-statistics/#data-tables-for-oil>. (Viewed on 12 June 2019). The fuel consumed in this category is described as "domestic land transport".We understand this category consists of fuel sold to retail service stations and self-service truck refuelling stops. This also includes fuel sold to fuel distributors that is not on-sold to other sectors (included under 'commercial customers') in this table.

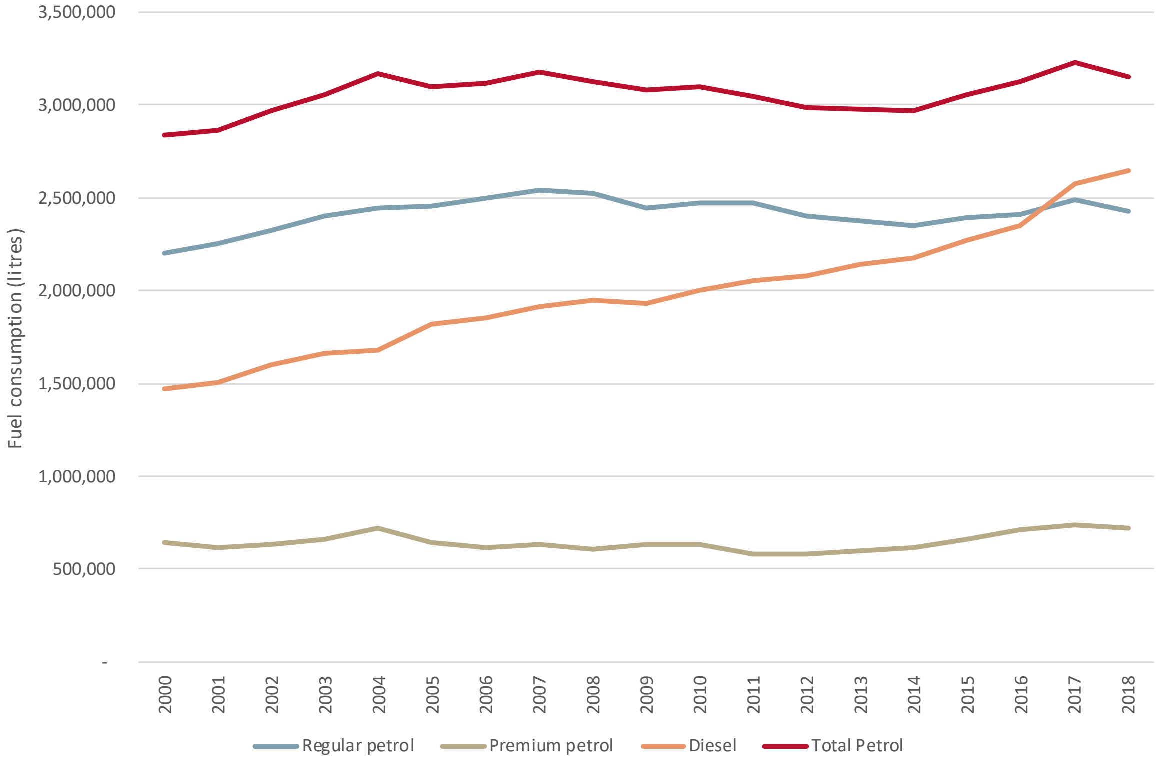
40 Industrial excludes fuel used for electricity generation. This is accounted for under energy transformation.

41 MBIE "Data tables for oil" (2018) <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/oil-statistics/#data-tables-for-oil>. (Viewed on 12 June 2019).

42 While we do not focus on the supply of petrol and diesel to commercial customers, we do comment on this where it provides insight into understanding how competition operates in the retail fuel markets. This approach was noted in our preliminary issues paper. Commerce Commission "Market study into the retail fuel sector - Invitation to comment on preliminary issue" (31 January 2019) at 21.

43 As per Table 2.2 above, this attributes fuel purchased at service stations and truck stops (domestic land transport) to retail fuel consumption.

Figure 2.1 Retail consumption by fuel type (2000 – 2018)



Source: Commerce Commission analysis of MBIE data.[44]

2.12 Currently, fuel purchased at service stations, unmanned sites and truck stops is evenly split between petrol and diesel (about 51 and 50 percent respectively as per Figure 2.1 above).

2.12.1 Households' light vehicles tend to consume petrol. Most of these light vehicles consume regular petrol (91 octane), but some vehicle owners purchase premium fuels (95 or 98 octane petrol).

2.12.2 Premium petrol makes up about 23 percent of total petrol consumption. There are some vehicles for which higher octane ratings (ie, 95 and/or 98) are recommended by manufacturers, while other motorists that do not require premium fuel for their vehicles to run safely may nevertheless choose to purchase it.

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44 MBIE "Data tables for oil" (2018) <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/oil-statistics/#data-tables-for-oil>. (Viewed on 12 June 2019).

2.12.3 Diesel is more likely to be used by heavier vehicles and is used by over 97 percent of trucks and buses. The number of diesel vehicles has increased steadily since 2000, particularly light diesel vehicles. In 2017, diesel vehicles made up about 18.5 percent of all light vehicles.[45]

The price of fuel at the pump

2.13 This section discusses the main factors that impact fuel prices. Those factors include:

2.13.1 components of retail fuel prices;

2.13.2 consumers are slow to change their fuel purchasing behaviour when prices change;

2.13.3 Government fuel price monitoring; and

2.13.4 deregulation of fuel prices (and the fuel industry).

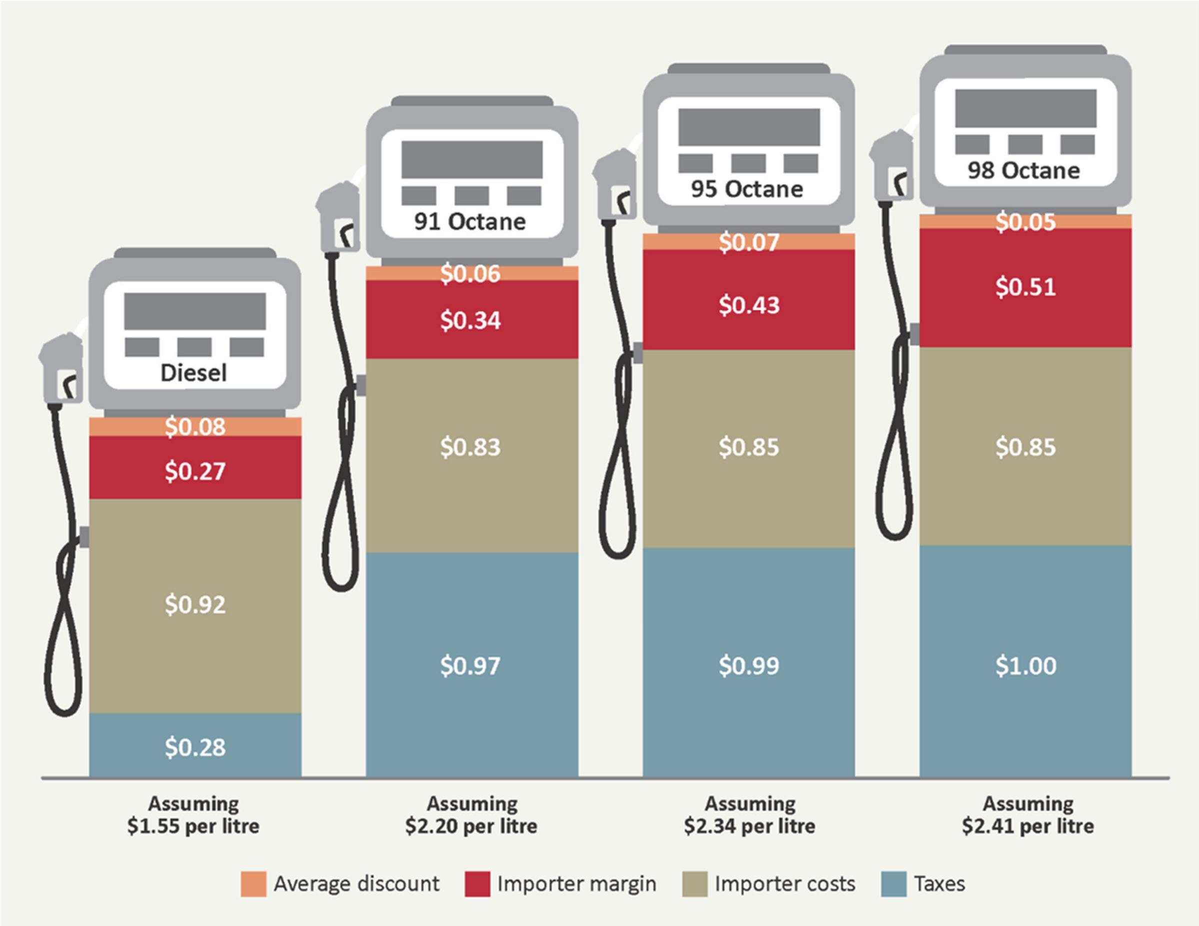
Components of retail fuel prices

2.14 Headline fuel prices are readily observable on large price boards outside retail service stations (we refer to these as “board prices”), except for premium fuel prices which are generally not displayed. Board prices can vary daily or a number of times a day.

2.15 Figure 2.2 below illustrates the components that make up retail fuel board prices, across different types of fuel. This is representative of average prices from 1 July 2018 to 31 December 2018.

45 Ministry of Transport “New Zealand Fleet Statistics 2017 data” (2018) <https://www.transport.govt.nz/news/land/we-are-driving-further-and-more-than-ever-before>. (Viewed on 12 June 2019).

Figure 2.2 Components of the average board price of fuel (1 July 2018 – 31 December 2018)



Source: Commerce Commission analysis of the Singapore benchmark cost index data and retail sales data.

2.16 Figure 2.2 shows that in the second half of 2018, the average board price for a litre of regular petrol was about $2.20 per litre. However, discount and loyalty programmes targeted at households are widespread in New Zealand's retail market. Fuel cards (which typically include discounts) are widely used by SMEs. These discounts are often referred to as discounts. We use the general term "discounts" to refer to them all unless specified otherwise.

2.17 The average discount was about 6 cents per litre (or 3% of the board price) in the second half of 2018. This represents discounts off the board price that some consumers receive, averaged across the purchases of all consumers. This means that actual discounts for those consumers who received them were larger than 6 cents.

2.18 After accounting for discounts, the remaining $2.14 per litre is made up of the following.

2.18.1 Taxes (about $0.97 per litre). These taxes include fuel excise,[46] ACC levies, Emissions Trading Scheme (ETS) levy, and the Auckland regional fuel tax.[47] Fuel excise tax makes up the majority, at $0.595 per litre until 30 September 2018 when it increased to $0.63. As of 1 July 2019, it is set at $0.66 per litre.

2.18.2 Importer costs (about $0.83 per litre). This is the cost of importing fuel to New Zealand —including the cost of purchasing the fuel in Singapore and shipping it to New Zealand.[48]

2.18.3 Importer margins (about $0.34 per litre). This represents the gross margin available to fuel importers to cover domestic transportation, distribution and retailing costs in New Zealand, as well as profit margins.

2.19 Figure 2.2 also shows that:

2.19.1 the importer margin on premium fuels (octane 95 and 98) is higher than on regular petrol and diesel; and

2.19.2 diesel is cheaper than petrol, largely owing to taxes making up a smaller proportion of the price. Diesel vehicle users pay road user charges, which are designed so that on average, diesel vehicle users contribute the same in road user charges as petrol vehicle users do in fuel excise tax.

2.20 Retail fuel prices can vary quite significantly over short periods of time. Figure 2.3 below illustrates changes in prices between 2006 and early 2019. This figure also shows an increasing gap between the price of regular and premium petrol.

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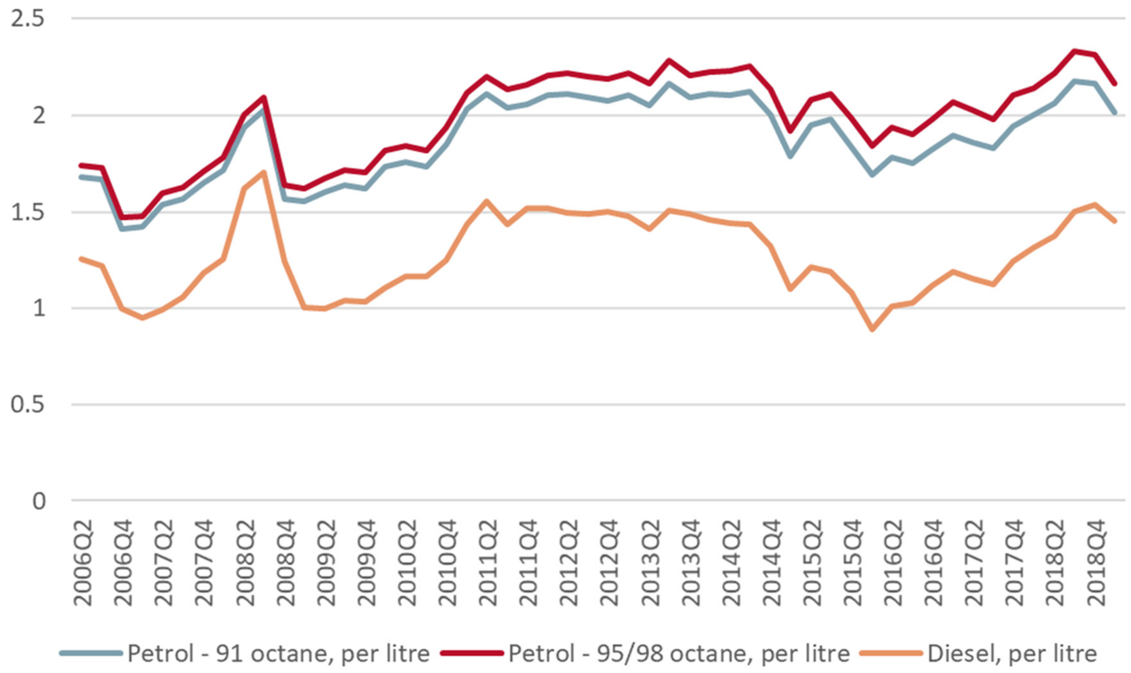
46 Fuel excise contributes towards new roads and road maintenance through the National Land Transport Fund.

47 The Auckland regional fuel tax applies to about 30% of fuel volumes sold.

48 Specifically, the importer costs are calculated using the Singapore benchmark cost index, which relies on the daily Mean of Platts Singapore (MOPS) price and provides an estimate of the per litre landed cost of fuel in NZD for each type of refined fuels retailed in New Zealand. The per litre landed cost estimate for premium fuel has been applied to both 95 octane fuel and 98 octane fuel. We expect this to slightly understate the importer cost of 98 octane fuel and as a result, slightly overstate the importer margin of 98 octane fuel. The Singapore spot market price is a reasonable indicator of the cost of refined fuel imported into New Zealand since world fuel prices are closely connected and New Zealand importers purchase fuel from Singapore. While fuel is also refined in New Zealand, the refinery prices its services based on ‘import price parity’ – that is, the cost of landing imported refined fuel in New Zealand.

Figure 2.3 Quarterly retail fuel prices (January 2006 – March 2019)[49]



Source: Commerce Commission analysis of data from Statistics New Zealand.[50]

Consumers are slow to change their fuel purchasing behaviour when prices change

2.21 Overall fuel expenditure tends to increase when prices go up because fuel consumption does not reduce significantly in response to price increases, both short-term fluctuations and longer term trends. This is because fuel is an essential purchase for many consumers that cannot be suitably "stocked up" when prices are low for use later when prices rise. Neither can many consumers delay their purchases when prices are high while they wait for prices to drop. Over time consumers may switch to more fuel efficient vehicles, but the evidence suggests they do not stop using vehicles altogether.

2.22 A 2007 Land Transport New Zealand study indicates that consumers change their fuel purchasing behaviour little in response to price changes. By looking at petrol data from 1978 to 2006, the study found that demand for regular petrol was relatively unresponsive to changes in its price in both the short and long run (it had a low price elasticity).[51]

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[49] Statistics New Zealand notes that these prices are not statistically accurate measures of average transaction price levels, but do provide a reliable indicator of percentage changes in prices. These prices are calculated by applying index movements to weighted average prices for the June 2006 quarter.

[50] Statistics New Zealand <http://archive.stats.govt.nz/infoshare/SearchPage.aspx>. (Viewed on 25 July 2019).

[51] D Kennedy and I Wallis "Impacts of fuel price changes on New Zealand transport" (Land Transport New Zealand Research Report, 2007) at 9. The study found that the short-run (1 year) elasticity of demand was

2.23 We expect that consumers' purchasing behaviour for fuel is unlikely to have materially changed since these estimates were calculated.

2.24 While overall demand is relatively unresponsive to changes in retail price, some consumers are price sensitive and motivated to switch retail brand or outlet to benefit from small differences in prices. We discuss the range of factors influencing consumers' fuel purchases below from paragraph 2.30 and further in Chapter 7.

Government fuel price monitoring

2.25 In New Zealand, there is no specific regulatory regime that limits the pricing of retail fuel. Prices are determined by market participants.

2.26 MBIE monitors and publishes weekly importer margins for retail petrol and diesel. MBIE describes the importer margin as the gross margin available to fuel retailers to cover domestic transportation, distribution and retailing costs in New Zealand, as well as profit margins.[52] This monitoring was introduced following the 2008 New Zealand Petrol Review, to promote transparency in retail petrol and diesel pricing.[53]

Deregulation of fuel prices (and the fuel industry)

2.27 While fuel prices are now market-driven, prior to 1988 the fuel industry was heavily regulated, with wholesale prices of diesel and petrol controlled. In addition, there were prohibitions applied to importers retailing petrol, all wholesalers and retailers of petrol products were licensed by the Government, and restrictions applied to imports of refined products.

2.28 Deregulation of the fuel industry in 1988 removed these restrictions. Deregulation was intended to increase competition and improve the efficiency of the industry.[54]

-0.15. This means that that a 10% increase in price leads to a fall in petrol consumption of 1.5% over one year. The study also found that this short-run elasticity was relatively stable over a longer period of time. The long-run (15 years) elasticity was found to be relatively low as well, at -0.3. These estimates were calculated based on data from 1974 to 2006.

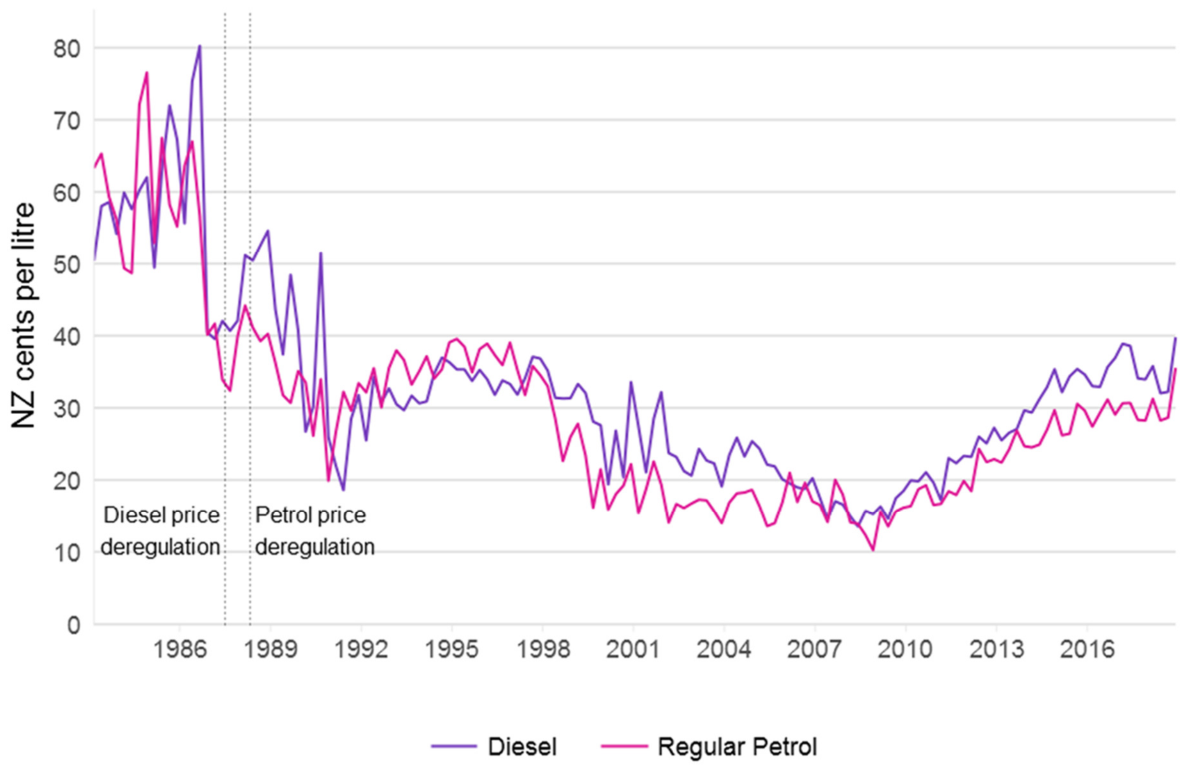
52 Specifically, MBIE notes that the importer margins is calculated as the difference between the: discounted price less duties, taxes, levies, the New Zealand Emissions Trading Scheme (ETS), and importer cost (cost of importing the fuel to New Zealand —including the cost of purchasing the fuel in Singapore, shipping it to New Zealand, insurance and losses, and wharfage and handling). See <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/weekly-fuel-price-monitoring/>. (Viewed on 16 August 2019).

53 Hale and Twomey "2007 ACCC report into Australian petrol prices – Review of applicability to the New Zealand petrol market" (2008). Prepared for the Ministry of Economic Development, July 2008. Available at <https://www.mbie.govt.nz/assets/2bb46874e9/2007-accc-report-australian-petrol-prices.pdf>.

54 Michael Pickford and Cameron Wheeler "The petrol industry: Deregulation, entry and competition" (2001) *NZ Trade Consortium Working Paper No. 12* at 11.

2.29 Figure 2.4 below indicates that fuel margins fell substantially in anticipation of deregulation. This downward trend broadly continued for two to three years following deregulation and then reversed in the 1990s. No new industry participants entered the market until 1998, giving rise to discussion among commentators about the existence and/or strength of entry barriers.[55]

Figure 2.4 Quarterly regular petrol and diesel importer margin (real Dec 2018 prices)



Source: MBIE weekly fuel price monitoring (2019).[56]

The retail fuel offering

2.30 This section outlines key characteristics of retail sites and what influences consumers to purchase fuel from one retail site over another. It contains the following sub-sections:

2.30.1 retail fuel is ultimately supplied by four firms;

2.30.2 retail site offerings vary;

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55 Margins rising in the 1990s raised concerns about barriers to entry in the wholesale and retail markets by the then Ministry of Commerce. A 1996 report by NZIER supported the Ministry's concerns. However, a further report in 1997 by ACIL Economics and Policy found no evidence of entry barriers. See NZIER "Petrol Prices: An Investigation into Petrol Prices in New Zealand" (1996) Report to the Ministry of Commerce, Wellington; and ACIL "Barriers to Entry to the New Zealand Downstream Oil Market: A Report to the Ministry of Commerce" (1997) Wellington: Ministry of Commerce.

56 See MBIE <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/weekly-fuel-price-monitoring/>. (Viewed on 16 August 2019).

2.30.3 non-price factors influence where motorists buy fuel;

2.30.4 discount and loyalty programme offerings are widespread; and

2.30.5 increase in the number of retail sites.

Retail fuel is ultimately supplied by four firms

2.31 As context for the description of retail fuel markets in this section, it is useful to provide a brief overview of the different roles of industry participants in the fuel supply chain, the relationships between them, and the supply of fuel to retail sites. These matters are discussed in more detail later in this chapter and in Chapter 6.

2.32 Z Energy Limited (Z Energy), BP Oil New Zealand Limited (BP) and Mobil Oil New Zealand (Mobil) (we refer to these firms as the "majors"):

2.32.1 have access to New Zealand's only refinery at Marsden Point (the refinery) and they each import crude oil to be refined into a range of products there;

2.32.2 each takes fuel from the refinery and imports refined fuel for supply throughout New Zealand; and

2.32.3 each supplies:

2.32.3.1 company owned and operated (or agent operated) retail sites;

2.32.3.2 dealer retail sites that carry their brand but are owned and operated by individual owners; and

2.32.3.3 distributors which in turn supply their own commercial customers and/or dealers and/or their own company owned and operated retail sites.

2.33 Gull New Zealand Limited (Gull) imports and supplies fuel in the North Island to its own owned and operated retail sites and a small number of dealer operated Gull branded sites. It has also recently announced that it plans to enter the South Island within the next two years.[57]

2.34 Timaru Oil Services Limited (TOSL) is expected to commence importing fuel to the South Island in 2020. TOSL is currently building a fuel storage terminal in Timaru.[58]

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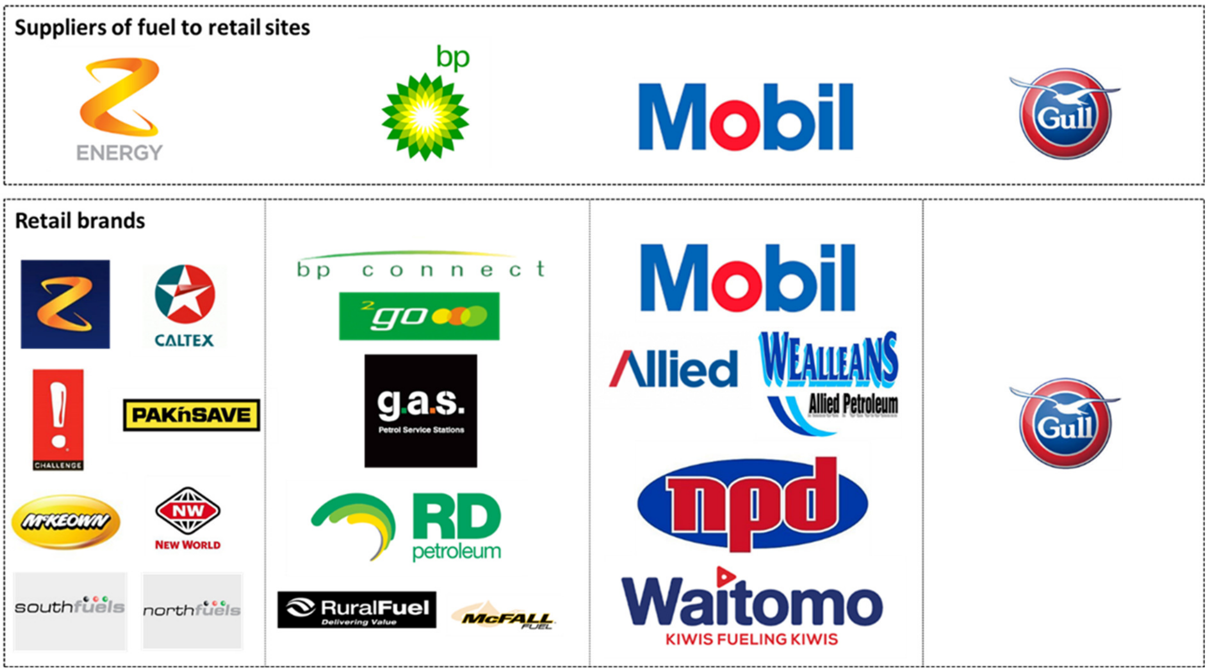
57 For example, see "Gull prepares to open first South Island station in Maheno, with five more planned" <https://www.stuff.co.nz/business/industries/111865313/gull-prepares-to-open-first-south-island-station-in-maheno-with-five-more-planned>. (Viewed on 8 August 2019).

58 TOSL is a relatively new company, incorporated in October 2016. Its parent company owns Pacific Energy Limited, a key supplier of fuel in some of the South Pacific Islands.

2.35 New Zealanders can choose between 20 brands of retail fuel. However, the fuel supplied under every brand ultimately originates either from the refinery or from fuel imported by one of the three majors or Gull. We refer to these four firms collectively as the "importers".

2.36 Figure 2.5 below shows the relationship between each importer and each retail brand. However, it does not indicate whether retail sites under each brand are owned and operated by a major, Gull, or a distributor, or a dealer that carries that brand but is owned and operated by an individual owner. For more information relating to retail fuel distributors see Attachment G. In addition, as noted above, more details of those arrangements are discussed further in the next section *Overview of the fuel retailers and wholesaling of fuel* and in Chapter 6.

Figure 2.5 Retail site brands and relationship with fuel importer



Retail site offerings vary

2.37 Consumers purchase petrol and diesel from retail sites. There are over 1,338 retail sites in New Zealand. Of these sites, about 97% (or 1,297) sell regular petrol and nearly all sell diesel. Fewer sites sell premium petrol. About 75% sell 95 Octane petrol and only 22% sell 98 Octane petrol.[59]

2.38 As noted above, retail sites vary in the range and type of products and services provided and the prices they offer, even within brands.

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59 As at March 2019, based on retail site information provided by fuel companies and our own research. An additional few hundred truck stop sites are not included. These primarily cater to heavy commercial vehicles, although some also cater to light passenger vehicles. A small number of sites included only sell diesel and may only cater to heavy commercial vehicles.

2.38.1 Service stations provide a full service that could include a convenience store, takeaway food, barista coffee, toilets and/or a car wash. About 84% of retail sites have a convenience store.[60]

2.38.2 Unmanned sites offer no additional services, or very few and provide pay-at-pump facilities. About 16% of retail sites are unmanned.[61]

2.39 Fuelstops or truckstops primarily cater to heavier vehicles, such as trucks. Some of these sites are still accessible to the public and light passenger vehicles.

2.40 The variation in retail sites and their offerings has emerged from recent investment and innovation in providing consumers with an expanded set of choices.[62]

2.41 The size of retail sites varies. Each year, some smaller sites (25th percentile) sell around 2.3 million litres of fuel and collect $2.9 million of revenue annually, while some larger sites (75th percentile) sell around 5.4 million litres and collect $10.2 million revenue. The average site sells around 3.9 million litres of fuel and collect 7.1 million of revenue.[63]

Non-price factors influence where motorists buy fuel

2.42 Fuel company research suggests that between a quarter and a half of consumers may be relatively price sensitive and motivated to switch between brands – either looking out for the cheapest prices or actively searching for discounts from loyalty schemes. Up to half of consumers are less price sensitive and value various non-price aspects of the fuel offering more highly than price.[64] However, as noted earlier, overall demand is relatively unresponsive to changes in retail price.

2.43 While many motorists are aware of fuel prices, market research shows that:

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60 This is based on a sample of 1,249 retail sites for which we have information, provided to us by fuel companies.

61 This is based on a sample of 1,249 retail sites for which we have information, provided to us by fuel companies. Note that a small number of sites that have a convenience store may also operate as an unmanned site at night (and offer a 24-hour service).

62 See Z Energy "Market study into the retail fuel sector: Z Energy's response to invitation to comment on preliminary issues" (February 2019) at 34; and BP "Market study into the retail fuel sector – BP New Zealand comment on preliminary issues" (February 2019) at 3.

63 Litres sold estimates are based on a sample of 681 site observations and revenue estimates are based on a sample of 566 site observations. This retail site information was provided by fuel companies.

64 [ ]

2.43.1 convenience of location is more important than price for many, if not most, consumers choosing where to fill up their car.[65] Convenience of location can incorporate both the proximity of the retail site to consumers when they need to fill up their car and whether the retail site is in a prime location (eg, main road that is easily accessible); and

2.43.2 consumers generally realise that different brands of the same fuel are very similar.[66] When purchasing fuel, there is less of a need to compare quality or make price-quality trade-offs in the way consumers might when buying other products, such as a household appliance.

2.44 Nonetheless, there are several reasons unrelated to location, the fuel, or its price why motorists may choose one retail station over another including:[67]

2.44.1 forecourt features (ranging from service stations with attendants and canopies to unmanned sites where customers fill up themselves);

2.44.2 shop features, including the variety and quality of food and drink choices;

2.44.3 ease of purchase (eg ease of payment, fast in and out);

2.44.4 attractiveness of the loyalty programme on offer including benefits offered other than discounts on fuel prices; and

2.44.5 branding and connection with the brand.

2.45 Individual customers will place different weight on each of these factors. We discuss the range of motivations behind consumers' fuel purchases further in Chapter 7.

Discount and loyalty programme offerings are widespread

2.46 The actual retail price paid for fuel reflects any discounts or other promotions offered. This includes discounts targeted at households, such as those offered through AA Smartfuel, supermarket discount vouchers, and firms' own discount programmes such as Mobil Smiles. Some of these discount programmes also provide other benefits associated with other products and services when purchasing fuel, for example, the accumulation of Flybuys points or Airpoints. Each of the majors has either established their own discount and loyalty programme and/or is a partner in one.

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65 [ ]; [ ]; [ ]

66 [ ]

67 For example [ ]; [ ]; and [ ]

2.47 Discount and loyalty programmes provide two primary benefits to retailers.

2.47.1 They have an emotional appeal to consumers who enjoy feeling connected to a particular brand or scheme and/or who enjoy the sense of 'getting something for nothing' when they accrue additional benefits when they spend on fuel.[68]

2.47.2 They provide a way for retailers to compete for price sensitive consumers, while maintaining higher prices for those consumers who are less price sensitive. This is known as price discrimination. Price discrimination is common in many markets, including those that could be described as workably competitive. A firm that price discriminates can increase its profits because consumers who value the goods the most will pay more than if the prices were uniform.[69]

2.48 The majors (and other smaller retailers) also offer discounts on company branded fuel cards, which are targeted at, and sometimes restricted to, businesses. We refer to these as fuel cards. Fuel cards require a PIN to use and they enable fuel to be purchased on credit.

2.49 We discuss and compare discount and loyalty programmes and fuel cards in more detail below.

Discount and loyalty programmes

2.50 The discount and loyalty programmes targeted at households have a large range of terms, conditions and reward options. For instance, discounts provided under the AA Smartfuel scheme can either be redeemed immediately or accumulated over multiple purchases within a given time period for a larger discount before the discounts expire.

2.51 All discount and loyalty programmes are free to join, and consumers can participate in any number that they choose. It is common for consumers to participate in multiple loyalty schemes. Fuel company research suggests that consumers may multi-home, purchasing fuel using multiple discount and loyalty programmes and are not necessarily loyal to one programme.[70]

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68 For example, Yuiping Liu "The Long Term impact of Loyalty Programs on Consumer Purchase Behavior and Loyalty" (2007) 71 JMKTAK 19; [ ]; and [ ]

69 See for example Dennis Carlton and Jeffrey Perloff *Modern Industrial Organisation* (4th ed, Addison Wesley, 2005) at 293.

70 [ ]

2.52 There are about 2.8 million Flybuys members,[71] 3 million Air New Zealand AirPoints (AirPoints) members,[72] and 2.6 million registered AA Smartfuel cardholders.[73] These numbers suggest a large degree of overlap between participating consumers and tend to confirm that many households may use more than one loyalty scheme when purchasing fuel.

2.53 There appear to be a few million active participants across the Flybuys, AirPoints, AA Smartfuel and Mobil Smiles loyalty schemes, although for the reasons described above, this is unlikely to represent unique customers.[74]

2.54 Figure 2.6 below provides an overview of the range of discount and loyalty programmes on offer.

71 See <https://www.loyalty.co.nz/about-us/>. (Viewed on 16 August 2019).

72 See <https://www.airnewzealand.co.nz/airpoints-news-latest-three-million-members-for-air-new-zealand-airpoints>. (Viewed on 16 August 2019).

73 AA Smartfuel "Feedback on working paper – Focus areas" (25 July 2019).

74 This is based on 2018 estimates of [ ] active users of FlyBuys and Airpoints at Z Energy sites, [ ] users of AA Smartfuel cards at Caltex sites and [ ] at BP sites, and [ ] registered Mobil Smiles users. [ ]; [ ]; and [ ]

Figure 2.6 Overview of discount and loyalty programmes

Scheme	Participant(s)	Typical discounts; min/max spend	Other rewards
AA Smartfuel* *(est 2011)*	bp; gas.	– 6 cpl, occasionally 10 cpl – Min $40, max 50L	– Fuel discounts can be accumulated, but subject to expiry
Countdown Onecard (linked to AA Smartfuel) *(est 2016)*	bp; gas.	– 3 cpl on $100/week supermarket shop – 6 cpl on $200/week supermarket shop – Min $40, max 50L	– Fuel discounts in addition to AA Smartfuel discount
Pumped – Flybuys *(est 2016)*	Z Energy; Caltex	– 6 cpl, occasionally 10 cpl – Min none, max 50L	– Flybuys points accumulated, which can be used to purchase products at participating retail outlets – Fuel discounts can be accumulated ("stacked") for a larger discount later, subject to $40 minimum spend
Pumped – Airpoints *(est 2016)*	Z Energy; Caltex	– 6 cpl, occasionally 10 cpl – Min none, max 50L	– Airpoints accumulated, which can be used towards Air New Zealand flights – Fuel discounts can be accumulated ("stacked") for a larger discount later, subject to $40 minimum spend
Pumped – New World and Pak' n Save Fuel vouchers** *(Z since 2018, previously Mobil)*	Z Energy; Caltex	– 6 cpl, occasionally higher, including offers of up to 40 cpl when spending $200 at Pak' n Save or New World – Min none (but a min spend of $1 at supermarket to receive FuelUp voucher), max 100L	– Flybuys points or Airpoints can be accumulated if scanned when using FuelUp voucher
Mobil Smiles *(est 2017)*	Mobil	– 6 cpl, occasionally 10 cpl – Min $40, max 100L	– Mobil Smiles points accumulated, which can be redeemed for fuel savings and products in a Mobil store
My Challenge *(est 2018)*	Challenge	– 6 cpl – Min $40	– Points earned which can be redeemed in a Challenge store or donated to charities, schools, etc

Woolworths New Zealand Foodstuffs NZ	**Progressive and Foodstuffs dockets**	npd	– Up to 12 cpl regardless of the docket, max 200L – NPD voluntarily chooses to honour these vouchers	– Discounts cannot be combined with other offers
SuperGold	**SuperGold card**	Challenge, npd	– Challenge: 8 cpl, no min, max 100L – NPD: up to 15 cpl, No min, max 200L	– No accumulation
	Grey Power card	Challenge	– 8 cpl – Min none, max 100L	– No accumulation
Farmlands co-operative	**Farmlands card**	Z Energy, Caltex, Challenge	– 12 cpl (as a rebate on a Farmlands account)	– Farmlands reward points accumulated

Source: Commerce Commission analysis based on publicly available sources.
* From 1 August 2019, GAS replaced Caltex as an AA Smartfuel participant. Prior to this, only BP and Caltex retail sites accepted AA Smartfuel.
** Pak N' Save and New World fuel vouchers can also be redeemed at a small number of third party retail sites displaying the FuelUp logo.

Fuel cards targeted at SMEs

2.55 Fuel cards provide access to fuel at a discounted price at multiple retail sites including the card issuers' own sites and often sites operated by affiliated retailers. Fuel cards offer discounts on fuel like the loyalty schemes described above, but they also provide a range of other benefits to businesses.

2.56 A fuel card is like a credit card and requires a PIN to use. Instead of paying cash or charging a credit card, a fuel card charges a fuel purchase to the card holder's account. Fuel cards typically have no volume limits and consolidate all fuel purchases into a single monthly invoice. This simplifies accounting for businesses. For example, 'Z card' enables the invoice to be directly fed into Xero accounting software.[75] A business may also limit the types of product purchased on a fuel card. This helps limit the card's use by employees to business expenses only, for example by excluding the purchase of food or cigarettes. A business can also arrange for purchases on two or more fuel cards to be aggregated on a single invoice.

2.57 SMEs have identified discounts and convenience (including "one bill for all fuel/vehicle expenses") as the two main benefits of fuel cards.[76]

2.58 The discounts available on fuel cards differ significantly between users depending on the fuel volumes they purchase and their relationship with the card issuer. Not all fuel card discounts are publicly disclosed. Some examples of fuel card discounts range from 12-16 cents per litre.[77] Some fuel cards charge users a fee, although this is typically small.

2.59 Fuel card volumes represent a significant proportion of sales volumes through retail sites. Overall, fuel card volumes appear to represent around 30% of retail sales.[78] We note that the importance of fuel card sales can vary considerably across individual sites. Our analysis of sales data suggests fuel card sales can be as low as 10% of volumes at some sites, but as high as 70% at others.[79]

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75 See <https://business.z.co.nz/seamless-payments/#xero-integration>. (Viewed on 16 August 2019).

76 [ ]

77 For example, see <https://store.nzfarmsource.co.nz/partnerships/fuel-partners>; Ruralco "Fuel Directory" available at:< https://www.ruralco.co.nz/Fuel-Energy/Fuel-Directory>. Note that fuel card discounts can be offered on the board price or a 'national' list price.

78 [ ]; [ ]; [ ]; [ ]

79 [ ]; [ ], [ ]; [ ]

Comparison between household loyalty cards and fuel cards

2.60 There are some similarities between loyalty scheme cards, like the AA Smartfuel card, and fuel cards. Both provide incentives to use the issuer's retail sites more frequently, and both offer discounted prices for fuel. However, there are key differences between loyalty scheme cards and fuel cards.

2.60.1 Fuel cards enable deferred payment for fuel purchases and other goods and allow the type of products and spending limits to be set and customised by the company using the card, while loyalty scheme cards do not.

2.60.2 Discounts offered on fuel cards may be customised by the supplier depending on the value of the customer's relationship to the card issuer, while loyalty scheme card discounts tend to be standardised across all card holders.[80]

2.60.3 A fuel card user's loyalty to a retail brand (or its affiliated sites) appears to be much stronger than a loyalty scheme card user.[81]

2.60.3.1 Unlike loyalty scheme cards, the convenience benefits to a fuel card user are stronger when one card brand is used and invoicing is on one account.

2.60.3.2 Most fuel card users only hold one card and choose to remain with the same card provider for a number of years. A card holder's company policy typically requires the employee to use the card whenever possible.[82]

Increase in the number of retail sites

2.61 The number of retail sites throughout the country has increased over recent years, expanding consumer choice and variety of retail service choices. Based on site data provided to us, there are at least 82 new retail sites since 1 January 2016 to around 31 March 2019 (from about 1,264 to 1,338).[83] This includes an additional 79 sites established under non-major brands (including new site builds and brand switches) and a reduction of five sites under majors' brands.

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80 The formula for calculating the fuel prices on fuel cards varies. For some larger businesses, who have negotiated individual deals with the fuel card issuer, they may pay prices linked to MOPS. Other fuel card users may pay prices calculated from the board price or a national price.

81 For example, [ ]; and [ ]

82 We draw these conclusions from fuel company research relating to the use of fuel cards by SMEs. [ ]

83 As at March 2019, based on retail site information provided by fuel companies. A small number of these sites may only sell diesel and cater to heavy commercial vehicles.

2.62 In recent years, there has been a significant increase in the number of newly built retail sites by Gull, which has opened around 12 new sites since January 2016 and by brands distributing and retailing Mobil fuel – Nelson Petroleum Distributors (NPD), Waitomo, and Allied. These brands have built around 19, 17 and 7 sites respectively, since January 2016. Z Energy notes that over the last year, 35 newly built sites have been added and of these, 32 are unmanned sites.[84]

2.63 Since January 2016, the number of sites operating under the majors' brands has changed marginally, with the exception of Z Energy which divested 20 retail sites over this time.[85]

2.64 Z Energy has suggested that the majors prefer closure or upgrade to the sale of a retail site as a going concern ("network rationalisation") and notes that collectively, the majors have added two sites between 2013 to 2018.[86]

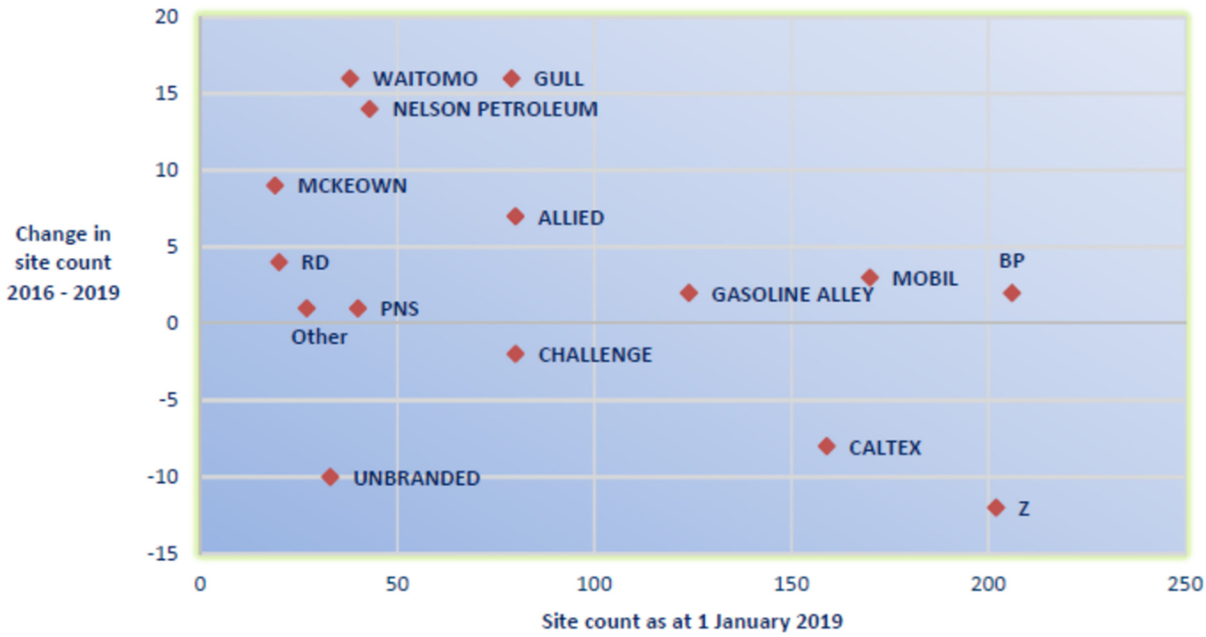
2.65 As an example of this, changes in retail site count by brand between 2016 and 2019 are shown in Figure 2.7 below.

84 Z Energy "Investor Presentation on Z Energy and NZ downstream fuel market" (May 2019) at 10.

85 Twenty divestitures were required under the Z/Chevron merger decision (19 service stations and one truck stop). Seven went to Mobil, four went to BP, four went to Waitomo, two went to GAS, two went to NPD and one went to Allied.

86 Z Energy "Investor Presentation on Z Energy and NZ downstream fuel market" (May 2019) at 10.

Figure 2.7 Total and change in site count by brand (1 Jan 2016 to 1 Jan 2019)[87]



Source: Z Energy "Market study into the retail fuel sector: Z Energy's response to invitation to comment on preliminary issues" at 3.

2.66 Gull and other growing distributors such as Waitomo, Allied, and NPD together have increased the number of their branded retail sites at a greater rate than the major fuel firms, and have increased their share of total fuel volumes sold at the expense of the major fuel firms.

2.67 Z Energy has reported that about 65% of sites are operated under non-major brands, supplying around 20% of retail fuel volumes as at 31 March 2019.[88]

2.68 While there are a growing number of retail sites that are not owned by the majors, as noted above, the fuel supplied at all retail sites ultimately originates from one of the four importers by direct supply to the retail site, or indirectly through a distributor.

2.69 The roles of the majors, Gull, distributors and dealers, the relationships between them, and the supply of fuel to retail sites is discussed in more detail in the next section.

Overview of the fuel retailers and wholesaling of fuel

2.70 The fuel industry can be characterised as a vertically integrated oligopoly.

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87 The number of sites represented in this figure is slightly less than the retail sites we cited earlier (1,320 compared to 1,355). This is due to a slightly different make up of sites (for example, the inclusion or exclusion of some truck stops and non-branded sites. In addition, the time period differs slightly (January 2019 compared to March 2019).

88 Z Energy "Investor Presentation on Z Energy and NZ downstream fuel market" (May 2019) at 10.

2.70.1 Each of the majors and Gull are vertically integrated - they own some of their own branded retail fuel outlets.

2.70.2 Each of the majors also has long-term stable supply relationships with distributors and/or dealers which gives rise to similar effects as vertical integration.

2.71 This section contains sub-sections describing that:

2.71.1 the majors are large integrated firms with interests throughout the fuel supply chain;

2.71.2 Gull is currently the only independent fuel importer; and

2.71.3 apart from Gull branded retail sites, the fuel sold at all retail sites originates from one of the majors.

The majors are large integrated firms with interests throughout the fuel supply chain

2.72 The majors - Z, BP and Mobil – are large integrated fuel firms with interests throughout the fuel supply chain in New Zealand.

2.72.1 Each major owns shares in the refinery and they each import crude oil for refining and in combination draw all the refinery's output. The majors also share use of the Refinery to Auckland (RAP) pipeline, coastal shipping and storage terminals at ports around the country.

2.72.2 BP and Mobil also have offshore assets, but Z Energy does not.

2.73 The majors' brand presence in service stations and unmanned sites is currently around:[89]

2.73.1 203 Z Energy branded sites and 138 Caltex branded sites (which form part of Z Energy's portfolio of assets);

2.73.2 214 BP branded sites; and

2.73.3 176 Mobil branded sites.

2.74 There are a further few hundred truck stops operating under these brands.

2.75 Some of these sites are owned and operated by the relevant major (or their agent), while others are dealers – they carry the brand of one of the majors but are owned and operated by individual owners.

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89 Commerce Commission analysis of data received from industry participants, as at March 2019. We are aware of around 5 sites carrying a major's brand that are owned/operated by a distributor. [ ]

2.76 In addition to the majors' branded retail sites, there are distributors that also operate at the retail level that are reliant on fuel supply from one of the major fuel firms. This was highlighted Figure 2.5 above.

Z comprises assets previously owned by Shell and Caltex

2.77 Z Energy is listed on the New Zealand and Australian stock exchanges. It comprises of some of the former assets of Shell New Zealand (Shell) and Chevron New Zealand (Chevron). Chevron owned the Caltex brand. Both Shell and Chevron previously had interests throughout the supply chain.[90]

2.78 Z Energy was formed following the purchase of Shell's New Zealand downstream business by Infratil Limited and the Guardians of the New Zealand Superannuation Fund in 2010.[91] The new owners of Shell changed the strategy of the firm. Key changes included:

2.78.1 Shell being rebranded as Z Energy in 2011;

2.78.2 Z Energy changing its service stations to create a premium offer with services such as forecourt attendants and pay-at-pump;[92] and

2.78.3 Z Energy engaging in a strategy to raise industry margins, having publicly stated the desire to do so.[93]

2.79 In June 2016, Z Energy acquired Chevron from Chevron South Asia Holdings Pte. Ltd. This acquisition was cleared by the Commerce Commission, contingent on Z's divestment of 19 service stations and one truck stop.[94] This acquisition resulted in Z Energy adding Chevron's Caltex branded sites to Z's portfolio of assets.

The majors have operated in New Zealand for many decades

2.80 The majors and their antecedents have operated in the New Zealand fuel market for many decades.

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90 Shell and Chevron were involved in exploration and extraction of crude oil (through their global parents). However, Z Energy did not purchase Shell and Chevron's exploration assets and it is not involved in exploration or extraction of crude oil.

91 Z Energy was listed on the New Zealand and Australian stock exchanges in 2013.

92 *Z Energy Limited and Chevron New Zealand* [2016] NZCC 10 at [170].

93 *Z Energy Limited and Chevron New Zealand* [2016] NZCC 10 at 110.

94 The Majority (Dr Mark Berry, Sue Begg and Anna Rawlings) cleared the merger. Dr Walker dissented from the decision to give clearance. *Z Energy Limited and Chevron New Zealand* [2016] NZCC 10 at [X3-X4].

2.80.1 Mobil has had interests in supplying fuel products in New Zealand since 1896, while BP entered in 1946 through a joint venture with the New Zealand government. BP and Mobil are part of global, vertically integrated firms.[95]

2.80.2 Shell and Chevron (which now comprise Z Energy) and Europa (acquired by BP in the 1970s) were also early entrants in the New Zealand petroleum products market, entering in 1912, 1920, and 1931 respectively.[96]

2.80.3 BP, Mobil, Shell, Caltex and Europa were all importers of refined fuel from their overseas' parents until the Marsden Point refinery was completed in 1964. The refinery was established as a joint venture between these five participants and the New Zealand government and provided for crude oil to be imported and refined in New Zealand.

2.81 For many decades, the majors have been major shareholders and the only users of the refinery and they have individually and jointly owned most of the infrastructure used to distribute, store and supply fuel to retail customers in New Zealand. They share infrastructure, governed by a series of ownership and contractual arrangements. This infrastructure includes coastal shipping vessels which deliver fuel from the refinery to storage terminals, storage terminals, and pipelines. Ultimately, fuel refined or imported by the majors is delivered to the majors' own retail sites as well as retail sites owned by distributors and dealers.

2.82 These infrastructure sharing arrangements are discussed further below from paragraph 2.101.

Historic origins of the majors' infrastructure sharing and wholesale relationships

2.83 The sharing of infrastructure among the majors dates back to a period when the fuel industry was highly regulated. From the 1960s the majors and their antecedents had an agreement with the Government to use the refinery to its maximum feasible level, and to cooperate over the coastal shipping system.[97] Firms faced identical unit cost of coastal shipping because the total cost to all ports was allocated in proportion to their individual offtakes from the refinery.[98]

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95 BP New Zealand Holdings Limited is the parent company of BP. ExxonMobil New Zealand Holdings is the parent company of Mobil. BP's ultimate parent is BP p.l.c. Mobil's ultimate parent is Exxon Mobil Corporation.

96 Europa was also an early entrant wholesaling petroleum products in New Zealand (1931). Europa was acquired by BP in 1972 (40%) and 1977 (the remaining 60%).

97 Michael Pickford and Cameron Wheeler "The petrol industry: Deregulation, entry and competition" (2001) *NZ Trade Consortium Working Paper No. 12* at 8.

98 Clough et al. (1989, p. 17) as reported by Pickford and Wheeler (2001) at 11.

2.84 In addition, prior to deregulation, the wholesale price of fuel was regulated with the aim of returning a 13% return to importers, who were prevented from directly retailing. Retail sites were independently owned by parties that were supplied fuel by the majors at regulated prices. Some majors already had distribution contracts in place with separate firms that are still active participants in the fuel industry today. This includes NPD, which was established in 1966 and today owns/operates its own retail fuel sites.

2.85 The constraint on vertical integration into the retail sector was removed with deregulation in 1988. The majors subsequently acquired a large proportion of retail sites, particularly high volume sites, and entered into long-term supply contracts with other distributors and dealers.[99] There were around 3,000 retail sites in 1985. This compares to around 1,200 in 2012,[100] and over 1,338 today.

2.86 Vertical integration of the fuel industry, and relationships with a similar effect to vertical integration, were therefore implemented partly through ownership and partly through long-term supply contracts. Wholesale trading of fuel was governed by these long-term contracts. This largely continues today. See Chapter 6 for further discussion on the wholesale supply contracts.

2.87 Since deregulation, there has been some wholesale consolidation. This includes the acquisition of Chevron by Z. New retail brands have also emerged, facilitated by the wholesale supply arrangements established between the majors and distributors.

Gull is currently the only independent fuel importer

2.88 Gull is a supplier of refined fuel that entered the market in 1998 as a fully vertically integrated supplier, importing refined fuel rather than refining it in New Zealand. Gull is currently the only independent importer – all other fuel retailers are dependent on fuel that originates from one of the majors.

2.89 Gull has its own storage terminal in Mount Maunganui, which opened in 1999.[101] It lands imported refined fuel here and then distributes this fuel to its network of retail sites. Today, there are around 90 Gull branded retail sites throughout the North Island. These retail sites include:

2.89.1 sites that Gull owns/operates and at which Gull sets the price; and

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99 Michael Pickford and Cameron Wheeler "The petrol industry: Deregulation, entry and competition" (2001) *NZ Trade Consortium Working Paper No. 12* at 15. It has also been suggested that the majors tried to place first right of refusal clauses into supply contracts with retailers before deregulation. Motor Trades Association, quoted in Clough et al. (1989, p. 38) as reported by Pickford Wheeler (2001) at 28.

100 Z Energy "The downstream fuels industry: Strongly competitive or operating with uncertainty?" <https://z.co.nz/about-z/news/submissions-and-presentations/the-downstream-fuels-industry-strongly-competitive-or-operating-with-uncertainty/>. (Viewed on 8 March 2012) at 5.

101 Max Bradford "Opening of Gull (Terminals NZ Ltd) Petroleum Tank Farm" (20 April 1999) <https://www.beehive.govt.nz/speech/opening-gull-terminals-nz-ltd-petroleum-tank-farm>. (Viewed on 16 August 2019).

2.89.2 sites that are owned and operated by individuals. These dealers are supplied with fuel by Gull, but Gull does not set the retail price. Dealers set their own retail prices.

2.90 In 2017, Caltex Australia Limited acquired Gull New Zealand Limited through CAL Group Holdings NZ Limited. Caltex Australia Limited has retail operations in Australia and is not related to the Caltex brand that is used in New Zealand. That brand is owned by Z Energy.

Alongside Gull's entry, Challenge attempted independent entry to the retail fuel markets

2.91 Alongside Gull's successful entry in 1998, Challenge (a division of Fletcher Challenge Energy Ltd) entered the fuel market by importing refined fuel and opened a network of retail sites. Challenge and Gull were the first new suppliers of refined fuel after deregulation of the industry in the 1980s.[102] At this time, Challenge assessed the viability of accessing the refinery, but decided not to pursue this.[103] Challenge was later acquired by Caltex in 2003.[104]

2.92 Today, Z Energy owns the Challenge brand having acquired it from Chevron in 2015. Challenge sites are typically dealer sites, whose owners set the retail price. Challenge branded sites are supplied by distributor Farmlands Fuel (a division of Farmlands Co-operative Society Limited), which is in turn supplied by Z Energy.

Apart from Gull branded retail sites, the fuel sold at all retail sites originates from one of the majors

2.93 There are broadly three categories of retail sites. These are set out below.

Importer owned and operated retail sites

2.94 The majors and Gull each supply fuel to their own branded retail sites, which they own and operate themselves or through an agent. They also set the price at these sites. This comprises of:

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102 Soon after, Melbourne-based Liberty Oil announced its intentions to enter the New Zealand retail fuel market but did not do so. For example, see "Liberty Oil deal leaves queries" <https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=137493>. (Viewed on 9 August 2019).

103 Refining NZ notes that Challenge's decision not to become an additional refinery customer was on the basis that it was not attractive to take the full slate of products from the refining operation and Challenge were only interested in retail fuel supply. Refining NZ "Response by Refining NZ to the New Zealand Commerce Commission's preliminary issues paper for the retail fuel market study" (21 February 2019) at [8.3] and Transcript of "Meeting with NZRC 30 April 2019" at 21-22 (line 39-50). At the refinery, each barrel of crude refined produces a mix of different refined products, including petrol, diesel, aviation fuel and other products. Fuel firms cannot select only some of these products.

104 Commerce Commission "Decision No. 434: Caltex New Zealand Limited and Challenge Petroleum Limited" (28 June 2001). As Caltex was a joint venture company between two other US oil companies, Texaco Inc and Chevron Corporation, who subsequently merged, Challenge was ultimately owned by Texaco Inc and Chevron Corporation.

2.94.1 around half of BP sites (namely, “BP Connect” Sites);

2.94.2 almost all Z Energy sites and a handful of Caltex sites;

2.94.3 around two thirds of Mobil sites; and

2.94.4 around two thirds of Gull sites.

2.95 We estimate that approximately 57% of retail fuel by volume in New Zealand is sold through importer owned and operated retail sites.[105]

Importer-branded, dealer-owned retail

2.96 The majors and Gull each supply fuel to dealers’ retail sites that carry their brand but are owned and operated by individual owners who generally set the retail price. The owners of these sites tend to have long-term supply agreements with the importer that supplies them.[106] These importer-branded, dealer-owned retail sites comprise of:

2.96.1 around half of BP sites (namely “BP 2GO” sites);

2.96.2 almost all of Caltex sites;

2.96.3 around one third of Mobil sites; and

2.96.4 around one third of Gull sites.

2.97 We estimate that approximately 27% of retail fuel by volume in New Zealand is sold through importer-branded, dealer-owned retail sites.[107]

Retail sites owned or supplied by distributors, or independently branded retail sites owned by an independent retailer

2.98 The majors each supply fuel to distributors, who purchase fuel from one of the majors on a wholesale basis, at the terminals. Distributors then on-sell the fuel they purchase in bulk to commercial customers and/or through their own network of truck stops and retail sites that carry their brand and/or to other independently operated retail sites. Majors also supply separately branded retailers, like Foodstuffs. Most distributors have had ongoing business relationships in some form with a single major fuel firm for decades.

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105 Commerce Commission analysis of industry participants' internal documents.

106 See Chapter 6 for further information on supply agreements between dealers and importers.

107 Commerce Commission analysis of industry participants’ internal documents.

2.98.1 Distributor branded retail sites include: Waitomo Petroleum Limited (Waitomo), NPD, Allied Petroleum Limited (Allied), Gasoline Alley Services Limited (GAS), RD Petroleum Limited (RD Petroleum), McFall Fuel Limited (McFall), Challenge (which is delivered fuel by the distributor Farmlands), Southfuels Limited (Southfuels), and McKeown Group Limited (McKeown).

2.98.2 In some instances, distributors' branded retail sites may be dealer retail sites, meaning that they carry the brand of the distributor, but they are owned and operated by individual owners who set the retail price.[108] Each of these distributors are described in Attachment G.

2.98.3 Foodstuffs is similar to these distributors, with its own Pak N' Save and New World branded retail sites. Foodstuffs provides its supermarket customers with shopper dockets that enable them to obtain discounts at selected retail sites. Foodstuffs retail sites sell fuel currently supplied by Z Energy and its shopper dockets can be redeemed at Z Energy and Caltex retail sites.

2.99 We estimate that approximately 16% of retail fuel by volume in New Zealand is sold through distributors' owned or supplied retail sites or other large retailers such as Foodstuffs.[109]

2.100 Distributors and dealers may be granted access to a major fuel firm's branded fuel card and loyalty or discount schemes. Fuel card sales can account for a large share of a retail site's sales and therefore provide an important source of revenue for many distributors and dealers. Major fuel firms control the acceptance of their fuel cards and can choose whether to provide value to dealers by granting them the ability to accept fuel cards.

The fuel supply chain

2.101 In previous sections, we have noted that the majors are large integrated fuel firms with interests throughout the fuel supply chain in New Zealand, individually and jointly owning most of this infrastructure alongside the refinery.

2.102 In this section, we outline the stages of the fuel supply chain and provide more detail on the infrastructure used to distribute and store fuel, as well as supply it to commercial customers, distribute it to retail sites, and ultimately on-sell it to retail customers.

2.103 Figure 2.8 below illustrates the key steps in the supply chain for petrol and diesel and the various industry participants' roles at each stage. Below that, we explain each of these steps in the following sub-sections:

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108 There are also a small number of unbranded dealer sites that have a supply agreement with a distributor.

109 Commerce Commission analysis of industry participants' internal documents.

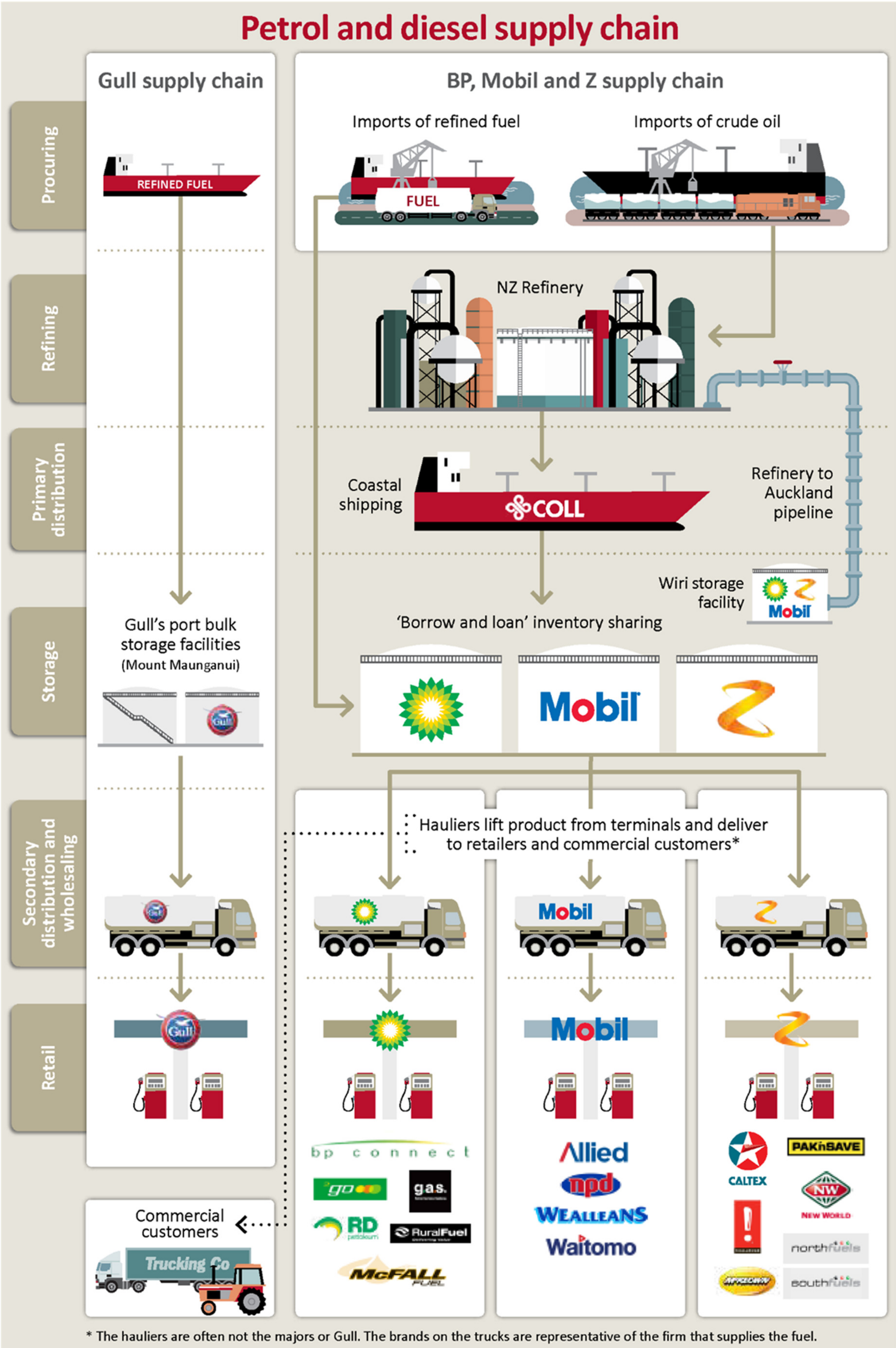
2.103.1 refining imported crude oil;

2.103.2 procuring refined fuel overseas and shipping it to New Zealand;

2.103.3 primary distribution of petrol and diesel; and

2.103.4 storing petrol and diesel in terminals.

Figure 2.8 The petrol and diesel supply chain



* The hauliers are often not the majors or Gull. The brands on the trucks are representative of the firm that supplies the fuel.

Refining imported crude oil

2.104 Petrol and diesel are produced by refining crude oil. While New Zealand has several productive oil fields, its locally-produced oil is generally exported because of its high quality and therefore high value on the international market. Australia buys most of this oil.[110] None of the majors or Gull are involved in the exploration and extraction of crude oil in New Zealand.[111]

2.105 The majors purchase crude oil on global markets and deliver it to New Zealand's only oil refinery at Marsden Point. The refinery refines crude oil into petroleum products, including petrol, diesel, aviation and marine fuel. Gull does not use the refinery, instead importing refined fuel only.

2.106 The refinery has a crude oil capacity of 135,000 barrels a day, and produces around 58% of New Zealand petrol demand, around 85% of New Zealand's jet fuel demand and around 67% of New Zealand's diesel demand.[112] The shortfall is made up by imports of refined fuel, primarily from South Korea and Singapore.[113] All three majors import refined fuel alongside Gull.

2.107 The refinery commenced production in 1964 with financing provided by the five majors then operating and with government and private equity participation. Government funding was also used to expand the production capacity of the refinery in the early 1980s.

2.108 The refinery is now owned and operated by the New Zealand Refining Company (Refining NZ), which in turn is owned by the three majors (43%) and other shareholders (57%).[114]

The majors' access to the refinery

2.109 The refinery operates on a toll manufacturing basis.[115] This means that each major retains ownership of the crude oil and the resulting output that is refined petroleum products. The refinery does not take ownership of the products itself.

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110 MBIE "Oil statistics" <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/oil-statistics/>. (Viewed on 5 March 2019).

111 Mobil's and BP's wider corporate groups are involved in exploration and extraction operations, and refining operations overseas. Z Energy purchased both Shell and Chevron, which were both involved in exploration and extraction of crude oil (through their global parents) but did not purchase Shell and Chevron's exploration assets.

112 Refining NZ <https://www.refiningnz.com/media/key-facts/>. (Viewed on 3 May 2019).

113 Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) at [2.3].

114 Mobil owns 17.2%, Z Energy owns 15.36% and BP owns 10.10%. Refining NZ "Annual report 2018" at 56.

115 Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) at 5.

2.110 The current agreements between Refining NZ and the majors came into effect on 1 January 1995, several years after the deregulation of the energy industry in 1988 with the introduction of the Petroleum Sector Reform Act.[116]

2.111 Access to the refinery is determined by each firm's user processing agreement with Refining NZ. Processing agreements determine how much processing capacity the majors are allocated and the processing fee they are required to pay Refining NZ for processing services.

2.112 Under the current processing agreements, refinery capacity is allocated between the majors based on their retail market share by product over the previous three years.[117]

2.113 The capacity allocation procedure is coordinated by a Technical Committee, comprising one representative from each major and one representative from Refining NZ. Decisions made by the Technical Committee are by consensus.[118]

2.114 To allocate capacity (in accordance with formulae set out in Users' Processing Agreements), the Technical Committee receives various data from Refining NZ and collates other information, including each user's historical three-year market share volumes of fuel sold to distributors and end consumers.

2.115 The Technical Committee also reviews technical aspects of the refinery's operation.

Pricing of refinery services

2.116 The refinery prices its services based on import price parity – that is, the cost of landing imported refined fuel in New Zealand. It achieves this by charging each refinery user 70% of the refinery's Gross Refining Margin (the GRM), subject to a fee floor and margin cap.[119] The GRM is a notional margin representing the difference between the benchmarked cost of importing and landing crude oil, and the benchmarked cost of importing and landing refined product.[120]

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116 Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) at [1.6].

117 Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) above n 87 at [7.17] at 5.

118 Users' processing agreements with Refining NZ [ ].

119 The fee floor for the year 2018 was $134m ($131m in 2017) and margin cap of USD9.00 per barrel for each refinery user. Refining NZ "Annual Report" (2018) at [111]. The fee floor and margin cap manage the downside and upside risk of movements in the refining margin, ensuring the refinery does not earn below the fee floor and the refinery users do not pay above the margin cap.

120 The GRM is calculated as the typical market value of all the products produced, minus the typical market value of all feedstock processed. The typical market value of products is determined by using quoted prices for the products in Singapore plus the typical freight cost to New Zealand plus product quality premia. The typical value of feedstock is determined by using the market value for crude oil and other

2.117 Refining NZ explains the GRM as follows:[121]

> A gross refining margin (GRM) is the difference between prices for refined products (including product freight), and the costs of materials to manufacture those products (such as crude and crude freight).
> …
> In a New Zealand context, GRM is essentially the difference between landing all refined products at New Zealand ports where they will be used (e.g. Wellington, Tauranga and Lyttelton), and the landed crude prices at the refinery in Whangarei.

2.118 Each major incurs additional costs (eg, stockholding crude oil and coastal shipping costs) and so retains 30% of the GRM. The aim of this is to incentivise refinery users to maximise the use of the refinery. A high GRM increases the cost competitiveness of using the refinery relative to importing fuel, while a low GRM has the opposite effect. Although the cost advantage fluctuates, domestically refined fuel has been cheaper than imported refined fuel since January 2013, except on one occasion.[122]

Procuring refined fuel overseas and shipping it to New Zealand

2.119 As noted, the refinery produces about two thirds of New Zealand's petrol and diesel demand. Imports of refined fuel predominantly come from refineries located in Singapore and South Korea.[123]

2.119.1 Gull imports refined fuel directly to its own storage facility in Mount Maunganui, which it opened in 1999. Gull does not refine crude oil domestically at the Marsden Point refinery.

2.119.2 The major fuel firms also import refined petroleum products, including petrol and diesel.

2.119.3 Generally, imported fuel arrives at three ports in New Zealand: Mount Maunganui (Gull and the majors), Wellington and Christchurch (the majors).

Primary distribution of petrol and diesel

2.120 Once fuel has been refined at Marsden Point, pipelines and coastal shipping assets are the primary distribution assets currently used to transport refined fuel to storage terminals throughout New Zealand. Gull does not use these assets.

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feedstock at the point of purchase, plus the typical cost of freight to New Zealand. Refining NZ, "Annual Report" (2018) at [111].

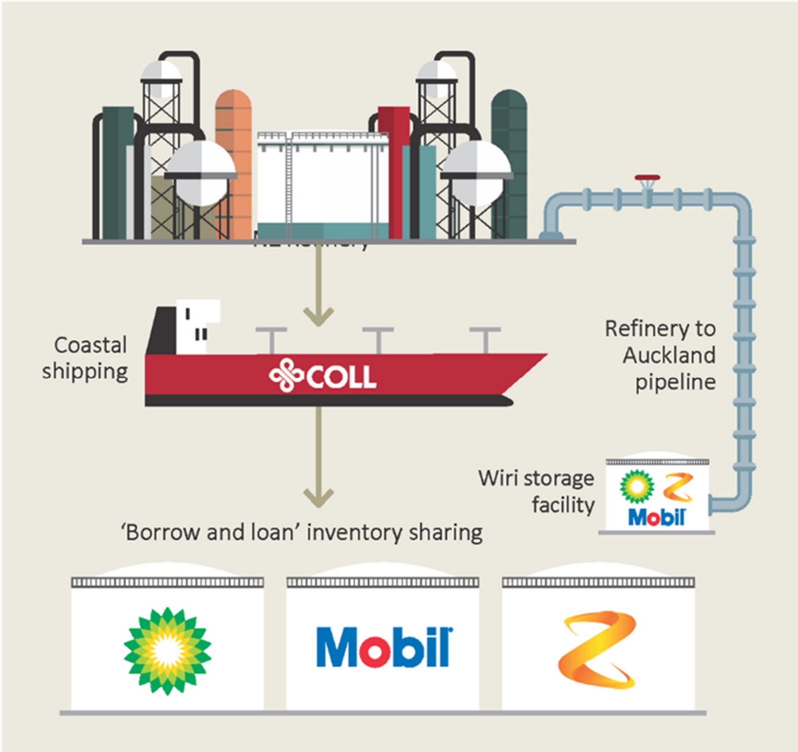
121 Refining NZ "Explanation of the Refining NZ processing fee" <https://www.refiningnz.com/refininglogin/wp-content/uploads/2018/06/explanation_of_the_refining_nz_processing_fee.pdf> at [2].

122 Commerce Commission analysis of data from Refining NZ Operational Updates for March/April 2019 and March/April 2017.

123 Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) at [2.3].

2.121 These primary distribution assets are shown in Figure 2.9 below.

Figure 2.9 Primary distribution assets



Most of Auckland's fuel is transported via the RAP pipeline from the Marsden Point refinery

2.122 Most of the fuel consumed in Auckland is delivered from the refinery via a 170km long pipeline (the refinery-Auckland pipeline, referred to as the RAP). The RAP was built in 1985 using Government funding, as part of the expansion of the refinery.[124]

2.123 The RAP connects the refinery to the Wiri storage terminal in Auckland, where it delivers about 52% of the fuel refined at Marsden Point.[125] The Wiri storage terminal is operated by Wiri Oil Services Limited (WOSL), a company jointly owned by the majors.[126] Specifically:[127]

2.123.1 the RAP can transmit around 320,000L of fuel per hour and can hold about 9 million litres of fuel product;

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124 Michael Pickford and Cameron Wheeler "The petrol industry: Deregulation, entry and competition" (2001) *NZ Trade Consortium Working Paper No. 12* at [6]-[7].

125 Refining NZ, "Annual Report" (2017) at [17].

126 WOSL is jointly owned by BP (28%), Mobil (28%), and Z Energy (44%).

127 See Refining NZ <https://www.refiningnz.com/media/rap-line/>. (Viewed on 16 August 2019).

2.123.2 automotive fuels (regular petrol, premium petrol, and diesel) and jet fuel are pumped down the RAP one after the other and delivered to the Wiri Terminal;[128]

2.123.3 automotive fuels are distributed throughout Auckland and Waikato regions by road; and[129]

2.123.4 jet fuel is distributed to the Auckland Airport by a pipeline that connects the Wiri Terminal to the airport.

2.124 The RAP is currently being upgraded to increase capacity. The upgrades aim to lift capacity on the pipeline in three stages, with an expected increase in overall throughput of around 15% by 2019.[130]

2.125 Most of the refinery's remaining fuel production that is not distributed through the RAP is distributed to terminals at ports throughout New Zealand using coastal shipping (40%). A small portion (about 5%) is distributed through a truck loading facility, which is adjacent to the refinery and administered by WOSL. This fuel is then distributed by road to the Northland region.[131]

Access to the Refinery to Auckland Pipeline

2.126 Access to the RAP is not separate from the access arrangements to the refinery[132] and is also governed by the processing agreements between Refining NZ and the majors. Users of the RAP are allocated capacity based on the previous one-year market share of refined products' sales volumes in the Auckland and Waikato markets.[133]

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128 There is some mixing at the interface which can be switched into special tanks at Wiri for blending later.

129 Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) at [2.6(a)].

130 See <https://www.refiningnz.com/media/rap-line/> (Viewed on 16 August 2019)>.

131 A small portion is exported (3%). Refining NZ, "Annual Report" (2017) (15 March 2018) at [17].

132 Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) at [2.6(a)].

133 The New Zealand Refining Company Limited Processing Agreement (1 January 1995) at Schedule 1.

2.127 Users of the RAP (the majors) are charged a fee for using the RAP in the order of one cent per litre.[134] This fee is set with reference to the cost of shipping refined fuel from Marsden Point to Auckland.[135] Information provided to us suggests that the RAP fee is considerably cheaper than the cost of transporting fuel from the next best alternative, Mount Maunganui, by road.[136]

2.128 The RAP enables the refinery to move petroleum products quickly from the refinery. The refinery has limited storage capacity and so finished products must be moved to the refinery delivery points as soon as they are processed.[137] The refinery's production schedule is dependent on RAP availability. Refining NZ will not commit product to the RAP unless it is certain that product can be received at the Wiri Terminal.[138]

Government Inquiry into the Auckland Fuel Supply Disruption

2.129 In September 2017 the RAP was shut down for 10 days due to a leak.

2.130 While the main impact of the RAP outage was a rationing of jet fuel supplied to Auckland Airport, the outage also resulted in more trucking of fuel to retail sites and intermittent fuel outages (mainly of premium petrol) at a small number of retail sites around Auckland. The majors and Refining NZ faced costs following the RAP outage.

2.130.1 Z Energy reported the RAP outage increasing its costs by $7m in the 2018 financial year due to using alternative distribution channels and lost GRM.[139]

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134 [ ]. Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) at [7.21].

135 Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) at [7.21].

136 For example, [ ]

137 Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) at [2.6]

138 Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019), at [2.7].

139 Z Energy "Full year results announcement for the year ended 31 March 2018" (3 May 2018), at 30. Available at: <https://investors.z.co.nz/static-files/fffd8894-08a0-4d83-995b-4de1ba1b8dc3>.

2.130.2 Refining NZ reportedly spent $6 million repairing the RAP and lost $6.3 million in processing fees (from the users of the refinery) and a further $2 million distribution fees, attributable to the disruption to fuel supply. Refining NZ received a pay-out of $2.9 million from insurers to cover environmental damage resulting from the RAP leak.[140]

2.131 There is currently a government inquiry into the Auckland Fuel Supply Disruption (Inquiry). The Inquiry is examining the cause(s), contributory factor(s) and impacts of the RAP outage, and the operational responses to the outage by relevant parties, including Refining NZ and fuel suppliers.[141] The Inquiry is due to report back to the Minister of Energy and Resources in August 2019. It will report and can make recommendations relating to the resilience of fuel supply in the Auckland region, and any other relevant matters.

2.132 Depending on when the Inquiry's report is made publicly available, our final report will take account of the Inquiry's report and any recommendations it makes, where this is relevant to the study's findings and/or may affect competition in retail fuel markets.

Coastal shipping vessels transport fuel to other storage terminals outside of Auckland

2.133 COLL operates coastal shipping vessels to deliver fuel from the refinery at Marsden Point to various storage terminals around New Zealand. COLL is a joint venture company owned by the majors. Gull does not participate.

2.134 COLL is responsible for:

2.134.1 scheduling the shipping of refined fuel from the refinery to ten coastal ports around New Zealand;

2.134.2 scheduling imports to ensure import deliveries do not conflict with coastal shipping deliveries of domestically refined fuel; and

2.134.3 assessing capacity utilisation at each terminal to ensure terminals do not run out of fuel.[142]

2.135 COLL's responsibility for these activities supports the running of borrow and loan arrangements, whereby the majors share the use of each other's terminal assets. The borrow and loan arrangements are discussed in more detail below.

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140 NZ Herald <https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=12003417> (Viewed on 26 July 2019).

141 The terms of reference is available at: <https://www.dia.govt.nz/Auckland-Fuel-Line---Terms-of-Reference>.

142 Schedule 1 to COLL Joint Venture Agreement (29 November 2007) and Shared Stock Arrangements Principles (1 October 2007).

2.136 The costs of COLL are shared by the majors based on each firm's usage. COLL operates at capacity to maximise efficiency.[143] Most fuel is delivered to terminals that are individually owned by one of the majors but jointly used by each of them under the borrow and loan arrangements.

2.137 The COLL joint venture agreement sets out the functions of COLL. In addition, it sets out the terms on which shipping capacity may be increased, the terms under which excess capacity may be allocated to third parties and the conditions under which a third party may join the joint venture.[144]

Storing petrol and diesel in terminals

2.138 Each of the majors' own fuel terminals at various ports in New Zealand, although not at every port or for every refined product.

2.139 To avoid duplication, the major fuel firms share the use of each other's terminal assets by way of the borrow and loan arrangements mentioned above, where terminals and the refined product held within the terminals are declared as industry storage. Each major can draw down fuel from anywhere in the system as long as they match it with an equivalent amount of fuel added somewhere in the system, but not necessarily at the same place. This arrangement allows the majors to draw product from one another's terminals without having to buy or sell that product.[145]

2.140 The borrow and loan arrangements do not include the Wiri and Marsden Point terminals, which are jointly owned by the majors. At the Wiri and Marsden Point terminals, each major can only draw down what they contribute. Gull does not participate in the borrow and loan arrangements.

2.141 A map of all firms' petrol and diesel terminals throughout New Zealand is shown in Figure 2.10 below.

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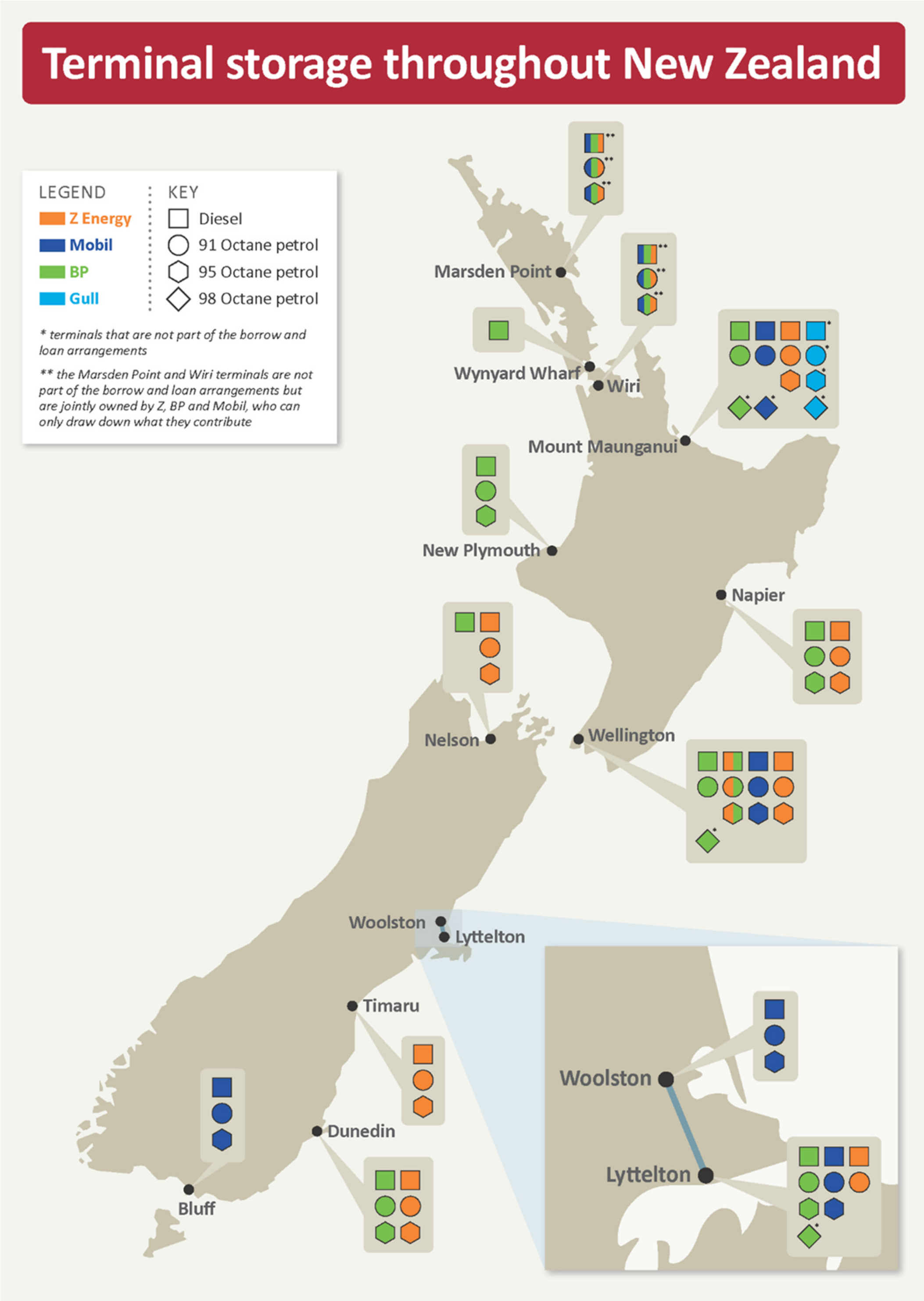
143 *Z Energy Limited and Chevron New Zealand* [2016] NZCC 10 at [37].

144 COLL Joint Venture Agreement (29 November 2007) [ ]; and [ ]

145 [ ]

Figure 2.10 Terminal storage throughout New Zealand[146]



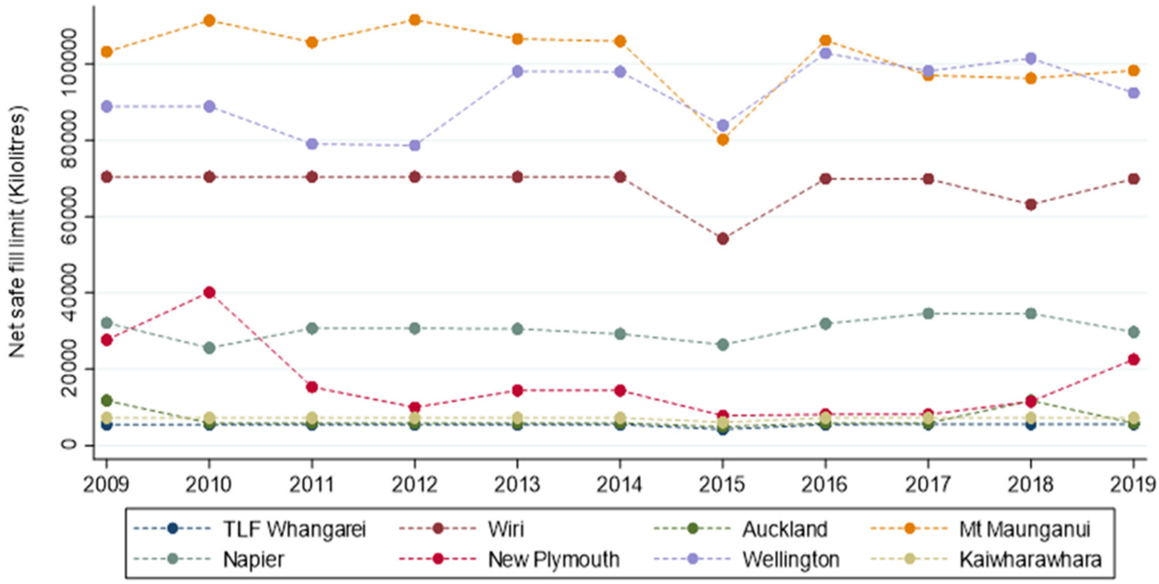
Source: Commerce Commission analysis of industry participants' data

146 In addition, Z Energy has a small amount of private storage of B100 (bio-diesel) at its plant in Wiri, the Wiri terminal and at its Mount Maunganui terminal. Z Energy currently operates no other private storage.

2.142 As Figure 2.10 shows, not all majors are represented at every port. At the time of deregulation in 1988, the then four major fuel firms had separate terminals at each port except for Timaru, Bluff and Whangarei.[147] Since then, terminal storage has undergone some rationalisation.

2.143 Figure 2.11 and Figure 2.12 below show changes in capacity at the various port locations over time.

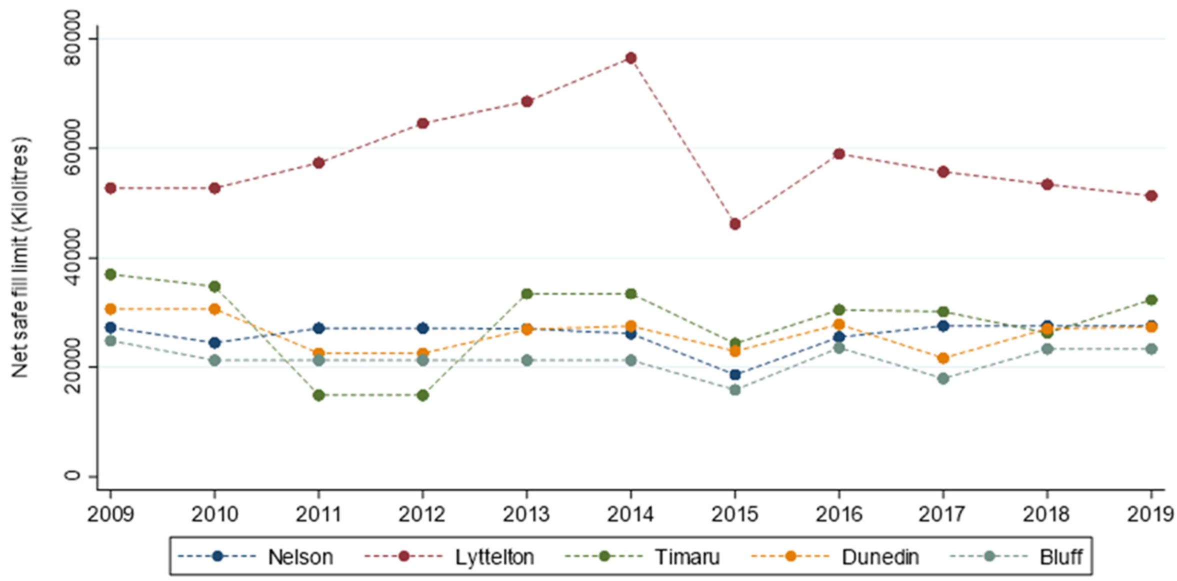
Figure 2.11 North Island terminal capacity (2009 - 2019)



Source: Commerce Commission analysis of COLL terminal capacity data (2009 – 2019).

[147] Michael Pickford and Cameron Wheeler "The petrol industry: Deregulation, entry and competition" (2001) *NZ Trade Consortium Working Paper No. 12* at 22.

Figure 2.12 South Island terminal capacity (2009 - 2019)



Source: Commerce Commission analysis of COLL terminal capacity data (2009 – 2019).

Sharing storage under the borrow and loan arrangements

2.144 Under the borrow and loan arrangements, a major may draw on as much refined fuel as it wishes as long as it contributes an equivalent amount to the system.

2.145 The borrowing and lending of refined fuel is accounted for by COLL. If a major has borrowed more product than it has contributed to the system, COLL requires that firm to contribute more product to reduce the deficit.

2.146 COLL also notifies the majors when existing terminal stocks are to be rationed among them (a "coordination event"). We understand a coordination event at a particular petrol or diesel terminal is triggered when fuel stocks are estimated to be below three days' cover at the time the next supply shipment is due to arrive.[148]

2.147 In order to receive fuel during a coordination event a major must ensure that it contributes a minimum amount of the total fuel stock held within the shared storage system. This minimum amount is determined by the terminal capacity it has contributed to the system and means a firm with more tankage capacity is required to hold more fuel (working capital) at any given time.[149]

2.148 Although there is no financial transaction at a terminal for refined fuel, the owner of a terminal charges a throughput fee to the firm that draws down fuel from its terminal.

148 Transcript of meeting with Mobil Oil New Zealand (21 June 2019) at 5 (lines 23-26).

149 [ ]

2.149 Throughput fees are charged to the major on whose account the product is drawn down on a cents per litre basis, rather than to any reseller or third party distributor that might physically deliver the product. These charges may be passed on to distributors.

2.150 Throughput fees are set by the terminal owner, who may choose to do this on a cost recovery basis or may enter into bilateral negotiations with other terminal owners. Fees set through bilateral negotiations may be set above cost recovery, taking account of the cost of the competitor's next best alternative (ie, the cost of supplying fuel to a given geographic region by accessing an alternative terminal). It is possible that a terminal owner's scope to increase its returns by increasing throughput fees may be constrained by its competitors' ability to retaliate by increasing their throughput fees of terminals that a terminal owner maybe reliant upon.

2.151 Where possible, majors draw down fuel from their own terminals rather than from a rival fuel firm's terminal. This is to maximise throughput of their own terminals rather than contributing revenue to assist their rivals in recovering costs.

Secondary distribution and wholesaling of petrol and diesel

2.152 Secondary distribution refers to the road transport of fuel from terminals to retail sites. This activity is typically contracted out by majors to third parties and/or undertaken by distributors who also own/operate retail sites, such as Waitomo and NPD. Allied Petroleum has a nationwide contract to distribute fuel for Mobil, as well as owning and operating retail outlets.

2.153 Fuel is sold between firms before reaching the end consumer at a retail site. This was discussed from paragraph 2.70 above.

Factors affecting future retail fuel demand

2.154 In the previous sections, we have described aspects of retail fuel markets, including some factors influencing demand from a consumer's point of view.

2.155 In this section, we briefly discuss factors affecting fuel demand in the future, with a focus on the potential impact of electric vehicles (EVs).[150] This is relevant to the study as changes in fuel demand could affect the competitive dynamics in the fuel industry, including incentives to enter, expand and/or exit as well as to invest in long-lived assets.

2.156 See Attachment H for further information on the impact of EVs on future fuel demand.

[150] We note there are other technologies that may impact future fuel demand, such as the role of hydrogen in powering vehicles. However, we focus on electrification of the vehicle fleet because this currently appears to be the most likely future substitute to fuel powered vehicles.

Drivers of fuel demand

2.157 The primary drivers for transport fuel demand in New Zealand have historically been population growth, economic growth (gross domestic product (GDP)), and fuel efficiency gains.

2.158 Fuel demand has been growing slowly over recent years, led by demand for diesel. One fuel firm has suggested recent diesel demand has been strongly driven by the economic growth of exports and tourism.[151]

2.159 The growth in the light vehicle fleet and in overall kilometres travelled has also been a factor increasing fuel demand.[152] These factors are positively related to population growth and economic growth, which are key drivers of increasing fuel demand. Fuel efficiency gains have also played a role in dampening the demand growth.

2.160 Future demand is more uncertain, however, due to changes in technology, such as the advent of EVs which do not rely on fuel.[153]

2.161 The timing and speed of future EV adoption will directly affect the demand for retail fuel in future and be affected by the incentives for investment in EV technology. Hybrid EVs consume less petrol or diesel, while EVs do not consume any.

The impact of Electric Vehicle uptake on fuel demand is sufficiently distant

2.162 Overall, evidence suggests that while EV uptake will eventually have a meaningful impact on reducing demand for retail fuel, this is unlikely to have a substantial impact on fuel sales for at least 10 years.

2.163 We have been provided with fuel demand forecasts that suggest that over the short-medium term, New Zealand petrol and diesel demand is expected to grow marginally. These forecasts include annual growth estimates that range from below 1% to up to 6%, depending on the fuel type (petrol or diesel).[154]

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151 [ ]

152 [ ]

153 [ ]

154 Macquarie Research "Z Energy" (2 August 2018) at 12. [ ]; and [ ]

2.164 BP Global expects demand for fuel used by cars to be broadly flat out to 2040. While it expects demand for travel to grow, this is not expected to increase fuel demand, largely due to improvements in fuel efficiency. In comparison, it expects EVs will have an immaterial dampening effect on fuel demand.[155]

2.165 Projections of EV uptake in New Zealand are uncertain. We recognise that even uncertain expectations of reductions in retail fuel demand in 10 to 20 years' time may discourage some investment in expensive and long-lived assets that help supply retail fuel, which otherwise would have gone ahead. However, the negative effect that EVs may have on fuel firms' investment strategies and viability is likely to be somewhat offset by expectations of increasing growth in diesel and aviation fuel demand (which are less affected by EV uptake).[156] For instance, Z Energy's 2019 annual report notes (emphasis added):[157]

> This year the Board travelled overseas to learn how other countries and industry participants are preparing for a lower carbon future. As a result of the trip the Board is confident that we will have adequate time to properly navigate the expected market transition. **We accept that our industry faces long-term disruption, but it will not manifest as material demand destruction in New Zealand for some considerable time.**

2.166 We do not consider the impact of EVs on the fuel market further in this report, but provide some more detail in Attachment H.

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155 BP "BP Energy Outlook – 2019 edition" <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/energy-outlook/bp-energy-outlook-2019.pdf> at 51.

156 A 2018 report from the Columbia Centre on Global Energy Policy notes that "…any decline in oil demand from the passenger vehicle sector could be offset by demand growth in the petrochemical, aviation, or freight transport sectors, which have fewer and more costly substitutes for oil." Columbia Center on Global Energy Policy "Electric vehicles and their impact on oil demand: Why forecasts differ" (July 2018), at 1.

157 Z Energy "Annual Report" (2019) at 15. This is also supported by
[ ]

Chapter 3 Outcomes in retail fuel markets

Introduction to this chapter

3.1 This chapter discusses the outcomes we have observed in retail fuel markets over time and our preliminary views on the extent to which these outcomes are consistent with those we would expect to see in workably competitive markets.

3.2 Markets may demonstrate varying levels of workable competition depending on their characteristics.

3.3 As discussed in Chapter 2, the retail fuel industry can be characterised as a vertically integrated oligopoly. While there are a large number of additional market participants offering retail fuel, they tend to have long-term stable relationships with one of the importers that have interests throughout the fuel supply chain.

3.4 A range of outcomes are possible given the oligopoly market structure, from those approximating workable competition to those closer to a monopoly outcome - where the price and quality of the good or service depends on one supplier that does not face competition.

3.5 The outcomes we look at in this Chapter relate to consumer choice, fuel quality, profitability and prices and levels of investment.[158]

3.6 We primarily focus on profitability and prices in this chapter. The level of investment, innovation and product and service offerings are discussed in this chapter, but they are also addressed as part of our assessment of factors affecting competition in Chapters 5, 6 and 7.[159]

3.7 These outcomes provide indications of how well the retail fuel market is performing for the long-term benefit of consumers. They may also help identify the factors affecting competition and inform any recommendations we may make to improve competition.

3.8 As signalled in Chapter 1, we focus on whether these outcomes are tending towards outcomes consistent with a workably competitive market.

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158 These outcomes were identified in: Commerce Commission "Market study into the retail fuel sector: Working paper – Focus areas" (18 April 2019) at Figure 1 and [23]–[33].

159 We signaled this in our April 2019 Working paper *Focus areas*, where we noted that "The choices available to, and made by, market participants are also an area of interest. However, we intend to address this topic in our assessment of factors affecting competition." Commerce Commission Market study into the retail fuel sector: Working paper – Focus areas" (April 2019) at [24].

3.9 In the chapters that follow, we discuss the factors affecting competition in retail fuel markets that give rise to the outcomes discussed in this chapter. These factors relate to the market structure (for example, the number of firms in the market and barriers to entry and expansion), conduct by market participants (the way those firms behave), and other features of the retail fuel markets. These are factors that help to explain why we are observing the outcomes described in this chapter.

Structure of this chapter

3.10 This chapter discusses:

3.10.1 choices available to consumers;

3.10.2 fuel quality;

3.10.3 profitability of firms in New Zealand retail fuel markets;

3.10.4 retail fuel prices; and

3.10.5 the level of investment and innovation.

Choices available to consumers

3.11 Choice is important because consumers have different expectations, and these can change over time. In a well-functioning market, suppliers have incentives to improve their offer to better serve and attract more customers.

3.12 The choices available to retail consumers have increased in recent years.

3.12.1 New Zealand has 20 retail brands, although many are small with only a few retail sites or are concentrated in one geographic market or segment of the market.

3.12.2 The range of offers at retail sites is broader, from unmanned truck and fuel stops offering only fuel, to large service stations offering extensive services, large convenience stores and café-style facilities.

3.12.3 There is a wide range of payment options available from pay-at-pump, in app payments, to cash and card payment options in store.

3.12.4 There is a greater variation in prices between sites, depending on location and range of services offered. Some unmanned sites offer lower prices, reflecting their low costs and seeking to attract customers primarily through their lower prices.

3.12.5 More self-serve fuel sites have opened in provincial and secondary locations (for example, on side roads rather than prime metropolitan sites). This reduces the travel distance required to purchase fuel. Pay-at-pump options and 24/7 access increases the ease of filling up in some remote locations.

3.13 We currently consider that there is evidence of a diversity of choice available to retail fuel consumers that is consistent with a degree of workable competition. As a result, we do not consider this further in this chapter. However, in Chapter 7 we consider the role that the retail product and service offerings have as a factor affecting other competition outcomes that we currently observe.

Fuel quality

3.14 The blend quality of petrol, diesel, ethanol, biodiesel and biofuel in New Zealand is governed by a set of regulations designed to protect consumers and the environment.[160] As a result, petrol and diesel are essentially homogeneous products, with little scope for differentiation.[161]

3.15 Industry participants and consumers have not raised specific concerns with us regarding the quality of fuel offered for sale to New Zealand retail consumers, and we are aware of only a small number of quality issues. We currently consider that:

3.15.1 reports of contaminated fuel, or occasions when a retail site mixes fuel types in its tanks, are infrequent; and[162]

3.15.2 dry tanks at retail sites are relatively infrequent, in part because companies try to maintain service station tanks at levels which reduce the risk of stock-outs.[163]

3.16 Given this, we do not consider that issues of fuel quality require further consideration in the study as an observable outcome which may be inconsistent with a workably competitive market.

Profitability of firms in New Zealand retail fuel markets

3.17 In this section, we summarise our conclusions on the level of profitability in the fuel industry, and whether we consider there to be excess profitability that is persistent rather than temporary.

3.18 Attachments B – E provide more detailed information on our approach to assessing profitability and our findings.

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160 Further details and a link to the Engine Fuels Specification Requirements 2011 can be found on MBIE's website: <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-generation-and-markets/liquid-fuel-market/engine-fuel-quality/>.

161 Two examples of where differentiation has occurred are the inclusion of additives and biofuels. Additives are discussed in Chapter 7. Biofuels are produced from renewable materials such as plant and animal matter. Gull offers Gull Force 10 (with a 10% bioethanol blend) and Gull Diesel Max (with 5% biodiesel). Z Energy offers Z bio D (with 5% biodiesel).

162 See <https://www.stuff.co.nz/national/109619865/caltex-christmas-mix-up-causes-pain-at-the-pump>. and [ ]

163 [ ]; and [ ]

Our approach to assessing profitability

3.19 As indicated above, we are focused on whether the retail fuel market tends over time towards outcomes that would be expected in a workably competitive market. This includes firms earning normal rates of return, and prices that reflect normal rates of return, after covering the firms' efficient costs.

3.20 We noted in Chapter 1 that when firms' profits are persistently above a minimum level required to keep the business operating (a normal return), this may indicate that competition is not working effectively for the long-term benefit of consumers.

3.21 Levels of profit above normal returns do not necessarily indicate there is a competition problem. Profits are a reward to businesses which can achieve lower costs than their rivals or attract additional customers by improving their offers.

3.22 High levels of profitability provide a signal for new entry or expansion in a market economy. When competition is effective, entry or expansion will increase output and should lead to a subsequent fall in prices and profitability. If competition is working well, and/or if new players can enter the market, then excess profitability is likely to be temporary.

3.23 However, where levels of profitability are persistently above a normal return this suggests that current competition and the threat of entry by others are not effective in maintaining sufficient rivalry between incumbent firms to push prices close to efficient costs. We would expect this to occur in workably competitive markets.

Excess returns appear to have persisted for most of a decade and seem likely to continue

3.24 A range of forward-looking and backward-looking indicators suggest that the retail fuel industry has been characterised by excess returns since early this decade and that returns are expected to remain above normal competitive levels.

3.25 Our current view is that levels of profitability in the fuel industry are persistently above the returns earned by comparable firms internationally and above estimates of the cost of capital. This is the case for many firms. However, some dealer-owned retail sites are operating on quite slim margins and facing financial pressure. In our preliminary view, this seems to reflect the high wholesale price they pay for fuel and, for some, the impact of a nearby unmanned site which has low costs to serve and often can offer more competitive retail prices for petrol and diesel.

3.26 As discussed in Chapter 1, high profits can occur in workably competitive markets, for example due to successful innovation. However, in such cases they will tend to be firm-specific and competed away over time. We acknowledge that participants have invested in a range of retail market innovations that have expanded consumer choice. However, we do not currently consider that the scale and persistence of high profit levels and investors' expectations that this will continue rather than be competed away, is consistent with what we would expect in a workably competitive market.

3.27 In particular, the evidence available to us shows:

3.27.1 profits being achieved or anticipated that are materially above normal rates of return (estimates of the cost of capital);

3.27.2 returns expected and/or earned on additional retail investment clearly exceeding the cost of capital; and

3.27.3 excess returns appear to have persisted for most of a decade and seem likely to continue.

3.28 Different analytical approaches and techniques support these findings. That is, the results are not a function of one particular analytical approach or the use of one dataset.

3.29 We summarise some of our key findings below. These are discussed in more detail in Attachments D – E. These key findings are:

3.29.1 business cases show high expected returns from opening new or rebuilt sites;

3.29.2 Tobin's q estimates suggest the value investors place on the profits expected from three fuel firms (Z Energy, Chevron, and Gull) are well in excess of the cost of replacing the assets of these firms;

3.29.3 New Zealand retail fuel firms are achieving high levels of return on average capital employed (ROACE), above the cost of capital, and the ROACE earned by international fuel firms and a wide range of other NZ firms;

3.29.4 importer margins are growing; and

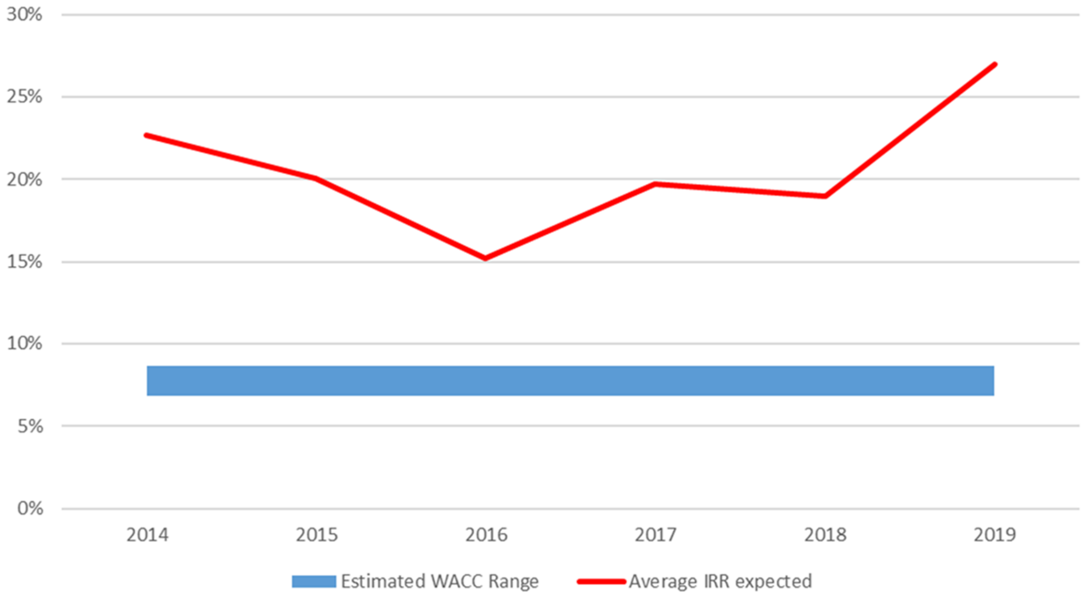
3.29.5 market participants view returns as above competitive levels.

Business cases show high expected returns from opening new or rebuilt sites

3.30 We have looked at a range of firms' business cases for new or rebuilt retail sites, including a variety of site locations, sizes and types (full service and unmanned). In these business cases, firms expect returns on these new investments that are, on average, more than double our estimate of the cost of capital (WACC) required to fund those new investments. This has consistently been the case over the 2014-2019 period for a range of firms building new retail fuel sites.

3.31 Figure 3.1 shows that the weighted average internal rate of return (IRR) expected from these projects is 21% per annum and materially exceeds our estimated WACC range for all years in the period from 2014-2019.[164] Our estimated WACC range for a New Zealand fuel company is 6.9% to 8.6% and is discussed in more detail in Attachment B.

Figure 3.1 Internal Rate of Return expected on investment in retail sites (2014 – 2019)



Source: Commerce Commission analysis of information provided by various fuel firms.

3.32 Most sites are expected to payback their initial investment within four to seven years, suggesting firms are expecting rates of return that are materially above our estimated WACC. Z Energy, the largest participant in the retail fuel market, has recently publicly stated it seeks five-year discounted paybacks from new investment in its core fuel business. These payback periods are remarkably short, relative to the service life of the assets.

[164] As discussed in Attachment B, the bottom end of the WACC range is the most appropriate estimate of WACC to assess the attractiveness of proceeding with the investment, since that reflects the cost of raising incremental capital needed to fund the investment at the time of investment.

3.33 We acknowledge that forecasts can be over optimistic, as submitted to us by some industry participants.[165] Nonetheless, there are few indications that the high average IRRs reported in Figure 3.1 are largely due to over optimistic forecasts. Among other factors, the continued strong rates of new and proposed site openings and firms' internal management commentary suggests that firms are satisfied with the actual performance of their new sites.[166] In addition, available information on the actual performance of some new sites indicates that many have exceeded their pre-opening projections, a number significantly so.

3.34 Firms' expected profits from opening new or rebuilt sites has not declined over the 2014-2019 period, despite the growth in the number of sites. Nor is there any apparent slowdown in the rate of new builds.[167]

3.35 It appears that the additional competition from these new sites has not, to date, reduced firms' expectations on future profits from investment in new retail fuel sites.

3.36 High returns on new retail investment could occur in a competitive market if overall growth was strong, but we do not currently consider this is the case for retail fuel. On the contrary, retail capacity has been growing faster than total demand, so the average volume sold at each site is declining.[168] We currently consider that high returns on investment in new sites is likely to reflect high margins. We invite comment on this view.

Tobin's q estimates suggest investors expect ongoing high profits

3.37 Tobin's q can be used as a measure of profitability and of market power. It is the ratio of a firm's market value to the replacement cost of its assets.

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165 For example, BP New Zealand "Feedback on Working paper – Assessing profitability" (14 May 2019) at [5.3].

166 For example, [ ]; [ ]; [ ]; and [ ]

167 Waitomo and Gull have announced their intention to enter the South Island market. Other distributors also continue to open new sites.

168 For example, in a May 2019 presentation Z Energy stated that "35 NTI sites had been built, growing capacity by 2% in a market where petrol sales declined by 1.5%".

3.38 In a competitive market, this ratio – "q" – would tend towards one. When a firm's q is greater than one, the market value of the firm is greater than its replacement cost. In that case, the market value of an additional unit of capital likely exceeds its replacement cost and the firm can increase its value by investing in additional assets. This incentivises new entry and expansion. If there is free entry, new firms will enter and/or existing firms will expand, and q will be driven down towards one.[169] However, if a firm has market power and entry or expansion continues to be restricted, that firm will earn excess returns that will persist (ie, q will persist at values above one).[170]

3.39 We have estimated Tobin's q for three NZ retail fuel firms, where we have recent, reliable estimates of market value: Z Energy (publicly listed), Chevron NZ (acquired by Z Energy in 2016), and Gull NZ (acquired by Caltex Australia in 2017).

3.40 Tobin's q estimates for these three firms suggest the market value of their fuel businesses appear to be 1.5 – 2 times the estimated current cost of replacing each firm's assets.

3.40.1 Our estimate of q for Chevron is between 1.8 and 2.2 as at 1 June 2016 when it was acquired by Z Energy.

3.40.2 Our estimate of q for Z Energy is between 1.6 and 2.1 as at 31 March 2019.

3.40.3 Our estimate of q for Gull – using only estimates of full replacement cost – is between 1.3 and 1.6 as at July 2017 when it was acquired by Caltex Australia.

3.41 These estimates of q suggest the market values of each fuel business materially exceeds its estimated replacement costs. This suggests that current and recent investors expect ongoing high profits and that those investors do not expect: [171]

3.41.1 a significant increase in competitive intensity from current competitors; and

3.41.2 new entry, or if entry does occur they expect it will be sufficiently small-scale or localised, it would not drive price to the competitive level and such that those excess profits are expected to remain significant.

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169 Lindenberg, E., and S. Ross "Tobin's q Ratio and Industrial Organization" (1981) Journal of Business 54:1 at 2.

170 Ibid at 2.

171 We note that these Tobin's q estimates are for only a few firms and for a broader range of activities than retail fuel for two of the companies.

3.42 Values of q above unity are consistent with other analysis in Chapters 4 to 7 of this draft report of ineffective competition, and a range of barriers to entry, deterring new wholesale entry. We currently consider that ineffective competition is the most plausible explanation for the estimated values of q above unity. This is enabling each of Chevron, Z Energy, and Gull (and potentially other firms) to earn excess profits. We invite comment on this view.

Most retail fuel firms are achieving high levels of ROACE

3.43 We have estimated ROACE for the New Zealand fuel firms that have a significant retail focused fuel business. These firms are: BP, Chevron (until 2015), GAS, Gull, Mobil, NPD, Shell (until 2010), Waitomo, and Z Energy (from 2010).

3.44 Our estimate of the average ROACE over the last three financial years for fuel firms with a significant retail focused fuel business is:

3.44.1 above the top of our estimated WACC range of 6.9% to 8.6%;

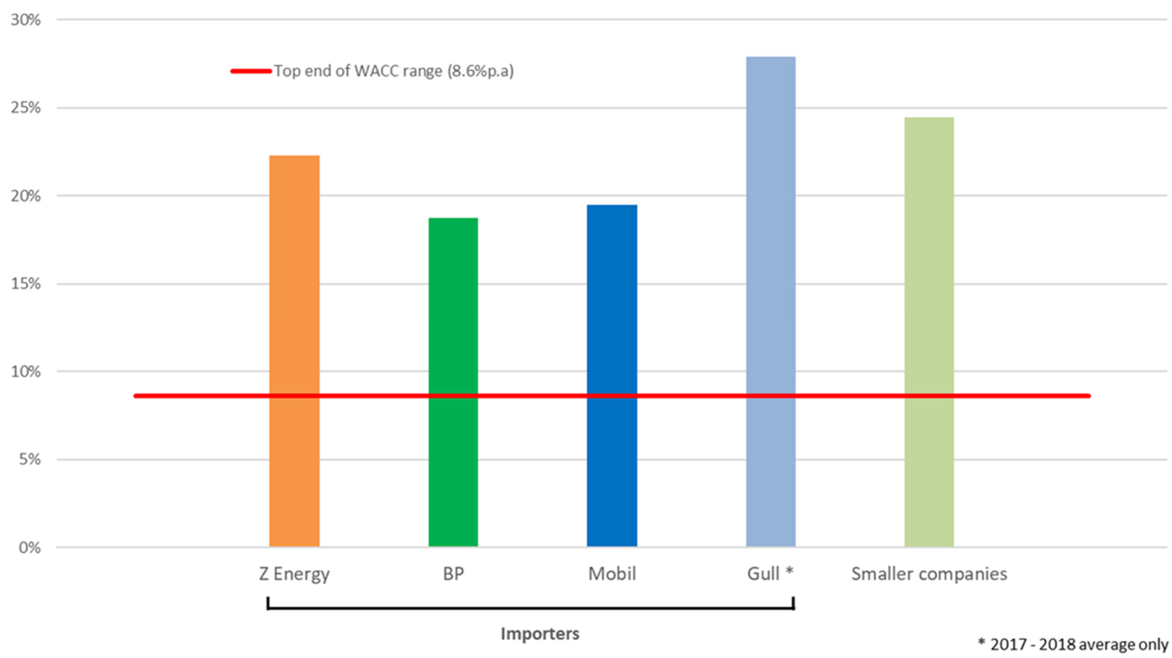
3.44.2 above the levels being achieved by comparable fuel firms internationally and companies in the NZX50;[172] and

3.44.3 appears to be growing.

3.45 Some of these comparisons are shown in Figure 3.2 and Figure 3.3 below.

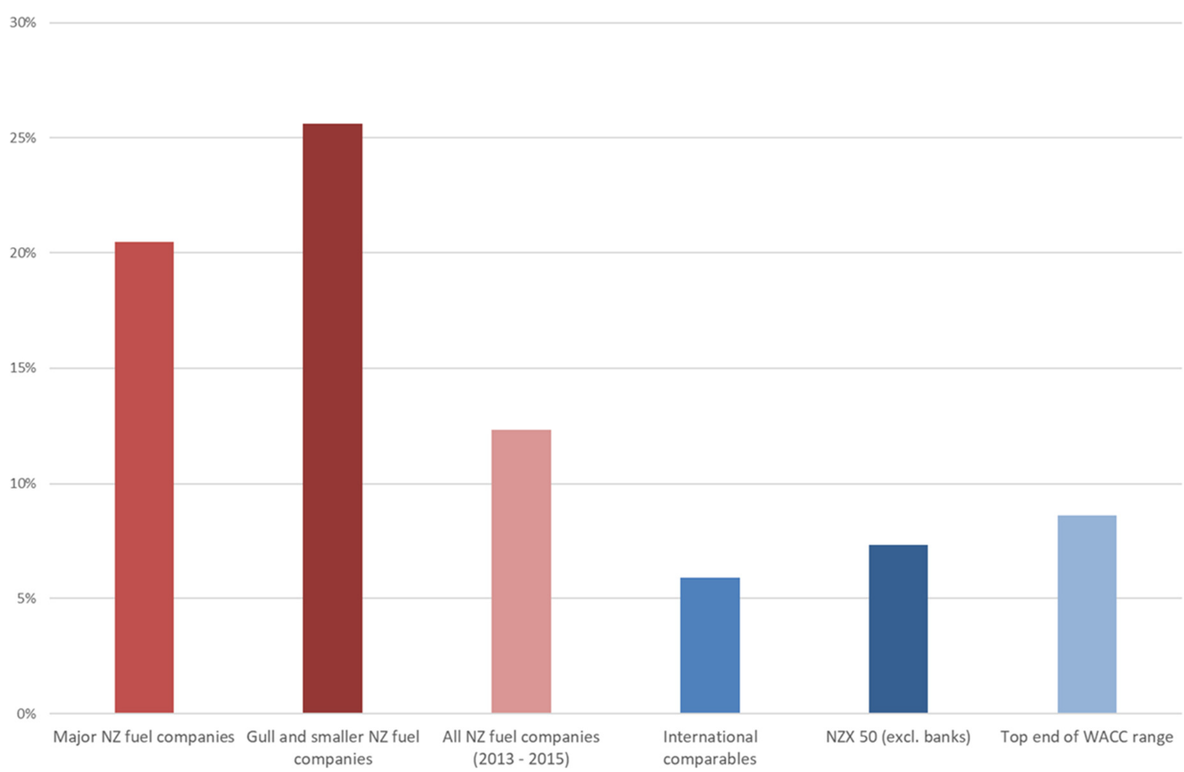
[172] The NZX50 is the main stock market index in New Zealand and comprises the 50 biggest stocks by free-float market capitalisation trading on the New Zealand Stock Exchange. Our analysis does not change the make-up of the NZX50 year-by-year, we take the NZX50 as at July 2019 and use that for all years of our analysis.

Figure 3.2 Return on average capital employed (2016 – 2018)



Source: Commerce Commission analysis of data reported by various NZ fuel companies.

Figure 3.3 Fuel companies' return on average capital employed (2016 – 2018)



Source: Commerce Commission analysis of data reported by various NZ fuel companies, international energy companies and NZX50 companies.

3.46 High levels of ROACE appear to be enjoyed by several companies in the fuel industry, including smaller firms who appear to be earning substantially higher returns on capital employed than the majors.

3.47 While smaller firms have achieved higher returns on their capital employed, the majors appear to be accruing most of the excess returns in dollar terms.[173] This reflects the considerably larger size of the majors' businesses.

3.48 The high ROACE for the smaller firms with growing market shares tends to suggest that competition in the retail fuel markets is not working effectively, as fuel volumes are growing only slowly and there is little suggestion that New Zealand has an insufficient number or range of retail sites.[174]

3.49 We also estimated an IRR for the business acquired from Shell (now known as Z Energy) over its life from entry in 2010 until 2 August 2019. We find that the original equity investment in 2010 in what is now Z Energy has generated an IRR of around 34% per annum.

3.50 We currently consider that the majors and these smaller firms are all benefitting from above competitive levels of retail fuel prices. The cost of this is borne by consumers. We invite comment on this view.

Importer margins are growing

3.51 Our preliminary findings that profits have been persistently high over the last decade are consistent with the trend of growing importer margins over this time.

3.52 The estimated importer margins, which were low in the decade prior to 2010, have grown strongly since, as have the margins reported publicly by Z Energy. Reported margins have been largely flat since 2016 but remain at levels well above those seen early this decade and in the prior decade.

3.53 This is shown in Figure 3.4 below.

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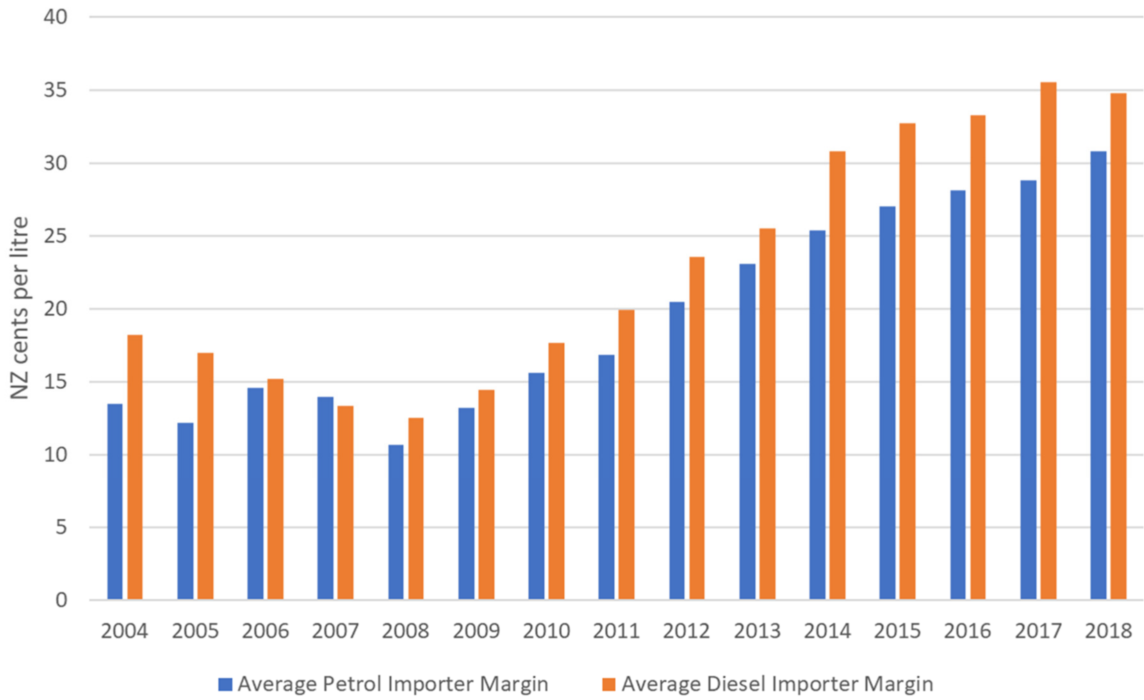
173 This is calculated as the amount by which the firm's estimated ROACE exceeds the top of our WACC range, multiplied by the amount of capital employed for each firm.

174 Our analysis of return on average capital employed is based on the asset values reported by companies, which are often based on historic costs. There is insufficient information to reliably adjust our estimates for changes in asset values over time, and we therefore place more reliance on measures of forward-looking profitability, such as the returns firms expect from new investment (business cases), Tobin's q and firms' own commentary about future expected profits. These forward-looking measures are further discussed in Attachment D.

Figure 3.4 Average yearly importer margins (2004 – 2019)



Source: Commerce Commission analysis based on MBIE data.[175]

3.54 Figure 3.4 above shows that:

3.54.1 diesel importer margins have consistently outpaced petrol importer margins;

3.54.2 importer margins reached historical lows in about 2008 of about 10 to 12 cents per litre of petrol and 10 to 15 cents per litre for diesel; and

3.54.3 since 2008, importer margins have more than doubled. This is shown in Table 3.1 below, which also compares the magnitude of these changes to the change in fuel taxes over the same period.

[175] These are average calendar year petrol and diesel importer margins. The petrol (diesel) importer margins are the discounted petrol (diesel) price less duties, taxes, levies, ETS and the importer cost. MBIE weekly fuel price monitoring available at <https://www.mbie.govt.nz/assets/Data-Files/Energy/Weekly-fuel-price-monitoring/6e61ec855b/weekly-table.csv>. (Viewed on 20 June 2019).

Table 3.1 Changes in importer margins and taxes (cpl, 2008-2018)

	Average petrol importer margin	Petrol taxes	Average diesel importer margin	Diesel taxes
2008	10.7	71.7	12.5	16.5
2018	30.8	96.5	34.8	21.1
Increase	+20.1cpl (187%)	+24.8cpl (35%)	+22.3cpl (178%)	+4.6cpl (28%)

Source: Commerce Commission analysis based on MBIE data (2019).[176]

Market participants view returns as above competitive levels

3.55 Our preliminary finding is that returns are persisting at above competitive levels.

3.56 Several companies have stated their view that the sector is competitive and/or that competition is intensifying.[177] For example, Mobil submitted that "In [Mobil's] experience, New Zealand continues to be a very tough, competitive, dynamic petroleum market".[178] It appears that some of the majors' retail fuel volumes have been negatively impacted by the increasing presence of distributors' participation in retail fuel sales.[179]

3.57 Nonetheless, market participants have spoken favourably about margins from as early as 2010, soon after margins started rising. These favourable views may be in comparison to lower margins during 2008/2009, which market participants considered low and not sustainable.

3.58 There is some evidence to suggest the lower margins during the 2008/2009 period may have been driven by Shell's desire to drive volumes for its overseas refinery (when Z Energy bought Shell in 2010, it did not purchase Shell's overseas exploration assets).[180] Some of the majors were seeking to exit the market during that period of low margins and consolidate.[181] Shell exited in 2010 and Mobil has been unsuccessfully marketed for sale at least twice since 2008.

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176 These are average calendar year petrol and diesel importer margins. The petrol (diesel) importer margins are the discounted petrol (diesel) price less duties, taxes, levies, ETS and the importer cost. MBIE weekly fuel price monitoring available at <https://www.mbie.govt.nz/assets/Data-Files/Energy/Weekly-fuel-price-monitoring/6e61ec855b/weekly-table.csv>. (Viewed on 20 June 2019).

177 For example, Z Energy "Market study into the retail fuel sector: Z Energy's response to invitation to comment on preliminary issues" (February 2019) at [30.2] and [164] and BP "Market study into the retail fuel sector – BP New Zealand comment on preliminary issues" (February 2019) at 3.

178 Mobil "Submission to the Commerce Commission New Zealand in response to the Statement of Preliminary Issues for the Market Study into the Retail Fuel Sector" (February 2019) at [16].

179 See paragraphs 3.101 - 3.106 below for further discussion.

180 For example, [ ]

181 [ ]; [ ]; and [ ]

3.59 Evidence also suggests that market participants considered margins to be favourable in absolute terms and they expected they would attract new entrants and sustained discounting, since around 2012 or 2013.[182]

3.60 For example, in mid-2013 one company noted that:[183]

> Fuel margins currently at an all-time high. Whilst NZ is a stable market, such high margins will attract new entrants or sustained discounting of margins.
>
> In 2010 Shell exited the NZ market, selling out to Z. Since 2009: On-road and Primary diesel sectors have significantly increased margins (~55%), ULP [regular petrol] margins in this time have increased 45%, whilst PULP [premium petrol] has increased 94%... NZ is experiencing very strong margins in both Wholesale and Retail.

3.61 A 2012 board paper from another company noted that the high margins at that time could attract a new retailer to the market. In the same document, the company proposed steps it would take in anticipation of such entry and which may help to deter a new entrant.[184]

3.62 Margins and returns on capital have increased further since 2012 and 2013.

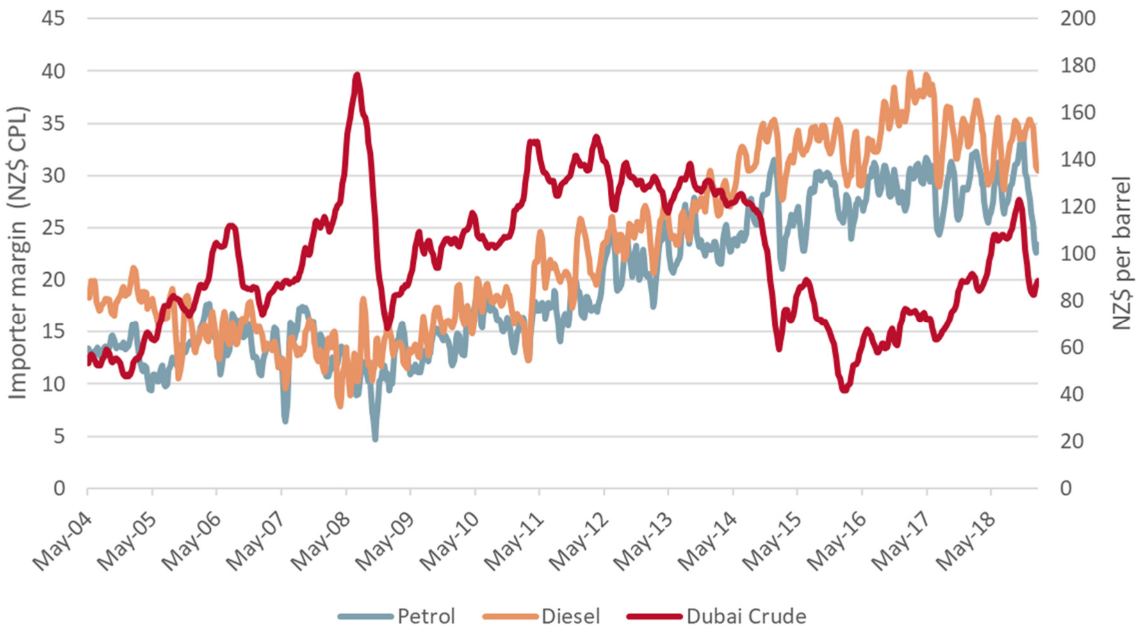
3.63 Figure 3.5 below shows the four-week rolling averages of importer margins for petrol and diesel relative to an international oil price benchmark (plotted against the right-hand axis). It shows that margins continued to rise even after global prices slumped in 2014.

182 [ ]

183 [ ]

184 [ ]

Figure 3.5 Importer margins and crude oil prices (four-week rolling average, 2004-2019)



Source: Commerce Commission analysis based on MBIE data (2019).[185]

3.64 Market participants have responded to higher margins by expanding their retail site presence and greater use of discounts, which we discuss in Chapter 7.

3.65 To date, entry has been concentrated in new retail sites and the impact from that entry on industry margins appears to have been limited to date. Apart from Gull in 1998, only TOSL plans to enter at the importer level and the success of this entry has not yet been tested.

3.66 Comments from several sources, including the firms' own views, indicate that returns are not expected to decline soon. Firms' own views support expectations that returns will remain at current levels or grow in the years ahead, and that firms expect to grow their profits and expect returns well above WACC on new investment.[186]

3.67 Our preliminary conclusion is that the New Zealand retail fuel industry appears to be earning, and expecting to earn, significant excess returns on a persistent basis. Persistent excess returns indicate there are impediments to effective competition.

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185 MBIE weekly fuel price monitoring available at: <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/weekly-fuel-price-monitoring/>.

186 See Attachment E for further details.

Retail fuel prices

3.68 This section contains observations about New Zealand's retail fuel prices. We compare prices over time, across fuel types, across regions, and across countries. We also consider the extent to which global fuel price changes are passed-through into domestic pump prices, and how the size of fuel discounts may impact board prices.

3.69 In this section, we observe:

3.69.1 retail fuel prices have trended upwards since 2015 – 2016;

3.69.2 New Zealand's pre-tax retail fuel prices are relatively high compared to other countries;

3.69.3 growing price differentials between retail prices of regular and premium fuel;

3.69.4 how changes in costs are passed on through retail price changes;

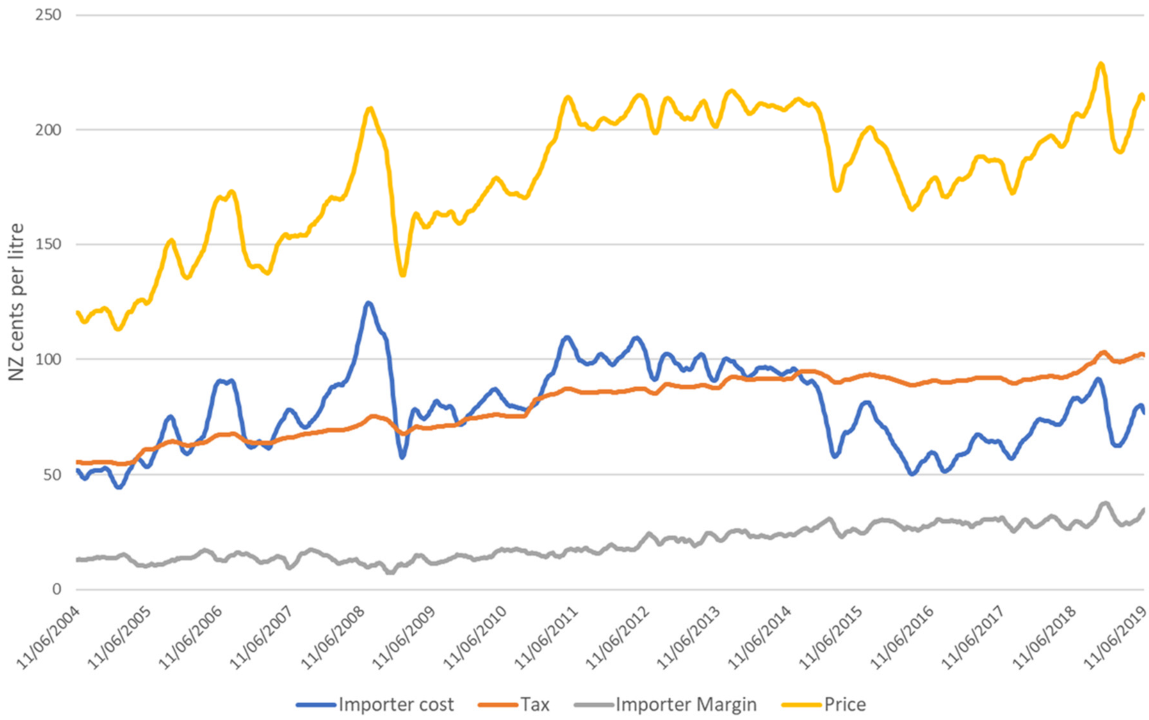
3.69.5 higher discounts are associated with higher retail board prices; and

3.69.6 regional differences in retail fuel prices and importer margins.

Retail fuel prices have trended upwards since 2015 - 2016

3.70 Figure 3.6 below shows the rolling average (eight weekly) of retail petrol prices. This shows that retail fuel prices have risen since about 2015-2016 (after initially declining around 2014-2015). This follows an initial rise around 2008-2009. Retail prices peaked in about the third quarter of 2018.

Figure 3.6 Eight week rolling average price components for retail petrol (cpl) (2004-2019)

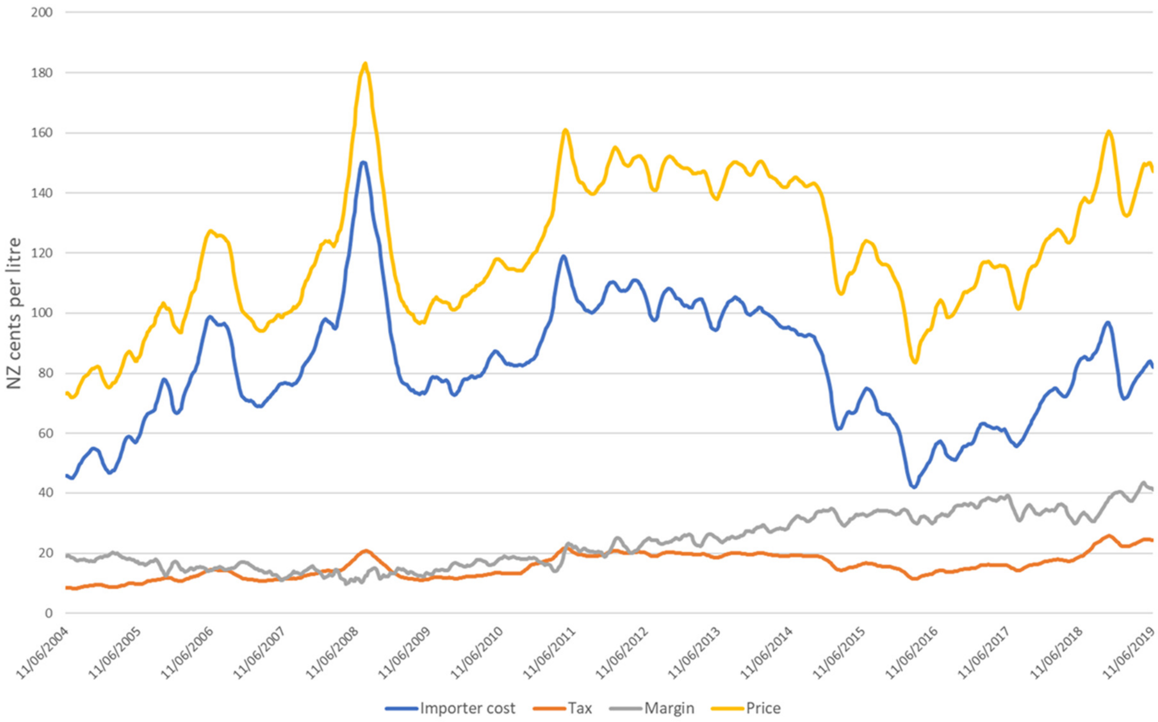


Source: Commerce Commission analysis based on MBIE data (2019).[187]

3.71 Figure 3.7 below shows movements in the price of diesel. An obvious difference is that taxes make up a smaller proportion of the price of diesel. Instead, diesel vehicle users (including non-commercial diesel users) pay road user charges.

[187] These prices reflect MBIE's estimate of the discounted retail price. MBIE weekly fuel price monitoring available at: <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/weekly-fuel-price-monitoring/>.

Figure 3.7 Eight week rolling average price components for diesel (cpl) (2004-2019)



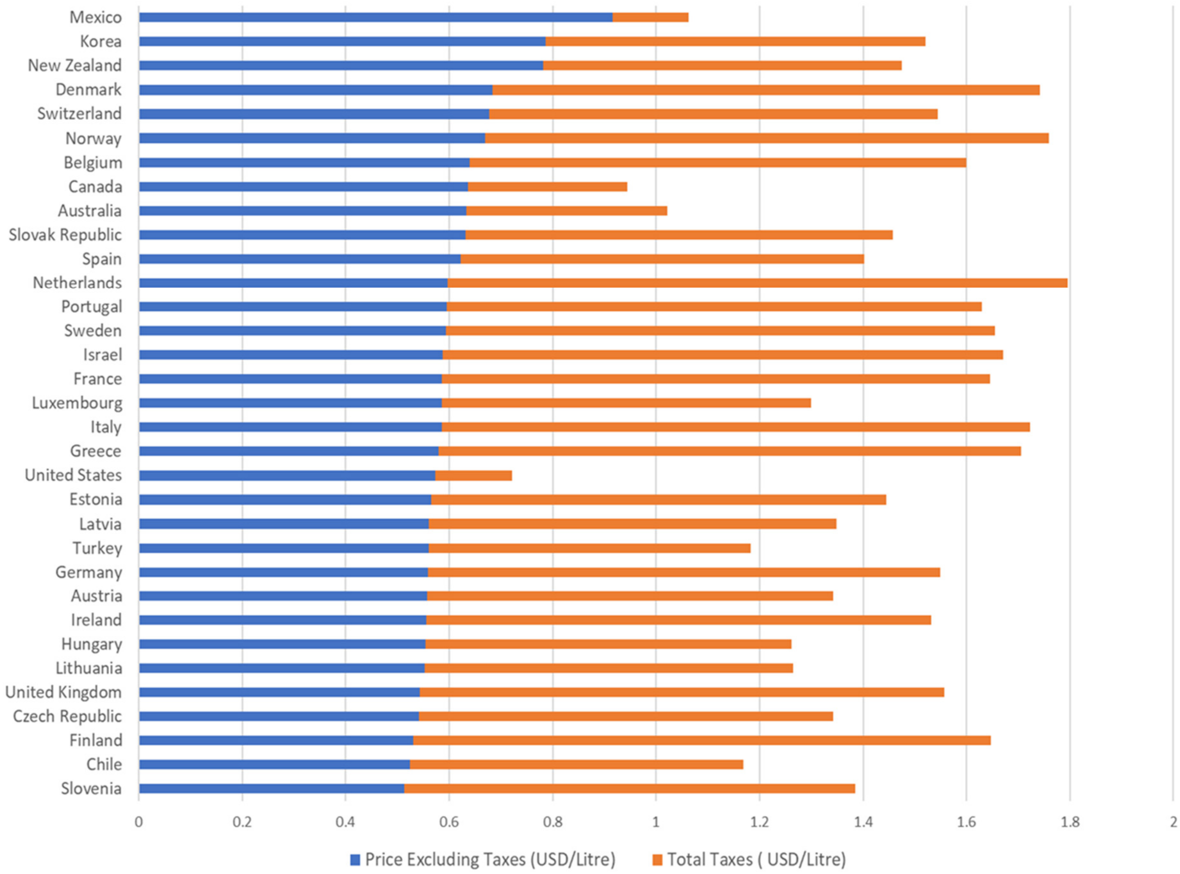
Source: Commerce Commission analysis based on MBIE data (2019).[188]

New Zealand's pre-tax fuel prices are relatively high compared to other countries

3.72 New Zealand consumers pay relatively high prices for petrol and diesel. In the March 2019 quarter, New Zealand had the third highest pre-tax petrol and diesel prices in the OECD. This is the case for both premium and regular petrol. However, fewer than half the OECD countries have data on regular petrol. As such, Figure 3.8 and Figure 3.9 below compare prices of premium (95 Octane) and diesel among OECD countries.

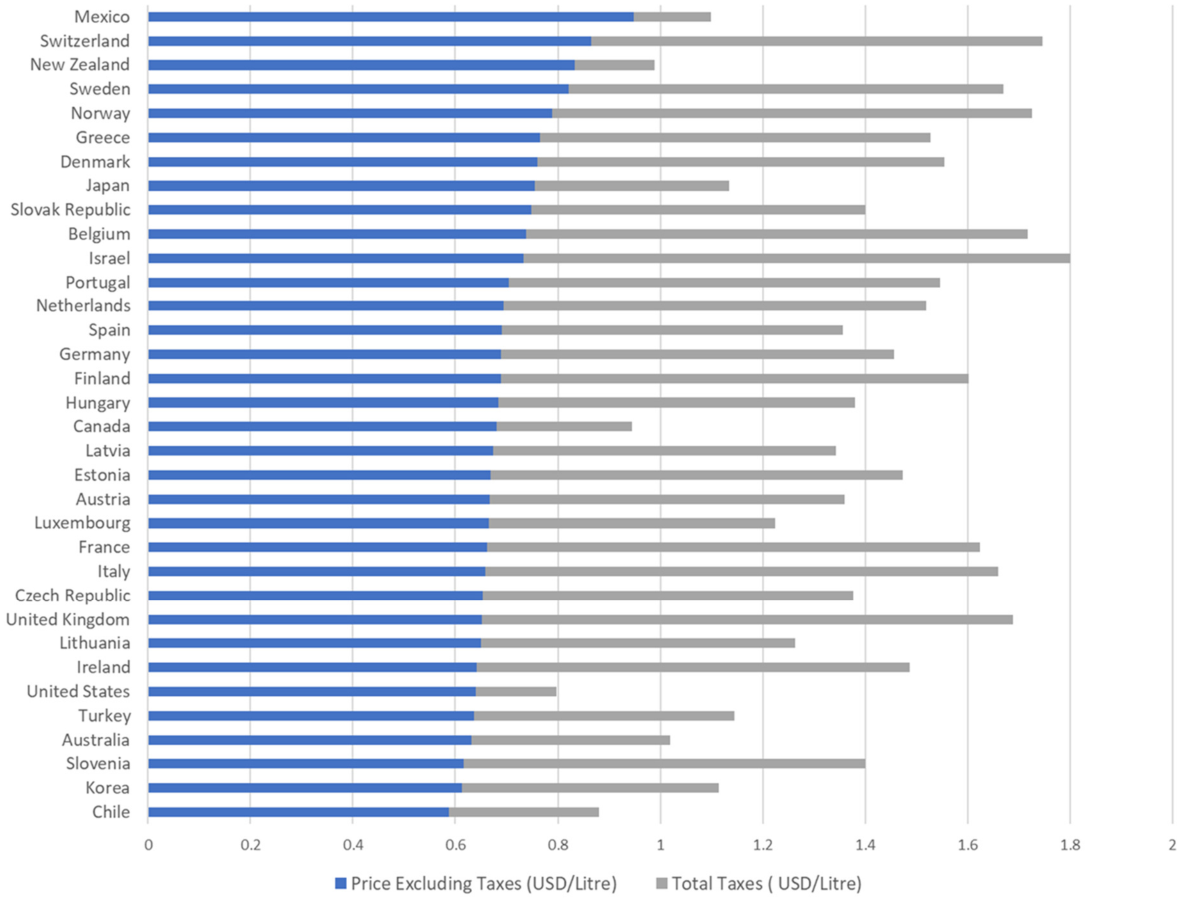
188 These prices reflect MBIE's estimate of the discounted price. MBIE weekly fuel price monitoring available at: <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/weekly-fuel-price-monitoring/>.

Figure 3.8 Pre-tax premium petrol prices in OECD countries (Quarter ended March 2019)



Source: International Energy Agency, Energy Prices and Taxes (Quarter 1 2019).

Figure 3.9 Pre-tax diesel prices in OECD countries (Quarter ended March 2019)



Source: International Energy Agency, Energy Prices and Taxes (Quarter 1 2019).

Growing price and margin differentials between regular and premium fuel

3.73 Premium petrol prices currently tend to be about 13-15cpl above the price of regular petrol. This price difference between regular and premium petrol has grown over the last decade, from about a 7-8cpl difference in 2011.[189]

3.74 This pricing conduct has meant that the premium petrol importer margin has grown at a faster rate than the regular petrol importer margin. This is shown in Figure 3.10 below. Premium petrol currently provides an additional margin of about 10-11cpl compared to regular petrol. In 2011, this additional margin was about 4-6cpl.[190]

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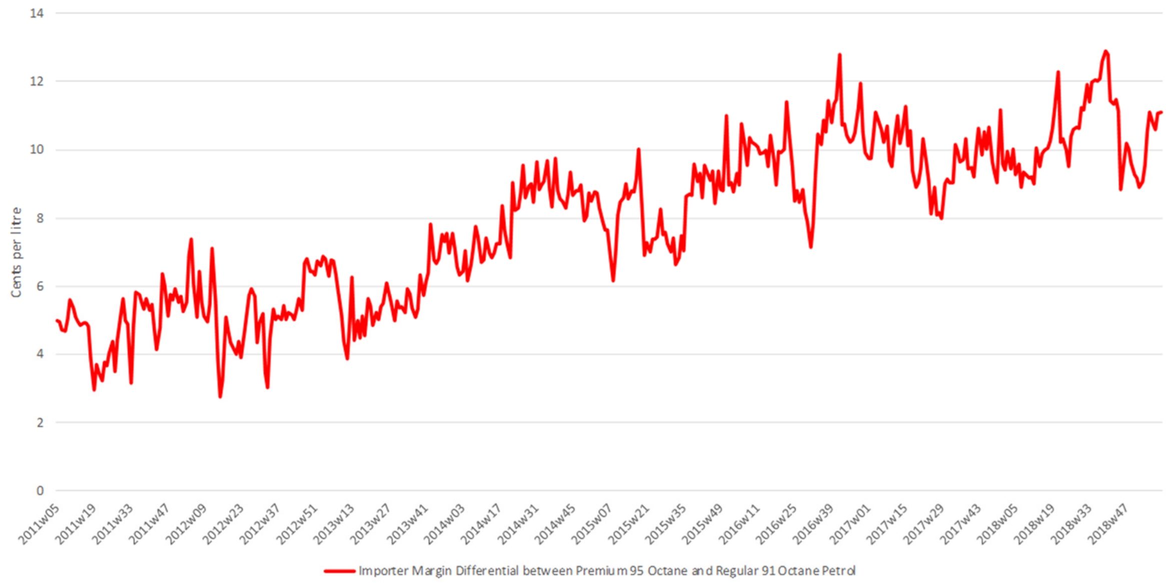
189 Commerce Commission analysis based on data provided by industry participants.

190 Commerce Commission analysis based on retail sales data provided by fuel companies, the Singapore benchmark cost index data, and taxes and levies for different fuel types, published by the Ministry of Business, Innovation & Employment, available at: <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/weekly-fuel-price-monitoring/>.

Figure 3.10 Importer margin of regular and premium petrol



Source: Commerce Commission analysis based on data provided by industry participants.

3.75 There does not appear to have been any corresponding increase in the additional costs of producing premium over regular petrol, so it does not appear that this difference can be explained by changes in cost differences. In addition, fuel companies tend to charge their retail and wholesale customers a higher margin on premium fuel than regular fuel.[191]

3.76 Premium petrol prices are seldom displayed on price boards. In Chapter 7, we discuss retail strategies for premium petrol and why consumers may purchase it. These features may be contributing to the growing price and margin differentials between regular and premium petrol. We invite comment on these matters.

Changes in costs are passed on through retail price changes

3.77 In workably competitive markets, we expect to see a close association between prices and industry-wide cost changes. If prices are high and become too disconnected from industry-wide costs, the additional profit available will tend to attract firms to enter the industry until prices decline to better reflect underlying costs. The reverse is also true – if prices are too low relative to industry-wide costs, expected profits fall and firms will be incentivised to exit the industry until profits improve to better reflect underlying costs.

3.78 We have analysed the extent to which changes in the costs of refined fuel are associated with changes in retail fuel prices, using daily site-level retail fuel prices for the period January 2011 to February 2019. The cost of refined fuel is a key cost component for all market participants. As such, we would expect to see the cost of refined fuel reflected in retail prices.

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191 A range of fuel companies' internal documents supports this.

3.79 We refer to the relationship between these industry-wide input costs and retail prices as the pass-through rate. Pass-through describes how participants in fuel retailing change their fuel prices following a change in the cost of fuel. We use the Singapore spot market price (NZ$) as our indicator of input cost and examine the extent to which changes in that variable show up in retail prices, after controlling for other factors such as the location of the retail site (which affects the cost of its fuel). The main preliminary results of this analysis are summarised below.

Summary of key findings

3.80 We allowed for pass-through rates to differ across years and for cost changes to show up in retail prices immediately and with time lags of up to four weeks. Our analysis so far has found the following main results.

3.80.1 The overall estimated pass-through rates appear to be greater than one for all fuels in all years from 2014 to 2017. These results were statistically significant. We note that these results are difficult to reconcile with the theory of pass-through in competitive markets.

3.80.2 Pass-through appears to be significantly less than one in 2018 for regular petrol and diesel.

3.80.3 The speed of pass-through varied considerably, but around 18% to 20% of cost changes showed up in retail prices on the same day, a further 43% to 48% after a week, and a further 25% after two weeks. Smaller additional effects were also detected after 3 and 4 weeks.

3.80.4 The Auckland regional fuel tax is estimated to have been passed-through fully into retail prices (ie, one-to-one).

3.80.5 We examined whether pass-through was asymmetric, for example whether cost increases show up more fully or quickly in retail prices than cost decreases. In our analysis so far, we found no evidence of this asymmetric pass-through.

3.81 See Attachment F for more detailed information on these findings and underlying assumptions.

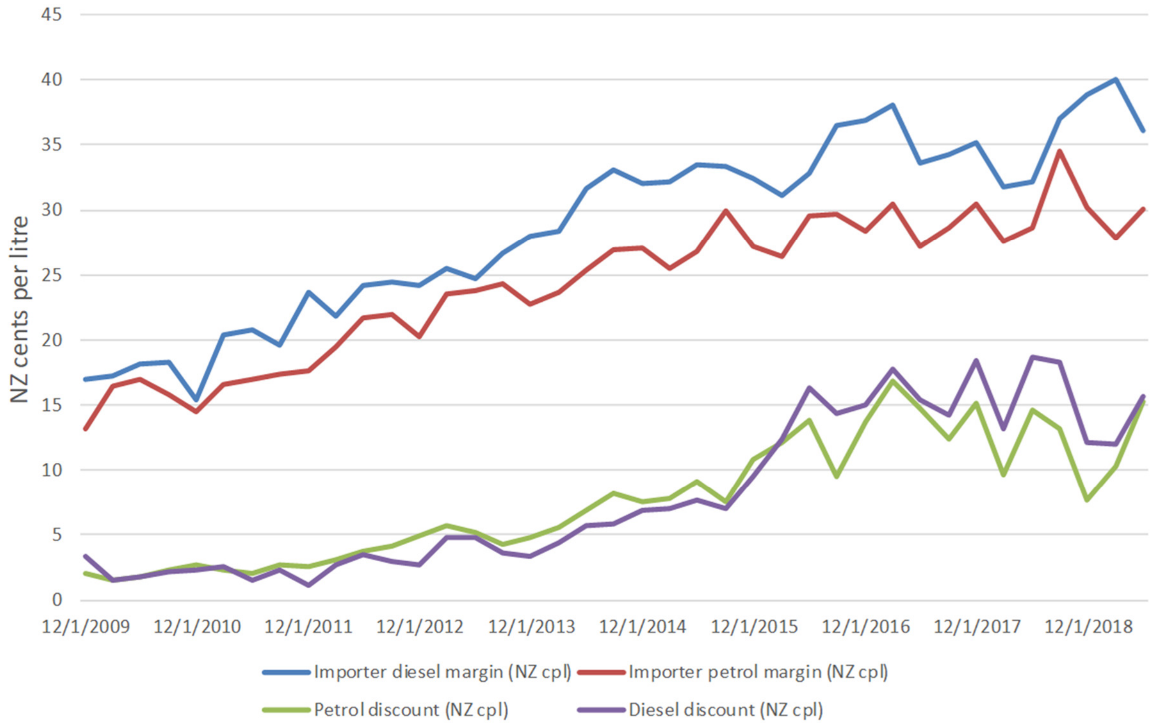
Relationship between board prices and discounts

3.82 As noted in Chapter 2, the actual retail price paid for fuel reflects any discounts or other promotions available to a consumer. There are a wide range of discount and loyalty programmes that provide fuel discounts, which some consumers receive.

3.83 We find that the size of discounts has increased significantly in the past decade, in line with increasing importer margins. At the same time, the proportion of fuel sold at a discount appears to have increased.

3.84 MBIE analysis indicates that fuel discounts are on average more significant today than they were in 2010, as indicated in Figure 3.11 below.

Figure 3.11 Estimated quarterly fuel discounts and importer margins



Source: Commerce Commission analysis of data from MBIE (2019).[192]

3.85 In its submission on the preliminary issues paper, Z Energy submitted that "MBIE's estimate of discounting is flawed". Z Energy raised several concerns about MBIE's methodology, including Statistics New Zealand data which is used as an input to the calculation.[193]

3.86 However, in terms of the *trend* in discounting, it is not clear that any bias has systematically increased over the period.

3.87 We have similarly observed an increasing trend in the off-board discount sizes. Data provided to us on a sample of retail sites indicates that:[194]

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192 MBIE "Discount forecast tracking" (2019) <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/weekly-fuel-price-monitoring/>. (Viewed on 16 August 2019).

193 Z Energy "Market study into the retail fuel sector: Z Energy's response to invitation to comment on preliminary issues" at [54]-[56].

194 Our observations are based on analysis of discounts received by consumers (calculated as the difference between the average annual board price and the average annual discounted price (volume weighted) at BP and Z Energy retail sites). The discount price is calculated by dividing daily revenues by daily volume per site, this is then weighted by volume for an average annual discount price. This analysis is based on retail sales data provided to us by BP and Z Energy.

3.87.1 annual discounts for regular and premium fuels were around or below three cpl prior to 2014;

3.87.2 annual discounts for diesel were around or below five cpl prior to 2014; and

3.87.3 as at early 2019, depending on fuel type and firm, annual discounts for regular petrol, premium petrol and diesel have since approximately doubled or more than doubled.

3.88 In 2016, a company noted that:[195]

> Cost of discounting continues to be offset by high available margin…

3.89 We examined whether changes in pump prices can be explained by changes in discount size and whether the magnitude of these changes vary across years (measured in cents per litre).[196] Our results suggest that changes in discount size (measured in cents per litre) are associated with slight changes in the advertised board price in the same direction for the years between 2016 and 2019. This analysis is complementary to the long-term trend analysis that shows discounting rising over the last decade more or less in line with importer margins. In the econometric model, we are interested in short-run interactions between discounting and pump prices.

3.90 Specifically, a 10 cent increase in discount size per litre in these years is associated with an estimated board price increase of 0.96 cents to 2.73 cents (10% to 27%) for 91-octane petrol, and 2.43 cents to 4.89 cents (24% to 49%) for diesel, depending on the year in question within the period 2016 to 2019. Our results also suggest that for diesel, board prices tend to anticipate the change in discounts by one to two weeks.

3.91 We currently consider that board prices rising alongside discounts is consistent with loyalty programmes and discount vouchers serving as a form of price discrimination – where higher prices are charged to less price sensitive customers that do not use discounts or participate in loyalty schemes.

3.92 Larger discounts benefit customers who are motivated to shop around for the lowest prices (more price sensitive). Customers that are not focused on seeking out the lowest price (less price sensitive) do not benefit from these discounts. Customers paying board prices would be better off if discounts were not present and retailers charged a lower, uniform price to all consumers. We further discuss the use of discounts and loyalty programmes and their impact on consumers in Chapter 7.

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195 [ ]

196 Discount size is calculated by subtracting the discounted price (ie, revenue from discounted sales divided by volume from discounted sales) from the pump price. For example, the pump price, revenue and volume from discounted sales for site A's 91-octane petrol on a given day are $2.10, $100,00 and 50,000 litres, respectively. The discount size would therefore be $2.10 - $100,000 / 50,000 = $0.10.

Regional differences in retail fuel prices and importer margins

3.93 Consumers pay different retail prices depending on where they are located. We have looked at differences in prices and importer margins for fuel across different areas in New Zealand between 2011 – 2019.[197] Our preliminary findings are set out below.

3.93.1 Board prices and importer margins tend to be lowest in the upper North Island. Board prices and importer margins in Wellington and the South Island tend to be higher.

3.93.2 Since 2014-15, prices in the North Island have started to diverge from those in the South Island and Wellington. This divergence has increased over time.

3.93.3 There are some differences between the locations which may help to explain why consumers pay different retail prices.

3.93.3.1 The different costs that each location faces, including the costs to set up and operate a site and the cost to deliver fuel to the site.

3.93.3.2 There are a different set of competitors depending on the location. For example, the North Island has Gull as an independent competitor to the major fuel firms.

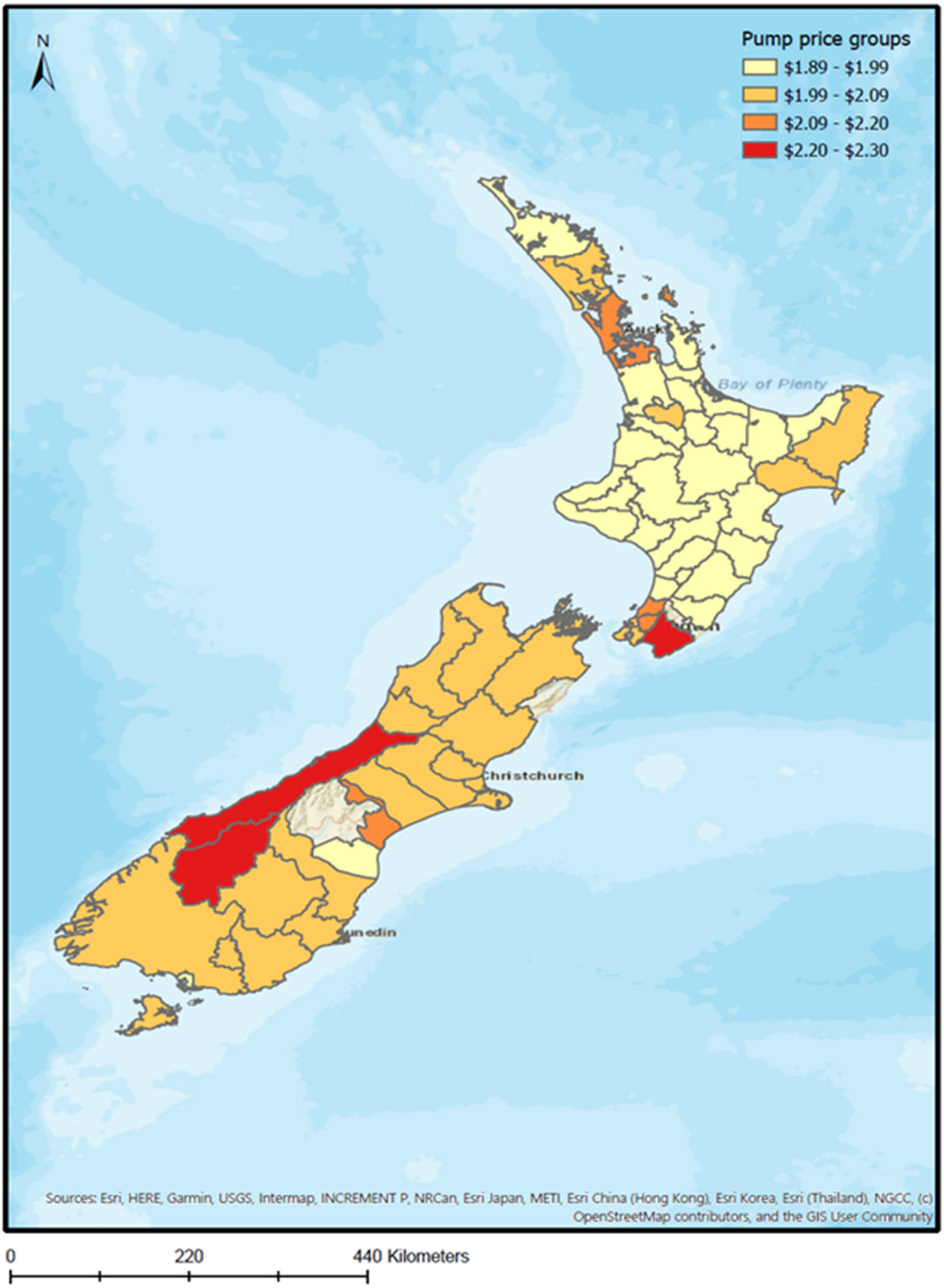
3.93.3.3 Different pricing strategies that the fuel firms have used in respond to competition, in particular competing on board prices or using discounts.

Current differences in retail prices and margins between regions

3.94 Figure 3.12 and Figure 3.13 below show board price and importer margin differences across regions in New Zealand in 2019. These Figures show the average regular petrol board prices and importer margins in 2019 across regions within New Zealand, with average pump prices ranging from $1.89 to $2.30 cpl, and average importer margins ranging from 7.99 percent to 22.68 percent.

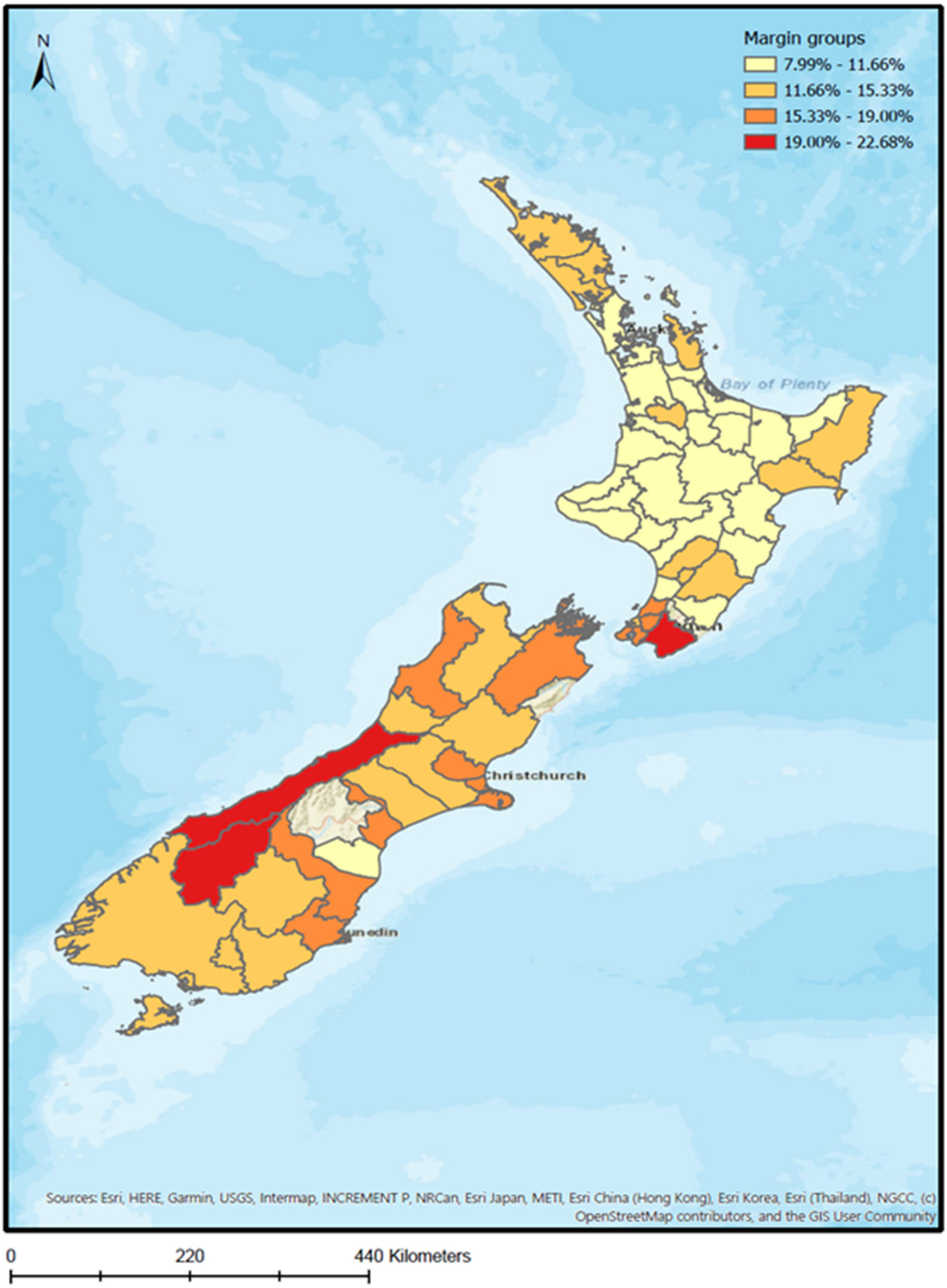
[197] Unless indicated, “importer margin” in this section represents the board price less Singapore benchmark cost index data, less fuel taxes (sourced from MBIE data). It does not take account of off-board discounts.

Figure 3.12 Retail petrol board prices across New Zealand (2019)



Source: Commerce Commission analysis based on data provided by industry participants.

Figure 3.13 Retail petrol importer margins (pre-discounts) across New Zealand (2019)

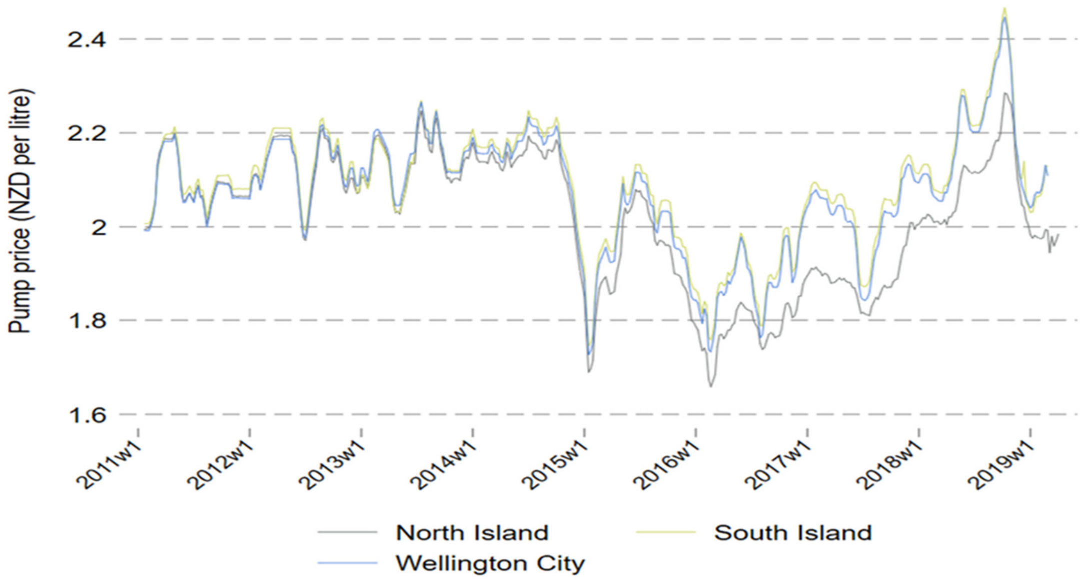


Source: Commerce Commission analysis based on data provided by industry participants.

3.95 Figure 3.14 below compares retail prices between the North and South Island and Wellington City between 2011 and February 2019. The differences in retail prices have widened materially since 2014.

3.96 We find that board prices and margins in Wellington City are similar to those in the South Island and are therefore higher than those in other regions within the North Island. Those in the Wellington Region, while still higher than those in other regions and territories within the North Island, are slightly lower than those in the South Island. This has not always been the case.

Figure 3.14 North and South Island and Wellington City board prices (2011 – February 2019)



Source: Commerce Commission analysis based on data provided by industry participants.

3.97 Figure 3.14 shows that:

3.97.1 Until 2015, board prices were relatively consistent across the North and South Island. In 2015, board prices across the country progressively increased over the year (after an initial reduction), and then trended downwards until early 2016.

3.97.2 Since 2014-15, board prices in the North Island have started to diverge from those in the South Island and Wellington City. This divergence has increased over time.

3.97.3 Overall, board prices have generally trended up since 2016. However, in the North Island we observe smaller board price increases compared to the South Island and Wellington City. We note that this is the case for all fuel types.[198]

Regional cost differences only partly explain retail price differences

3.98 Differences in costs may help explain why consumers pay different prices for fuel in different locations. These differences in costs may include:

3.98.1 The cost of delivering the fuel to the site. This includes:

3.98.1.1 the cost of primary distribution to a terminal. The major fuel firms use shared infrastructure to deliver fuel to terminals. The RAP delivers fuel directly to Auckland from the refinery, which avoids the need to use coastal shipping. In principle this ought to make delivery costs to Auckland for the majors low. In comparison the terminals in Bluff need to be filled using coastal shipping; and

3.98.1.2 the cost of secondary distribution from the terminal to retail sites. In general, the further from a terminal the higher the costs. For example, the West Coast of the South Island is supplied from terminals in the Canterbury region. This might help explain the high retail price of fuel on the West Coast. Costs will also be higher if retail sites are spread out, which makes it more costly for a fuel tanker to do multiple stops. For example, Z Energy highlighted that the South Island has a smaller, and more widely spread, population than the North Island.[199]

3.98.2 The cost of opening and operating a retail site. This might include the price of land or rent, and resource consents. For example, it will be more expensive to buy land in metropolitan areas where land is scarcer than in rural areas. We compare retail prices across territories within high population density regions below.

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198 Similarly, in the Z/Chevron investigation, we identified that retail prices in Wellington and the South Island tended to be higher than in the upper North Island. *Z Energy Limited and Chevron New Zealand* [2016] NZCC 10. The 2017 Fuel Study, commissioned by MBIE, identified that regional gross margins (between FY2013-FY2017) increased at a faster rate in Wellington and the South Island than margins in the North Island. NZIER, Grant Thornton, Cognitus Economic Insight "New Zealand fuel market financial performance study" (prepared for the Ministry of Business, Innovation and Employment, 29 May 2017) at iii.

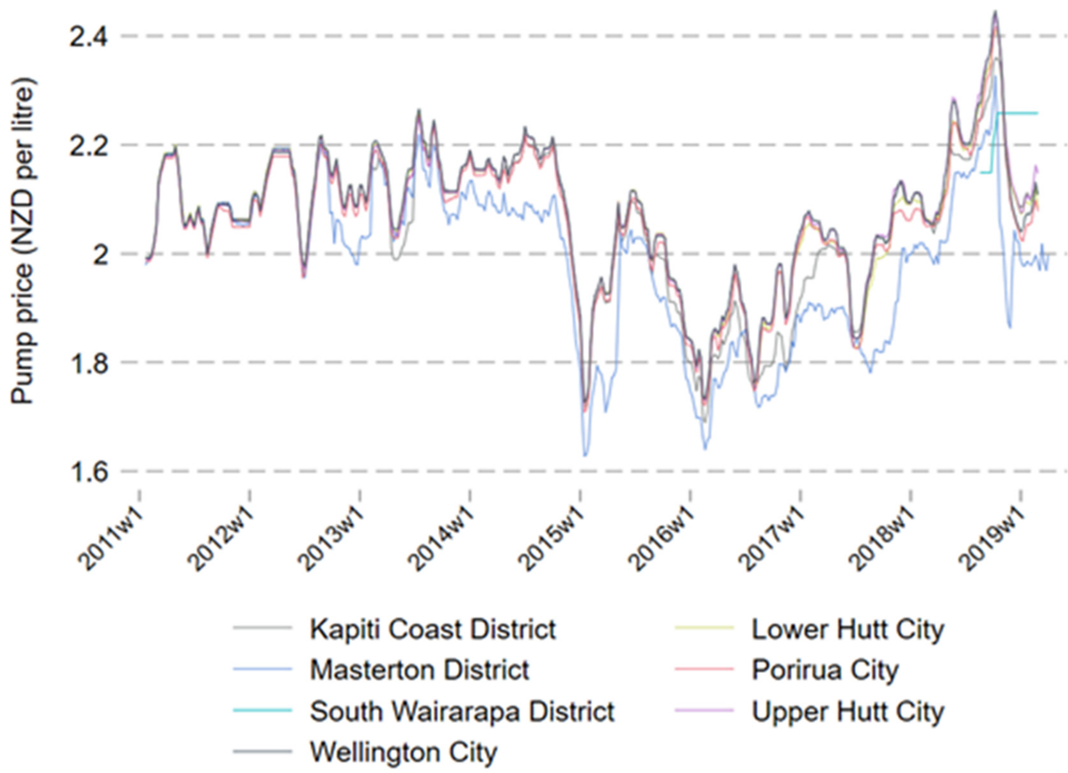
199 Z Energy "Market study into the retail fuel sector: Z Energy's response to invitation to comment on preliminary issues" at [44].

3.98.3 Local taxes. For example, the Auckland regional fuel tax of 11.5 cents per litre (including GST) has had a direct impact on the retail price of fuel in Auckland.

3.99 We comment further on differences in the costs of trucking and establishing retail sites in Chapter 4 and the impacts that infrastructure sharing may have on competition in Chapter 5.

3.100 We continue to analyse the impact of costs on retail prices. However, our preliminary view is that these costs do not fully explain the differences we observe across locations. This is because there are some locations where the level of retail prices are inconsistent with what we expect if costs were the primary driver of prices. For example, Figure 3.15 below shows that within the Wellington region, retail prices in the Masterton District are lower than those in other territories. This is despite Masterton being more costly to deliver fuel to from Wellington terminals compared to other retail sites in Wellington city. One key difference between it and Wellington city sites is the presence of Gull in Masterton. We invite comment on this view.

Figure 3.15 91 Octane petrol board prices in the Wellington region (2011 – February 2019)



Source: Commerce Commission analysis based on data provided by industry participants.

There are different competitors in some regions

3.101 The differences in retail prices might in part be explained by different competitors in certain locations, and the strategy the firms have used to respond to those competitors.

3.102 In the North Island, more price aggressive retailers have been present for some time such as Gull and Waitomo. These firms primarily operate low cost unmanned sites in secondary locations, away from central metropolitan areas. More recently in the South Island, NPD has grown rapidly with a similar strategy. The impact of these retailers were also observed in the 2017 Fuel Study.[200]

3.103 The divergence in retail prices and margins between the North Island and the South Island and Wellington may be due to the major fuel firms responding to these competitors. The major fuel firms may have responded to firms such as NPD and Gull where they are present, as discussed in Chapter 7.

3.104 Firms' internal documents suggest they consider some regions to display more aggressive price competition than others and suggest firms pricing behaviour takes account of this. In recent years, regions in the top half of the North Island appear to be identified as most aggressive.[201] Internal documents have identified reductions in volumes of fuel sold by sites in areas considered to be more price aggressive, and that responses sometimes include a firm matching the lower price or reducing its price to sit closely above.[202] Evidence also suggests that regional price increases are used to restore margins and offset volumes lost in other (more price competitive) regions.[203] Recent openings of sites are identified as impacting volumes and margins of sites in close proximity. We discuss this from paragraph 3.124 below.

3.105 To the extent that firms such as Gull, Waitomo and NPD affect the price consumers pay, the greatest impact may be in the area close to where the competitor is located. As we note in Chapter 2, location is one of the most important factors for a consumer in choosing where to buy fuel. As such, retail sites that are further away from a price aggressive competitor may not need to adjust their price.

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200 NZIER, Grant Thornton, Cognitus Economic Insight "New Zealand fuel market financial performance study" (prepared for the Ministry of Business, Innovation and Employment, 29 May 2017) at 38.

201 [ ]; [ ]; and [ ]

202 [ ]; [ ]; and [ ]

203 [ ]

3.106 An example of this seems to be the July 2019 entry of Waitomo's unmanned site in Thorndon, Wellington. This is shown in Table 3.2 below, which compares the prices at Waitomo's new site to other sites in Wellington, on 11 July 2019. This shows that only Caltex's truck stop (1.8km away) reduced its price to match the Waitomo offer. Other retail sites nearby did not adjust their price to match. These other sites offer a wider range of services than Waitomo's new unmanned site and Caltex's truck stop. This is consistent with retail sites with similar service levels competing most closely with each other. Further analysis of new sites is reported in Chapter 7 and Attachment F.

Table 3.2 Price comparison between Waitomo Wellington to other sites in Wellington (11 July 2019)

Retail site	Distance from Waitomo, Hutt Rd, Thorndon	Price (regular petrol) ($ per litre)	Difference to Waitomo's price ($ per litre)
Waitomo, Hutt Rd, Thorndon (unmanned)	N/A	2.079	N/A
Caltex, Old Hutt Rd (Truck Stop)	1.8km	2.078	-0.001
Z, Whitmore Street, Wellington (Full service)	1.9km	2.259	0.18
GAS, Ottawa Road, Ngaio (manned shop only)	3.8km	2.189	0.11
BP Connect, Taranaki Street, Te Aro (Full service)	3.1km	2.209	0.13
Z, Vivian Street, Te Aro (Full service)	4.2km	2.259	0.18
Z, Taranaki Street, Te Aro (Full service)	4.2km	2.259	0.18
Z, Churchill Drive, Crofton Downs (Full service)	4.6km	2.209	0.13
Caltex, Adelaide Rd, Mount Cook (Full service)	4.8km	2.209	0.13

Source: Commerce Commission analysis of Gaspy data.

Different retail pricing strategies

3.107 The major fuel firms may have used different retail pricing strategies which means the board price may not reflect the actual price consumers pay.

3.108 Z Energy suggests that the retail price and margin growth divergence observed between the North and South Islands is explained by the fact that, up until recently, there tended to be less board price competition in the South Island and more competition through the use of discounts. It states that:[204]

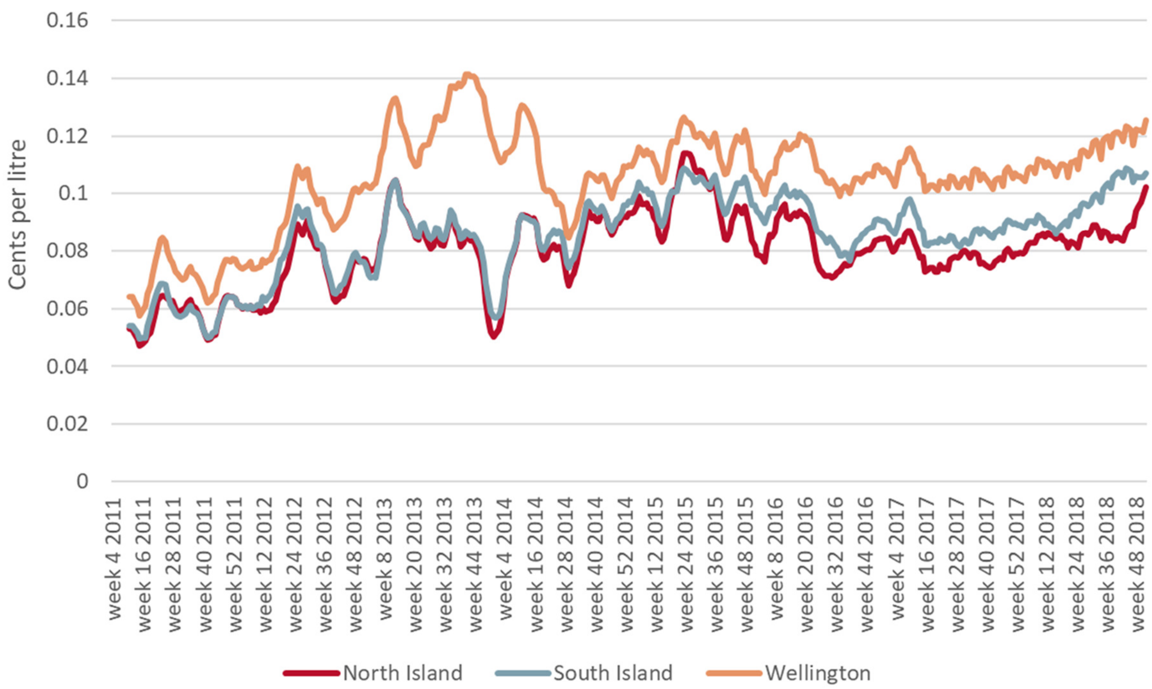
[204] Z Energy "Market study into the retail fuel sector: Z Energy's response to invitation to comment on preliminary issues", at [42].

> …price competition where only the midstream participants are present [such as in areas of the South Island and Wellington] tends to occur more by way of off-board promotions, discounts and loyalty offers than price board discounting (e.g. for particular periods and/or locations) because such activity is inherently more difficult for competitors to monitor and directly counteract…

3.109 Put another way, Z Energy is suggesting that the majors are more likely to compete through lower board prices in regions where non-major fuel firms operate. This includes the likes of Gull, Waitomo and NPD (particularly unmanned sites) which tend to compete more aggressively on the board price. Further, it suggests a preference to engage in more complex pricing strategies through off-board discounts where price aggressive players are not present.

3.110 Figure 3.16 below supports Z Energy's statement about differences in regional discounts offered. It shows that over recent years, the size of discounts offered in Wellington (relative to the board prices) has been persistently larger than in other regions, and in recent years the size of discounts offered in the South Island have tended to be larger than in the North Island.

Figure 3.16 Discount sizes in the North and South Island and Wellington (2011 – February 2019)



Source: Commerce Commission analysis based on data provided by industry participants.[205]

[205] The discount size has been calculated as the difference between the board price and the discounted price, where the discounted price is calculated by: daily revenue from fuel sold at a discount divided by daily volumes of fuel sold at a discount.

3.111 Z Energy suggests this trend of higher board prices in the South Island has not continued, in part due to the growth of South Island resellers “with their localised strategies and lack of midstream investment burden.”[206] Z Energy notes that as a consequence, the competitive dynamic in the South Island has now begun to more closely mimic the North Island, with significant on board price competition in addition to discount and loyalty programme promotion activity.[207]

3.112 At this point we think it is too early to tell whether there has been a significant improvement in board prices in the South Island. Gull and Waitomo’s planned entry in the South Island may provide downward pressure on board prices in some local markets in the South Island. We invite comment on this view.

The level of investment and innovation

3.113 We noted above that in a workably competitive market, we would expect high margins and profits to attract new entry and expansion and be competed down to competitive levels. We would also expect to see firms investing and innovating, including maintaining and upgrading assets, so as to meet consumer demands both now and in the future.

3.114 In this section we:

3.114.1 review the overall pattern of investment;

3.114.2 discuss retail site investment and innovation; and

3.114.3 explain why we have concerns about terminal investment.

Importance of investment and the overall pattern

3.115 Significant infrastructure, much of it specialised in nature, is required to refine and deliver fuel to New Zealand consumers from oil fields offshore. Investment is needed at every level of the supply chain including, shipping, refinery, storage terminals, distribution, and retailing.

3.116 It is important in any infrastructure industry that there are incentives for continued investment. Much of the New Zealand infrastructure was a result of investment in the 1950s and 1960s but continued investment is required to maintain it, ensure safe and reliable fuel supply, and to develop the supply chain to meet the current and future needs of New Zealand consumers.

[206] Z Energy “Market study into the retail fuel sector: Z Energy’s response to invitation to comment on preliminary issues” at [41 - 43].

[207] Z Energy “Market study into the retail fuel sector: Z Energy’s response to invitation to comment on preliminary issues” at [41 - 43].

3.117 There are numerous examples of significant recent investment in the fuel supply chain.

3.117.1 In August 2019 Z Energy stated that it had invested $625 million in "growth and Integrity capex" since FY11 (in addition to its acquisition of Chevron NZ in 2016 for $785m).[208]

3.117.2 Mobil advises that since 2012 it has spent $200 million maintaining and improving its fuel supply and retail operations.[209]

3.117.3 BP has invested almost $350 million over the five years 2014-2018 primarily into its retail assets.[210]

3.117.4 Refining NZ completed a $365m upgrade at Refinery in Te Mahi Hou, and is now seeking to dredge the harbour to allow larger oil tankers to supply crude to the refinery, and is increasing the capacity of the RAP.[211]

3.117.5 COLL has leased two new ships, with greater capacity.[212]

3.117.6 Recent years have seen rapid growth in the number of retail sites, reversing a several decades long decline in the number of retail sites in New Zealand.[213] Many retailers are building new retail sites.

3.117.7 A new terminal is under construction at Timaru – the first major new fuel import terminal in New Zealand in 20 years.

3.118 When competition is working well, price and profit signals play an essential role in ensuring investment occurs and is directed to providing the right services. The range and extent of investment in New Zealand in recent years may suggest we should have few concerns over investment levels in the fuel industry.

3.119 However, there are two aspects of investment which we have considered further as part of the study.

3.119.1 The relationship between investment in retail capacity, and the levels of profit being achieved by firms in the retail fuel sector.

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[208] Z Energy "Investor Day 2019" (1 August 2019), at 13.

[209] Mobil "Re: Information following meeting on 21 June 2019", (28 June 2019) at 1.

[210] [ ]

[211] Refining NZ "Te Mahi Hou" <https://www.refiningnz.com/keyproject/te-mahi-hou/>. (Viewed on 16 August 2019).

[212] NZ Herald "New Tanker MT Kokako shipping fuel from Marsden Pt Oil Refinery to New Zealand ports" <https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=11992363>. (Viewed on 16 August 2019).

[213] Refer to Chapter 2 of this draft report and Z Energy "The Downstream Fuels Industry Strongly Competitive or Operating with Uncertainty?" (8 March 2012) at 5.

3.119.2 The level of investment in new terminal storage capacity.

3.120 These issues are discussed in the next two sub-sections.

Strong investment in retail sites

3.121 The relationship between investment in retail capacity, and the levels of profit being achieved by firms in the retail fuel sector, is an area of focus in the study. As discussed earlier in this chapter, many fuel retailers appear to be highly profitable notwithstanding the strong investment in new retail sites. This is surprising, since additional retail sites would be expected to take volumes from existing sites, and to increase downward pressure on prices (and therefore profits) at existing retail sites. Yet, our analysis of profitability suggests that firms continue to earn returns above competitive levels. This is a central line of inquiry in the study and we consider this further in Chapters 4 to 7, and in Attachments D and E.

3.122 We noted in Chapter 2 that most of the new site openings since 2015 are under a non-major fuel firm brand, particularly Gull and Mobil supplied distributors, Waitomo and NPD.

3.123 Industry parties have submitted that the observed growth in retail site openings shows that competition is working in the market.[214] Z Energy stated that:[215]

3.123.1 distributors can be very competitive in their pursuit of new sites;

3.123.2 Gull and distributors competitively constrain the majors, particularly at a local site level; and

3.123.3 consistent with the trend in the growth of their site numbers, the effect of Gull and distributors on competition has grown materially even since the Commission granted clearance for Z Energy to acquire Chevron.

3.124 We agree that new site openings could be a sign of a workably competitive market and have been interested in understanding the impact that new sites have had on competition. The evidence we have viewed suggests that in some cases new sites have had a positive impact on competition whereas in other cases it is unclear.

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214 For example, Mobil "Submission to the Commerce Commission New Zealand in response to the Statement of Preliminary Issues for the Market Study into the Retail Fuel Sector" (February 2019) at [9]-[10], Z Energy's response to invitation to comment on preliminary issues" (February 2019) at 3-4, BP "Market study into the retail fuel sector – BP New Zealand comment on preliminary issues" (February 2019) at 2-3.

215 Z Energy's response to invitation to comment on preliminary issues" (February 2019) at 3-4, BP "Market study into the retail fuel sector – BP New Zealand comment on preliminary issues" (February 2019) at [17] and [24].

3.124.1 We looked at all new site openings since 2017 for NPD, Gull, GAS, Allied and Waitomo to assess the impact on prices and volumes of nearby sites of the majors. This analysis is still in progress. However, our preliminary results of this analysis suggest that Gull was most likely to put its new sites near those of the majors and NPD sites appear to have the most impact on majors' prices. We found that NPD's new sites were often associated with rival sites reducing price (either a drop in the pump price or as a result of more discounts) or losing volumes. We could not see the same impact for most of the new sites of other brands, although in many cases the data was unclear.

3.124.2 Other evidence provides examples where new sites have impacted on the majors in some locations.[216] For example, a major's internal document from 2018 states:[217]

> [A Distributor] have opened their un-manned site [at a location near one of the major's sites]. This is having an impact on [the major's site's] diesel volumes with last week -20% on the same week last year. Mogas not as impacted only down -9%. …Risks or Issues: The number of [another distributor's] sites planned and the impact on volumes in [various locations]. …Continued growth of competitor un-manned networks eroding margin and volume.

3.125 Where the new entry of a price aggressive firm impacts competition, this tends to be relatively localised (to sites within 1-2km) and does not necessarily impact all sites in the wider region. This was discussed above in relation to Waitomo's new site in Wellington.

3.126 We are continuing to consider further systematic analysis of the impact that the number, composition, and characteristics of new sites have on competition within local regions and we invite comment on this issue.

3.127 Although it was not always clear whether new sites had impacted on the offers of existing sites, there are consumer benefits from having a broader range of purchasing options. With more sites, consumers will not have to travel as far to find a retail site. Some consumers may prefer to use an unmanned site offering relatively lower prices with fewer additional features. Some consumers may also place a high value on service quality.

Investment and innovation in retail site offerings

3.128 We noted in Chapter 2 that consumers have a range of preferences for offerings at a retail service station. While some consumers care primarily about price, others have a stronger preference for convenience and service features.

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216 [ ] See Chapter 7 for further discussion.

217 [ ]

3.129 In a workably competitive market, we would expect firms to compete to satisfy this diverse range of preferences.

3.130 While the majors have either reduced or not greatly expanded their retail site footprint, they have invested in improving the quality of service stations and service speed. This increase in service differentiation has been observed by industry participants and submitters, who have associated it with increased competition and choice for consumers.[218]

3.131 We agree that there have been investment and innovations in retail site offerings that deliver greater choice to consumers. Fuel firms are seeking to differentiate their product offering, competing on elements other than pump prices by investing in speed of service, service quality and the range and quality of offerings at a retail site forecourt including food, toilets, barista coffee and other conveniences. Together with the growth of unmanned sites that offer no-frill service (and typically lower price), these additional offerings increase the range of choices available to consumers at retail sites.

3.132 Key examples of this include:

3.132.1 A range of payment alternatives have been introduced. These include the BPMe app, which allows users to pay for fuel at BP using their smartphone, Gull Speedlanes and Z Energy payment by automated number plate scanning. These initiatives are likely beneficial to consumers who value convenience and speed. They also give consumers greater choice about how to pay for their fuel.

3.132.2 Improvements in electronic payment technology have helped facilitate the rise of unmanned, pay-at-pump, service stations. The ability to operate unmanned sites reduces barriers to entry because less land is required. This has enabled relatively lower cost entry and expansion in the retail markets.[219]

3.133 The observed investment and innovation in differentiating the retail site offerings may be indicative of workable competition where consumers value these additional features and so are prepared to pay for them.

3.134 However, product differentiation can also provide a way for retailers to avoid price competition while still seeking to attract consumers from one another. Some consumers might prefer less differentiation and lower prices.

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218 For example, the NZAA “Submission on Market Study into retail fuel sector – preliminary issues” (February 2019) at 5; Z Energy “Market study into the retail fuel sector: Z Energy’s response to invitation to comment on preliminary issues” (February 2019) at [30.1]-[30.2] and [164]; BP “Market study into the retail fuel sector – BP New Zealand comment on preliminary issues” (February 2019) at 3.

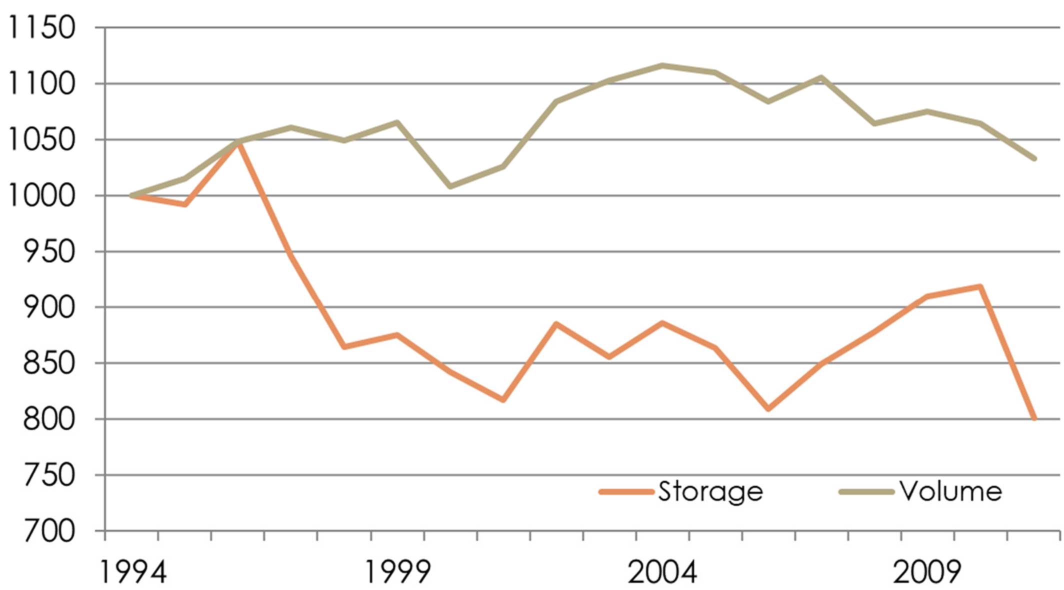
219 AA “Submission on Market Study into retail fuel sector – preliminary issues” (22 February 2019), at 3.

3.135 The impact of product differentiation on consumers will depend on the extent of competition between retail sites across the full spectrum of price and service levels. For example, if there is only one unmanned site in a local market, it might exert only weak price pressure on nearby service stations. We invite comment on this issue which is discussed further in Chapter 7.

Limited investment in terminal storage capacity

3.136 While we observe investments in retail sites, we observe limited investment further up the fuel supply chain in terminal storage. In a 2012 presentation, Z Energy notes that "[t]erminal infrastructure is under stress" and cites diverging trends between storage capacity and overall fuel volumes in the industry. In that presentation Z Energy noted capital expenditure was lower than depreciation, there were terminal and site closures, and terminal capacity was not keeping up with the growth in demand.[220] Figures 3.17 to 3.19 below show the trends that Z Energy cites.[221]

Figure 3.17 Petrol volumes & storage indexed to 1994

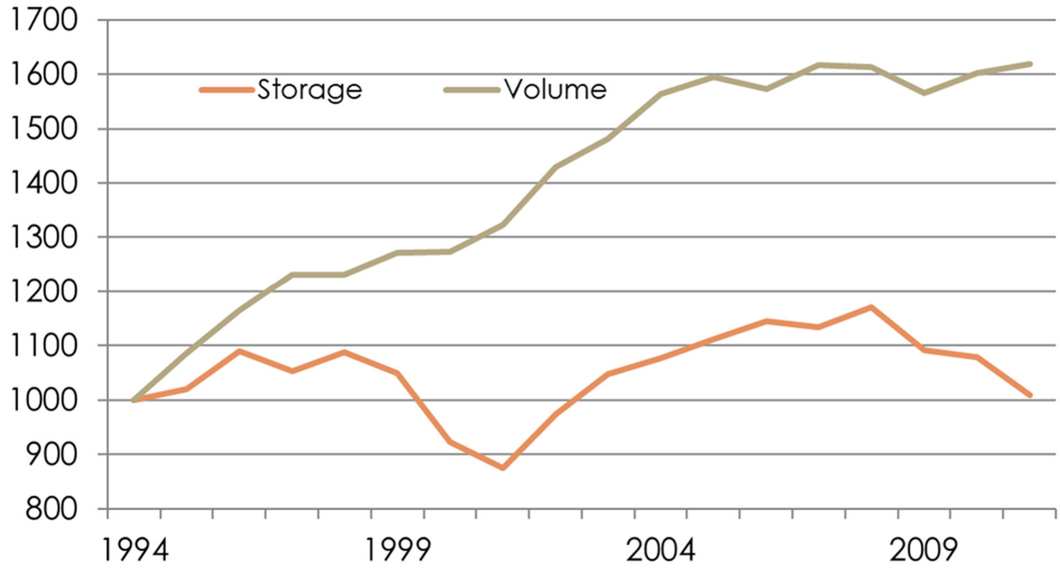


Source: Z "The downstream fuels industry: Strongly competitive or operating with uncertainty?" (8 March 2012) at 3.

[220] Z Energy "The downstream fuels industry: Strongly competitive or operating with uncertainty?" (8 March 2012) at 2-3. Available at <https://z.co.nz/about-z/news/submissions-and-presentations/the-downstream-fuels-industry-strongly-competitive-or-operating-with-uncertainty/>. (Viewed on 16 August 2019).

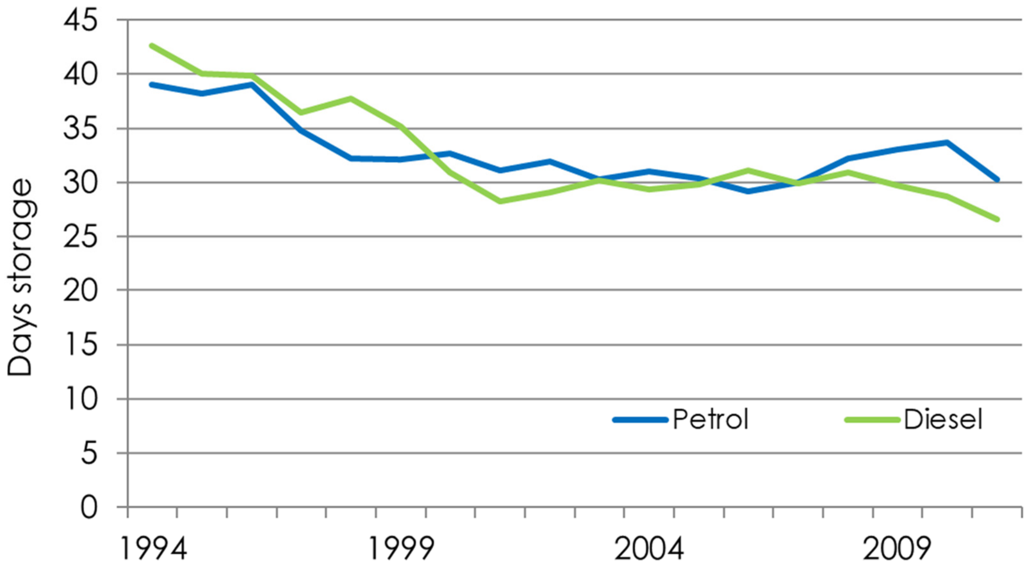
[221] Ibid.

Figure 3.18 Diesel volumes & storage indexed to 1994



Source: Z Energy "The downstream fuels industry: Strongly competitive or operating with uncertainty?" (8 March 2012) at 3.

Figure 3.19 Terminal storage in terms of days cover

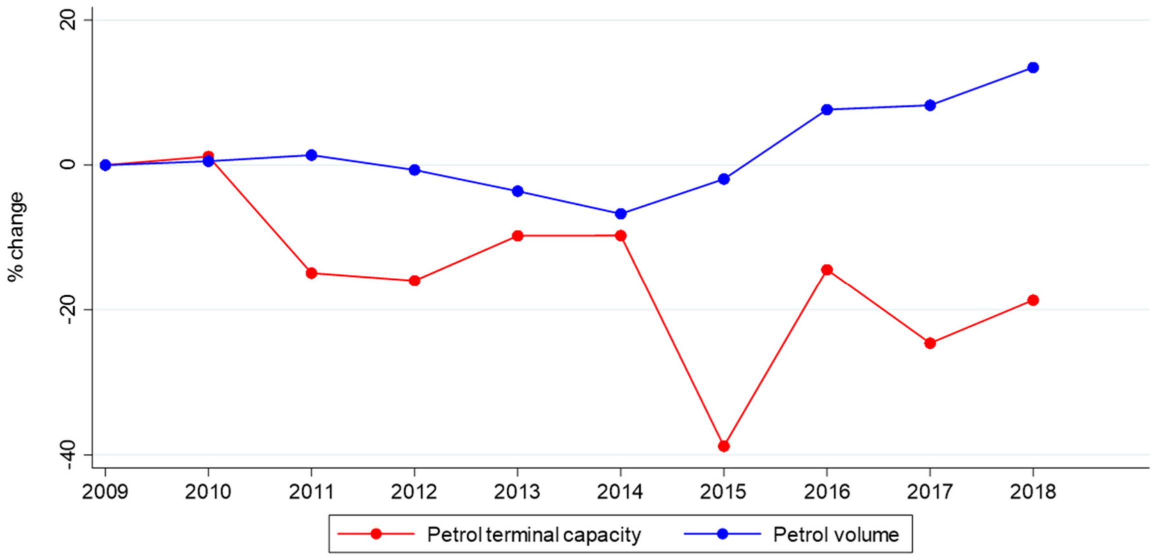


Source: Z Energy "The downstream fuels industry: Strongly competitive or operating with uncertainty?" (8 March 2012) at 3.

3.137 At the time, Z Energy attributed the terminal infrastructure being under stress to low margins and higher crude oil prices.[222] Since then, margins have increased materially, yet investment in increasing terminal capacity by the majors appears to have been modest, despite terminals being a key strategic asset. While firms continue to maintain their terminal assets, we understand there is very little capacity being added despite Z Energy's view on the historic level of investment and the gradual growth since 2012.

3.138 Our analysis of the trend in volumes of refined and imported fuel supplied into New Zealand by the majors in comparison to industry storage suggests that the trend identified by Z Energy in 2012 has continued. Figures 3.20 to 3.22 below shows changes in petrol, diesel and total volumes of the majors and respective industry storage, indexed to 2009.

Figure 3.20 Petrol volumes & storage since 2009[223]



Source: Commission analysis of refinery production data, major's import data and industry storage data.

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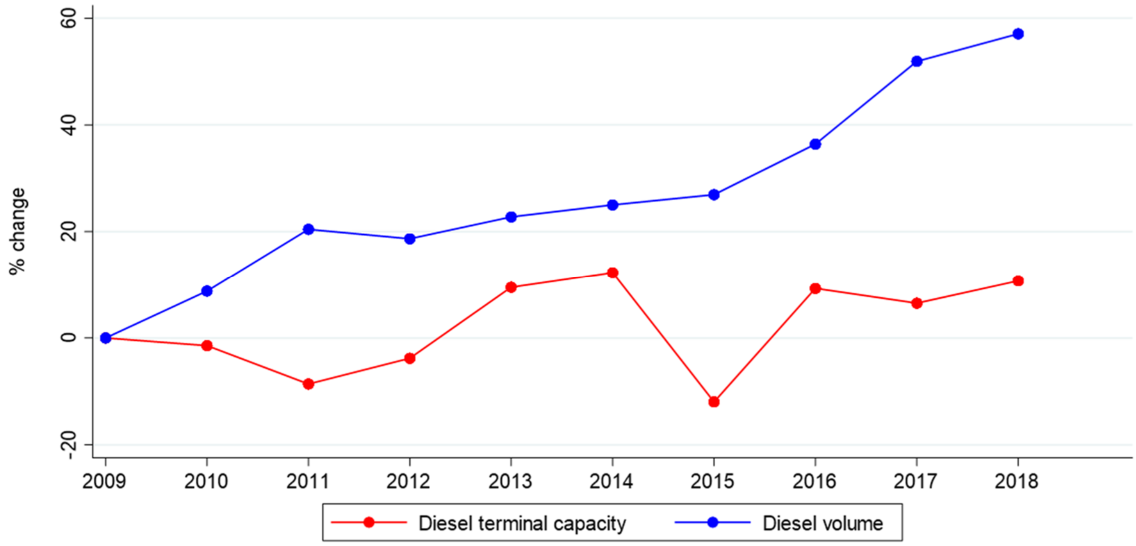
222 Z Energy "The downstream fuels industry: Strongly competitive or operating with uncertainty?" (8 March 2012) at 6. Available at <https://z.co.nz/about-z/news/submissions-and-presentations/the-downstream-fuels-industry-strongly-competitive-or-operating-with-uncertainty/>.

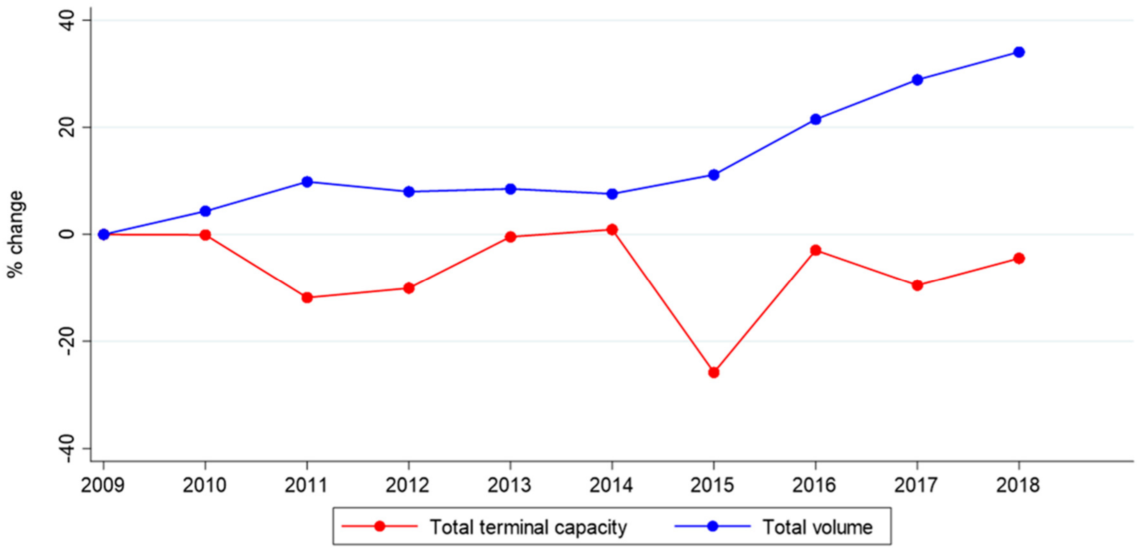
223 We have endeavoured to understand why there was a sudden reduction in terminal capacity in 2015. It appears that part of the reduction stems from damage to terminals in Lyttelton during a landslide at Mobil's Naval Point facility. We have had confirmation that the industry storage data used for our analysis is accurate.

Figure 3.21 Diesel volumes and storage since 2009



Source: Commission analysis of refinery production data, major's import data and industry storage.

Figure 3.22 Total fuel volumes and storage since 2009



Source: Commission analysis of refinery production data, major's import data and industry storage.

3.139 Figures 3.20 to 3.22 show the trends in fuel volumes and industry storage from 2009 to 2018. The overall trend suggested by Figures 3.17 to 3.22 above would appear to be rising volumes since 1994 with industry storage not matching those increases over time. Indeed, it appears that terminal storage capacity has largely fallen since 1994.

3.140 Chapter 2 described minimal changes in fuel terminal storage capacities over the last decade. Most of the terminal storage is shared between the majors under the borrow and loan arrangements which are subject to relatively frequent port coordination events (where fuel is rationed among the majors and the resellers to which they supply). Gull does not participate in these arrangements.

3.141 The increasing divergence between fuel volumes and fuel storage capacity shown above is consistent with views expressed by some industry that terminal investment has not kept pace with demand.[224] These views may also be reflective of the relatively frequent port coordination events and suggestions of regular shortages at some terminals.[225] We note that fuel supply adequacy may be impacted by factors other than terminal capacity, including shipping frequency and the feasibility of trucking fuel from alternative ports. We discuss this further in Chapter 5.

3.142 Persistent capacity constraints in a profitable, growing industry are a sign that competition is not working well. When suppliers face vigorous competition, they risk losing customers if they are unable to supply product to their customers.

3.143 In the New Zealand fuel supply chain, however, product shortages resulting from coordination events affect all majors (and distributors whom they each supply fuel) at the same time under the borrow and loan arrangements. This means the risk of losing a reseller as a customer is low as customers cannot secure supply by switching suppliers. This weakens the incentive for an individual major fuel firms to ensure that they have sufficient capacity to meet their reseller customers' needs.

3.144 The risk of product shortages and the ability and incentive of the majors to invest and compete is affected by the majors' various infrastructure sharing arrangements. These arrangements and the impact they may have on competition in the retail fuel market are discussed in more detail in Chapter 5.

Next chapters

3.145 In the chapters that follow, we discuss further the factors that we consider affect competition in the retail fuel market and how these factors may help explain the outcomes we have observed in this chapter.

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224 See Chapter 5 at [paras 5.55 to 5.86] for further discussion.

225 [ ]; [ ]; and [ ]

Chapter 4 Structural and regulatory conditions of entry and expansion

Summary of our preliminary findings

- The economics of the fuel sector may constrain entry and expansion of independent fuel companies, affecting outcomes for New Zealand consumers. These constraints may provide existing firms with durable market power, resulting in high prices to consumers.
- Structural barriers to entry and expansion, particularly resulting from economies of scale and sunk costs, are generally greater further up the fuel supply chain. This has led to a small number of firms operating at the refinery and as importers.
- Further entry at the refinery level appears highly unlikely. Given Refining NZ already produces approximately two thirds of New Zealand's fuel at Marsden Point, and there are high sunk costs of entry, there is little prospect of a new refinery at efficient scale.
- Entry by importing refined fuel to New Zealand appears possible from a structural and regulatory perspective – particularly by constructing terminals at ports relatively close to large areas of demand. There is a greater chance of obtaining sufficient market share to support imports of efficient size at these ports.
    - However, the scale of regional markets and port depth restrictions are likely to significantly limit the ability of entrants to successfully build and operate import terminals at smaller provincial ports.
    - This appears to have limited the geographic scope of independent competition based on imports. Gull opened its Mount Maunganui terminal in 1999 and TOSL is currently building a terminal in Timaru.
- Entrants at the importer level are likely to face a cost disadvantage when supplying customers in smaller provincial areas. This is due to relatively high costs of trucking long distances. Participation in the borrow and loan system or obtaining wholesale supply from other terminals, enabling entrants to access fuel from locations where they do not have their own terminals, would help reduce their distribution costs and better align them with those faced by the majors.
- Entry and expansion is occurring at the retail level, where structural barriers are lower than at the refinery and importer levels of the market. Most retail entry in recent years has been with low cost unmanned sites (helped by developing payment technologies). Unmanned sites often occupy secondary locations (for example, on side roads rather than prime metropolitan sites).
- Entering with full service stations in prime metropolitan locations is the most challenging, given the additional costs and complexities involved in providing a premium offering (for example, convenience stores). In addition, the best sites have often already been secured by existing suppliers.

Introduction to this chapter

4.1 This chapter sets out our assessment of the structural and regulatory conditions of entry and expansion in New Zealand fuel markets. We are particularly interested in any structural or regulatory conditions in the market that have the potential to prevent, impede or slow the entry into the market of new competitors, or the expansion of existing competitors.

4.2 Under this topic we discuss:

4.2.1 the size and nature of any structural or regulatory barriers to competition at each level of the supply chain; and

4.2.2 how these conditions affect new entry, and the expansion of existing firms, at each level.

4.3 Structural conditions relate to the exogenous economics of establishing an independent source of supply or supply chain, including the significance of economies of scale and sunk costs. Regulatory conditions include resource or planning consent requirements, and other requirements governing the standard and quality of fuel supplied to New Zealanders.

4.4 Although the focus of the study is on fuel supplied at the retail level, we have examined conditions of entry throughout the supply chain. This is because barriers to entry at any stage can affect outcomes in retail markets.[226]

4.5 Structural and regulatory barriers can limit the number of competing suppliers in the market. We are interested in structural and regulatory conditions of entry and expansion because the threat of entry by new firms, and the potential for existing firms to readily expand, can significantly constrain the behaviour of existing firms. If entry and expansion are difficult or prohibited, then high margins (and resulting high prices and inefficiencies) are more likely to persist in the longer term, to the detriment of New Zealand consumers.

4.6 We discuss other conditions of entry and expansion in New Zealand fuel markets, such as those associated with the conduct of incumbent firms, in other chapters. Conditions associated with access to existing infrastructure and vertical relationships are discussed in Chapter 5: Infrastructure sharing arrangements and Chapter 6: Wholesale supply arrangements.

Structure of this chapter

4.7 This chapter discusses:

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[226] The terms of reference for this market study recognise this relationship between conditions of entry at different levels of the supply chain and competition in the retail fuel market. For example, they expressly refer to “the extent of competition at the refinery, wholesale and retail levels” as matters we may consider in our study.

4.7.1 our approach to analysing structural and regulatory conditions which could limit entry and expansion in New Zealand fuel markets; and

4.7.2 our preliminary findings on how structural and regulatory conditions are affecting the potential for entry and expansion at each of the key stages in the supply chain.

Our approach to analysing structural and regulatory conditions

4.8 This section explains:

4.8.1 that we have adopted a relatively expansive approach to considering conditions of entry and expansion; and

4.8.2 what structural and regulatory conditions of entry and expansion are, focusing on the context of the New Zealand fuel market.

We have adopted an expansive approach to considering conditions of entry and expansion

4.9 The phrase 'conditions of entry and expansion' is related to the economic concept of 'barriers to entry'.

4.10 There are several possible definitions of barriers to entry. An OECD Policy Roundtable document on barriers to entry notes that the question of exactly what constitutes an entry barrier has never been universally resolved.[227] Economist Dennis Carlton notes that focusing on whether a barrier to entry exists according to a particular definition is a "barrier to understanding" how an industry will behave in the next few years.[228]

4.11 We have not adopted a specific definition of barriers to entry for this study. Instead we have taken an expansive approach to the factors that we consider might affect conditions of entry and expansion. There are two key reasons for this approach.

[227] OECD "Policy roundtables: Barriers to entry (2005)" *DAF/COMP(2005)42* (6 March 2006) at 9.

[228] Dennis Carlton "Why Barriers To Entry are Barriers to Understanding" (2004) 94 AER at 466.

4.11.1 First, the scope of a market study is likely to be broad. A market study is a study of "any factors that may affect competition for the supply or acquisition of goods or services".[229] In this particular study, our terms of reference require us to carry out a study into "*any factors* (emphasis added) that may affect competition for the supply of retail petrol and diesel used for land transport in New Zealand". The terms of reference also expressly refer to "any factors that may hinder competition between industry participants" and "the conditions for entry by potential competitors… and/or the conditions for expansion" as matters we may consider.[230]

4.11.2 Second, this is consistent with the approach adopted by the High Court in *Commerce Commission v New Zealand Bus* and *Air New Zealand v Commerce Commission*. In those cases the courts emphasised that the question of whether conditions in a market qualify as a barrier to entry, however defined, is less important than considering whether those conditions have the potential to prevent, impede or slow entry and expansion.[231]

What are structural and regulatory conditions of entry and expansion?

4.12 In this study we have grouped our analysis of conditions of entry and expansion into the following categories.[232]

4.12.1 *Structural and regulatory conditions*, which are discussed in this chapter. Structural conditions are 'exogenous', which means that they are underlying market conditions independent of the number or conduct of firms in the market. Although this chapter primarily focuses on structural conditions of entry and expansion, regulatory conditions are also discussed where relevant.

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229 Commerce Act 1986, s 48.

230 "Terms of reference for competition study into retail fuel markets" (5 December 2018) New Zealand Gazette No 2018-go6158.

231 *Commerce Commission v New Zealand Bus Ltd* (2006) 11 TCLR 679 (HC) at [147]-[155], citing Dennis Carlton "Why Barriers To Entry are Barriers to Understanding" (2004) 94 American Economics Review 466, and *Air New Zealand v Commerce Commission (No 6)* (2004) 11 TCLR 347 (HC) at [102]. This approach was confirmed by the Court of Appeal in *New Zealand Bus Ltd v Commerce Commission* [2007] NZCA 502 at [252].

232 Our mergers and acquisitions guidelines describe a variety of forms of conditions of entry and expansion, including structural, regulatory and strategic. Commerce Commission "Mergers and acquisitions guidelines" (July 2019) at [3.108]-[3.111].

4.12.2 *Conditions associated with firms' conduct*, such as contractual arrangements that raise barriers to entry (reinforcing any exogenous barriers). Conditions associated with firm conduct are 'endogenous', which means that they are generated by the behaviour of established firms in the market. Conditions associated with firms' conduct are discussed in Chapters 5, 6 and 7.

4.13 *Structural* conditions are associated with the technologies, resources or inputs a firm would need to enter or expand.[233] Structural conditions of entry and expansion which we consider are particularly relevant to the New Zealand fuel market include:

4.13.1 economies of scale, which refers to per unit costs falling as production or supply increases;

4.13.2 sunk costs, which are costs a firm incurs on entry and which it would not be able to recover if it later exits the market; and

4.13.3 first mover advantages, which are advantages gained by early entrants to the market.

4.14 Significant economies of scale can potentially deter entry. Fuel markets exhibit substantial scale economies in refining, bulk shipping and, to a lesser extent, with terminal storage and retail outlet operation.[234]

4.15 Where production is characterised by economies of scale, an entrant may be at a competitive disadvantage since it will be unlikely to have a sufficient share of the market to have low enough costs to compete effectively. Economies of scale may prevent profitable entry if, in the process of achieving efficient scale, an entrant would drive prices down so that the entrant's expected returns do not justify entry.[235]

4.16 Entry may also require a substantial investment in sunk costs which cannot be recouped upon exit. This may include start-up costs such as developing and testing products, installing specialised equipment and facilities, and advertising and marketing costs. There can also be exit costs associated with environmental clean-up which are not able to be recovered.

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233 Commerce Commission "Mergers and acquisitions guidelines" (July 2019) at [3.109].

234 Michael Pickford and Cameron Wheeler "The petrol industry: Deregulation, entry and competition" (2001) *NZ Trade Consortium Working Paper No. 12* at 33.

235 Commerce Commission "Mergers and acquisitions guidelines" (July 2019) at fn 97.

4.17 Sunk costs can make entry more challenging because a firm, when entering, will consider the costs it would be likely to recoup if it exited. The greater the sunk costs, the greater the risk faced when contemplating entry into the market.[236]

4.18 In addition, incumbent firms may enjoy first mover advantages of lower costs from being first on the learning curve or securing access to the best sites for terminals and retail service stations.[237] These advantages may make it difficult for an entrant to compete with established firms.

4.19 *Regulatory* conditions include resource management or other planning consent requirements, licensing requirements for a business or product, and regulations governing standards and quality of fuel supplied to New Zealanders.[238] Resource consent requirements are particularly relevant when constructing assets such as fuel storage terminals and retail service stations.

Our preliminary findings on structural and regulatory conditions

4.20 This section discusses structural and regulatory conditions of entry and expansion throughout the supply chain. We discuss the structural and regulatory conditions associated with:[239]

4.20.1 refining crude oil into petroleum products;

4.20.2 procuring and importing refined fuel into New Zealand;

4.20.3 storing refined fuel in terminals;

4.20.4 distributing refined fuel by pipeline, coastal shipping and truck; and

4.20.5 retailing refined fuel from retail sites.

4.21 Structural and regulatory barriers to entry and expansion generally appear to increase further up the supply chain.[240] Unless they can be overcome by asset sharing these barriers are likely to result in a highly concentrated market structure at the importing level.

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236 Commerce Commission "Mergers and acquisitions guidelines" (July 2019) at fn 62.

237 Michael Pickford and Cameron Wheeler "The petrol industry: Deregulation, entry and competition" (2001) *NZ Trade Consortium Working Paper No. 12* at 33.

238 Commerce Commission "Mergers and acquisitions guidelines" (July 2019) at [3.110].

239 Figure 13 in Chapter 2 illustrates the key steps of New Zealand's fuel supply chain.

240 A possible exception to this is barriers associated with the Resource Management Act at the retail level. However, barriers associated with the Resource Management Act may also be present higher up in the supply chain (for example, in relation to terminals).

4.22 Upstream assets such as the refinery and terminals are long-lived and exhibit economies of scale. High throughput levels are required to minimise the cost of each unit of production. Owners of assets such as terminals and the refinery also need access to downstream distribution channels and/or customers to compete effectively.

4.23 Although retail entry also involves significant investment, it does not require the same level of sunk costs or scale as upstream assets. For example, retail entry is possible with wholesale supply agreements from existing importers, instead of the entrant needing to build its own storage terminal(s).

4.24 However, if we focused solely on entry conditions at the retail level, we could miss important factors affecting competition arising at other levels of the supply chain which affect retail prices. Although there are many retailers competing in some local retail markets, all of them ultimately rely on one of the importers for fuel supply.

4.25 If there is no likelihood of entry at the refinery level and significant barriers to import competition, this could mean that wholesale prices are higher than they would otherwise be. If that is the case, even in a retail market where competition is otherwise strong, prices may not promote the long-term benefit of consumers.[241]

Refining crude oil into petroleum products

4.26 Further entry at the refinery level appears highly unlikely. This sub-section discusses the conditions of entry and expansion at the refinery level which have led us to this preliminary finding, noting our current views that:

4.26.1 barriers to entry (and exit) at the refinery level are very high;

4.26.2 the size of the New Zealand market is likely to limit Refining NZ's ability to expand to operate at minimum efficient scale; and

4.26.3 the New Zealand experience is consistent with overseas markets where there has been significant consolidation of refineries over time.

4.27 We invite comment on our analysis of conditions of entry and expansion at the refinery level and our view that entry at this level of the supply chain is unlikely.

241 See Chapter 1 for further discussion.

Barriers to entry (and exit) at the refinery level are very high

4.28 Given the significance of economies of scale and large sunk costs of entry, a new entrant refinery would be at a cost disadvantage and highly unlikely to enter in New Zealand. About one third of New Zealand's fuel demand that is currently met by imports of refined fuel could potentially be supplied by a new entrant refinery. However, this would require building a refinery of less than the incumbent's current capacity.

4.29 Economies of scale are particularly important for oil refineries.[242] Larger facilities are more efficient, and minimum efficient scale (MES) for refineries appears to have increased over recent decades.[243]

4.30 Refining NZ has a crude oil capacity of 135,000 barrels a day. The refinery meets around 58% of New Zealand petrol demand, around 85% of New Zealand Jet fuel demand and around 67% of New Zealand's diesel demand.[244]

4.31 Refining NZ's capacity is small compared to larger, more modern, refineries in other countries where most of New Zealand's imports are sourced.[245] The distillation capacities of refineries in South Korea (KR), Singapore (SG), Australia (AU) and New Zealand (NZ) are shown in Figure 4.1 below.

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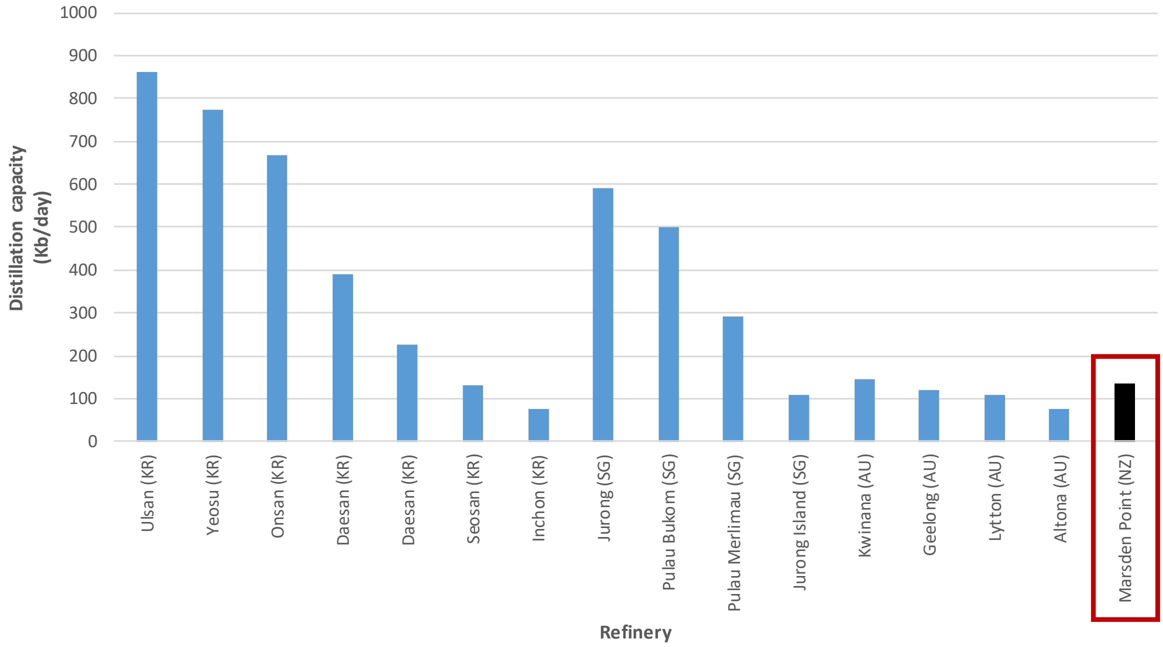
242 Canadian Fuels Association "The Economics of Petroleum Refining Understanding the business of processing crude oil into fuels and other value added products" (December 2013) at 7.

243 Minimum efficient scale is the level of output that minimises average cost, relative to the size of demand. HR Varian *Intermediate Microeconomics: A modern approach* (6th ed, W.W.Norton & Company, New York, 2003) at 432. See paragraph 4.32 below for further discussion of MES for refineries.

244 Refining NZ "These key facts give a general overview of our operation" (2019) <https://www.refiningnz.com/media/key-facts/>. (Viewed on 13 August 2019).

245 As shown in Figure 4.4 below, in 2017 over 90% of New Zealand's imports were sourced from Singapore (55.2%) and Korea (35.6%). The capacity of Australian refineries is also included for comparison.

Figure 4.1 Refinery capacities in South Korea, Singapore, Australia and New Zealand



Source: Commerce Commission analysis of data from McKinsey Energy Insights and Refining NZ.[246]

4.32 ACIL (1997) has previously noted that for refineries "the minimum efficient scale (MES) of plants is usually governed by the size of the least cost distillation tower which may now be as high as 200,000 barrels of crude oil processing per day".[247] This equates to approximately 73 million barrels per year. The recent consolidation of refineries overseas suggests that this may now underestimate MES.[248]

4.33 Refining NZ's throughput is approximately 55% of this estimate of MES. Throughput at the Marsden Point refinery has been relatively consistent over the last five years, at approximately 40 million barrels per year.[249] This is shown in Figure 4.2 below.

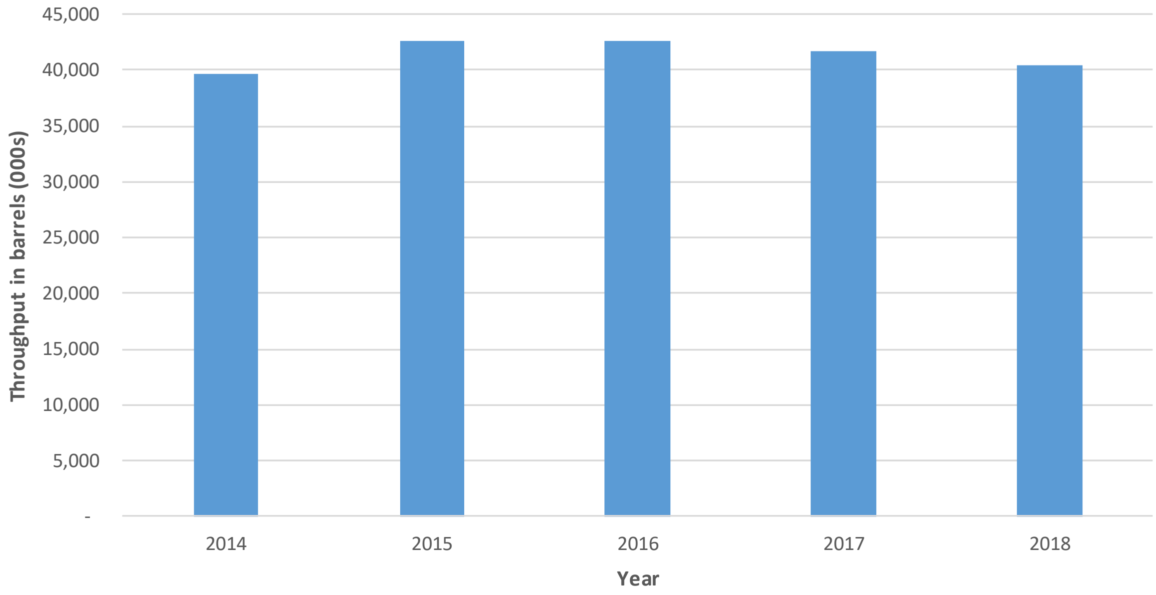
[246] McKinsey & Company "Energy insights by McKinsey: Refinery list" <https://www.mckinseyenergyinsights.com/resources/refinery-reference-desk/refinery-list/>. (Viewed on 13 August 2019). Refining NZ "These key facts give a general overview of our operation" (2019) <https://www.refiningnz.com/media/key-facts/>. (Viewed on 13 August 2019).

[247] ACIL "Barriers to entry to the New Zealand downstream oil market: A report to New Zealand Ministry of Commerce" (August 1997) at 103.

[248] See paragraphs 4.42 to 4.45 below for discussion on consolidation of refineries.

[249] The refinery typically operates at capacity. Refining NZ "NZCC market study into the retail fuel sector: Response by Refining NZ to the New Zealand Commerce Commission's preliminary issues paper for the retail fuel market study" (21 February 2019) at [7.16].

Figure 4.2 Refining NZ annual throughput



Source: Commerce Commission analysis of Refining NZ Throughput and Margin Report for November/December 2018 (17 January 2019).[250]

4.34 There are large sunk costs associated with oil refineries. Refineries require substantial investment in specialised equipment and facilities, most of which would be lost if the refiner later decided to exit. For example, the ACCC's 2007 report *Petrol prices and Australian consumers* noted "BP stated that the capital cost of a new refinery would be in the order of A$3 billion".[251]

4.35 Further entry at the refinery level is highly unlikely due to these large sunk costs, and the need to ensure refinery capacity is fully utilised to compete with importing refined fuel.[252] Given Refining NZ already produces approximately two thirds of New Zealand's fuel, and the refinery is significantly sub-scale by modern standards, it seems extremely unlikely a new refinery could enter at efficient scale.

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250 Refining NZ "Announcement to NZX: Refining NZ Throughput and Margin Report for November/December 2018" (17 January 2019). Available at <https://www.refiningnz.com/refininglogin/wp-content/uploads/2019/01/Throughput-and-Margin-Report-for-November-December-2018-1.pdf>. (Viewed on 26 July 2019).

251 ACCC "Petrol prices and Australian consumers: Report of the ACCC inquiry into the price of unleaded petrol" (December 2007) at 216.

252 Fully utilising capacity enables fixed costs to be spread over a greater number of units, lowering the average cost of production. Refining NZ has noted that "because of the small size of the New Zealand market, the economics of the refinery depend on it being fully utilised at all times" and "running the refinery with excess capacity is unlikely to be either efficient or profitable" Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) at [5(b)].

4.36 Environmental clean-up costs associated with refineries are also high, increasing the risks of entry. NZIER estimates that if the Marsden Point refinery were to close "the site remediation cost could be in the order of $300 million".[253]

4.37 Previous studies of the New Zealand fuel industry have also identified high barriers to entry at the refinery level, concluding that:[254]

4.37.1 it would be impractical for a new entrant to build its own refinery; and

4.37.2 therefore, entry can only occur lower down the supply chain (probably using imported refined product).

New Zealand's market size is likely to limit Refining NZ's ability to expand to minimum efficient scale

4.38 Refining NZ could expand its capacity, despite further entry at the refinery level being unlikely. Refining NZ has previously undertaken projects within the last decade which have increased its capacity, including:[255]

4.38.1 the Point Forward project (2009), which cost $190m and increased the refinery's overall capacity by 15% to around 135,000 barrels per day; and

4.38.2 the Te Mahi Hou project (2015), which cost $365m and reduced fuel losses across the refinery and increased petrol capacity by 2 million barrels per annum.

4.39 However, even if Refining NZ increased its capacity to be able to serve the entire New Zealand market, it would still not reach the estimate of MES discussed in paragraph 4.32 above.

4.40 In addition, given that Refining NZ would be adding extra capacity to relatively old technology, its cost curve may sit higher than other more modern refineries in the Asia-Pacific region.[256] This potentially adds to the challenges in competing with imports of refined fuel.

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[253] NZIER "Crude shipping project: Economic assessment of channel deepening at the Marsden Point Refinery" (2 August 2017) at 14.

[254] Michael Pickford and Cameron Wheeler "The petrol industry: Deregulation, entry and competition" (2001) *NZ Trade Consortium Working Paper No. 12* at 32 and ACIL "Barriers to entry to the New Zealand downstream oil market: A report to New Zealand Ministry of Commerce" (August 1997) at 103.

[255] Refining NZ "Profile of Refining NZ – Marsden Point – Whangarei" (2017) at 3-4. Available at <https://refiningnz.com/refininglogin/wp-content/uploads/2018/06/Refining-NZ-Profile-2017.doc>. (Viewed on 15 August 2019).

[256] As discussed in paragraph 4.45 below, NZIER has noted that "addition of new capacity, new technology, greater refinery scale and access to very large crude carriers has lowered the supply cost curve for crude oil in the Asia-Pacific region". NZIER "Crude shipping project: Economic assessment of channel deepening at the Marsden Point Refinery" (2 August 2017) at 5.

4.41 Although Refining NZ could potentially expand its capacity beyond the size of the New Zealand market, and export some of its output, it is unlikely that New Zealand has a comparative advantage in refining given its location.[257]

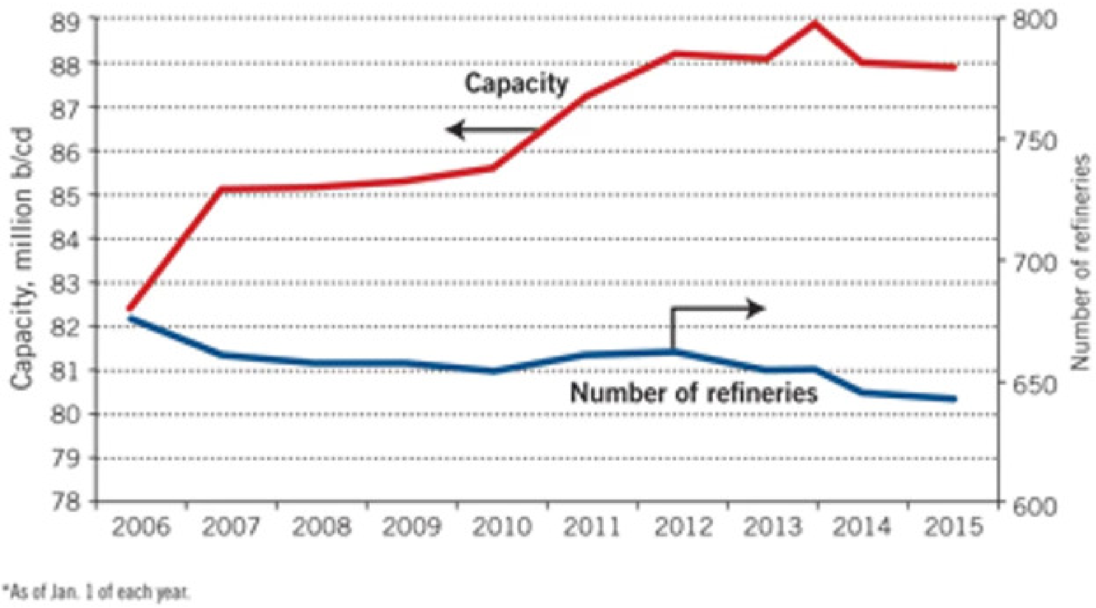
New Zealand experience is consistent with consolidation of overseas refineries

4.42 The consolidation of refineries in overseas markets also suggests that the entry of a new refinery in New Zealand is unlikely.

4.43 There has been significant consolidation of refineries in Australia. There are now only four refineries operating, down from eight in 2002.[258] In a December 2014 report, the ACCC noted that "the Australian refinery sector is facing a challenging future due to competitive pressure from large, low cost Asian refineries".[259]

4.44 The Australian experience is consistent with the global trend towards fewer refineries with larger capacities in recent years. This is shown in Figure 4.3 below.

Figure 4.3 Worldwide refining



Source: Oil and Gas Journal "Asia-Pacific refining primed for capacity growth" (1 December 2014).

[257] Michael Pickford and Cameron Wheeler "The petrol industry: Deregulation, entry and competition" (2001) *NZ Trade Consortium Working Paper No. 12* at fn 23.

[258] ACCC "Monitoring of the Australian petroleum industry: Report of the ACCC into the prices, costs and profit of unleaded petrol in Australia" (December 2014) at 11.

[259] Ibid, at ix.

4.45 Refining NZ is facing similar challenges. A 2017 report by NZIER, providing an economic assessment of proposed channel deepening at the Marsden Point refinery, noted that:[260]

4.45.1 Refining NZ operates in a highly competitive market for refined oil products, where addition of new capacity, new technology, greater refinery scale and access to very large crude carriers has lowered the supply cost curve for crude oil in the Asia-Pacific region; and

4.45.2 new ways of improving operating margins at Marsden Point are needed to remain competitive with much larger refineries in Singapore, Korea, India and the Middle East.

Procuring and importing refined fuel into New Zealand

4.46 Given our preliminary view that there are high barriers to entry at the refinery level, another possible form of entry is by importing refined fuel into New Zealand. This requires shipping refined fuel to New Zealand, storing this fuel in storage terminals, and then distributing and selling it to consumers.

4.47 The evidence we have so far indicates that there are several challenges when procuring and shipping refined fuel into New Zealand. This sub-section explains our current views that:

4.47.1 there are economies of scale in shipping fuel to New Zealand;

4.47.2 some of New Zealand's smaller regional ports are too shallow to receive standard import cargoes;

4.47.3 import cargoes may need to be unloaded across multiple ports due to depth or storage limitations;

4.47.4 differences in fuel specifications may create difficulties for an importer shipping fuel to multiple countries; and

4.47.5 New Zealand's distance from key import refineries can affect security of supply.

4.48 Despite these challenges, our current view is that entry at the importer level appears feasible from a structural and regulatory perspective – at least at current importer margins. This is demonstrated by Gull's presence in the New Zealand market and the upcoming entry of TOSL.

[260] NZIER "Crude shipping project: Economic assessment of channel deepening at the Marsden Point Refinery" (2 August 2017) at 5.

4.49 Importer entry appears most feasible at ports able to serve large areas of demand, where there is greater chance of obtaining sufficient market share to support import cargoes of efficient size. It appears to us that none of the challenges listed above are likely to be insurmountable, and they are faced by both the majors and other independent importers. We invite comment on our assessment of the potential for entry at the importer level.

4.50 Once imported refined fuel has landed in New Zealand it needs to be stored in a terminal. Terminal storage is discussed in the next sub-section at paragraphs 4.75 to 4.111 below.

There are economies of scale in shipping fuel to New Zealand

4.51 There are significant economies of scale associated with bulk shipping and large fixed costs associated with sending a fuel tanker to New Zealand. Data on imports to New Zealand suggest the cost of chartering an import vessel is about $1.5m per shipment.[261] Transporting smaller cargoes leads to higher freight costs per litre of fuel.[262]

4.52 Medium range (MR) fuel tankers, which are generally used to import refined fuel into New Zealand, can carry approximately 30,000 metric tonnes (MT).[263] We understand that the standard size of petrol and diesel cargoes traded in Asia is approximately 30,000 MT.[264]

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261 [ ] In addition, NZIER has estimated that reducing the number of annual crude tanker deliveries to Marsden Point from 59 to 48 would save $17m per year in delivery costs ($1.5m per delivery). NZIER “Crude shipping project: Economic assessment of channel deepening at the Marsden Point Refinery” (2 August 2017) at 13.

262 We understand that an importer can include multiple fuel types on a ship to help realise economies of scale. For example, one shipment could include petrol, diesel and jet fuel. [ ]

263 MR tankers range from approximately 25,000-45,000 deadweight tonnes (which is a measure of a ship’s capacity to carry cargo). U.S. Energy Information Administration “Oil tanker sizes range from general purpose to ultra-large crude carriers on AFRA scale” (16 September 2014) available at <https://www.eia.gov/todayinenergy/detail.php?id=17991>. (Viewed on 13 August 2019).

264 ACCC “Monitoring of the Australian petroleum industry: Report of the ACCC into the prices, costs and profits of unleaded petrol in Australia” (December 2010) at 71 and S&P Global Platts “Specifications guide: Asia Pacific and Middle East refined oil products” (July 2019).

4.53 The ACCC has noted that the most efficient and economical way to import fuel is by vessel with a minimum 30,000 MT cargo, fully loaded at one port and fully discharged at another port.[265] There are diseconomies of small-scale operation because:[266]

4.53.1 if spot-chartered for a specific voyage, the minimum freight lump sum cost is usually based on a cargo load of 30,000 MT, regardless of the size of the cargo actually loaded (this means that on a per litre basis, the smaller the cargo the higher the freight cost); and

4.53.2 shipping a non-standard cargo size can increase product cost per barrel, to compensate the supplier for the supply chain inefficiencies associated with a smaller cargo.

4.54 As discussed later in this chapter, a storage terminal of at least 40-45 ML is required to support a 30,000 MT import cargo.[267]

Some New Zealand ports are too shallow to receive standard import cargoes

4.55 The depth of some coastal ports in New Zealand limits the cargo size able to be delivered by MR tankers. To be cost-competitive, an importer will want to use a ship with a minimum cargo load of 30,000 MT.

4.56 Heavier ships, carrying larger parcels of fuel, sit lower in the water. The fuel tanker berth at each coastal port in New Zealand has a maximum allowable draught, which reflects the depth of water a ship can safely navigate.[268]

4.57 We understand that a draught of approximately 10-11 metres is needed to support a 30,000 MT import cargo of fuel.[269] It is possible to import a cargo of this size at most of New Zealand's larger ports, including Auckland, Mount Maunganui, New Plymouth, Wellington (Seaview) and Lyttelton.

4.58 However, several of New Zealand's ports are not deep enough for an MR tanker to berth with a 30,000 MT cargo. These ports include Napier, Wellington (Aotea Quay #3 and Miramar), Nelson, Timaru, Dunedin and Bluff.

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265 ACCC "Monitoring of the Australian petroleum industry: Report of the ACCC into the prices, costs and profits of unleaded petrol in Australia" (December 2010) at 68. Given Australia and New Zealand's geographic proximity, the ACCC's work provides useful context when considering the requirements of importing refined fuel to New Zealand.

266 ACCC "Monitoring of the Australian petroleum industry: Report of the ACCC into the prices, costs and profits of unleaded petrol in Australia" (December 2010) at 71.

267 The requirements associated with building and operating import terminals are discussed in paragraphs 4.75 to 4.111 below.

268 The draught of a ship's hull is the vertical distance between the waterline and the bottom of the hull (keel), with the thickness of the hull included.

269 Based on the data provided by COLL in Table 4.1 below.

4.59 An importer seeking to ship fuel to a port with draught (or storage) limitations may need to first unload some of its cargo at another port. This is discussed in more detail in paragraphs 4.62 to 4.64 below.

4.60 Maximum draughts for fuel tanker berths at relevant New Zealand ports are shown in Table 4.1 below. Theoretical maximum cargo sizes for an MR tanker are also included.

Table 4.1 New Zealand port draught comparison (for fuel tanker berths)

Port	Berth	Maximum draught (m)*	Theoretical maximum cargo size (MT)**
Auckland	Wynyard Wharf	10.3	30,900
Tauranga	Oil Berth #16	11.2	34,200
Napier	Oil Berth (2 South)	10.1	29,900
New Plymouth	Newton King #1	12.5	41,000
	Newton King #2	12.5	41,000
Wellington	Seaview	10.2	30,400
	Aotea Quay #3	9.9	28,900
	Miramar	8.5	21,900
Nelson	Main wharf south	9.4	26,300
Lyttelton	Oil Berth	11.1	33,600
Timaru	No. 1 Extension	9.5	28,600
Dunedin	Oil Jetty (Upper Harbour)	7.2	15,700
Bluff	Town Wharf (No. 11)	8.8	23,400

Source: COLL.[270]

Notes: * The maximum permitted draught is based on chart datum, ie, no allowance has been made for variable tidal heights.** The maximum cargo size is based on the sum of all products that could be discharged at a particular port from COLL's time-chartered MR vessel ‘Kokako’, given the available draught. It does not take into consideration the availability of shore-based tankage at these ports.

4.61 Marsden Point in Whangarei Harbour is deeper than the ports listed in Table 4.1, with a current maximum draught of 14.7 metres.[271] The Marsden Point refinery provides an example of the economies of scale generated by larger ships. Refining NZ is currently proposing to deepen the entrance to Whangarei Harbour to 16.6 metres, to enable larger deliveries of crude oil to the refinery.[272]

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270 Kensington Swann (on behalf of COLL) “Response to information request” (4 June 2019) at 2-3.

271 Navigatus Consulting “Report in support of an assessment of the effects on the environment: Navigational risk assessment of engineered channel designs” (15 August 2017) at 3.

272 Refining NZ notes that it began consulting on this proposal in 2014. It submitted its resource consent application in August 2017, which was granted by the Northland Regional Council on 17 July 2018.

Imports may need to be unloaded across multiple ports due to depth or storage limitations

4.62 Although single port discharge of import cargoes is generally preferred to minimise freight costs, unloading at multiple ports may be necessary where there are port depth or tank storage capacity limitations.[273] An importer would need to own (or have access to) terminals at multiple ports for this strategy to be effective.

4.63 For example, where an importer faces restrictions which prevent it from unloading a full 30,000 MT cargo at a single port, it may be able to:

4.63.1 first unload some of the cargo at a deeper port with sufficient tank storage; and

4.63.2 then unload the remaining cargo at a second port, which is shallower or has greater storage constraints.

4.64 The ACCC has noted that distributing a single 30,000 MT cargo across multiple ports improves the freight economics, compared with directly importing two separate smaller cargoes.[274] However, as noted in paragraph 4.53 above, this is not as efficient as fully loading a 30,000 MT cargo at one port and fully discharging it at another port.

Differences in specifications may create difficulties when shipping fuel to multiple countries

4.65 It may be possible to overcome draught limitations, and realise economies of scale in international shipping, by adding New Zealand to an existing distribution network in the region.[275] This could avoid needing to drop off fuel to more than one New Zealand port.

4.66 Adding New Zealand to an existing distribution network may enable an importer to:

4.66.1 lower the incremental cost of shipping fuel to New Zealand;

4.66.2 avoid the need to own (or have access to) more than one terminal in New Zealand; and

4.66.3 increase the amount of fuel unloaded at a new terminal over time as market share builds.

Refining NZ chose to appeal some of the conditions of the approval. The Environment Court confirmed the resource consents on 14 December 2018, subject to minor revisions as agreed between the parties. Refining NZ "The deeper story" <https://deeperstory.co.nz/>. (Viewed on 13 August 2019).

273 A major noted that "multiple port discharges are tolerated as they enable bulking-up of cargoes or larger vessels". [ ]

274 ACCC "Monitoring of the Australian petroleum industry: Report of the ACCC into the prices, costs and profits of unleaded petrol in Australia" (December 2010) at 71.

275 For example, TOSL has noted that Timaru will need to be a second or third port of call due to draught restrictions. Transcript of meeting with TOSL (21 June 2019) at 12 (lines 18-22).

4.67 However, differences in fuel specifications of different countries may create challenges for a company shipping refined fuel to multiple import locations.

4.68 For example, an importer shipping fuel from Singapore or South Korea to New Zealand, but unloading some of the cargo in a different country on the way, needs to ensure that the fuel meets the relevant specifications in each country. TOSL has noted that “one of our dreams would be to have all the countries out there speaking all together and making sure that they actually want the same grades of products, that would make our life much more simple”.[276]

4.69 New Zealand’s Engine Fuel Specifications Regulations provide comprehensive fuel specifications for petrol, petrol/ethanol blends, diesel, biodiesel, and diesel/biodiesel blends.[277] The regulations were last amended in 2016/17, which included reducing the sulphur level allowed in petrol from 50 to 10 parts per million (ppm).[278]

4.70 Z Energy’s submission on the preliminary issues paper noted that New Zealand’s fuel specifications are “stringent” and make “New Zealand fuel relatively difficult to blend”. Z Energy stated that:[279]

> The specifications target minimum performance and reducing fuel’s environmental impact. While other countries do have tight specifications, they are generally not as constrained as many of those in New Zealand. For example, while Australian specifications are in many respects similar to New Zealand’s, Australia is significantly more lenient in relation to sulphur levels.

4.71 The relatively tight specifications in New Zealand, particularly the sulphur levels, limits the overseas refineries from which fuel can be imported. A 2015 report by Stratus Advisors noted that, at the time of writing:[280]

4.71.1 only three countries in the Asia-Pacific region (Japan, South Korea and Taiwan) set maximum sulphur levels of 10 ppm for gasoline; and

4.71.2 a further four countries (China, India, Singapore and Vietnam) had plans to set maximum sulphur levels of 10 ppm for gasoline in the next 6 years (ie, by 2021).

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276 Transcript of meeting with TOSL (21 June 2019) at 12 (lines 31-33).

277 Engine Fuel Specifications Regulations 2011 available at <http://www.legislation.govt.nz/regulation/public/2011/0352/latest/whole.html>. (Viewed on 15 August 2019).

278 MBIE “2017/17 updates to fuel specifications” available at <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-generation-and-markets/liquid-fuel-market/engine-fuel-quality/>. (Viewed on 13 August 2019). These changes took effect on 2 October 2017, except for the change to the maximum sulphur level which took effect on 1 July 2018.

279 Z Energy “Market study into the retail fuel sector: Z Energy’s response to invitation to comment on preliminary issues” at [36].

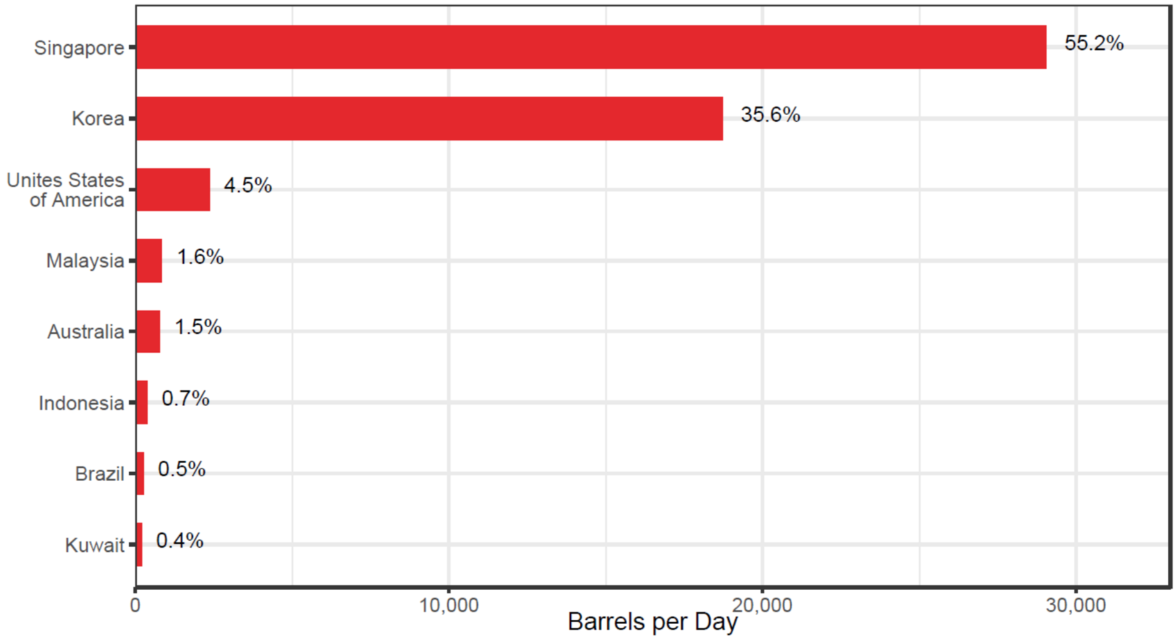
280 Stratus Advisors “Information on Asia-Pacific Fuel Quality Standards and their Implications for New Zealand” (February 2015) at 30.

New Zealand's distance from key import refineries can affect security of supply

4.72 New Zealand's distance from import refineries also increases the risk of running out of fuel, if there is disruption to supply. The shipping time to New Zealand from the main import refineries in Singapore and South Korea is significant, at approximately 20 days.

4.73 The main sources of New Zealand's imports of refined fuel are shown in Figure 4.4 below. In 2017, over 90% of imports were sourced from Singapore (55.2%) and South Korea (35.6%).

Figure 4.4 Source of New Zealand's imports of refined fuel by country (2017)



Source: MBIE "Energy in New Zealand 2018" at 32.

4.74 The infrastructure sharing arrangements discussed in Chapter 5 mitigate international transport risks for the majors. However, these arrangements are not currently available to an entrant importer of refined fuel.

Storing refined fuel in terminals

4.75 Once an import vessel has arrived in New Zealand, the refined fuel it is carrying needs to be stored in tanks (referred to as 'terminals').

4.76 The evidence we have received so far suggests that entry is possible at the terminal level, particularly at larger ports which are well located to serve large areas of demand by truck. However, the scale of regional markets and port depth restrictions is likely to significantly limit the ability of entrants to successfully build and operate terminals at smaller provincial ports.

4.77 This sub-section discusses the challenges associated with entering at the terminal level that lead us to this preliminary view. It notes that:

4.77.1 terminals require large capital investment, with high fixed and sunk costs;

4.77.2 access to suitable land and associated resource consents is required;

4.77.3 significant market share is required to support efficient terminal throughput rates; and

4.77.4 the geographic scope of past entry at the terminal level has been limited.

4.78 At the end of this sub-section we summarise our current views on the potential for importer entry from a structural and regulatory perspective. This is based on our analysis of the challenges associated with both shipping refined fuel to New Zealand and operating terminals.

Terminals require large capital investment

4.79 Terminals are long-lived assets, with high fixed and sunk costs. This increases the risks faced by a new importer, making entry more difficult, because the costs it would be able to recover if it later exits the market are likely to be limited.[281]

4.80 Significant capital investment is required to construct a new terminal at sufficient scale to support a standard 30,000 MT import cargo. The ACCC has noted that at least 40–45 ML of clean tank storage is required to efficiently discharge a 30,000 MT cargo.[282] Similarly, a major has noted that a full import cargo from a MR tanker is approximately 40-55 ML.[283]

4.81 Although building a smaller terminal would reduce upfront investment costs, the resulting storage capacity limitations would likely increase freight costs per litre. The diseconomies of small-scale importing are discussed in paragraph 4.53 above.

4.82 Based on public and confidential information we have received from several parties so far, we estimate the cost of a new 45 ML storage terminal as approximately $40-60 million.[284]

4.83 Z Energy has provided gross replacement cost estimates for the terminals it occupies. These estimates were prepared by an independent valuer as part of Z Energy's financial reporting processes.[285]

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281 As noted in paragraph 4.103 below, Gull's terminal in Mount Maunganui was initially constructed by relocating second hand tanks from the closed Marsden Point Power Station by barge, suggesting that investments in terminals may not be fully sunk.

282 ACCC "Monitoring of the Australian petroleum industry: Report of the ACCC into the prices, costs and profits of unleaded petrol in Australia" (December 2010) at 68.

283 [ ]

284 See paragraph 235 in Attachment D for further details of how we reached this estimate. Land costs are not included (we have assumed that the land is leased).

285 Jones Lang LaSalle (JLL) estimated gross replacement cost estimates for Z Energy's terminals, [ ]

4.84 Using this information, we have plotted the estimated gross replacement cost of each of Z Energy's terminals against the corresponding storage capacity.[286] This analysis supports the cost estimate for a 45 ML terminal in paragraph 4.82.

4.85 This analysis also provides some evidence of economies of scale for terminals, although the reduction in replacement cost per unit as capacity increases is relatively small. This may be because terminals are modular – they are typically comprised of multiple tanks (of varying capacities). A new tank can be added when additional capacity is required at a terminal (subject to land availability).

Access to suitable land and associated resource consents is required

4.86 There is limited availability of land near deep-water coastal ports, which is suitable to build an import terminal. Associated resource consents (such as land-use consent and stormwater discharge permits) are also required, which can be a lengthy process.[287] These factors may limit both the prospect and speed of entry.

4.87 A major has previously noted that "the optimal terminal configuration is large enough to take the largest possible bulk delivery (minimising primary distribution unit cost of supply) and close enough to the largest possible demand centres to minimise road transport costs".[288]

4.88 The evidence we have received so far suggests that there is limited availability of suitable land for new storage terminals in the optimal locations. For example, one industry participant has indicated that although Lyttelton port is well located given Christchurch is one of New Zealand's biggest cities, suitable land for a new storage terminal is not available.[289]

4.89 In some cases there can be challenges associated with getting resource consent approvals for terminals, including to meet urban planning requirements and to address environmental matters.[290]

The estimates exclude goodwill, stock and materials in trade, items not scheduled, land, buildings, GST and third party assets. JLL "Valuation Report: Z Energy Limited – Terminal Plant & Equipment Assets" (31 March 2017) at 9 and 14. Total capacities are calculated by summing the "Tanks (Fuel)" asset category for each terminal using the spreadsheet accompanying JLL's report.

286 Attachment D contains further discussion on the replacement costs of terminals.

287 [ ]

288 [ ]

289 [ ]

290 [ ]

Significant market share is required to support efficient terminal throughput rates

4.90 The scale of regional markets (and market share required) is likely to significantly limit the ability of entrants to successfully build and operate terminals at smaller provincial ports.

4.91 In terms of the minimum volume throughput required to support a terminal, the ACCC has noted that to manage both quality control and working capital costs, it is common for terminal owners to aim to turn tanks (that is, have them filled and emptied) at least every three months.[291]

4.92 However, on average, independently owned import terminals in Australia have a turnover rate of over six times per annum.[292] This suggests annual terminal throughput of 180,000 MT to support deliveries of 30,000 MT cargoes. This is equivalent to approximately 214 ML of diesel or 241 ML of petrol per year.[293]

4.93 Assuming a turnover rate of six times per year, and that volumes (and tank capacities) are split equally between petrol and diesel, we estimate annual throughput at an efficiently utilised new import terminal to be 228 ML. This is approximately 3% of New Zealand's total demand for petrol and diesel in 2018.[294]

4.94 A new entrant is likely to need to obtain significant wholesale market share in certain regions to support this throughput. Table 4.2 below estimates the market share required by a new 45 ML terminal at each port, based on our estimate of:

4.94.1 total offtakes of petrol and diesel from existing terminals in 2018;[295] and

4.94.2 the annual throughput at an efficiently utilised new terminal.

4.95 For simplicity, this analysis assumes all the ports listed in Table 4.2 below can receive a standard 30,000 MT import cargo. However, as discussed in paragraphs 4.55 to 4.61 above, in practice there are depth restrictions at several of New Zealand's ports which mean this is not possible.

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291 ACCC "Monitoring of the Australian petroleum industry: Report of the ACCC into the prices, costs and profits of unleaded petrol in Australia" (December 2010) at 72.

292 Ibid.

293 Assuming product densities of 1,339 litres per MT for petrol and 1,189 litres per MT for diesel. These densities are calculated using data for 2019 in the "Fuel_Properties" sheet of MBIE's "Data tables for oil" available at <https://www.mbie.govt.nz/assets/Data-Files/Energy/energy-quarterly-statistics/q1-march-2019/aa59cabd85/Oil.xlsx>. (Viewed on 15 August 2019).

294 The "Annual_kt" sheet of MBIE's "Data tables for oil" (see fn 293 above) notes that, in 2018, total consumption of petrol and diesel was 2410.32 kt and 3,032.41 respectively. This converts to approximately 3.2 billion litres of petrol and 3.6 billion litres of diesel (6.8 billion litres total), using the product densities in fn 293.

295 As noted by MBIE, port offtakes only provide a general indication of regional fuel demand, because fuel can be transported between regions. For example, New Plymouth is sometimes served by Wellington ports and Mount Maunganui often provides fuel throughout the North Island. MBIE "Energy in New Zealand 2018" at 35.

Table 4.2 Estimated market share required by new 45 ML terminal by region

Port	Total offtakes of petrol and diesel (2018) (ML)	Estimated market share required by new import terminal
Whangarei (Marsden Point)	370	62%
Auckland (Wiri + Wynyard)	1,793	13%
Mt Maunganui	1,267	18%
Napier	316	72%
New Plymouth	99	230%
Wellington (Aotea Quay + Seaview)	852	27%
Nelson	328	69%
Christchurch (Lyttelton)	787	29%
Timaru	253	90%
Dunedin	385	59%
Bluff	260	87%

Source: Data on terminal offtakes supplied by COLL, WOSL and Gull.

4.96 The estimates of the market share that would be required by a new terminal in Table 4.2 range from 13% to 230%, depending on the port. However, these estimates are likely to overstate the market shares required to enter, given that multiple regions can be served from a single terminal. For example, Gull supplies retail sites throughout most of the North Island from its Mount Maunganui terminal.[296]

4.97 It may be feasible to enter with a smaller terminal, and therefore with smaller shipments and less need to obtain large market shares. However, as noted in paragraph 4.53 above, there are diseconomies of scale associated with smaller import cargo sizes. The ACCC has noted that this could increase both freight and product costs:[297]

> For an independent reseller, if a discharge port location has less than 40–45 ML tank storage capacity and/or draft restrictions, additional costs for freight and product could be incurred and may result in the cargo being uneconomic compared with prices offered by the refiner-marketers. The increased freight cost results from the diseconomies of small-scale operation.

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296 In addition, TOSL indicated that given Timaru is in the middle of the South Island, it can serve all the way from Kaikoura to Bluff (including Queenstown). Transcript of phone call meeting with TOSL (2 April 2019) at 4 (lines 44-48).

297 ACCC "Monitoring of the Australian petroleum industry: Report of the ACCC into the prices, costs and profits of unleaded petrol in Australia" (December 2010) at 71.

4.98 Similarly, Refining NZ's submission on our preliminary issues paper stated:[298]

> New Zealand is geographically sizable but has a very low population density. This makes it costly to service small demand centres with fuel, as the demand at each coastal port is insufficient to warrant the investment in adequate tankage to allow a product import tanker to discharge a full cargo into a single coastal port. Product tankers are therefore required to make multiple port calls, which increases distribution costs.

4.99 Table 4.2 above also suggests it is possible that new importer entry at larger ports, based on a 45 ML import terminal, could potentially result in excess capacity. However, we do not currently consider this to be a significant concern for the reasons discussed in Chapter 5. In particular, our analysis so far suggests:

4.99.1 there has been limited investment in terminal capacity over time; and

4.99.2 the resulting low level of tank storage is likely to be having a detrimental effect on wholesale competition.

The geographic scope of past entry at the terminal level has been limited

4.100 Despite the challenges associated with building new terminals, there has been some entry at the importer level in New Zealand.

4.101 However, previous entry at the terminal level has been limited to specific ports and has not led to construction of a larger network of terminals throughout New Zealand. This supports our preliminary view that the geographic scope of import-based competition is likely to be limited.

4.102 Gull has its own terminal in Mount Maunganui, which opened in 1999.[299] Gull's Mount Maunganui terminal currently has a total storage capacity of 90 million litres.[300]

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298 Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) at [9.2].

299 Max Bradford, Minister of Energy and Commerce, "Opening of Gull (Terminals NZ Ltd) Petroleum Tank Farm" (20 April 1999). Available at <https://www.beehive.govt.nz/speech/opening-gull-terminals-nz-ltd-petroleum-tank-farm>. (Viewed on 16 August 2019).

300 Gull "Our terminal" <https://gull.nz/business/terminals/>. (Viewed on 14 August 2019).

4.103 Gull's terminal was originally constructed by purchasing four second hand tanks from the closed Marsden Point Power Station, suggesting that investments in terminals may not be fully sunk.[301] The four tanks were relocated from Marsden Point to Mount Maunganui by barge.[302]

4.104 Challenge previously had its own terminals in New Plymouth and Timaru. Challenge was acquired by Caltex in 2001, after entering in 1998.[303]

4.105 As noted above, TOSL is also currently constructing a new 44 ML terminal in Timaru. TOSL has indicated that:

4.105.1 there will be six bulk fuel storage tanks, with four 8 ML tanks in the first stage and two additional 6 ML tanks to be added later;[304] and

4.105.2 it is on schedule to be operating around July 2020.[305]

4.106 We also understand further construction of new terminals, or additional tanks being built at existing terminals, is under discussion. For example, Gull is seeking to expand into supplying jet fuel to Auckland Airport, which may require additional storage capacity.[306]

4.107 The storage capacities of existing terminals in New Zealand, as at 2017, are shown in Figure 4.5 below. Gull's 90 ML terminal in Mount Maunganui and TOSL's 44 ML terminal in Timaru (which is not included) account for a relatively small proportion of total storage capacity in New Zealand, though they represent relatively high shares of capacity at their ports.

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301 Max Bradford, Minister of Energy and Commerce, "Opening of Gull (Terminals NZ Ltd) Petroleum Tank Farm" (20 April 1999). Available at <https://www.beehive.govt.nz/speech/opening-gull-terminals-nz-ltd-petroleum-tank-farm>. (Viewed on 16 August 2019).

302 Gull "Gull Makes Multi-Million Dollar Investment In Mt Maunganui" (press release, 7 December 2011) available at <http://www.scoop.co.nz/stories/BU1112/S00227/gull-makes-multi-million-dollar-investment-in-mt-maunganui.htm>. (Viewed on 15 August 2019).

303 Caltex New Zealand Limited and Challenge Petroleum Limited [2001] Decision 434 at [13] and [78].

304 Transcript of phone call meeting with TOSL (2 April 2019) at 8 (lines 35-47).

305 Transcript of meeting with TOSL (21 June 2019) at 3 (lines 49-50).

306 NZ Herald Business Desk "Gull seeks to supply jet fuel at Auckland Airport" *The New Zealand Herald* (7 June 2019). Available at <https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=12238207>. (Viewed on 15 August 2019).
[

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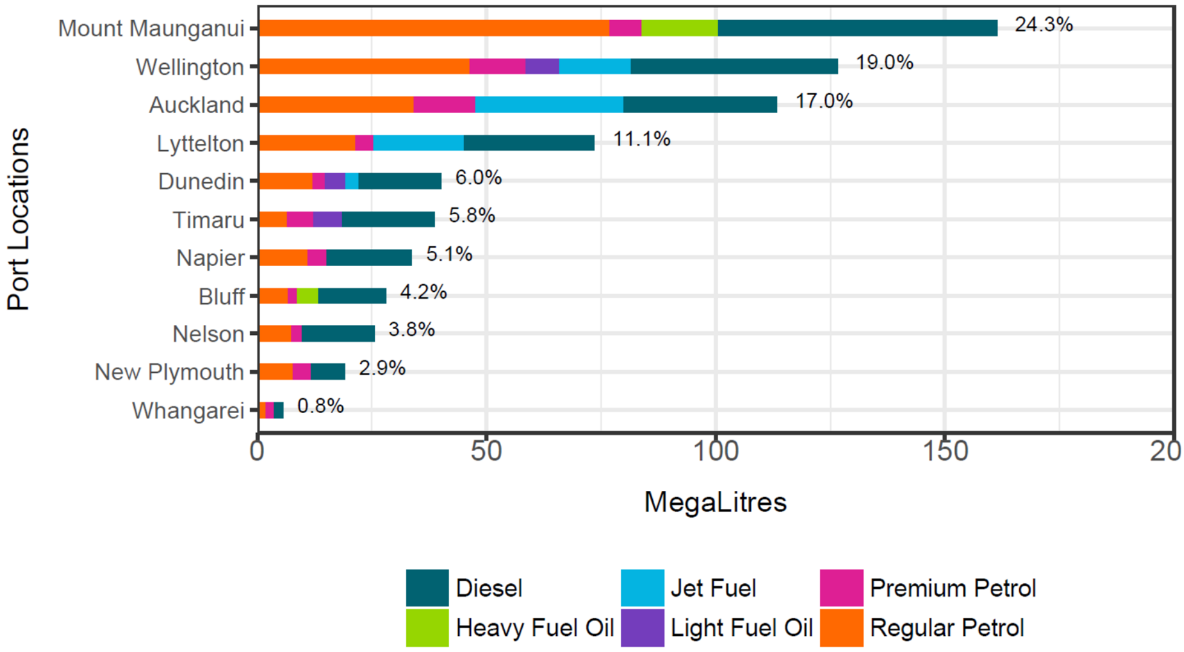
Figure 4.5 Terminal fuel capacities (2017)



Source: MBIE "Energy in New Zealand 2018" at 36.

Summary of our preliminary findings on the potential for importer entry

4.108 Overall, entry at the importer level appears to be possible from a structural and regulatory perspective. In particular, there is a greater chance of obtaining sufficient market share to support a terminal large enough for efficiently sized import cargoes at ports located near large areas of demand.

4.109 However, the scale of the regional markets and port depth restrictions are likely to significantly limit the ability of entrants to successfully build and operate terminals of efficient size at smaller provincial ports.

4.110 By contrast, the majors have access to a nationwide network of terminals, through the borrow and loan system. They also have distribution cost advantages through access to COLL's coastal shipping vessels and the RAP, as discussed further in paragraphs 4.112 to 4.122 below.

4.111 Although importer entry appears possible from a structural and regulatory perspective, our preliminary view is that barriers associated with existing contractual arrangements make entry challenging in practice.

4.111.1 As discussed in Chapter 5, infrastructure sharing by the majors has reduced their entry and expansion costs, particularly at smaller ports not suited to terminals. The majors' joint infrastructure gives them a durable cost advantage over potential fuel-importing rivals.

4.111.2 As discussed in Chapter 6, wholesale market relationships limit retailers' ability and/or incentive to switch fuel supplier to a new importer.

Distributing refined fuel by pipeline, coastal shipping and truck

4.112 Refined fuel stored in terminals needs to be distributed to consumers throughout New Zealand. There are two main categories of distribution assets.

4.112.1 *Primary distribution assets:* Coastal shipping vessels and the RAP are the primary distribution assets currently used to transport refined fuel from the Marsden Point refinery to storage terminals throughout New Zealand.

4.112.2 *Secondary distribution assets:* Fuel tanker trucks are used to transport fuel from storage terminals to retail sites and commercial customers by road.

4.113 We currently consider that entrants at the importer level are likely to face a transport cost disadvantage when looking to supply smaller provincial areas, due to relatively high trucking costs. Therefore, it is likely to be challenging for a new terminal operator to establish competitive nationwide fuel supply without obtaining lower cost distribution, for example, through participation in the borrow and loan system or wholesale supply from a major. We invite comment on our assessment of conditions of entry and expansion faced at the distribution level of the supply chain.

4.114 This sub-section explains the reasons for this view, noting that:

4.114.1 trucking is generally considered to be competitive and primary distribution assets are currently only used by the majors;

4.114.2 despite this, the cost of trucking long distances is high compared to primary distribution costs; and

4.114.3 access to existing terminals through participation in the borrow and loan system would help reduce an entrant’s distribution costs and better align their costs with the majors’ distribution costs.

Trucking is generally considered competitive and primary distribution is only used by majors

4.115 We have not undertaken a detailed analysis of the structural and regulatory conditions of entry and expansion for primary and secondary distribution. This is because:

4.115.1 road transport is generally considered competitive; and

4.115.2 primary distribution assets are currently only used by the majors.

4.116 Structural and regulatory barriers to entry for trucking appear to be relatively low. There are many trucking companies capable of transporting fuel to retail service stations and commercial customers.[307]

4.117 In terms of primary distribution, the RAP and COLL's coastal shipping vessels are used to transport fuel from the Marsden Point refinery to the majors' terminals throughout New Zealand.[308] Potential barriers associated with access to these distribution assets resulting from the current contractual arrangements are discussed in Chapter 5.

The cost of trucking long distances is high compared to primary distribution costs

4.118 Despite road transport generally being considered competitive, trucking costs over long distances can be significantly higher than the cost of transporting fuel via COLL and the RAP.

4.119 We have estimated the approximate cost of trucking fuel various distances, based on confidential information provided by industry participants. As shown in Table 4.3 below, the estimates range from 1.5 - 2.5 cents per litre for trucking 100 km to 7.5 - 8.5 cents per litre for trucking 500 km.

Table 4.3 Estimated trucking costs

Distance, one-way (km)	Estimated trucking cost for return trip (cpl)
100	1.5 - 2.5
200	3.0 - 4.0
300	4.5 - 5.5
400	6.0 - 7.0
500	7.5 - 8.5

Source: Commerce Commission analysis of data provided by industry participants.[309]

4.120 The costs of transporting fuel by pipeline and coastal shipping are relatively low in comparison.

4.120.1 The fee for using the RAP is in the order of 1 cent per litre and is calculated by reference to the cost of shipping refined fuel from Marsden Point to Auckland.[310]

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307 For example, BP has noted that secondary distribution "is a competitive market being undertaken by third party contractors". BP "Market study into the retail fuel sector – BP New Zealand comment on preliminary issues" (21 February 2019) at 8.

308 As discussed in paragraph 178.2 of Chapter 2, COLL also schedules imports of refined fuel for the major fuel firms.

309 Trucking cost estimates are based on our analysis of data provided by [ ]

310 Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) at

4.120.2 COLL's cost of delivering refined fuel from Marsden Point to ports throughout New Zealand varies by port and by fuel type.[311] COLL's average costs for coastal shipping are consistently within or lower than our estimate of the cost of trucking fuel 200 km (and often significantly lower).[312]

Access to existing terminals would help reduce an entrant's distribution costs

4.121 The transport costs discussed above suggest that having access to a wider network of storage terminals, supplied by a combination of coastal shipping and pipelines, is likely to significantly reduce distribution costs when compared against the alternative of trucking.

4.122 Although a new entrant importer is likely to face an overall transport cost disadvantage relative to the majors, it may still be able to compete in a relatively large geographic area at current importer margins. For example, Gull currently supplies most of the North Island from its Mount Maunganui terminal.

Retailing refined fuel from retail sites

4.123 Ultimately, all fuel refined at Marsden Point or imported into New Zealand is sold through retail sites or directly to commercial customers.

4.124 Entry and expansion is possible (and occurring) at the retail level, where structural barriers are lower than at the refinery and importer levels. As discussed in Chapters 2 and 6, new retailers have entered and expanded in recent years, particularly with low-cost unmanned sites. Distributors such as Allied, NPD and Waitomo have typically entered and expanded in the retail market by leveraging off their existing bulk supply and commercial businesses.

4.125 Retail entry and expansion appears particularly feasible in secondary locations (for example, on side roads), where there is greater availability of suitable land. Recent entry has often been in these secondary locations, rather than prime metropolitan sites.

4.126 Land in large, high volume, metropolitan areas appears to be the most challenging for an entrant to acquire. This sub-section explains why we consider this to be the case, noting our preliminary views that:

4.126.1 retail entry requires investment in long-lived assets, with significant sunk costs of entry and exit;

[7.21]. [ ]

311 When comparing COLL's cost of shipping fuel to two different ports, COLL's costs will not necessarily be lower for shipping to the nearer port.

312 [ ]

4.126.2 pay-at-pump technology has facilitated retail expansion in recent years, helping lower barriers to entry;

4.126.3 recent entry has mainly been in secondary locations (for example because land costs are relatively high for prime metropolitan sites); and

4.126.4 environmental and planning regulations associated with opening new sites can be time consuming and costly.

Retail entry requires investment in long-lived assets with significant sunk costs

4.127 Our analysis so far indicates that retail sites are expensive to develop and can be very costly to remediate. The sunk costs associated with investment in retail sites make entry risky, because these costs are unlikely to be recovered upon exit.[313]

4.128 Barriers to retail entry appear to be high in some local areas, as significant investment is required, and the market is already supplied by incumbents. Assuming market demand is relatively constant, an entrant would need to take volumes from the existing suppliers to compete effectively. The volumes required for profitable entry are likely to vary by region and site type.

4.129 Entry on a larger scale with a national network requires multi-market entry and building a brand. It is also likely to require securing a wholesale supply agreement or obtaining access to a distribution network of storage facilities.[314] Challenges associated with securing wholesale agreements and access to storage facilities are discussed in Chapter 5 and Chapter 6.

4.130 The cost of opening a retail site appears to vary significantly based on the site type and location. A recent media report regarding Gull's South Island entry indicates that "each unmanned site costs approximately $1m" to build, while a "typical retail site costs in the vicinity of $2m".[315]

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313 The ACCC has noted that "an investment in a new retail site is risky and involves an assessment of the likely performance of the site over an extended period". ACCC "Report on the Darwin petrol market" (November 2015) at 29.

314 Multi-market entry could include entry into different local retail markets, entry into different levels of the supply chain (for example, retail and terminals), or entry into different markets (for example, supply of petrol/diesel, aviation fuel, marine fuel, and/or bitumen).

315 Aimee Shaw "Gull spending $5m to launch service stations in South Island" *The New Zealand Herald* (8 April 2019) available at <https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=12220200>. (Viewed on 14 August 2019).

4.131 We have reviewed data on 62 business cases for new-to-industry (NTI) sites built by a range of retailers.[316] Data from these business cases indicates that the build cost per station (excluding any land purchases) typically ranges between:[317]

4.131.1 $2 million to $5 million for full service stations; and

4.131.2 $0.5 million to $1.5 million for unmanned sites.

4.132 The costs of exiting a retail site are also high. It can be very costly to decommission an existing retail site and remediate the land, increasing the risks of entering in the first place. Information provided by a major indicates that, where contamination issues are identified, potential costs associated with environmental liabilities at a retail site can range from approximately $20,000 to $400,000.[318]

Pay-at-pump technology has facilitated retail expansion in recent years

4.133 Improvements in electronic payment technology have helped reduce barriers to retail entry, facilitating the rise of unmanned pay-at-pump sites.[319]

4.134 The ability to operate unmanned sites reduces barriers to entry because less land is required, lower capex is needed due to the lack of buildings, and operating costs are also reduced given there are no staff on site. This has enabled relatively low-cost entry and expansion in some retail markets.

4.135 In recent years, distributors have typically entered the retail market by leveraging off their existing bulk supply and commercial businesses. We have observed that distributors such as Allied, NPD and Waitomo have generally entered retail markets by:

4.135.1 initially focusing on the commercial and provincial supply of diesel;

4.135.2 then building truck stops, again focusing on diesel;

4.135.3 then building unmanned sites to serve retail customers, including a petrol offering (depending on the site location); and

4.135.4 then potentially identifying sites which are well positioned for a full service station offering.

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316 [ ]

317 Commerce Commission analysis of data provided by a range of retailers.

318 [ ]

319 The AA made a similar point in its submission on our preliminary issues paper. See AA "Submission on Market Study into retail fuel sector – preliminary issues" (22 February 2019) at 3.

4.136 As discussed in Chapter 2, there is a growing number of retail sites not owned by the majors. Z Energy has reported that about 65% of sites are operated under non-major brands, supplying around 20% of retail fuel volumes as at 31 March 2019.[320] In addition to Gull, resellers supplied by Mobil (particularly Waitomo and NPD) have been among the most active in terms of opening new sites.

Recent entry has mainly been in secondary locations

4.137 While recent entry and expansion in the retail market is a positive development for consumers, there are difficulties in obtaining prime sites. This has limited the ability of smaller retailers to compete effectively in large metropolitan areas.

4.138 We understand that many of the new unmanned sites discussed in paragraph 4.134 above are in secondary locations, for example on side roads.[321] In contrast, the major fuel companies typically offer full service stations in prime locations – for example on major roads and in large metropolitan areas.

4.139 The evidence we have gathered so far indicates that large, high volume, metropolitan areas are the most challenging for an entrant to acquire.[322] It can be particularly difficult for entrants to obtain prime metropolitan sites because:

4.139.1 land costs are relatively high, reflecting the value of alternative uses (for example, office buildings and fast food restaurants); and

4.139.2 most of the best sites have already been secured by the incumbent suppliers (and even if they vacate these sites, there can be restrictions on them being re-used as retail sites).[323]

4.140 Generating economies of scope by offering multiple products from a full service site may help make entry in prime metropolitan sites more feasible.[324]

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320 Z Energy "Investor Presentation on Z Energy and NZ downstream fuel market" (May 2019) at 10.

321 [ ]

322 For example, one reseller noted that they "don't even really look" at sites in the central area of one of the cities in operates in, given "there's a lot of competition for those visible sites that have a lot of traffic count goes past it", including from other types of businesses. [ ]

323 See the discussion on restrictive covenants in Chapter 6.

324 Economies of scope refers to when per unit costs fall when more than one product is produced. Commerce Commission "Mergers and acquisitions guidelines" (July 2019) at [3.109.2].

4.141 However, it appears to be more challenging for a company to enter with service stations at the premium end of the market, than through unmanned sites. Entering with service stations requires not only providing a reliable fuel supply, but also a convenience store and other services such as a car wash. A relatively large chain of convenience stores is likely to be required to cover the associated merchandising and head office costs.[325]

Environmental and planning regulations can be time consuming and costly

4.142 There can be difficulty in obtaining resource consents when building retail sites.

4.143 A retailer described the "onerous conditions of resource consenting" as a real threat to its expansion.[326] Other retailers also noted that the consent process can be slow and expensive, with approvals for some sites taking up to 12 months (and sometimes longer).[327]

4.144 All necessary resource consents under the Resource Management Act must be obtained, as well as any other necessary permits (such as building consents). A retail site often requires multiple consents, such as land-use consent, sediment consent and stormwater discharge consent. There are also associated factors such as traffic engineers, noise engineers, surveying, and geotechnical data requirements.

4.145 An industry participant summarised the requirements associated with resource consent as follows.[328]

4.145.1 Resource consent is required when doing something a district plan does not allow as of right.

4.145.2 Every application for a resource consent must include an assessment of environmental effects and an assessment of relevant policy and plan provisions. It must identify all environmental effects, both positive and negative, of a proposed activity, and ways in which any negative effects can be prevented or reduced.

4.145.3 If a resource consent is granted, the councils normally apply conditions or restrictions (for example, water discharged to stormwater must have total petroleum hydrocarbons below 15 parts per million).

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325 [ ]

326 [ ]

327 For example, [ ] Transcript of meeting with NPD (14 May 2019) at 10 (lines 22-50), 11 (lines 1-50) and 12 (lines 1-6).

328 [ ]

Chapter 5 Infrastructure sharing arrangements

Summary of our preliminary findings

- The various infrastructure sharing arrangements between the majors provide several benefits to them by overcoming some of the structural challenges of fuel supply. These benefits include lowering the cost of supplying fuel to and around New Zealand, compared to a scenario of separate stand-alone supply chains. This could benefit consumers if cost savings result in lower retail prices.
- The arrangements, particularly the borrow and loan arrangements, have some pro-competitive effects in the retail fuel market as they enable the majors to compete cost-effectively in regions where they do not have terminal infrastructure. There are interrelationships between the arrangements and there would be reduced benefit in accessing one, but not other, arrangements.
- These arrangements can also adversely impact competition in the retail fuel market. Without access to the majors' infrastructure sharing arrangements, potential entrants face higher costs to compete in New Zealand by importing and distributing their own fuel.
- There are terms and criteria under which a competing firm may join any of the arrangements, but these are not published or readily available, and are untested. We consider a published process and criteria for access would be expected in a workably competitive market.
- The barrier to entry created by the infrastructure sharing arrangements would be reduced if an entrant could readily participate in them. That would likely involve entrants contributing terminal capacity and sharing the cost of coastal shipping, in return for which they could draw fuel from any port.
- This may add to the existing commercial pressure to re-assess terminal access pricing within the borrow and loan arrangements. The borrow and loan arrangements currently also appear to be deterring investment in terminal infrastructure. Investment in terminal capacity has not kept pace with increases in demand. Port coordination events are also common. The low level of tank storage and tight supply may have a detrimental effect on wholesale competition with flow-on effects for retail competition. In particular, it may:
  - limit the majors' ability and incentive to quickly and reliably acquire large new customers such as distributors; and
  - reduce the ability and incentive of large customers, particularly distributors, to seek alternative suppliers.
- For these reasons, we consider that third party access to facilitate competitive entry should be considered jointly with measures to address underinvestment in terminals.

Summary of our preliminary findings (continued)

- The current arrangements also may limit competition between the majors by:
  - limiting the ability to quickly increase supply through refining more fuel domestically; and
  - enhancing opportunities for accommodating behaviour by facilitating the exchange of information about past and future demand and rivals' supply strategy.

Introduction to this chapter

5.1 This chapter sets out our preliminary assessment of the various infrastructure sharing arrangements between the majors.

5.2 As discussed in Chapter 2, these arrangements include:

5.2.1 refinery arrangements;

5.2.2 access to the RAP;

5.2.3 COLL joint venture arrangements; and

5.2.4 borrow and loan arrangements.

5.3 We are interested in the effect of these arrangements because of their potential to affect both the conditions for entry and expansion by independent importers and rivalry between majors at the wholesale and retail levels.

5.4 Based on our analysis so far, we consider there are various efficiency benefits and pro-competitive aspects of these infrastructure sharing arrangements. These include:

5.4.1 the majors' ability to access efficient means of producing and distributing refined fuel products;

5.4.2 enabling the majors to avoid inefficient duplication of distribution assets; and

5.4.3 enabling the majors to compete in areas where they may not have terminal infrastructure.

5.5 These arrangements can also impact competition in the retail market adversely. Without access to the major's infrastructure sharing arrangements, entrants face higher costs to compete by importing and distributing their own fuel. In addition, the infrastructure sharing arrangements may be deterring efficient levels of investment.

5.6 In this chapter we describe our current view of the effect that the infrastructure sharing arrangements have on competition. We are continuing to consider ways in which they might better contribute to the outcomes we would expect to see in a workably competitive market. We invite comment on our assessment of these issues.

Structure of this chapter

5.7 In this chapter we discuss:

5.7.1 the benefits and/or pro-competitive aspects that likely result from each of the infrastructure sharing arrangements in the industry;

5.7.2 how the infrastructure arrangements may be a barrier to entry, their terms of access and how this barrier to entry may be reduced;

5.7.3 how the borrow and loan arrangements may be deterring investment in terminal infrastructure; and

5.7.4 particular features and/or provisions within each of the arrangements that may act to limit the ability the of majors to quickly increase supply through refining more fuel domestically and enhance opportunities for accommodating behaviour between them.

There are benefits and pro-competitive aspects of existing arrangements

5.8 This section sets out benefits and/or pro-competitive aspects that we consider result from the:

5.8.1 refinery arrangements;

5.8.2 access to the RAP;

5.8.3 COLL joint venture arrangements; and

5.8.4 borrow and loan arrangements.

5.9 Some arrangements pre-date the deregulation of the petroleum industry in 1988.

The interrelationship between the infrastructure sharing arrangements provides the majors with benefits

5.10 We note that together, the infrastructure sharing arrangements appear to provide a low cost way for the majors to supply fuel throughout New Zealand.

5.11 Their benefits appear to arise through their interrelationship with one another throughout the supply chain. For instance, absent access to COLL shipping services, the benefit in having access to the refinery may be reduced, as other arrangements would have to be made to ship or truck New Zealand refined fuel to other parts of New Zealand. Doing so on a stand-alone basis is likely to be costlier than doing so jointly under COLL.

5.12 Similarly, absent access to the borrow and loan arrangements, the benefit of having access to either the refinery or COLL would be diminished. Without the ability to utilise shared terminal storage, investment in terminals may be required, but this would be particularly risky in many locations. As discussed in Chapter 4, our analysis to date suggests that to make such investments feasible in some areas (such as in smaller regional ports), the party making the investment would need to obtain significant market share.

5.13 Our view that the benefits of the various arrangements have interrelationships has been recognised by majors.[329]

5.14 We consider below the benefits and/or pro-competitive aspects of each of the individual infrastructure sharing arrangements.

In some regions, the refinery arrangements give majors a cost advantage in the supply of refined fuel products

5.15 As noted in Chapter 2, domestically refined fuel is typically cheaper than imported refined product for the majors. However, access to the refinery also provides additional cost efficiencies, and hence competitive advantages over new entrants, because it also brings access to the RAP and coastal shipping and scheduling provided by COLL. These advantages have been recognised by the majors.[330]

5.16 A major has also recognised diesel refined in New Zealand as being more cost-effective relative to imports for all locations.[331]

329 [ ] BP has also noted the links between the COLL joint venture arrangements and the efficient operation of the Refinery. BP notes that the refinery relies upon the prompt uplift of product to enable it to maintain its output at close to full capacity. BP says that coordinated uplift is more efficient than if uplift was done independently by each of the majors – see BP "Market study into the retail fuel sector – BP New Zealand comment on preliminary issues" (21 February 2019) at 7.

330 Z Energy "Market Study into the Retail Fuel Sector: Z Energy's response to invitation to comment on preliminary issues" at [91.1] and [ ]

331 [ ]

5.17 Other advantages identified by the majors include the refinery's ability to manufacture seasonal New Zealand specification fuel[332] that may be out of step with some other refineries in the Asia-Pacific region and potential future strategic advantages.[333]

The RAP provides an efficient way to transport refined fuel to Auckland for the majors and avoids the cost of duplication

5.18 We consider that, together with local road transport, the RAP provides an efficient way to transport fuel to Auckland for the majors and is likely to be the lowest cost way to supply retail sites in Auckland.

5.19 The fee for using the RAP is in the order of one cpl[334] and is set with reference to the cost of shipping refined fuel from Marsden Point to Auckland.[335] Information provided to us suggests that the RAP fee is considerably cheaper than the cost of transporting fuel from the next best alternative, Mount Maunganui, by road.[336]

5.20 This is supported by the views of industry participants. Some majors have noted that New Zealand refined product is likely to be the lowest cost means of servicing Auckland.[337] A past report by a major also supports this view.[338]

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332 In New Zealand, both petrol and diesel have their specifications seasonally adjusted in relation to climate variations. With petrol there are three geographic areas: Northland and Auckland, the rest of North Island and South Island. For diesel, there are two "seasons" – summer and winter – see Vladimir Koutsaenko "Fuel Facts" (2019) AA <www.aa.co.nz/membership/aa-directions/driver/fuel-facts/>. (Viewed on 14 August 2019).

333 [ ]

334 [ ]

335 Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) at [7.21].

336 The distance between Mount Manganui and Auckland is approximately 200 km. As noted in Chapter 4, our estimates suggest that the trucking costs for a 200 km journey is between 3.0 to 4.0 cpl. [ ]

337 Z Energy "Market Study into the Retail Fuel Sector: Z Energy's response to invitation to comment on preliminary issues" at [91.1] and [ ]

338 [ ]

5.21 Refining NZ considers that the RAP is the most efficient and safest means of delivering fuel into Auckland to meet the transport needs of Auckland and the immediate region south of Auckland.[339] Refining NZ also considers that the coordinated use of the RAP optimises its use and ensures that Auckland's fuel needs are always met.[340]

5.22 Shared access to the RAP also avoids the cost of duplicating the pipeline. For example, Z Energy considers that a primary advantage of the RAP is that it allows the majors and their distributor customers to benefit from, without needlessly replicating, the supply chain.[341]

COLL joint venture arrangements provide the majors with similar efficiency-based benefits

5.23 We consider access to the COLL joint venture arrangements provides a cost effective means of transporting refined fuel throughout the country and avoids the duplication of shipping assets and the associated scheduling services. This is because COLL coordinates the operations of the refinery and subsequent distribution of refined fuel from the refinery, which helps to minimise costs, including terminal capacity costs. COLL also schedules imports for the majors as part of its overarching role in managing the borrow and loan system and ensuring product is delivered where it is required.

5.24 COLL's efficiencies have been acknowledged by the majors.

5.24.1 BP notes the operation of COLL (along with the borrow and loan arrangements) allows for the efficient distribution of fuel from the refinery throughout New Zealand. BP notes that absent these arrangements, the majors would require a much greater number of ship movements, which would increase the cost of distributing fuel throughout New Zealand.[342]

5.24.2 BP also considers that COLL facilitates the efficient delivery of imported products by the majors, since it also schedules delivery of imports by the majors.[343]

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339 Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) at [7.19].

340 Ibid.

341 Z Energy "Market Study into the Retail Fuel Sector: Z Energy's response to invitation to comment on preliminary issues" at [103].

342 BP "Market study into the retail fuel sector – BP New Zealand comment on preliminary issues" (21 February 2019) at 7.

343 Ibid.

5.24.3 Z Energy considers that a primary advantage of the COLL arrangements is that it avoids needless replication of the supply chain.[344]

5.25 Refining NZ notes that, given New Zealand is geographically sizeable but has a low population density, it is costly to service small demand centres with fuel. Refining NZ considers that the demand at each coastal port is insufficient to warrant the investment in adequate tankage to allow an import tanker to discharge a full cargo into a single coastal port, requiring tankers to make multiple port calls, increasing distribution costs. Distribution costs such as these are minimised by the COLL arrangements, as investment, costs and risk of coastal shipping are shared between the majors.[345]

5.26 Analysis of COLL's revenue from delivering fuel to storage terminals throughout New Zealand supports our view that it is a cost effective means of distributing New Zealand refined fuel. As previously noted in Chapter 4, while considered generally competitive over shorter distances, the cost of trucking fuel becomes significant when travelling long distances compared with COLL's cost of delivering refined fuel to ports throughout New Zealand. This is partly because tanker trucks hold significantly less than ships.

Borrow and loan arrangements provide majors with several benefits in a number of areas

5.27 We consider the borrow and loan arrangements appear to provide several benefits to the majors. These include:

5.27.1 avoiding the duplication of terminal assets;

5.27.2 enabling majors to compete nationally; and

5.27.3 constraining the exercise of market power in some regions.

5.28 We discuss each below.

Avoided duplication and enhanced utilisation of terminal assets

5.29 We consider the borrow and loan arrangements provide the majors with efficiency benefits that are similar in nature to the ones provided by the RAP and COLL joint venture arrangements.

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344 Z Energy "Market Study into the Retail Fuel Sector: Z Energy's response to invitation to comment on preliminary issues" at [103].

345 Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) at [9.2] & [9.3].
[ ]

5.30 First, duplication of terminal assets is avoided. This view is also held by industry participants. For instance, Mobil considers that the borrow and loan arrangements enable the majors to enhance efficiencies across the supply chain by avoiding unnecessary duplication of terminal capacity in relatively low volume and geographically dispersed markets.[346] BP has expressed similar sentiments.[347] Second, the sharing of the existing terminal infrastructure likely allows existing terminal capacity to be used more efficiently. However, as we discuss further, it appears that terminal capacity is insufficient in some areas. We invite further comment on our assessment of this issue.

Enabling majors to cost-effectively compete nationally

5.31 Related to the point made above, a pro-competitive aspect of the borrow and loan system is that it enables the majors to cost-effectively compete nationally, including in areas where a particular major does not own terminal infrastructure.[348] This is because the majors can supply cost-effectively into a region without owning a terminal there.

5.32 This can enhance competition in a region. An illustration of this is in the Nelson and Southland regions. Mobil currently does not own any terminal infrastructure in Nelson but is able to compete in this area by accessing fuel from Z Energy and BP's terminals. Similarly, no major apart from Mobil currently owns terminal infrastructure in Southland but all compete in this area by accessing Mobil's Bluff terminal.

5.33 In addition, to the extent that the borrow and loan arrangements allow each major to withdraw the amount of fuel they require (as long as they have contributed an equivalent amount somewhere in the system), this provides them with the ability to compete for additional customers. However, as we discuss in more detail below, this is frequently overridden by port coordination events.

346 Mobil "Submission to the Commerce Commission New Zealand in response to the Statement of Preliminary Issues for the Market Study into Retail Fuel Sector" (February 2019) at [7].

347 BP "Market study into the retail fuel sector – BP New Zealand comment on preliminary issues" (21 February 2019) at 7.

348 Mobil "Submission to the Commerce Commission New Zealand in response to the Statement of Preliminary Issues for the Market Study into Retail Fuel Sector" (February 2019) at [7], Z Energy "Market Study into the Retail Fuel Sector: Z Energy's response to invitation to comment on preliminary issues" at [104] & [106.1] and BP "Market study into the retail fuel sector – BP New Zealand comment on preliminary issues" (21 February 2019) at 7.

Curtailing the exercise of market power in terminal pricing

5.34 The borrow and loan arrangements may also help to constrain a major's ability to increase throughput fees to raise its profits where there are no other terminals nearby.[349] This is because another major may respond by increasing throughput fees at a terminal it owns.

5.35 For example, Z Energy has previously said that it would be unable to unilaterally raise throughput fees to BP and Mobil because of BP and Mobil's ability to retaliate by increasing throughput fees in areas where Z Energy is dependent on them for product.[350] Internal documents of a major support this position.[351]

Arrangements give majors a cost advantage and, absent access, are a barrier to entry

5.36 This section explains:

5.36.1 how the infrastructure arrangements may be a barrier to entry;

5.36.2 the terms of access to the infrastructure arrangements; and

5.36.3 how the barrier to entry created by the infrastructure arrangements could be reduced.

5.37 We invite comment on our analysis of the effect of the infrastructure sharing arrangements and the terms of access provided by the majors. We are continuing to consider ways in which the barrier to entry that we currently identify could be mitigated.

Arrangements may be a barrier to entry

5.38 We consider that the refinery, RAP, COLL and borrow and loan infrastructure sharing arrangements give the majors a cost advantage over independent fuel importers, making them a barrier to entry for those who do not have access to them. An entrant importer would have to invest significantly in terminal and distribution assets to compete with the established, coordinated, low-cost supply chain enjoyed by the majors. With volumes significantly less than the volumes of the majors, their unit costs would also likely be higher. Without such investment, entry may be on a limited scale, restricted to certain regions or would involve incurring substantial additional land transport costs.

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349 See, for example, *Z Energy Limited and Chevron New Zealand* [2016] NZCC 10 at [89] to [91].

350 Ibid, at [89].

351 [ ]

5.39 We note that an industry participant has expressed similar views in an internal document:[352]

> Participants competitive advantage is predicated on how the mechanisms are optimised and changes to the rules negotiated. To non-participants the mechanisms are a significant barrier to entry, requiring substantial investment. Unlike markets with excess terminal capacity and/or independent industry terminal providers, low-cost entries, such as terminal rental and spot market supply, are not available without strategic investments and robust supply capabilities.

The terms of access to these arrangements are not readily available and are untested

5.40 Each of the infrastructure sharing arrangements (ie, the refinery, the COLL joint venture and borrow and loan arrangements) allow the parties to provide third party access to the arrangements in some form. However, these terms are typically contained within confidential agreements between the parties. The terms upon which third parties, or entrants, may seek access are not published or readily available to any potential entrant.

5.41 The terms upon which access may be granted by the majors in accordance with their contractual agreements with one another are untested, as is the way in which they may exercise their discretion in relation to any request for access. We understand that other than Challenge in 1997, when it sought access to the refinery, no other party has sought access to any of the infrastructure sharing arrangements between the majors.[353]

5.42 We do note that some majors have granted third party access to individual terminals on the basis of bilateral agreements, separate from the infrastructure sharing arrangements established by the majors.[354] However, this has been on a limited terminal by terminal basis. No third party to date has negotiated access to the entire borrow and loan arrangements. In addition, evidence gathered to date suggests that bilateral negotiations are seen to be difficult, and do not always lead to a concluded access agreement. Some terms of access may also be commercially unattractive to access seekers. [355]

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352 [ ]

353 [ ] We also understand that no third party has applied to access excess COLL tanker capacity – see [ ] This seems understandable given our understanding that no party has been offered and ultimately taken excess capacity at the refinery.

354 [ ]

355 [ ]

5.43 It appears that the absence of readily available information about the process for seeking access and/or the criteria to be applied for granting access may deter competitive entry and expansion. We consider that a published process for access seekers and published criteria for access would be expected in a workably competitive market and would facilitate entry.

The barrier to entry could be reduced and should be considered jointly with measures to address underinvestment in terminals

5.44 While we are still considering this issue, we consider that there are likely to be ways that the barrier to entry the COLL and borrow and loan infrastructure sharing arrangements create could be reduced by facilitating competitive entry, without the entrant having to incur substantial investments in terminal infrastructure in multiple ports. One way to achieve this may be by opening participation in the borrow and loan system by enabling an import entrant to add one or more terminals to the borrow and loan arrangements and to access COLL's services in relation to accounting for additions and withdrawals within the system and its import scheduling services.[356] We consider this could be particularly useful in areas served by smaller regional ports because an entrant could supply from those ports under the borrow and loan system without investing in terminal capacity there.

5.45 Such access would need to be on reasonable and non-discriminatory terms and protect the owner's legitimate commercial interests. This may prompt a change to a more commercial model for pricing terminal capacity within the borrow and loan arrangements.

5.46 There is already pressure for such a change. As we discussed in Chapter 3, the evidence we have received so far suggests that there has been inadequate investment in terminal capacity over time and that this is partly because of the way terminal investment is treated in the borrow and loan system.

5.47 For these reasons, we consider that third party access to the borrow and loan and COLL joint venture arrangements should be considered jointly with measures to address underinvestment in terminals.

5.48 We invite further comment on the potential for access to the infrastructure sharing arrangements and methods by which this might most effectively and efficiently be facilitated.

Borrow and loan arrangements

5.49 This section discusses how the borrow and loan arrangements between the majors may be deterring necessary investment in terminals. In this section we explain:

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356 [ ]

5.49.1 our analysis of terminal capacity relative to demand within the borrow and loan system and port coordination events;

5.49.2 why aspects of the borrow and loan arrangements may be deterring investment in terminals; and

5.49.3 how a lack of investment in terminals and tight supply might be affecting competition at the wholesale and retail levels.

5.50 While we are still considering this issue, it appears that certain aspects of the borrow and loan arrangements are not providing efficient incentives to invest in terminals. Our analysis suggests that investment in terminal capacity has not kept pace with increases in demand. Port coordination events are also frequent, which may suggest that supply is generally kept tight. This is notwithstanding the efficiency and pro-competitive aspects of the borrow and loan arrangements.

5.51 A lack of terminal investment and tight supply may have detrimental effects upon competition at the wholesale level. We consider that this, in turn, may result in less retail competition and may result in higher than expected prices for consumers.

5.52 We invite further comment on our analysis to date on the effects the borrow and loan arrangements may be having on competition at the wholesale and retail levels.

Possible changes to the borrow and loan arrangements

5.53 As with any commercial arrangement, we are aware that individual majors are continuously assessing whether participating in the various infrastructure sharing arrangements continues to be in their best interests.[357] There is always a possibility that the borrow and loan arrangements could change in the future. This could have implications for our conclusions and any recommendations we make either during our consultation period and before the release of our final report or after the study is complete.

5.54 To illustrate, there could be implications for our conclusions and recommendations if:

5.54.1 terminals are brought in or out of the system; or

5.54.2 the borrow and loan arrangements are replaced or supplemented with alternative storage arrangements.

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357 [ ]
[ ]

Borrow and loan arrangements may be deterring necessary investment in terminals

5.55 As discussed previously in Chapter 3, we have observed diverging trends between storage capacity and overall fuel volumes, with storage capacity not appearing to keep pace with fuel volumes. It appears that the borrow and loan arrangements may be deterring necessary investment in terminal capacity and this in turn may be contributing to a weakening of competition at the wholesale level.

5.56 Inadequate terminal capacity and investment are not outcomes we would expect to see in a workably competitive market. Rather, we would expect to see timely investment (whether in terminal tankage or shipping capacity) to alleviate readily observable capacity constraints.[358]

5.57 Our current view is not generally shared by the majors. BP told us that it does not consider that the borrow and loan arrangements deter terminal investment. Rather, it considers that terminal capacity in New Zealand is sufficient to support a highly competitive retail market. BP pointed to recent examples of investment in terminal capacity for jet fuel in Dunedin (the volumes BP was trucking to Queenstown airport from Christchurch justified terminal investment), the construction of the terminal at Seaview in Wellington, and investments in terminal in Nelson and New Plymouth as evidence of this.[359]

5.58 Mobil shared a similar view and cited investments in terminal infrastructure in Bluff in 2014, Mount Maunganui in 2015 and its current construction of terminal infrastructure at Lyttelton as evidence of incentives to invest.[360] Mobil also pointed to the decreasing trends in coordination events in recent years, along with the fact that coordination events result in very few instances of actual stock-outs (we discuss this below). Mobil cited this as evidence that investment in the supply chain is sufficient to support a reliable supply of fuel to customers.[361]

5.59 We were also provided with examples of the incentives that have driven investment in terminals.[362]

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358 See Chapter 3.

359 BP "Market study into the retail fuel sector – BP New Zealand comment on preliminary issues (21 February 2019) at 7 and BP "Preliminary response to 2019 Pre-meeting letter" (24 June 2019) at [2.21] and [2.23].

360 Mobil "Information following meeting on 21 June 2019" (28 June 2019) at [3] and [4].

361 Ibid, at [8].

362 [ ]

5.60 We recognise that there has been investment in terminal capacity under the borrow and loan arrangements. Incentives underlying this investment may come from reducing trucking costs, the ability to charge throughput charges to competitors for use of terminal infrastructure and improving efficiency in importing product.

5.61 Nevertheless, it appears that investment incentives overall have been insufficient. Our analysis of evidence from industry participants suggests there has been a lack of investment in terminal capacity:

5.61.1 shared industry storage under the borrow and loan arrangements does not appear to have kept pace with rising demand for fuel products; and

5.61.2 the frequency of port coordination events over the past few years tends to suggest that industry storage is below optimal levels. We have been told by distributors that these create real challenges, traditionally occurring at peak demand periods of the year, and resulting in increased trucking costs.[363]

Terminal capacity has not kept pace with demand

5.62 Our current view that the borrow and loan arrangements may be deterring adequate investment in terminal capacity stems largely (but not entirely) from diverging trends between demand for fuel and terminal storage capacity within the borrow and loan system.

5.63 As noted in Chapter 3, these trends have been known to at least some in the industry for several years and our analysis suggests that the trend identified by Z Energy in 2012 has continued.

5.64 Other industry participants have expressed the view that terminal investment has been inadequate. One participant considers there has been underinvestment in terminal infrastructure.[364] Similarly, a second participant notes that there has not been a lot of investment in terminal storage for a long time.[365] A third participant observed that the level of demand for fuel has continued to rise, but that it was not sure port storage facilities have kept pace or that the level of investment by the majors has kept pace with the level of demand.[366] A fourth participant has noted "relatively short storage capacities in the South Island and/or supply chain inefficiency" leading to "frequent interruptions of delivery at service stations".[367]

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5.65 A major has also noted a lack of terminal storage in the course of making a supply proposal to a distributor. The major noted that during 2008 to 2010 there were a number of product shortages throughout New Zealand due to a lack of industry terminal storage at ports. The major noted that it has since invested significantly.[368]

5.66 While not directly related to the study, we also note that low fuel stocks in New Zealand currently require the Government to purchase options on oil stored offshore in order to remain compliant with our obligations to the International Energy Agency (IEA).[369]

Port coordination events are frequent

5.67 Our current view that the borrow and loan arrangements may be deterring adequate terminal investment also stems from the frequency of port coordination events over the past few years.

5.68 We note that in addition to, or in combination with, a potential lack of terminal investment, port coordination events may also reflect the just in time nature of fuel stock held within industry storage. As noted by Z Energy, the entire supply chain is incentivised to ensure port stocks are suitably low – sometimes to only a day or two's cover – before coastal deliveries are made in order to ensure the lowest cost supply chain.[370]

5.69 Z Energy has noted that South Island ports are often coordinated as a result of inadequate diesel supply, citing that this was the case 90% of the time in Timaru and 54% of the time in Bluff in 2011. Z Energy also noted that fuel was regularly bridged from Canterbury into Bluff and Dunedin.[371] More recently, Z Energy has observed that one or more terminals in the South Island are under coordination up to approximately half the time. This comment was made to highlight how coordination events may create difficulties for the emergence of a liquid wholesale market.[372]

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369 MBIE "New Zealand's participation in the International Energy Programme" MBIE, Building and energy, Energy and Natural Resources <www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/international-engagement-on-energy/new-zealands-participation-in-the-international-energy-programme/>. (Viewed on 15 August 2019).

370 MBIE "Report back on the findings and recommendations of the Fuel Market Financial Performance Study" (23 November 2017) at Appendix 6 (Submission from Z Energy).

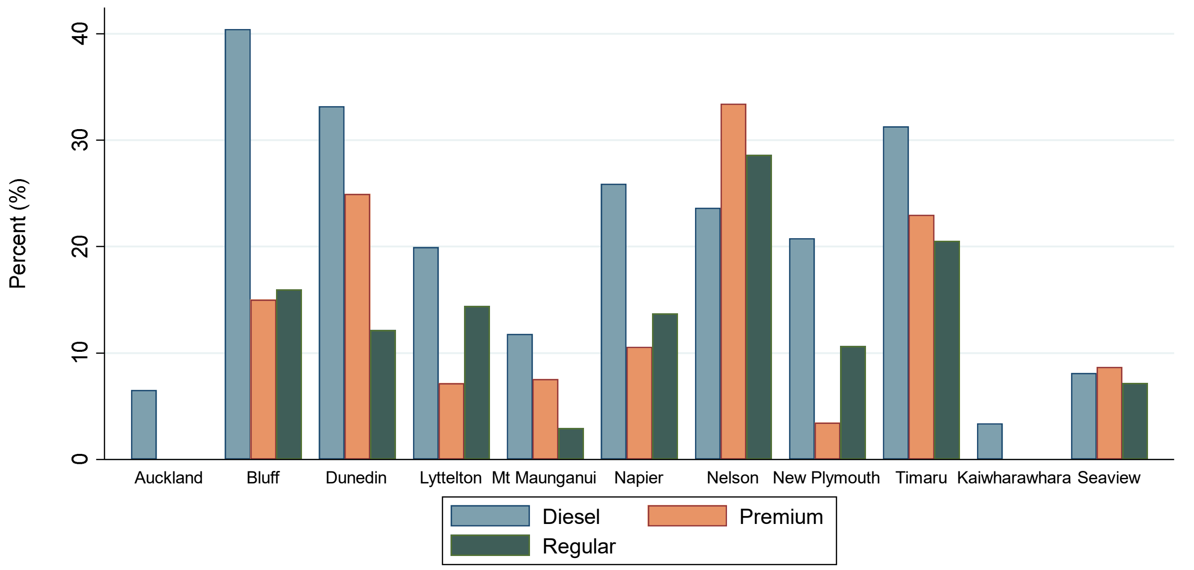
371 Z Energy "The downstream fuels industry: Strongly competitive or operating with uncertainty?" (8 March 2012) at 4. We note that Z Energy's presentation in fact states that fuel is regularly bridged "into" Canterbury "from" Bluff and Dunedin. However, in light of the observation that ports at Timaru and Bluff are under coordination 90% and 54% of the time respectively, we consider the statement was meant to say that fuel is regularly bridged from Canterbury into Bluff and Dunedin.

372 MBIE "Report back on the findings and recommendations of the Fuel Market Financial Performance Study" (23 November 2017) at Appendix 6 (Submission from Z Energy).

5.70 Our current analysis shows that over the last 10 years, a typical day has seen on average almost five instances of a fuel type being under coordination at a terminal somewhere in New Zealand.[373]

5.71 The instances of coordination vary by region. Over the last 10 years, the number of days that ports such as Nelson, Timaru, Bluff and Dunedin have been under coordination is relatively high compared to other ports. Figure 5.1 shows the percentage of coordination days across ports by terminal type (ie, 91 octane, 95 octane, or diesel) over the last 10 years.

Figure 5.1 Percentage of days under coordination by port and fuel type (2009 – 2019)

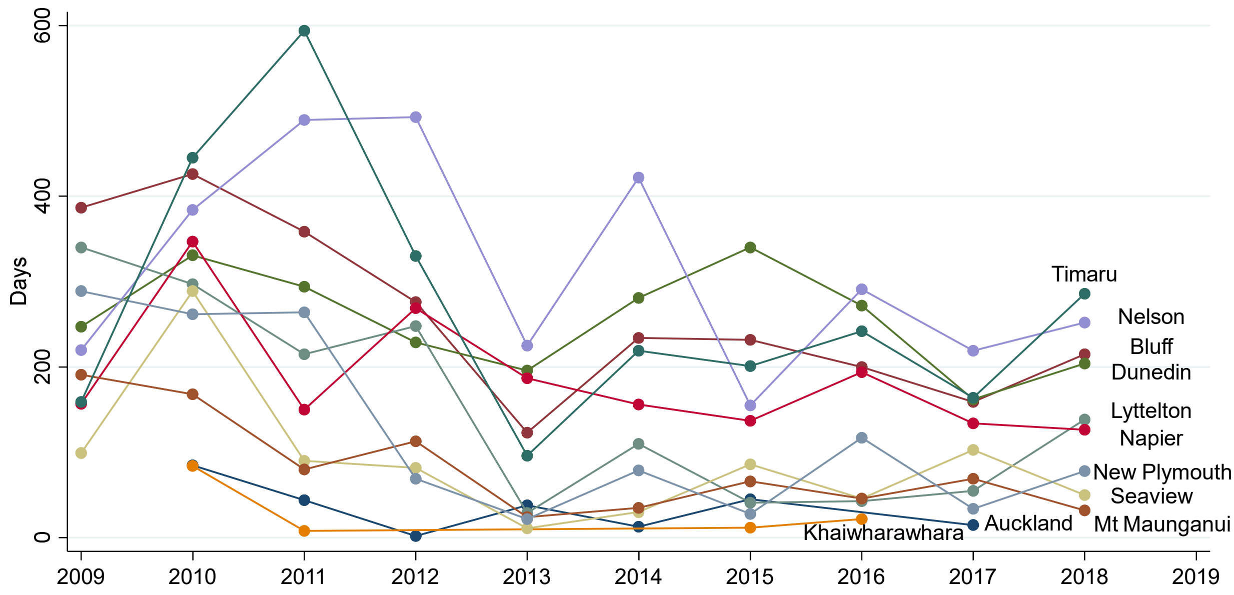


Source: Commission analysis of COLL data.

5.72 The average number of coordination events in a day has varied over the past ten years. From 2009 to 2012 there were on average 6.8 coordination events per day. The number has fallen in recent years, with an average of 3.6 events per day. The total instances of coordination events vary by port, as demonstrated by Figure 5.2 below:

373 Commission analysis of COLL data.

Figure 5.2 Total number of days under coordination by port (2009-2018)[374]



Source: Commission analysis of COLL data.

5.73 We understand the downward trend from 2013 onwards was the consequence of the majors holding a series of workshops to try and address the frequency of coordination events at the time. In their view this represented service levels which were too low. The workshop concluded that the poor outcomes were as a result of the individual majors holding too little stock, as holding stock is expensive. The majors agreed to change rules within the system to incentivise the majors to hold more stock.[375]

For majors, port coordination events may represent a trade-off between investment and trucking

5.74 We understand that the majors may view port coordination events as the result of a trade-off between investment in terminal infrastructure and the cost of trucking from alternative ports.

5.75 Mobil does not consider coordination events as automatically triggering investments in terminal infrastructure. Mobil considers that it needs to balance costs associated with shipping operations, building tanks and meeting supply. Mobil told us that it would consider investing if port coordination events were escalating to the point at which it could not supply customers.[376]

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374 The 2019 figures are excluded as there is not a full year's observations yet to draw upon.

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376 Transcript of meeting with Mobil (21 June 2019) at 9 (lines 2-21).

5.76 BP noted that all terminals in New Zealand are less than one truck driving shift away from at least one other terminal, and accordingly, there is little difference in cost to supply from one terminal over another.[377] In addition, BP considers that the earlier a coordination event is triggered (ie, the more days that a terminal is on coordination ahead of a delivery), the more efficient BP's response can be since it has a longer time to arrange fuel delivery from another location.[378]

5.77 BP pointed to the frequency of coordination of premium fuel at Nelson as an example of this trade-off. BP noted that the demand for premium fuel in Nelson is very seasonal, and often peaks during summer due to holiday traffic in the region.[379] BP considers that the volumes of premium fuel in Nelson subject to coordination are very small and can readily be addressed through additional trucking. BP told us that it does not consider it could justify investing in extra terminal capacity in Nelson to reduce instances of coordination, given its expectations for demand in 2019. BP considers that relatively few truck movements are required to manage coordination events for premium 95 fuel from Nelson, even if BP takes no product from the Nelson terminal during coordination events. In addition, extra terminal capacity may only be used for a short period during each year.[380]

5.78 Related to this point, BP told us that the costs associated with adjusting truck schedules to transport fuel from a neighbouring port to an area affected by a coordination event at another port are not significant.[381] It considers these costs to be a part of its logistic arrangements rather than "incremental" costs resulting from exceptional events. BP told us it does not forgo volume supplied to resellers or its retail outlets in an effort to avoid such costs.[382]

5.79 We recognise that port coordination events may reflect the trade-off for some majors between increased trucking costs and the costs associated with increasing terminal capacity, which requires significant incremental capacity and capital investment. This may be particularly so for smaller regional ports, where demand (whether seasonal or not), may not necessarily justify capacity expansion. More generally, port coordination events may reflect the majors' "just in time" approach to fuel supply management.

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377 BP "Preliminary response to June 2019 Pre-meeting letter" (24 June 2019) at [2.2].

378 Ibid, at [2.4].

379 Ibid, at fn 1.

380 Ibid, at fn 1 and Transcript of meeting with BP (25 June 2019) at 6 (lines 37-47).

381 [ ] BP "Preliminary response to June 2019 Pre-meeting letter" (24 June 2019) at [2.12].

382 BP "Preliminary response to 2019 Pre-meeting letter" (24 June 2019) at [2.12].

5.80 However, in an environment of overall tight supply there appear to be limits to these trade-offs because there is less likelihood of surplus fuel being available in one region to truck into another region where supply is constrained due a port coordination event.

5.81 Furthermore, these trade-offs are likely to underestimate the total costs of coordination events because they do not take account of the costs of tight fuel supply on the majors' customers, which we have been told can be considerable. The majors appear to have some discretion around supply to distributors during port coordination events. In particular, BP's estimates of bridging costs described in paragraph 5.78 do not include the costs incurred by independent distributors when undertaking similar activity.[383] We also note that it is likely to be difficult to achieve 100% supply reliability during coordination events.[384] More generally, as noted previously, port coordination has been described as a real challenge by some distributors, traditionally occurring at peak demand periods of the year, and resulting in increased costs due to increased trucking costs.[385]

5.82 Finally, the trade-offs do not take account of the effects on competition in wholesale and retail markets more generally. As discussed below and further in Chapter 6, impediments to competition at the wholesale level can be expected to affect the retail prices that consumers pay for fuel, as can the additional costs described above.

Main reasons why the borrow and loan arrangements may be deterring investment

5.83 It appears that there are three main reasons why the borrow and loan arrangements may be disincentivising investment in shared terminal capacity.

5.84 First, the benefits of investing in a new terminal may not be fully captured by the party undertaking the investment, with some of the benefits shared by others who can withdraw product from the terminal.

5.84.1 A major alluded to this effect in relation to COLL shipping costs to regional ports. The major noted that larger terminals can reduce costs associated with shipping fuel to various ports. The major noted that if one major invests in larger terminal infrastructure within shared industry storage, the benefits of reduced shipping costs will be realised by all COLL joint venture members (ie, the majors) because of their participation in the borrow and loan arrangements.[386]

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5.84.2 One major's internal presentation talks about this effect in particular. The presentation notes that during the 1980s when the industry was regulated, the four oil companies' overall profitability was driven "by economic efficiencies which encouraged minimisation of capital employed through co-mingled primary distribution and joint storage with minimal infrastructure investment (many JVs set up)".[387] This had the effect of equalising the majors' cost base. Following deregulation, and subsequent changes in market shares, the four oil companies no longer had equal market shares but continued to operate on an equal cost base. This "created a disincentive for investment in infrastructure as any benefit will be shared with sub-scale competitors".[388]

5.85 Second, the current rules applying to the borrow and loan arrangements, particularly with respect to allocations during a port coordination event,[389] may discourage incremental investment in terminals.

5.85.1 We understand that when a port is placed under coordination, fuel stock is rationed proportionally in relation to each major's contribution to the overall national stock level (which in turn depends on each major's share of tank capacity in the system) and the port market share for the type of fuel being put under coordination.

5.85.2 Specifically, fuel is only allocated to a major during a port coordination event if it holds above a minimum amount of stock nationally. This minimum amount is determined by the volume of tankage the major has contributed to the overall system and is not related to market shares at the port that is under coordination. [390]

5.85.3 These rules mean that a major with a higher level of volume of tankage in the system needs to carry a higher level of stock, with higher associated working capital costs, in order to be assured of supply during port coordination events. This would discourage incremental investment in terminals, which would be lumpy in nature, before increases in market share.[391]

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389 We understand a port coordination event is usually triggered if there is less than 3 days stock before the next shipment is scheduled to arrive – see Transcript of meeting with Mobil (21 June 2019) at 5 (lines 22-26).

390 [ ]

391 This appears to be in line with comments made by Z Energy. Z Energy observed that an inappropriate distribution of costs within the borrow and loan arrangements may result in underinvestment in terminal infrastructure due to insufficient reward. See Z Energy "Market Study into the Retail Fuel Sector: Z Energy's response to invitation to comment on preliminary issues" at [110] and [111].

5.85.4 Similarly, majors whose minimum fuel stock obligation during port coordination events is lower, due to a lower amount of tankage in the system, may benefit from reduced working capital costs at the expense of a major who is required to hold more stock.[392] A major in such a scenario may not have an incentive to invest in further terminal storage, which would further increase their minimum fuel obligation and working capital commitment, if they wanted to be assured of an allocation of fuel during a port coordination.

5.85.5 We were told that if the level of each major's investment in terminals within the borrow and loan arrangement is not in line with market shares, this may produce inefficiencies.[393]

5.86 Finally, the fuel rationing mechanism when a port is placed under coordination (described above) means that majors appear to be insulated from the risk of losing customers when a port is under coordination. This is because competing majors are similarly unable to supply fuel beyond their allocated amount, unless they carry out more costly bridging activity, such as moving product from neighbouring ports by truck. These insulating effects may disincentivise further investment that might otherwise be made to manage the risk of not being able to supply.

A lack of investment and tight supply is likely to have a detrimental effect for competition at the wholesale level

5.87 It appears that the lack of investment and just in time approach to fuel supply are likely to have detrimental effects upon competition at the wholesale level. While we are still considering this issue, we consider these effects are likely to ultimately flow through to retail competition.

5.88 There are two main reasons for this:

5.88.1 it weakens distributors' ability and incentives to switch to another supplier; and

5.88.2 it limits the majors' ability and incentive to compete for new customers.

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5.89 We invite comments on our view of these likely effects on competition at the wholesale and retail levels.

Lack of investment and tight supply weakens distributors' ability and incentives to switch supplier

5.90 A lack of incentive or ability to switch may reduce competition at the wholesale level, and in turn, at the retail level.[394]

5.91 We have been told that security of supply is an important factor when considering competing bids for supply. A lack of terminal capacity and frequent anticipated shortages of supply, whether actual or perceived, may reduce the incentive or ability of distributors to consider switching to alternative suppliers because it may be considered too risky to do so.[395] One distributor noted that there are advantages to partnering with a major who supplies fewer distributors, as that provides a better guarantee of supply in periods of shortages.[396]

Limits the majors' ability and incentive to compete for new customers

5.92 We also consider a lack of terminal capacity and frequent port coordination events are likely to limit majors' ability and incentive to compete for large new customers (such as fuel distributors) because it reduces their ability to cost-effectively increase supply. This is likely to weaken competition at the wholesale level, and in turn, at the retail level.

5.93 As discussed above, we consider port coordination events are a result of (and further reinforce) a disincentive to invest in terminal infrastructure that result from the borrow and loan arrangements.

5.94 In addition, the rationing of fuel based on a major's market share during port coordination events may reduce the majors' ability to cost-effectively increase supply over the short-term, especially in regions that are under coordination frequently.

5.95 Independent resellers are likely to be similarly restricted given the discretion the majors appear to have under their supply agreements to supply when there is coordination at a particular port.[397]

394 We discuss the incentive and ability of distributors to switch suppliers at the wholesale level in more detail in Chapter 6.

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397 [ ]; and [ ]

5.96 We note that the majors do not necessarily share our views. For instance, BP noted the coordination mechanism puts majors on notice that they will need to make alternative arrangements within their network to ensure that customer demand is met.[398] BP gave us evidence that it says demonstrates its logistics network is highly effective at covering potential supply shortages at terminals to ensure very high supply reliability to customers.[399]

5.97 However, other evidence they provided by the majors supports our views.

5.97.1 A major alluded to how port coordination events may restrict a major's ability to compete for new customers in an interview, albeit in the context of a fuel type not within the scope of this study. The major referred to being able to offer security of supply through private storage to win a large commercial customer.[400]

5.97.2 A major noted that allocations during port coordination are based on 3-month rolling averages. The major told us it may have to find fuel from somewhere else if it won a particularly large supply contract, and a port was under coordination. This would be a problem for the first three months when supply would have to be managed through other means. The major described this as part of the management of change associated with winning large customers.[401]

5.98 We consider that further consideration should be given to options to address the current low levels of tank storage and tight supply. We consider that these factors are likely restricting competition at the wholesale level. It appears that this may result in less retail competition and in higher than expected prices for consumers.

5.99 As noted previously, we consider such considerations should be made jointly with consideration of methods of facilitating competitive import entry, such as through allowing for an import entrant to add one or more terminals to the borrow and loan arrangements and access the COLL joint venture services in relation to accounting for addition and withdrawals within the system and its import scheduling services.

5.100 We invite comments on the means by which industry participants consider that pressure on storage capacity and supply could be relieved, as well as ways in which greater import competition could be facilitated.

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398 BP "Preliminary response to June 2019 Pre-meeting letter" (24 June 2019) at [2.13].

399 Ibid.

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Particular provisions of the infrastructure sharing arrangements may limit or soften competition

5.101 As well as providing a deterrent to entry, we have identified several ways in which the infrastructure sharing arrangements may limit or soften competition.

5.102 In this section we discuss how the:

5.102.1 refinery allocation mechanisms may limit the majors' ability to cost-effectively increase supply of locally refined fuel; and

5.102.2 refinery and COLL joint venture arrangements may allow for accommodating behaviour between the majors.

Refinery's allocation mechanism limits the majors' ability to increase supply

5.103 The allocation of the refinery's capacity between the majors based on a three-year average of their retail market share by product may constrain their ability to cost-effectively increase supply in the short-term. This may in turn reduce their ability and incentive to compete for new business, therefore softening competition between them.

5.104 Our current view contrasts with those of some industry participants. In particular, BP does not consider that the current capacity allocation arrangements (and other arrangements at the refinery) adversely impact competition. BP submitted that market dynamics are set be imports of refined product rather than the refinery's capacity and output, and competitors are able to quickly and easily increase or decrease their level of imports.[402] We note overall imports of fuel by the majors has increased relative to their overall refined fuel production over time.[403]

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402 BP "Preliminary response to 2019 Pre-meeting letter" (24 June 2019) at [3.5] & [3.6].

403 Our analysis of Refining NZ data and import data of majors indicates that imports as a percentage of total fuel supply has increased from 31% in 2009 to 46% in 2018.

5.105 However, importing refined fuel is likely to be a less cost effective option for some fuel types such as diesel[404] and some regions, particularly Auckland. Increasing supply through refined fuel production would also require sustained increases in national market shares over a three-year period. The cost disadvantage associated with the need to import refined fuel may reduce the ability and incentive for majors to grow their market share through price competition. Data on each of the majors' percentage of the total refined fuel production at the refinery of 91 octane, 95 octane, and diesel shows that the refinery allocation between the majors has been relatively stable over time.[405]

5.106 The RAP's capacity is allocated between the majors in a similar way to that of the refinery. A key difference is that allocation of capacity to the RAP is based on the relative market shares of the majors in the Auckland and Waikato regions over a shorter time period. In particular, it is allocated on the basis of a major's relative share of volumes of fuel for the most recent continuous 12-month period.[406]

5.107 The RAP's allocation mechanism also likely reduces the majors' ability to cost-effectively expand output in the Auckland and Waikato regions. This is because expanding volumes quickly in these regions would likely require transporting imported fuel via truck from Mount Maunganui. Because this is more expensive than supply through the RAP, it is relatively more expensive to grow market shares in the Auckland and Waikato regions, and so to change allocation to the RAP.

5.108 Auckland is a significant share of total retail fuel volume in New Zealand.[407] An inability to cost-effectively grow market share in the short-term in Auckland may limit the ability to grow market shares nationally, and so expand supply through locally refined fuel over the short-term.

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404 [ ] It is possible that other majors also see such a cost advantage with diesel and that locally refining other types of fuel is also relatively cheaper.

405 [ ]

406 [ ] The allocation also accounts for a major's relative share of jet fuel deliveries through the RAP.

407 Diesel, Petrol and Jet port off-takes from Auckland amounted to 39.5% of all off-takes in New Zealand in 2017 – see MBIE "Energy in New Zealand" (October 2018) at 35. Note, however, that this estimate may overstate the volume of fuel relevant to Auckland as some fuel may be trucked from Auckland to supply the Waikato and Northland markets.

5.109 We are aware that Gull supplies the Auckland and Waikato regions by importing refined fuel into Mount Maunganui and trucking it to sites in those regions. It appears to have had success in growing market share in Auckland this way.[408] We are continuing to consider the potential implications of this evidence on the observations made to date in relation to the impact of allocation mechanisms on the majors' ability to increase supply.

An alternative allocation mechanism may be preferable

5.110 We currently consider an alternative capacity allocation mechanism that enables majors to commit to future supply contracts and increase refined fuel production over a shorter time period would be beneficial. We consider this would be beneficial for the supply of diesel generally, and in some regions, particularly Auckland.

5.111 It appears that an alternative mechanism could likely be implemented without significant cost because information received from Refining NZ suggests the reasons for the capacity allocation mechanisms are largely historical and not closely linked to the better management of the refinery's operations. Capacity has been allocated on the basis of market shares of each of the majors (including market shares that the users achieve by sales of imported products) since the inception of the refinery.

5.112 This principle was carried over into a Heads of Agreement between Refining NZ and the oil companies at the time following the deregulation of the sector in 1988, where the oil companies committed to taking the total available annual capacity of the refinery. While this agreement was never formalised, it provided that "entitlement to capacity will be based on the principle of market shares".[409] This principle was carried over into the current processing agreements. No current Refining NZ employee was involved in drafting these agreements and so Refining NZ was unable to further explain the history of the allocation mechanism.[410]

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409 Refining NZ response to the Commerce Commission information request (28 May 2019) at [1.5] and [3.6].

410 Ibid, at [3.6].

5.113 However, some industry participants have told us that current allocation mechanisms may allow for the majors to better plan the procurement of crude oil (an input into the refining process) and provide greater certainty when committing to future supply contracts. Refining NZ noted that the three-year average reduces year-on-year volatility in refinery capacity allocations and enables the majors to have greater certainty of access to refinery capacity when committing to future supply contracts,[411] while Mobil considers that the three-year historical average supports supply reliability by assessing major's requirements over a longer period rather than being influenced by short-term market fluctuations.[412] Z Energy similarly noted that procuring crude oil takes time and so there is some benefit of smoothing changes in refinery allocations through the three-year average. However, Z Energy also considered that a shorter time frame of two years would be reasonable.[413]

5.114 It appears that it could be possible to design and implement a refinery allocation mechanism that enables a major to increase supply of domestically refined fuel over a shorter time period while retaining the planning benefits. We invite further comment on whether such an alternative refinery mechanism is achievable.

5.115 We note that the shorter 12-month RAP allocation process was introduced in the mid-1990s, when the RAP neared maximum capacity. The change to the shorter allocation process was because the fuel demand in Auckland, particularly for jet fuel, had typically grown faster than national demand, with regular switching of jet fuel contracts between the majors. Using a shorter period for allocation to the RAP was considered more efficient and better aligned the demand profile of each major. Prior to this allocation mechanism, each major had a right to unlimited use of the RAP.[414]

5.116 We are also interested in views on whether there might be more efficient ways of managing the RAP's capacity, which we understand typically operates at full capacity, that would better stimulate competition at the wholesale level.[415]

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411 Refining NZ response to the Commerce Commission information request (28 May 2019) at [3.7].

412 Mobil "Information following meeting on 21 June 2019" (28 June 2019) at [14].

413 Transcript of meeting with Z Energy (24 June 2019) at 28 (lines 8-17).

414 Refining NZ response to the Commerce Commission information request (16 July 2019) at [2.2].

415 Refining NZ "NZCC Market Study into the Retail Fuel Sector: Response by Refining NZ to the New Zealand Commerce Commission's Preliminary Issues Paper for the Retail Fuel Market Study" (21 February 2019) at [7.16].

Refinery arrangements may allow for accommodating behaviour between the majors

5.117 It appears that aspects of the refinery arrangements could facilitate accommodating behaviour between the majors. In particular, it appears that the information exchange via the refinery's Technical Committee during the annual allocation procedure may provide a degree of transparency that may unnecessarily affect competition.

5.118 The Technical Committee includes a representative from each major and Refining NZ.[416] Its functions include allocating capacity and reviewing technical aspects of the refinery's operation.[417] It makes decisions by consensus[418], which gives each member veto power.

5.119 As part of the annual allocation procedure,[419] the majors share information on monthly national volumes by various categories of retail fuel (including by customer type),[420] which form the basis of the ultimate allocation.[421] The allocation process is largely mechanical, with the information on national volumes acting as inputs. The majors check the data for accuracy.[422]

5.120 Visibility of each other's national volumes across various categories may assist in facilitating accommodating behaviour. The transparency of information provided through the capacity allocation procedure may therefore unnecessarily affect competition.

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416 The New Zealand Refining Company Limited Processing Agreement (12 December 1996) [ ]

417 Ibid, [ ]

418 Ibid, [ ]

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422 [ ] See also Refining NZ response to the Commerce Commission information request (28 May 2019) at [3.4(a)].

Information shared between the majors as part of the refinery allocation procedure could be limited

5.121 We acknowledge that the Technical Committee contributes to the efficient operation of the refinery.[423] Refining NZ told us that the Technical Committee is a forum where operational matters such as deviations in crude oil quality and timing of delivery, deviations in refinery performance and production and changes in offtakes can be discussed and coordinated between Refining NZ and the majors. This aids the efficient operation of the refinery.[424] Refining NZ also told us that all refinery users need to be involved in coordination discussions with Refining NZ because the refinery is operated simultaneously for the benefit of all refinery users.[425]

5.122 However, we consider that it may be possible to achieve the same efficiencies through the exchange of less information and without the majors' representatives on the Technical Committee reviewing each other's volume data.

5.123 We consider that the risk of the exchange of information through the Technical Committee unnecessarily affecting competition could be eliminated by restricting each major to verifying their own data for the capacity allocation process. We invite further comment on whether this change would unduly affect the refinery's efficient operation.

COLL arrangements may allow for accommodating behaviour between the majors

5.124 It appears that the information shared between the majors through the COLL arrangements, including competitors' volume and demand information, could facilitate accommodating behaviour between the majors and so unnecessarily affect competition.

5.125 We consider that there may be low cost ways to reduce the current level of data sharing without significantly impacting the services that COLL provides and we invite comment on the extent of data exchange currently occurring.

COLL provides majors with various forms of information

5.126 COLL creates and shares information as part of its various scheduling and stock management roles.

423 Both BP and Mobil made this point. See BP "Preliminary response to June 2019 Pre-meeting letter" (24 June 2019) at [3.1] and [3.2] and Mobil "Information following meeting on 21 June 2019" (28 June 2019) at [12].

424 Refining NZ response to the Commerce Commission information request (28 May 2019) at [3.1] to [3.3].

425 Ibid, at [3.3].

5.127 COLL requires data of each major's demand into the future by location to assist with ship scheduling.[426] This shipping schedule, "COSMIC", is provided to the majors on a weekly basis.[427] COSMIC provides the majors with information on projected refinery production, demand into the future of fuel types for each port, and planned discharges into ports by both COLL vessels and import vessels. Majors can therefore see aggregated estimates of demand into the future for fuel types at each port under industry storage.[428] An individual major's demand into the future is not shared with other majors, other than at Wiri.[429]

5.128 COLL also accounts for all contributions to and withdrawals from industry storage under the borrow and loan arrangements.[430] COLL reports national daily stock ownership figures for each fuel type for each major in a report known as "CONCORD".[431] CONCORD gives the majors a historical and forward-looking overview of deposits and offtakes from industry storage.[432]

5.129 Past and future offtakes and deposits are aggregated to a national level by fuel type under CONCORD. Majors can therefore see each other's past and future demand by fuel type at a national level. However, majors are unable to see each other's past or future demand by fuel type and port (apart from at the Wiri terminal).

5.130 Separately to the demand data collected by COLL, the majors also use BDO New Zealand Limited (BDO) to provide aggregated monthly historic sales data for all products for each major, including sales outside of the borrow and loan arrangements. This data is used for the refinery capacity allocation process.

5.131 The sharing of this information between the majors may assist in facilitating accommodating behaviour and so may unnecessarily affect competition. We discuss this further below.

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426 Hale and Twomey "New Zealand Fuel Market Study – Supplementary Information on Shared Data" (October 2017) at 6.

427 Ibid, at 4.

428 Daily demand can be derived by determining the extent of the decreases in tank holding.

429 Hale and Twomey "New Zealand Fuel Market Study – Supplementary Information on Shared Data" (October 2017) at 6.

430 Ibid, at 7.

431 Ibid, at 7.

432 Ibid, at 6.

Previous studies have considered options to reduce the amount of information shared

5.132 Following the New Zealand Fuel Market Financial Market Performance Study, Hale & Twomey did an assessment of whether an independent registry should be created to limit visibility of regional market share data. Following its assessment, Hale & Twomey concluded that COLL is already providing an independent way for data to be collected and aggregated, albeit that COLL is owned by the majors.[433] Hale & Twomey considered that the level of data shared with majors is generally appropriate, including for the Wiri Terminal.[434]

5.133 Nevertheless, Hale & Twomey noted that if there were concerns about the current level of data sharing, it would be possible to reduce this without significantly impacting on how the borrow and loan arrangements work. Options identified included:

5.133.1 aggregating demand into the future for the Wiri Terminal if the RAP becomes unconstrained, consistent with reporting at other locations;[435]

5.133.2 reducing the frequency of historic sales data provided by BDO;[436] and

5.133.3 limiting visibility of forward stock ownership (ie, national demand into the future) by fuel type and in total under CONCORD to only their own positions (currently majors are able to see each other’s demand into the future).[437]

Information provided by COLL to the majors could be limited

5.134 It appears that the information provided by COLL could facilitate accommodating behaviour between the majors and so may unnecessarily impact wholesale competition.

5.135 We recognise that much of the information shared between the majors through COLL may be necessary to ensure the efficient operation of the shipping schedules and shared industry storage. The aggregation of data limits the extent to which details of future demand at a particular port might facilitate accommodating behaviour.

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433 Hale and Twomey “New Zealand Fuel Market Study – Supplementary Information on Shared Data” (October 2017) at i.

434 Ibid, at ii.

435 Ibid, at 1.

436 Ibid, at 16.

437 Ibid, at 16.

5.136 We further note that the COLL joint venture arrangements contain several clauses that purport to limit the nature of information exchanged, including with reference to the Act.[438]

5.137 However, the exchange of information that potentially facilitates accommodating behaviour would not necessarily be illegal under the Act and so may not be caught by the purported safeguards under the arrangements.

5.138 We consider there may be ways in which the risks for competition could be reduced without reducing COLL's effectiveness. We consider that this could be achieved if the information provided by COLL was limited along the lines of the options recommended by Hale & Twomey. In addition, we currently consider it would be appropriate to further restrict the data provided by BDO to limit the visibility majors have of each other's historic sales data.[439] While this information may be available through other means (eg, Local Authorities Fuel Tax data), it may nonetheless serve to limit the visibility of past market share data and so potentially limit the prospect of accommodating behaviour between majors.

5.139 We invite further comment on the role that information exchange plays in managing COLL's operations and whether current information sharing arrangements could be modified without unduly affecting COLL's operations.

438 [ ] - see BP Oil New Zealand Ltd, Chevron New Zealand, Mobil Oil New Zealand Limited, Shell New Zealand Limited and Coastal Oil Logistics Limited Joint Venture Agreement (29 November 2007) [ ]

439 This would be in addition to Hale and Twomey's recommendation that the frequency of the BDO sales data be reduced.

Chapter 6 Wholesale supply arrangements

Summary of our findings

- There is a significant degree of structural vertical integration in the fuel industry in New Zealand through the majors' participation in the supply chain as well as retail markets.
- In addition, it appears that dealers and distributors have stable, long-term relationships with the majors from which they obtain wholesale supply. This has arisen from a range of explicit contractual and implicit non-contractual factors.
  - Explicitly, many wholesale supply agreements contain restrictive provisions that appear to lock dealers and distributors into relationships with their wholesale suppliers. This has a similar effect to structural vertical integration and reduces the scope for competition at the wholesale level.
  - Implicitly but supported by the wholesale supply agreements, majors are able to influence the commercial decisions of dealers and distributors in a variety of ways.
- The combination of vertical integration and restrictive wholesale supply arrangements that has emerged since deregulation appears to have prevented the emergence of a workably competitive wholesale market.
- The absence of a workably competitive wholesale market likely raises the retail price that New Zealand consumers pay for fuel because:
  - the incentives to reduce costs and margins, and thus lower wholesale (and retail) prices, that would arise in a workably competitive wholesale market are lost;
  - independent importers face barriers to entry because there are few wholesale customers actively looking for new supply opportunities; and
  - competition between existing wholesale suppliers is reduced because dealers and distributors face barriers to switching.
- For these reasons, we currently consider that some changes could be made to wholesale supply agreements to support workably competitive wholesale and retail fuel markets, the benefits of which would flow through retail markets to consumers.

Introduction

6.1 This chapter sets out our current views of how competition for the supply of retail fuel in New Zealand may be affected by:

6.1.1 the extent of vertical integration in the industry; and

6.1.2 the wholesale supply agreements between the majors and the dealers and distributors.

6.2 Vertical integration in the fuel industry in New Zealand essentially arises in two different ways.

6.2.1 First, the majors are vertically integrated because they supply fuel at a wholesale level as well as owning and operating retail sites (referred to as structural vertical integration).[440]

6.2.2 Second, the majors have entered into wholesale supply contracts with dealers and distributors to supply fuel (referred to as wholesale supply agreements or contracts).[441] Wholesale supply agreements can have similar effects as structural vertical integration.[442]

6.3 As outlined in Chapter 2, dealers own and/or operate retail fuel sites and sell fuel using one of the majors' brands. Distributors resell fuel supplied by the majors using their own brand (eg, NPD, Waitomo, Allied, and GAS).[443]

6.4 We are interested in the effect that the vertical integration of the majors and the wholesale supply agreements entered into by the majors with dealers or distributors is having on competition in wholesale and retail markets.

6.5 First, we consider that these relationships contribute to the lack of switching of suppliers in the wholesale market, particularly by distributors. This lack of contestable demand discourages competition between the majors and entry by rival importers looking for customers in the wholesale market.

6.6 Second, these relationships seem to have a negative influence on competition in retail markets. For example, the ability of dealers and distributors to compete in the retail market may be constrained by the terms of their wholesale supply agreements with majors, including how prices are set by the majors.

6.7 We are continuing to assess the effect of these relationships – both contractual and non-contractual – on competition in the wholesale and retail markets. We invite comment on our analysis and the feasibility of less restrictive contractual arrangements that industry participants could adopt to stimulate competition in both the wholesale and retail markets.

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440 Evidence we have obtained to date suggests that approximately half of all retail fuel volumes are sold via the majors' own retail sites.

441 Gull is vertically integrated but does not typically supply fuel to distributors or non-Gull dealers.

442 We view vertical integration as including situations where economic control is maintained not just via ownership, but also contractually, as discussed by Sanford J. Grossman and Oliver D. Hart "The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration" (1986) 94 Journal of Political Economy at 691 – 719.

443 Although GAS was not previously a distributor before it entered in 1999 and has no commercial or haulage operations, we have categorised it as a distributor here because of the functions it provides to independent GAS-branded dealers.

Structure of this chapter

6.8 The chapter addresses the following aspects of the wholesale supply chain:

6.8.1 the history of wholesale supply relationships in the sector;

6.8.2 the non-contractual factors that affect existing relationships between wholesale suppliers and retailers;

6.8.3 how specific contractual terms in wholesale supply agreements may be hindering competition; and

6.8.4 the outcomes and conduct observed in wholesale markets and the potential impact on competition in the retail market.

The evolution of wholesale supply relationships in the fuel industry

6.9 Understanding the origins and evolution of wholesale supply relationships in the industry provides important context for assessing the current impact of these relationships on the supply of fuel. In particular, the history of the market provides insights into how the bargaining positions of different participants in the market have evolved and what has led to the level of interdependency that we see in the market today.

6.10 One of the key developments in the industry in the last thirty years has been the replacement of the functional separation between the wholesale and retail markets that existed before deregulation with a mixture of structural vertical integration and stable, long-term wholesale supply relationships.

6.11 This section provides more detail about how these relationships and the retail networks of the majors and the dealers and distributors have developed over time.

Vertical integration and wholesale supply agreements with dealers followed deregulation

6.12 Before deregulation in 1988, wholesalers were not allowed to own or control retail functions. Retail sites were independently owned by parties that were supplied fuel by the majors at regulated wholesale prices.

6.13 The constraint on vertical integration into the retail sector was removed with deregulation. The majors subsequently acquired a large proportion of retail sites, particularly high volume sites, and entered into long-term supply contracts with other independent retailers.[444]

[444] Michael Pickford and Cameron Wheeler "The petrol industry: Deregulation, entry and competition" (2001) *NZ Trade Consortium Working Paper No. 12* at 15. It has also been suggested that the majors tried to place first right of refusal clauses into supply contracts with retailers before deregulation. Motor Trades Association, quoted in Clough et al. (1989, p. 38) as reported by Pickford and Wheeler (2001).

6.14 At this time, some existing retailers, particularly those in desirable, high volume locations, probably extracted significant value from the sale of their site.[445] This is because the majors may have actively competed to acquire the site. In other cases, majors would have competed to supply sites with fuel, using long-term supply contracts to support investment in site branding.

6.15 In recent years, the majors have moved to divest many retail sites, particularly smaller, lower volume sites. The majors have cited several reasons for these divestments, including increased operating costs, particularly in relation to health and safety requirements and branding.[446] Furthermore, over recent decades, some international oil companies appear to have de-prioritised investment in New Zealand more generally and have divested a range of local assets.

6.16 The specific nature of these divestments varies from site-to-site. All assets were fully divested at some sites whereas at other sites the majors retained ownership of the land and/or some other assets such as storage tanks.[447]

6.17 As part of this divestment process, the majors typically entered into long-term exclusive wholesale supply agreements with dealers to retail fuel under the majors' brands, meaning the level of effective vertical integration in the supply chain was maintained.

6.18 There are also a small number of agency agreements for dealer-owned sites that operate under a major's brand.[448] Under an agency arrangement a major retains ownership of the fuel and sets the retail price. The majors pay commissions to the dealers, typically on a cents per litre basis, for fuel sold by dealers on a major's behalf. Majors might also make lump sum payments to dealers if commissions, or margins, are less than dealers' costs.

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445 A potential example of this may have been the Top Group, a retailer owning 22 sites in the North Island. The Top Group was owned by Brierley Investments and Fay Richwhite before it was sold to BP in August 1988. Michael Pickford and Cameron Wheeler "The petrol industry: Deregulation, entry and competition" (2001) *NZ Trade Consortium Working Paper No. 12* speculate that The Top Group was not intended to be a long-term competitor but was a vehicle used to acquire prime sites prior to de-regulation and then to sell these to the highest bidder post de-regulation. See Pickford and Wheeler (2001) at 14.

446 [ ]

447 Around the time of these divestments the majors also closed down many sites that were no longer economically viable. Consequently, the total number of retail sites fell from approximately 1,800 in 1998 to approximately 1,200 by 2012. Pickford and Wheeler (2001) at 26. Z Energy "The downstream fuels industry: Strongly competitive or operating with uncertainty?" (8 March 2012) at 3.

448 [ ]

6.19 The current wholesale supply agreements for Challenge branded retail sites have a different history. Challenge entered in 1998 and originally intended to be an independent vertically integrated participant, like Gull who also entered in 1998.[449] However, Challenge was subsequently acquired by Chevron in 2003 after it was unsuccessful in obtaining access to refined product from the Marsden Point refinery on terms that it was willing to accept. Although Challenge sites are typically owned by dealers, Z Energy owns the rights to the Challenge brand having acquired it from Chevron in 2015.[450]

Relationships with distributors expanded to include wholesale supply of fuel

6.20 In addition to the majors' relationships with dealers, majors have also had ongoing business relationships in some form with distributors for decades, even prior to deregulation. For instance, Mobil has had some form of relationship with both Waitomo and Allied for over 70 years.[451] At various times, some majors have had equity stakes in selected downstream distributors. This was previously the case with Mobil, and is still the case with BP, which currently holds a 49% stake in both RD Petroleum and McFall Fuel.[452]

6.21 The nature of these relationships has changed over time. Distributors traditionally provided haulage or other logistics services to the majors. However, distributors took over the direct supply of fuel to smaller commercial customers when the majors divested these businesses, most commonly during the early 2000s. We have been told that the majors no longer wished to directly manage relationships with large numbers of small commercial customers.[453]

6.22 Similar to the supply relationships the majors entered into with dealers during the period of divestment described above, in many cases, the majors transferred elements of their commercial businesses, along with upfront capital injections and other assets to distributors in exchange for long-term minimum volume and/or exclusive supply agreements. We understand that these agreements enabled them to recoup the upfront support, investment and assets provided to distributors during this transition process.[454]

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449 See <https://www.challenge.net.nz/About-Challenge>. (Viewed on 17 August 2019).

450 Challenge-branded sites are supplied by distributor Farmlands, which is in turn supplied by Z Energy.

451 Mobil interview, 21 June 2019, page 23.

452 See <https://www.mcfallfuel.co.nz/our-history>. (Viewed on 17 August 2019).

453 [ ]

454 [ ]

6.23 These supply agreements also allowed distributors to expand beyond supplying their commercial customers into retail markets to varying degrees, potentially in competition with their suppler. Distributors such as Allied, Waitomo, NPD, Southfuels, McKeown, McFall Fuel, and RD Petroleum each has its own retail brand and controls its own retail sites which were acquired from a major or developed as greenfields sites. Although, as detailed in Chapter 2, the volumes retailed by these distributors are relatively small in terms of the overall size of the market, the presence of these distributors has promoted some of the changes we have seen in retail markets in recent years such as unmanned sites and the volumes they supply could support entry by importers in the future.

6.24 In a small number of cases, a distributor may also operate retail sites under the brand of the major from which they obtain wholesale supply.[455] Additionally, Allied provides a wider range of haulage services to Mobil. RD Petroleum and McFall Fuel do likewise for BP.

Non-contractual aspects of wholesale supply relationships

Distributors' retail networks are complementary to the majors' retail networks

6.25 Although distributors have been able to expand into retail markets, it appears that the expansion of their retail networks has been influenced by the existing network of the major that supplies them with fuel. This is not an unexpected outcome given it is in each party's interest to avoid competing directly with the other. Nevertheless, this interdependency has implications for competition in the wholesale market as we explain further below.

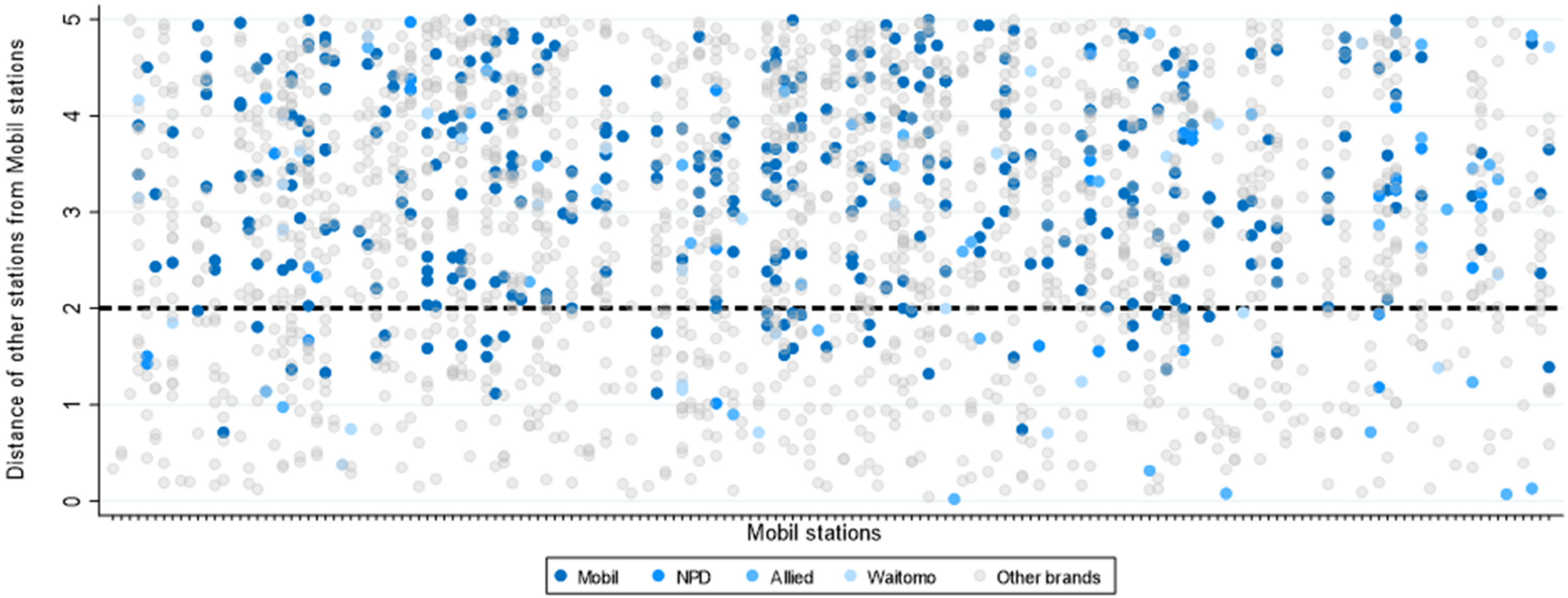
6.26 Our analysis of the location of selected distributors' retail sites, using data obtained from industry participants, sheds light on this interdependence. It suggests that distributors' retail networks have evolved to be largely complementary to, rather than competing directly with, the retail network of the major that supplies them.

6.27 Figure 6.1 shows how close other retail sites are to each of the 171 Mobil branded sites. Each Mobil site is represented by a mark on the horizontal axis. The distance to all other retail sites within 5km of each Mobil site is shown by dots vertically above each mark on the horizontal axis. This chart shows that there are relatively few Waitomo, NPD, Allied or other Mobil retail sites (reflected as blue dots), within 2km of existing Mobil retail sites. However, there are typically a larger number of retail sites supplied by other majors and Gull within 2km of Mobil sites (reflected as grey dots).

[455] [ ]

6.28 Figure 6.2 shows a similar pattern with regards to the location of BP supplied GAS and RD Petroleum sites relative to BP branded sites. That is, there are relatively few GAS, RD Petroleum or other BP sites within 2 km of existing BP sites, while there are more commonly a larger number of sites supplied by other majors or Gull within 2 km.

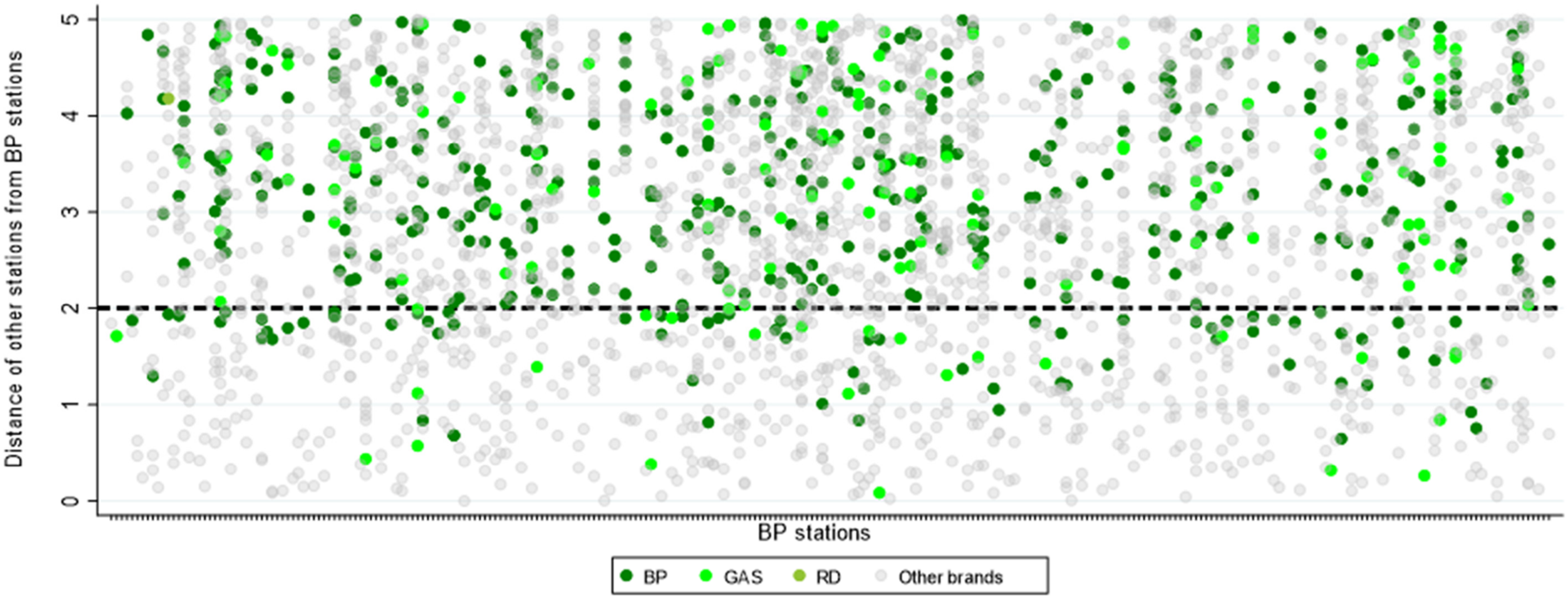
Figure 6.1 Distance from Mobil branded retail sites of other Mobil supplied retail sites and all other retail sites



Source: Commission analysis of data provided by industry participants.[456]

456 Excludes McKeown sites opened since 2015.

Figure 6.2 Distance from BP branded retail sites of other BP supplied retail sites and all other retail sites



Source: Commission analysis of data provided by industry participants.[457]

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[457] Excludes McKeown sites opened since 2015.

6.29 Our analysis is consistent with evidence from several distributors that told us that a factor in deciding where to build or buy retail sites is the extent to which these sites complement, rather than directly compete with, their major's retail networks. One distributor noted that it did not want to "give the people that supply us a punch in the nose."[458] Another distributor noted that it focused on older or smaller retail sites that the majors do not want to operate.[459]

6.30 We are interested in feedback on this issue from the perspective of the majors. It seems that these distribution relationships have evolved to create a path-dependent pattern of retail development that reinforces the vertical integration between majors and distributors in the wholesale and retail markets. We also consider that these networks may be weakening the majors' incentives to compete strongly to supply new distributors and could be contributing to the low level of switching of wholesale suppliers we have observed in the industry. Even if distributors wished to switch supply to a different major fuel company, the location of their established retail sites may mean they are unlikely to get a better wholesale price from the same suppliers they would then be competing more directly against. This is discussed further below.

Security of supply is important for distributors

6.31 The evidence we have obtained shows that security of supply is a key issue for distributors.[460] The supply risk associated with the relatively tight supply of fuel around much of the country and frequent port coordination events was detailed in Chapter 5. This appears to influence distributors' decisions about where to locate new retail sites.

6.32 The majors may be more likely to prioritise supply to some distributors over others in the event of port coordination events or shortages. In particular, the majors may favour distributors with whom they have long-term supply relationships.[461] This is especially likely if a major's existing distributors have retail sites that are more complementary to, or a better fit with, the networks of retail sites supplied directly by that major.

6.33 Conversely, as outlined above, a distributor considering switching to another major for wholesale supply is likely to have retail sites that are in direct competition with their new wholesale supplier and/or with distributors already supplied by that major.

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Ability to participate in fuel card schemes can influence distributors' wholesale supply and retail site location decisions

6.34 As outlined in Chapters 2 and 7, participation in majors' fuel card schemes can be an important influence on a retail site's sales and profitability, as the ability to accept fuel cards gives a distributor immediate access to commercial customers using that fuel card. Current participation in a particular fuel card scheme could therefore disincentivise distributors from switching wholesale suppliers. If alternative wholesale suppliers are not willing or able to offer an attractive fuel card option to distributors, this will limit these suppliers' attractiveness as a source of supply. This could occur if a wholesale supplier (importer) does not have nationwide coverage and/or their own fuel card offering. Consequently, a distributor that switches away from its major could risk losing sales through the loss of fuel card customers. Any reluctance in distributors to switch then further reinforces the difficulty a potential new supplier faces in entering the wholesale market.

6.35 A major's ability to determine whether a distributor's new retail site can access the major's fuel card scheme also appears to influence where a distributor decides to open a new retail site.

6.36 Majors may only allow their fuel cards to be accepted at distributors' sites if the major does not already have a competing site nearby.[462] In this way majors can potentially encourage distributors to open new sites in locations that fill gaps in a major's own retail network rather than compete directly with its existing sites.

6.37 We note that that there are some independent fuel card providers that are not tied to only one major, for example Cardlink and NZ Fuel Cards.[463]

6.38 We seek feedback on the degree to which the importance of access to fuel card offers may affect decisions regarding wholesale supply by distributors, and the extent to which this may be harming wholesale competition.

The potential impact of specific terms in wholesale supply agreements

6.39 As well as considering the nature of the relationships that exist between the majors and the dealers and distributors, we have examined whether the terms of the wholesale supply agreements between the majors and their dealers or distributors are reinforcing the level of vertical integration that we have identified in the industry.

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[462] [ ]

[463] See <https://www.cardlink.co.nz/> and <https://nzfuelcards.co.nz/>. (Viewed on 17 August 2019).

6.40 As described above, many wholesale supply agreements contain restrictive provisions which favour the majors' security of supply. We consider below the extent to which these provisions may be affecting competition for the wholesale supply of fuel in New Zealand.

The majors appear to have bargaining power

6.41 It appears that the majors often hold a position of relative bargaining strength over dealers and distributors. This bargaining power may have originated at the time the majors divested retail and commercial businesses to dealers and distributors, although bargaining positions are likely to have evolved over time. For example, although individual distributors have become increasingly important to majors as key routes to market for a major's fuel products, as highlighted above, distributors seem to have developed their retail networks to complement those of their wholesale suppliers and place value on access to majors' fuel card schemes. As outlined below, distributors are also likely to face significant switching costs and risks associated with switching to another major for wholesale supply at the end of their supply contract.

6.42 While parties' relative bargaining positions will vary on a case-by-case basis, we consider that either the bargaining power of the majors or their ability to offer financial inducements given their profitability (see Chapter 3), likely gives majors the ability to maintain the supply contracts that were put in place for the historical reasons discussed earlier. Furthermore, we are of the view that if competition at the wholesale level was working well dealers and distributors would have greater scope to negotiate contracts that give them more flexible supply options.

6.43 We are interested in receiving feedback from industry participants on their view of the relative bargaining positions of majors and dealers and distributors and the effects of this on contract negotiations.

Restrictive contractual provisions may affect competition in wholesale supply markets

6.44 As a starting point, we note that a range of factors influence the effect on competition of a provision in a wholesale supply agreement that requires, for example, exclusivity or an extended notice period. Those factors include the characteristics of an industry, the market power of the parties to the agreement and the extent to which similar contractual provisions are used across an industry.[464] These types of contractual provisions are not uncommon across a range of industries, and we have not assessed the lawfulness of individual provisions as this is outside the scope of this study.

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464 For a discussion on the pros and cons of vertical restraints see for example: Simon Bishop and Mike Walker *The Economics of EC Competition Law: Concepts, Application and Measurement (*3rd ed, Sweet & Maxwell, London, 2010) at [5-037]; and Mossimo Motta *Competition Law: Theory and Practice* (Cambridge, Cambridge, 2004) at Chapter 6.

6.45 We acknowledge that these types of contractual provisions can have a variety of benefits and lead to pro-competitive outcomes. Generally, these benefits relate to facilitating relationship-specific investments and avoiding hold-up problems,[465] reducing transactions costs, and/or aligning incentives regarding promotional or other activities related to the sale of differentiated products.

6.46 However, structural vertical integration and wholesale supply agreements with similar effects can reduce the scope for wholesale transactions and result in the loss of high-powered, market-based incentives to reduce costs and drive significant efficiencies. This is particularly the case in relation to the production of homogeneous goods for which relationship-specific investments and/or sales-specific activities or after sales service are less important.[466]

6.47 Additionally, vertical integration and restrictive wholesale agreements can result in reduced wholesale competition including by:[467]

6.47.1 raising barriers to entry for new entrants through either customer or input foreclosure;[468] and/or

6.47.2 softening competition or facilitating coordination between existing wholesale suppliers.

Views of dealers and distributors about their contractual supply relationships

6.48 While the majors told us that they are relatively happy with existing wholesale supply agreements, the feedback we received from dealers and distributors was mixed. We discuss the reasons why this may be the case in more detail below. Dealers and distributors expressed varying degrees of dissatisfaction with elements of their wholesale supply agreements.

6.48.1 First, some dealers and distributors are concerned that the terms of their agreements prevent them from switching wholesale suppliers and/or the ability to obtain supply from more than one wholesale supplier.

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465 In the absence of vertical integration or contractual restriction between two parties, one of these parties may be reluctant to undertake otherwise efficient investment because to do so would expose them to a loss of bargaining power and subsequent hold-up risk. In this sector either wholesale suppliers or dealers and distributors could be exposed to such concerns.

466 Peter Klein and Howard Shelanski, "Transactions cost economics in practice: Applications and evidence" (1995) 11 Journal of Law, Economics, & Organization at 335-361.

467 Commerce Commission "Mergers and acquisitions guidelines" (July 2019) at 35 for further explanation of these impacts.

468 See also Steven Salop "Economic analysis of exclusionary vertical conduct: Where Chicago has overshot the mark", in R Pitofsky (ed) *How the Chicago School overshot the mark: The effect of conservative economic analysis on US antitrust* (2008) at 150.

6.48.2 Second, as we assess in a separate section below, some dealers and distributors expressed concerns about the transparency of wholesale prices and margins and the majors' ability to unilaterally alter these prices and margins at any point throughout their supply contracts.

Restrictive contractual provisions in wholesale supply agreements are likely to be affecting the retail fuel market

6.49 Having consulted with a variety of industry participants during our study to date and observed a number of outcomes in the wholesale market, it appears that the restrictive contractual provisions contained in many wholesale supply agreements between majors and dealers or distributors could be having a detrimental impact on wholesale competition.

6.50 We are particularly concerned that the existence of these contractual provisions across an industry that is already characterised by high levels of structural vertical integration is contributing to the evidence we have seen of dealers and distributors not actively seeking to switch suppliers, and thus the majors not vigorously competing to supply them, even when long-term contracts come up for renewal.

6.51 As a result, we consider that:

6.51.1 many wholesale transactions effectively bypass what might otherwise be a competitive wholesale market;

6.51.2 dealers and distributors may be disincentivised from supporting a new importer to enter into the market; and

6.51.3 the level of competition in the wholesale market is impacting competition in the retail market. We discuss the implications for competition in the retail market further below and in Chapter 7.

6.52 We are continuing to assess the impact of these contractual provisions. As outlined in more detail below, with fuel being a homogeneous product with a simple supply chain, we are sceptical about the likely benefits of many of the restrictive provisions that are contained in wholesale supply agreements in the industry. We are aware that over time some wholesale supply agreements have become less restrictive as a result of negotiations between majors and distributors.[469] However, as outlined in more detail in Chapter 8, we are considering whether competition could be improved in the wholesale and retail markets through alternative, less restrictive contractual arrangements.

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469 [ ]

Contractual provisions that may be hindering competition

6.53 We are seeking feedback on our views about how the contractual provisions outlined below are operating in the wholesale and retail markets for the supply of fuel.

6.54 There are some differences in the agreements between the majors and distributors and the majors and dealers. Some contractual provisions also differ according to the degree of assistance provided by a major to a dealer. However, many of the provisions in these agreements are similar or have a similar effect, so we do not differentiate between these contracts unless otherwise specified.

Long-term, minimum volume and/or exclusive supply agreements

6.55 It appears common for wholesale supply agreements to contain a combination of requirements that dealers or distributors take specified volumes and/or long-term exclusive supply commitments, often around 10 to 15 years, or in rare cases into perpetuity.[470,471]

6.56 As described above, we understand that some of these restrictions arose following deregulation when the majors transferred ownership to dealers and distributors, often advancing vendor finance.[472]

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470 We note duration may be expressed either in terms of time, eg, X years, or in terms of total minimum volume purchased, eg, Y million litres, where the supply contract applies for either a set duration or until the minimum volume is purchased, whichever occurs last, [ ] Also, volume commitments can create quasi-exclusivity in wholesale supply agreements due to the volume required to be sold to perform the agreement.

471 Without an exclusivity requirement any duration requirements are effectively non-binding, and without long duration any exclusivity provision is of limited effect.

472 We note the distributors may also enter into long-term exclusive supply contracts with independent dealers who wish to use the distributor's brand, for example GAS. See Transcript of phone call with GAS (12 April 2019) at 3.

6.57 Even now, majors occasionally invest in upgrading or improving dealers' sites, for instance undertaking shop refurbishments or replacing old storage tanks. We were advised that rather than require dealers and distributors to provide upfront payments, or to undertake these investments themselves, the value of these assets and cost of these investments may instead be recovered over the course of the supply contract.[473] Typically incentives between branded dealers and the majors which own those brands are broadly aligned, in terms of sales volumes and also in terms of maintaining the value of the brand. For this reason, it is not uncommon for majors to provide relationship-specific investments to dealers in exchange for wholesale supply secured for a particular period of time.[474]

6.58 However, it does not currently appear to us that the relatively long durations of exclusive wholesale supply agreements with dealers are always justified by the recovery of the costs of any upfront or ongoing assistance or capital investments. It appears that in many cases, these contracts could achieve the benefits claimed under terms of shorter duration.

6.59 We have also not identified relationship-specific investments in the supply of fuel to distributors that justify long-term exclusive and/or minimum volume contracts. For example, the majors typically provide distributors with fuel at the terminal. Distributors are largely responsible for their own haulage, storage and retail assets, including brands. Even in the isolated instance where a distributor relies on its wholesale supplier to arrange haulage services, we understand that there is likely little difficulty or any material additional cost to the major if haulage is arranged on this basis.

6.60 Consequently, we have been unable to determine that there is a significant need for the majors to undertake customer-specific, bespoke investment in the process of supplying distributors in particular, and in some cases dealers. While it is the case that given the relatively large volumes purchased by some distributors there are efficiency gains to be achieved from majors having some certainty around likely future demand, in our view this does not justify the extent of the volume requirements and/or exclusivity imposed in many of these wholesale supply agreements for what is the supply of an undifferentiated, homogeneous commodity.

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473 Mobil interview, 21 June 2019, page 29 - 33. One major suggested that, to the extent that any up-front, lump-sum consideration is tied to a long-term exclusive contract that has a specific minimum volume requirement, this can be considered as akin to an up-front cents per litre discount, [ ]

474 We also note that in the absence of sufficient wholesale price transparency it can be difficult, if not impossible, for distributors or dealers to accurately distinguish between the recovery of these costs or wholesale margins more generally. Wholesale pricing is discussed further below.

6.61 It does not appear necessary for supply contracts with distributors to be exclusive or to have significant volume commitments to provide majors with sufficient certainty to optimise supply. Agreements that allow for supply to be split between wholesale suppliers (ie non-exclusive), say in fixed proportions, could also provide the same or similar level of certainty about future volumes. We expect that, for example, competition could be facilitated if distributors had the option of obtaining at least some supply from a potential new entrant, such as TOSL. As long as any splitting of supply was done in fixed proportions and/or forecasted sufficiently in advance, we do not expect that it would necessarily either complicate or increase uncertainty in distributors supply relationships with majors. In fact, distributors may be able to provide greater certainty regarding future demand to a primary wholesale supplier (say a major) by locking in a fixed volume contract, and then using their secondary wholesale supplier to supply the difference on a variable volume basis.

6.62 Similarly, it is not clear that contracts of 10 to 15 years duration are necessary for the majors' forward planning. Some of the largest supply contracts in the sector outside of those with distributors are typically for much shorter durations. We note that BP lost the contract to supply Foodstuffs to Mobil in 2012, and Mobil subsequently lost this contract in 2018.[475]

6.63 Nor do there appear to be complex coordination problems involved in wholesale supply to retail that require restrictive contractual terms. Unlike more complex products, end consumers of retail fuel do not typically require specialist retail or after sales assistance.

6.64 The effect of these long-term, minimum volume and/or exclusive supply contracts is to remove the potential for more frequent wholesale transactions from the market. As we discuss further below, even where there are clauses that allow for termination during the period of the contract, other terms of the contracts such as rights of first refusal, information disclosure requirements, transfer of goodwill, and liquidated damages, may disincentivise dealers and distributors from terminating contracts.

6.65 We consider that these provisions are likely to reduce rivalry between existing wholesale suppliers. In addition, they potentially foreclose wholesale customers from potential entrants (importers) at the wholesale level and are likely to deter entry for those potential entrants who become aware of the terms restraining their potential customers.

475 See *Z Energy Limited and Chevron New Zealand* [2016] NZCC 10 at [114.3] and <http://www.scoop.co.nz/stories/BU1805/S00130/z-energy-pushes-strategy-30-with-foodstuffs-tie-up.htm>. (Viewed on 17 August 2019).

6.66 We expect that far shorter terms in wholesale supply agreements with distributors, say three to five years, would provide the majors with sufficient certainty regarding likely future wholesale purchases to optimise delivery services so as to minimise costs.

6.67 Some majors raised the need for exclusivity of supply to ensure product quality.[476] To the extent that additives added by majors to branded fuel products are sold by dealers or that there can occasionally be issues relating to contaminated product, this may provide a justification for ensuring exclusive supply to dealers.

6.68 It does not appear that a similar justification can be applied to distributors that operate and sell fuel under their own brands. We consider that such distributors should have options for diversifying their sources of supply. We note that obtaining supply from multiple suppliers is not unusual in other wholesale markets, for example, in Australia.[477]

Termination periods and rights of renewal

6.69 Most commercial supply contracts contain termination provisions relating to the performance of a party to the contract or particular events such as change of ownership or force majeure.

6.70 However, we are concerned that some of the termination provisions we have seen in the wholesale supply agreements give the majors a wide degree of discretion to terminate a contract, sometimes immediately, on the basis of performance issues such as failure to meet minimum volume requirements.

6.71 Furthermore, upon completion or termination of a supply contract some distributors are required to provide the majors with information relating to their business, for example customer information and contact details.[478]

6.72 The notice periods for rights of renewal and termination periods also vary significantly from one month to two years.[479] Some contracts include either automatic or unilateral rights of renewal and enable majors to renew existing wholesale supply agreements for a pre-determined period, for example five or ten years. Some agreements also give the major the sole discretion to terminate.

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6.73 It seems that some of these provisions may be disincentivising switching in the market, particularly by distributors, which also makes it more difficult for new import suppliers to enter the market. As outlined above, minimum volume requirements are common in the industry and can create a form of exclusivity even if the contract does not explicitly require exclusivity. The extended notice periods for renewal or termination also mean that there are lengthy lead-in times for any distributors seeking to switch. Conversely, the ability of the majors to terminate immediately or within short periods of time in certain circumstances can make it difficult for dealers and distributors to find suitable alternatives and reduce the bargaining power they are likely to have in these situations.

Transfer of ownership/rights of first refusal

6.74 Many wholesale supply contracts contain clauses that effectively allow the majors to veto any transfer of ownership by dealers or distributors.[480] For example, a first right of refusal regarding any potential transfer of ownership or transfer of ownership is only with the consent of the major.[481]

6.75 These clauses can protect the majors from an unqualified individual or party taking control over an important function within the distribution channel. Examples of such parties may include those with a poor credit history and/or insufficient skills, experience, or acumen to operate a distributor or dealer business successfully.

6.76 However, these clauses may also limit the ability of the distributors or dealers to make independent decisions about the conduct of their businesses and give the majors a degree of control over dealers and distributors.

6.77 To the extent that an ownership veto protects a major's interest in ensuring dealers and distributors operate in a manner aligned with the interests and incentives of the major that is their supplier, such restrictions are likely to be justified in relation to the wholesale supply to dealers that are aligned to, and operate under, their major's brand. Such restrictions may also be justified if the major owns some of assets on the retail sites, for example land or storage tanks. In these cases, having tighter control over the ownership of branded dealer sites may be warranted to ensure the major is able to protect their investment in their brand or assets.

6.78 However, in relation to distributors that typically own and operate their own brands, we consider that it is much more difficult to envisage a pro-competitive justification for wider restrictions on the transfer of ownership.

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6.79 Similarly, we consider that provisions containing first rights of refusal if a distributor wishes to source additional fuels from another supplier or negotiates fuel supply from another supplier at the end of the agreement may also be inhibiting competition in the wholesale market by making it more difficult for distributors to source fuels from alternative suppliers.[482]

Restraint of trade/liquidated damages clauses

6.80 Some wholesale supply contracts contain clauses that limit distributors' ability to compete in retail markets at the expiry of their existing contract.

6.81 Several agreements prevent distributors from competing with their current major either directly or indirectly for periods of between six months to two years after termination of supply and/or if distributors sell their businesses to the major that they were previously supplied by.

6.82 There are also some provisions relating to the payment of liquidated damages, for example if a wholesale supplier sells fuel supplied by a rival wholesaler to its current supplier's customers after the expiry of the current supply contract, or if volume quotas are not met.[483] We understand that these clauses are likely to have been included when the current agreements between majors and distributors were first entered into and the majors transferred elements of their commercial businesses, along with upfront capital injections and other assets to distributors. However, it is difficult to see why these same justifications attach to the current supply contracts.

6.83 The use of restraint of trade and liquidated damages clauses are not uncommon in a broad range of commercial contracts. As outlined above, we have not assessed the lawfulness of these provisions. However, we consider that these clauses also may be hindering competition in the fuel market by either deterring or explicitly prohibiting distributors or dealers from competing with their wholesale suppliers at the expiration of their current supply agreements or from switching wholesalers. These clauses also seem less likely to be necessary in a market which involves a relatively homogeneous product such as fuel.

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6.84 We have also identified a form of restraint of trade relating to fuel card customers that precludes the soliciting of existing fuel card customers within a defined period.[484] We consider that non-solicitation restraints relating to fuel cards during a termination notification period are, on balance, more likely to be justifiable. In the absence of such a non-solicitation clause, there may be a disincentive for a major to allow its fuel cards to be accepted at retail sites owned and operated by downstream dealers and distributors. Without access to a major's fuel card scheme, such dealers and distributors could find it more difficult to compete in downstream retail markets, as we discussed above.

Exclusive territories

6.85 There are at least two instances of a distributor not being permitted to operate outside of an assigned territory without prior approval of the major.[485] Such restrictions may have avoided hold-up problems for distributors when these commercial businesses were first divested by majors. They may have protected relationship-specific investments that distributors made at that time and encouraged expansion of distributors in particular territories. Exclusive territories are widely used in a range of different commercial contexts, and often have a pro-competitive purpose and effect. Nevertheless, we have not identified compelling justifications for the use of exclusive territories in current distribution networks and we invite further comment on their use. We note that a major previously removed all geographic limitations on its distributors, to the benefit of competition.[486]

Restrictive covenants

6.86 Each year a small number of retail sites are closed. This can be a result of changes in traffic patterns, for instance when new roads lead to existing sites being bypassed, or because of the development of new retail sites that result in existing sites no longer being viable.

6.87 Once closed, these sites are typically sold. Prior to sale, some sites have restrictive Non-Petroleum Use (NPU) covenants placed on the property title that prevent any future site owners from being able to use the properties as retail fuel sites.[487]

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6.88 We understand that one rationale for NPU covenants is that it can prevent potential disputes over who is liable for any subsequent clean-up of site contamination.[488] We understand that this could potentially occur where a former retail site is closed, remediated, and sold, and the new owner re-establishes it as a retail fuel site. If the site is subsequently found to be contaminated, this could lead to a dispute over which party is liable for any necessary remediation work.

6.89 NPU covenants can also be used for anticompetitive purposes, such as ensuring that if a site owner is investing in a new site nearby, the old site cannot be re-established as a retail fuel site by a rival as this could adversely affect the site owner's ability to recover investment in the new site.

6.90 The use of NPU covenants prevents new entry in these sites. While this may assist the retailer (or the major supplying a dealer) from recovering any investment in a new site nearby, it also denies the possibility of new entry in the existing site, a site that must have some good attributes for fuel retailing otherwise it would not have been selected as used a site previously.

6.91 We are concerned that NPU covenants create a barrier to retail competition. A key criterion for investment in retail fuel sites is finding a property with suitable characteristics at as low a cost as possible. By placing restrictive covenants on sites that have already proven to have many of the characteristics necessary, entry is potentially made costlier and more difficult. We seek feedback on whether the use of these covenants is likely to restrict competition and, if so, whether there are other less restrictive methods for achieving any efficiencies that these covenants may be generating.

Comparisons with other jurisdictions

6.92 We note that various competition and regulatory agencies around the world have considered the state of competition in their fuel markets, and in particular have looked into how competition in upstream wholesale markets can affect downstream retail markets. We note that many have identified similar market features and potential impacts on competition as we have.

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6.93 For example, the OECD held a Policy Roundtable on Competition Policy for Vertical Relations in Gasoline Retailing, in 2008,[489] and held a Policy Roundtable regarding Competition in Road Fuel in 2013.[490] The former report outlined research which indicated that the efficiency gains from vertical integration can be outweighed by the associated weakening of competition at the wholesale level. The latter report drew on the experiences of 32 OECD member countries within that sector. In aggregate, their experiences were very similar to those reflected in our preliminary views. In particular, it appears that many of the contractual provisions we have identified in New Zealand supply agreements are common in other jurisdictions. Like us, many countries considered the introduction of more competition at the wholesale level could lead to more competitive outcomes at the retail level. Removal of minimum quantity requirements and excessively long-term exclusive contracts were often recommended ways to achieve this.

6.94 The Roundtable participants also debated the benefits and costs of vertical integration. There was evidence of the importance of unbranded independent retailers for competition in retail markets and it was observed that their independence is intrinsically linked to their contractual relationships with wholesalers.

Majors have significant control over wholesale pricing

6.95 In addition to the effects on the wholesale market that we consider may be arising from some of the terms contained in wholesale supply agreements, our review of these agreements also indicates that:

6.95.1 transparency and/or certainty of wholesale pricing for dealers and distributors is absent in many wholesale supply contracts;[491]

6.95.2 majors typically have the ability to unilaterally alter wholesale prices and this provides them with the scope to strongly influence, or in some cases effectively control, the downstream retail prices set by dealers and distributors. This is in addition to the fact that the majors directly control retail prices at their own retail sites; and

6.95.3 many wholesale agreements require dealers or distributors to provide their suppliers with significant financial and performance related information on a regular basis or when requested.

6.96 We discuss each of these matters in more detail below.

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489 OECD Policy Roundtables: Competition Policy for Vertical Relations in Gasoline Retailing, 2008.

490 OECD Policy Roundtables: Competition in Road Fuel, 2013.

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6.97 The detail, transparency and certainty of the various wholesale pricing formulae set out in wholesale supply agreements varies substantially across the different agreements in the sector. Some agreements contain wholesale price formulae which may be useful as a basis for comparison if other majors quote prices using the same formula.[492] Some wholesale supply contracts entered into by the majors use retail-minus wholesale pricing.[493] Many contracts provide little in the way of forward-looking transparency.[494] Some dealers and distributors discover their wholesale price only after they have taken ownership of the product and are invoiced by their supplier.

6.98 One major informed us that the discretion to unilaterally alter wholesale prices enables the majors to accommodate price fluctuations caused by underlying oil prices. For instance, oil prices change constantly but majors may invoice their wholesale customers on a less frequent, periodic basis (eg, weekly).[495]

6.99 This ability for majors to alter prices may ensure that any future changes in the costs of providing wholesale supply can be reflected in wholesale prices, for example wages or logistics costs.[496] However, this leaves the dealers and distributors bearing the risks associated with any increase in costs. Dealers and distributors are also potentially exposed if, for example, the majors increase wholesale prices to pursue greater margins.[497]

6.100 Whether through the use of explicit retail-minus wholesale pricing formulae or simply via the unilateral ability to alter wholesale prices and margins during the term of supply contracts without any rights for dealers or distributors to negotiate the price, we consider that the majors are able to effectively create a price floor under which dealers and distributors cannot reduce retail prices. This may allow the majors to exert upwards pressure on the retail prices set by dealers and distributors. In this regard, retail-minus wholesale pricing terms, in particular, are not dissimilar to the agency arrangements applied at some of the majors own vertically integrated retail sites.

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6.101 Many of the wholesale supply agreements also include provisions that require dealers and distributors to provide financial information to majors on a regular periodic basis and/or when requested. This information may include monthly profit and loss accounts, statements of financial position, projected cash flows, and other similar information. We understand that the majors may not always request this information, but these provisions may be used by majors if dealers, in particular, are claiming that wholesale prices are rendering them uncompetitive in specific downstream retail markets. In these cases, the provision of financial information gives majors a better understanding of the maximum wholesale prices they can charge before putting their volumes via dealers and distributors under threat.

6.102 It is our understanding that, historically, dealers or distributors were generally unconcerned with both pricing discretion and the lack of transparency regarding wholesale prices. [498] Rather, many dealers and distributors willingly entered into wholesale supply contracts that provided them with little, if any, explicit protection or security over wholesale pricing.

6.103 This was because dealers and distributors considered that their interests were sufficiently aligned with the majors, so that the majors would be incentivised to set wholesale prices at levels that would enable dealers and distributors to compete in downstream markets.

6.104 We understand that this perception was often backed up by the many years of experience that various distributors had dealing with specific majors and the fact that dealers and distributors were, and remain, an important route to market for majors. Many dealers and distributors entered into these agreements in good faith that the majors would not set wholesale prices in a way that would adversely impact on dealers and distributors.[499]

6.105 However, the retail sector has evolved significantly since many of these wholesale supply agreements were first entered into. As outlined above, distributors that were focused primarily on commercial markets have since expanded into adjacent retail markets. Additionally, as described above dealers or distributors subject to long-term contracts may be exposed to changes in approaches to wholesale pricing if the incentives or commercial strategy of the major supplying them change over time.

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499 [ ] We also understand that there are some agreements between a distributor and dealers under which the dealer uses the distributor's brand and the distributor attempts to provide the dealer with a targeted retail margin, even though the distributor has no certainty regarding the wholesale price it faces.

6.106 We also note that even if the interests of the majors and dealers and distributors are aligned, it does not mean that the pricing methodologies used in the industry are for the long-term benefit of consumers. Retail-minus wholesale pricing, in particular, is likely to set a price floor that limits the ability of dealers and distributors to compete in the downstream retail market. Although they may appear to provide dealers and distributors more certainty, retail-minus wholesale pricing may also provide majors with discretion over prices based on how the retail price benchmark is defined.[500]

6.107 Consequently, even if some distributors are setting prices at unmanned retail sites that are typically priced below full service retail sites of the majors, this does not imply that the wholesale prices those distributors are facing are necessarily as low as they would be in a workably competitive wholesale market. A particular wholesaler could choose to adopt a somewhat lower priced strategy to boost retail volumes through its distributors for a time, but equally could reverse that strategy in the absence of an effective wholesale market. The difference in pricing of different retail offers is discussed further in Chapter 7.

6.108 In other commercial contexts, we understand that purchasers are provided with greater certainty and transparency regarding the mechanism or formula by which wholesale prices will be set for the duration of a supply contract. We currently consider that this could facilitate greater competition in the wholesale fuel market by allowing dealers and distributors to better evaluate the benefits and costs of different supply options. If distributors were aware of the wholesale margins that were being made by the majors supplying them, they may also be more incentivised to seek better wholesale supply agreements and be less inclined to agree to current terms.

6.109 For example, one option we are seeking feedback on is requiring the use of explicit cost-plus pricing formulas, potentially based on a MOPS benchmark (ie, "MOPS plus") or published Terminal Gate Prices (TGPs).[501] Such cost-plus pricing approaches are commonly used in supply contracts with large commercial customers as well as in wholesale markets in other jurisdictions, such as Australia and the Pacific Islands.[502] The use of such explicit pricing formula may not provide the majors with the same degree of flexibility to smooth out price fluctuations. However, we consider that the wider use of a bottom-up, cost-plus pricing mechanisms is likely to provide more certainty for dealers and distributors than top-down retail-minus approaches and this would also make it easier for buyers to compare rival supply offers on a like-for-like basis.

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501 The underlying product price would consist of a MOPS-based benchmark, perhaps with defined adjustments for product quality, to which additional costs (eg, freight, haulage, terminal throughput fees, etc) are added, along with an explicit wholesale margin.

502 [ ] As well as MOPS-based benchmarks, in Australia, in particular, some wholesale prices are instead based on a Terminal Gate Price (TGP) benchmark where TGPs are publicly posted.

6.110 We invite comment on the methods of wholesale price determination used throughout the industry and on our consideration of the use of cost-plus pricing formulas or published TGPs as an appropriate alternative approach.

Market outcomes appear to indicate competition is weak at the wholesale level

6.111 We consider that our concerns about how the wholesale relationships are operating in the market are reinforced by some of the outcomes we have observed in the wholesale market during the study. We invite comment on the observations we describe below.

There appears to be a lack of switching suppliers by distributors

6.112 There is little switching of wholesale suppliers by distributors. We are aware of only two of the existing distributors having switched between majors for wholesale supply. These are McKeown, who switched from Mobil to Chevron around the early 2000s,[503] and GAS, who switched from Chevron to BP in 2003 when it had a substantially smaller network of sites.[504]

6.113 Majors told us that they consider wholesale markets to be competitive and that a lack of switching is not necessarily indicative of weak competition,[505] with one stating that distributors "…hold all of the ultimate power…".[506] We were told that the majors have a vested interest in dealers and distributors being able to compete effectively in downstream markets, so that the majors can increase their wholesale volumes.[507]

6.114 Nevertheless, we consider that a lack of switching by distributors tends to support our observation of the absence of a workably competitive wholesale market. In addition to the restrictions on competition arising from the wholesale supply agreements discussed above, we consider that non-contractual issues such as security of supply, fuel cards and path dependency on the major's retail networks and haulage relationships also contribute to this issue. We have discussed these earlier in this chapter.

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504 See <https://www.gas.kiwi/our-story>. Additionally, Rural Fuel previously switched from obtaining supply from Shell to Chevron around 2000 [ ]

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Distributors seem to be making little use of competitive tendering or bidding for supply contracts

6.115 Consistent with the observations made above, distributors appear to engage in relatively little competitive tendering,[508] and we have been provided with limited examples of bidding for new distributors by majors.

6.116 One major told us that, apart from the distributors it already supplied, it had only bid for the wholesale supply contract for one other distributor in at least the last five years, if not longer.[509]

6.117 In contrast, we understand that it is more common for large commercial customers to hold more frequent competitive tenders.[510]

Distributors' wholesale supply agreements appear less favourable than those of similar sized commercial customers

6.118 We also understand that large commercial customers' contracts typically contain more transparent, forward-looking MOPS-based pricing terms. Similarly, it is not unusual for commercial supply contract durations to be entered into for terms significantly shorter than distributors' contracts, with around three to five years not uncommon.[511]

Majors appear to earn higher margins on sales to distributors than similar commercial customers

6.119 We have obtained evidence that suggests that margins on wholesale sales to distributors exceed those earned on sales to large commercial customers.[512] We note that margins to distributors appear higher even in cases in which the volumes sold to individual distributors are significantly larger than those sold to large commercial customers.[513]

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508 Although it is not uncommon for resellers requiring wholesale supply to actively test the market and seek rival supply offers [ ], we understand that the use of competitive tender processes is relatively rare. We are aware of only one recent example of a competitive tender. This reseller previously ran a competitive tender process, but did not run one in their most recent round of supply negotiations, see [ ]

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510 *Z Energy Limited and Chevron New Zealand* [2016] NZCC 10 at [342].

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6.120 We have also obtained evidence that suggests that some firms in the sector earn higher margins on the sales of regular and premium petrol than on diesel, particularly at the wholesale level.[514] This seems consistent with the fact that a large proportion of diesel is sold in commercial markets, which appear to be more competitive and have lower margins than retail markets.[515] It is likely that the lower margins in the market for commercial customers constrains the margins on the supply of wholesale diesel to distributors to some degree.

Despite this, some distributors appear to be relatively profitable

6.121 As discussed Chapter 3, we have obtained evidence from some distributors that indicates that at least some of them are relatively profitable.[516] This contrasts with information we have obtained relating to the profitability of dealers which suggests a more mixed picture. In particular, we understand that dealers in various retail markets have faced increased pressure on margins and profits in recent years.

6.122 This evidence, combined with that obtained regarding the profitability of majors, suggests that one or more majors may be engaging in a “profit-sharing” strategy with selected distributors. This could explain why even if a distributor has a degree of bargaining power and could either switch or threaten to switch wholesale suppliers, these distributors nevertheless agree to enter restrictive wholesale supply agreements that may otherwise limit their supply options. This could also explain some of the ambivalence expressed by some distributors about the restrictive effects of some of the contractual provisions described above.

There are some differences in relation to dealers

6.123 Our observations in relation to dealers are generally similar to those relating to distributors, other than:

6.123.1 we have not seen evidence of high retail margins or high profits being earned by dealers but have seen evidence that many dealers have faced increased margin pressures over recent years;[517]

6.123.2 some wholesale supply agreements between majors and dealers have been altered prior to their expiry. We have been told of several reasons for this, including specific investments or assistance provided to specific dealers by a major. At various times parties to these agreements have also sought to alter standard contracts to reflect more general changes in the sector, such as rising costs; and[518]

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515 *Z Energy Limited and Chevron New Zealand* [2016] NZCC 10 at [342].

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6.123.3 there are occasional instances of dealers switching from one wholesale supplier to another, although we note that the degree to which majors compete to supply dealer sites varies.[519]

New Zealand's wholesale supply agreements are different to several other geographically proximate jurisdictions

6.124 Based on our current understanding, there appear to be substantial differences between the New Zealand wholesale markets and those in Australia or elsewhere in the Pacific.[520] Wholesale contracts in these overseas markets appear to have shorter durations (three to five years), are less likely to be exclusive, have greater price transparency, and are typically based on an observable cost-plus basis.[521]

6.125 We also understand that in Australia it is not uncommon for some distributors to source product from wholesale spot markets in some locations, typically with wholesale prices based on either MOPS or TGPs. We are not aware of any instances of this in New Zealand.

These wholesale relationships may adversely affect competition in retail markets

6.126 We have noted our current view that the combination of the contractual and non-contractual factors outlined in this chapter has meant that competitive wholesale markets have not emerged post deregulation. First, the majors became vertically integrated by acquisition, and, more recently majors have entered into wholesale supply agreements with dealers and distributors that contain restrictive contractual provisions that seem to have similar effects as structural vertical integration.

6.127 The evidence suggests that dealers and distributors are largely locked into stable, long-term relationships with a single major upon whom they have a high degree of dependency, both explicitly through contract and implicitly through a range of non-contractual factors.

6.128 In addition, given the levels of returns that at least some distributors are deriving, there does not currently appear to be a strong commercial incentive for these distributors to challenge these relationships. Therefore, the potential incentives of both the majors and distributors to maintain stable, integrated relationships means there are limited contestable volumes of fuel in the market to facilitate new entry by independent importers. It also means there is diminished rivalry between current wholesale suppliers.

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6.129 Many of the effects of these wholesale supply agreements appear to be broadly similar in nature to those of vertical integration. This includes both a lower level of competition between existing suppliers at the wholesale level and raising entry barriers for new import competition, through customer foreclosure, than if vertical integration was absent.

6.130 This leaves consumers to rely primarily on competition at the retail level to deliver workably competitive outcomes. However, although dealers and distributors may be incentivised to compete for volumes in retail markets, their ability to compete on price appears to be constrained by a range of contractual and non-contractual factors, including wholesale pricing.

6.131 Moreover, as we discuss in Chapter 7, the scope for retail price competition for fuel seems to be less than in the wholesale market. First, the retail market is differentiated by geography and service (softening the extent of price competition) and involves small value transactions at transparent prices (facilitating retail price coordination). Second, as we explained above, we consider that the way wholesale prices are set limits the ability of distributors and dealers to compete on price in the retail market. As outlined in Chapters 3 and 7, the outcomes in downstream retail markets are not consistent with those we would expect under workable competition.

6.132 For these reasons, we are continuing to consider whether steps could be taken to stimulate competition in the wholesale market with the aim of increasing the ability and incentive for dealers and distributors to switch more frequently, increase rivalry between majors and other importers, and make entry easier at the wholesale level. We consider that increased competition in the wholesale market could reduce the barriers we are currently seeing to competition in this market, leading to lower wholesale prices, and consequently lower retail prices.

Chapter 7 The retail price and product offer

Summary of our preliminary findings

- In previous chapters we identified features of the fuel industry that limit the potential for strong price competition at the wholesale level. That has instead been replaced by vertical integration and stable long-term relationships between the majors and distributors and dealers. There are high barriers to entry at the wholesale level and limited examples of independent entry. Competition is largely confined to the retail level between the majors and distributors and dealers, and Gull in some areas.
- An active wholesale market would be characterised by competition for large lots of homogeneous products and might be expected to produce strong competition. It would also lower barriers to entry for new importers. Without the threat of entry there would still be four importers competing for wholesale contracts and we would expect strong price competition. However, at the retail level the market characteristics are less likely to produce strong price competition, even between the same four importers. This is because:
  - retail markets are characterised by geographic and service differentiation, which reduces the intensity of price competition; and
  - some features of the retail market encourage the firms to match price increases rather than undercut them.
- The evidence in previous chapters suggests that prices are above competitive levels and that the majors are persistently earning returns in excess of what we would expect in a workably competitive market. Gull has entered with an independent supply chain and prices in "Gull areas" appear to be cheaper than elsewhere. However, Gull is still making good returns suggesting it is sitting below the umbrella of the majors' pricing. As discussed in Chapter 6, other retailers including new and expanded entrants are dependent on the majors for their fuel supply. Distributors and dealers tend to locate their sites away from the sites of the major that supplies them. An analysis of the new sites of these rivals provides a mixed picture of the impact on the majors.
- The firms seek to differentiate their product through additional services and price competition is increasingly focused on discounts and loyalty programmes. We acknowledge that the increase in the number and range of discount and loyalty programmes indicates strong competition on these features. To the extent that product differentiation is a response to consumer preferences and there is competition across the price-product spectrum, product differentiation will benefit competition and consumers.

Summary of our preliminary findings (continued)

- However, these programmes can also soften board price competition and add costs to both consumers and suppliers. The high returns we have identified in the fuel industry can be expected to influence how the suppliers compete. They can be expected to rationally prefer to avoid board price competition, which would see profits eroded and lower prices for all consumers. They instead focus on competition through discount and loyalty programmes and product differentiation rather than on board prices. At the same time as discounts have been increasing, so have margins on both the board price and the average price after discount.
- The proliferation of offers obscures any competitive benchmark for consumers and makes it difficult for them to compare offers. Consumers may tend instead to focus on the level of the discount and not the price against which the discount is offered, or the price that they ultimately pay.
- We currently consider that the increase and diversification in discount and loyalty programmes may simply be a response to high profitability, and an attempt by fuel retailers to gain and retain marginal consumers without competing on board prices. Many consumers may prefer, and be better off with, an offer with fewer non-price benefits and a lower board price.
- The fuel firms earn higher margins on premium compared to regular petrol and this gap is rising. Consumers are not well informed about the need to use premium petrol and the price of premium petrol is not listed on the board. We are considering whether this explains the trends we observe on margins for premium petrol.

Introduction to this chapter

7.1 In previous chapters we have identified upstream features of the fuel industry that mean the wholesale market may not be working as well as it could be. In this chapter we explain our views on why retail competition for fuel is inevitably weaker than wholesale competition and how the absence of a competitive wholesale market affects retail competition. We then review retail competition and discuss how it may evolve if an active wholesale market was to develop.

Structure of this chapter

7.2 In this chapter we:

7.2.1 provide context by summarising our earlier discussion about the way retail competition differs from what would be expected in a competitive wholesale market;

7.2.2 discuss how the wholesale competition affects competition in retail fuel markets;

7.2.3 review current retail competition, focusing on the role of discounting and loyalty programmes and service level differentiation; and

7.2.4 consider how retail competition may evolve if a more competitive wholesale market were to develop.

7.3 Earlier in this report we have discussed distributors and dealers which obtain fuel from one of the importers for resale at the retail level of the fuel industry. For ease of reference in this chapter we refer to all participants at the retail level other than the structurally vertically integrated majors, as "resellers".

Wholesale competition could be much stronger than retail competition

7.4 As explained in Chapters 2 and 6, there has been a lack of active wholesale competition to supply fuel in New Zealand since deregulation three decades ago. Even prior to deregulation, fuel importers did not compete on price at the wholesale level, because the wholesale price was regulated.

7.5 In Chapter 3 we identified a range of market outcomes that we consider are inconsistent with those we would expect to see in workably competitive markets and in the chapters that followed we identified and discussed factors that help to explain those outcomes. Those factors include features of the fuel industry that limit the potential for strong price competition at the wholesale level. We consider that the lack of an active wholesale market is directly impacting price competition in retail markets.

7.6 As discussed in Chapter 6, many other countries have also identified the promotion of wholesale fuel market competition as desirable.

7.7 Markets work best when large well informed traders participate and the products are similar or identical. These features promote liquidity and create pressure for competitive pricing. Such conditions can occur in wholesale fuel markets, but generally are not present in retail fuel markets. At the wholesale level, buyers are well informed industry insiders (for example, fuel resellers). Each transaction is for thousands of litres of fuel and each buyer is a repeat purchaser, buying at least several times in a year.

7.8 Each grade of fuel is effectively a homogeneous commodity, so the fuel sold by any importer is a perfect substitute for any other importer's fuel. There is no branding. Nor are transport costs a factor since trade could occur at terminals and under the borrow and loan scheme each major can supply at every terminal.

7.9 Under these conditions, wholesale trade should be heavily focused on price, since there is not necessarily any other significant form of value that importers can compete over. Each supplier risks losing large (potentially all) volumes if they do not offer their best price. This is why we expect that wholesale market competition should be very intense and lead to highly efficient prices.

7.10 Retail fuel market competition can always be expected to be less intense than wholesale competition for several reasons. First, there is no single location for trade. Instead, retail sites are scattered around in the vicinity of consumers. Market research by fuel firms suggests that location is one of the most important (if not the most important) factor in consumers' choice of fuel retailer[522] and retail sites tend to compete most closely with those nearby. Second, retail sites are differentiated in their services and different forms of discounting are common. These two effects can limit the ability of buyers to identify the best price. Moreover, buyers have weaker incentives to expend effort on getting the best price since they are buying a few tens of litres for personal use, rather than thousands of litres for resale.

7.11 For these reasons, if there was active competition at both wholesale and retail levels, we would expect most of the downward pressure on prices to arise from the wholesale market.

Retail competition is weakened by the absence of wholesale competition

7.12 The absence of an active wholesale market has spill-over effects that weaken retail competition for two main reasons:

7.12.1 there are fewer independent retailers; and

7.12.2 wholesale prices are higher than we would otherwise expect in a workably competitive market.

Fewer independent retailers

7.13 As discussed in Chapter 2 and Chapter 6, approximately half of the fuel sold at retail in New Zealand is sold through the vertically integrated outlets of the majors with the other half sold through their resellers' retail sites or through Gull's vertically integrated retail network. The contractual and non-contractual aspects of business relationships between the majors and resellers was described in some detail alongside a description of the majors' structural vertical integration in Chapter 6. Among other things, these relationships appear to have led to a pattern of retail investment that limits direct competition between majors and resellers. The effect is that retail competition is primarily between three or four importers depending on whether Gull operates in the region. While there are 20 brands of retail sites, that figure significantly over-states the extent of competition, since each brand is closely tied to one of four importers.

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7.14 We expect that if a competitive wholesale market was to develop, fewer resellers would have long-term supply from only one major. This is because distributors could be expected to be more active participants in the wholesale market, and their competitive strategies would be less heavily influenced by the majors than is currently the case. Majors would be competing with each other and with potential entrants to meet the needs of distributors.

Higher wholesale prices

7.15 We have explained above why we consider that wholesale market competition could be stronger and more price-focused than retail market competition, if an actively competitive wholesale market was to develop. By contrast, in Chapter 6 we found that current wholesale pricing terms vary across majors and are therefore difficult to compare. Some are based on a retail-minus approach, which is explicitly not cost-reflective. Resellers have weak incentives to shop around for a range of contractual and non-contractual reasons.

7.16 Furthermore, an active wholesale market would reduce barriers to entry for rival importers, who could compete for existing reseller customers rather than having to invest in their own retail outlets.

7.17 For these reasons, we currently consider that wholesale prices are higher now than they would be if an active wholesale market was operating.

7.18 This in turn limits the scope of retail competition. Resellers cannot compete prices down below their input cost, so inflated wholesale prices inevitably influence retail prices.

Retail competition

7.19 In this section we look more closely at competition in the retail markets, focusing on the following matters:

7.19.1 the effect on competition of discount and loyalty programmes;

7.19.2 the role of service level differentiation in retail competition;

7.19.3 specific concerns regarding premium fuel;

7.19.4 incentives for price matching; and

7.19.5 new retail investment.

Discounting and loyalty programmes are a focus for competition

7.20 In the past there have been periods of strong competition on board prices. However, in more recent years resellers have increasingly competed using discount and loyalty programmes and by offering different levels of service. In this section we consider how discount and loyalty programmes are affecting retail competition and consumer outcomes. In the next section we discuss product and service differentiation in more detail.

7.21 We currently consider the following.

7.21.1 Discount and loyalty programmes have become increasingly common. If we take the board price as given, discounts off that price will generally benefit consumers. However, discounts do not appear to be independent of board prices. Discounts appear to have increased alongside increases in the margins on board prices and the average margin across all sales. If board prices were cost-reflective, as we would expect in a workably competitive market, we currently consider that there would be less scope for discounting.

7.21.2 In retail fuel markets, discount and loyalty programmes may move the focus of consumers away from board prices and make it harder for consumers to compare prices. The programmes are costly for the fuel firms to provide and for consumers to take advantage of. It is unclear whether this approach to competing is efficient or whether consumers might prefer, and be better off with, less discounting and lower board prices.

7.21.3 Fuel retailers differentiate their offer to improve the consumer experience and drive loyalty. Differentiation can be for the benefit of consumers if it is in response to customer demand and there is competition across the price-product spectrum. However, it can also provide a way of avoiding price competition. What matters for retail competition is the extent of local competition between each type of retail site. In the next section we discuss product and service differentiation in more detail.

7.22 The range of discount and loyalty programmes was discussed in Chapter 3, along with a description of the way fuel retailers differentiate their service levels.

7.23 We are continuing to consider whether the relationship we observe between discounting and margins is best seen as a means to avoid direct price competition. If so, discounting is a symptom of high margins. A similar hypothesis applies to service level differentiation. We invite comment on these issues. However, we note that we are not currently considering any measures to directly limit these activities. Rather, our focus is on promoting wholesale competition so as to increase retail price competition.

Price competition is focused on discounting

7.24 Fuel retailers are increasingly using discounts and loyalty programmes as a focus of price competition. Some retailers have submitted that the rise in loyalty programmes is evidence of strong competition that benefits consumers. For example:

7.24.1 BP submitted:[523]

> The increase in the prevalence of loyalty programmes is also indicative of strong competition to retain customers and is of substantial benefit directly to customers.

7.24.2 Z Energy submitted that:[524]

> Competitors' strategies are continuing to evolve over time in a manner that suggests competitive retail markets and include:
>
> (a) Greater focus on "off price board" discounting strategies through loyalty programmes, such as AA Smartfuel and Mobil Smiles. The offers these loyalty programmes entail themselves also continue to evolve over time.

7.25 In this section we examine the effects of discounting on competition and consumer outcomes, and the linkages between discounts and board prices. We currently consider that discounting:

7.25.1 is closely linked to importer margins on fuel;

7.25.2 has the effect of sorting consumers into more and less price sensitive groups;

7.25.3 makes it harder to compare the actual price a consumer will pay (the board price less discounts);

7.25.4 sometimes increases customer loyalty to a retail brand; and

7.25.5 adds costs to the retail supply chain.

7.26 We discuss each of these in more detail below and invite comments on our assessment of each of these factors relating to discount and loyalty programmes.

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523 BP "Market study into the retail fuel sector – BP New Zealand comment on preliminary issues" (21 February 2019) at 2.

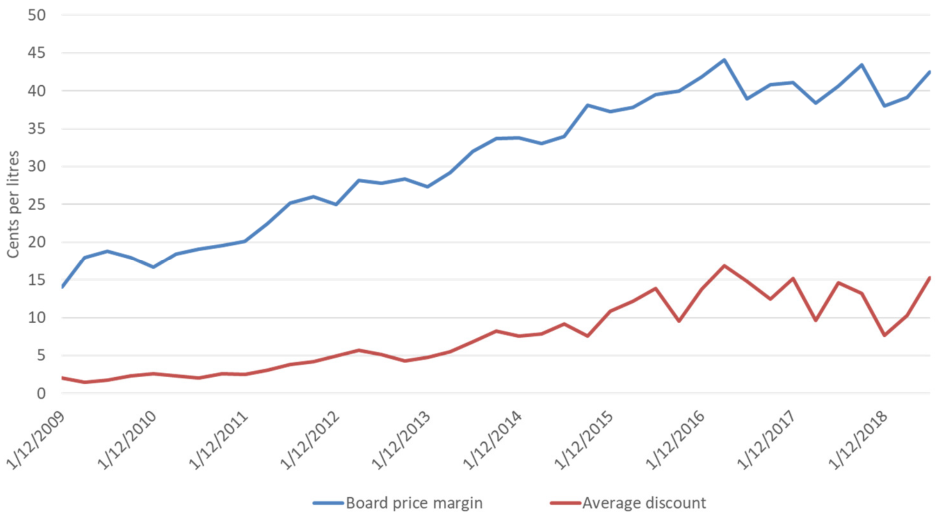
524 Z Energy "Market study into the retail fuel sector: Z Energy's response to invitation to comment on preliminary issues" (21 February 2019) at 7.

Discounting is closely linked to importer margins on fuel

7.27 The evidence we have viewed suggests the rise in discounting has occurred at the same time as margins have been rising. This correlation between margins and discounting was noted in the 2017 Fuel Study and has emerged from three different sources in this study.[525]

7.27.1 First, there appears to be an historic correlation between margins and discounts. Figure 3.11 used MBIE data to compare margins after discounts with the level of discounts over time. We have also used MBIE data to compare the margin on board prices against discounts (see chart below). The chart shows that over the past ten years discounts have increased at the same time as margins on petrol board prices.

Figure 7.1 Petrol board price margin and average discount



Source: Commission analysis using MBIE weekly fuel monitoring data.

Notes: (i) Board price margin is the difference between (a) MBIE's estimate for main port price less duties, taxes, levies and the New Zealand Emissions Trading Scheme (ETS) and (b) MBIE's estimate for importer costs (cost of importing fuel to New Zealand including the cost of the fuel, shipping, insurance, losses, and wharfage and handling. (ii) Average discount is an estimate that MBIE produces and is the difference between (a) MBIE estimate of the main port price and (b) a Stats New Zealand estimate of retail prices for fuel (which takes into account discounting). (iii) MBIE's estimate for main port price and Stats New Zealand's estimate of retail prices are averages, based on a survey of retail sites in certain locations around New Zealand.

7.27.2 Second, we found a short-run interaction between discounts and board prices in our econometric analysis, as reported in Attachment F. This work found the following statistically significant correlations:

525 NZIER, Grant Thornton, Cognitus Economic Insight "New Zealand fuel market financial performance study" (prepared for the Ministry of Business, Innovation and Employment, 29 May 2017) at fn 11.

7.27.2.1 A 10 cents increase in discount size per litre is associated with an estimated board price increase of around 1-3 cents per litre for 91 octane fuel and 2-5 cents per litre for diesel.

7.27.2.2 For diesel, retailers appear to change board prices 1-2 weeks prior to the discount. However, there was no clear pattern for other types of fuel.

7.27.3 Third, internal documents from some fuel firms indicate that the growth in margins has been used to fund discounting.[526] An internal document from a major considered alternatives to its loyalty programme. The options included "Do nothing and focus efforts on price board". However, this was rejected on the basis that it was: "high risk with high likelihood of driving a deterioration in margins".[527] This suggests a profit rationale for preferring to compete on discounts than on board prices.

Discounting sorts consumers into more and less price sensitive groups

7.28 Discounts and loyalty programmes have the effect of offering different prices to consumers according to their levels of price sensitivity. This is known as price discrimination. Price discrimination means charging a different price for the same good or service, based on the buyer's willingness to pay.[528]

7.29 Price discrimination is common in many markets, including those that could be described as workably competitive. A firm may price discriminate to increase its profits because it can get more revenue from consumers who place a high value on the firm's goods or service than if there was a single price for everyone.[529]

7.30 Price discrimination can also make some consumers better off (compared to a uniform price). A firm might lower the price to consumers who place a low value on the firm's goods or service and thereby expand the market and benefit those particular consumers. Price discrimination such as that created by discount and loyalty programmes creates winners and losers.[530]

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526 [ ]; [ ]; and [ ]

527 [ ]

528 See for example Mark Armstrong "Price Discrimination" in Paolo Buccirossi (ed) *Handbook of Antitrust Economics* (MIT Press, 2008).

529 See for example Dennis Carlton & Jeffrey Perloff *Modern Industrial Organisation* (4th ed, Addison Wesley, 2005) at 293.

530 Higher profits from price discrimination may also provide incentives for firms to engage in rent-seeking activities or invest in ways to maintain or improve the ability to price discriminate, such as through improving ways to measure consumers' willingness to pay. See OECD "Price Discrimination: Background Note by the Secretariat" (13 October 2016) at 6-7.

7.31 As noted in Chapter 2, total consumer demand for fuel is quite insensitive to price. That is, demand does not change much when prices rise or fall. This means that discounting is unlikely to stimulate a lot of extra total demand. Consumers are more sensitive to price in choosing between retail sites. As such, discounting at a given retail site may stimulate extra demand at that retail site at the expense of another. The fuel firms are therefore likely to price discriminate to increase their share of volumes from those consumers that are prone to switching to other retail sites.

7.32 The discount and loyalty programmes enable the firms to price discriminate by allowing price sensitive consumers to identify themselves by using the discount or loyalty programme. The fuel firms can then use the programmes to reduce prices only to price sensitive consumers who participate in the programme while those who do not participate pay a higher board price.

7.32.1 Price sensitive consumers who are most likely to take the time to search for a lower price and to travel to another retail site are more likely to take the time to sign up for the discount and loyalty programmes and then present their card to use the discounts on offer when buying fuel.

7.32.2 Those who are less price sensitive are less likely to bother to sign up to the discount and loyalty programmes or to present their card to make use of the offers and are likely to pay an undiscounted price. Consumers do not automatically receive the discount, even if they belong to the loyalty or discount programme. They need to use their membership card every time they fill up. It requires more commitment of effort for consumers to participate in a discount or loyalty programme than to utilise an across the board low price. As a result, those who are less price sensitive pay more than they might if there was no loyalty or discount programme and all consumers paid the same board price.

7.33 We currently expect that discounting is likely to become even more targeted in future. Retailers are increasingly looking to use data and information obtained from discount and loyalty programme participants to make personalised offers to consumers based on behavioural insights rather than offering across the board discounts to programme participants. We have viewed documents from a range of fuel firms identifying potential opportunities to build customer loyalty by using customer data to develop more targeted offerings and engaging with consumers on a more individualised basis.[531]

[531] See, for example [ ]; [ ]; and [ ]

7.34 As discounts become more personalised, the potential for the gap between those that pay a discounted price and those that do not, may grow. Personalised offers could make price discrimination strategies more effective.[532] Personalised pricing can also be perceived as unfair.[533]

Discount and loyalty programmes make it more difficult to compare prices

7.35 Markets work better when consumers can easily compare offers and choose the provider who best meets their needs. Consumers who shop around create incentives for suppliers to compete to meet these needs by introducing new products and services, or reducing prices. Conversely, markets do not work well if consumers are not well informed or it is difficult to compare offers. Retailers might accidentally or deliberately make complex offers that confuse consumers (this is sometimes referred to as a "confusopoly").[534] In those circumstances, consumers are less likely to switch in response to competing offers and retailers have weaker incentives to offer them.

7.36 First, the use of discount and loyalty programmes moves the focus away from board prices to the level of discount or benefit consumers can receive.[535] Consumers may think they are getting a good deal due to the size of the discount offered even though the board price is rising. For example:

7.36.1 Consumer NZ has stated:[536]

> Usually the discounted price isn't the cheapest – it's an illusion of "getting a discount" rather than getting the best price … We think it'd be fairer for all consumers without fuel discounts and loyalty programmes. Pricing would be transparent and we could fill up as and when needed, at our choice of cheaper or convenient service station, without jumping through hoops to eke out a few more cents of savings.

7.36.2 The Motor Trade Association (MTA) submitted: [537]

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532 At the extreme, personalised pricing could result in every consumer getting their own price set at the maximum they are willing to pay.

533 See for example, OECD *Personalised pricing in the digital era* DAF/COMP(2018)13 (28 November 2018).

534 Alexander Chernev, Ulf Bockenholt and Joseph Goodman" Choice Overload: A conceptual review and meta-analysis"" (2015) 25(2) JCP 333.

535 This may be an effect of "referencing pricing" that alters consumers' perceptions of the value of an offer. Including a reference price in an offer can create an anchor that consumers use to estimate value. A reference price can be very effective at encouraging consumers to make a purchase they may not otherwise have made. Consumers are also more likely to purchase from the trader with the offer rather than comparing prices to verify the discount amount. See for example Office of Fair Trading *Advertising of Prices* (OFT1291, December 2010) at 37-39.

536 Paul Smith "Petrol loyalty schemes: are fuel discount schemes really benefitting consumers?" (15 March 2019) Consumer Magazine <www.consumer.org.nz>

537 MTA "Market study into Retail Fuel" (22 February 2019) at 4-5.

> the growing significance of fuel/loyalty/discount cards, which can cloud actual prices, and which afford discounts to end-user customers but only at the expense of already modest retailer margins, shifting the focus away from wholesaler/supplier margins, and obfuscating actual prices (given that discounts around fuel may be traded for other discounts or offset against other product prices/products).

7.37 Second, the rise of discounts makes it harder to compare the actual price consumers will receive, that is, the board price less any discount. In Chapter 2 we discussed some of the differences between discount and loyalty programmes. The programmes differ according to:

7.37.1 how much the discount is and the actual price paid, that is, the board price less discount;

7.37.2 when the discount is available and when it expires; and

7.37.3 the criteria to earn rewards.

7.38 The evidence we have viewed suggests that discount and loyalty programmes may be confusing consumers. For example:

7.38.1 Z Energy has said:[538]

> There's an element of cost and complexity in the market that was not there eight years ago that causes confusion for customers, and leaves some customers feeling like they are in the have or have-nots.

7.38.2 Internal documents received from some majors state:

> loyalty programmes (fuel discounts specifically) is driving apathy in consumers. A few are experts on how to get the best deal; some do what they have always done; many can't be bothered to figure it out. [539]

> from a customer perspective, varying offers … can look confusing or unfairly biased[540]

7.38.3 A research report for one major also stated that its loyalty offering is complex and identified it as potentially being difficult to understand even though it offered good value. [541]

538 Rob Stock "The 'shrewd business' of petrol price discount programmes" *Stuff* (online ed, Auckland, 30 September 2018). Available at <https://www.stuff.co.nz/business/money/107320305/sst-delving-into-the-petrol-discount-market->. (Viewed on 16 August 2019).

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7.39 Some fuel retailers are introducing new price signs that display post-discount prices along with minimum and maximum purchase terms.[542] These initiatives could make it easier for consumers to compare post-discount prices from competing retailers. However, they could also mislead some consumers if they choose a retail site based on the listed discounted price but do not have the necessary docket, loyalty programme membership or card to hand to receive the discount. We are currently considering whether consumers are likely to be able to make better comparisons if board prices showed undiscounted prices that are available to all consumers, or discounted prices that are only available to participants in the retailer's discount and loyalty programme. We invite comment on the potential impacts for resellers and consumers of a change in practice of this nature.

Discount and loyalty programmes do not always drive loyalty

7.40 Fuel firms try to use discount and loyalty programmes to generate loyalty to their brand. According to some documents we have viewed, petrol is a "grudge" purchase for many consumers and some consumers are not motivated to seek out new suppliers.[543] Their choices are instead habitual, based on location and visibility.

7.41 Documents we have seen indicate that fuel firms know that discount and loyalty programmes play to consumers' emotions by giving them a sense that they are "winning" and getting something additional to their fuel in return for their money. Consumers receive both psychological and economic benefits from a discount and loyalty programme. The reward or discount gives the consumer a sense of being important which deepens their loyalty to a firm.[544] The psychological benefits are one of the reasons that these programmes are popular with consumers. For example, some internal documents from a major state:

> Instant gratification through rewards or price on the spot is essential for many consumers. Rewards work to give a sense that you 'win' too and get something back for your money.[545]
>
> Behavioural economics tells us that roughly three quarters of purchase decisions are emotionally based…Key drivers for retail and SME are the same. Emotionally reward and recognise me.[546]

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542 [ ]; and [ ]

543 [ ]; and [ ]

544 Yuiping Lui "The long term impact of loyalty programmes on consumer purchase behaviour and loyalty" (2007) 71 JMKTAK 19.

545 [ ]

546 [ ]

7.42 Some of the discount and loyalty programmes also provide greater benefits to consumers the more they are used. For example, consumers using AA Smartfuel get a bigger discount if they use the card more often.[547] This encourages consumers to keep using retail sites within the card programme.

7.43 The efforts of fuel firms to make consumers more loyal can have different effects on competition. We are continuing to consider whether the rise of discounting and loyalty programmes (in place of simply reducing board prices for everyone) may be reducing the sensitivity of consumers to board prices and, therefore, reducing the intensity of price competition in the retail fuel market.

7.43.1 If discount and loyalty programmes succeed in increasing loyalty to a particular retail brand this can harm competition in two main ways:

7.43.1.1 it may soften competition between current retailers by weakening the incentives to compete to win loyal consumers from rivals. This is because loyal customers are less likely to respond to these competitive offers; and

7.43.1.2 it may raise barriers to entry if the size of the contestable market (consisting of consumers who are not loyal to a discount or loyalty programme) available to new entrants is not large enough for profitable entry.

7.43.2 On the other hand, consumers may benefit from the discount during the period in which the firms compete to win their loyalty. If the cost of participating in different discount and loyalty programmes is low, then there is less risk consumers will become loyal to a single provider.

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547 AA "How AA Smartfuel works" <https://www.aa.co.nz/aasmartfuel/how-aa-smartfuel-works/>. (Viewed on 17 August 2019).

7.44 There is mixed evidence on the extent to which discount and loyalty programmes drive consumer loyalty. For example, evidence provided from market participants suggests that discount and loyalty programmes (each programme to a varying degree) are a major influence on where many consumers buy fuel.[548] However, there is also evidence suggesting that many consumers participate in a variety of discount and loyalty programmes and will switch in response to the perceived best offer. This evidence includes results from a customer survey, an internal document and data collected by a major on programme churn showing the number of consumers that used a programme in one month but not the next month.[549]

7.45 Commercial fuel cards may also make customers less price sensitive during the period that card holders are with a given supplier. This is because

7.45.1 most card holders carry only one brand of fuel card and most SMEs have a stated policy to use it whenever possible when purchasing fuel (see Chapter 2);

7.45.2 commercial fuel cards offer non-price benefits which may outweigh the immediate benefits of a lower price offered by a rival site; and

7.45.3 some fuel cards are linked to a benchmark price rather than board prices, which makes it harder for the user to compare effective prices even if they wish to do so.

7.46 Compared to consumers, commercial customers may be more sophisticated in choosing their supplier. Commercial customers could switch once their current contract with their fuel supplier ends. For example, when a bulk fuel supply contract expires (if indeed there is a current contract, or just a long-standing informal relationship), the customer may look around for a new deal, and there is the potential to change suppliers both for the bulk fuel delivery and the fuel card business. However, the evidence suggests that commercial customers stay with their existing suppliers for a long period, often several years, and the rate of churn seems relatively low.[550] Interviews with distributors to date confirm that many commercial customers are loyal and long-standing and that reliable service is the key to winning and retaining bulk fuel deliveries in particular.

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548 For example, a 2019 Z Energy investor presentation showed that rewards and price were the highest driver of consumer choice. Z Energy "Z Energy Investor Day 2019" (1 August 2019) at 8. See also [ ]; and [ ]

549 [ ]; [ ]; and [ ]

550 See Chapter 2.

Discount and loyalty programmes add costs to the supply chain

7.47 Discount and loyalty programmes add several types of cost to the fuel supply chain. One is that operators of discount and loyalty programmes need to invest in setting up, promoting and operating the programmes. A distributor told us that it is costly to develop and maintain a programme.[551] An internal document from a major suggested that the operating costs to run its loyalty programme can be well above several million dollars a year.[552]

7.48 It is possible that suppliers are only prepared to incur these costs in an attempt to capture the margins that are generated as a result of weak wholesale competition. If so, the practice of offering these discount and loyalty programmes might not reflect workably competitive outcomes. Consumers might instead be better off with less discounting activity and more competitive (and likely lower) board prices.

7.49 Although there are no direct monetary costs, consumers also incur opportunity costs to participate in discount and loyalty programmes. Consumers need to divert time and effort to sign up to the programmes and to keep track of their compliance with the screening criteria. Consumers can also be required to "pay" for participating in discount and loyalty programmes in different ways depending on the programme. The contribution of their personal data to the programmes' operators is a form of non-monetary payment.

7.50 We recognise that it is difficult to distinguish between discounting that is good for consumers and competition, and that which is harmful. Discounting obviously does provide benefits to some consumers and we have not been able to compare those benefits with the costs of managing and participating in the programmes. However, those who do not participate pay higher prices and discounting has not been associated with reduced margins overall. We invite further evidence and comment on the impact of the rise of discount and loyalty programmes on the competition outcomes produced in the retail fuel market as we continue to assess this issue.

Fuel firms also compete through differentiating their offer

7.51 The retail fuel market is also characterised by product differentiation, including additional services and a focus on the customer experience such as a speedy service and high quality convenience store. We discuss below how this affects competition. We currently consider the following.

7.51.1 Differentiation can benefit consumers if their preferences are better met by the choices available. Where differentiation is in response to such customer preferences, then consumers should be better off.

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7.51.2 Differentiation can also weaken retail price competition by limiting the constraint from other types of retail site. Unless there is strong competition reflecting competitive wholesale prices at the no-frills end of each local retail market, this type of site will have a weaker constraint on full service stations.

Differentiation can benefit consumers

7.52 Some industry participants have submitted that product differentiation is a sign of strong retail competition. For example:

7.52.1 Z Energy submitted:[553]

> The diversity of service offering in the market has increased choice for consumers... the increase in service differentiation has driven ongoing innovation by those suppliers wishing to command a premium. Given the degree of choice available, including in the form of low cost unmanned offerings, consumers have no need to pay for any service they do not value.

7.52.2 BP submitted that competition for consumers through improving product offerings and service offerings at retail outlets is one of the current trends that are borne out of a competitive retail environment.[554]

7.52.3 The NZAA submitted:[555]

> The increase in service differentiation has increased competition and choice for consumers. In particular it has provided greater choice in the retail offer by enabling motorists who only wish to purchase fuel to go to service stations that only supply fuel, in turn providing greater price competition by offering a lower price than full service stations who have a higher margin to cover the cost of other services which the motorist does not wish to access...

7.53 We agree that increased product differentiation has led to greater choice for consumers. This is discussed in Chapter 3.

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553 Z Energy “Market study into the retail fuel sector: Z Energy’s response to invitation to comment on preliminary issues” (21 February 2019) at 34.

554 BP “Market study into the retail fuel sector – BP New Zealand comment on preliminary issues” (21 February 2019) at 2.

555 AA “Submission on Market Study into retail fuel sector – preliminary issues” (22 February 2019) at 5.

7.54 Survey evidence provided to us suggests that these extra services will appeal to some consumers.[556] For example, some consumers may value a forecourt attendant to help them fill up. Some consumers may value the ability to pay at the pump because they save time by not having to go into the service station shop.[557] Other consumers may value having a shop at the retail site so they can buy a snack or use the public toilet rather than having to make a second stop.

7.55 There has been an increase in the number of retail sites and the growth of unmanned sites that offer "no-frills" service (and typically lower price relative to the full service retail sites). This is likely to benefit many consumers as their preferences are better met by the choices available. Retailers have also invested in innovative technologies that benefit consumers. For example, innovation in payment technologies such as pay at the pump and fast lanes means buying petrol is a quicker experience. Nevertheless, we discuss below the ways in which it is possible that product differentiation and increased choice for consumers also may be inconsistent with a workably competitive market when viewed in the context of other market outcomes that we have discussed.

Product differentiation may be a response to the high profits

7.56 Product differentiation can benefit consumers where those changes respond to consumer preference. In this case consumers may value these differences and so are prepared to pay for them.

7.57 Product differentiation may also be a response to high margins, seeking to keep and retain these margins instead of competing them away through lower prices. We have noted earlier that retail markets are small and localised, limiting the scope for price competition. This effect is stronger when the retail sites are of two different types, since direct price competition is then limited to an even smaller number of sites. Unmanned retail sites generally have lower prices than service stations. However, unless there are a few unmanned sites in each local market, their prices are unlikely to be cost-reflective and any constraint they exert on service stations will be correspondingly weaker. Furthermore, the extent to which they are able to cut prices depends on the wholesale price they pay.

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556 The surveys mentioned show some customers value other things aside from location. For example, some service aspects that feature highly in surveys include: the ease of getting into and out of a station, friendly service, clean and well-maintained stations.

557 [ ]

7.58 One major told us that there are differences in the sensitivity of consumers to prices and some are looking for a "station experience".[558] The major stated that if other stations do not have those propositions, they may not match competitors' pricing if they can offer a better service. This is consistent with an internal document from the major which states:[559]

> Where a competitor is unmanned and/or independent then a differential … may be added. … price gaps might be maintained against marker sites to reflect higher value to consumers.

7.59 We are continuing to consider the extent to which the firms are differentiating their offer to gain and retain the marginal customer instead of competing on board prices. Consumers may prefer fewer services and a lower board price, supported by lower wholesale prices, that might be available if profit margins in the fuel sector were lower.

7.60 We invite comment on our analysis of the potential effect that product and service differentiation may be having on retail competition.

Concerns regarding premium fuel

7.61 Premium petrol accounts for around a quarter of petrol consumption (see Chapter 2). The retailers seem to use a different strategy to sell premium petrol compared to regular petrol. We have considered how this affects competition for premium petrol.

7.62 We currently consider:

7.62.1 consumers are not well informed about the need to use premium petrol;

7.62.2 prices for premium petrol are not usually advertised on price boards, reducing price transparency for consumers; and

7.62.3 premium petrol is sold at a higher margin than standard fuels and that margin has been increasing over time.

7.63 Our current view is that uninformed consumers and the lack of board pricing for premium petrol may explain the trends we observe in margins on premium petrol. We seek comments on the distinctions drawn in the industry between premium and regular petrol, any evidence of the factors influencing consumer choice on the type of petrol they use and steps that could be taken to better inform consumers of the different characteristics and uses for premium and regular petrol.

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Consumers are not well informed about the need to use premium petrol

7.64 Premium petrol is more expensive than regular petrol. It is not clear that consumers have a good understanding of whether they need to use premium petrol or the benefits it provides. If consumers are not well informed, they might buy premium petrol when it was unnecessary.

7.65 Some fuel companies make claims over the benefits of their premium petrol. For example:

7.65.1 BP states its Premium 95 “is designed to help remove dirt and help keep your engine working as the manufacturer intended”;[560]

7.65.2 Mobil states its Supreme Premium 95 helps improve engine performance and responsiveness and reduce emissions;[561]

7.65.3 Z states its ZX Premium Unleaded “helps improve your engine efficiency and overall performance”; and[562]

7.65.4 Gull states its 98 Octane Force 10 “emits up to 8% less carbon dioxide than other high performance fuels and has been endorsed by EECA as an environmentally friendly fuel”.[563]

7.66 These claims often come with disclaimers to the effect it is based on lab testing and may not reflect real driving conditions. This may be confusing for consumers trying to make informed decisions about whether to choose premium petrol.

7.67 Some industry stakeholders think that the benefits of premium petrol are overstated.

7.67.1 For example, Consumer NZ says using premium 95 or 98 provides only marginal benefits compared with regular 91 for most motorists. Using higher octane in a car that is not designed for it is unlikely to result in improved performance or fuel efficiency.[564]

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560 See <https://www.bp.com/en_nz/new-zealand/home/products-and-services/bp-fuels.html#premium95>. (Viewed on 16 August 2019).

561 See <https://www.mobil.co.nz/en/synergy-fuels>. (Viewed on 16 August 2019).

562 See <https://z.co.nz/motorists/fuels/zx-premium-unleaded/>. (Viewed on 16 August 2019).

563 See <https://gull.nz/fuel/gull-force-10/>. (Viewed on 16 August 2019).

564 Consumer NZ “Premium petrol – should you buy it?” (17 February 2017). Available at <https://www.consumer.org.nz/articles/premium-petrol-should-you-buy-it>. (Viewed on 16 August 2019).

7.67.2 According to Canstar:[565]

> Fuel retailers love to talk up the purported benefits of their premium fuels. They don't lie on this, but they do sometimes overstate the benefits. Most modern engines will adapt up (very slightly) if you run them on a higher octane fuel than the minimum recommended – you will get either better economy or more performance (depending on how you drive). But in practise, the improvement is tiny, and the price premium of the higher octane fuel always eclipses the economy benefit from running it – in other words, it's not an economically rational choice to run 98 in an engine designed for 91, even though it might run slightly better.

7.68 There is evidence to suggest that some consumers are confused about the need to use premium petrol.

7.68.1 For example, a research study done for a fuel firm states:[566]

> Even those using premium fuel don't know a lot about them. Most know it's something to do with more octane and that it's meant to be slightly better for your car. However, the benefits of premium fuel are shrouded in mystery and not very tangible….
>
> … the benefits of premium fuel are shrouded in mystery and not very tangible. Even less is known about ethanol and additives. Additives are viewed as an add on rather than as essential…
>
> There are no perceived differences between one fuel's brand 95 and the next brand's 95. And all brands are perceived to have the same type of fuel. It's perceived to be literally all the same – due to the belief that all fuel comes out of the same pipe.

7.68.2 Documents provided by industry participants indicate that consumers often rely on the recommendations of mechanics or car manufacturers when deciding whether to buy premium petrol for their car.[567]

7.69 We currently consider that the lack of consumer understanding over the need to use premium petrol may lead to consumers paying more than they need to. We consider that if consumers had a better understanding of the benefits of premium petrol, they could be more sensitive to the price that fuel firms charge for it.

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565 Canstar "Which type of petrol should you use" (15 December 2015). Available at <https://www.canstar.co.nz/transaction-accounts/which-petrol-should-you-use/>. (Viewed on 16 August 2019).

566 [ ]

567 [ ]; and [ ]

Retail sites often do not display prices for premium petrol on the board

7.70 Price boards are an important source of price information for consumers.[568] However, retail sites often do not put the price of premium petrol on the board. For example:

7.70.1 In Consumer NZ's review of 11 retail sites from five brands on 27 January 2017, only Caltex displayed its premium price on a roadside board.[569]

7.70.2 AA submitted that:[570]

> …consumers of premium grade petrol are unable to access the same level of pump price discounting that is available for 91 octane. This is entirely attributable to the absence of the premium price on the roadside price boards, which is the industry norm (they generally only advertise the price of 91 octane price, and diesel). This reduces price competition on premium petrol as consumers are effectively unable to shop around on price by monitoring the price boards (instead they must drive up to the pump to determine the price or monitor the Gaspy app).

7.71 Consumers may use the board price of regular petrol as a reference point for premium petrol.[571] However, this will not always give a good indication of the price of premium petrol.

7.72 The lack of board pricing makes it difficult for consumers to compare prices between retail sites. Consumers can only learn the price of premium petrol by driving into the retail site. Once at the retail site consumers are unlikely to be prepared to check another retail site due to the inconvenience. They may not pay any attention to the price at all once their vehicle is parked and ready to fill. In the face of these search costs, consumers are less likely to shop around. This is likely to reduce the intensity of price competition for premium petrol. We currently consider that displaying the price of premium petrol alongside the price of regular petrol is likely to benefit retail price competition and consumers. While we acknowledge the potential for displayed prices to increase the scope for coordination (discussed below in paragraph 7.77), we also currently consider the likely benefit to consumers of displaying premium petrol prices on price boards at individual retail sites is likely to outweigh that more general concern in this particular case.

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568 For example, AA also submitted that 76.6% of its members who responded to a 2016 survey indicated that they monitored roadside price boards, and 81.3% said that retail sites should display the premium price on the roadside boards. AA "Submission on Market Study into retail fuel sector – preliminary issues" (22 February 2019) at 5.

569 Consumer NZ "Premium petrol – should you buy it?" (17 February 2017). Available at <https://www.consumer.org.nz/articles/premium-petrol-should-you-buy-it>. (Viewed on 16 August 2019).

570 AA "Submission on Market Study into retail fuel sector – preliminary issues" (22 February 2019) at 5.

571 [ ]

Premium petrol is sold at a higher margin than other fuels and the difference is increasing

7.73 The retail price of premium petrol is higher than regular petrol. This will be in part due to the higher costs for the fuel firms to supply premium petrol. However, it has been suggested to us that margins on premium petrol are high and that the difference in margin between premium and regular petrol prices has been increasing over time.

7.73.1 For example, AA submitted:[572]

> [the] undiscounted retail price for 95 octane is typically 9 cents per litre (cpl) higher than 91 octane (with 98 octane priced 8cpl higher again). Yet 10 years ago the differential between 91 and 95 was just 5cpl. Further, data from Hale & Twomey on landed fuel costs shows 95 octane generally costs about 4cpl more.

7.73.2 In a review of 11 retail sites from five brands carried out by Consumer NZ in Wellington on 27 January 2017, premium 95 (sold at nine locations) was 7 to 11 cents per litre more than regular 91. Premium 98 petrol was 17 cents per litre more than regular 91 at the one retail site offering it.[573]

7.73.3 A fuel firm told us that the cost difference between retailing regular petrol and premium 95 is only a few cents per litre.[574]

7.74 We have done our own analysis of the price of premium and regular petrol over time. We have compared the average retail price of premium and regular petrol against the cost of importing those fuels. The chart below shows our results. The chart shows that the gap between the margin that fuel firms achieve on premium and regular has steadily risen over time and is now around 10 to 11 cents.

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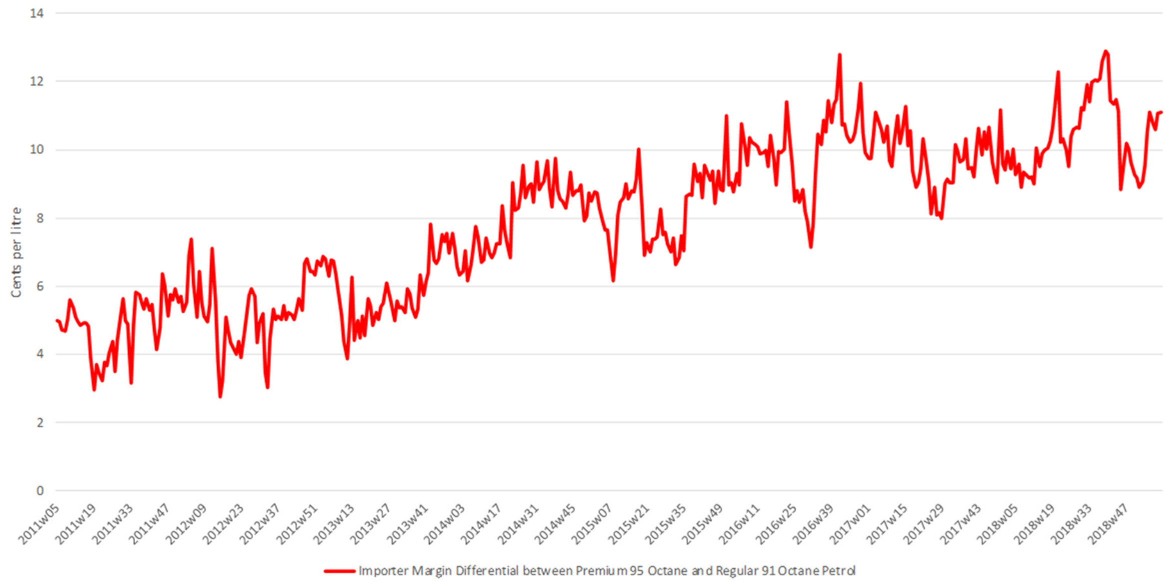
572 AA "Submission on Market Study into retail fuel sector – preliminary issues" (22 February 2019) at 2.

573 Consumer NZ "Premium petrol – should you buy it?" (17 February 2017). Available at <https://www.consumer.org.nz/articles/premium-petrol-should-you-buy-it>. (Viewed on 16 August 2019).

574 [ ]

Figure 7.2 Importer margin of regular and premium petrol



Source: Commerce Commission analysis based on data provided by industry participants.

7.75 The cost differences do not appear to explain the difference in margins nor the increasing difference in margins. We consider that the lack of understanding over the need for premium petrol and lack of board pricing may be contributing to these trends.

Price matching issues

7.76 A firm in a competitive market will find it hard to raise prices above marginal costs in order to raise profits. This is because of the risk that consumers would respond by switching to cheaper rivals.[575]

7.77 We recognise, however, that in a market where there are few firms, they may have a greater economic incentive to reduce rivalry and to seek to raise prices above competitive levels. Firms in concentrated oligopoly markets will rationally take account of their rivals' behaviour and likely reactions when setting prices or making other decisions about their product and service offerings. [576] Where firms engage in "accommodating" behaviour or "tacit coordination" this can result in higher than competitive prices being charged. When this occurs, prices above competitive levels can generate higher than normal industry profits, to the detriment of consumers and efficiency. [577]

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575 Price increases that occur due to an increase to the marginal costs of all firms is consistent with competition.

576 Coordination could potentially occur on the basis of any dimension of competition, such as service levels or by allocating customers or territories.

577 Commerce Commission "Mergers and acquisitions guidelines" (July 2019) at [3.85].

7.78 Accommodating behaviour does not necessarily require an explicit agreement or express coordination between competing firms, which may breach cartel laws. It can develop instead by firms repeatedly observing each other's actions and reactions so that they reach an implicit understanding that one firm's price rises, for example, will be matched by others rather than competed away through intra-firm rivalry.

7.79 Accommodating behaviour is not, however, an inevitable outcome of oligopoly. Two conditions must hold for it to occur.[578]

7.79.1 Firms must be able to reach similar views[579] on how they can increase industry profits. For example, firms may reach similar views that price rises will be accommodated rather than competed away.

7.79.2 Firms must be able to detect and punish cheating, so that the potential individual profit gains from a firm's cheating are outweighed by the costs of punishment.[580]

7.80 Even if these conditions are met, coordination may not be sustainable if it can be disrupted by the entry of other firms or the countervailing actions of consumers.

7.81 Accommodating behaviour is also more likely to occur when a market has features that make this easier, such as:[581]

7.81.1 homogeneous products;

7.81.2 a small number of competitors and an absence of a particularly vigorous competitor or strong competition from outside the coordinating firms;

7.81.3 repeated interactions between firms through, for example, contact in other markets, or at industry organisations or meetings;

7.81.4 firms of similar size and cost structures;

7.81.5 little innovation, stable demand and a lack of supply shocks/volatility;

7.81.6 firms that can readily observe each other's prices or volumes;

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578 The fuel firms compete at different levels of the fuel supply chain, for different fuel types and locations. The vulnerability of the retail fuel market to coordination may differ to some extent in each location throughout the country where the firms compete.

579 As outlined above, this may occur with or without an agreement between the firms.

580 Punishment is a period of aggressive market behaviour by a rival (or rivals) to retaliate against a firm deviating from the accommodating behaviour. For example, the rival could set prices low (or increase quantity) which would reduce the profits of the deviating firm. The threat of punishment deters firms from deviating from accommodating behaviour. See for example M Motta *Competition Policy: Theory and Practice* (Cambridge University Press, Cambridge, 2004) at 139.

581 Commerce Commission "Mergers and acquisitions guidelines" (July 2019) at [3.89].

7.81.7 small frequent transactions; and

7.81.8 firms interrelated through association or cross-partial ownership.

7.82 Conversely, other features of a market can make it more difficult for accommodation to occur or make it less complete. Those features include:

7.82.1 a high degree of differentiation and innovation in market offerings;

7.82.2 firms operating in a number of locations, with different price setters in each of those locations;

7.82.3 a prevalence of discounts and non-price promotions; and

7.82.4 the presence of one or more vigorous competitors who may disrupt coordination or make coordination less effective.

7.83 We consider that the retail fuel market has several features which make it vulnerable to accommodating behaviour.

7.84 During the Z/Chevron merger investigation in 2015/2016 we had cause to assess whether the retail fuel market was vulnerable to price coordination at the retail level, and whether the proposed merger would have a material impact on that vulnerability.[582]

7.85 In our decision, the Commission opined that a number of features of the retail fuel market made it vulnerable to coordination. These included:

7.85.1 the products sold in the retail fuel market were largely homogeneous (albeit with some differences in services, and some attempts to differentiate fuel products through the use of additives – which appear to have had limited success);

7.85.2 there were a limited number of competitors at the national level;

7.85.3 firms competing at the national level likely had similar cost structures given the shared infrastructure arrangements discussed in Chapter 5 of this draft report;

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582 *Z Energy Limited and Chevron New Zealand* [2016] NZCC 10 at 48-65 and 109-120.

7.85.4 firms could readily observe each other's prices and volumes. Board pricing and most discounting was easy to observe. At the time of the Z/Chevron merger investigation, Z Energy also posted its national price on its website (its main port price), making it easy to see its price for most of its sites in Wellington and the South Island. At a national level, the retail and wholesale volumes of the majors are likely to be transparent given the operation of the borrow and loan system discussed in Chapters 2 and 5 of this draft report; and

7.85.5 consumers made small, regular purchases of fuel. Those regular interactions would make it easier for competitors to test the appetite for a price increase while risking a smaller volume of sales if the price change did not hold through a response by competitors.

7.86 We cleared the merger subject to divestments.[583] As it relates to coordination, we found that the merger would not make a material difference to the potential for coordination. We took no firm position on whether coordination was occurring, but rather decided that Chevron was not playing an important role in constraining any coordination if it was taking place.[584]

7.87 These market features remain relevant today, so we continue to treat the market as having some vulnerability to coordination.

New retail investment

7.88 We have observed an increase in the number of retail sites that resellers operate and a fall in those that the majors operate, with the overall number of retail sites increasing. A large proportion of the new retail sites are unmanned. These new retail sites will benefit consumers in those areas because some consumers will prefer the new retail site over existing ones because it is more convenient or because they would prefer a lower priced retail site and because it will improve competition to at least some extent.

7.89 We have looked at the evidence on how new retail sites are impacting on the sites of the nearest majors. The evidence suggests mixed results as to whether new retail sites have had a positive competitive impact on the offers of majors or not. We discuss the evidence below.

583 The purpose of the divestments was to preserve competition in some retail markets.

584 Dr Jill Walker dissented from the Commission's decision in this regard. She considered that the evidence was consistent with a level of pre-existing coordination and that the merger would likely entrench that coordination and see it occurring more completely and more quickly.

7.90 First, we have analysed new retail sites that have opened since 2017 (throughout New Zealand) with a focus on how they are impacting on nearby sites of the majors. This included both new retail sites (referred to by market participants as new-to-industry or "NTI" sites) and retail sites that have been rebranded from existing retail sites.[585] We tested:

7.90.1 whether the resellers have built their retail sites in places where they are competing directly against the majors (including the reseller's supplier); and

7.90.2 the extent to which these sites have impacted on the nearby retail sites of majors as measured by a fall in price or volumes.

7.91 This analysis is still in progress. However, the preliminary results suggest that:[586]

7.91.1 Gull is most likely to locate a site near those of the majors. By contrast, resellers seem to appear more reluctant to put their sites near those of majors, especially those of their own fuel supplier.

7.91.2 We looked at prices and volumes of the nearest majors to the new sites before and after each new site opened. The analysis showed only some examples where the price or volume clearly fell after entry occurred.

7.91.2.1 In almost all cases the board price did not change or the change was unclear. There were few cases where the board price clearly fell.

7.91.2.2 There were only some cases where the effective price (which is the price taking into account discounts) clearly fell, mostly in relation to an NPD site.

7.91.2.3 There were quite a few occasions when the effective price of majors fell following an NPD site opening. This may indicate that the majors have reacted by offering more discounts and encouraging loyalty offers. In some cases, it looked like it might have been part of a longer term trend.

585 The impact of NTIs was of most interest since it would result in an increase in the number of competitors. We also included an analysis of rebranded sites to see if they had any impact.

586 Attachment F sets out the caveats we place on these results. In particular, the analysis did not control for all factors that may affect price. In many cases it was hard to see an impact. Although that may be because there was no impact, it also could simply mean the data was not sufficient to allow us to see the effect that occurred.

7.91.2.4 There were few examples where the prices of majors clearly fell after a Gull opened. That is, this analysis did not provide many examples of the "Gull effect" on new site openings. This could be because the most recent Gull sites are filling in their network and most of the Gull effect has already occurred (in the areas our regional analysis identified) or simply because the data we had in this analysis was not clear enough to see the impact that Gull had on nearby competitors.

7.91.2.5 There were few examples in this analysis where the prices of majors clearly fell after an Allied or Waitomo site opened. In the case of Allied this may be because its sites were in remote areas so there were no majors nearby.

7.91.2.6 There were only some occasions when the majors' volumes dropped materially after the site opened. These were most commonly when an NPD opened. The lack of volume effect that we could observe in some cases could be due to the location differentiation identified above or because it came from retail sites other than the majors'. This is consistent with the idea that NTI sites tend to be away from majors. In some cases it may also be that the data was not clear enough to see the impact.

7.91.3 In summary, this analysis appears to show that Gull was most likely to locate its new sites in direct competition with the majors and it was NPD that appeared to have the most impact on the majors' prices. There is less evidence from this analysis that the sites of Gull, Allied and GAS are impacting on the majors. Our work on this analysis is continuing and our conclusions may alter during the remainder of the study. We will reflect any changes in our final report.

7.92 Other evidence provides some examples of unmanned sites providing some check on prices at nearby sites offering a higher level of service. For example:

7.92.1 A major's internal document from 2018 states:[587]

> [A Distributor] have opened their un-manned site [at a location near one of the major's sites]. This is having an impact on [the major's site's] diesel volumes with last week -20% on the same week last year. Mogas not as impacted only down -9%. …Risks or Issues: The number of [another distributor's] sites planned and the impact on volumes in [various locations]. …Continued growth of competitor un-manned networks eroding margin and volume.

7.92.2 Another fuel firm's internal documents state:

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> Very high margins available for [various distributors] who are rapidly developing unmanned outlets and gaining significant volume…The term "Waitomo effect" has been used in the industry recently as their pricing is very aggressive.[588]

7.92.3 Internal documents from some fuel firms show that new unmanned sites have gained significant volumes.[589] In the case of one fuel firm, the volumes of its sites were often much more than forecast. Our analysis of NTI sites opened by that firm between 2015 and 2018 shows that the actual fuel volume sold in 2018 for these sites was well over 50% more than the volume forecast in the business cases for these sites.[590] These volumes must have come from rivals, which would imply an impact on competition.

Why we are focused primarily on wholesale competition

7.93 Our draft recommendations are primarily directed at stimulating wholesale market competition. As explained above, we consider that a more workably competitive wholesale market should push retail fuel prices towards levels we would expect to see in workably competitive retail markets. There are two channels through which wholesale competition is likely to affect competition in retail markets.

7.93.1 Wholesale prices should be more transparent and lower. This should stimulate retail competition by increasing the range of price over which retailers can compete.

7.93.2 Fewer resellers would be supplied by only one major. This is a likely consequence of wholesale competition between importers, including potential new entrants, for the supply of fuel to resellers.

7.94 While there are many potential interventions that could be considered in retail markets, many also carry the risk of unintended consequences. We consider that a high level of confidence is required before pursuing options such as the promotion of price comparison tools because of the risk that they could be used by fuel suppliers to facilitate coordination.

7.95 However, in Chapter 8 we identify options for recommendations relating to the sale of premium petrol which we consider may benefit competition and consumers with less risk of unintended consequences.

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Chapter 8 Options for recommendations

Our approach

8.1 In this chapter we outline the options we have identified for recommendations we may make. They reflect our preliminary views on the factors affecting competition for the supply of retail petrol and diesel used for land transport in New Zealand.

8.2 The Act provides us with a broad power to make recommendations as part of the final report. However, we are not required to make any recommendations. We intend to make recommendations where the evidence before us suggests that there may be ways to improve competition for the long-term benefit of New Zealand retail fuel consumers.

8.3 We have endeavoured to consider possible options that are likely to be feasible, and with a potential cost that would be proportionate to the likely benefit to consumers. We acknowledge the importance of assessing whether the benefits exceed the costs of any recommended change to the status quo. However, cost-benefit analysis falls outside the scope of the study. Policy makers may undertake that analysis while giving effect to any government decision about recommendations that it may wish to take forward after considering our final report.

8.4 These options take into account our preliminary views on the factors affecting competition at all levels of the market. They are necessarily interdependent, and we acknowledge that changes in one part of the supply chain can have implications for another part of the supply chain. The options, and any final recommendations, ultimately should be considered with reference to their interrelationship, their potential aggregate impact on the functioning of the supply chain, and their ultimate impact on competition for the supply of retail petrol and diesel.

8.5 We invite comment on the options we have set out, and also welcome suggestions of other options for recommendations we may make that could improve competition. Like the preliminary views expressed throughout the draft report, the options are subject to our further consultation process, further analysis and deliberation, and we may alter or remove any option when we finalise our recommendations.

8.6 A number of the options are directed at industry participants who may be best placed to implement them. Others are of a regulatory nature that the Government may consider instead of, or alongside, those market options.

8.7 We note that in the course of finalising the study we may also identify areas where the Commission could undertake further work in the future. This may include investigation of potential breaches of competition or consumer law or proposals for further analysis.

Overview of options

8.8 Our analysis of the factors affecting competition for the supply of retail petrol and diesel leads us to three overarching preliminary views on the directions for change.

8.9 First, we consider that the best options for improving competition are likely to be those directed towards the creation of an effective wholesale market, in which fuel importers compete with the majors to supply wholesale customers. In the long-term, this is likely to be the greatest driver of enhanced competition in retail markets.

8.10 Second, we consider that some characteristics of the industry make it prone to coordination, and that some current industry practices may enhance the potential for coordination and soften competition. We identify several options directed towards reducing information sharing between the majors and enhancing their incentives to compete in the wholesale and retail markets through changes at the refinery and distribution level.

8.11 Third, there is some scope for changes to improve competition in retail markets, primarily directed at improving the ability of consumers to make informed purchasing decisions, and thereby driving increased competition at this level of the market.

8.12 We invite comment on the options below, and on others that might better promote competition for the long-term benefit of consumers in New Zealand.

Improving wholesale competition

8.13 As discussed above (Chapters 2 and 6), a competitive wholesale market failed to materialise post deregulation, resulting in limited wholesale market competition between importers. Each importer now has control over a vertically integrated supply chain and this control is exercised through a mix of ownership and restrictive contractual arrangements.

8.14 Wholesale market competition has the potential to be much more vigorous than retail competition because it involves large volumes of commodity fuel being traded at a small number of locations between well informed parties. These features should promote price-based competition.

8.15 However, this potential is not currently being achieved. Instead, current industry structures and practices have the potential for three adverse impacts on competition:

8.15.1 it is difficult for new importers to compete against the existing firms because there are limited switching opportunities for buyers in the wholesale market;

8.15.2 retail competition may be restricted to a narrow price range because wholesale prices are higher than they would be in a workably competitive market because of the limited competitive pressure between importers; and

8.15.3 retail price competition is softer than it otherwise would be, focusing primarily on discount and loyalty programmes and service level differentiation rather than board prices.

8.16 We have identified two issues that may limit wholesale competition:

8.16.1 restrictive contractual provisions between majors and the distributors and dealers they supply with fuel, as discussed in Chapter 6; and

8.16.2 new entrant importers face a significant cost disadvantage, compared with the majors, because they do not have access to shared coastal shipping and port terminal facilities (Chapter 5).

8.17 As explained in Chapters 5 and 6, the first of these barriers may have the effect of restricting competition for customers of the majors, while the second has the effect of raising the relative cost of supply around the country for independent importers. Both may have the effect of deterring, and therefore, limiting new entry.

8.18 There is no guarantee that a competitive wholesale market will develop rapidly if these barriers are removed. Some downstream distributors and dealers have a happy co-existence with their supplier and no desire to change. However, there appear to be significant economic incentives for some distributors to switch, at least for some of their volumes, and this could be expected to lead to more competition over time, both through new importer entry and increased competition between the majors.

8.19 We invite comment on the role that these contractual provisions and the current access arrangements for shared infrastructure have on competition and our current view of the impact that their modification or removal may have, including any impacts that we have not identified.

Potential changes to wholesale supply agreements

8.20 As noted in Chapter 6, our examination of wholesale supply agreements has identified that most contracts include terms which appear to limit buyer choice, and some contracts included a number of provisions like this. Types of restrictive clause we have seen include:

8.20.1 exclusive purchasing requirements;

8.20.2 contract terms longer than 3 – 5 years;

8.20.3 rights of first refusal; and

8.20.4 non-transparent pricing.

8.21 We acknowledge that restrictive terms are not unusual in commercial contracts in workably competitive markets. They can have a range of benefits and may be required to achieve efficiencies, such as securing long-term demand in order to justify relationship-specific investment.

8.22 Nevertheless, we currently consider that in many cases the benefits claimed could be achieved through means that are less restrictive of competition. Less restrictive contracting seems likely to improve competition among importers for the business of wholesale customers. To date, the rationales we have been given for the inclusion of restrictive provisions in wholesale supply contracts are not persuasive.

8.23 We also note that restrictive covenants on former retail fuel sites are relatively common, and may have the potential to be a barrier to entry in the retail market. This is particularly so in developed urban areas where the cost of land is high and the number of greenfield sites where resource consent could readily be obtained is low.

8.24 Again, we currently consider that the use of these covenants is likely to restrict retail competition and that changes to the practice of covenanting land used for retail sites before sale may improve entry in these areas.

8.25 We note that we have reviewed a number of contractual provisions as part of the study. However, we have not assessed them against the requirements of section 27 of the Act which prohibits anticompetitive conduct. As noted in Chapter 1, a conclusion that particular conduct affects competition, and may be the subject of a recommendation in the final report, is not a conclusion that it breaches other provisions of the Act. We retain the ability to separately investigate conduct if information collected during the study, or outside of it, gives us reason to do so.

Potential changes to the transparency of wholesale pricing

8.26 We have also identified wholesale supply agreements that provide pricing terms which may limit the ability or incentive of a distributor or dealer to compete with its supplier. These include “retail-minus” pricing terms, or contracts that leave the supplier with considerable discretion to vary the price.

8.27 Many distributors and dealers have comparatively poor access to information about market prices for wholesale fuel. This in turn reduces their ability to make informed decisions about their wholesale fuel purchases, including when negotiating long-term contracts.

8.28 Transparency of pricing at the wholesale level could be improved by instituting a disclosure regime akin to the Terminal Gate Pricing regime found in Australia.

Potential changes to improve access to shared infrastructure

8.29 As noted in Chapter 5, the COLL joint venture provides the majors with efficient distribution arrangements that lower the cost of distributing fuel. The COLL joint venture arrangements are also closely linked with the borrow and loan system that operates at the terminal level. Together they provide the majors with a competitive advantage over other importers in the form of reduced distribution costs and national reach. This is a barrier to importer entry and expansion.

8.30 An entrant importer would have to invest significantly in terminal and distribution assets to compete with the established, coordinated, low-cost supply chain enjoyed by the majors. However, an entrant could feasibly establish a terminal in one or two ports. Indeed, Gull has done so in Mount Maunganui and TOSL is in the process of doing so in Timaru.

8.31 For a new entrant to achieve similar national reach and cost efficiencies as the majors, even with its own import terminal, it would require effective access to shared infrastructure, including access to fuel stored in terminals most efficiently served by COLL.

8.32 Participation in shared infrastructure arrangements would allow rival importers to compete with the majors at any port, in return for sharing inventory held in their own terminals and contributing to the costs of the sharing arrangements more generally. We understand that this would be unlikely to require significant changes to the scope of COLL's operations. That is in part because the COLL joint venture arrangements already set out the terms for third party access.

8.33 The COLL joint venture and borrow and loan arrangements allow third parties to be provided access in some form. However, these terms are typically contained within confidential agreements between the parties. The terms upon which third parties, or entrants, may seek access are not published or readily available to any potential entrant. They give considerable discretion to the majors when deciding whether to grant access to a third party. The terms upon which a third party may participate in the infrastructure sharing arrangements are also untested.

8.34 We consider that the terms themselves, and the fact that they are not publicly available, may at present pose a significant barrier to any third party participating in these cost-efficient infrastructure sharing arrangements.

8.35 We currently consider that a published process and criteria for access to shared infrastructure arrangements would be expected in a workably competitive market. It would increase the likelihood of third parties applying for, and obtaining, access. It may also improve the ability of third parties to compete effectively at the wholesale and retail levels. To effectively promote competition, the existing terms may need to be reviewed to ensure that they were non-discriminatory.

8.36 We expect that participation in the COLL and borrow and loan arrangements would have the effect of providing access to terminal facilities for all suppliers, which would promote competition throughout the supply chain. This would allow non-major importers to supply distributors and dealers from any terminal that forms part of the borrow and loan system. We consider that competition would be enhanced by expanding the number of regions that benefit from stronger wholesale competition and reducing the midstream distribution costs of all participating importers. The resulting competition in the wholesale market would push cost reductions down the supply chain into retail markets where we expect that they could benefit consumers in the form of lower prices.

8.37 We are aware that some majors would like to move towards a more commercial model for capacity sharing at terminals. In our view, cost-reflective terminal pricing would improve the currently weak incentives for efficient terminal investment, address any concerns about smaller importers gaining access on unreasonable terms and mitigate against the risk of terminals being removed from the current borrow and loan system or any future access arrangements.

Options for improving wholesale competition

8.38 Greater contractual freedom for distributors and dealers and open access arrangements potentially could be achieved:

8.38.1 through changes to contracts and access arrangements made by the majors; or

8.38.2 through regulatory intervention.

8.39 An industry-led approach may best utilise the majors' detailed industry knowledge in pursuit of the outcomes described above. Any such approach would clearly need to have regard to compliance with competition laws. However, we also acknowledge that this would involve significant change to long-standing industry practices which may be difficult to achieve by agreement in a timely way.

8.40 We are not aware of any existing regulatory regime that could be utilised to change the existing wholesale contractual arrangements. Regulatory intervention governing amended contractual arrangements could include the introduction of a licensing regime or voluntary or mandatory industry code for importers. This regime could reflect expectations about firms' conduct and contractual relationships. We note that enforceable industry codes have been used in other jurisdictions, including in Australia.

8.41 The same regulatory intervention could also be used in relation to wholesale access, including to provide a basis for mandatory non-discriminatory infrastructure sharing. Terminal Gate Pricing could also be implemented through an industry code, as it is in Australia.

8.42 Other regulatory interventions that could be considered to address the competition issues identified in relation to infrastructure sharing could include the following.

8.42.1 An information disclosure regime that would yield transparent information of relevance to access seekers and/or government agencies; and if necessary

8.42.2 A negotiate/arbitrate regime, through which access disputes could be settled; or if necessary determined; or

8.42.3 Price/quality regulation, where the price and/or other terms for access are determined by an appropriate regulator.

8.43 An alternative to the kind of regulatory intervention described above would be regulation to impose line of business restrictions that would require divestment of majors' ownership of distribution or retail activities.

8.44 As noted above, a cost-benefit analysis of each option lies beyond the scope of the study and has not been undertaken. However, we currently consider that a simpler and yet effective option may be the introduction of a licensing regime or code of conduct for importers.

Comment sought

8.45 We invite comment on the likely effectiveness of each of these options in meeting the competition concerns that we have identified and welcome additional suggestions for measures that may improve competition in wholesale markets.

Options to reduce the potential for accommodating behaviour

8.46 As noted in Chapter 5 and Chapter 7, there are features of the fuel industry that make it vulnerable to accommodating behaviour or coordination. While some of these features are likely to be inherent in the fuel industry, we have identified some particular practices which may exacerbate the potential for coordination. Changing these practices may, over time, improve competition in the retail market.

Proposed changes to how refinery capacity is allocated

8.47 The majors are currently allocated processing capacity at the refinery based on their average market share over the past three years. It appears that the information exchange via the Technical Committee during the annual allocation procedure may provide a degree of transparency that could unnecessarily affect competition. A representative of each major sits on the refinery's Technical Committee, which is responsible for allocating capacity.

8.48 As part of the annual allocation procedure, the majors share information on monthly national volumes of fuel product by various categories of retail fuel (including by customer type), which form the basis of the ultimate allocation. The allocation process is largely mechanical, with the information on national volumes acting as inputs. The majors check the data for accuracy.

8.49 The visibility of each other's national volumes across various categories may assist in facilitating or strengthening accommodating behaviour. The transfer of information provided through the capacity allocation procedure may therefore unnecessarily affect competition.

8.50 We acknowledge that the Technical Committee is likely to contribute to the efficient operation of the refinery. However, we consider that it may be possible to achieve the same efficiencies through the exchange of less information and without the majors' representatives on the Technical Committee needing to review each other's volume data. The risk of the Technical Committee facilitating coordination could be reduced by restricting each customer to verifying their own data for the capacity allocation process.

8.51 As noted above in Chapter 5 the majors are currently allocated processing capacity at the refinery based on their average market share over the past three years. This means that a major with growing market share is likely to face a significant delay before it obtains increased refinery processing capacity to supply that market share.

8.52 A major with growing market share must therefore initially import more refined fuel to meet increased demand. This is likely to lead to a cost disadvantage in the short-term, particularly in areas which receive fuel via relatively low cost primary distribution through the RAP and COLL. This cost disadvantage may reduce the ability and incentive for majors to grow their market share through price competition.

8.53 The use of a three-year average seems to have historic origins and is currently unexplained in the study.

8.54 We currently consider that:

8.54.1 first, the potential to facilitate coordination could be reduced by restricting each refinery customer representative to reviewing its own data, and that these steps seem unlikely to have any material costs;

8.54.2 second, the historic sales data for retail fuel products collected by BDO should not be made available to majors, other than their own data. We note that this accords with a recommendation by Hale and Twomey; and

8.54.3 third, an alternative capacity allocation mechanism which enables majors to increase their refinery allocation over a shorter time period would potentially improve the ability and incentive for the majors to compete and would be unlikely to have any material costs.

Proposed changes to COLL joint venture to reduce the potential for coordination

8.55 As noted above, the COLL joint venture agreement provides the majors with efficient distribution arrangements that lower the cost of distributing fuel. However, the arrangements do potentially facilitate a softening of competition by providing the majors with significant insight into the operations of the other majors.

8.56 Information that COLL collects and provides to the majors includes:

8.56.1 a weekly shipping scheduling plan, known as COSMIC; [591] and

8.56.2 a weekly report on shared industry storage, known as CONCORD.[592]

8.57 Following the 2017 Fuel Study, Hale & Twomey noted that if there were concerns about the current level of data sharing, it would be possible to reduce this without significantly impacting on how the borrow and loan arrangements work. Options identified included:

8.57.1 aggregating forward demand estimates for the Wiri Terminal if the RAP becomes unconstrained, consistent with reporting at other locations; and

8.57.2 limiting visibility of forward stock ownership (ie, forward national demand) by product and in total under “CONCORD” to only their own positions (currently majors are able to see each other’s forward position).

8.58 We consider that any unnecessary sharing of information through COLL is likely to reduce downstream competition between the majors.

8.59 We have not received any pro-competitive or efficiency enhancing explanation as to why it is necessary for the majors to receive this breadth of information with such frequency. The information we have received to date does not suggest that there would be significant costs in changing the COLL arrangements.

8.60 We consider that the changes suggested by Hale and Twomey would be likely to promote competition. The options suggested by Hale and Twomey would reduce the current level of data sharing without significantly impacting COLL’s effectiveness. However, we acknowledge that there may be alternative ways to reduce any unnecessary information sharing.

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591 COSMIC provides the majors information on projected refinery production, forward demand of each product for each port, and planned discharges into particular ports by both COLL vessels and import vessels.

592 CONCORD provides the majors a historical and forward-looking overview of deposits and offtakes from shared industry storage. Historic and forward-looking demand is aggregated to a national level by fuel type under CONCORD.

Comment sought

8.61 We invite comment on the likely effectiveness of each of these measures in meeting the competition concerns that we have identified and welcome additional suggestions for measures that may improve incentives for competition or diminish the potential to for coordination.

Options for improving information for consumers

8.62 Although we consider the greatest benefits are likely to be achieved through changes in relation to wholesale competition, we consider that there are some options for change in the retail market. These are primarily directed at improving the ability of consumers to make informed purchasing decisions, and thereby drive increased competition at this level of the market.

Informed consumers

8.63 Regardless of other changes made to the operation of the fuel sector, consumers will generally be able to reduce the amount they spend on fuel by shopping around to find the best deal for them.

8.64 Competition is improved if consumers are provided with the information that they need to understand the fuel requirements of their cars, shop around and compare different retailers. This will help them to find the combination of service, and the price and discount that best meets their needs.

8.65 For many motorists, premium fuels offer a small increase in performance that may not justify the increased price. If consumers are unsure as to what fuel they should use, their car's manufacturer or its local representative should be able to advise them.

8.66 When shopping around on price, consumers should not assume that because a discount is advertised, it is the cheapest available price. As discussed in Chapter 3 and Chapter 7:

8.66.1 retail fuel companies appear to have increased margins while increasing their discount and reward programmes, suggesting that those programmes have been funded by higher board prices; and

8.66.2 we have identified some instances where retail fuel companies have increased the price of fuel before increasing discounts.

8.67 To the extent that they are able, consumers should compare the terms and conditions of relevant discount and loyalty schemes to understand the benefits they may provide, and any additional costs that they may impose.

8.68 Price comparison sites or apps such as Gaspy can assist consumers in comparing prices. However, when using price comparison tools, motorists should be aware that the best deal often appears to involve a combination of retail price and discount offering.

8.69 We have considered whether it would be appropriate to require retailers to make available real time pricing data to third party price comparison sites or apps. However, such a recommendation could have the potential to make price coordination between retailers easier. There is also mixed evidence as to the effectiveness of regulatory intervention in this area.

8.70 We are continuing to consider ways in which better information could be provided to assist consumers to compare actual prices paid for fuel and to make informed purchasing decisions. We welcome comment on potential options including options for improving the effectiveness of price comparison apps, comment on whether any changes could increase the potential for coordination, and how that potential could be mitigated.

Transparency of pricing and benefits of premium petrol

8.71 At discussed in Chapter 7, there appear to be unexplained higher margins associated with premium petrol, and this is contributing to high industry profits.

8.72 A lack of transparency regarding the pricing and benefits of premium petrol may explain this outcome. In particular:

8.72.1 the price of premium petrol is typically not advertised on roadside price boards, making it difficult for consumers to compare prices; and

8.72.2 some consumers may be purchasing premium petrol unnecessarily, due to a lack of understanding about whether it is needed for their car.

Transparency of premium fuel prices

8.73 The prices of regular 91 petrol and diesel are generally displayed on roadside price boards. However, the price of premium petrol is generally not. This means consumers can only determine the price of premium fuel at the pump, making it difficult for consumers to compare prices.

8.74 For this reason, in New South Wales and Queensland it is mandated that the price of all fuels sold should be displayed on roadside boards.

8.75 Introducing a similar requirement in New Zealand would add transparency to pricing of premium grades of fuel and facilitate consumer choice. Given that over 20% of all petrol sold is premium petrol, the potential benefits from improved transparency could be significant.

8.76 We consider that the display of premium petrol prices is likely to be feasible. We acknowledge there is likely to be some cost involved in upgrading or replacing existing roadside price boards.

8.77 This is an option that could be implemented by industry or by regulated mandated price disclosure.

Benefits of premium fuel

8.78 As noted in Chapter 7, we consider it likely that some consumers may be purchasing premium petrol unnecessarily, based on confusion about whether their vehicle requires it or would benefit from it.

8.79 We consider that there are options for providing further transparency to consumers on the benefits of premium petrol. As noted above, given the volume of premium petrol sold, the potential benefits from improved transparency could be significant.

8.80 One possible option is that a sticker be added to each vehicle's fuel cap or the inside of each vehicle's fuel flap, specifying the recommended fuel type. This could be carried out consistently by vehicle manufacturers for late model cars and as part of the warrant of fitness process for older cars.

Comment sought

8.81 We welcome comment on the likely effectiveness of each of these measures in informing consumers and meeting the competition concerns that we have identified. We welcome additional suggestions for measures that may improve competition in retail fuel markets.

Option for improving the quality of available information

8.82 In the course of the study, we have encountered some constraints in obtaining the information we have sought. We are aware that other studies of this sector have also had difficulties obtaining information.

8.83 We have the power to compel the production of information. However, even when parties cooperate with us and openly participate in the study, there can be a range of reasons why information may not be available. These include that:

8.83.1 the information may not be collected or prepared;

8.83.2 the information may be held offshore, where its production cannot be compelled in New Zealand;

8.83.3 the information may not have been retained, or may not be retained in New Zealand, following a change of ownership;

8.83.4 the information may be held in formats or systems that mean it is not technically feasible to access at a reasonable cost;

8.83.5 the information may have been destroyed as there was no longer any legal or commercial reason to hold it; and

8.83.6 the information may have prepared in accordance with different standards, such that it is difficult to compare with other industry information.

8.84 The fuel sector is likely to continue to be of significance to the New Zealand economy for the foreseeable future. There will also likely be a continuing public interest in the effectiveness of competition in the sector. If higher quality information is held by the industry or government, this will likely improve the timeliness, cost and accuracy of any future study or regulatory intervention.

8.85 We consider that there could be long-term benefits derived from regulations that require certain information to be collected and retained in New Zealand for a period of time to assist meaningful market analysis. That information would not be shared between majors or made public. As the Ministry for Business, Innovation and Employment currently has a long-term monitoring role in this sector, it may be an appropriate agency to receive the information.

Comment sought

8.86 We welcome comment on the likely cost and effectiveness of an information disclosure regime of this nature and welcome additional suggestions for alternative measures for dealing with the information and analysis difficulties identified above.

Attachment A How you can have your say

A1 We are currently seeking feedback on this draft report in the following ways:

A1.1 Written comments on this draft report are due **4pm, Friday 13 September 2019**.

A1.2 We intend to hold a consultation conference at the Intercontinental Hotel, 2 Grey St, Wellington, 6011, from Tuesday 24 September to Friday 27 September 2019 and provide further details on this below.

A1.3 Further comments, including comment on matters raised at the conference and in published comments made by others, are due **4pm, Friday 11 October 2019**. Making written comments on this report.

A2 When submitting comments, please include your company name or the name of the person submitting and “Written comment on Market Study into the retail fuel sector – Draft Report” in the subject line of your email. We prefer written comments in both a format suitable for word processing (such as a Microsoft Word doc), and a ‘locked’ format (such as a PDF) for publication on our website.

A3 Where confidential information is included:

A3.1 this information should be clearly marked; and

A3.2 both confidential and public versions of your comments should be provided by **4pm** on the due date, so that public versions may be published on our website.

A4 The responsibility for ensuring that confidential information is not included in a public version rests on the party providing the comments.

A5 We will endeavour to publish public versions of written comments on our draft report on our website by **midday Monday 16 September 2019**. If, after we have published the public versions, we identify further information in written comments that may be made public, we will ask for additional public versions to be provided for publication and inform all stakeholders when they are available on our website.

A6 Please address all written comments to:

Keston Ruxton

marketstudies.submissions@comcom.govt.nz

Invitation to attend Consultation Conference

A7 We intend to hold a Consultation Conference from **Tuesday 24 September** to **Friday 27 September 2019**.

A8 This conference is intended to inform our final report by allowing us to test our preliminary findings with stakeholders, and to clarify and test comments received on our draft report.

A9 It will be held at the Intercontinental Hotel, 2 Grey Street, Wellington 6011.

Consultation conference format

A10 The conference is likely to include open sessions as well as some confidential sessions with stakeholders on specific topics.

A11 During the conference, each topic will be introduced by the Commission. Members of the Commission and Commission staff will ask specific questions of parties and experts. The Commission may choose to direct some questions to experts. These questions will be clearly signalled as being for expert opinion and all experts will be asked to comment sequentially on those questions, without reference to the parties. Parties may then be provided with an opportunity to comment on the experts' opinions, once all experts have commented. Parties may only ask questions of the Commission for the purpose of clarifying a question. No party will have the right to cross-examine the Commission or any other party during the conference. We do not intend to update stakeholders on our views on matters addressed in the draft report prior to or during the conference.

A12 Although there may not be an opportunity for participants to speak to their comments in general, we may allow for statements from participants on specific topics. Where this is the case, we will inform participants prior to the conference.

Attendance of experts at the conference

A13 The Commission expects that all experts that have been advising parties will be available at the conference to respond to the Commission's questions and that experts attending the conference appear as experts in their fields rather than as an advocate for any particular party. We also expect experts to follow the guidance provided in the code of conduct for expert witnesses in the High Court rules.

Confidentiality

A14 The Commission's expectation is that confidential material should be kept to a minimum during the conference in order to maintain as transparent a process as is possible. Attendance at any closed confidential session would be limited to Commission members, Commission staff, the party presenting the confidential information, and counsel and/or experts who have provided the Commission with undertakings not to reveal the confidential information to any other party, including the persons instructing the experts.

Other administrative matters

A15 The conference will be recorded, and a stenographer will also provide a transcript of the conference. A transcript of each day's discussion (excluding any closed confidential sessions) will be made available on the Commission's website as soon as is practicable.

A16 The conference will start at 9:30am each day, with breaks for morning and afternoon tea and lunch. Please note these will not be catered by the Commission.

A17 Stakeholders are asked to register their intention to attend the conference by **4pm Tuesday 3 September 2019** by providing the following details:

A17.1 organisation;

A17.2 name and role of each attendee (including experts);

A17.3 contact number; and

A17.4 email address.

A18 At this time, stakeholders are also requested to register their interest in speaking in public sessions should this opportunity be available.

A19 Please note that limited seating is available so the number of attendees at the conference may have to be restricted. Time constraints may also mean that we cannot accommodate all requests to speak at the conference.

A20 We will confirm the topics and publish an agenda for the conference prior to the conference.

Questions on material included in this Attachment

A21 Please contact Keston Ruxton at the Commission if you have any other questions or comments regarding material covered by this Attachment at: marketstudies@comcom.govt.nz.

Attachment B Our approach to assessing profitability

Introduction to this attachment

B1 This attachment:

B1.1 discusses why we assess the profitability of firms supplying fuel to the retail markets; and

B1.2 outlines what conclusions we might draw from this assessment and the potential limitations on these conclusions.

B2 A document related to this attachment was originally issued as a working paper on 18 April 2019.[593] This attachment updates that working paper to reflect:

B2.1 submissions on that paper and our response to those submissions; and

B2.2 changes to our approach since that working paper was issued.

B3 It should be read in conjunction with the following attachments.

B3.1 Attachment C which sets out our view of a normal rate of return, which we define as the weighted average cost of capital.

B3.2 Attachment D which discusses the analysis of profitability and our conclusions on the level of profitability being earned in the fuel sector.

B3.3 Attachment E which explains why we consider the excess profitability in the fuel sector to be persistent rather than temporary.

What is profitability

B4 Profitability means the size of firms' profits relative to the size of their businesses. For example, the amount of profit relative to the amount of fuel sold, or to the amount of investment that has been made in the business.

B5 In this study we are concerned with long-term profits. By long-term, we mean over many years. Profits in the short-term can increase for many reasons which are not indicative of competition concerns. For example, short-term profits may signal the need to attract more resources to a market, reflect superior performance by a firm, measurement error, and/or windfall gains. By contrast, longer term profits if they are persistently greater than a normal level of return generally indicate a competition problem as competition is not eroding them.

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593 Commerce Commission "Market Study into the Retail Fuel Sector Working paper on assessing profitability" 18 April 2019.

B6 In this report the terms profits and returns are used interchangeably. No difference in meaning is intended by the choice between these terms.

Profitability assessment in subsequent market studies

B7 This report focuses on profitability in the New Zealand retail fuel market.

B8 Differences between markets may mean that alternative approaches are required to assess profitability in other markets we may study under Part 3A of the Act. For example, some techniques discussed in this attachment may not be appropriate for industries with low levels of fixed assets, such as some service-based industries.

B9 Further, the terms of reference may differ for subsequent market studies. While assessing profitability is a key part of this market study, the focus on (and extent of) any profitability assessment in subsequent studies may differ significantly.

Profitability analysis under other parts of the Act

B10 Profitability is relevant to other parts of the Commission's work, such as the sector-specific regulation we apply under Part 4 of the Act. However, the context for that work differs from our retail fuel study.

B11 For example, under Part 4 of the Act we can:

B11.1 use sector-specific regulation to, among other things, limit the ability of monopoly providers of services to extract excessive profits; and

B11.2 undertake inquiries to see whether regulation should be extended to cover additional services for which there is little or no competition, and little or no likelihood of a substantial increase in competition.

B12 In Part 4 inquiries we are required to assess whether there is scope to exercise substantial market power in relation to the goods or services, and whether the benefits of regulating the goods or services under Part 4 would materially exceed the costs of regulation.[594] The potential benefits of regulation include limiting suppliers' ability to extract excessive profits. Therefore, we may seek to quantify the extent of excessive profits as part of a cost-benefit analysis required in a Part 4 inquiry.

B13 In contrast, there is competition between multiple suppliers in retail fuel markets. Our study is focused on assessing whether there are factors which are affecting or hindering that competition. We are not required to undertake cost-benefit analysis, and we are not required to comprehensively quantify the level of excessive profits being earned in the retail fuel sector (if any).

Why we assess profitability in the retail fuel sector

B14 We consider the profitability of players involved in the retail fuel markets as:

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594 Section 52G and section 52H of the Act.

B14.1 the terms of reference allow us to look at features of the retail and diesel markets that are not in the long-term interest of consumers, and to consider whether the prices for retail fuel are consistent with those expected in workably competitive markets. We consider that those are matters that we should consider in this study;

B14.2 levels of profitability that are persistently above competitive levels may be an indicator that competition is ineffective in delivering competitively priced petrol and diesel to consumers; and

B14.3 assessing profitability may help identify the factors affecting competition and inform any recommendations we make.

B15 We discuss each of these reasons in turn below.

The long-term interest of consumers and prices in workably competitive markets

B16 The terms of reference for our study were issued by the Minister of Commerce and Consumer Affairs and are set out in Chapter 1. Among other things, the terms of reference allow us to consider whether:

B16.1 there are features of retail petrol and diesel markets that are not in the long-term interests of consumers; and

B16.2 the wholesale and retail prices of petrol and diesel are consistent with those expected in workably competitive markets.

B17 Excessive prices are not in the long-term interest of consumers as fuel for land transport is an essential purchase for many New Zealanders. It is also a significant cost in household budgets.[595]

B18 In a workably competitive market the prices for goods and services will tend towards efficient costs. In a workably competitive market no firm has significant market power and consequently prices are not too much or for too long significantly above costs.[596]

Persistent excess levels of profitability are an indicator that competition is ineffective

B19 In a competitive market, in the long run an efficient firm would expect to achieve profits that, after covering its costs, are sufficient to compensate the providers of debt and equity capital (ie, the cost of capital).

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595 As discussed in Chapter 2.

596 *Wellington International Airport Ltd and others v Commerce Commission* [2013] NZHC 3289 at [15]. The judgment notes "[w]hether workably competitive conditions exist is a judgement to be made in the light of all the information available, rather than something that can be ascertained by testing whether certain precise conditions are satisfied."

B20 When firms' profits are persistently in excess of a normal return, this may indicate that competition is not working effectively for the long-term benefit of consumers. When businesses face effective competition, suppliers have strong incentives to deliver goods and services which reflect consumers' demands at efficient costs. If firms can maintain high prices and persistently earn excess returns, this may indicate that competition is not effective.

B21 However, as we discuss more fully below, excess levels of profitability do not by themselves demonstrate that competition is not working effectively. This was reflected in the High Court's discussion of the nature of workable competition in the Wellington International Airport decision.[597]

> In our view, what matters is that workably competitive markets have a tendency towards generating certain outcomes. These outcomes include the earning by firms of normal rates of return, and the existence of prices that reflect such normal rates of return, after covering the firms' efficient costs.
>
> Of course, firms may earn higher than normal rates of return for extended periods. On the other hand, firms may earn rates of return less than they expected and less than commensurate with the risks faced by their owners when they made their investments. They may even make losses for extended periods. Prices in workably competitive markets may never exactly reflect efficient costs, including a normal rate of return.
>
> But the tendencies in workably competitive markets are towards such returns and prices.

Potential conclusions from, and limitations of, profitability analysis

B22 This section outlines:

B22.1 what conclusions we might draw from our profitability analysis; and

B22.2 limitations on our profitability analysis for the retail fuel markets.

What conclusions can be drawn from profitability analysis

B23 This section discusses the possible conclusions that could be drawn from our profitability assessment, noting:

B23.1 the approaches taken by other competition agencies;

B23.2 the possible reasons why profitability may be higher than normal; and

B23.3 that profitability analysis is only one indicator of the level of competition in a market.

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597 *Wellington International Airport & Others v Commerce Commission* [2013] NZHC 3289 at [18]-[20].

Approaches taken by other competition agencies

B24 Competition agencies can look at profitability to draw insights about the level of competition in a market. For example, the OECD's Roundtable on Market Studies Methodologies for Competition Agencies notes that profitability and cost pass-through analyses can be helpful tools to address consumer concerns by investigating:[598]

B24.1 potential tacit collusion or coordination (when conducted at the industry level);

B24.2 barriers to entry or exclusionary conduct (when conducted at the firm level); and

B24.3 fairness concerns associated with cross-subsidisation among consumers (when conducted at the product level).

B25 The UK Competition Commission's guidelines for market investigations state that:[599]

> Firms in a competitive market would generally earn no more than a 'normal' rate of profit—the minimum level of profits required to keep the factors of production in their current use in the long run, i.e. the rate of return on capital employed for a particular business activity would be equal to the opportunity cost of capital for that activity.

B26 In a recent market investigation, the UK Competition and Markets Authority considered that:[600]

> The purpose of conducting profitability analysis, therefore, is to understand whether the levels of profitability (and therefore prices) achieved by the firms in the reference markets are consistent with levels we might expect in a competitive market. If excess profits have been sustained over a relatively long time period, this could indicate limitations in the competitive process.

B27 The OECD Roundtable notes that excess profitability is not in and of itself proof of a competition problem.[601]

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598 OECD's Market Studies Methodologies for Competition Agencies "Executive Summary of the Roundtable on Methodologies for Conducting Market Studies" (Working Party No. 3 on Co-operation and Enforcement June 2017 Roundtable) at 4. Dr Helen Jenkins, makes the same point: Jenkins, "Analytical techniques for market studies" (20 June 2017) at 3.

599 Competition Commission "CC3: Guidelines for market investigations: their role, procedures, assessment and remedies" (April 2013) at [116], adopted by the UK Competition and Markets Authority.

600 Competition and Markets Authority "Energy Market Investigation, Approach to Financial and profitability analysis" (8 December 2014) at [8].

601 OECD's Market Studies Methodologies for Competition Agencies "Executive Summary of the Roundtable on Methodologies for Conducting Market Studies" (Working Party No. 3 on Co-operation and Enforcement June 2017 Roundtable) at [4].

Possible reasons why profitability may be higher than a normal level

B28 Higher than normal competitive levels of profit do not necessarily indicate there is a competition problem. Even where competition is effective, a supplier (or several suppliers) may earn profits above normal levels.

B28.1 The potential for excess returns is an incentive for firms to lower costs and to innovate.

B28.2 Excess returns are the reward to firms which can do this efficiently.

B28.3 The potential for excess returns is necessary to incentivise firms to undertake risky investments.

B28.4 Excess levels of profitability are also a signal for new entry or expansion.

B29 Markets with excess returns will attract entry or expansion, which will increase output and would be expected to lead to a subsequent fall in prices and profitability. If competition is working well, and/or if new players can enter the market, then excess profitability is likely to be temporary.

B30 However, where the excess levels of profitability are persistent, this suggests that current levels of competition and the threat of entry by others are not effective in maintaining sufficient rivalry between incumbent firms to push prices close to efficient costs. We would expect this to occur in workably competitive markets.

B31 Superior profits can also come from early mover advantages such as securing key retail sites, and the ownership and preferential access to key infrastructure. This may provide cost advantages and superior profits.

B31.1 We would not normally expect profits that are due to the natural scarcity of an input to be shared with consumers even in a competitive market.

B31.2 However, where cost advantages derive from exclusive access to infrastructure, which may generate efficiencies for incumbent firms, then unless potential rivals can also access the infrastructure, the cost advantage may generate market power and allow the incumbents who have exclusive access to earn excess returns.

B32 A firm may earn above competitive levels of returns but analysis of profitability by itself may not distinguish whether this is due to efficiencies, the exercise of market power, or a mix of both. As such, analysis focusing on the effectiveness of competition is also required.

B33 Therefore, in assessing profitability of the fuel industry we seek to:

B33.1 consider the broader context, including the factors which may be affecting competition in the market;

B33.2 not place too much weight on estimates of profitability over short time periods (as noted above, short-term profits can be above or below normal levels even when there is workable competition);

B33.3 consider forward-looking profitability. While backward-looking profitability may reflect sunk costs and historic cost advantages, forward-looking profitability should reflect the expected impact of current and expected competition; and

B33.4 consider the profitability of a range of firms. The profitability of one or two firms can be affected by factors which may be unique to them, so the focus is on profitability of a range of firms including the marginal supplier.

B34 Economics New Zealand submitted that we should focus on the marginal producer.[602]

> … as a very good text book says, when you have upward sloping supply curves, as in my view you often will, "the market price in equilibrium will normally be determined by the level of cost of the higher-cost producers - the 'marginal producers' - who will make only a 'normal' profit (the market price only just covers their costs) ... At the market price, the lower-cost suppliers will make a healthy margin above cost.

B35 To meet all of New Zealand's fuel requirements, already-refined fuel also needs to be imported. This generally has a higher cost than domestically refined fuel, for both the majors and Gull.[603] By sharing key supply chain infrastructure, the majors are likely to have cost advantages in buying and distributing fuel, particularly in respect of fuel that is obtained from the Marsden Point refinery and distributed via the RAP and COLL, but also in respect of imported fuel that enters the Borrow & Loan system.[604] Gull does not have access to the refinery and other shared infrastructure and the associated cost efficiencies and relies wholly on importing refined fuel to a single port.

B36 We agree it is important to examine the position of the marginal supplier. Gull seems likely to be the marginal supplier of fuel to the retail market and we therefore look closely at Gull's profitability. However, it is also important to distinguish the causes of higher marginal costs.

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602 Economics New Zealand Ltd "Feedback on 'Working paper on assessing profitability'" (7 May 2019) at 1. The text book referenced in the quote is: Gunnar Niels Helen Jenkins and James Kavanagh *"Economics for Competition Lawyers"* (2nd edition, Oxford University Press, 2016) at 10.

603 Hale and Twomey, "Independent Review of the Refining NZ Processing Agreement" (April 2017) at 3-9; and Hale and Twomey, "Independent Review of the Refining NZ Processing Agreement" (5 September 2014) at 15-23.

604 As discussed in Chapter 5.

Profitability analysis is only one indicator of the level of competition

B37 Profitability analysis is simply one indicator to assist us in determining whether there are factors affecting competition to the long-term detriment of consumers. That is, an assessment of profits needs to be done in combination with an analysis of the conditions for competition, and the specific factors which may be affecting competition.

B38 Similarly, evidence that the level of profitability is around normal or competitive levels does not necessarily mean that there are no factors adversely affecting competition in the market. For example:

B38.1 weak or ineffective competition could still cause adverse outcomes to consumers including cost inefficiency, or a lack of innovation; and

B38.2 firms may be expending resources to build or retain market power, to the detriment of short-term profit.

B39 The following quote from Schmalensee summarises the considerations in using profitability analysis to assess the effectiveness of competition.[605]

> There are, however, three serious problems with using profitability to gauge market power. First, it is very difficult in practice to measure actual profitability, and it may be even more difficult to measure excess profits. There are no simple, generally valid techniques for obtaining accurate estimates of these quantities, though advances have been made in this area recently and continued progress is likely. Second, the absence of significant excess profit does not establish the absence of significant market power. The costs of obtaining or keeping such power, as well as waste caused by managers not subject to competitive pressures, reduce observed profits, but represent real social costs of market power. Finally, substantial excess profits can arise in the short run even in perfectly competitive markets. Such profits provide essential signals to guide the flow of investment funds in market economies.
>
> Even if all measurement problems are solved, therefore, profitability is an unreliable measure of short run market power. Nevertheless, *persistent* excess profits provide a good indication of long run power; they show clearly that there is some impediment to effective imitation of the firm in question.

B40 In summary, we consider that our assessment of the profitability of participants in New Zealand retail fuel markets is likely to be more suggestive that competition is not working effectively if one or more of the following conditions is observed. The conclusions from our analysis are likely to be stronger as more of these conditions are observed.

B40.1 The profitability being achieved or anticipated is materially above normal rates of return (estimates of the cost of capital).

605 R Schmalensee “Another Look at Market Power” [1982] Harvard Law Review 1805-1806.

B40.2 The returns expected or earned on additional investment, by a new entrant or an existing player expanding, clearly exceed the cost of capital.

B40.3 The evidence points to a sustained pattern or trend, and a persistence of results. For example, across products or markets, across firms, over time.

B40.4 The conclusions are consistent across different analytical approaches and techniques (that is, the results are not a function of one particular analytical approach or the use of one dataset).

B40.5 Analysis of the conditions for competition, and of the factors which may be affecting competition, identifies impediments to effective competition.

What are the limitations on the profitability analysis in the retail fuel sector

B41 Several considerations are likely to impact on the reliability of any assessment of profitability in the New Zealand retail fuel sector. These include:

B41.1 techniques for assessing profitability are imperfect;

B41.2 some companies are subsidiaries of international conglomerates; and

B41.3 data held by companies does not match specific requirements of the terms of reference, or the data may not exist.

Techniques for assessing profitability are imperfect

B42 The techniques for assessing profitability have various strengths and weaknesses.

B43 Our approach is to use a variety of techniques. If the results are consistent across a variety of approaches or techniques, this gives us confidence that the results are not due to vagaries of an individual technique.

Some companies are subsidiaries of international conglomerates

B44 Several New Zealand fuel firms are subsidiaries of larger international energy groups.

B45 This may limit the operational autonomy of these businesses, and their financial results may not reflect the financial performance of the New Zealand business on a stand-alone basis. For example, key decisions may be made to maximise returns globally, regardless of how they affect the returns achieved and reported in New Zealand.

B46 Gull, BP and Mobil are all subsidiaries of international companies.
[ ][606]

[606] [ ]

Data held by companies does not always separate retail fuel from other activities

B47 Many fuel companies undertake a range of activities, in various markets, that are broader than the scope of our study, the New Zealand retail fuel sector. For example, these activities may include:

B47.1 selling jet fuel, fuel oil, bitumen and other products derived from refining crude;

B47.2 selling petrol and diesel to commercial customers; and

B47.3 selling non-fuel products through service stations.

B48 Fuel companies' information and reporting systems are focused on this broader range of activities and markets. Therefore, these systems may be incapable of generating all the information needed to support a robust analysis focused solely on retail fuel markets.

B49 In particular, while information on revenues and gross margins from the various activities are often available for the various activities, many businesses do not fully break down all the information relating to the performance of each activity. For example, the amount of capital required to fund the retail activity is frequently not reported separately from the capital required to, for example, operate the convenience store or the carwash.

B50 Further, fuel retailing shares many common costs and assets with other activities, which gives rise to cost and asset allocation issues.

B50.1 Z Energy submitted that many of its costs are at head office and are not necessarily attributed to retail, and that analysis which excludes, or attempts to allocate these costs, will be complex and likely inaccurate.[607]

B50.2 BP submitted that the accounting treatments of shared costs may not reflect economic principles and we should be cautious in relying on the existing accounting treatments.[608]

B50.3 Many sites, predominantly serving commercial customers can serve retail customers too. Some parties commented on how attracting a small proportion of retail consumer volumes to a new fuel stop could improve the profitability of new sites.[609]

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607 Z Energy "Comments on 18 April Working Papers" (7 May 2019) fn 3.

608 BP New Zealand "Feedback on Working Paper – Assessing Profitability" (14 May 2019) at [6.9].

609 [ ]; [ ]; and [ ]

B51 We considered applying an approach like that adopted in respect of services regulated under Part 4 of the Act to this study. This approach involves:

B51.1 defining the services which are included in the analysis;

B51.2 specifying detailed methodologies to ensure appropriate and standardised valuation of assets, and prescribed methodologies for allocating shared and common costs and assets; and

B51.3 specifying detailed rules for reporting performance information including revenues, capex and expenses (and breakdowns of these items, as they relate to the scope of the defined services).

B52 This Part 4-style approach would be attractive if it could produce relevant and valuable information, precisely targeting the retail fuel markets, which is comparable across suppliers. However, in the context of this study and the available timeframes, and to avoid imposing substantial costs on stakeholders in responding to requests for information that a Part 4-style approach would necessitate, we have instead adopted a pragmatic approach, analysing the information that is more readily available and tailoring our analysis accordingly. This approach also recognises that there are quality, innovation and product differences in the market, and that there are cost implications arising from this.[610]

B53 Developing and implementing detailed rules to reliably and consistently allocate shared costs as between retail fuel and other activities is complex and demanding, and beyond the scope of this study.

Why a broader focus on profitability is appropriate

B54 We do not consider the fact that some of our analysis uses information that relates to a broader range of activities than just retailing fuel is a significant limitation on this analysis. There are several reasons.

B54.1 We use a range of approaches to assess profitability, some of which focus narrowly on the retail fuel market.

B54.2 The profitability analysis is not definitive of whether or not competition is working effectively, and we undertake a separate analysis of the factors specifically affecting the retail fuel market elsewhere in this report.

B54.3 The fuel margin is a significant part of the profits for many participants and proportionally greater than other activities. For example, the gross margin on fuel sales represents around 80% of Z Energy's total gross margin.[611] We acknowledge this includes margins on sales of fuel to commercial

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610 Z Energy "Comments on 18 April Working Papers" (7 May 2019) at [24]-[26].

611 Z's fuels margin was 81% of total margin in 2013. See: Z Energy "Investment Statement and Prospectus: Initial Public Offer of Ordinary Shares in Z Energy Limited" (25 July 2013) at 133. It was 83% in 2019. See: Z Energy "2019 Results Presentation For the year ended 31 March 2019" (2 May 2019) at 25.

accounts as well as retail sales. Our analysis of profitability focuses on those companies with a large retail fuel business. We are not directly concerned with the profitability of the refinery or COLL.

B54.4 The terms of reference allow us to consider “the extent of competition at the refinery, wholesale and retail levels, including the role of imports” and the buyers of fuel eventually sell that to a mix of buyers both commercial and retail. The MTA submitted that we need to look into profitability at the wholesale level, and not just the retail level, given the vertical integration of some firms.[612] Vertically integrated firms may have different cost structures or be able to account for profits at different levels of the supply chain.

B54.5 Understanding profitability relative to the cost a new entrant would incur is a key focus of our assessment of profitability and the conditions for entry are explicitly identified in the terms of reference as a matter we may consider.[613] A new entrant could offer other services beyond just selling fuel to retail customers (indeed they are likely to). So, looking at the profitability of the broader range of activities may more closely match the profile of a new entrant than a narrow focus on just the retailing of fuel. This is true also for the attractiveness of expansion by an existing firm.

B54.6 The Minister’s terms of reference focus on the retail fuel market but allow us to consider any factors that may affect competition in the retail fuel market. If the inclusion of measures of retail profitability which capture a broader range of activities, show levels of profitability consistent with ineffective competition on that broader range of activities, this may suggest the retail competition issues are more wide-ranging than just concerning fuel. Since non-fuel products sold at petrol stations face more competition than fuel (for example, there are many vendors of snacks and coffee) then the use of measures of profitability which include these other activities, seems more likely to understate the profitability of the retail fuel activity than to overstate it.

B54.7 Similarly, the use of profitability measures which also capture profits made selling fuel to commercial customers seem more likely to understate retail profitability than overstate it, since commercial buyers of fuel have greater bargaining power than retail buyers and are better placed to negotiate the prices they pay for fuel.[614]

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612 MTA “Comments on Working Papers” (7 May 2019) at 2.

613 One of the matters we may consider is: “the conditions for entry by potential competitors, including independent suppliers, and/or the conditions for expansion.” The full terms of reference for this study is set out in Chapter 1.

614 See Chapter 6.

B55 If parties consider there is evidence that firm-wide profitability measures are materially overstating the profitability of retailing fuel, we would welcome comments supported by evidence of that.

There are three key steps in our assessment of profitability

B56 We have broken our work on assessing profitability into three areas.

B56.1 We estimate a normal level of return.

B56.2 We assess the profitability of firms in the New Zealand retail fuel sector.

B56.3 If profits appear to exceed a normal level, we consider whether they have done so persistently.

B57 Each of these areas is discussed in turn below and in separate attachments to this report. We invite comment and further evidence on each area.

We use an estimate of the cost of capital to indicate a normal level of return

B58 A normal level of return allows a firm to cover all its costs, including the cost of capital, over time. We define a normal level of return to be the cost of capital. The cost of capital reflects the returns investors require given the other investment options available to them.

B59 Our approach to estimating the cost of capital in this study is set out in Attachment C.

How we assess profitability

We use a variety of approaches to estimate profitability

B60 We have used a variety of approaches to estimate the profitability of New Zealand fuel companies. We do so:

B60.1 to ensure the results are not attributable to any idiosyncrasies of one particular analytical approach;

B60.2 to best use the information that is available to us; and

B60.3 to try and build a view of profitability over time.

The approaches we have used to assess profitability

B61 The approaches we have used to assess profitability are summarised in Table B1 below. This table distinguishes between backward and forward-looking approaches to assessing profitability. Detailed information on each of the approaches is set out in Attachment D.

Table B1 Our approaches to assessing profitability

Forward-looking approaches
• Firm's own commentary on the level of industry profitability and the implications from this (for example, the likelihood of entry by new firms) • The returns firms expect from new investment in retail fuel (including hurdle rates for new investment) • Tobin's q (the ratio of the implied market value of the fuel business to the current cost of replacing its assets)

Backward-looking approaches
• Gross margins including importer margins and the fuel margins reported by Z Energy • Return on capital employed (ROCE) achieved by fuel firms • A range of other measures we considered (including net profit per litre and the lifetime internal rate of return (IRR) for Gull and Z Energy)

Backward and forward-looking assessments of profitability

B62 Some of the approaches we use are backward-looking, others are forward-looking.

B62.1 Backward-looking assessments look at actual profits previously achieved, for example the returns on capital employed firms have earned over a number of years. Backward-looking approaches are important when looking at industries with high sunk cost infrastructure (which may reduce the prospect of entry).

B62.2 Forward-looking assessments focus on expectations of future profits.

B63 Forward-looking information including the expected returns on new investment provides insights into the likelihood of entry and expansion.

B63.1 Excess levels of profitability are a signal for players to enter the market or to expand their output.

B63.2 Forward-looking assessments reflect parties' expectations of profitability levels after the impact of any actual or expected entry, or other changes in the factors affecting competition.

B64 Actual results can also be affected by one-off events unrelated to underlying competition (for example, material one-off costs or gains). So, trends in backward-looking indicators over a number of years can be more insightful than the level of profit in a single period (for example, one year).

The use of historic and replacement cost information

B65 Many profitability measures of return on capital rely on accounting information. Accounting information is frequently based on the historic cost of a firm's fixed assets. However, new entrants face current costs for the assets they need to buy. In this section we analyse the relevance for competition studies of historic cost assessments of profitability and replacement cost measures. Our current view is that neither method should be excluded, and that careful analysis and interpretation are required.

B66 In using profitability analysis in this study to inform an assessment of competition of the retail fuel market, we are particularly interested in the returns on capital that might be earned on new investment, either by a new entrant or by an existing player expanding. Such entry or expansion would be expected to increase output and result in prices and profits tending towards normal levels, if competition is working effectively.

B67 Measures of profitability which use the current (replacement) cost of buying the assets needed to compete have the advantage of focusing directly on the economics of new entry. If a firm or firms can earn above competitive levels of profitability having regard to the current costs of assets, that can suggest that competition is not working as effectively as it could because, in a competitive market, new entrants would have an incentive to enter the market and increase output, which would lower prices. This is why we look at barriers to entry in Chapter 4.

B68 Measures of profitability which use historic cost information (for example, on the cost of assets) can provide information about past profitability. These measures compare the profit the firm has made on the amount of capital originally invested in the firm by equity and debt holders. They therefore provide a useful view on the actual profitability of firms over periods of time.

Return on capital employed can use historic or replacement costs

B69 Return on capital employed (ROCE) is a commonly used profitability measure. It is typically defined as operating earnings divided by capital employed.

B70 Estimates of ROCE typically use historic cost information to determine the value of capital employed. As such, ROCE can be used to track a firm's actual profitability over time on the amount of capital employed in the firm. A number of fuel firms use ROCE in this way.

B71 Alternatively, estimates of replacement cost can be used to determine the value of capital employed. ROCE can then be used to provide some insight on the sort of returns that might be made given the current cost of buying assets. This may provide some insight on the economics of investment for a new entrant although we recognise that there are a variety of ways a new entrant could choose to enter, including by buying used assets (where possible).

B72 In the fuel sector, the key assets include:

B72.1 inventory (that is, petroleum products); and

B72.2 fixed assets (including terminals, pipelines, stations, tanks, pumps, and signs).

B73 In the case of inventory, the choice of historic or replacement cost estimates gives rise to timing adjustments (inventory gains or loses value according to post-purchase changes in commodity prices). Such gains and losses can reverse and can be expected to balance out over time.

B74 Appropriately valuing fixed assets is a more significant issue for assessing profitability in the fuel sector. In this context, the use of historic cost valuations for long-lived fixed assets could lead to several challenges, as set out below.

B74.1 Use of historic valuations may understate the economic value to the owner of these assets given the benefit the owner will receive from using those assets.

B74.2 Historic cost valuations are likely to understate the investment required by a player seeking to expand or enter the fuel market.

B74.3 Differences between replacement cost and historic valuations for fixed assets are not timing adjustments which could be expected to net out over time.

B75 BP submitted that we should only use estimates of ROCE based on replacement cost.[615]

> … when replacement cost increases over time, as it can be expected to, estimates of ROCE using historic cost will overstate ROCE using replacement cost, and the overstatement could be significant. Given this, BPNZ submits that there is no merit in the Commission basing a ROCE analysis on historic cost measures of capital employed with adjustments for replacement cost only as an extension: the base measures of ROCE that would be generated would be of little information value given the potential variance of those measures from ROCE measures based on replacement cost. If the Commission is to pursue a ROCE analysis it should do so with an ambition of basing it comprehensively on replacement cost.

615 BP New Zealand "Feedback on Working paper – Assessing profitability" (14 May 2019) at [4.3].

Valuation gains are part of the return from holding an asset

B76 In support of its point that estimates of ROCE using historic cost will overstate ROCE using replacement cost, BP offers a stylised example in Table 1 of its submission.[616] We reproduce that Table as Panel 1 of Table B2 below. BP's example assumes regular increases in the replacement cost of the firm's assets. However, the example does not treat revaluation gains as part of the returns made by the firm. That is, the gain the firm has made from holding assets during a period when the value of the assets has increased. By holding the asset during a period when replacement costs were rising:

B76.1 the firm has avoided having to make a larger investment to buy the asset at the end of the period; and

B76.2 alternatively, the firm can sell the asset at the end of the period for a higher value than the assets were acquired at the start.

B77 In panel 2 of Table B2 below, we amend BP's stylised example to treat as income both the cash returns, and the increments in replacement costs, assumed by BP. The average ROCE on replacement costs shows an average return of 14.3%, which is higher than the ROCE on historic cost. This is intuitive, given the firm has enjoyed a significant capital gain over the period and this was not included in BP's original analysis.

Table B2 Stylised comparison of ROCE using historic vs replacement cost measures of capital employed

		Year										
		1	2	3	4	5	6	7	8	9	10	Average
Panel 1: Stylised comparison of ROCE using historic vs replacement cost measures of capital employed (BP submission)												
Cash Flows ($000's)		$2	$4	$6	$8	$10	$13	$15	$20	$25	$25	
Historic Cost (HC, $000's)		$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	
ROCE (HC)		2%	4%	6%	8%	10%	13.0%	15.0%	20.0%	25.0%	25.0%	12.8%
Replacement Cost (RC, $000's)		$110	$120	$130	$140	$150	$160	$170	$180	$190	$200	
ROCE (RC)		2%	3%	5%	6%	7%	8%	9%	11%	13%	13%	7.6%
Panel 2: Amended to reflect total returns including valuation gains												
Cash return ($000's)		$2	$4	$6	$8	$10	$13	$15	$20	$25	$25	
Historic cost (opening)		$100										
Replacement Cost ($000's)		$110	$120	$130	$140	$150	$160	$170	$180	$190	$200	
Valuation gain ($000's)		$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	
Total return ($000's)		$12	$14	$16	$18	$20	$23	$25	$30	$35	$35	
ROCE (RC)		10.9%	11.7%	12.3%	12.9%	13.3%	14.4%	14.7%	16.7%	18.4%	17.5%	14.3%
Panel 3: Comparison to Internal Rate of Return												
Cash flows and opening and closing values	-100	$2	$4	$6	$8	$10	$13	$15	$20	$25	$225	
Internal rate of return												14.8%

Source: Commerce Commission Analysis of BP stylised example

616 BP New Zealand "Feedback on Working paper – Assessing profitability" (14 May 2019) at 5.

B78 Finally, in panel 3 we calculate the IRR using the cash flows from BP's example and including the historic cost as the cash outlay to acquire the asset, and the closing value (established using replacement cost). The IRR is 14.8%, which is close to the ROCE on replacement cost (including revaluation gains).

B79 When asset values are rising (whether measured by replacement cost, market value, or some other methodology), asset owners benefit from capital gains as well as the cash flows produced by the assets. Any assessment of a company's profitability should include the operating results as well as capital gains.[617] Asset values can fall over time too, and this should also be reflected in the analysis of returns.

Other practical issues

B80 In this section we comment on a range of issues identified by firms on our proposed use of profitability analysis in this study. This includes:

B80.1 measurement issues; and

B80.2 differences in business models.

Measurement issues

B81 BP submitted that analysis of ROCE "will not be capable of supporting meaningful conclusions in relation to reasonableness of prices or margins". BP argued that this is due to measurement issues, including valuing intangible assets, estimating replacement costs, allocating shared costs, and the distortions from accounting conventions and practices, and the need to assess all or most suppliers in a market.[618]

B82 Contrary to BP, we consider that ROCE analysis can provide useful information although it needs careful interpretation as part of a wider set of profitability indicators. We note the following specific points.

B82.1 The term intangible asset covers a range of assets and care needs to be taken to ensure these are treated appropriately in any analysis. We discuss this further in Attachment D in respect of the various approaches we use to assess profitability.

B82.2 As discussed above paragraph B71, estimates of replacement costs provide insight on the economics of new entry, and in Attachment D we discuss the existing estimates of replacement cost that are available to us, and how we use this information.

617 For further discussion, see: Commerce Commission "Input Methodologies (Airport Services) Reasons Paper" (22 December 2010) at [2.8.13]-[2.8.17].

618 BP "Market Study in the retail fuel sector – BP New Zealand Comment on Preliminary Issues" (21 February 2019) at 4-5.

B82.3 As noted above paragraphs B47-B53, we do not seek to allocate shared and common costs where firms have not previously done so consistently. Instead we propose to rely on existing information, including how those costs were treated, and look at a wide range of measures of profitability.

B82.4 There may be distortions in the accounting treatments, but this will be offset in part by using a range of different techniques and approaches.

B82.5 We also examine the profitability of a range of firms involved in the retail fuel market.

Differences in business models

B83 Mobil submitted that comparison of ROCE across companies is challenging given different business structures which are competing at different levels of the market.[619]

B84 On this point, we note that the primary purpose of assessing profitability in this context is to assist in drawing conclusions about the effectiveness of competition in the market, not to examine differences in profitability between different business models. We are interested in returns on investment over time across a range of players and business models.

Should we include analysis of returns prior to 2010?

B85 In its submission on the working paper on profitability BP submitted that our profitability assessment needs to consider the period of low returns before 2010.[620]

> It is important to recognise the 20-year period over which this cycle has played out and the low margins that were experienced in the 2000s, which any retail fuel business must factor into its investment decisions. In light of this, BPNZ submits that any assessment of the profitability of retail fuel businesses in NZ would be incomplete and unsuitable as a basis for conclusions regarding the effectiveness of competition in the industry if it failed to take into account the full cycle including the period of low returns. In short, to do so would be to overstate the profitability of NZ fuel retailers. …
>
> BPNZ recognises that data limitations may preclude analysis of returns prior to 2010 and that the Commission may elect to proceed with the available data and estimate returns from 2010 onwards. BPNZ submits that the interpretation of those returns should not include any conclusions regarding excess profitability or 'persistent' high or above normal returns, precisely because this period captures just one part of the cycle and investment lives are much longer. The Commission should always bear in mind the length and depth of below-normal returns that retailers sustained in the 2000's.

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619 Mobil Oil New Zealand Limited "Submission to the Commerce Commission New Zealand in response to the Statement of Preliminary Issues for the Market Study into the Retail Fuel Sector" (21 February 2019) at 6. Similarly, Z Energy highlighted the difficulty in comparing businesses of fundamentally different scale and/or structure. See, Z Energy "Market Study into the Retail Fuel Sector: Z Energy's Response to Invitation to Comment on Preliminary Issues" (21 February 2019) at [49].

620 BP New Zealand "Feedback on Working paper – Assessing profitability" (14 May 2019) at [2.7] and [2.9].

B86 We agree that we should have some regard to the returns in the periods before 2010 when assessing profitability and whether the levels of profits currently being earned are consistent with workably competitive markets and/or for the long-term benefit of consumers.

B86.1 We are of course interested in the modern history of the industry including in the pre-deregulation period when the Government played an active role in supporting development of the retail fuels industry.

B86.2 We acknowledge too that sometimes when a company invests in infrastructure, it must do so in large discrete "lumps". In the early days the infrastructure may have significant excess capacity, and the returns earned (depending on how they are measured) may seem low. In later years as demand grows, the profits (again depending on how they are measured) may seem relatively high. Over the life of the asset, returns may be normal. Measuring the profits only in the later years could give a misleading impression of excessive profitability.[621]

B86.3 However, we do not understand that the lower profits across the fuel industry before 2010 were the result of low initial utilisation of a lumpy investment. Instead, parties submit that investment during this decade was low and there was underinvestment and exit.[622]

B86.4 We note too that the lower returns in the 2000s followed periods before and immediately after deregulation when returns in the industry appear to have been higher.[623]

B86.5 Within the constraints of the data available to us in this study, we look at a variety of approaches to assessing profitability some of which include analysis of the returns during the 2000s (for example, the analysis of returns on capital employed, see Attachment D from paragraph [D138]) while other approaches look at expected future returns. Further, we look

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621 A recent example of the difficulties this investment cycle creates is Christchurch Airport's investment in its new terminal. We took care to ensuring that we measured profitability appropriately given the initial low utilisation of the terminal. Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Christchurch Airport" (13 February 2014) at X5-X6, and Attachment E.

622 BP "Market study into the retail fuel sector – BP New Zealand comment on preliminary issues" (21 February 2019) at 1-2. Z Energy "Market Study into the Retail Fuel Sector: Z Energy's Response to Invitation to Comment on Preliminary Issues" (21 February 2019) at [20]. Z Energy "The downstream fuels industry: Strongly competitive or operating with uncertainty?" (8 March 2012) at 2.

623 Michael Pickford and Cameron Wheeler "The petrol industry: Deregulation, entry and competition" (2001) *NZ Trade Consortium Working Paper No. 12* at 60-65. Max Bradford, Minister of Energy and Commerce, "Opening of Gull (Terminals NZ Ltd) Petroleum Tank Farm" (20 April 1999). Available at <https://www.beehive.govt.nz/speech/opening-gull-terminals-nz-ltd-petroleum-tank-farm>. (Viewed on 16 August 2019).

at the level of profitability across a number of firms. The results of this analysis are reported in Attachment D.

B86.6 Ultimately, we are tasked with assessing the factors currently affecting competition in the retail fuel market and the level of profits in previous decades does not directly inform that assessment.

B87 We understand that BP's particular concern was around ROCE, which we agree is not a good indicator of profitability over short time periods. We rely on a broad range of indicators of the level of profitability. Further discussion of ROCE, and these other measures is set out in Attachment D.

When are excess returns persistent?

B88 If we find that returns are above normal competitive levels, the third and final step in our assessment of profitability is to consider whether they have persisted over time.

B89 In considering whether the excess returns are persistent we propose to look at factors such as:

B89.1 the extent to which the returns exceed a normal return (that is, the significance of the excess returns);

B89.2 the period of time over which excess returns are earned; and

B89.3 any reliable forward-looking information which indicates that high returns can, or cannot, be expected to continue.

B90 We discuss the persistence of returns in more detail in Attachment E. Our analysis of the factors affecting competition in Chapters 4, 5, and 6 is also relevant to the persistence of excess returns. Absent these factors, we expect that excess returns would reduce over time.

Over what period should we assess the persistence of excess profitability?

B91 In its submission on the working paper on profitability BP submitted that the persistence of profitability needs to be assessed over a timeframe that reflects business cycles and the lives of investments.[624]

> When business cycles and investment lives are long, annual returns above normal levels that continue for five or even ten years may not be 'persistent' in the sense of implying excess profitability or ineffective competition.

[624] BP New Zealand "Feedback on Working paper – Assessing profitability" Tuesday, 14 May 2019 at [1.3]. Z Energy made a similar point in its February submission. See: Z Energy "Market Study into the Retail Fuel Sector: Z Energy's Response to Invitation to Comment on Preliminary Issues" (21 February 2019) at [49].

B92 For the same reasons as outlined above, we do not agree that our assessment of the persistence of excess profitability needs to be assessed over a timeframe that reflects the business cycle and the lives of investments.

B93 There can be value in looking at profitability over much shorter time horizons as part of a broader and well-balanced competition study.

B93.1 As discussed in Attachment D, many fuel companies expect, and are achieving, rapid paybacks on their investment in new and/or redeveloped sites. These payback periods are materially shorter than the physical lives of the investments and we expect they are also shorter than whatever specific definition of business cycles BP may propose.

B93.2 In a competitive market, investments offering greater than normal rates of return and rapid paybacks would attract new entry, regardless of what point had been reached in the business cycle.

B94 In relation to BP's submission that a time period of five or even ten years may be too short to reliably assess the persistence of profitability, we have considered a variety of approaches, and which pertain to a long period of time, in assessing profitability. We use both backward and forward-looking approaches. Collectively, these approaches cover a period greater than 10 years. These approaches and their findings are summarised in Attachment E.

Attachment C Estimating the level of normal returns in the fuel sector

Introduction to this attachment

C1 This attachment explains how we have estimated a normal rate of return for firms in the New Zealand retail fuel sector. We use our estimate of a normal return as a benchmark to compare against the actual and the expected level of returns being made by New Zealand fuel firms. We define a normal level of return to equal the weighted average cost of capital (WACC).

C2 This attachment should be read in conjunction with the following attachments.

C2.1 Attachment B which explains our approach to assessing profitability and discusses the sort of conclusions from, and limitation of, profitability assessments generally.

C2.2 Attachment D which discusses the analysis of profitability and our draft conclusions on the level of profitability being earned in the fuel industry.

C2.3 Attachment E which summarises our analysis of profitability to date and considers whether levels of excess profitability are persistent or temporary.

The cost of capital is an estimate of a normal rate of return

C3 A normal level of profitability allows a firm to cover all its costs, including the cost of capital, over time. The cost of capital is the rate of return investors require to invest. It reflects the returns and risks available from the activity at issue and other investments.

C4 If expected levels of profitability are greater than the cost of capital, investment will be attracted to the industry as the returns are greater than the returns which are available elsewhere to the investor. Conversely, if prospective returns are less than the cost of capital then firms may reduce their activities or exit so they can invest in other opportunities. This is how competitive markets allocate resources to their highest value use.

C5 In competitive markets, the expected rate of return will over time tend towards a normal level of profitability, that is towards the cost of capital. However, it will not necessarily equal the cost of capital. At some points, the rate of return may be above the cost of capital, and other times below it, but it will tend towards the cost of capital over time. If rates of return in a market are persistently above the cost of capital this would suggest that competition is not working as it should.

What is the cost of capital

C6 Firms raise the capital they need from two main sources: debt and equity. Both have a cost. For debt, it is the future interest payments. For equity, it is the expectation of dividend payments by the firm, and where profits are retained and reinvested, the expectation of larger dividend payments by the firm at some time in the future. The weighted average cost of capital reflects the cost of debt and the cost of equity, and the respective portion of each that is used to fund the investment.

C7 The cost of capital cannot be observed, and accordingly it needs to be estimated. For this study we have:

C7.1 estimated the cost of debt by reference to the yield on Z Energy's publicly traded bonds;

C7.2 estimated the cost of equity for a participant in the retail fuel sector using our standard methodology for estimating the cost of equity;

C7.3 combined the cost of debt and equity to give an estimate of the WACC; and

C7.4 compared this estimate of WACC against other available estimates of the cost of capital for this sector to test for reasonableness and long-term estimates of average market return.

C8 Our approach to estimating the cost of capital has been developed since 2001 and has been formalised through our cost of capital input methodologies. The cost of capital input methodologies have been consulted on heavily, with many parties over many years. They have been reviewed and accepted by the High Court.[625] Our methodology for estimating the cost of capital has been applied to many sectors, including electricity lines businesses, gas pipelines, specified airport services and certain telecommunication services.[626] We consider that our standard methodology for estimating the cost of capital is appropriate for the current study.

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625 *Wellington International Airport & Others v Commerce Commission* [2013] NZHC 3289 [11 December 2013], Part 6.

626 See, for example: Commerce Commission, "Electricity Distribution Services Input Methodologies Determination 2012". Available at <https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-January-2019-31-January-2019.pdf>. The cost of capital input methodology was last reviewed during 2015-2016. For further details see: <https://comcom.govt.nz/regulated-industries/input-methodologies/projects/201516-im-review>.

C9 Z Energy submits that the different businesses in the fuel sector (ranging from multi-nationals to regional private firms to family-owned single site participants) have significantly different risk profiles and cannot be easily compared against one WACC range.[627] While there are a range of participants:

C9.1 we are focused on the risk faced, and returns expected, by diversified investors in fuel businesses;

C9.2 for such investors it is systematic risk which is relevant (the risk which affects all investments – rather than stock specific factors including those due to some firms' small size);[628] and

C9.3 consumers buying from a competitive market would not pay higher prices because a firm selling the products has high financing costs due to its inefficient financing.[629]

C10 Our methodology reflects this – it does not provide additional returns to cover the risks faced by undiversified investors since diversification is costless to most investors. We agree we should test our estimates of WACC against other evidence.[630]

There are seven key parameters required to estimate WACC

C11 The values for seven parameters are required to estimate the cost of capital. These are the risk-free rate, the debt premium, asset beta, tax-adjusted market risk premium, investor and corporate tax rates, and leverage. Each parameter is covered in turn. Combining these produces an estimate of WACC, which we compare against estimates from other sources, such as those from research analysts, to ensure it is commercially realistic.

Risk-free rate

C12 A risk-free rate is the rate of return expected when there is no risk of default. Debt issued by the New Zealand Government and denominated in New Zealand dollars is considered to be free of default risk. The return on New Zealand Government issued debt can generally be readily observed from the trading on the debt market.

C13 Generally, the rate of return varies with the term of the investment. In regulatory contexts we choose a term of the risk-free rate that matches the length of the regulatory period. In the context of a market study there is no regulatory term, so we choose a term of 10 years, consistent with common commercial practice.

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627 Z Energy "Comments on 18 April Working Papers" (7 May 2019) at [16].

628 See paragraph C26 below.

629 Commerce Commission, Input Methodologies (Electricity distribution and gas pipeline services) Reasons Paper (December 2010) at [6.2.5].

630 Z Energy "Comments on 18 April Working Papers" (7 May 2019) at [14.2].

C14 The risk-free rate is volatile and has declined materially in recent years.

C15 In this market study we are using our estimate of WACC in various contexts, including assessing the returns on new investment and assessing firm profitability over longer time frames.

C15.1 Spot risk-free rates are useful when evaluating new investments, since spot rates reflect the cost of funds at the time the investment is being made.

C15.2 Spot rates are less useful when assessing the profitability of a firm over longer time periods since the spot rate at one point in time is unlikely to be reflective of the risk-free rate throughout the period (and investments will have been made throughout the period).

C15.3 When assessing the profitability of an unregulated firm over time, an average risk-free rate is appropriate.

C16 Given these considerations, we propose using a range of estimates of the risk-free rate reflecting:

C16.1 the average New Zealand 10-year risk-free rate estimated during the years from 2014-2019, which is the period during which much of our profitability assessment is focused. This averaged 3.1% pa; and

C16.2 an estimate of a New Zealand 10-year term risk-free rate over a longer period of time. We assume a rate of 4.5% (which is the average value of the risk-free rate assumed by the equity research analysts who cover Z Energy – see Table C1 below). The analysts' reports do not define the period to which this estimate relates.

Debt premium

C17 Companies fund part of their activities with money borrowed from others. When companies raise debt, they pay a higher rate of interest than the Government (ie, the risk-free rate), to reflect the corporate's relatively greater risk of default. This higher rate of return on corporate debt is called the debt premium.

C18 Using our standard methodology, we estimate the debt premium by looking at the yield to maturity on publicly traded bonds in New Zealand relative to the yield to maturity on government bonds. While corporates can raise money using a wide range of debt instruments, we use publicly traded bonds to estimate the debt premium, as information on the cost of these is publicly available. The current debt premium on other debt facilities is generally not publicly known.

C19 Z Energy has a number of publicly traded bonds and we used the estimated yields on those bonds to estimate the debt premium to include in our estimate of WACC.

C20 The debt premium can also vary between companies depending on their credit standing. Some participants in the New Zealand fuel sector may have a lower debt premium than Z Energy (because, for example, they are wholly owned subsidiaries of a parent with a higher credit rating than Z Energy), others may have a higher debt premium (due to their lower credit standing). We consider the debt premium on Z Energy bonds is a good benchmark for the debt premium for an efficient participant in the New Zealand retail fuel market since Z Energy:

C20.1 is a significant player in the New Zealand fuel sector; and

C20.2 has concentrated its activities in the fuel sector.

C21 Smaller companies, and companies with weaker credit standings, may incur a higher debt premium than Z Energy.

C21.1 However, as discussed in the input methodologies reasons paper, our focus would be on what returns investors would seek from an efficient firm.[631]

C21.2 The observed debt premium on Z Energy's bonds is higher than the observed debt premium on bonds with a Standard and Poor's long-term credit rating of BBB+ (implying Z Energy has a credit rating of less than BBB+).

C21.3 The long-term credit ratings of two large, listed Australian fuel companies are BBB- and BBB+.[632] Z Energy's observed debt premium appears to be a reasonable proxy for the debt premium for fuel firms.

C22 We estimated the average daily debt premium on Z Energy's publicly traded bonds above the risk-free rate with the same remaining term to maturity[633] for the 6-monthly periods between 2014-19. That is, for a Z Energy bond with a remaining term of, say, six years, we:

C22.1 estimate its yield to maturity;

C22.2 estimate the risk-free rate on a Government Bond with an interpolated remaining term of six years;

C22.3 take the difference between those estimates as an estimate of the debt premium on Z Energy's bonds; and

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631 Commerce Commission, Input Methodologies (Electricity distribution and gas pipeline services) Reasons Paper (December 2010) at [6.2.2]-[6.2.7].

632 Caltex Australia has a Standard and Poor's long-term credit rating of BBB+, while Viva Energy has a Standard and Poor's long-term credit rating of BBB-, as at 24 July 2019. Available at <www.standardandpoors.com>.

633 Estimated by linear interpolation.

C22.4 repeat those calculations across the years 2014-2019.

C23 The resulting estimate of the debt premium on Z Energy's bond with the longest remaining term to maturity ranged between 165-217 basis points (ie, 1.65-2.17% pa, with a remaining term of close to 5 years) over this period. The average debt premium was 191 basis points. This is summarised in Table C1.

Table C1 Estimated debt premium on Z Energy bonds

	Remaining term to maturity on Z's longest maturity bond (years)	Debt premium on Z publicly traded bonds vs interpolated risk-free rate with same remaining term (basis points p.a.)	5yr BBB+ debt premium (EDBs) (basis points p.a.)
Average	**5.2**	**191**	**163**
Proposed range for debt premium		200-225 basis points	

Source: Commerce Commission analysis of Bloomberg data

C24 We also compared our estimate of the average debt premium on Z Energy's bond to our estimate for a BBB+ rated five-year corporate bond which we estimate from time to time in respect of regulation under Part 4. Z Energy's debt premium averaged 28 basis points higher than the average of our estimates of the premium on BBB+ rated five-year corporate bonds across this period.[634]

C25 Firms issue debt periodically to spread refinancing risk. Using an estimate of the debt premium which is averaged over time reflects this practice. For the purposes of this study, we assume a debt premium of 200-225 basis points over 10-year government bonds.

C25.1 At the low end of the range this reflects the approximate average premium estimated on Z Energy's traded bonds over the period 2014-2019.

C25.2 At the high end of the range it reflects an increment to reflect a likely greater debt premium on longer term debt.[635]

Asset beta

C26 Asset beta measures the difference in systematic risk between investments. Systematic risk is the risk that equity investors cannot diversify away. It is the risk that affects all risky investments when held as part of a diversified portfolio.

634 Commerce Commission "Cost of capital determination for disclosure year 2020 for information disclosure regulation" [2019] NZCC 7, Table 4.

635 We have estimated the debt premium based on the remaining term to maturity of Z Energy bonds, but the original tenor of these bonds at the time of issue is longer, and the increment reflects the greater debt premium for longer tenor.

C27 We estimate asset beta empirically. Specifically, we identify publicly listed firms that undertake activities that are broadly comparable to those undertaken by firms in the New Zealand retail fuel market. We then estimate the relationship between share prices of those publicly listed firms and the market index for the country in which they are listed.

C28 We identified comparable firms from Bloomberg using the following criteria.

C28.1 Listed in an OECD country, with a market capitalisation of at least US$100m.

C28.2 In either the Bloomberg category of “Integrated Oils” or “Refining & Marketing” sectors with at least 75% of revenues from “refining and marketing” activities.

C29 Of the resulting sample of 59 companies we excluded companies:

C29.1 which are classified primarily as refineries (this removed 21 companies);

C29.2 which are primarily focused on LPG/natural gas (this removed 4 companies); and

C29.3 which did not refer to retail fuel in the company description (this removed 7 companies).

C30 This produced a sample of 27 companies, which are listed in Table C2.

Table C2 Listed comparator companies

Name	Country
SK Innovation Co Ltd	South Korea
S-Oil Corp	South Korea
JXTG Holdings Inc	Japan
Idemitsu Kosan Co Ltd	Japan
Exxon Mobil Corp	United States
Chevron Corp	United States
Daesung Industrial Co Ltd	South Korea
Royal Dutch Shell Plc-A Shares	Netherlands
BP Plc	Britain
Phillips 66	United States
BP Castrol KK	Japan
INA Industrija Nafte DD	Croatia
Neste Oyj	Finland
Repsol SA	Spain
Caltex Australia Ltd	Australia
Parkland Fuel Corp	Canada
Paz Oil Co Ltd	Israel
Viva Energy Group Ltd	Australia
Murphy USA Inc	United States
Sunoco LP	United States
Z Energy Ltd	New Zealand
Vivo Energy Plc	Britain
Dor Alon Energy in Israel	Israel
Applegreen Plc	Ireland
CrossAmerica Partners LP	United States
Sprague Resources LP	United States
Esso Ste Ste Anonyme Francaise	France

Source: Commerce Commission analysis of Bloomberg data

C31 Consistent with our methodology for estimating the cost of capital under Part 4 and the Telecommunications Act, we estimated asset beta for the comparator companies:

C31.1 for up to 20 years (subject to the availability of data) by splitting the period into four consecutive 5-year periods; and

C31.2 using daily, weekly, and four-weekly data. To limit the risk of estimation error based on the choice of reference day, the weekly and four-weekly estimates are averaged over each day of each period, rather than being sourced directly from Bloomberg estimates.[636]

C32 The resulting sample averages for each period are shown in Table C3 below.[637]

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636 Commerce Commission "Input methodologies review decisions Topic paper 4: Cost of capital issues" (20 December 2016) at [291].

637 Two of the 27 companies were listed for too short a period to be included in this analysis.

Table C3 Average comparator company asset beta and leverage

	1999-03	2004-08	2009-13	2014-18
Number of companies in sample	6	11	18	25
Leverage	24%	12%	33%	27%
Daily asset beta	0.40	0.73	0.59	0.59
Weekly asset beta	0.39	0.73	0.61	0.62
Four-weekly asset beta	0.40	0.77	0.62	0.68
Average weekly and four-weekly asset beta for 2009-13 and 2014-18 periods				0.63
Average leverage for the 2009-13 and 2014-18 periods				30%

Source: Commerce Commission analysis of Bloomberg data.

C33 We prefer to give greatest weight to weekly and four-weekly estimates from the two most recent 5-year periods.[638] The average of the weekly and four-weekly results over the two most recent 5-year periods was 0.63.[639]

C34 For the purposes of this market study we propose to use a range for asset beta of 0.6-0.7. This reflects:

C34.1 the estimation of beta is subject to estimation error;

C34.2 there are differences in the type of activities undertaken by the companies in the New Zealand retail fuel sector which may give rise to differences in systematic risk between these companies;

C34.3 using a range of values for asset beta is likely to better reflect those differences than the selection of a single estimate; and

C34.4 for the purpose of this market study we do not need a single point estimate of asset beta, unlike in respect of Part 4 regulation (for example, where we require a single point estimate of beta, and WACC, to set a price-quality path).[640]

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638 Daily asset beta estimates can be distorted by low liquidity stocks and older estimates may have smaller sample sizes (and changes over time may mean older estimates are less relevant to the risks faced today). For further discussion, see: Commerce Commission “Input methodologies review decisions Topic paper 4: Cost of capital issues” (20 December 2016) at [297]-[307].

639 The estimates for Z Energy in the 2014-2018 period were 0.59 using daily estimates of beta, 0.67 using weekly estimates, and 0.84 using four-weekly estimates. Z Energy was listed for too short a period (from August 2013) to record a reliable estimate of beta for the 2009-2013 period. While an estimate of Z Energy’s own beta is relevant evidence we prefer not to rely on estimates of beta for a single company. See, for example, Commerce Commission “Cost of capital for the UCLL and UBA pricing reviews Final decision” (15 December 2015) at [141]-[144].

640 In the regulatory context we recognise and treat estimation risk differently. Specifically, we consider whether to apply an uplift to our mid-point estimate of WACC. See Commerce Commission “Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services (30 October 2014) section 5.

Tax-adjusted market risk premium

C35 The tax-adjusted market risk premium (TAMRP) reflects the additional expected return over and above the risk-free rate required to compensate investors for holding the market portfolio. We use a TAMRP of 7%. This is consistent with:

C35.1 previous advice from Dr Lally, an expert adviser to the Commission;[641] and

C35.2 our previous decisions on the level of TAMRP under Part 4 of the Act and the Telecommunications Act.[642]

Investor and corporate tax rates

C36 We assume a corporate and investor tax rate of 28%, consistent with the New Zealand company tax rate and the prescribed investor tax rate for a portfolio investment entity, respectively. Fuller reasons are set out in the IM Reasons paper 2010.[643]

Leverage

C37 Leverage reflects the proportion of a company's total funding that is borrowed. We assume leverage of 30% (ie, 30% of the firm's total funding is financed by debt, and 70% by equity). This is the same as the average leverage of the comparable companies identified in the beta section. Again, the reasons for this are set out in the IM Reasons paper 2010.[644]

We estimate a WACC of between 6.9-8.6% for the retail fuel sector

C38 Combining these parameter values produces an estimate of WACC ranging from 6.9-8.6%. This is shown in Table C4.

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641 Dr Martin Lally "Review of submissions on the risk-free rate and the TAMRP for UCLL and UBA services" (13 October 2015).

642 Commerce Commission, Input Methodologies (Electricity distribution and gas pipeline services) Reasons Paper (December 2010) at Attachment H7; Commerce Commission "Cost of capital for the UCLL and UBA pricing reviews Final decision" (15 December 2015) at [172]-[192].

643 Commerce Commission, Input Methodologies (Electricity distribution and gas pipeline services) Reasons Paper (December 2010) at [H10.5]-[H10.17].

644 Ibid, Attachment H3.

Table C4 Our parameter estimates and our estimate of WACC

	Low	High
Risk-free rate	3.1%	4.5%
Debt premium	2.0%	2.25%
Asset beta	0.6	0.7
Leverage	30%	30%
Investor tax rate	28%	28%
Corporate tax rate	28%	28%
Equity beta	0.86	1.00
(Tax adjusted) Market risk premium	7.0%	7.0%
WACC	6.9%	8.6%

Source: Commerce Commission analysis.

Our estimate of WACC is supported by other information

C39 To test the reasonableness of our estimate of WACC we compared our WACC range to the estimates of WACC published from time to time by the research analysts of major investment banks in their research notes on Z Energy.

C40 Broker estimates of Z Energy's WACC are set out in Table C5 alongside our estimated WACC range.[645]

Table C5 Comparison with our estimates of WACC

	FNZC	UBS	Deutsche Bank	Forsyth Barr	Macquarie	ComCom	
	(20 Jul 2018)	(15 May 2018)	(1 Nov 2018)	(31 Jan 2019)	(17 July 2019)	Low	High
Risk-free rate	4.60%	3.0% (10y) - 5.5% (LT)	4.5%	3.50%	4.30%	3.1%	4.5%
Debt premium	2.5%	2.0%	2.2%			2.0%	2.25%
Asset beta	0.75	0.7	0.7			0.6	0.7
Leverage	28%	20%	25.4%			30%	30%
Equity beta		0.88	0.88	0.84	0.9	0.86	1.00
Market risk premium	7.4%	7.0%	6.5%		7.0%	7.0%	7.0%
WACC	9.37%	7.3% (10y) - 9.1% (LT)	8.70%	7.60%	8.10%	6.9%	8.6%

Source: Commerce Commission analysis, various broker reports.

C41 Our estimates are similar to the analysts' estimates. The key difference between the low end of our range and the average analyst estimate is due to the choice of risk-free rate. Most analysts use a long-term risk-free rate which is well above the prevailing risk-free rate. This is consistent with their objective of estimating the long-term value of Z Energy's shares and whether investors should buy or sell those shares.

645 FNZC "Cooling our jet (and petrol) volumes" (20 Jul 2018) at 6. UBS "Fuelling the EV and regulatory debate – Upgrade to Buy" (15 May 2018) at 27. Deutsche Bank "Tough day at the pump" (1 Nov 2018) at 11. Forsyth Barr "Z Energy Broad Preliminary Issues Paper Casts a Wide Net" (31 Jan 2019) at 2. Macquarie "Z Energy Solid Start to FY20" (17 Jul 2019) at 1.

C42 On the other hand, use of the prevailing rate (that is, the actual yield estimated on spot rate government stock during the 2014-2019) better reflects the cost of capital firms were exposed to at the time when they were deciding whether or not to proceed with new investment.

C43 The estimate of WACC using the long-term estimate of the risk-free rate may better reflect the return expected by investors over the long-term (it assumes the risk-free rate reverts to a level more in line with its longer term levels).

C44 Other available information also supports the reasonableness of our WACC estimate.

C44.1 Our WACC range is close to, but below, the post-tax discount rate of 9% which Z Energy uses to value the cash flows from Chevron when testing for impairment of goodwill.[646]

C44.2 It is around the long-term historical return and the forecast return on New Zealand investments of average risk (7.21%-7.39%).[647]

The risks of mis-estimating WACC

C45 As WACC cannot be observed, there is a risk of mis-estimating WACC. In some contexts, we make an allowance for the risk of estimation error. This is especially so when we use a point estimate of WACC and there are asymmetric consequences from getting that estimate wrong.[648]

C46 In this study we propose to estimate a range of WACC which we will compare profitability against. The use of a range increases the likelihood that our estimates capture the true but unobservable level of WACC.

C47 We do not intend to make an additional adjustment to our WACC estimate to reflect any potential risks of estimation error in this study. This is because the consequences of mis-estimating WACC in this report are unlikely to have any asymmetric impact on consumers.

C48 Use of an estimate of WACC above our mid-point estimate may be appropriate for any subsequent cost-benefit analysis of whether to impose regulation.[649]

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646 Z Energy "Annual Report" (2019) at 81.

647 Commerce Commission "Input methodologies review decisions Topic paper 4: Cost of capital issues" (20 December 2016) at [707.1].

648 In particular, we make an allowance for estimation error setting the maximum prices a monopoly supplier of services can charge its consumers. This is to protect consumers from the potentially severe consequences of under-investment if our WACC is too low and this results in under-investment. See Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services (30 October 2014) section 5.

649 Lally "The Weighted Average Cost of Capital for Gas Pipeline Businesses" (28 October 2008) at 94.

Attachment D Measures of the profitability of firms in the New Zealand retail fuel sector

Introduction to this attachment

D1 This attachment sets out our analysis of the profitability of firms in the New Zealand retail fuel sector. In particular, we seek to understand whether the profitability of the fuel sector is in excess of a normal or competitive level.

D2 It identifies the approaches we have used and how we have used them, including the information we have used, possible limitations on each approach, and our interpretation of what the results imply.

D3 This attachment should be read in conjunction with the following attachments.

D3.1 Attachment B which explains our approach to assessing profitability and discusses the sort of conclusions from, and limitation of, profitability assessments generally.

D3.2 Attachment C which sets out our preliminary view of a normal rate of return, which we define as the weighted average cost of capital.

D3.3 Attachment E which explains why, on the basis of our analysis so far, we consider the excess levels of profitability in the fuel sector appear to be persistent rather than temporary.

Forward-looking approaches

D4 As explained in Attachment B we have looked at a variety of forward-looking approaches to assessing profitability. Each is discussed in turn.

D4.1 Firms' views on the level of industry profitability and the likelihood of entry.

D4.2 The returns firms expect from new investment in retail fuel (including hurdle rates).

D4.3 Tobin's q (the ratio of the implied market value of the fuel business to the current cost of replacing its assets).

Incumbent firms have expected high profits to attract new entry since 2012

D5 The first forward-looking indicator of profitability we looked at was the firm's own comments on the level of profitability being achieved, and the implications of this for their own business. In particular, we look at comments from planning and strategy documents for a range of retailers.

D6 Statements in these documents indicate that, since around 2012-2014, some New Zealand fuel firms were concerned that the high levels of profitability being enjoyed in the fuel sector may attract a new entrant to the market, or discounting by existing players.

D6.1 Analysis prepared by one fuel retailer for a strategy session in June 2012 stated that:[650]

> "there may be a risk to [us] should a new fuel retailer enter the New Zealand market attracted by current high margins… "
>
> [we] could be more aggressive with respect to rentals paid in order to secure additional sites. [This] would also be seen as an active deterrent to any new entrant."

D6.2 Another fuel retailer's strategy document from 2013 states that "Fuel margins currently at an all-time high. While NZ is a stable market, such high margins will attract new entrants or sustained discounting of margins".[651]

D6.3 The same report notes that the "strong margin environment" poses the threat of new entry and identifies three potential new entrants to the retail fuel market.[652]

D6.4 The same retailer's strategy document, from May 2014, again notes the strength of margins but discounts the prospect of new entry due to the high costs of entry.[653]

> Fuel margins currently at an all-time high. Whilst NZ is a stable market such high margins could potentially lead to sustained discounting of margins. High costs to entry mean that new market entrants are unlikely.

D6.5 The next slide in that report states in respect of market dynamics:[654]

> Strong marketing margin environment - threat of new entrant – Puma? 7 Eleven? Caltex Australia? High Costs of entry – terminal infrastructure, geography, market size.

D6.6 Another company in early 2015 noted:[655]

> During late 2014 market margins reached levels not seen since new entrants (Gull Challenge) in 1999
>
> Current three-year averages still at levels below that seen through most of the 1990's prior to new entrants

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650 [ ]

651 [ ]

652 Ibid, at 9.

653 [ ]

654 Ibid, at 15.

655 [ ]

In real terms, FY15 margins have returned to levels seen in the mid-1990s.

The returns firms expect from new investment

D7 The second forward-looking indicator of profitability we have looked at is firms' own expectations of the profits they expect on new investment. We look at:

D7.1 the returns firms expect to earn on their new investment in retail fuel sites, as forecast in their business cases for new investment, and how these returns compare to a normal return (WACC);

D7.2 firms' hurdle rates for new investment, and how these compare to WACC; and

D7.3 public comments by Z Energy on its minimum financial return from new investment.

D8 In each of these areas we find firms expect levels of profitability that are comfortably in excess of a normal level of return (WACC).

We looked at the returns firms expect from investing in fuel retailing sites

D9 We highlighted in Chapter 2 the growth in the number of fuel retailing sites in recent years. There is a significant investment required to establish each new site, and in knocking down and redeveloping existing sites. Firms only make this investment when they are confident of being able to earn at least their cost of capital.

D10 Before they invest, firms analyse the costs and returns expected from each site and summarise their analysis in a business case. These business cases provide us with a reliable and informed basis to assess the future profitability expected by firms from fuel retailing in New Zealand.

D11 Our approach to considering these business cases was as follows.

D11.1 We asked fuel retailers to provide us with documents which included analysis of returns on capital.

D11.2 We received over 90 business cases from a range of firms including majors and resellers (including Allied, BP, Gull, Mobil, NPD, Waitomo, and Z Energy) for new investment in new-to-industry sites and "knock-down and rebuilds" of existing sites.

D11.3 We reviewed the approach to assessing profitability in the business cases.

D11.4 We summarised the returns forecast by the firms in their business cases.

D11.5 We compared the firms' expected level of profitability with our estimated normal level of returns (that is, our WACC range).

We looked at the returns from investing in fuel retailing sites

D12 We focused on investments in fuel retailing sites. This captures the investments, and expected returns, of a wide range of fuel firms.

D13 There are differences in firms' approaches to building and redeveloping retail fuel sites. The business cases we reviewed covered a range of station locations, sizes and types, including large full service stations, and unmanned sites in urban and rural locations. As such, we consider they are broadly reflective of the additional investment in fuel retailing in New Zealand in recent years.

D14 Firms used a variety of metrics to estimate the profitability of new investment. Estimates of net present value, payback periods, returns on net assets, and ROCE were all used. The metric which firms most frequently used to assess profitability appeared to be the IRR. Given its popularity we focus on this measure as it provides a view of a broad range of firms' expected profitability on new retail investment.

Our analysis looked at firms' estimates of IRR

D15 The IRR is the discount rate that makes the net present value of a set of cash flows equal to zero. It is called the internal rate of return because it excludes external factors such as interest rates, inflation, etc.[656]

D16 There were differences in firms' approach to estimating IRR. Some firms adopted a 10-year forecast period, others used longer periods. Some firms also used the modified IRR which we discuss further below. We have sought to understand the levels of expected returns as firms see them.

D17 Our analysis focused on the projects to build new-to-industry (NTI) or knock-down and rebuild existing service stations. We summarised firms' own expectations of the IRRs for projects proposed between 2014 and 2019. One firm did not calculate the IRR on its projects and we did not include its business cases in this analysis.[657] We consider the remaining sample of business cases is reflective of a broad cross-section of new investment by New Zealand fuel retailers.

D18 The other key steps in our approach were as follows.

D18.1 We categorised the business cases by the year in which each was prepared.[658]

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656 Those factors are instead reflected in the cost of capital, which we compare against the estimated IRR.

657 There was insufficient information in the business case to calculate the IRR for that company. Instead the firm's business case estimated the profits expected in the first year of operation only and compared this with the expected cost of opening the site in deciding whether to invest. That approach, in and of itself, implies the project was strongly profitable.

658 The number of business cases included in each year was as follows: 11 in 2014, 16 in 2015, 14 in 2016, 12 in 2017, 21 in 2018 and 6 in 2019. The relatively smaller number of business cases in 2019 is due to the timing of our receipt of business cases from firms. The average for 2019, which was for a marked increase

D18.2 The analysis includes 81 business cases, of which 32 were for manned sites and 49 were for unmanned sites for the years 2014-2019. Our analysis does not show the IRRs expected on projects before 2014 as the number of cases relating to each of those years was small. For completeness, we note the expected IRRs on business cases prepared in those years were also materially above our estimated WACC range.

D18.3 For the projects in each year between 2014 and 2019, we weighted the IRRs by the amount of capital proposed to be invested in each project as a proportion of total proposed capital expenditure in that year (using each firm's estimate of that capital cost) to ensure our summary was not distorted by a large number of relatively smaller projects. That is, the average IRR we report for each year is reflective of the average returns weighted by the amount of investment in each project.

D18.4 We compared the weighted average IRRs with our estimated WACC range.

The average expected rate of return is more than double our estimate of the cost of capital

D19 Figure D1 shows that the weighted average IRRs expected from these projects materially exceeds our estimated WACC range for all years in the period from 2014-2019.[659]

D20 The weighted average expected IRR across the period is 20% p.a., which is over double our estimate of the WACC for a New Zealand fuel company. That is, the weighted average returns are more than twice the level of a normal return. The weighted average expected IRR on the manned sites was [ ] p.a. across the period, while the weighted average on the unmanned sites was [ ] p.a.[660]

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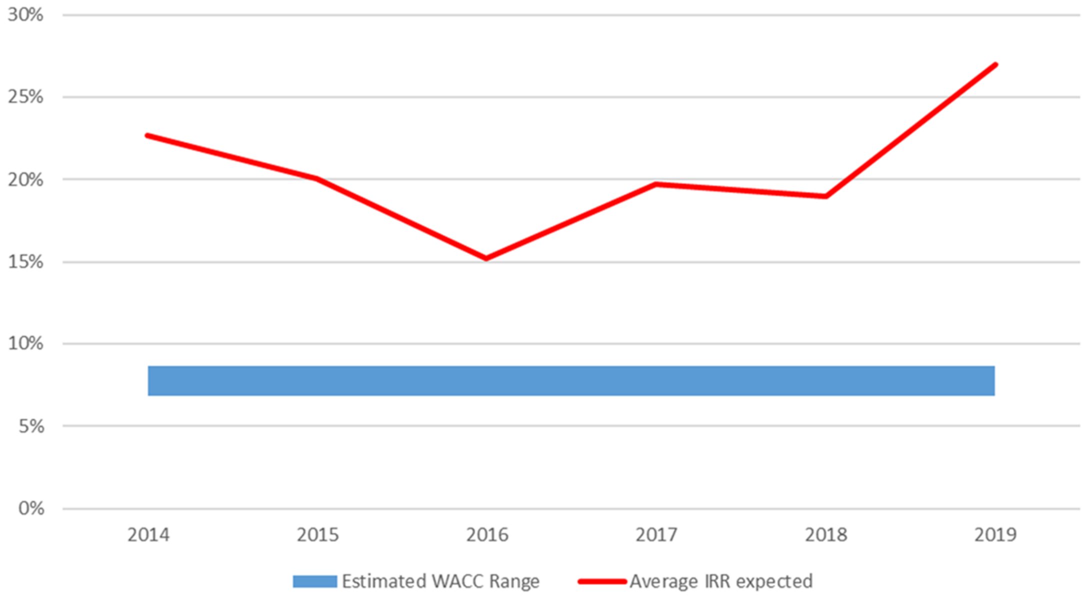
in IRR in that year relative to the business cases in prior years, may not be representative of all of the business cases to be prepared in 2019.

659 Note, as discussed above in Attachment C, that the bottom end of the WACC range is the most appropriate estimate of WACC to assess the attractiveness of proceeding with the investment, since that reflects the cost of raising incremental capital needed to fund the investment at the time of investment.

660 Those percentages are treated as confidential as their disclosure, coupled with the firm's knowledge of their own project's forecasts IRR, could enable firms to calculate the IRRs expected on specific competitors' new sites. Manned sites have larger investment requirements.

Figure D1 Internal Rate of Return expected by fuel firms on new investment in fuel retailing sites compared to WACC



Source: Commerce Commission analysis of information provided by various fuel firms.

The forecasts are unlikely to be over optimistic

D21 BP submitted that we should exercise caution when relying on business forecasts as those forecasts may be over optimistic and not achieved in practice, due to various biases held by the preparer.[661] We acknowledge that forecasts can be over optimistic.

D22 However, based on the information available to us there are few indications that the high average IRRs reported in Figure 1 are largely due to over optimistic forecasts which are unlikely to be realised in practice.

D22.1 The continued strong rate of new and proposed site openings suggests that companies are satisfied with the actual performance of their new sites which have recently opened.[662] Internal management commentary from a range of fuel firms supports that view.[663]

D22.2 Available information on the actual performance of some new sites indicates that many have exceeded their pre-opening projections, a number significantly so. One company provided us with a document

661 BP New Zealand "Feedback on Working paper – Assessing profitability" (14 May 2019) at [5.3].

662 See Chapter 3.

663 [ ]; [ ]; [ ]; and [ ]

comparing the business case volume and EBITDA margins projected in the business case for its new sites, and the EBITDA margins and volumes actually achieved in the 2018 financial year.[664] That review showed actual performance across a programme of site openings was [ ] ahead of the volume forecasts and [ ] ahead of the EBITDA forecasts. Indeed, results were [ ] ahead of forecast on almost all sites, [ ].

D22.3 During an interview, one firm told us of some new sites where its investment was paid back within [ ].[665]

D22.4 IRRs were typically estimated over forecast periods of 10 or 15 years, even if the firm owned the site or had a lease with rights of renewal for an additional period. This seems conservative since the site may be used to retail fuel for longer than forecast and generate cash flows for longer than is assumed in the business case. (And if the firm earns positive cash flows in the years covered by the lease renewal, its actual IRR will increase).

D22.5 A number of business cases make no allowance for terminal value at the end of the period for which forecasts have been prepared (that is, the actual IRR will be higher).

D22.6 Some business cases identified reasons why the forecasts were considered to be conservatively estimated.

D22.6.1 The assumptions made relating to expected volumes at new sites were generally lower than the actual performance of existing sites. For example, the forecast may have assumed lower turn-in rates and/or lower average volumes of fuel per purchase at new sites compared to an existing site.[666]

D22.6.2 The assumptions relating to expected margins on new sites were sometimes lower than the current performance of existing sites. For example, some business cases used medium term historic average margins in their business for a new site even though current margins on similar sites were now higher.

D22.7 Some business cases explicitly allowed for possible cannibalisation of sales at the firm's existing nearby sites.

D23 On the other hand, we are aware of some sites opened by one firm in 2015 and 2016 where volumes were lower than expected.[667]

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664 [ ]

665 [ ]

666 [ ]

667 [ ]

High margins are the key explanation for the high expected returns from new sites

D24 Z Energy has publicly highlighted that the number of retail sites may be growing faster than the volume of fuel sold. For example, in a May 2019 presentation Z Energy stated that "35 NTI sites had been built, growing capacity by 2% in a market where petrol sales declined by 1.5%".[668] Z Energy's submission to us on the preliminary issues paper similarly referred to disparity between site and volume growth using a longer time series of data (from 2016 to the present).[669]

D25 By implication, the average volume of fuel sold at each site is flat or declining slightly. A number of parties have highlighted declining volumes at some sites over time. Notwithstanding the lack of volume growth per site, firms on average expect profits on new investment which significantly exceed the cost of capital (as Figure 1 illustrates). The interpretation would seem to be that the excess returns expected are attributable to high margins, and not new investment growing volumes.[670]

D26 Some manned sites are continuing to grow their non-fuel income, but the rate of growth appears to be slowing.[671] Non-fuel income is much smaller than fuel income at most service stations.[672]

Expectations of the returns from new investment has not declined materially over time

D27 The average expectation of the profitability of opening new or rebuilt sites has not declined materially over the 2014-2019 period despite the growth in the number of sites. Nor is there any apparent slowdown in the rate of new builds.[673]

D28 This is perhaps surprising since:

D28.1 firms would be expected to proceed with the most attractive projects first;

D28.2 there has been a large number of new sites built in recent years despite minimal industry volume growth as noted in Chapter 3; and

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668 Z Energy "2019 Results Presentation For the year ended 31 March 2019" (2 May 2019) at 6.

669 Z Energy "Market Study into the Retail Fuel Sector: Z Energy's Response to Invitation to Comment on Preliminary Issues" at [12].

670 The number of new openings is considerably greater than closures.

671 Z Energy's disclosed like-for-like sales growth at tier 1 and tier 2 stores has declined from a compound annual growth rate of 9-10% p.a. from FY13-FY16 to around 4% p.a. from FY16 to FY19. See Z Energy "Annual results presentations" for the financial years 2013 to 2019.

672 For example, at Z Energy's 95 tier 1 sites average weekly shop sales are still less than $50,000 per week. The equivalent weekly sales result for tier 2 and 3 sites is $30,000 and $18,000 per week. See Z Energy "Annual results presentations for the year ended 31 March 2019" (2 May 2019) at 10. A mid-sized station selling, say, 4 million litres of fuel per annum would, at current prices, have fuel revenues of around $150,000 per week. Z Energy estimates that: 61% of its Z branded sites sell more than 4 million litres p.a., 53% of Caltex sites do, 63% of BP's and 40% of Mobil's do. See, Z Energy "Investor Day 2019" (1 August 2019) at 43.

673 Waitomo and Gull have announced their intention to enter the South Island market. Other players also continue to open new sites.

D28.3 given this, the level of expected returns might have been expected to fall over time.

D29 It seems that the additional competition from these new sites has not, to date, reduced firms' expectations of future profits from investment in new retail fuel sites.

The reinvestment rate implicit in the IRR

D30 Implicit in a standard IRR calculation is an assumption that cash flows can be reinvested at the internal rate of return. If the firm cannot reinvest the cash flows at the same rate as the IRR, then the IRR calculation will overstate the returns to the firm from that project. For a single project like a new retail fuel site that has minimal ongoing investment requirements – as the site typically does not increase in size over time – an assumption that cash produced by the new site can be reinvested at the same rate as the IRR may not seem justified (prima facie).

D31 However, most fuel companies are not building a single new site. Rather, a new site is followed by an additional new site (in a different location), and the nature of each subsequent project is broadly similar. Significantly, the IRR for individual projects are not materially changing over the period 2014-2019. If one views the project for each site as part of a portfolio of projects, then the assumption that cash flows from the first site can be reinvested at the same IRR seems appropriate. That is, cash produced by one site can be reinvested into a subsequent site where it is expected to earn similar returns to that on the first project. Viewed as an ongoing programme of investment, the use of the standard IRR approach seems consistent with the assumption that the cash flows can be reinvested at the same rate as the IRR.

Other measures of profitability also point to excess levels of expected profitability

D32 In any event, other measures of profitability contained within the business cases also point to excess levels of profitability.

D32.1 Paybacks are rapid. Many sites are expected to payback their initial investment within 4-7 years. Payback periods of 4-7 years imply firms are expecting rates of return which are materially above WACC.[674]

D32.2 In contrast to the expected payback periods, most firms lease sites for a minimum 10-year period and typically have several, multi-year rights of renewal (for example, four five-year renewal periods). Renewing the lease, and continuing to retail fuel from the site, will further increase the amount of excess profit earned. Further, some sites are owned outright by the fuel retailer.

674 For example, a project with a discounted payback of 5 years (and a flat nominal profile or a positive growth trend) has a 10-year IRR of more than 20% (ie, an IRR over double the estimated WACC).

D33 In conclusion, firms' own expectations of the future profitability of new investment points to expected returns that are, on average, more than double our estimate of the cost of capital required to fund those new investments. This has consistently been the case for new investment proposals over 2014-2019 period for a wide range of firms building new retail fuel sites. These expectations of high profits appear to have generally turned out to be too low.

The firms' hurdle rates for new investment exceed WACC

D34 A hurdle rate is the minimum rate of return that a firm requires to earn from an investment before undertaking it.

D35 Through interviews and review of internal documents we learnt of the hurdle rates for a range of fuel firms for new retail sites. While one firm used a hurdle rate of [ ]%, [ ]% was more common, and others had hurdle rates more than double the estimate of WACC.[675] All those hurdle rates are well above the estimated WACC range of 6.9% to 8.6%. We observed an example of a business case with a forecast IRR of more than 20% where the firm's spreadsheet template indicated the project should not proceed as the returns did not meet the required hurdle rate.[676]

D36 A public example of the high hurdle rates in the fuel sector was provided by Z Energy in its most recent annual report.[677]

> Z Energy is committed to creating value for investors by focusing on a safe and profitable core fuels business….
>
> Z aims to be an attractive long-term investment by providing high-quality, reliable returns to our investors …
>
> Invest in the core business with rigour; only invest when discounted paybacks are less than five years

D37 A discounted payback of 5 years implies an IRR over a 10-year period of more than 20% (ie, over double the estimated WACC).[678]

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675 [ ]; [ ]; [ ]; [ ]; [ ]; and [ ]

676 [ ]

677 Z Energy "Annual Report" (2019) at 24.

678 Using the estimated WACC and under reasonable assumptions about outyear cashflows (for example, flat nominal or a positive growth trend).

Why are hurdle rates set at a large premium to WACC?

D38 As noted above, we acknowledge that firms in various industries can set hurdle rates above their WACC to offset the risk of over optimistic forecasts.[679] As a result, a hurdle rate set at a level above WACC is not necessarily conclusive of the level of profitability genuinely expected.[680] Similarly, when some of the capital to be invested will be sunk, and future returns are uncertain, firms will rationally delay investment until expected returns are above the cost of capital.[681]

D39 Nonetheless, the size of the gap between WACC and the hurdle rates is strongly suggestive of excess levels of profitability in the retail fuel industry – rather than being necessary to address the risk of over optimistic forecasts. For example, we have not yet seen evidence to justify why hurdle rates need to be at a large premium to WACC.

D39.1 Participants are rolling out additional sites of established, proven formats for which the risks and rewards are well known by firms which typically have deep industry knowledge. The build of new sites is a core activity - it is not a novel venture subject to a wide range of uncertain outcomes.

D39.2 The key product to be sold – petrol and diesel – is essential, and industry level demand is stable (although an individual site can lose volume if its prices are uncompetitive).

D39.3 Management can easily compare the forecasts for new projects with the current performance levels of existing sites, to identify over optimistic forecasts.

D39.4 As discussed above, the actual performance of new sites appears to frequently exceed expectations, sometimes significantly so.[682]

D40 On balance, the hurdle rates being used by firms when considering whether or not to invest in new sites also seem to indicate that firms are seeking to maintain (or increase) levels of profitability which are already well in excess of the returns in a competitive market.

Estimating Tobin's q

D41 Tobin's q can be used as a measure of profitability and of market power. Put simply, Tobin's q is the ratio between an asset's market value and the cost of replacing it.

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679 Discussed above from paragraph D34.

680 This point was made in submissions too. See, for example, Economics New Zealand Limited "Feedback on 'Working Paper on Assessing Profitability'" (7 May 2019) at 1.

681 This effect is discussed in the real options literature.

682 At paragraph D22.

D42 In this study we are particularly interested in the ratio of a firm's market value to the replacement cost of its assets.

D43 The market value of a firm reflects the present value of the stream of profits the firm is expected to make into the future. The replacement cost of the firm's assets is an estimate of the current cost of acquiring the assets which are expected to produce that stream of profits.

In a workably competitive market, q should be near one

D44 For a firm in a workably competitive market, the value of q would tend towards one. When a firm's q is greater than one, the market value of the firm is greater than its replacement cost. In that case, the market value of an additional unit of capital likely exceeds its replacement cost and the firm can increase its value by investing in additional assets. If there is free entry, other firms could also enter the industry by purchasing the same capital stock as the existing firm and they would earn a similar stream of future profits. That is, the discounted value of those profits would exceed the cost of investment. Thus, in the absence of barriers to entry, new firms will enter and/or existing firms will expand, and over time q will be driven towards one.[683]

D45 Conversely, if a firm has a q of less than one, the firm has a value which is less than the cost of replacing its assets. The firm would be unwilling to replace all of its assets given the earnings expected to be produced from the assets, is less than the cost of those assets. Replacing its assets at current costs would be value-destroying.

D46 Where a firm has market power and entry or expansion by competitors is restricted, that firm will earn excess returns. Investors in the market will capitalise these expected excess returns and the market value of the firm will exceed the replacement cost of its capital stock. The value of q will be above one. Provided the entry or expansion of competitors continues to be restricted, q will persist at values above one.[684]

D47 Lindenberg and Ross were the first researchers to use Tobin's q to estimate the size of monopoly rents.[685] They estimated Tobin's q for a range of US firms and found a median value of 1.24 for Tobin's q for the 246 firms in their study.[686] More than a quarter of the companies had average values of q less than one. The estimate of q for the companies in the petroleum refining sector averaged 1.39.[687]

683 Lindenberg, E., and S. Ross (1981) "Tobin's q Ratio and Industrial Organization" 54:1 Journal of Business at 2.

684 Ibid, at 2.

685 Ibid, at 1.

686 Ibid, Table 2 which shows average q for each firm over the period 1960-1977.

687 Ibid, Table 4.

D48 Lindenberg and Ross concluded that sectors of the economy that have q ratios at the high end of the spectrum are often those with relatively unique products, unique factors of production, and so forth, all of which contribute to monopoly and/or quasi-rents. At the low end, we find either relatively competitive, tightly regulated, or dying industries.[688]

D49 A number of subsequent studies have estimated Tobin's q. A May 2010 report from our expert advisers for the input methodologies on asset valuation (the 2010 expert advisers' report) summarised the results from several studies of Tobin's q including:[689]

D49.1 Land & Stulz who report an average q of 1.1 for 1,149 US firms in 1984;

D49.2 McGahan who reports q for almost 5,000 US firms trended up from less than 1 in 1981 to 1.3 in 1994; and

D49.3 Chua et al who report average q for a range of countries, including a q value of 1.3 in New Zealand from 1999 to 2004.

D50 The 2010 expert advisers' report concluded that "in general, the more competitive the market, the lower the value of q, … At the aggregate level, it appears that q has a tendency to return to one or slightly less than one in the long run, although significant deviations below one can persist for decades".[690]

D51 Ofcom is a competition and regulatory authority which has used estimates of Tobin's q in a profitability assessment.[691] Oxera proposed it for the UK Office of Fair Trading.[692] We and other economics regulators have looked at transaction and valuation multiples for firms that are subject to price regulation.[693]

How we have estimated Tobin's q

D52 Estimates of Tobin's q require reliable information on both the market value of a firm, and the replacement cost of its assets. To estimate q we used:

D52.1 recent evidence of the market value of fuel firms to estimate the implied market value of their fuel activities; and

688 Lindenberg, E., and S. Ross (1981) "Tobin's q Ratio and Industrial Organization" 54:1 Journal of Business at 29.

689 George Yarrow, M. Cave, M. Pollitt, J. Small "Asset Valuation in Workably Competitive Markets: A Report to the New Zealand Commerce Commission" (May 2010) Annex 1.

690 Ibid, at 51.

691 OFCOM "Assessment of Sky's profitability and cost of capital" (31 March 2010), Annex 3, Table 3.3.

692 Oxera "Assessing profitability in competition policy analysis" Economic Discussion Paper 6 (July 2003) at [4.56]-[4.62].

693 See, for example, Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services (30 October 2014) Attachment C.

D52.2 estimates held by fuel firms of the replacement or current cost of their assets, including fixed assets, working capital and intangible assets.

D53 The key challenge in estimating Tobin's q is to estimate replacement costs reliably. This limits the frequency with which Tobin's q is used.[694]

There are reliable estimates of market value for Z Energy, Chevron and Gull

D54 We focus our analysis using Tobin's q on the three New Zealand retail fuel firms for which we have recent, reliable estimates of market value.

D54.1 Z Energy which is publicly listed.

D54.2 Chevron New Zealand which was acquired by Z Energy.

D54.3 Gull New Zealand which was acquired by Caltex Australia.

D55 We then sought to estimate the implied market value for the fuel business of each of Z Energy, Chevron and Gull on an enterprise value basis. By enterprise value we mean the entire value of the fuel business, without regard to how it is financed. For businesses like Z Energy and Chevron this captures a broader range of activities, than just retail fuel. As we explained in Attachment B we consider this still provides useful insights for this study. Gull has a much narrower range of activities which are centred around fuel retailing.

D56 We define the market value of the fuel business as:

D56.1 the market value of the firm's equity;

D56.2 plus the value of debt, the net derivative financial instruments, the value of capitalised leases and deferred tax liabilities;

D56.3 less the value of investments held which are not required for the fuel business.

D57 The market value of the firm's equity was determined as follows.

D57.1 In the case of Z Energy, by multiplying its share price by the number of shares outstanding as at the date of its last annual report (31 March 2019).

694 Lindenberg, E., and S. Ross ibid, at p12. Lawrence J. White "Market Power: How Does It Arise? How Is It Measured?" and Chapter 5 in The Oxford Handbook in Managerial Economics. Available at <http://web-docs.stern.nyu.edu/old_web/economics/docs/workingpapers/2012/White_MarketPowerRiseandMeasure.pdf> at 22.

D57.2 In the case of Gull, from the purchase price paid by Caltex Australia Ltd (transaction completed 3 July 2017), as reported in published annual reports.[695]

D57.3 In the case of Chevron, from the purchase price paid by Z Energy as reported in Z Energy's annual report (acquisition completed 1 June 2016).[696]

Synergies and the winner's curse appear unlikely to have materially affected the acquisition prices

D58 We use the prices paid by Z Energy and Caltex Australia to acquire Chevron and Gull as the market value of equity for those businesses. BP submitted that acquisition prices may sometimes overstate market value due to, in particular:[697]

D58.1 the 'winner's curse' or

D58.2 merger synergies.

D59 The winner's curse refers to the tendency for the highest bidder for an asset to offer a price which exceeds the intrinsic value or true worth of that asset. This is typically due to the buyer having incomplete information or subjective biases (for example, emotional reasons clouding their purchase decision).

D60 When two firms merge there may be synergies which would not have been available to the stand-alone business and the acquisition price may incorporate some of the value of those synergies.

D61 We do not consider that either of these considerations is likely to have materially affected the prices paid for Chevron or Gull by Z Energy and Caltex Australia, respectively.

D62 In respect of the winner's curse, we note there is little evidence that either Z Energy, or Caltex Australia, has paid too much for Chevron, or Gull.

D62.1 Z Energy and Caltex Australia have long experience and intimate knowledge of the fuel industry, are large and well resourced, and we expect they would have undertaken detailed due diligence to minimise the risk of overpaying due to incomplete information or to subjective biases.

D62.2 Z's share price climbed 21%, and its market capitalisation increased over $400 million when the share market learnt of Z Energy's proposal to

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695 CAL Group Holdings NZ "Annual Report" (2017) at note F2.

696 Z Energy "Annual Report" (2017) at note 4.

697 BP New Zealand "Feedback on Working Paper – Assessing Profitability" (14 May 2019) at [5.4].

acquire Chevron. This implies investors viewed the price paid by Z Energy as a bargain, rather than a case of Z Energy paying too much.[698]

D62.3 Both companies are required to test for impairment and write down the value of those assets if the value cannot be justified by the expected future returns from those assets. Z Energy and Caltex Australia test for impairment annually but, to date, neither has written down the value of its investment.

D62.4 Caltex Australia continues to comment positively on the performance of, and outlook for, Gull. In particular, Caltex Australia was "delighted with the performance" of Gull which "performed strongly" and is an "attractive growth platform".[699] More recently, Caltex Australia stated that "Gull volumes and earnings in New Zealand remain strong and are growing ahead of the investment case."[700]

D63 In respect of the synergies achieved from Z Energy's merger with Chevron:

D63.1 the extent of the increase in Z Energy's market value (noted above) when it acquired Chevron suggests the expected synergy gains were mostly enjoyed by Z's shareholders, rather than being reflected in the acquisition price paid to Chevron's shareholders.[701]

We include the capitalised value of leases in our estimates of firm's net debt

D64 The value of debt owed by Z Energy, Chevron and Gull was taken from the applicable financial statements as at the date of acquisition (for Chevron and Gull) and as at 31 March 2019 (for Z Energy, being its most recent financial reporting date). We made no allowance for Z Energy's cash on hand as we understand this to form part of Z Energy's working capital.[702]

D65 Operating leases are a multi-year financial commitment for many firms. So, we have included the value of the capitalised lease obligation as part of the market value of the fuel business (enterprise basis).[703] This is matched by the value of the right to use the leased asset, by an equivalent amount.

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698 See <https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=11458052>.

699 Caltex Australia "Annual Report" (2018) at 13 and 18-19.

700 Caltex Australia "Caltex Releases Unaudited Profit Guidance for half-year ended 30 June 2019" (20 June 2019) at 2.

701 At the time of acquisition, Z Energy identified potential synergies of $15-25 million per annum from 2017 from the Chevron acquisition. This excluded transition operating expenses and capex. See *Z Energy Limited and Chevron New Zealand* [2016] NZCC 10 at 12.

702 Z Energy "Z Response to Commerce Commission Questions" (24 July 2019) at 1.

703 Such leases also create the right to use an asset. We have included the right to use an asset as one of the assets of each firm. This is consistent with the treatment under IFRS16. International Financial Reporting Standards, IFRS 16 "Leases".

D65.1 We have taken Z Energy's disclosed forecast of the impact of IFRS16 as at March 2020 as indicative of the level of asset and liability as at March 2019.[704]

D65.2 We have taken Chevron's disclosed minimum lease payments in relation to non-cancellable operating leases as at December 2015 as the capitalised value of its lease obligations.[705]

D65.3 We estimated a range for the capitalised value of Gull's lease commitment based on Gull's schedule of lease commitments.[706] The estimate is close to the operating lease commitments in publicly released accounts.[707]

D66 We also include the value of deferred tax as this is an obligation which will need to be met by the acquirer of a company's shares (and Z Energy in respect of its business). It is stated as a nominal amount in the relevant financial statements and we include only half of the nominal amount of the obligation, as a proxy of its present value, as it may not be paid for some time.

We adjusted the market value of these firms to exclude investments in other ventures

D67 We are focused on the fuel (distribution and retail) business so we exclude any other investments which are not required for the fuel business.

D67.1 We subtracted the value of Z Energy's investments in New Zealand Refining and Flick from the market value of Z Energy, using the market value of Z Energy's stake in New Zealand Refining and the price Z Energy paid for Flick (both as reported by reported by Z Energy as at 31 March 2019).[708] Neither of these investments is necessary for Z Energy to operate in the retail fuel market as Z Energy has secured access to the refinery through a processing agreement, separate from its equity stake.

Our estimate of the market value for the fuel business of Z Energy, Chevron and Gull

D68 We can then estimate the implied market value of the fuel businesses of Z Energy, Chevron and Gull. See Table D1, Table D2 and Table D3.

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704 Z quantified the impact on debt and assets as $290 million as at FY20 in its recent results. See: Z Energy "2019 Results Presentation For the year ended 31 March 2019" (2 May 2019) at 30.

705 See: Chevron New Zealand "Group Financial Statements for the year ended 31 December 2015" note 27b. This should be estimated on a present value basis, but there is an offsetting right to use the asset, and the amounts are immaterial.

706 Gull "Caltex Australia Lease Register".

707 CAL Group Holdings NZ Limited "Annual Report" (2017) at note G1.2.

708 The book value of the stake in New Zealand Refining is determined by its market value basis in Z's accounts as at 31 March 2019. See Z Energy "Annual Report" (2019) at 83.

Table D1 Estimate of the market value of Chevron's fuel business

The implied market value of the fuel business of Chevron (as at 1 June 2016)

	$m	Explanation and Source
Price paid by Z for all of Chevron's share capital	147	Z Energy "Annual Report 2017" note 4.
Plus Net debt	710	Z Energy "Annual Report 2017" note 4.
Chevron's lease commitments	28	Source: Chevron New Zealand "Group Financial Statements for the year ended 31 December 2015" note 27b. Included on an undiscounted basis.
Deferred tax liabilities assumed by Z	74	$148m is recognised in Z's accounts. We include half, as a proxy for its present value. Source: Z Energy "Annual Report 2017" note 4.
Implied market value of Chevron fuel business	**959**	

Table D2 Estimate of the market value of Z Energy's fuel business

Component	**$m**	**Explanation and Source**
Market capitalisation of Z as at 31 March 2019	2,686	429m shares as at 31 March 2019, when share price was 6.26. NB share price closed at 6.37 on the day Z's 2019 results were announced.
Plus Debt (no allowance for cash on hand)	951	Long term borrowing + Short term borrowing + recognised derivatives, Source: Z Energy "Annual report 2019" p.67
Z's capitalised lease commitments	290	Source: Z Energy "2019 Results Presentation for the year ended 31 March 2019" page 30.
Deferred tax liabilities	71	$143m is recognised in Z's accounts, we include half, as a proxy for present value, to reflect payment over time. Source: Z Energy "Annual report 2019" p.67
Less Investments in other ventures	148	Market value of Refining NZ stake and acquisition price of Flick (2018). Source: Z Energy "Annual report 2019" note 5, 14.
Implied market value of Z Energy's fuel business	**3,850**	

Table D3 Estimate of the market value of Gull's fuel business

Component	**NZ$m**	**Explanation and Source**
Price paid by Caltex Aust. for all of Gull's shares	346	CAL Group Holdings NZ "Annual report 2017" Note F2.
Plus Gull's lease commitments	50	ComCom analysis of present value of Gull lease commitments. Source: CAL Group Holdings NZ "Annual report 2017" Note G1.2.
Deferred tax liabilities	2	$4.9m is recognised in CAL Group's accounts, we include half, as a proxy for present value, to reflect payment over time. Source: CAL Group Holdings NZ "Annual report 2017" Note F2.
Implied market value of Gull fuel business	**398**	

How we estimated the replacement cost of the assets owned by Z Energy, Chevron, and Gull

D69 The assets for the fuel businesses of each of Z Energy, Chevron and Gull comprise fuel terminals, service stations, associated plant and equipment, working capital, and various intangible assets. In this section we explain how we obtained (and, in a limited number of cases, how we estimated) an indicative replacement cost of these assets.

D70 Through this study we have received a considerable amount of recent, relevant and reliable evidence on the current or replacement costs of fuel assets.

D70.1 Where possible, we use information previously prepared by the New Zealand fuel firms themselves. In particular, we use information prepared as part of a firm's financial reporting processes.

D70.2 This information includes:

D70.2.1 estimates of the current market value for some assets; and

D70.2.2 estimates of the replacement value for some specialised assets.

D71 The information on replacement value includes:

D71.1 estimates of the current cost of replacing assets; and

D71.2 estimates of the depreciated replacement cost of some assets.

D72 Both are useful to us.

D73 Specialised assets like terminals are rarely bought and sold so a new entrant might have to construct new assets to enter the market. As a result, estimates of the replacement cost of specialised assets may be the best estimate of the costs of entering or expanding.

D74 However, if a new entrant can purchase used assets (for example, from an existing player or by acquiring an existing player) its cost of entry would likely be lower. We note, for example, Gull acquired second-hand tanks when it established its Mount Maunganui terminal.[709] In this scenario, estimates of the depreciated replacement cost may more appropriately estimate the cost of entry than an estimate of replacement cost.

709 Max Bradford, Minister of Energy and Commerce, "Opening of Gull (Terminals NZ Ltd) Petroleum Tank Farm" (20 April 1999). Available at <https://www.beehive.govt.nz/speech/opening-gull-terminals-nz-ltd-petroleum-tank-farm>. (Viewed on 15 August 2019).

D75 Strictly speaking, Tobin's q should be calculated using depreciated replacement costs but, where possible, we use estimates of both replacement cost, and depreciated replacement cost, to inform our analysis of Tobin's q for Z Energy and Chevron in this report.

D75.1 The use of replacement cost estimates sets the likely upper limit on the cost of replicating an incumbent's asset base.

D75.2 While depreciated replacement cost informs the likely lower limit.

D76 Where we do not have a reliable relevant estimate of the current cost of an asset, we substitute other estimates to try and approximate replacement costs. Those estimates are based on a range of information we have received during this study and is a mixture of public and confidential information. This is described in more detail below.

D77 Where we have made an estimate:

D77.1 we have used a range of information to make that estimate; and

D77.2 we have estimated a range, rather than a single point estimate.

D78 We have also used ranges of estimates to protect confidential information.

How we obtained estimates of the replacement cost of Z Energy and Chevron's fuel assets

D79 Under its accounting policies for financial reporting, Z Energy adopts a fair value basis for recognising the value of its property, plant and equipment. Independent revaluations of all land and buildings (including terminal plant) are undertaken by an independent valuer every five years. In the years between independent valuations, the carrying value of land is adjusted annually by a land inflation index provided by an independent valuer based on recent sales. Z Energy considers underlying land values are the significant determinant of fair value changes for itself.[710]

D80 Some assets like terminals and some plant and equipment are specialised in nature (for example, due to their narrow range of uses, size, location, configuration) and are rarely sold on the open market. The fair value of these assets is normally estimated by reference to replacement costs.

D81 For other types of land and buildings there are a range of market transactions (sales and lease renewals) from which a valuer can estimate their market value.

[710] Z Energy "Annual Report" (2019) at note 11.

D82 Z Energy has used Jones Lang LaSelle (JLL) to independently assess the fair value of its land and buildings. JLL's advice:[711]

D82.1 was prepared as part of Z Energy's financial reporting;

D82.2 complies with relevant professional standards; and

D82.3 was reviewed by KPMG in its capacity as Z Energy's external auditors. Indeed, the valuation of land and buildings, including those acquired as part of the Chevron acquisition, was identified by the auditors as a key audit matter which was subject to specific audit procedures.[712]

D83 For the specialised assets like terminals, JLL used a depreciated replacement cost approach, which required it to first estimate the replacement cost of terminal assets. JLL defines replacement cost broadly to include "all the costs to purchase, deliver and install it" and "all design, supervision, commissioning, project insurance and other non-tangible costs".[713]

D84 For other land and buildings, JLL use the direct capitalisation method which reflects, among other things, JLL's estimates of the rate of return or yield derived from its analysis of sales of comparable assets.[714] Z Energy's policy is to record the value of assets in their highest and best alternative use – even if this is greater than their value to Z Energy as retail fuel outlets.

D85 The values reported in Z Energy's accounts (and based on JLL's advice) appear to be a good basis for estimating the current cost of replacing the assets required by Chevron and Z Energy's fuel business. Our reasons are as follows.

D85.1 Z Energy's policy of adopting the highest and best alternative use for land and buildings – even if that value exceeds the profits that can be generated in use as a service station – correctly reflects the costs an entrant would incur in trying to replicate Z Energy's asset base of land and buildings.

D85.2 For Chevron and Z Energy's specialised assets we have sought information from Z Energy on JLL's estimate of replacement cost as well as the estimate of depreciated replacement cost which is disclosed in Z Energy's accounts.

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711 Jones Lang LaSalle "Z Energy Valuation Report Terminal Plant & Equipment Assets" Effective 31 March 2017; KPMG "Independent Auditor's Report" in Z Energy "Annual Report" (2017) and Z Energy "Annual Report" (2019).

712 KPMG "Independent Auditor's Report" in Z Energy "Annual Report" (2017).

713 Jones Lang LaSalle "Z Energy Valuation Report Terminal Plant & Equipment Assets" (31 March 2017) at 4.

714 One of the factors JLL's valuation approach includes is the throughput margin on fuel sales which is then capitalised. UBS notes this approach to valuation appears circular. UBS ""Fuelling the EV and regulatory debate – Upgrade to Buy" (15 May 2018) at 9.

D85.3 As discussed above, we use JLL's estimates of replacement cost to establish the upper limit on the cost of replicating an incumbent's asset base, while JLL's estimate of the depreciated replacement cost informs the lower limit.

How we obtained estimates of the working capital requirements for Z Energy and Chevron

D86 The working capital requirements for Z Energy and Chevron were taken from the published financial statements for Z Energy.

D86.1 Z Energy disclosed the working capital position of Chevron on the date the acquisition was completed in its 2017 Annual Report.[715] This is the same date on which we are estimating the value of q for Chevron.

D86.2 Z Energy disclosed its own working capital position in its own published financial accounts dated 31 March 2019.[716] Again, that date matches the date for our estimate of q for Z Energy.

How we obtained estimates of the cost of intangible assets

D87 Firms have also invested in intangible assets to retail fuel. Examples of such intangible assets held by the fuel firms include software, acquired brands, rights, licences, easements and emission units. Firms capitalise the cost of these items on their balance sheet and amortise the cost over time.

D88 We use the un-depreciated cost of these assets as disclosed in the applicable financial accounts as an estimate of the cost of replacing these assets.

D89 The cost of internally-generated brands is not included in the financial statements – although purchased ones are. A known brand should attract additional customers to the retail sites, regardless of whether it is developed internally or acquired. We therefore include the cost of Z Energy's 2011 rebrand as one of its intangible assets – although we note this likely includes tangible assets (for example, signage and branded canopies) which may therefore be double-counted.[717] This will tend to inflate the denominator in Tobin's q, so our final estimate will be too low.

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715 Z Energy "Annual Report" (2017) at note 4.

716 Z Energy "Annual Report" (2019) at 67.

717 Z Energy press release: "Z Energy commits to $60 million national brand rollout" (3 November 2011). Accessed 14 July 2019. Available at <https://z.co.nz/about-z/news/general-news/z-energy-commits-to-60-million-national-brand-rollout/>. (Viewed on 15 August 2019).

D90 We do not include values for acquired goodwill, or contracts acquired, as these costs would not be incurred by a new entrant, or by an incumbent expanding. Further, these assets are valued by reference to their future cash flows (and thus may reflect aspects of market power) and their inclusion would render the analysis circular.[718]

How we obtained estimates of the replacement cost of Gull's fuel assets

D91 We adopted a different approach to obtaining estimates of the replacement costs of Gull's assets. Unlike Z Energy, Caltex Australia values its assets at cost less depreciation. The asset values disclosed by Caltex Australia are therefore unlikely to reflect the cost of replacing those assets and we did not use the asset values reported in Caltex Australia's accounts.[719]

D92 Instead, we estimated the replacement costs of Gull's assets by reference to the other information on the replacement costs of fuel-related assets in New Zealand that was already available to us through this study.

Sources of information on the cost of replacing Gull's physical assets

D93 To estimate the cost of replacing Gull's terminal assets and service stations we used existing information that was available to us. The information we used and how we used it is set out below.

D93.1 The estimates of the cost of replacing Z Energy's fuel terminals prepared by JLL and discussed above.[720] For the reasons discussed above, we consider these are relevant and reliable estimates. We used JLL's estimate of replacement costs for each terminal and regressed it on the capacity of those terminals to produce an estimate of replacement cost as a function of capacity. We used this equation to estimate the replacement cost of a terminal with 90 million litre capacity (the size of Gull's Mount Maunganui terminal). This produced an estimate of [ ].[721] This approach assumes there are no significant site-specific costs in building a terminal in Tauranga, versus those assumed by JLL in other locations.

D93.2 The expected costs of constructing a new fuel terminal at Timaru, informed by costs incurred to date and tendered contracts, being [ ] for the full terminal (44 million

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[718] The issue of circularity is discussed, for example, in Damodaran A., "Return on Capital (ROC), Return on Invested Capital (ROIC), and Return on Equity: Measurement and Implications" Stern School of Business (July 2007) at 9.

[719] Caltex Australia recognised property, plant and equipment with a value of A$63.3m on the acquisition of Gull NZ. Caltex Australia "Annual Report" (2017) at note F2.

[720] Jones Lang LaSalle "Z Energy Valuation Report Terminal Plant & Equipment Assets" (31 March 2017).

[721] If we exclude the Bluff and New Plymouth terminals from the analysis the estimates of replacement cost for the Gull Terminal is [ ]. JLL comment on the valuation those terminals in their report. See: Jones Lang LaSalle "Z Energy Valuation Report Terminal Plant & Equipment Assets" (31 March 2017) at 8.

litres).[722] We consider this is the best guide to the current cost of building or replacing terminal assets in New Zealand.

D93.2.1 The Timaru terminal will be the most modern terminal in New Zealand and subject to the most rigorous regulatory and operational specifications (and is the only terminal subject to those requirements).[723]

D93.2.2 Its developer – TOSL – has no existing infrastructure in place, so the estimate reflects the stand-alone cost of building a new terminal.

D93.2.3 It is the most recent available estimate and it is the most robust estimate since it is for a terminal that is actually being built.

D93.2.4 We were advised by TOSL that the project is on budget and on track to be commissioned next year.[724]

D93.3 We scaled up, on a proportionate basis, the Timaru cost estimate to reflect the larger capacity of Gull's Mount Maunganui terminal. This produced an estimate of [ ] to replace the Gull terminal. This approach assumes there are no scale economies from building a larger terminal. If there were such economies, they would reduce the estimate of replacement costs we have used and increase the estimate of q.

D93.4 According to a newspaper report – which includes quotes from Z Energy's Chief Executive Officer – Z Energy considers the total cost of the TOSL Timaru terminal is between $50 million and $60 million.[725] We haven't seen supporting detail for this estimate, and we consider it is a less reliable estimate than either the TOSL or JLL estimates. Nonetheless, accepting the estimate at face value, and adjusting for the larger size of the Tauranga terminal, implies a replacement value of $100 million to $120 million for the Gull terminal (again assuming no scale economies).

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722 "Transcript of meeting with TOSL" (21 June 2019) at 28-29. We note too an announcement from LogiCamms Limited which advised that the estimated value of the design and construction programme for the new modern 44 million litre terminal at Timaru was NZ$30 million. See: LogiCamms Limited "LogiCamms wins Timaru bulk fuel terminal engineering design contract" (an announcement to the ASX) (10 October 2017). This announcement dates from 2017 and appears to be a preliminary estimate.

723 Transcript of meeting with TOSL (21 June 2019) at 27 (lines 12-36) at 32 (lines 6-26).

724 Ibid, at 3 (lines 46-50).

725 See <www.stuff.co.nz/timaru-herald/news/99289483/pacific-fuel-firm-sets-sights-on-30m-timaru-port-development>. (Viewed on 15 August 2019).

D93.5 Based on the above estimates, and to preserve the confidentiality of the TOSL and JLL estimates, we adopt an indicative range of $80 million to $120 million for the cost of replacing Gull's Mount Maunganui terminal.

D93.6 Business cases provided by a range of parties, including Z Energy and Gull, which identify the expected costs of constructing manned service stations, unmanned stations and truck stops, in New Zealand over the past 5 years.

D93.7 A spreadsheet detailing the actual cost of constructing BP service stations over the last decade.[726]

D94 Further details on how we used that information to produce our estimate of the replacement cost of Gull's physical assets is provided in Table D6 below.

Sources of information on Gull's working capital requirements and intangible assets

D95 The working capital requirements for Gull were taken from published financial accounts as at 3 July 2017 (when the acquisition was completed).[727]

D96 Similarly, we also adopted the value of intangibles recognised in those accounts as at that date.[728]

D97 For the same reasons discussed above in relation to Chevron and Z Energy, we do not include the value of acquired goodwill for Gull either.

We considered a report from Worley Parsons commissioned by New Zealand Oil Services Limited

D98 BP provided us with a report which purported to estimate the cost of replacing terminals operated by New Zealand Oil Services Limited (NZOSL) on behalf of BP.[729] We considered but did not place any weight on this report.

D98.1 The report was prepared by Worley Parsons for NZOSL.

D98.2 Worley Parsons and BP are the sole shareholders in NZOSL.

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726 [ ]

727 Caltex Australia "Annual Report" (2017) at note F2 and CAL Group Holdings NZ "Annual report" (2017) at note F2.

728 Being $40 million. See: CAL Group Holdings NZ "Annual Report" (2017) at note C3 and F2. These intangible assets were reported principally as rights and licences held by Gull.

729 Worley Parsons "NZOSL Terminal Valuation Study Basis of Cost Estimate Report" (April 2019).

D98.3 The report was requested in March 2019 shortly after we commenced our study and after we had advised parties that we were looking to assess returns on capital as part of our analysis.[730]

D98.4 NZOSL facilitated the commissioning of the report at the request of BP, paid for the report, and provided information to enable Worley Parsons to prepare the report.[731]

D98.5 However, NZOSL did not review the report, did not have an intention to use or rely on the report, and did not make or anticipate any decisions to be informed by the report. NZOSL does not hold any previous reports or documents related to the estimated replacement cost of terminals.[732]

D98.6 The Worley Parsons report does not reference, and was not stated to comply with, relevant professional standards.

D98.7 There are no indications that the report was independently reviewed before being finalised.

D98.8 The estimates of replacement cost included in that report are materially above the whole range of other estimates of terminal replacement costs referenced above (having regard to differences in the capacity of the various terminals).

D99 As an illustration of the high and seemingly implausible estimates in the Worley Parsons report we contrast its estimates for replacing the Dunedin (and Napier) terminals with the estimated cost of the new Timaru terminal.

D99.1 The Worley Parsons report provides P10, P50 and P90 estimates of the cost of replacing, on a like-for-like basis, various terminals and states that the P90 estimates "should be used for any financial modelling or forecasting". The P90 estimates of the cost for replacing, on a like-for-like basis, the Napier and Dunedin terminals are stated as [ ] million each.[733] Each of those terminals has a capacity of less than 20 million litres.[734]

D99.2 TOSL's estimate of the cost of completing the new modern 44 million litre terminal at Timaru is ([ ] million).

730 Commerce Commission "Market Study into the Retail Fuel Sector - Invitation to Comment on Preliminary Issues" (31 January 2019) at 15-16; and Transcript of meeting with BP (11 March 2019) at 30 (lines 1-13, 39-50).

731 New Zealand Oil Services Limited "Response to Voluntary Information request in relation to the market study into retail fuel" (1 July 2019) at 2.

732 New Zealand Oil Services Limited "Response to Voluntary Information request in relation to the market study into retail fuel" (1 July 2019) at 2.

733 Worley Parsons "NZOSL Terminal Valuation Study – Basis of Cost Estimate Report" (April 2019) at page 1. Appendix 4 and 8.

734 BP "BP tank listing by port".

D100 Based on the information available to us, and the considerations outlined above, we rely on the TOSL and JLL estimates of cost but not the Worley Parsons estimates.

Our estimates of the replacement cost of the assets for Z Energy, Chevron, and Gull

D101 We summarise the information discussed above to produce estimates of the replacement costs for each of Z Energy, Chevron, and Gull. These are summarised in Table D4, Table D5 and Table D6 below.

Table D4 Estimate of the depreciated replacement cost of Chevron's fuel business

Asset	**NZ$m**	**Source and explanation**
Storage terminals	85	Z Energy "Annual Report 2017" note 12.
Land and improvements	114	ibid, note 12.
Buildings	14	ibid, note 12.
Plant and Machinery	32	ibid, note 12.
Construction in progress	1	ibid, note 12.
Other non-current assets	5	ibid, note 4.
Right to use leased assets	28	Source: Chevron New Zealand "Group Financial Statements for the year ended 31 December 2015" note 27b. Included on an undiscounted basis.
Working capital	112	Z Energy "Annual Report 2017" note 4.
Brands	37	ibid, note 13.
Emission units and other intangibles	14	ibid, note 13.
Value of assets on depreciated replacement cost basis	**442**	

Table D5 Estimate of the depreciated replacement cost of Z Energy's fuel business

Component	**NZ$m**	**Source**
Storage terminals	172	Z Energy "Annual Report 2019" (Z AR 2019) note 11.
Land and improvements	301	ibid. note 11.
Buildings	100	ibid. note 11.
Plant and Machinery	232	ibid. note 11.
Construction in progress	25	ibid. note 11.
Other non-current assets	3	ibid. page 67.
Right to use leased assets	290	Z Energy "2019 Results Presentation for the year ended 31 March 2019" page 30.
Software in progress	37	Z Energy "Annual Report 2019" note 12.
Working capital	496	Z Energy "Annual Report 2019" p.67, incl cash.
Brands	97	Z Energy "Annual Report 2019" note 12, plus cost of 2011 rebrand to Z.
Emission units and other intangibles	8	Z Energy "Annual Report 2019" note 12.
Other intangibles	119	ibid. note 12.
Value of assets on depreciated replacement cost basis ($m)	**1,880**	

Table D6 Estimate of the full replacement cost of Gull's fuel business

Component	NZ$m	Source and Explanation
Replacement cost of terminal	80 - 120	Various sources described in the text.
Freehold land	13	Source: CAL Group Holdings NZ "Annual report 2017" Note C4 and F2.
Fuel Stops	54 - 70	Assume build costs of $1m-$1.3m on 54 sites.
Right to use leased assets	50	As per calculated lease commitments.
Working capital and other assets (net of liabilities)	6	Source: CAL Group Holdings NZ "Annual report 2017" Note F2.
Intangibles (Brand, rights and licences, software)	40	Source: CAL Group Holdings NZ "Annual report 2017" Note F2.
Value of assets on full replacement cost basis ($m)	**243 - 299**	

Our estimates of Tobin's q for the fuel businesses of Z Energy, Chevron, and Gull

D102 Having estimated the implied market value of the fuel business for each of Z Energy, Chevron and Gull, and the replacement cost of the assets required by each of those businesses, we can now calculate an estimate of Tobin's q.

D103 Our estimate of the Tobin's q for the fuel business of each of Z Energy, Gull and Chevron is shown in Table D7 below, along with explanatory comments.

Table D7 Summary of the estimates of the Tobin's q for Chevron, Z Energy and Gull's fuel business

Estimate of q	**Using estimates of depreciated replacement costs for specialised assets**	**Using estimates of full replacement costs for specialised assets**
Chevron	2.2	1.8 - 1.9
Z Energy	2.0	1.6 - 1.7
Gull	No reliable data	1.3 - 1.6

Source: Commerce Commission analysis of public and confidential data explained above.

The implied market values of each fuel business materially exceed estimated replacement cost

D104 Each estimate of Tobin's q materially exceeds unity.[735]

[735] We note they also exceed the estimate of Tobin's q for New Zealand noted by the 2010 expert advisers' report and reported above at paragraph D49.3.

D104.1 Our estimate of q for Chevron is between 1.8 and 2.2 as at 1 June 2016.

D104.2 Our estimate of q for Z Energy is between 1.6 and 2.0 as at 31 March 2019.

D104.3 Our estimate of q for Gull – using only estimates of full replacement cost – is between 1.3 and 1.6 as at July 2017.

There are plausible explanations for estimates of q above unity

D105 Consistent with Lindenberg and Ross we note that there are two plausible explanations (other than estimation error) for estimating values of q materially above unity.[736]

D105.1 The firm may possess factors of production on which it earns ordinary Ricardian rents (for example, excess returns from operating from the best site), and these may not be captured in its replacement cost figures. The most frequent example of such a factor is an early entrant to an industry securing the best site(s) for its operations.

D105.2 Competition in the fuel sector is not as effective as it could be, and this is enabling each of Chevron, Z Energy, and Gull (and potentially other firms) to earn excess profits. Investors expect these excess profits to continue and capitalise that into the market value of the firm, such that the firm is valued at a premium to replacement cost.

D106 In respect of the first plausible explanation, a number of factors render it unlikely that Ricardian rents from possessing specific factors of production can adequately explain the extent of the q above unity.

D106.1 The greater cost of securing the best sites (for example, retail sites) would be captured in estimates of replacement cost (or market value) for those sites.

D106.2 We have the data necessary to estimate Tobin's q for only three firms, and the three companies have very different business models, yet each has a value of Tobin's q which materially exceeds unity. The high frequency of observing values of q above unity makes it unlikely that it can be explained by each possessing a special advantage.

D106.3 Gull is a relatively recent entrant to this market, had to build its own supply chain without the scale and scope advantages enjoyed by the majors, and incurred substantial costs establishing its own network of retail fuel sites. Further, it competes primarily on price to attract

[736] Lindenberg, E., and S. Ross (1981) "Tobin's q Ratio and Industrial Organization" 54:1 Journal of Business at 2.

consumers. There are no apparent special factors which might enable Gull to earn excess profits.

D106.4 The IRRs they (and other New Zealand fuel companies) expect to earn on new fuel sites (discussed in a prior section), indicates that the Tobin's q on new investment also materially exceeds unity.[737] A Tobin's q above unity on new investment cannot be attributable to historical factors such as an early entrant securing the best sites.

D106.5 The estimates of q cover all fuel activity and we explained in Attachment B that we assume the other activities (like commercial sales and non-fuel income) are more competitive. That is, the inclusion of those activities would therefore seem more likely to reduce the estimate of q, than to increase it.

D107 However, looking at our analysis of factors affecting competition in this draft report, we find that majors like Z Energy (and Chevron) appear to enjoy a suite of advantages over a player like Gull. For example, the majors enjoy lower distribution costs, greater regional reach, and a cost advantage in respect of fuel refined in NZ, without loss of vertical control. These advantages may help explain the value of q estimated for Chevron and Z Energy, and the difference in q between those companies and the estimate of q for Gull. Gull's lower q may also be due to it pricing below the level established by the majors.

D108 We acknowledge that:

D108.1 over time, q would be expected to trend lower (towards one) if competition is working effectively; and

D108.2 our analysis presents a one-off snapshot view of q for each of these companies and we have not undertaken an analysis of q over time.

D109 That said, estimates of q which are around two for Chevron and Z Energy, using estimates of depreciated replacement cost, and around 1.5 for Gull, when assets are valued at full replacement cost, does suggest these firms are expected to earn profits materially above competitive levels.

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737 That is, marginal Tobin's q.

Values of Tobin's q above unity seem to be primarily explained by competition not working effectively

D110 The second plausible explanation for values of q above unity identified by Lindenberg and Ross was ineffective competition. In respect of that explanation, values of q which are well above unity are consistent with other analysis in this draft report of ineffective competition, and a range of barriers to entry deterring most new entry. In light of that analysis and our analysis of the persistence of excess profits (set out in Attachment E), we consider ineffective competition is the most plausible explanation for the estimated values of q above unity.

Investors are not currently valuing the fuel sector as a sunset industry

D111 Z Energy has submitted that the fuel sector was a sunset industry.[738]

D112 A firm that is dying, or operating in a dying industry, would be expected to have a value of q of less than one.[739] So would a firm whose capital stock has been rendered obsolete by technological progress.

D113 The significant premium to replacement cost which investors have placed on the market value of Z Energy, indicates investors in Z Energy do not currently value Z Energy as though it is operating in a sunset industry (although they do expect a sunset eventually). This interpretation is supported by the estimates of q for Chevron and Gull (albeit these were estimated as at dates in 2016 and 2017, respectively), and by the analysis of the business cases for new investment. The estimate of q well above unity for Gull is especially notable as Gull primarily supplies the retail fuel market and is a price challenger.

Preliminary conclusion on forward-looking measures of profitability

D114 We have looked at several forward-looking indicators to assess sector profitability. The evidence we have considered so far consistently shows that firms expect profitability to remain well above normal competitive levels in the retail fuel industry.

D114.1 Commentary in internal documents indicates that firms have been aware that margins were above a competitive level and therefore could attract new entry, since around 2012 or 2013.

D114.2 Company's own business case projections show internal rates of return, and discounted paybacks, for new or rebuilt retail fuel sites which imply average expected levels of profitability that are more than double the estimated WACC over the period 2014-2019.

738 Z Energy "Comments on 18 April Working Papers" (7 May 2019) at [10.3] and [28]-[30].

739 Lindenberg, E., and S. Ross (1981) "Tobin's q Ratio and Industrial Organization" 54:1 Journal of Business at 2.

D114.3 Hurdle rates for new retail fuel investment are set at levels materially above WACC – and this does not seem necessary to address over optimistic forecasts.

D114.4 Z Energy, the largest participant in the retail fuel market, has recently publicly stated it seeks five-year discounted paybacks from new investment in its core fuel business.

D114.5 Tobin's q estimates, albeit for only a few firms and for a broader range of activities than just retail fuel for two of the companies, indicate that current and recent investors expect ongoing high profits. This implies those investors:

D114.5.1 do not expect a significant increase in competitive intensity from current competitors; and

D114.5.2 do not expect new entry, or if entry does occur they expect it will be sufficiently small-scale or localised, such that it would not drive price to the competitive level and so excess returns are expected to remain significant.

Backward-looking approaches

D115 Backward-looking approaches look at the actual level of profitability firms have achieved over time. We have considered a range of backward-looking indicators of profitability. Each is discussed in turn.

D115.1 Importer margins reported by MBIE.

D115.2 The fuel margins reported by Z Energy.

D115.3 Return on capital employed (ROCE).

D115.4 A range of other measures, including Economic Value Added (EVA), the lifetime IRR for Z Energy and Gull, and a comparison of the net profit per litre of fuel sold between fuel firms listed on the New Zealand and Australian stock exchanges.

Margins

D116 Profit margins measure profit relative to revenue. Profits can be stated in terms of gross profits, net profits, operating earnings, or other measures of profit.

D117 Margins are a commonly used measure of financial performance in the fuel sector. The retail fuel industry generally uses gross margins expressed either as a percent of sales, or as cents per litre of fuel sold.

D118 Gross margins are generally easy to calculate. However, they are an incomplete measure of performance in that they do not reflect the following factors.[740]

D118.1 All operating costs – gross margins are net of the cost of goods sold only and not other operating costs (such as property-related costs, staff costs, and marketing costs).

D118.2 Differences in volume sold at each location – retail fuel is sold from a variety of locations into many geographic markets. The volumes achieved per site vary enormously, ranging from the large multi-pump sites typically servicing large metropolitan areas, to small unmanned sites in rural locations. Ideally, an analysis of retail profitability would include consideration of the volumes of fuel sold, as well as margins (and capital and risk, as discussed next).

D118.3 Capital – gross margins do not reflect the amount of capital required to generate the margins. The more capital investment that is required, the greater the revenue and margin that is required to offset all the costs of supply.

D118.4 Risk – the more risk the capital investment is exposed to, the higher the return an investor and the firm would expect, and the higher the margins would need to be.

D119 Many submissions commented that we should not rely on gross margins as a measure of profitability.[741] In addition to the weaknesses above, BP noted that there is no good benchmark to compare gross margins against in order to assess whether returns are above normal.[742]

D120 Given the weaknesses we outlined above, gross margins are not a direct measure of, or proxy for, profitability. However, gross margins are a widely used and important metric in the fuel industry.

D121 Margins are a key influence on overall profitability, given the large volumes of fuel sold and the fixed costs involved in the fuel supply chain. In short, margins are a key indicator of profitability as the level of margins, and trends in margins, directly and significantly affects profitability. When used in conjunction with other measures, we can draw inferences about changes in profitability from changes in margins.

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740 Commerce Commission "Market Study into the Retail Fuel Sector Working paper on assessing profitability" (18 April 2019) at [68].

741 Economics New Zealand Ltd "Feedback on Working paper on Profitability" (7 May 2019) at 2; Z Energy "Submission on Working Papers" (7 May 2019) at [11]; and MTA "Comments on Working Papers" (7 May 2019) at 2.

742 BP New Zealand "Feedback on Working Paper – Assessing Profitability" (14 May 2019) at [3.6].

Importer margins

D122 MBIE publicly reports its estimate of the importer margin for petrol and diesel. The importer margin estimates the gross margin available to fuel retailers to cover domestic transportation, distribution and retailing costs in New Zealand, as well as profit margins.

D123 Importer margins are a measure of gross margins across the whole supply chain. They are therefore not a direct measure of profitability as they do not measure all costs, or the amount of capital required to earn that amount of profit. However, this series still provides valuable insight into trends in industry profitability.

D123.1 As noted in Chapter 2 petrol volumes are essentially static, and diesel volumes are growing at mid-single digit rates. Much of the fuel sector infrastructure has been in place for some time, and recent new investment is concentrated in the retail sector.

D123.2 Increasing margins is therefore a key opportunity for firms to increase their returns on the capital that has been invested.

D123.3 The importer margin published by MBIE has been reported for decades and is the longest data series available on the financial performance of the New Zealand retail fuel sector.

D123.4 The trends in importer margins, when used in combination with other measures, provides an indication of trends in profitability over extended periods of time.

D124 As we noted in Chapter 3 the importer margins reported by MBIE for petrol and diesel show sustained strong growth since 2010 and continue to remain at levels above recent historic averages.

D125 Fuel margins have also varied materially over time as firms have entered, expanded, contracted or left the industry. This is evidenced by comparisons of New Zealand fuel margins with those in other countries.

D125.1 New Zealand's retail fuel margins were high relative to those in other OECD countries prior to the arrival of Challenge and Gull from 1998.[743]

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[743] Max Bradford, Minister of Energy and Commerce, "Opening of Gull (Terminals NZ Ltd) Petroleum Tank Farm" (20 April 1999). Available at <https://www.beehive.govt.nz/speech/opening-gull-terminals-nz-ltd-petroleum-tank-farm>.

D125.2 Margins declined in the 2000s to a point where several players felt they were not sufficient to attract investment (leading to some divestment).[744]

D125.3 After that point, margins rose to a point where New Zealand retail fuel prices, expressed prior to government levies, duties and taxes, were among the highest in the OECD (and higher than in some Pacific Island countries).[745]

D126 Some parties, including Z Energy, have commented that MBIE's analysis of importer margins may not be correctly reflecting the level of discounts in the short-term.[746] However, we understand that Z Energy consider the series is appropriately reflecting the underlying trend in the longer term. Our interest is in medium and longer-term trends, rather than quarter to quarter variations.

D127 Figure D2 show MBIE's petrol importer margins have been volatile but show a flattening upward trend in recent years, having grown markedly in the early part of this decade.

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744 BP, "Market study into the retail fuel sector – BP New Zealand comment on preliminary issues" (21 February 2019) at 1. Z Energy, "Market Study into the Retail Fuel Sector: Z Energy's Response to Invitation to Comment on Preliminary Issues" (21 February 2019) at [20] and [34].

745 MBIE, "Report back on the findings and recommendations of the Fuel Market Financial Performance Study" (23 November 2017) at 11.

746 Z Energy "Submission to MBIE on Fuel Market Performance Study" (13 October 2017), section 4, at 13-18.

Figure D2 MBIE's importer petrol margins in cents per litre (2011-2019)

Source: MBIE importer margin.

D128 Diesel importer margins are shown in Figure D3. Like the petrol series, MBIE's series of diesel margins showed strong growth in margin for the first part of this decade, and then a flattening and more volatile trend in the second half of the decade.

Figure D3 MBIE's importer diesel margins in cents per litre (2011-2019)

Source: MBIE importer margin.

D129 Over the longer term the importer margins series show that margins remain at levels which are well above the levels earlier this decade, for example the period until 2014.

D130 While margins are not a measure of profitability, they are a key value driver. Given the high level of fixed costs in the retail fuel industry and the moderate level of volume growth, margins are likely to be the key driver of industry returns. The strong sustained increase in margins is likely to have materially lifted industry returns.

The fuel margins reported by Z Energy

D131 Z Energy regularly reports its fuel margin as part of its disclosures to investors. This margin reflects refined product sales to retail, commercial and supply customers less the cost (on a replacement cost basis) of purchasing that product and the cost of delivering it to terminal around New Zealand and Z Energy's refining margin.[747]

D132 Therefore, Z Energy's reported fuel margin and MBIE's importer margin are not directly comparable.

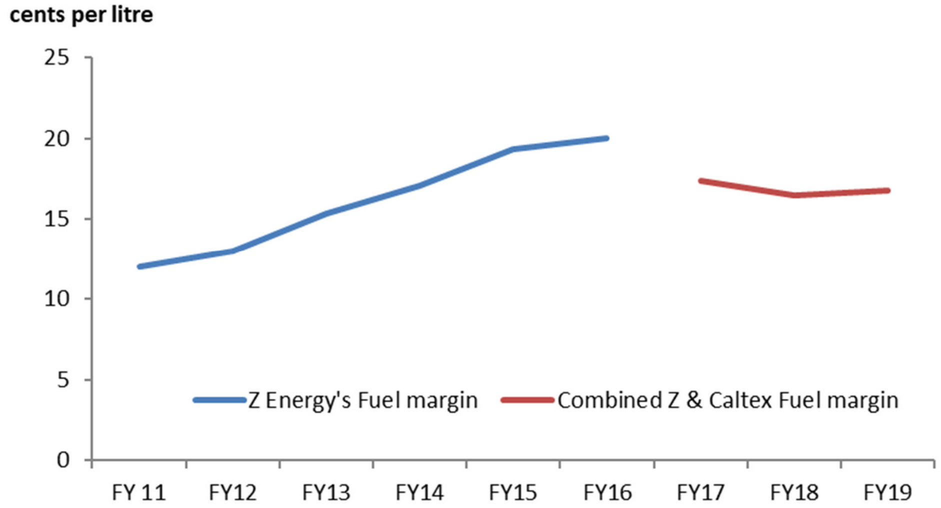
D132.1 MBIE's measure focuses on the retail prices paid at service stations while Z Energy's measure includes sales to commercial and supply customers, who would pay lower prices than the retail consumers (and Z Energy earns lower margins on these sales).

D132.2 Z Energy's measure includes some additional costs.

D133 The history of Z Energy's fuel margin is shown in Figure D4. Like MBIE's importer margin, Z Energy's fuel margin shows a strong and consistent uptrend from 2011 to 2016.

747 Z Energy "Investment Statement and Prospectus" (25 July 2013) at 76.

Figure D4 Z Energy's Reported Fuel Margin (in cents per litre, 2011-2019)



Source: Z Energy Full Year Results Presentations for various years.

D134 In 2016, Z Energy acquired Chevron. Chevron's business is different to Z Energy's in several respects.

D134.1 On sales through Z branded stations Z Energy earns a wholesale margin and the retail margin.

D134.2 Caltex branded service stations are dealer-owned so the dealer earns the retail margins, not Z Energy. Z Energy only earns the wholesale margin on those transactions.

D134.3 Similarly, Chevron (and now Z Energy) only earns a wholesale margin on sales made via Challenge stations (supplied via Farmlands).

D135 Accordingly, the combined Z Energy and Chevron margin reported by Z Energy after the merger is lower than Z Energy's pre-merger margin. Z Energy attributed most of the lower margin in FY17 to the lower margins on Chevron stating that the fuels cents per litre margin from the Z branded network "fell slightly".[748]

D136 The value for FY16 shown in Figure D4 is for Z Energy without Chevron, while FY17 shows a full year's contribution from Chevron.

D137 The average fuel margin for Z Energy for the last three years has been largely unchanged and remains above the average levels reported by Z Energy in the early part of this decade (even with the inclusion of the lower margin Chevron business from FY17).

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748 Z Energy "Management Discussion and Analysis – Financial performance for the year ended 31 March 2017" (11 May 2017) at 3.

Return on capital employed

D138 ROCE is a widely used measure of financial performance in the fuel industry, both domestically and internationally. Examples of fuel companies using ROCE include:

D138.1 BP Plc, ExxonMobil Corp, and Shell Plc;[749] and

D138.2 some New Zealand fuel companies also use ROCE from time to time, for example to assess returns on individual projects or to express a corporate or business unit financial target.[750]

D139 ExxonMobil states that ROCE is:[751]

> … the best measure of historical capital productivity in our capital-intensive, long-term industry, both to evaluate management's performance and to demonstrate to shareholders that capital has been used wisely over the long-term.

How we define ROCE

D140 ROCE is typically defined as operating earnings as a percentage of capital employed, although the definitions of those items can vary between analysts.

D141 For the purposes of our analysis we define:

D141.1 operating earnings as net income plus net interest expense net of tax; and

D141.2 capital employed as total assets less:

D141.2.1 acquired goodwill;

D141.2.2 acquired contracts;

D141.2.3 surplus cash; and

D141.2.4 non-interest-bearing current liabilities.

D142 Our definition of operating earnings is similar to that used by BP Plc, Shell and ExxonMobil.[752]

D143 The estimation of capital employed can use values of either:

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749 BP Plc "Annual Report and Form 20-F" (2017) at 103; ExxonMobil Corp, "Financial & Operating Review" 2017 at 105; and Shell Plc "Investor's Handbook Financial Statements Information" (2013-2017) at 71.

750 For example, [ ] [ ]

751 ExxonMobil Corp, "Financial & Operating Review" 2017 at 105.

752 BP Plc "Annual Report and Form 20-F" (2017) at 295; and ExxonMobil Corp, "Financial & Operating Review" (2017) at 105. One difference is that BP includes holdings gains on inventory, whereas we (and ExxonMobil and Shell) use GAAP numbers only. We considered it impractical to include holding gains for all companies in our analysis, including as some do not calculate or disclose this item.

D143.1 opening or closing capital employed; or

D143.2 averages of opening and closing capital (return on average capital employed, ROACE).

D144 We use average values of capital in this paper. That is, we report ROACE.

D145 Unlike margins, ROACE reflects all operating costs, volumes, and the amount of capital which the firm has invested. It can be compared against estimates of WACC which incorporate allowance for the risk investors are exposed to. ROACE is therefore a better measure of financial performance than margins.

D146 However, ROACE like most other backward-looking measures relies on accounting information. Accounting information has developed according to accounting rules and is not designed to inform economic decision making. For example:

D146.1 asset values may not reflect current estimates of cost; and

D146.2 accounting depreciation may not match economic depreciation.

D147 These are inherent limitations on the use of accounting information in this context. Nonetheless, as noted above, the measure is widely used by fuel firms.

The basis for valuing fixed assets differs between companies

D148 The valuation of fixed assts in the capital employed can use either estimates of current value (for example, replacement costs for specialised assets) or historic cost. Most firms use estimates of historic cost to value fixed assets.[753]

D149 Z Energy's results are on a different basis to the other fuel companies. Z Energy adopts a fair value basis for valuing its fixed assets, and includes holding gains in its statement of comprehensive income. The other companies do not include holding gains in their accounts. We bear this distinction in mind when interpreting the results of the analysis of ROACE.

How we treated Z Energy's revaluation gains

D150 Z changed its approach to valuing long-term assets from historic cost less depreciation to fair value on 1 April 2013. As a result, it booked material revaluation gains of $174 million in 2014 and $115 million in 2016, and smaller gains in other years.[754] This has the result of increasing its total assets and reported capital levels.

D151 There are two approaches to dealing with revaluations gains:

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[753] Many fuel firms use estimates of replacement cost of valuing inventory as commodity prices (including oil) are volatile and these price changes can materially affect short term financial performance measures. In a competition study we are more concerned with long term profitability levels and volatility in inventory valuation is a less significant factor.

[754] Various Z Energy "Annual reports" from 2014 to 2019.

D151.1 adjusting capital employed to remove the impact of the revaluation gain; or

D151.2 treating the valuation gain as parts of the return (numerator) and including the revalued asset as part of capital employed (the denominator).

D152 When assessing the profitability of specified airport, electricity lines, and gas pipeline services under Part 4 of the Act we adopt the latter approach of including revaluation gains in both earnings and capital.[755] We adopt the same approach with respect to Z Energy's revaluation gains.

We don't have reliable information on holding gains made by other firms

D153 Due to the absence of reliable information on the holding gains (revaluations) made by other firms, the analysis of ROACE in this report includes only the revaluation gains reported by Z Energy. This may understate ROACE for other firms.

D153.1 If the size and timing of the increase in the fair value of Z Energy's assets is reflective of the gains in value for the assets held by other New Zealand fuel companies, then the average ROACE reported in this report will have underestimated the returns made by the other fuel companies.

D153.2 Statistics New Zealand has produced the capital goods price index over many years.[756] This index appears a reasonable proxy for some of the types of assets held by fuel companies including plant and equipment and terminal assets. Over the last 20 years this shows a compound annual growth rate of 2.3%.[757]

D153.3 Prima facie, changes in this index might be a reasonable proxy for the holding gains made by fuel companies over this period. This implies that New Zealand fuel companies, other than Z Energy (which already records holding gains), might have achieved holding gains of around 2% per annum, and an estimate of ROACE including holding gains would be around 2% per annum higher than those reported below for those companies.

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755 For a stylised example in the airports context, see: Commerce Commission "Input methodologies review decisions Topic Paper 5: Airports profitability assessment" (20 December 2016) at Attachment B Figure B1.

756 See, for example, <https://www.stats.govt.nz/information-releases/business-price-indexes-march-2019-quarter>.

757 Various sub-indices, including those relating to "non-residential buildings", "structural metal products", and "tanks, reservoirs, etc" average 3.0% for the same period.

We exclude acquired goodwill and acquired contracts from capital employed

D154 Like BP Plc we exclude goodwill from our calculation of capital employed.[758]

D155 Our definition also excludes the value of contracts acquired which Z Energy recognised when it acquired Chevron. Z Energy recognised these contracts at a value of $433 million.[759] The value recognised by Z Energy on the acquired contracts could be attributable to a range of factors, including the exercise of market power by Chevron, or a change in conditions after its execution rendering the contracts more advantageous to one party (Chevron). It is difficult for us to identify which factor or factors accounts for the value.

D156 We exclude the values of those contracts for the following reasons.

D156.1 Including contracts acquired as part of capital employed makes the estimate of ROACE less informative of the returns on capital the firm might achieve in future (or a new entrant might achieve) since the value of the contract acquired is not a cost a firm would incur when expanding (or entering a market).

D156.2 If Z Energy had won the contracts organically, rather than acquiring them, no value for the asset would have been recognised. It is not obvious why the somewhat random event of an acquisition by another firm should materially affect the estimate of capital employed (or ROACE).

D156.3 If goodwill – which relates to the buying pattern of many consumers – is excluded, it is not evident why goodwill attributable to the buying pattern of single customers (or a small number of customers) should be included. While that customer is subject to a contract, the firm might have many more contracts with smaller customers which are treated as part of goodwill (and thus excluded).

D156.4 We are using ROACE to inform an assessment of market power, but the value of those contracts may be due in part to the exercise of market power. Including the expected future value of a contract into the asset base, and its actuals profits in the numerator, is essentially circular.

We exclude surplus cash from capital employed

D157 Some NZ companies, including in particular some closely-held companies and wholly owned subsidiaries of offshore parents, have significant cash holdings in some years. We estimated the surplus cash and excluded this from capital employed for closely-held companies and subsidiaries of offshore companies.

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[758] BP Plc "Annual Report and Form 20-F" (2017) at 295.

[759] Z Energy "Annual Report" (2017) at note 13.

D158 We estimated surplus cash by:

D158.1 estimating a benchmark working capital ratio (using the sample of international companies identified in Attachment C);[760]

D158.2 identifying where an unlisted New Zealand fuel firm had working capital that was above that benchmark; and

D158.3 excluding from the estimate of capital employed for that firm the extent of any cash balance that resulted in working capital being above that benchmark level in any year.

The financial information we use to estimate ROACE captures a broader range of activities than just retail fuel for some companies

D159 ROACE was also the measure of profitability proposed by MBIE in the 2017 Fuel Study.[761] The terms of reference for that study sought estimates of ROACE split between fuel and non-fuel activities, and product and market segments. NZIER et al were unable to do this due to a lack of consistent and comparable information from the companies.[762]

D160 For the reasons discussed in Attachment B we have not sought to do so either.[763] Rather, we look at ROACE across all activities of each business as part of a range of approaches to look at profitability. For the reasons discussed in Attachment B we consider this nonetheless provides insights into profitability that assist this study.[764]

D161 For some smaller firms, which are more focused on retail fuel activities, analysis of ROACE should more closely reflect the profitability of their retail fuel activities.

The return on average capital employed by New Zealand fuel firms

D162 We calculated the ROACE for the New Zealand fuel firms with a significant retail presence, or which principally supply fuel to retail outlets. The firms are as follows.

D162.1 BP

D162.2 Chevron (until 2015)

D162.3 GAS

D162.4 Gull

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760 The working capital ratio is the ratio of current assets to current liabilities.

761 NZIER, Grant Thornton, Cognitus Economic Insight "New Zealand fuel market financial performance study" (prepared for the Ministry of Business, Innovation and Employment, 29 May 2017) at 115.

762 Ibid, at 35, 41-42, 44.

763 See Attachment B.

764 See Attachment B.

D162.5 Mobil

D162.6 NPD

D162.7 Shell (until 2010)

D162.8 Waitomo

D162.9 Z Energy (from 2010).

Since 2010 New Zealand fuel firms earn higher ROACE than their international peers

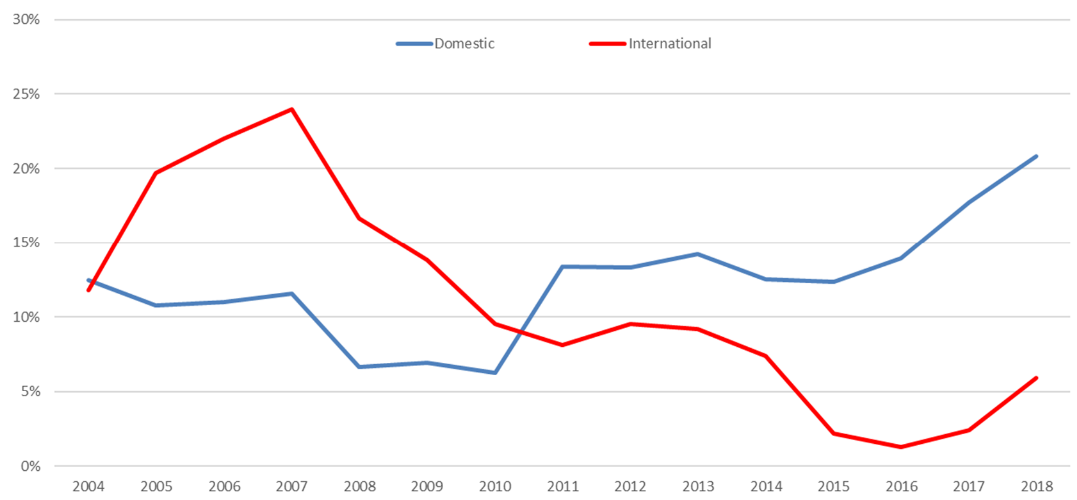
D163 In Figure D5 we compare:

D163.1 the estimated average ROACE for the New Zealand fuel firms identified above; with

D163.2 the estimated average ROACE for the international fuel companies that were identified in Attachment C as being suitable comparator companies.

D164 We are primarily interested in broad trends in returns so we show three-year rolling averages for the New Zealand and international comparators, rather than annual estimates. All the three-year averages reported in this attachment are geometric averages.

Figure D5 New Zealand Fuel firms make higher ROACE than their international peers (three-year rolling average ROACE) (2014-2018)



Source: Commerce Commission analysis of data reported by Bloomberg and various New Zealand fuel companies.

D165 Average New Zealand fuel sector ROACE has increased markedly over the period from 2004. It began to exceed the average returns made by the international peers in 2011 and has increased further since then. We estimate the average ROACE for the New Zealand fuel firms is around 15% per annum higher than the average of ROACE for the international firms in the three years to 2018.

D166 We note that:

D166.1 this increase has occurred despite interest rates, and therefore the cost of capital, falling over that period;[765]

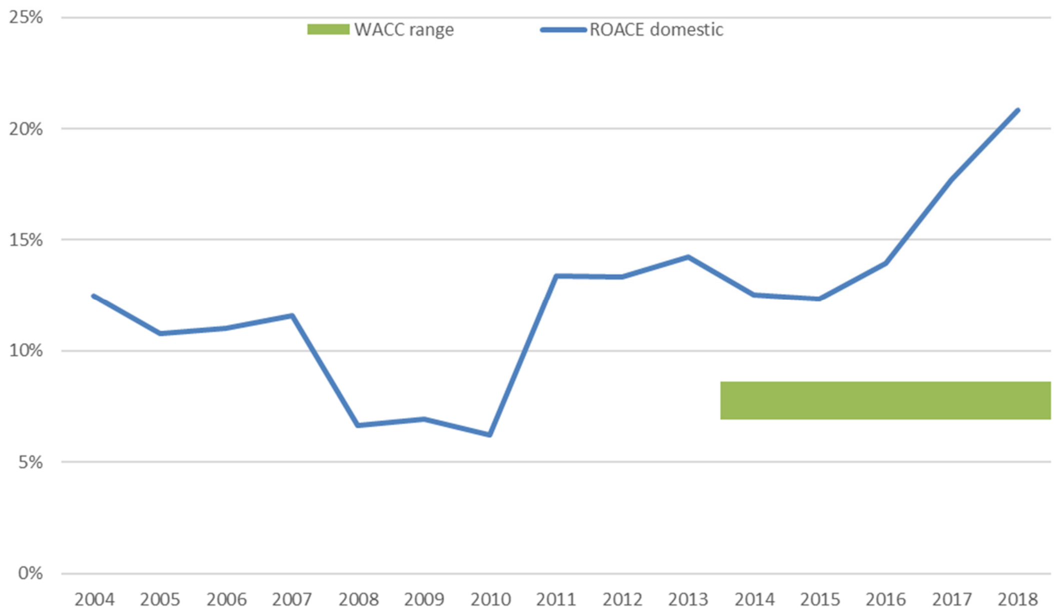
D166.2 the New Zealand fuel firms' ROACE shows a somewhat similar profile to the trend in gross margins reported above; and

D166.3 the number of firms in the sample is smaller in the early years of the period.[766]

New Zealand fuel firms' ROACE is well above WACC

D167 In Figure D6 we compare the three-year rolling average ROACE for the New Zealand fuel firms with the benchmark normal return, that is our estimated WACC range. As described in Attachment C, our explicit estimates of WACC go back only to 2014.

Figure D6 New Zealand firms' three-year rolling average ROACE has been consistently above the normal return range this decade



Source: Commerce Commission analysis of financial statement data reported by various New Zealand fuel companies.

D168 Figure D6 suggests average returns, as measured by ROACE, have consistently exceeded the top end of the range of our estimate of a normal return since the departure of Shell in 2010. That is, the estimates of ROACE for these firms implies firms have been earning excess returns over this period.

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765 As discussed in Attachment C.

766 There were only 11 firms in the sample of international fuel firms in 2004 versus 27 in 2018. See Attachment C.

D169 Our estimated WACC range assumes constant interest rates over time. However, interest rates, and thus WACC is likely to have been falling over time.

New Zealand fuel firms ROACE is well above that for companies in the NZX50

D170 We also compare the return on capital for the New Zealand fuel firms with the returns on capital made by the diverse range of firms which make up the NZX50. The NZX50 is the main stock market index in New Zealand and comprises the 50 biggest stocks by free-float market capitalisation trading on the New Zealand Stock Exchange.

D171 Our approach for estimating the ROACE for the firms in the NZX50 was as follows.

D171.1 We took the firms in the NZX50 as at July 2019 (and didn't revise our sample for changes in composition of the NZX50 over time).

D171.2 We acknowledge there are limitations in using ROACE across industries and, in particular, ROACE is an inappropriate measure for banks (due to their high leverage). So, we excluded three banks from our analysis (and as discussed below, we weighted each firm's results by its capital employed in estimating the average ROACE for the remaining NZX50 firms).

D171.3 We obtained information on the financial performance and financial position of each firm since 2010 from Bloomberg.

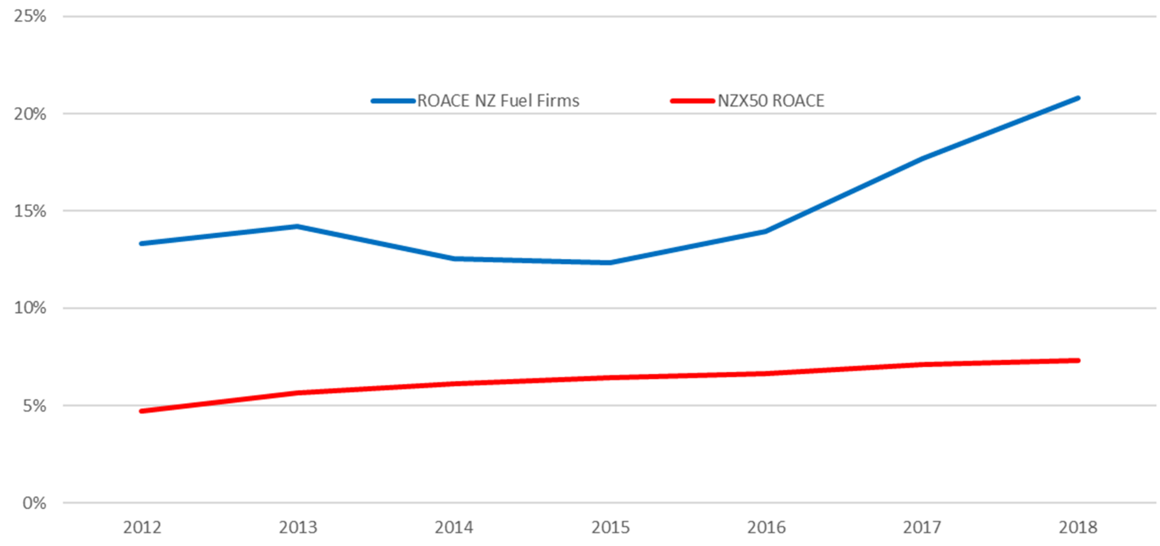
D171.4 Using the same definition of ROACE as we used for the fuel firms, we estimated the ROACE for the remaining 47 firms for each year since 2010.

D171.5 We estimated a weighted average ROACE for the overall NZX50 index for each year, weighted by each firm's share of capital employed (as we did for the fuel firms).

D171.6 In Figure D7 we compare the three-year rolling average ROACE for the NZX50 firms against the three-year rolling average ROACE for the fuel firms since 2012 (being the first year for which we have three years of return on capital estimates).

D172 Figure D7 shows the fuel firms average ROACE has been well ahead of the average ROACE for the NZX50 firms this decade and the gap appears to be growing steadily.

Figure D7 New Zealand fuel firms' three-year rolling average ROACE has been consistently above the ROACE for firms in the NZX50 this decade (2012-2018)

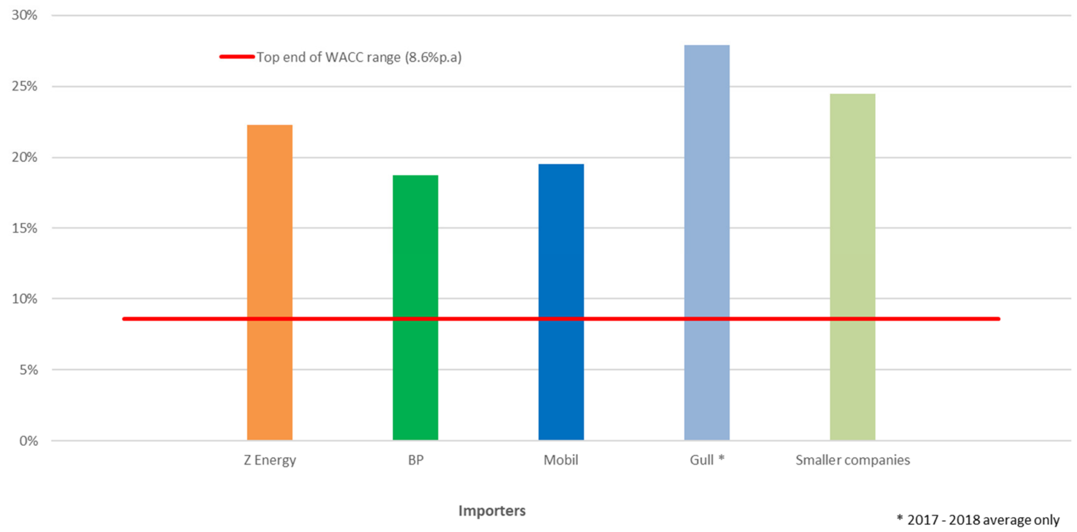


Source: Commerce Commission analysis of financial statement data reported by various New Zealand fuel companies and Bloomberg data.

Many New Zealand retail fuel firms are achieving high levels of ROACE

D173 In Figure D8 we show the average ROACE for each of the New Zealand fuel firms with a significant ongoing involvement in the retail fuel market over the last three financial periods for which we have data. All companies achieved a three-year average ROACE which easily exceeded the top end of our estimate of a normal return (8.6%). Figure D8 also highlights the difference in ROACE for the three majors versus the ROACE for Gull, which imports its own fuel, and the three smaller firms but does not identify individual companies. Gull's ROACE is shown as a two-year average as prior profitability information was not publicly available. With the exception of Z Energy, the ROACE estimates for all other firms exclude holding gains (and so underestimates their returns relative to WACC).

Figure D8 High ROACE is being enjoyed by a range of New Zealand fuel firms but Gull and the smaller firms earn higher ROACE (average 2016-2018)



Source: Commerce Commission analysis of data reported by various New Zealand fuel companies.

D174 Gull and the three smaller companies in our sample are heavily focused on the retail fuel market while the three majors have a more diverse business mix. The results could be interpreted as indicating that retail fuel activities generate greater returns on capital than the more diverse mix of activities which the majors undertake.

D175 As we explained in Attachment B it is not uncommon or unexpected for a firm in a workably competitive market to be earning excess returns. For example, the firm may have a clear cost advantage over its competitors or have successfully innovated. However, in a workably competitive market, we would not expect:

D175.1 all firms to be consistently earning excess returns;

D175.2 excess returns to continue for long; or

D175.3 the marginal seller to earn material excess returns.

D176 However, that appears to be the case here.

D176.1 All seven firms in this analysis are consistently earning excess returns.

D176.2 Returns are above WACC throughout this decade. (The persistence of excess returns is discussed further in Attachment E.)

D177 In relation to the point on the profitability of the marginal supplier, we explained in Attachment B that as Gull wholly relies on importing refined fuel – and does not benefit from any of the cost advantages of sharing infrastructure – it seems to be the marginal supplier of fuel to the retail market. It is notable, that Gull – and the other small firms in our analysis:

D177.1 have collectively grown their market share significantly in recent years.

D177.2 have done so by investing considerable sums of money (for them) in new sites, new tanks, new pumps and payment facilities; yet

D177.3 have the highest ROACE of the firms in Figure D8 with a collective average ROACE of approximately 30% per annum over the last two-three years.

D178 Further, Gull and those smaller firms' activities are increasingly focused on supplying the retail fuel market (whereas the majors have a much more diversified mix of business activities including jet fuel, fuel oil, bitumen, etc). As a result, the high ROACE being enjoyed by them is unlikely to be attributable to excess returns from supplying markets other than the retail fuel market.

D179 The high ROACE for Gull and the smaller firms with growing market shares tends to suggest competition in the retail fuel market is not working as effectively as it could, as fuel market volumes are growing only slowly and there is little suggestion that New Zealand has an insufficient number or range of service stations.

But the excess returns in dollar terms are mostly earned by the majors

D180 In Figure D6, Figure D7 and Figure D8 above we illustrated that, based on our analysis to date, a range of New Zealand retail fuel firms are currently achieving ROACE which exceed normal, competitive levels. However, due to differences in the scale of the businesses, Figure D6, Figure D7 and Figure D8 above do not show which firms appear (based on the ROACE metric) to be earning the bulk of the excess returns.

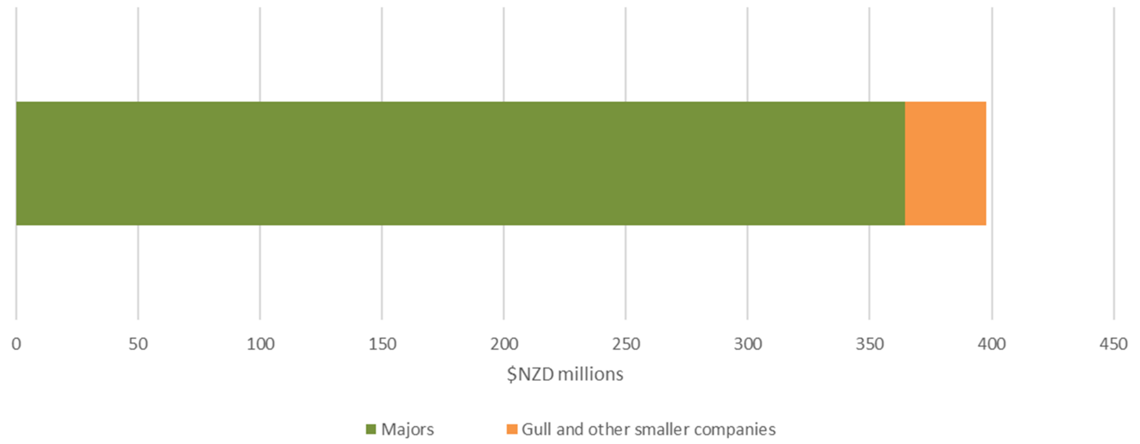
D181 In Figure D9 we show the estimated excess returns in dollar terms using the ROACE metric. That is, we:

D181.1 calculate the amount by which the estimate of ROACE exceeds the top of the range of normal returns, and

D181.2 multiply this by the amount of capital employed for each firm in the analysis in Figure D8 above.

D182 As Figure D9 shows, the bulk of the excess returns implied by the ROACE measure are accruing to the three majors, not the smaller firms. Although the smaller firms seem to be earning excess returns on capital, because they are relatively small firms, the dollar amount of those excess returns is small. The majors, while apparently earning lower returns on capital, appear to be earning most of the excess return in dollar terms.

Figure D9 Share of annual average excess returns over the period 2016-2018 implied by ROACE metric



Source: Commerce Commission analysis of companies' financial statements.

Some words of caution

D183 As discussed earlier in this attachment and in Attachment B, ROACE is not an accurate measure of excess returns. We do not mean the above analysis to infer that the ROACE measure can accurately estimate the level of excess returns, or attribute this accurately to any firm or group of firms. The ROACE metric is also capturing the profitability of non-retail fuel activities which might have different returns.

D184 The analysis above is intended to be indicative only.

Estimates of ROCE based on estimates of replacement cost

D185 As described in Attachment B, measures of profitability using replacement costs are a useful measure to assess the attractiveness of entry because they incorporate estimates of the current cost of entry or expansion.

D186 We stated in our working paper on profitability that we would seek to incorporate replacement cost values into our analysis where it is available and where possible.[767] We have done so in respect of Tobin's q and our analysis of firm's business cases for new investment.

Why we have not used estimates of replacement cost in the calculation of ROCE

D187 However, we have not incorporated estimates of replacement cost into our analysis of ROCE as there is only limited reliable and tested information available (ie, from Z Energy).

767 Commerce Commission "Market Study into the Retail Fuel Sector Working paper on assessing profitability" (18 April 2019) at [90].

D187.1 Estimating ROCE using estimates of replacement cost in practice requires estimates over a long timeframe (to match the period of time when ROCE is being assessed).

D187.2 Of the firms in the New Zealand fuel industry, only Z Energy uses estimates of replacement cost in its financial reporting, and then it has only done so since 1 April 2013. It has only updated those valuations in 2016, in respect of land and buildings only, and then in 2017 in respect of terminal plant only.

D187.3 BP supplied a one-off report from Worley Parsons on replacement costs for terminal assets. We have reservations about this report as explained above and do not consider we can place any weight on it.[768]

Other measures of profitability we considered

D188 In this section, we discuss other measures of profitability which we have considered.

D189 We currently place little weight on these measures and we report them here for completeness. We note where we have applied some of these approaches, that the results of each seems consistent with the analysis described above. As such this tends to support our preliminary view that the New Zealand fuel firms are currently making significant excess returns.

D190 The other measures of profitability which we considered are as follows.

D190.1 Net profit per litre of fuel sold.

D190.2 An estimate of the IRR for Gull over the 20-year period after it entered the market.

D190.3 An estimate of the IRR to investors in Z Energy from when it acquired Shell New Zealand to 2 August 2019.

D190.4 EVA.

D190.5 The New Empirical Industrial Organisation approach.

D191 We briefly discuss each in turn below.

Z Energy makes around twice the profit per litre of fuel than the listed Australian firms do

D192 The amount of net profit made per litre of fuel sold is a metric used by some competition authorities to assess profitability. For example, it was commonly used in Australia by the Australian Competition and Consumer Commission.[769]

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768 See paragraphs 98 and 99 in this Attachment D.

769 See, for example, Australian Competition and Consumer Commission "Monitoring of the Australian petroleum industry" (December 2014), especially Chapter 12 Financial performance by sector at 127-156.

D193 We have compared the average net profit per litre of fuel sold for the three Australasian publicly listed fuel companies over each companies' last three reported financial years. The three companies are as follows.

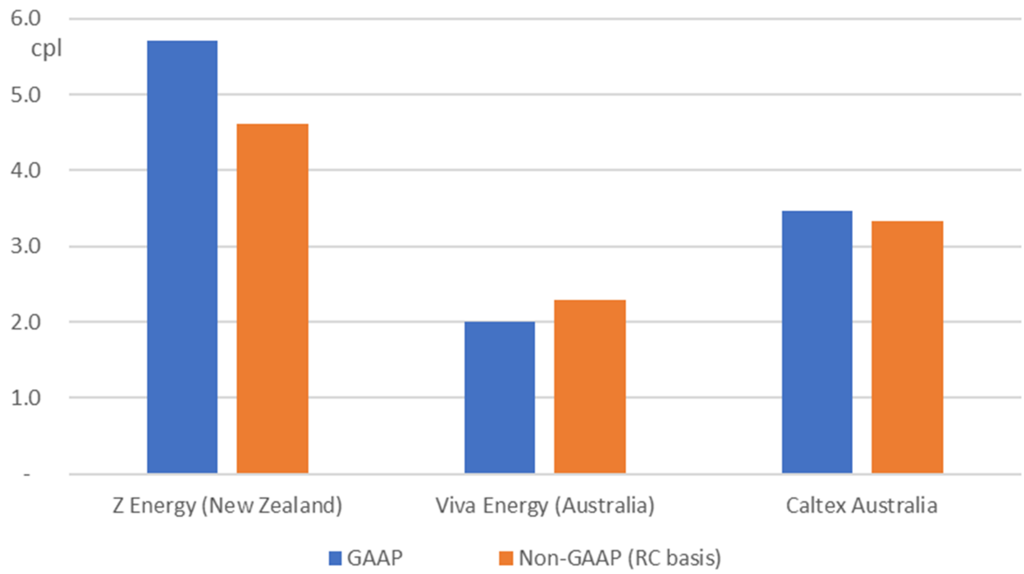
D193.1 Z Energy – NZ's largest fuel firm with annual sales of around 4 billion litres.

D193.2 Caltex Australia – with annual sales of around 20 billion litres of fuel.

D193.3 Viva Energy (ex-Shell Australia) – with annual sales of around 14 billion litres.

D194 All three companies report their profits on both a Generally Accepted Accounting Principles (GAAP) basis, and an alternative non-GAAP basis (which values inventory on a replacement cost basis, rather than a historic cost basis). In Figure D10 we show the profit reported by the three companies on a cents per litre basis using both measures of net profit.

Figure D10 Three-year average of reported net profit per litre for three Australasian listed fuel firms (all in New Zealand currency, last three financial years)



Source: Commerce Commission analysis of Z Energy, Viva Energy, and Caltex Australia public documents.[770]

D195 Figure D10 suggests Z Energy has made on average approximately twice as much profit per litre of fuel sold than the two Australian fuel companies (Caltex Australia and Viva) have made over the last three financial years.

770 See Z Energy "Annual Report" (2019) at 11; Z Energy "Annual Report" (2017) at 10; Viva Energy "Annual Report" (2018) at 3, 11; Viva Energy "Analyst Management Presentation" (22 Nov 2018) at 9 and 13; Caltex Australia Limited "Annual Report" (2018) at 10-11 and 41 and Caltex Australia Limited "Annual Report" (2017) at 4 and 41.

D196 We do not place much weight on this measure – since it reflects only one New Zealand firm, and only three firms in total – but it is consistent with other information in this report indicating strong profitability in the New Zealand fuel sector.

D197 Subject to comments from submitters on the appropriateness of this measure, we could extend this analysis in our final report to other New Zealand fuel firms for which we have the necessary information.

An estimate of IRR for Gull since its entry in 1998?

D198 We considered seeking to estimate an IRR for Gull over its business life from entry in 1998 until it was acquired by Caltex in 2017. This had appeal for several reasons.

D198.1 Gull was a new entrant in 1998 and had to incur considerable start-up costs to establish its business.

D198.2 Gull's business predominantly serves the retail fuel market, so its focus is consistent with our terms of reference, and it has maintained that focus through an extended period of time encompassing a range of trading conditions.

D198.3 As a new entrant in 1998, Gull's costs of entry could potentially be reliably determined, and its closing value (in 2017) was clearly established by Caltex Australia's acquisition.

D198.4 As a result, an IRR analysis could potentially rely entirely on cash flow information, without the complications inherent when incorporating estimates of asset values into the analysis (a truncated IRR).

D198.5 In short, this approach appears largely free of the methodological issues which affect the other backward-looking measures we report in this study.

D199 We currently have some but not all the information required to complete such an analysis. We may not be able to gather all the missing information directly, but it may be possible to infer its value from other available information (with a reasonable level of accuracy and confidence).

D200 At this stage of our study, we have not undertaken this analysis. We invite comments from submitters on whether we should try to undertake such an analysis for our final report (and whether other sources of information may be available).

An estimate of IRR for investors in Z Energy since 2010

D201 We estimated an IRR for the business acquired from Shell (and now known as Z Energy) over its life from entry in 2010 until 2 August 2019. We estimated:

D201.1 the return to equity holders (from the original equity investment[771] which has generated a stream of dividends to shareholders[772] and an increase in the equity market value of Z Energy as indicated by its share price at 2 August 2019); and

D201.2 a blended return to debt and equity holders (comprising both the returns to equity holders and the payments to providers of debt capital).[773]

D202 The estimated IRR for equity investors since 2010 was almost 34% p.a., while the blended return to debt and equity holders since 2010 was around 23% p.a.[774] Infratil and the Guardians of the New Zealand Superannuation Fund acquired the business at a discount to the fair value of the assets[775] – but even if they had paid a price equivalent to the fair value of the assets, the returns would have been 29% p.a. and 21% p.a., respectively.[776]

D203 By our calculations, total dividends paid from the ex-Shell business since it was acquired by Infratil and the Guardians of the New Zealand Superannuation Fund from Shell in 2010 total around $950 million (on a nominal basis) and:

D203.1 exceed the acquisition price of the Shell New Zealand business in 2010 of $891 million (on an enterprise value basis);[777] and

D203.2 are over double the equity investment of $420 million made to acquire the Shell New Zealand business in 2010.[778]

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771 The original equity investment of $420 million was made by Infratil and the Guardians of the Superannuation Fund into Aotea Energy Limited. Aotea Energy acquired Shell New Zealand Holding Company Limited (which it renamed Greenstone Energy Holdings Limited) which owned the Shell New Zealand business. See Aotea Energy Limited “Annual Report” (2011) at note 4. After corporate restructuring, Infratil and the Guardians of the Superannuation Fund ultimately had 40% of the shares in shares in Z Energy in the August 2013 initial public offering. The other 60% of Z Energy shares were bought by investors who participated in the initial public offering. See: Z Energy “Prospectus & Investment Statement” (25 Jul 2013) at 9.

772 Initially dividends were paid by Z Energy via Aotea Energy and now directly by Z Energy to its wide base of shareholders.

773 Again, initially from Aotea Energy and then from Z Energy.

774 Significant intercompany balances owed to and owed by Z Energy were settled around the time of the initial public offer. See, Z Energy “Investment Statement and Prospectus” (25 July 2013) at 9. Full details of those arrangements are not in the public domain and, depending on the precise details of those arrangements, our estimate of the returns to Z Energy’s investors may be understated.

775 Aotea Energy Limited “Annual Report” (2011) at note 4.

776 And assuming additional equity was contributed to fund the greater price.

777 Aotea Energy Limited “Annual Report” (2011) at note 4.

778 The balance of the $891 million purchase price of the business was debt funded. See: Aotea Energy Limited “Annual Report” (2011) at note 4.

D204 These estimates are consistent with our findings of excess returns in the New Zealand fuel sector.

Economic Value Added (EVA)

D205 Ireland & Wallace Associates (IWA) submitted that an EVA approach should be used instead of ROCE, as this would explicitly account for the cost of capital. The Major Energy Users Group made the same point.[779]

D206 An EVA approach has some advantages.

D206.1 It explicitly incorporates the cost of capital into the analysis and quantifies the profits made in excess of that cost of capital. (In our analysis of ROACE for New Zealand retail fuel firms, we looked at the extent to which the returns made by seven New Zealand fuel firms exceeded a normal level. Our approach therefore is conceptually the same as that proposed by IWA.)

D206.2 The excess profits can be summed to measure the excess returns over time. This is consistent with a focus on assessing profitability over the long-term.

D207 On the other hand, EVA looks at historic profits (ie, it is backward-looking), is based on historic costs, and is subject to the same limitations as our ROACE analysis in terms of separating retail fuel activities from other activities.

D208 IWA included an example of such an analysis using publicly available data for BP, Mobil, and Z Energy.[780] That analysis found a material level of excess profits (of $469 million in the latest year (2017)) and the tables showed an increasing trend in excess returns being earned by the three companies.

D209 IWA's analysis points to similar conclusions as the analysis reported in this study, namely of excess returns being made in the New Zealand fuel industry in recent years.

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779 Ireland, Wallace & Associates Limited "Market study into the retail fuel sector: Invitation to comment on preliminary issues Commerce Commission New Zealand – A submission on Question 9: Trends in profits" (21 February 2019) at 5 and 8. Major Electricity Users' Group, "Submission on Market Study into the Retail Fuel Market" (21 February 2019).

780 Ireland, Wallace & Associates Limited "Market study into the retail fuel sector: Invitation to comment on preliminary issues Commerce Commission New Zealand – A submission on Question 9: Trends in profits" (21 February 2019) at 7-8.

We did not use the New Empirical Industrial Organisation approach identified by NZIER

D210 The 2017 Fuel Study, commissioned by MBIE and undertaken by NZIER and others, proposed adopting the New Empirical Industrial Organisation (NEIO) approach to assess the level of competition in the market.[781]

D211 In our working paper we commented that we were not proposing to adopt the NEIO approach in this study but welcomed comments on this point.[782] In a submission to us, Z Energy agreed we should not use this approach in this study.[783] We have not used this approach in this report for the reasons set out in the working paper.

Contrary evidence – the profitability of dealer-owned sites?

D212 The analysis of profitability in this report has focused on the larger players, namely the majors and retail focused resellers.

D213 However, we acknowledge that not all players in the retail fuel industry are as profitable as this analysis of the profitability of the majors and the resellers seems to indicate. In particular, we refer to the large number of dealer-owned and operated service stations active in the retail market.

D214 We have not sought detailed information from a large cross-section of dealers on the profitability of their sites, or used other means to assess their profitability, as we considered this was impractical.

- D214.1 There are hundreds of dealer-owned stations.
- D214.2 We were conscious of costs imposed on small businesses from requesting detailed financial information from them across many years.
- D214.3 We were conscious too of the time and effort it would have taken us to obtain and analyse information from a large number of dealers.
- D214.4 MTA noted in its submission, a number of owner-operated businesses are lowly capitalised and owner-operator labour may be a significant part of the investment.[784] This raises additional measurement issues.

D215 Instead, we have spoken to a number of service station owner-operators, including a number who had been in the industry for decades and who owned multiple sites. The sites they owned were supplied fuel by a variety of firms.

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781 NZIER, Grant Thornton, Cognitus Economic Insight “New Zealand fuel market financial performance study” (prepared for the Ministry of Business, Innovation and Employment, 29 May 2017) at Section 6.3.

782 Commerce Commission “Market Study into the Retail Fuel Sector - Working paper on assessing profitability” (18 April 2019), at [95]-[96].

783 Z Energy “Comments on 18 April Working Papers (7 May 2019) at [18.3].

784 MTA “Comments on Working Papers” (7 May 2019) at 3.

D216 These were valuable conversations which, in relation to profitability, provided us with anecdotal examples of:

D216.1 their perspective of how the industry has changed over time;

D216.2 the drivers and sources of profit for their retail sites;

D216.3 increases in their cost base, including in minimum wages, rent, and other operational challenges, including drive-offs;

D216.4 reductions in volumes over times; and

D216.5 consequential reductions in profits.

D217 The MTA has also shared results of its survey of service station owners with us. Among other things, the responses to that survey suggest sales volumes achieved by dealer-owned sites are under pressure or declining.[785]

D218 It is our initial view that the low and inconsistent profitability of many dealer sites seems attributable to two factors:

D218.1 the wholesale price dealers pay their suppliers for fuel; and

D218.2 the impact of new competing sites particularly if they are unmanned and undercut prices. New Gull, NPD and Waitomo sites were specifically identified by interviewees in this regard.

D219 It was evident from these sources that stations can be, and some were, significantly impacted by the opening of new unmanned sites.[786]

D219.1 Some dealer-owned stations were, at times, losing money on their fuel sales and reliant on shop income for profitability.

D219.2 We heard of situations where a dealer's price for buying fuel from their supplier was higher than the retail price a competitor was offering for fuel (the competitor was typically an unmanned site).

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785 This includes the volumes reported by respondents (which may be affected by differences in response rates between surveys) and reductions in the number of respondents experiencing volume increases and an increase in the number experiencing decreases. MTA "Survey Results Service Station" (September 2018) at 13-14.

786 [ ]; [ ]; [ ]; and [ ]

D220 While it is clear that many dealers are operating under difficult financial conditions, this evidence does not change our preliminary conclusion that the industry as a whole is enjoying excess levels of profitability.

D221 It is our preliminary view that the difficulties being faced by some dealers in respect of some sites seem, in large part, a function of how the total margin was split between the wholesale and retail level. Dealers had unequal bargaining power when negotiating their wholesale price for buying fuel and the high margins in the industry are largely being captured by majors and distributors.[787]

D222 We note some majors and distributors do offer support to their dealer-owned stations when dealer's profitability is depressed, including:

D222.1 placing the site on agency;[788]

D222.2 increasing the level of commission or other payments made by the major for services performed by the dealer, for example, higher pumping fees when a site is on agency;[789]

D222.3 reducing the wholesale price at which fuel is sold to dealers; and

D222.4 including in supply contracts the supplier's intention to adjust the wholesale price to attempt to assure the retailer of an agreed target margin (which was included in appendices to the contract).[790]

D223 The fact that some dealers are being supported in this way indicates that sufficient margin is being made at the wholesale level (by the dealer's fuel supplier) to support some dealers, and that the fuel supplier may prefer to assist the dealer rather than risk losing the site and the dealer's business, and therefore the wholesale margin the fuel supplier is making.

D224 Measures to temporarily reallocate some of the wholesale margin to support a dealer to cope with the lower retail margin and/or volumes being experienced, are consistent with our preliminary view that the overall industry is earning excess returns.

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787 [ ]; [ ]; and [ ]

788 When a dealer-owned site goes into agency the major keeps ownership of the fuel until sold to the motorist and sets the pump prices. The site owner is paid a fee in cents per litre for providing services, including forecourt services. [ ]

789 [ ]

790 [ ]

Summary of preliminary conclusions on backward-looking assessment of profitability

D225 Based on our analysis to date, the various backward-looking measures suggest the New Zealand fuel industry has enjoyed excess returns since the early years of this decade.

D225.1 The estimated importer margins which were low in the decade prior to 2010 have grown strongly since, as have the margins reported publicly by Z Energy. Reported margins have been largely flat since 2016 but remain at levels well above those seen early this decade and in the prior decade.

D225.2 We have estimated ROACE for the New Zealand fuel firms who have a significant retail focused fuel business. However, some of these businesses, especially the majors have a broader range of activities than just retail fuel. Our current view (as explained in Attachment B) is that these other activities are likely subject to more effective competition than the retail fuel market, so we consider they are unlikely to explain the level of excess returns in the New Zealand fuel sector.

D225.3 Our estimate of the ROACE for the New Zealand fuel firms we have studied is consistently above our estimate of a normal return, is above that of the international peer companies, and is increasing.

D225.4 High levels of ROACE appear to be being enjoyed by a number of companies in the industry – not just the majors.

D225.5 Indeed, a number of smaller firms which actively participate in the retail fuel market, and for whom the retail fuel market is a proportionally larger part of their total business than it is of the majors' business, appear to be earning substantially higher returns on capital employed than the majors.

D225.6 Most significantly, these smaller firms which have significantly expanded their market share in recent years, by incurring significant capital costs to construct new retail sites with new pumps and tanks, have been achieving average returns on capital exceeding 30% p.a. while doing so. Gull, which appears to be the marginal supplier, is achieving particularly high returns on capital employed.

D225.7 Our current view is that evidence of excess returns by the suppliers who in recent years have been the main source of increased supply of fuel to the retail market, indicates that the retail fuel market is not functioning competitively. Demand is growing slowly, and we have seen little evidence that suggests New Zealand requires more fuel sites.

D225.8 Notwithstanding the excess returns on capital being achieved by these smaller players in recent years, the bulk of the excess returns (expressed in terms of dollars and as implied by the ROACE metric) appears to be accruing to the majors. This reflects the considerably larger size of their businesses, even if their reported returns on capital are lower than those for the smaller firms.

D225.9 Our preliminary view is that the majors and these smaller firms are all benefitting from above competitive levels of retail fuel prices. The cost of this is borne by consumers.

D225.10 Our analysis of returns on capital is based on the asset values reported by companies, which are often based on historic costs. With the exception of Z Energy, there is insufficient information to reliably adjust our estimates for changes in asset values over time and our estimates therefore exclude holding gains and losses. As a result, our estimates of ROACE generally underestimate firms' returns.

D225.11 Z Energy's net profit per litre of fuel sold across its total business seems to be around double that of the two large Australian publicly listed fuel firms.

D225.12 Over the period to 2019, the original equity investment in 2010 in what is now Z Energy has earned an IRR of around 34% per annum.

D225.13 On the other hand, we note that some dealer-owned sites are under financial pressure. In our preliminary view, this seems to reflect the high wholesale price they pay for fuel and, for some, the impact of a nearby unmanned site which has low costs to serve and often can offer more competitive retail prices for petrol and diesel.

Attachment E Profitability Summary - The persistence of excess returns

Introduction to this attachment

E1 This attachment seeks to answer the question are the level of excess returns persistent or temporary?

The potential for excess returns is an essential aspect of a well-functioning market

E2 Excess returns do not necessarily indicate there is a competition problem. Indeed, the potential for excess returns is desirable for several reasons.

E2.1 The potential for excess returns is an incentive for firms to lower costs and to innovate.

E2.2 Excess returns are the reward to firms which can do this efficiently.

E2.3 The potential for excess returns is necessary to incentivise firms to undertake risky investments which have considerable potential, but which ultimately may prove unsuccessful with the firm losing most or all of its investment. The riskiness of such investments increases when there is, for example:

E2.3.1 significant demand risk;

E2.3.2 irreversible and non-scalable investment; and

E2.3.3 a long period of below normal returns (for example, start-up losses) before any positive returns can be generated.

E2.4 Excess levels of profitability are also a signal for new entry or expansion. Entry or expansion will increase supply and, when competition is effective, should lead to a subsequent fall in prices and profitability. If competition is working well, and/or if new players can enter the market, then excess returns are likely to be temporary.

E3 However, where the excess levels of profitability are persistent this suggests there is an impediment to effective competition.

Are there features of the fuel market that explain excess returns?

E4 We noted above some of the reasons why firms may earn excess levels of return. It is our current view that none of those features are present in the New Zealand fuel market to the extent that they can satisfactorily explain the excess returns described in Attachment D.

E4.1 The excess returns may not be an effective signal for resource allocation. Retail demand for fuel is relatively static (and many participants expect a future decline in petrol at least, and an eventual sunset), yet excess returns are leading to significant growth in new retail sites.

E4.2 Excess returns appear to be the norm for multiple players in the fuel market, rather than acting as a reward for an individual company's (or a small number of companies) outperformance in terms of cost or innovation.

E4.3 While there is innovation in the sector (for example, pay-at-pump offers, phone apps, improved food and coffee offers, and the rollout of unmanned fuel sites), most of these are quickly imitated by other players and none of these factors seem to be substantial enough to explain the level of excess returns that continue to be earned.

E4.4 Except for TOSL's entry and large terminal investment, it does not appear that any of the existing firms are undertaking large-scale, risky investment, or investing in projects with highly uncertain demand.

E4.5 Rather most investment is small, scalable and achieves rapid payback. For example, the investment in new retail sites. It is not apparent why such investment requires returns above a normal level or would earn such excess returns in a workably competitive market.

E5 Further, our current view is that it is difficult to attribute the excess returns to lower costs to serve, or customers being willing to pay more, given:

E5.1 the maturity of, and low growth in, the New Zealand fuel market;

E5.2 the homogeneity of the product offered;

E5.3 consumers see fuel as largely an essential purchase (and express concerns over high fuel prices); and

E5.4 the excess returns are being enjoyed across most of the players in the retail fuel industry (with the exception of some dealers).

There are several factors relevant to identifying persistence of excess returns

E6 There is no bright line threshold for concluding whether excess returns are persistent. Rather, it is a matter of judgement, having regard to the available evidence.

E7 We see the following factors as relevant to assessing whether excess returns are persistent:

E7.1 the extent to which returns exceed normal levels (that is, how significant are the excess returns);

E7.2 the length of time over which returns have exceeded normal levels; and

E7.3 any reliable forward-looking information which indicate that excess returns are or are not likely to continue.

E8 We consider each of these factors in turn.

The extent to which returns exceeds a normal competitive level

E9 Excess returns are a signal for new investment into a sector and the greater the returns, then the stronger is the signal for new investment. An industry is more likely to attract new investment (entry and expansion) when returns are significantly above a normal level than when returns are only slightly above it.

Our preliminary view is that returns in the fuel sector appear to be significantly above competitive levels

E10 The assessments of profitability discussed in Attachment D indicated that returns in the fuel sector materially exceed a normal level of return.

E10.1 The expected returns on new investment, as measured by the IRR forecast in new business cases for a range of firms, were approximately double the estimate of WACC for the 2014-2019 period.

E10.2 Expected payback periods are remarkably short relative to the service life of the assets.

E10.3 Firms' hurdle rates for new investment are set at levels well above WACC, for no apparent reason.

E10.4 For the three New Zealand fuel firms where we have recent, reliable evidence of their market value, the implied market value of their fuel business appears to be 1.5-2 times the estimated current cost of replacing each firm's assets. In a competitive market, we would expect this ratio to be much closer to a value of 1, and tending towards one.

E10.5 Our estimate of the average ROACE for the fuel firms most involved in the retail sector is:

E10.5.1 above the top of our estimated WACC range;

E10.5.2 above the levels being achieved by comparable fuel firms internationally; and

E10.5.3 appears to be growing.

E10.6 Further, the smaller firms which have led recent growth in the retail fuel market, through a heavy investment programme, show the greatest returns on capital.

E10.7 Z Energy's profit per litre sold is around double that of the Australian listed fuel firms and it has achieved returns for its equity holders of over 30% p.a. since 2010.

Many participants appear to be earning higher than competitive levels of return

E11 It was notable across the variety of approaches we used that excess returns appear to be being made by many firms, and by the industry as a whole.

E11.1 New retail site openings were expected to earn well above WACC-level returns for many participants, including for manned and unmanned sites.

E11.2 Industry-wide ROCE had risen and is at levels above the returns being made by international peers, and above our estimate of normal returns. In particular, the smaller firms which have led recent growth in retail fuel investment, were achieving the highest levels of excess returns.

E11.3 Tobin's q estimates, albeit for only a few firms, indicate that investors expect ongoing returns well in excess of the levels that should attract either new entrants or expansion given the current cost to enter or expand.

The length of time over which excess returns are being earned

E12 The length of time over which excess returns are being earned is a key indicator of the persistence of excess returns. Typically, there will be a lag before new investment occurs in response to the signal from excess returns because, for example, the firm may need time to prepare plans, raise capital, and build assets. As a result, returns to the incumbents may remain above normal levels for a period, until sufficient new investment occurs and supply increases.

Returns have been elevated to levels which were potentially attractive to new entrants since 2012

E13 Internal commentary from some firms indicates that they were concerned between 2012 - 2014 that margins were already at levels which were sufficient to attract potential new entrants. Since that time, margins and returns on capital have increased further.

The lead times for new investment typically range from one to three years

E14 The length of time margins and returns have been elevated ought to have been sufficient for new entry to have occurred since lead times for new investment in the retail fuel sector are considerably shorter than this.

E15 The lead times for new investment typically range from one to three years.

E15.1 TOSL expects to commission its new terminal in 2020, several years after detailed planning commenced.[791]

E15.2 Resource consents for new stations can take six months to two years, depending on the site and which council is granting consent.[792]

To date, entry has been concentrated in new retail sites and the impact from that entry on industry margins appears to have been limited

E16 To date only TOSL has entered at the importer level and the success of this entry has not yet been tested.

E17 There has been additional entry at the retail level, through a number of new sites and Costco has announced plans to open a first site which will include petrol pumps, but:

E17.1 as discussed in this attachment and in Chapter 7, the new retail sites have yet to result in industry-wide returns tending downwards towards the sort of returns that would be expected in a workably competitive market;

E17.2 we consider the competition issues are more attributable to the absence of an effective wholesale market than the downstream retail market (see Chapters 4 to 7); and

E17.3 entry and competition at the wholesale level is more important to delivering long-term benefits to consumers.

Expectations around future margins and returns remain high

E18 Our current view is that there is a range of forward-looking information which indicates that the fuel industry is expected to continue to earn similar levels of profit in the near future as it has in the recent past. This information comes from a range of parties, including the companies themselves, and research analysts who follow Z Energy.

Company's own forecasts of future returns and future margins

E19 A number of companies in the fuel sector have stated their view that the sector is competitive and/or that competition is intensifying.

E19.1 Writing in the annual report Z Energy's chair comments that "… [Z's] operating environment continues to be increasingly competitive … Z

791 Transcript of phone call meeting with TOSL (2 April 2019) at 4 (lines 31-40); and Transcript of meeting with TOSL (21 June 2019) at 3 (lines 46-50).

792 See, for example, Transcript of meeting with NPD (14 May 2019) at 10-11.

believes the retail fuel industry in New Zealand is more competitive than ever”[793]

E19.2 Several companies submitted on the intensity of competition in their submissions. For example, Mobil submitted that “In Mobil’s experience, New Zealand continues to be a very tough, competitive, dynamic petroleum market”.[794]

E19.3 BP highlights the investment by market participants (for example, “both integrated suppliers and new entrants investing in terminal capacity and a range of providers investing in new retail sites”) and “substantial innovation and provision of services reflecting consumer demands (such as new apps and “fast lane” services, continued development of loyalty reward offers and improved convenience offers for customers)”.[795]

E20 We acknowledge:

E20.1 that many firms consider the retail fuel market is competitive; and

E20.2 that there has been a considerable investment in the retail market, including significant investment in new sites and in technology to bring additional offers to consumers.

E21 Notwithstanding this investment and the views expressed above around competitive intensity, documents supplied to us during our study suggest that firms do not expect a decline in profitability in the near term. On the contrary, we observed commentary from some firms in internal company documents that:

E21.1 the total level of industry margin will grow;

E21.2 margins are expected to remain at current levels in the years ahead;

E21.3 firms expect to grow their profits; and

E21.4 firms continue to expect to make returns well above WACC on new investment.

E22 At least one firm expects the total level of industry margins to grow.[796]

> “the New Zealand margin pool will grow, driven by On Road Diesel, Premium Fuels and Shop” and that “The majority of the margin pool growth is in B2C …”.

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793 Z Energy “Annual Report” (2019) at 14.

794 Mobil Oil New Zealand Limited “Submission to the Commerce Commission New Zealand in response to the Market Study into the Retail Fuel Sector Working Paper – Focus Areas” (7 May 2019) at [2] and [22].

795 BP New Zealand “Feedback on Working paper – Focus Areas” (14 May 2019) at [1.6].

796 [ ]

E23 Some firms expect retail margins to remain at around current levels for the next few years.

E23.1 One firm expects that "retail fuel margins will remain strong" with retail fuel margins forecast at [ ] cents per litre (cpl) in 2023 versus [ ] cpl in 2018 (and [ ] cpl in 2015).[797]

E23.2 Another firm considers margins are likely to be sustainable.[798]

E23.3 [ ].[799]

E24 Some firms expect to grow their profits.

E24.1 One New Zealand firm expects to grow its 2023 operating profit by [ ] above 2018 levels, a [ ] [large] increase over that 5-year period.[800]

E24.2 In a June 2019 profit guidance announcement Caltex Australia stated that "Gull volumes and earnings in New Zealand remain strong and are growing ahead of the investment case."[801]

E25 Some firms continue to expect returns well above normal levels on new investment.

E25.1 The IRRs forecast from new site openings remain well above WACC for business cases prepared in 2018 (and so far in 2019).

E25.2 Payback periods remain short.

E25.3 In its most recent annual report Z Energy stated that it is targeting a five-year discounted payback on new investment in its core fuel business.

E26 It is our preliminary view, that these statements and expectations indicate that market participants are not expecting a downturn in profitability soon. This implies they do not expect profitability to tend downwards towards the normal level of returns consistent with effective competition.

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797 [ ]

798 [ ]

799 [ ]

800 [ ]

801 Caltex Australia "Caltex Releases Unaudited Profit Guidance for half-year ended 30 June 2019" (20 June 2019) at 2.

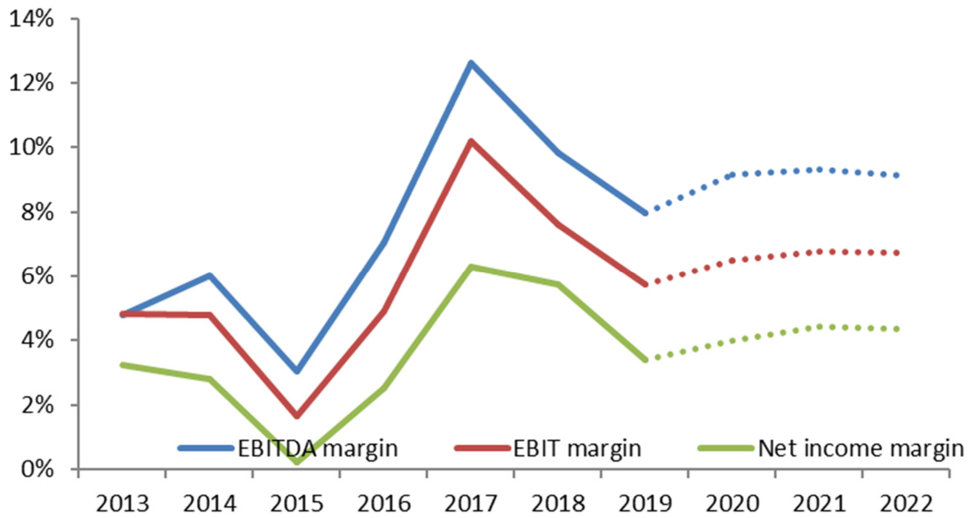
Research analyst projections of Z Energy's future earnings

E27 Z Energy is listed on the share market and a number of research analysts employed by investment banks make forecasts of its expected financial performance including revenues, EBITDA, operating earnings and net income. The profit margins implied by those analysts' consensus forecasts, relative to the historic margins reported by Z Energy, are shown in Figure E1.

E28 Figure E1 shows that, historically, Z Energy's margins are somewhat volatile reflecting the impact of changes in global commodity prices, the acquisition of the lower margin earning Caltex business (which primarily sells fuel to resellers rather than retailing fuel itself), and production outages affecting the refining margin.

E29 Figure E1 also shows that the research analysts are not forecasting any reduction in Z Energy's profit margins over the period to 2022.[802] The solid line shows actual results while forecasts are indicated by dotted lines.

Figure E1 Profit margins for Z Energy implied in analyst forecasts



Source: Commerce Commission analysis of data reported by Z Energy and marketscreener.com.

E30 We acknowledge that these margins include non-fuel and refining margins but note that the fuel margin comprises around 80% of Z Energy's total gross margins.

E31 Recent research from Macquarie Bank separately forecasts the fuel margin for Z Energy. That forecast does not show a material decline in fuel margins.[803]

E31.1 Macquarie Bank forecast a fuel margin for Z Energy's 2021 financial year of $692 million.

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802 See <https://www.marketscreener.com/Z-ENERGY-LTD-14473098/financials/>. (Viewed on 29 June 2019).

803 Macquarie Bank "Z Energy Solid start to FY20" (17 July 2019) at 4.

E31.2 This represents a 1% increase over the fuel margin in FY2018, and a 1% decline from FY2019.

E32 Forsyth Barr forecast an increase in Z Energy's gross margin from fuel on a cents per litre basis and an increase in gross profits from fuel to FY2021.[804] Z Energy's net profit is expected to increase too.

Preliminary conclusions on the persistence of excess returns

E33 Based on our analysis to date, our preliminary view is that there is a wide range of evidence which consistently indicates excess returns in the fuel sector over a lengthy period.

E33.1 The excess levels of return are being earned by many players in the industry, and they seem to have been above normal levels since at least 2012, when at least one firm considered they were already at a level that might attract new entry.

E33.2 Margins and returns have risen further since then.

E33.3 Firms' expected returns on new investment to support fuel retailing significantly exceed normal levels, despite the low industry demand growth.

E33.4 Returns on capital exceed our estimate of WACC for the industry and have been consistently above the returns on capital being achieved by international comparator firms since 2011.

E33.5 Smaller fuel reseller-retailers, which have rapidly increased their share in recent years by investing heavily in new retail sites, appear to be earning the highest returns on capital (although their share of the industry profit pool remains small).

E34 Significantly, comments on the outlook for profits in the retail fuel market from several sources, including the firms' own views, indicate that margins and returns are not expected to decline soon.

E35 Our preliminary conclusion is that the New Zealand retail fuel sector industry seems to be earning, and expecting to earn, significant excess returns on a persistent basis. Persistent excess returns suggest there are impediments to effective competition.

804 Forsyth Barr "Broad Preliminary Issues Paper Casts a Wide Net" (31 January 2019) at 2.

Attachment F Econometric and empirical analysis

Introduction

F1 This attachment provides technical detail on the empirical analysis we undertook to assess the following features of the New Zealand retail fuel market:

F1.1 the pass-through rate of replacement costs of fuel into retail fuel prices;

F1.2 the impact of loyalty schemes (i.e. discount schemes and loyalty reward programs) used at retail fuel sites on retail fuel prices;

F1.3 regional variations in retail fuel prices and margins over time; and

F1.4 the impact of new entry by fuel retailers on prices of existing fuel stations in local markets.

F2 The attachment begins with a summary of the results of our analysis so far. It then discusses:

F2.1 data used for econometric modelling and its cleaning and consolidation;

F2.2 econometric analysis of cost pass-through into board prices;

F2.3 econometric analysis of how discount and loyalty programmes interact with board prices;

F2.4 regional and sub-regional variation in board prices and margins; and

F2.5 analysis of the impact of new and rebranded site openings.

Summary of results so far

F3 We are seeking comment on the empirical analysis we have carried out to date, limitations to our analysis, the implications of the results of our analysis, and further analysis we intend to carry out.

F4 The following paragraphs summarise the main implications we have drawn from our results so far.

Cost pass-through rate

F5 We have analysed the extent to which changes in the costs of refined fuel are associated with changes in retail fuel prices, using daily site-level retail fuel prices for the period January 2011 to February 2019. The cost of refined fuel is a key cost component for all market participants. As such, we would expect to see the cost of refined fuel reflected in board prices.

F6 We refer to the relationship between these industry-wide input costs and retail prices as the "pass-through rate". Pass-through describes how fuel prices change following a change in the cost of fuel. We use the daily Singapore spot market price (NZD) as our indicator of input cost[805] and examine the extent to which changes in that variable show up in retail prices, after controlling for other factors such as the location of the petrol station (which affects the cost of its fuel). In a competitive market we would not expect to observe any pass-through rates significantly greater than one. The main preliminary results of this analysis are summarised below.

F7 We allowed for pass-through rates to differ across years and for cost changes to show up in prices immediately and with time lags of up to four weeks. Our analysis so far has found the following main results.

F7.1 The overall estimated pass-through rates appear to be greater than one for all fuels in all years from 2014 to 2017. These results were statistically significant. We note that these results are difficult to reconcile with the theory of pass-through in competitive markets.

F7.2 Pass-through appears to be significantly less than one in 2018 for regular petrol and diesel.

F7.3 The speed of pass-through varied considerably, but around 18% to 20% of cost changes showed up in prices on the same day, a further 43% to 48% after a week, and a further 25% after two weeks. Smaller additional effects were also detected after 3 and 4 weeks.

F7.4 The Auckland regional fuel tax is estimated to have been passed-through fully into retail prices (i.e. one-to-one).

F7.5 We examined whether pass-through was asymmetric, for example whether cost increases show up more fully or quickly in retail prices than cost decreases. In our analysis so far, we found no evidence of this asymmetric pass-through.

F8 While the econometric model can help reveal cost pass-through, as well as potentially, whether cost increases are passed-through more than cost decreases, or whether pass-through has changed over time, we acknowledge that this is only one indication of whether markets are competitive and if competition has changed over time. The econometric model we use for our analysis does not of itself tell us how effective competition is. This analysis should therefore not be regarded as conclusive on any aspects related to the effectiveness of competition in the New Zealand retail fuel market.

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805 This is a reasonable indicator of the cost of refined fuel imported into New Zealand since world fuel prices are closely connected and New Zealand importers do purchase fuel from Singapore.

The effect of discounts and loyalty schemes on board prices

F9 We examined whether short-run changes in board prices can be explained by changes in discount size (measured in cents per litre)[806] and whether the magnitude of these changes varies across years. Our analysis so far has found the following main results.

F9.1 Board prices appear to increase slightly when discounts increase and decrease slightly when discounts decrease for the years between 2016 and 2019.

F9.2 A 10 cents increase in discount size per litre is associated with an estimated board price increase of 1.0 to 2.7 cents per litre for regular petrol and 2.4 to 4.9 cents per litre for diesel within the period 2016 to 2019.

F10 We also examined the timing of interaction between board prices and discounts more closely by analysing which came first, the discount or the board price change.

F10.1 Our analysis so far suggests that board prices anticipated a change in discounting for 91-octane, 98-octane and diesel fuel.

F10.2 We estimate that a 10 cents change in the discount size was preceded 14 days earlier by a price change in the same direction of 0.4 to 1.1 cents per litre, depending on the fuel type.

F10.3 For some of the years between 2016 and 2019 diesel board prices changed up to two weeks before a change in discounts took place. It therefore appears that retailers anticipate changes in discounting of diesel in advance of a change in discounts.

F10.4 Additional board price changes occurred on the same day as discount changes for all fuels. For 98-octane petrol our analysis so far shows that board prices also changed 7 to 14 days after discount changes.

Regional variations in retail fuel prices and margins

F11 Overall, our analysis so far shows that board prices and margins in the South Island are higher than those in the North Island.

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806 Discount size is calculated by subtracting the effective discounted price (i.e. revenue from discounted sales divided by volume from discounted sales) from the board price. For example, suppose the board price, revenue and volume from discounted sales for site A’s 91-octane petrol on a given day are $2.10, $100,00 and 50,000 litres, respectively. The discount size would therefore be $2.10 - $100,000 / 50,000 = $0.10.

South Island

F12 Within the South Island board prices and margins for 2019 in Westland District and Queenstown-Lake District appear to be higher compared to those in other territories.[807]

F13 In particular, the board prices of 95-octane petrol in Westland District and Queenstown-Lake District are higher than those of 98-octane petrol in other territories within New Zealand.

North Island

F14 Despite having higher board prices, margins in Auckland are similar to those in other regions and territories of the North Island in 2019. We examined the impact of 11.5 cents per litre Auckland regional fuel tax implemented in July 2018 and found this tax to have been passed on approximately one-to-one into fuel prices.

F15 Our analysis so far shows that board prices in Wellington City are similar to those in the South Island and are therefore higher than those in other regions and territories within the North Island.

F16 Those fuel retail sites located in the Wellington Region, while still higher than those in other regions and territories within the North Island, are pricing slightly lower than sites located in the South Island.[808]

High population density regions

F17 When comparing across territories within high population density regions, our analysis so far shows that:

F17.1 prices and margins in Masterton District are lower than those in other territories within Wellington Region; and

F17.2 prices and margins in Waimate District are higher than those in other territories within Canterbury Region before 2014, but lower compared to those territories after 2017.

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807 "Territories" refer to "territorial authorities". A territorial authority is defined under the Local Government Act 2002 as a city council or district council. There are 67 territorial authorities consisting of 12 city councils, 53 districts, Auckland Council, and Chatham Islands Council. See <http://archive.stats.govt.nz/methods/classifications-and-standards/classification-related-stats-standards/territorial-authority/definition.aspx>.(Viewed on 25 July 2019).

808 This is because average price and margin in Wellington City are slightly higher than those averaged across the Wellington Region.

The impact of new entry by fuel retailers

F18 We have conducted an initial analysis that looked at new sites that have opened since 2017 (throughout New Zealand). Our analysis included both new retail sites (new-to-industry retailer sites (NTI's)) and rebranded sites. It was based on a total of 56 NTI and rebranded retail sites of NPD (16), Allied (13), Gull (12), GAS (8) and Waitomo (7) for the period January 2017 to February 2019.

F19 These new retail sites will benefit consumers in those areas that are opened because it might be more convenient or a lower priced unmanned retail site. This might also improve competition to at least some extent. The purpose of our analysis so far was to test how far these benefits extend.

F20 We tested whether the benefits of these new retail sites would be more widespread if it could be shown that:

F20.1 the new retail sites were being located close to those of the majors (and so they were competing more directly against retail sites that may be earning higher margins); and

F20.2 the new retail sites had led to a fall in the price and volumes at nearby retail sites of majors.

F21 We have looked at the evidence on how these new retail sites are impacting on the sites of the nearest majors. This analysis is still in progress. The evidence so far suggests mixed results as to whether new retail sites have had a positive competitive impact on the offers of majors.

F21.1 Our analysis so far suggests that Gull is most likely to put a site near those of the majors. By contrast, resellers seem to avoid putting their sites near those of the major fuel firm, especially those of their own fuel supplier.

F21.2 We looked at prices and volumes of the majors within 2km, 5km and 10km of new sites before and after each new site opened. So far, the analysis showed only some examples where the board price or volume clearly fell after entry occurred. In almost all cases the board price did not change, or the change was unclear. There were only few cases where the board price clearly fell.

F21.3 However, there were quite a few instances when the effective price (which is the price after average discounts) fell following an NPD site opening. This may indicate that the majors have reacted by offering more discounts and encouraging loyalty offers. Further, we note that on the few occasions when the volumes of the majors dropped materially after a new site opened, these instances were observed most commonly when an NPD site opened.

F21.4 There were few examples in our analysis where prices clearly fell after a Gull, Allied or GAS site opened. So far, our analysis has not provided many examples of the “Gull effect” on new site openings. This could be because the most recent Gull sites are filling in their network and most of the Gull effect has already occurred (in the areas our regional analysis identified) or simply because the data we had in this analysis was not clear enough to see the impact Gull had on nearby competitors.

F22 In summary, our analysis so far shows that Gull was most likely to put its new sites in direct competition with the majors. NPD appeared to have the most impact on the majors’ prices. There is less evidence that the sites of Gull, Allied and GAS are impacting on the majors.

Data cleaning and consolidation

F23 This section describes the relevant underlying data that we received from industry participants, the cleaning steps undertaken and how the data sets were consolidated.

Relevant underlying data received from industry participants

F24 The relevant underlying data we received from industry participants and other stakeholders can be categorised as follows:

F24.1 retail site data;

F24.2 daily retail sales data (prices and volumes by fuel type);

F24.3 daily retail data on cost of goods sold (fuel);

F24.4 daily Singapore benchmark cost index data adjusted by the daily average USD/NZD exchange rate[809]; and

F24.5 data for control variables, the Auckland regional fuel tax, and other time-variant taxes and levies.

Retail site data

F25 We received relevant retail site data for each of Allied, BP, Challenge[810], McKeown, McFall, Mobil, NPD, GAS, Gull, Southfuels, Waitomo and Z Energy. These site data include details such as the name and location of sites for each of the aforementioned parties. Some of these parties’ site data also include details on the features and operating status of each fuel site.[811]

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809 The Singapore benchmark cost index provides a consistent cost measure of the replacement cost of fuel sold by each retail supplier on a given day. It is available for all days on which we have headline retail fuel price data available.

810 Data for Challenge branded sites were provided by Farmlands.

811 The retail site data was requested for all retail sites that are currently in operation or have closed within the time period January 2009 to February 2019.

Retail sales data

F26 The relevant retail sales data provided by industry participants include daily site-level retail sales data broken down by different fuel types, for each of Allied, BP, Mobil, NPD, GAS, Gull, Waitomo and Z Energy. We note that our initial data request covered the period January 2009 to February 2019. However, some of the industry participants were unable to provide data for the full period of the request.

F27 Table F1 provides a detailed summary of the contents of each party's daily site-level retail sales data and the time period for which it was provided to us.

Table F1 Contents of each party's daily site-level retail sales data

Party	Time period	Board price	Total revenue and volume	Discounted revenue and volume	Fuelcard revenue and volume
Allied	January 2014 to February 2019	✓	✓		✓
BP	January 2012 to February 2019	✓	✓	✓	
Mobil	January 2009 to February 2019	✓			
NPD	January 2014 to February 2019		**		✓
GAS	January 2009 to February 2019	*	✓		✓
Gull	January 2009 to April 2019	✓	✓		
Waitomo	January 2012 to February 2019	✓	✓		
Z Energy	January 2009 – February 2019	✓	✓	✓	✓

* GAS' board price data only cover its company owned and company operated (COCO) sites.
** NPD's revenue information on its own retail sites are not broken down into different fuel types and are therefore unusable for purposes of our analysis.

F28 As shown in Table F1, we received daily site-level board prices broken down by different fuel types for all the parties, with the exception of NPD. We note that while most parties' data contained daily site-level revenue and volume information for each fuel type, only those of BP and Z Energy were broken down further by sales at board prices and sales at a discount to the board prices from discount schemes (e.g. supermarket dockets), which we used for our econometric analyses of loyalty schemes. For other retailers we inferred the size of daily discounts from board prices, revenue and volume data.

F29 Further, the retail sales data provided by Allied, NPD, GAS and Z Energy include breakdowns of sales via different types of fuel cards, which we used for purposes of doing econometric analyses on loyalty schemes.

Retail data on cost of goods sold

F30 The relevant fuel retail cost data provided by industry participants include the daily site-level retail cost of goods sold broken down by different fuel types, for each of BP, Waitomo and Z Energy. We were also provided with Singapore cost benchmark data by Gull to assist us with estimating the cost of different types of refined fuels.

Singapore benchmark cost index data

F31 The Singapore benchmark data provided to us by Gull sets out the daily Singapore benchmark cost index. This benchmark cost index relies on the daily Mean of Platts Singapore (MOPS) price. It provides an estimate of the per litre landed cost in NZD for each type of refined fuel retailed in New Zealand.[812]

Data for control variables, the Auckland regional fuel tax and other time-variant taxes and levies

F32 We have obtained publicly available data relevant for our analyses.

F32.1 The Auckland regional fuel tax data, which set out the list of retail sites that were affected by the 11.5 cents per litre Auckland regional fuel tax after its introduction on 1 July 2018.[813]

F32.2 Average weekly data for taxes and levies other than GST for different fuel types retailed in New Zealand (ie, the national land transport management fund, petroleum or engine fuels monitoring levy, local authority fuel tax, ACC levy and the ETS).[814]

F32.3 Quarterly data on vehicles kilometres travelled (VKT), which was used as a control variable for one of our sensitivity analyses on cost pass-through.[815] The other control variable we included in this sensitivity analysis is CPI.[816]

Cleaning steps and data consolidation

F33 In this section we describe the relevant data cleaning steps and consolidation process, including key assumptions made, on the five categories of data mentioned above.

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812 The daily average USD/NZD exchange rate is used to adjust the daily MOPS price to estimate the daily per litre landed cost in NZD for each type of refined fuel retailed in New Zealand.

813 List of retail sites that were affected by the introduction of the Auckland regional fuel tax (New Zealand Transport Agency).

814 Weekly fuel price monitoring statistics (MBIE).

815 The VKT figures are based on quarterly VKT data obtained from the Ministry of Transport. It represents the total vehicle kilometres travelled using heavy and light vehicles, motorcycles and other types of vehicles within New Zealand between the current and the previous quarter.

816 The CPI figures are based on the quarterly CPI data published by the Reserve Bank of New Zealand. The Reserve Bank measures an index of a fixed basket of goods and services each quarter. We use a general CPI rather than a CPI for petrol, as a petrol CPI would imply explaining headline retail fuel prices in terms of another retail fuel price variable.

F34 First, we cleaned and appended each parties' retail site data into a master site dataset. The cleaning procedures included for example removing duplicated sites within retailers, as well as removing duplicated sites across different retailers where rebranding or a change of ownership took place. We also corrected or completed a site's latitude, longitude and the region in New Zealand where it is located. We have also, to the extent possible, included sites that have been closed or divested, together with an identifier on whether a site is currently active or closed. Overall, the master site dataset contains details such as the name of the site and retailer and latitude and longitude information for a total of 1,640 unique sites.

F35 Second, we cleaned the Auckland regional fuel tax data and consolidated these with the master site dataset. This enabled us to identify the sites in the master site dataset that were subject to the fuel tax. The cleaning procedures involved for this dataset included removing duplicated sites within retailers, as well as renaming the names and addresses for certain sites so that they can be matched against those in the master site dataset. We note that we were able to successfully match 316 out of the 322 unique sites for Allied, BP, Mobil, NPD, GAS, Gull, Waitomo and Z Energy against the master site dataset. The remaining six sites that we were unable to match and that were removed from the master site dataset are:

F35.1 Waitomo: Awhitu Service Station, Paerata Fuel Stop and Pukekohe Fuel Stop;

F35.2 Allied: Half Moon Bay Marine Stop; and

F35.3 Z Energy: Caltex Wellsford and Caltex Station Road.

F36 Third, we cleaned the retail cost data provided by BP, Waitomo and Z Energy, and consolidated them with parties' retail sales data. The cleaning procedures included, for example, reshaping the data to have the date variable in long format, correcting site names and removing duplicated sites within and across the cost and sales dataset.

F37 Fourth, we cleaned and appended each parties' retail sales data into a master sales dataset. The cleaning procedures included for example reshaping the data to have the date variable in long format, removing duplicated sites within and across retailers, and aggregating information on revenue, volume and price where applicable.

F38 In total we removed 161 duplicate sites from the dataset. The master sales dataset contains relevant price, volume and/or revenue information from Allied, BP, Mobil, NPD, GAS, Gull, Waitomo and Z Energy, as well as cost information from BP, Waitomo and Z Energy.

F39 We further cleaned the master sales dataset by removing unusual observations on prices, revenues and volumes that could potentially distort our econometric analyses.

F39.1 We excluded a total of 3,515 sales entries that appeared to be erroneous or missing from the dataset. The lower and upper bound threshold we used for prices are $0.50 and $3.00 NZD, while the upper bound threshold we used for total daily volume and revenue sold for a given fuel type on a given day are 100,000 litres and $300,000 NZD, respectively. Effective prices that are greater than board prices were also excluded.

F39.2 A total of 79,754 entries with negative sales and effective prices lower than $0.50 or higher than $3.00 have however been excluded from the dataset, rather than replaced as missing. The board prices for most of the negative sales entries are wholesale invoice prices associated with Z Energy's wholesale sales to its independent dealers.

F39.3 In order to properly test the dynamics of cost pass-through, we amended the missing board price entries from above and from existing gaps within the dataset by assuming them to be the same as the most recent day on which the board price is valid.

F39.4 The above approach would however lead to unreliable regression results if the gaps in board price were large. We therefore excluded any board price data with gaps larger than one week.

F39.5 Further, we have excluded a fuel type of a particular site if its board price did not change for over one year.

F39.6 Finally, we looked into instances of unrealistic daily price changes that appeared to be overwhelming high or low. An assumption we made here to address this is to amend these unusual prices to be the same as the price on the previous day for instances where price changed by over 25% for a single day.

F40 Fifth, we cleaned the Singapore benchmark data provided by Gull for the time period between 24 January 2011 and 15 February 2019. The cleaning procedures included for example appending the underlying data for different period, reshaping the underlying data and correcting for a typo where the date should be 7 June 2011 instead of 7 July 2011. We considered the per litre landed cost for Automotive Gas Oil (AGO) to be the benchmark cost for diesel and the per litre landed cost for Unleaded Petrol (ULP) to be the benchmark cost for 91-octane petrol. We further assigned the per litre landed cost for Premium Unleaded Petrol (PULP) to be the benchmark cost for both 95-octane and 98-octane petrol, based on clarification provided by Gull.

F41 Sixth, we cleaned the weekly data for other taxes and levies, as well as the quarterly data for our control variables, CPI and VKT. We have converted these to daily data by assuming that they do not change within each week / quarter. For example, if the CPI value is 150 for the first quarter of 2019, we would assign this value to all dates between 1 January 2019 and 31 March 2019.

F42 Finally, we created a master dataset by consolidating the master sales dataset with the cleaned Singapore benchmark dataset to include the daily Singapore benchmark cost index for each type of refined fuel, the cleaned dataset for taxes, levies and control variables, as well as the master site dataset to include location details for sites for which we have reliable board price information and the 316 sites affected by the Auckland regional fuel tax.[817] During the consolidation process, we were able to match 790 out of the 852 sites for which we have reliable daily board price data broken down by fuel types and consolidated their location details into the master dataset for the purpose of the GIS heat maps analysis. We note that it is likely that the remaining 62 unmatched sites – namely, sites that are in the master sales data but not in the master site dataset – are no longer in operation. In particular, these 62 sites include:

F42.1 45 BP Foodstuffs sites (i.e. sites with the prefixes "New World" and "Pak N Save") that were closed as of 16 December 2012 based on information in BP's retail sales data;

F42.2 six Mobil "New World" sites that were rebranded as Z Energy sites;

F42.3 four Z Energy sites that were either closed or divested, based on information in its site data; and

F42.4 six Allied sites and one GAS site that were closed.

F43 Our final master dataset contains 3,198,300 observations across 79 different variables.

Cost-pass-through analysis

F44 This section describes the findings and possible limitations of our econometric analysis of cost pass-through. We use fixed effects models[818] applied to daily retail fuel site-level data to estimate the industry-wide rate of cost pass-through. Fixed effects models allow for headline retail fuel prices to vary by fixed amounts between retail fuel sites in New Zealand, all else being held equal.[819]

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817 Given the small sample size we also removed fuel type 100-octane petrol from our analysis. It also does not have a corresponding retail cost based on the Singapore benchmark cost index.

818 See JC Driscoll and AC Kraay "Consistent Covariance Matrix Estimation with Spatially Dependent Panel Data" (1998) 80 Review of Econometrics and Statistics at 549. Driscoll and Kraay (1998) standard errors account for serial correlation and does not assume independence across retail fuel sites. The standard error structure is assumed to be heteroscedastic, autocorrelated and possibly correlated between the sites (panels). We do this using the "xtscc" command in Stata.

819 We ran the Hausman test for all our econometric models, which tests the validity of the random effects (RE) estimator by comparing it against the fixed effects (*FE*) estimator. When the model passes the test, that is often interpreted as meaning that the RE estimator should be preferable because it is efficient. However, the efficiency of the RE estimator depends on strong assumptions on the properties of its error term, which are unlikely to be valid in most applications. Moreover, the FE estimator is more robust than the RE estimator. Therefore, the fact that the null hypothesis of the Hausman test is not rejected does

F45 We discuss:

F45.1 the purpose of our analysis;

F45.2 theoretical background;

F45.3 model specification and results, including:

F45.3.1 the base econometric model;

F45.3.2 the model including lags and control variables;

F45.3.3 further extensions to the base model; and

F45.3.4 model examining asymmetry in cost pass-through; and

F45.4 limitations of the analysis.

Purpose of the analysis

F46 The purpose of our analysis is to examine the rate of pass-through of replacement costs to retail fuel prices using a fixed effects panel model that examines price and cost changes at fuel stations in New Zealand over time.

F47 Cost pass-through arises when a business changes the prices or the products or services it supplies following a change in its costs. It is a measure of how responsive prices are to cost changes. The rate of cost pass-through in the context of the study could therefore be described as the elasticity of retail fuel prices with respect to input cost changes (when expressed in percentage terms).

F48 A number of different measures of cost pass-through are adopted in the literature. Throughout our analysis we refer in particular to the absolute rate of cost pass-through. The absolute pass-through is defined as the degree to which a given absolute change in cost causes a given absolute change in price.

F49 For example, suppose that a $1.00 cost increase causes a corresponding $1.00 price increase. In this case, the absolute pass-through equals 1 (or 100%). However, if a $1.00 cost increase causes a $0.50 price increase instead, the absolute cost pass-through is one half (or 50%). If a $1.00 cost shock causes a $2.00 price increase, the absolute pass-through equals 2 (or 200%).

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not imply that the RE estimator is preferable – it merely indicates that the RE estimator cannot be rejected. For our models, the results of the RE and FE estimators (and the estimated standard errors) are virtually identical in most cases, which is not surprising as most of our regressors only vary over time. This suggests that we could proceed with either model but, we would favor the FE model for its added robustness, which is particularly important in the few cases where the null hypothesis of the Hausman test is rejected.

F50 We note that the main focus of our analysis is on assessing the pass-through rate due to industry-wide cost changes, i.e. those that affect all firms in the retail fuel market. Our observations of what the analysis shows are based on an industry-wide assessment of cost pass-through rates in New Zealand and are therefore not necessarily reflective of firm-specific pass-through rates.

Theoretical background

F51 In this section we provide a brief summary of the economic theory on the relationship between cost pass-through and competition, in particular how it is affected by the structure of markets and by the nature of competition between firms. We note that most of the theoretical literature on cost pass-through focuses on pass-through of unit changes in tax.[820]

F52 The degree of cost pass-through in a competitive market depends on the slope and shape of the demand and marginal cost (supply) curves. In the case of the retail fuel industry, over the relevant range, demand is very inelastic (as noted in Chapter 2) and marginal costs are essentially constant. This means that the market supply curve would be perfectly elastic (flat). As import costs rise and fall, the supply curve therefore would also move up and down. Under these conditions, we would expect approximately full (100%) cost pass-through.

F53 At the other extreme, in a monopoly, there is imperfect pass-through in both the short and long run. If the demand curve is linear in the relevant range, monopolists will pass-through 50% of a change in marginal cost (higher rates, including rates of more than one, are possible under non-linear demand).

F54 In oligopolies the determination of pass-through rates also depends on the intensity of competition, but the outcomes are more difficult to predict, given the number of interactions between firms in a market. However, it is generally accepted that higher rates of pass-through (up to one) are indicative of stronger competition and vice versa.

Model specification

F55 In this section we first describe the base model specification we used for purposes of assessing cost pass-through. Following this we discuss the specification and results of the extension to the econometric model we used for purposes of assessing industry-wide cost pass-through in the New Zealand retail fuel market.

F56 We also provide the results of further regression models used to test for asymmetry in cost behaviour. Lastly, we discuss the additional modelling used for purposes of doing sensitivity checks on the results of our analysis.

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820 For example, see EG Weyl and M Fabinger "Pass-through as an Economic Tool: Principles of Incidence under Imperfect Competition" 121(3) Journal of Political Economy 528-583; and SP Anderson, Á de Palma and B Kreider (2001) 81 "Tax incidence in differentiated product oligopoly" Journal of Public Economics 173-192.

Base model

F57 In this section we provide a brief description of the base econometric model specification we used for purposes of assessing cost pass-through. The base model is used as a starting point for our analysis. However, as we discuss in greater detail in the following section, we are of the view that an extension to the base model that includes both lags and additional control variables is more robust and should be used for purposes of interpreting our findings on industry-wide cost pass-through.

F58 The base econometric model we used is a fixed effects model that explains the board prices for 91-octane petrol, 95-octane petrol, 98-octane petrol and diesel in terms of the daily Singapore benchmark cost index, while allowing the estimated pass-through to be different for each of the years from 2011 to 2019.

F59 This model provides estimates of annual pass-through from the Singapore benchmark cost index for each of these years, as well as how and whether they vary compared to the base year (i.e. 2011). The estimated coefficients for the Singapore benchmark cost index for each year between 2012 and 2019 can be interpreted as the difference between the magnitude of pass-through in each of these years and that in the base year; the results in the table also show whether these differences are statistically significant.

F60 Further, it estimates the magnitude of pass-through from the 11.5 cents per litre Auckland regional fuel tax after its introduction on 1 July 2018, and other time-variant taxes and levies, including the ETS cost. Finally, the model also contains year and month dummy variables, which capture changes in board prices across years, and seasonality changes across months. However, we have only included the regression results of key variables in this attachment for simplification purposes. Table F2 therefore excludes the regression results of the year and month dummy variables we used in our base econometric model.

F61 Regression results for key variables (excluding year and month dummy variables) in our base econometric model are presented in Table F2 below.

Table F2 Base econometric model for cost pass-through

Variables	91-octane petrol	95-octane petrol	98-octane petrol	Diesel
Singapore benchmark cost index	0.844***	0.796***	0.827***	0.977***
Singapore benchmark cost index (2012)	0.069	0.041	0.004	-0.036
Singapore benchmark cost index (2013)	0.001	0.075	0.015	-0.135
Singapore benchmark cost index (2014)	0.038	0.063	0.059	0.024
Singapore benchmark cost index (2015)	0.274**	0.261**	0.335***	0.262**
Singapore benchmark cost index (2016)	-0.122	0.009	0.114	-0.099
Singapore benchmark cost index (2017)	0.113	0.173	-0.001	-0.261**
Singapore benchmark cost index (2018)	-0.122	0.027	-0.032	-0.397***
Singapore benchmark cost index (2019)	-0.441***	-0.433**	-0.313**	-0.602***
Auckland regional fuel tax dummy	0.114***	0.110***	0.129***	0.105***
Other non-GST taxes, levies and ETS	1.394***	1.399***	1.198***	1.775***
Number of observations	1,079,064	606,960	359,198	1,113,703
R-squared	0.866	0.865	0.870	0.904
Within R-squared	0.866	0.865	0.870	0.904
Adjusted R-squared	0.866	0.865	0.870	0.903
Hausman test p-value	0.423	0.689	0.405	0.537

Source: Analysis based on data provided by industry participants.

Notes: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels respectively.
The models include year and month dummies, which are not reported in the tables. The fixed effects model also includes dummies for each retail fuel site, which are also not shown in the table. The within R-squared is the variation within groups (i.e. retail sites) explained by the fixed effects model. The Hausman test is a test for the validity of the random effects estimator compared to the fixed effects estimator.

Main econometric model: Model including lags and control variables

F62 In this section we describe the results of our main econometric model, the summary results of which are shown in Table F3. The model is an extension to the fixed effects base model discussed in the previous section. We enriched the base model by adding two control variables – CPI and VKT - to the base model specification.[821] We also include the Singapore benchmark cost index with 7, 14, 21 and 28 day-lags to explore the timing of pass-through. These lag-lengths were chosen to capture the bulk of the dynamic adjustment, without creating too much collinearity.

F63 Our view is that this model provides the most robust regression results of the models we used for purposes of estimating the industry cost pass-through rate. This view is consistent with the goodness of fit test results for this model compared to more constrained model specifications.

Industry-wide cost pass-through is generally equal to or greater than one

F64 A key result of our analysis so far is that estimated overall industry-wide pass-through from the Singapore benchmark cost index to board prices is estimated to be equal to one, or greater than one, for all years except 2018 for regular petrol and diesel, where pass-through is slightly (but significantly) less than one-to-one.

F65 Table F3 below provides a summary of the estimated magnitude of overall cost pass-through for our main econometric model including lags and control variables. It shows that cost pass-through rates have decreased in 2018 and is significantly less than one for regular petrol and diesel.

Table F3 Estimated overall pass-through for years 2011 to 2018 for the model with lags and control variables

Years	91-octane petrol	95-octane petrol	98-octane petrol	Diesel
2011	1.034	0.946	1.023	1.090**
2012	1.125***	1.041	1.077*	1.112**
2013	1.093**	1.086**	1.091**	1.012
2014	1.087***	1.082***	1.157***	1.149***
2015	1.260***	1.191***	1.313***	1.441***
2016	1.070***	1.132***	1.273***	1.167***
2017	1.198***	1.247***	1.230***	1.186***
2018	0.920**	1.063	0.961	0.876***

Source: Analysis based on data provided by industry participants.

[821] The control variables we have included in the models vary within each fixed effect group to avoid potential collinearity between the variables in the model. It improves the robustness of the base model by introducing additional demand-side explanatory variables to the model that have an impact on retail fuel board prices.

Notes: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels respectively for the null hypothesis that pass-through equals one.

F66 We note that the estimated overall pass-through rates are the highest in year 2015 for all fuel types, with the exception of 95-octane petrol. This result is not consistent with what we would have expected to observe in a competitive market. Although import prices of crude oil were generally rising around this time, we would still expect to observe approximately 100% cost pass-through rates in a competitive market as the market supply curve would move up when import costs increase (see paragraph 50). Therefore, our observation that estimated pass-through rates are at its highest for 91-octane, 98-octane and diesel fuels at a time when import costs were rising is not an expected observation in a competitive market.

Costs are passed-through contemporaneously and up to 14 days after

F67 Our analysis so far also shows that a large portion of costs would be passed-through to board prices on the same day, and 7 and 14 days after. This implies that changes in board prices are predicted both by changes in costs on the same day (as measured by the Singapore benchmark cost index), as well as by changes in costs that took place up to 14 days prior.

F68 This is detailed in the key variable regression results (excluding year and month dummy variables) below in Table F4. The first row of Table F4 shows highly significant pass-through rates of 19-22%. These are the same day pass-through rates for the base year, which is 2011. The estimates in the next seven rows (2012-2018) show the extra effect in each of those years: these are the estimated difference between that year and 2011 along with asterisks (***) to show whether these differences are statistically significant. For example, in row 8 (2018), there are three negative entries with asterisks. A statistically significant coefficient of -0.154 for the cost index in 2018 would suggest that the cost pass-through in 2018, on average, is expected to be 0.154 lower than that in 2011 in the context of 91-octane petrol. However, a statistically insignificant coefficient of 0.023 for 95-octane petrol in 2018 means that we cannot reject the hypothesis that the pass-through in 2018 is expected to be the same as that in 2011.

F69 The key regression results are summarised below.

F69.1 A $1.00 change in the Singapore benchmark cost index for most years, is associated with an estimated contemporaneous price change in the same direction, depending on the fuel type looked at. These contemporaneous estimates are higher in the year 2015, with an increase of $0.232 for 91-octane petrol, $0.239 for 95-octane petrol, $0.305 for 98-octane petrol and $0.376 for diesel.

F69.2 Using 91-octane petrol as an example, a $1.00 change in the Singapore benchmark cost index in 2018 is associated with an estimated change in board price of -$0.154 on the same day, -$0.092 7 days later, -$-0.054 14 days later, \$0.019 21 days later and \$0.167 28 days later, with the total estimated pass-through being \$0.920.

F69.3 The effect of price changes that took place 7 and 14 days later are estimated to be between \$0.427 to \$0.482, and \$0.250 to \$0.269 respectively for the period 2011 to 2014, depending on the fuel type looked at. These estimates are slightly lower for the period 2015 to 2018. The effect of price changes that took place 21 and 28 days later, while still material, are estimated to be reasonably smaller.

F69.4 It is not clear why these models show a significant price effect on the same day as a change in the Singapore benchmark, since it takes some time for a tanker to physically bring fuel to New Zealand. One possibility is that this is related to executive reward systems inside one or more import firms. We understand that some industry executives are rewarded for profitability assessed against the replacement cost of fuel, rather than the cash cost of fuel sold.

Pass-through of the Auckland regional fuel tax to board prices is estimated to be approximately equal to one

F70 The implementation of the 11.5 cents per litre tax is associated with estimates price increases of approximately 10.7 cents for 91-octane petrol, 11.8 cents for 95-octane petrol, 10.8 cents for 98-octane petrol and 9.9 cents for diesel.

Seasonality effects

F71 As noted previously we have only included the regression results of key variables in this attachment. Table F4 therefore excludes the regression results of the year and month dummy variables we used in our main econometric model.

F72 Our complete regression results show that board prices are estimated to be generally statistically significant higher in the months of June, November and December across our sample of data. The relatively higher prices in June could be related to an increase of vehicle sales during the “end of financial year” period, while the relatively higher prices in December could be related to an increase in vehicle usage during the Christmas period.

F73 We present the detailed regression results of key variables (excluding year and month dummy variables) in Table F4 below.

Table F4 Detailed regression outputs for model including lags and control variables

Variables	91-octane petrol	95-octane petrol	98-octane petrol	Diesel
Singapore benchmark cost index	0.216***	0.191***	0.218***	0.186***
Singapore benchmark cost index (2012)	0.052	0.058	0.034	0.051
Singapore benchmark cost index (2013)	-0.005	0.082	0.020	-0.040
Singapore benchmark cost index (2014)	-0.008	0.069	0.076	0.080
Singapore benchmark cost index (2015)	0.232***	0.239***	0.305***	0.376***
Singapore benchmark cost index (2016)	0.025	0.138*	0.202***	0.136**
Singapore benchmark cost index (2017)	0.126*	0.206***	0.108	0.126
Singapore benchmark cost index (2018)	-0.154**	0.023	-0.159*	-0.205***
Singapore benchmark cost index - 7-day lag	0.450***	0.427***	0.442***	0.482***
Singapore benchmark cost index (2012) - 7-day lag	0.008	0.013**	0.003	-0.011
Singapore benchmark cost index (2013) - 7-day lag	0.006	0.015*	0.004	-0.009
Singapore benchmark cost index (2014) - 7-day lag	-0.008	0.001	-0.005	-0.027**
Singapore benchmark cost index (2015) - 7-day lag	-0.076***	-0.062***	-0.071***	-0.079***
Singapore benchmark cost index (2016) - 7-day lag	-0.085***	-0.062***	-0.072***	-0.115***
Singapore benchmark cost index (2017) - 7-day lag	-0.090***	-0.062***	-0.071***	-0.116***
Singapore benchmark cost index (2018) - 7-day lag	-0.092***	-0.065***	-0.076***	-0.122***
Singapore benchmark cost index - 14-day lag	0.266***	0.250***	0.269***	0.268***
Singapore benchmark cost index (2012) - 14-day lag	0.009	0.008	0.013*	0.000
Singapore benchmark cost index (2013) - 14-day lag	0.006	0.009	0.012	-0.009
Singapore benchmark cost index (2014) - 14-day lag	0.006	0.010	0.012	-0.012
Singapore benchmark cost index (2015) - 14-day lag	-0.065***	-0.066***	-0.048**	-0.046***
Singapore benchmark cost index (2016) - 14-day lag	-0.081***	-0.073***	-0.061**	-0.093***

Singapore benchmark cost index (2017) - 14-day lag	-0.065**	-0.049*	-0.036	-0.067**
Singapore benchmark cost index (2018) - 14-day lag	-0.054**	-0.039	-0.023	-0.055**
Singapore benchmark cost index - 21-day lag	0.077***	0.072**	0.065**	0.088**
Singapore benchmark cost index (2012) - 21-day lag	0.009**	0.013**	0.017**	-0.005
Singapore benchmark cost index (2013) - 21-day lag	-0.002	0.001	0.008	-0.019**
Singapore benchmark cost index (2014) - 21-day lag	-0.000	0.006	0.006	-0.014
Singapore benchmark cost index (2015) - 21-day lag	0.017	0.022	0.007	0.006
Singapore benchmark cost index (2016) - 21-day lag	0.014	0.018	0.012	0.004
Singapore benchmark cost index (2017) - 21-day lag	0.024	0.037	0.031	0.015
Singapore benchmark cost index (2018) - 21-day lag	0.019	0.036	0.020	0.007
Singapore benchmark cost index - 28-day lag	0.025	0.006	0.029	0.067*
Singapore benchmark cost index (2012) - 28-day lag	0.013*	0.003	-0.013*	-0.014*
Singapore benchmark cost index (2013) - 28-day lag	0.054***	0.033**	0.025*	-0.000
Singapore benchmark cost index (2014) - 28-day lag	0.063***	0.050***	0.046**	0.032*
Singapore benchmark cost index (2015) - 28-day lag	0.118***	0.112***	0.097***	0.094***
Singapore benchmark cost index (2016) - 28-day lag	0.162***	0.165***	0.169***	0.144***
Singapore benchmark cost index (2017) - 28-day lag	0.168***	0.169***	0.175***	0.137***
Singapore benchmark cost index (2018) - 28-day lag	0.167***	0.161***	0.176***	0.160***
Auckland regional fuel tax dummy	0.107***	0.118***	0.108***	0.099***
Other non-GST taxes, levies and ETS	1.269***	1.591***	1.491***	0.918*
CPI	-0.001**	-0.002***	-0.002***	-0.002***
VKT	-0.027***	-0.038***	-0.062***	-0.053***
Observations	916,045	499,120	294,711	938,929
R-squared	0.897	0.895	0.896	0.920

Within R-squared	0.897	0.895	0.896	0.920
Adjusted R-squared	0.897	0.895	0.896	0.920
Hausman test p-value	0.299	0.560	0.146	0.459

Source: Analysis based on data provided by industry participants.

Notes: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels respectively for the null hypothesis that pass-through equals one.

The models include year and month dummies, which are not reported in the tables. The fixed effects model also includes dummies for each retail fuel site, which are also not shown in the table. The within R-squared is the variation within groups (i.e. retail sites) explained by the fixed effects model. The Hausman test is a test for the validity of the random effects estimator compared to the fixed effects estimator.

Model with interactions to test for asymmetry in cost pass-through

F74 We include additional interaction variables into our base model to test for any asymmetry in the cost pass-through. This enables us to measure the effect of cost increases on board prices separately from the effect of cost decreases on board prices.

F75 Specifically, the coefficients on dummies for positive cost changes can be interpreted as the estimated difference between the magnitude of annual pass-through for cost decreases and that for cost increases. For example, a statistically significant coefficient of -0.1 for the positive cost change dummy in 2011 would suggest that pass-through from cost increases in this year is estimated to be 0.1 lower than that from cost decreases, which, in the context of 91-octane petrol, would be approximately 0.749. A coefficient of -0.1 for this dummy that is statistically insignificant means that we cannot reject the hypothesis that pass-through in 2011 is expected to be the same between cost increases and decreases.

F76 Our analysis so far shows that the estimated magnitudes of cost pass-through are not statistically different for instances where costs decreased compared to those where costs increased. The regression results are presented in Table F5 below.

F76.1 A $1.00 decrease in the Singapore benchmark cost index for the base year is associated with estimated price decreases of $0.849, $0.818, $0.845 and $1.061 for 91, 95, 98-octane petrol and diesel, respectively. The corresponding estimated pass-through for price increases are expected to be the same to that for price decreases.

F76.2 Pass-through for both price decreases and increases in 2015 are higher than those in other years, which is consistent with our findings from the base cost pass-through model.

Table F5 Detailed regression outputs for model that tests asymmetry in pass-through

Variables	91-octane petrol	95-octane petrol	98-octane petrol	Diesel
Singapore benchmark cost index	0.849***	0.818***	0.845***	1.061***
Singapore benchmark cost index (2012)	0.033	0.004	-0.029	-0.145
Singapore benchmark cost index (2013)	-0.018	0.037	-0.006	-0.230*
Singapore benchmark cost index (2014)	0.025	0.038	0.044	-0.064
Singapore benchmark cost index (2015)	0.257***	0.227**	0.307***	0.181**
Singapore benchmark cost index (2016)	-0.168	-0.053	0.049	-0.182*
Singapore benchmark cost index (2017)	0.136	0.167	0.005	-0.348***
Singapore benchmark cost index (2018)	-0.115	0.025	-0.023	-0.469***
Singapore benchmark cost index (2019)	-0.452***	-0.406*	-0.356**	-0.603**
Dummy for positive cost changes	-0.019	0.011	0.007	0.115*
Dummy for positive cost changes (2012)	-0.051	-0.054	-0.048	-0.167**
Dummy for positive cost changes (2013)	-0.025	-0.059	-0.039	-0.181**
Dummy for positive cost changes (2014)	-0.012	-0.039	-0.023	-0.130*
Dummy for positive cost changes (2015)	-0.022	-0.053	-0.045	-0.135*
Dummy for positive cost changes (2016)	-0.040	-0.070	-0.075	-0.134*
Dummy for positive cost changes (2017)	0.024	-0.014	-0.001	-0.136*
Dummy for positive cost changes (2018)	0.021	-0.003	0.015	-0.109
Dummy for positive cost changes (2019)	-0.004	0.003	-0.049	-0.033
Intercept shifting dummy for positive cost change	0.004	-0.022	-0.018	-0.122*
Intercept shifting dummy for positive cost change (2012)	0.046	0.048	0.042	0.164**
Intercept shifting dummy for positive cost change (2013)	0.024	0.055	0.032	0.172*
Intercept shifting dummy for positive cost change (2014)	0.018	0.039	0.023	0.131*

Intercept shifting dummy for positive cost change (2015)	0.021	0.050	0.041	0.132*
Intercept shifting dummy for positive cost change (2016)	0.076	0.099	0.109	0.136*
Intercept shifting dummy for positive cost change (2017)	-0.029	0.009	-0.009	0.138*
Intercept shifting dummy for positive cost change (2018)	-0.017	-0.000	-0.018	0.105
Intercept shifting dummy for positive cost change (2019)	0.020	-0.008	0.068	0.015
Auckland regional fuel tax dummy	0.114***	0.110***	0.129***	0.105***
Other non-GST taxes, levies and ETS	1.395***	1.391***	1.192***	1.755***
Number of observations	1,078,239	606,379	358,929	1,112,830
R-squared	0.868	0.868	0.872	0.904
Within R-squared	0.868	0.868	0.872	0.904
Adjusted R-squared	0.868	0.868	0.872	0.904
Hausman test p-value	0.401	0.683	0.341	0.527

Source: Analysis based on data provided by industry participants to the Commission.

Notes: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels respectively.
The models include year and month dummies, which are not reported in the tables. The fixed effects model also includes dummies for each retail fuel site, which are also not shown in the table. The within R-squared is the variation within groups (i.e. retail sites) explained by the fixed effects model. The Hausman test is a test for the validity of the random effects estimator compared to the fixed effects estimator.

Robustness checks and sensitivity analysis

Model using effective price as the price variable

F77 As a sensitivity analysis we performed regressions where we replaced the daily board price data used for the base model with daily effective price (i.e. the average daily price after discount) data that some retailers were able to provide.

F78 The results of our sensitivity analysis are similar to what we obtained in our base econometric model. The results are presented in Table F6 below.

Table F6 Detailed regression outputs for model using effective price as the price variable

Variables	91-octane petrol	95-octane petrol	98-octane petrol	Diesel
Singapore benchmark cost index	0.832***	0.809***	0.842***	0.981***
Singapore benchmark cost index (2012)	0.065	0.038	-0.105	-0.046
Singapore benchmark cost index (2013)	0.004	0.030	0.000	-0.135
Singapore benchmark cost index (2014)	0.038	0.028	0.035	0.019
Singapore benchmark cost index (2015)	0.247**	0.243**	0.202*	0.173
Singapore benchmark cost index (2016)	-0.047	0.035	0.257*	-0.027
Singapore benchmark cost index (2017)	0.172	0.170	0.286*	-0.182
Singapore benchmark cost index (2018)	0.012	0.121	0.355***	-0.269***
Singapore benchmark cost index (2019)	-0.473**	-0.320	0.004	-0.624***
Auckland regional fuel tax dummy	0.115***	0.112***	0.104***	0.105***
Other non-GST taxes, levies and ETS	1.245***	1.172***	1.215***	1.276***
Number of observations	456,540	349,488	110,377	491,838
R-squared	0.869	0.866	0.891	0.912
Within R-squared	0.869	0.866	0.891	0.912
Adjusted R-squared	0.869	0.866	0.891	0.912
Hausman test p-value	0.787	0.813	0.587	0.959

Source: Analysis on data provided to the Commission by industry participants.

Notes: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels respectively.
The models include year and month dummies, which are not reported in the tables. The fixed effects model also includes dummies for each retail fuel site, which are also not shown in the table. The within R-squared is the variation within groups (i.e. retail sites) explained by the fixed effects model. The Hausman test is a test for the validity of the random effects estimator compared to the fixed effects estimator.

F79 Specifically, a $1.00 change in the cost index in the base year is associated with an estimated change in effective price in the same direction of $0.832, $0.809, $0.842 and $0.981 for 91-octane, 95-octane, 98-octane petrol and diesel, respectively.

F80 The estimated pass-through of the Auckland regional fuel tax to headline retail fuel prices is similar compared to that in the base model and is equal to or slightly less than one-to-one. In this model the implementation of this 11.5 cents per litre tax is associated with a price increase of approximately 11.5 cents for 91-octane petrol, 11.2 cents for 95-octane petrol, 10.4 cents for 98-octane petrol and 10.5 cents for diesel.

Model using cost of goods sold as the cost variable

F81 We ran another sensitivity test by replacing the unlagged Singapore benchmark cost index variable under the base model with the Cost of Goods Sold (COGS) that some retailers were able to provide (i.e. BP, Z Energy and Waitomo). We generally have not identified a statistically significant relationship between COGS and the board prices for these retailers using the base model without lags. For the few instances where we did, the results were very low and therefore appear unreliable. We provide the regression results in Table F7 below.

Table F7 Model using cost of goods sold as the cost variable

Variables	91-octane petrol	95-octane petrol	98-octane petrol	Diesel
Total COGS	-0.000	0.000	0.036**	0.003
Total COGS (2012)	0.002*	0.001	0.000	-0.001
Total COGS (2013)	-0.000	0.002	-0.034**	0.002
Total COGS (2014)	0.000	0.001	-0.020	0.006
Total COGS (2015)	0.019	0.000	-0.035**	-0.003
Total COGS (2016)	0.014***	0.018***	-0.036**	0.016**
Total COGS (2017)	0.013	0.001	-0.029*	0.012*
Total COGS (2018)	0.048***	0.006	-0.031**	0.016*
Total COGS (2019)	-0.015***	0.003	0.000	-0.018***
Auckland regional fuel tax dummy	0.146***	0.148***	0.151***	0.095***
Other non-GST taxes, levies and ETS	0.855**	0.848*	0.435	3.765***
Number of observations	445,132	340,103	111,000	477,110
R-squared	0.716	0.695	0.697	0.823
Within R-squared	0.716	0.695	0.697	0.823
Adjusted R-squared	0.715	0.695	0.696	0.823
Hausman test p-value	0.322	0.498	0.0455	0.878

Source: Analysis on data provided to the Commission by industry participants.

Notes: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels respectively.
The models include year and month dummies, which are not reported in the tables. The fixed effects model also includes dummies for each retail fuel site, which are also not shown in the table. The within R-squared is the variation within groups (i.e. retail sites) explained by the fixed effects model.

The Hausman test is a test for the validity of the random effects estimator compared to the fixed effects estimator.

Limitations of the cost pass-through analysis

F82 We consider that the limitations of the econometric analysis are mainly linked to the data available, and the interpretation of the results. We discuss each of these in turn.

F83 We obtained consistent and relatively complete data for all retailers over time for headline fuel prices, the Singapore benchmark cost index and the Auckland regional fuel tax.[822] However, as noted elsewhere in this report, we do not have good information on the wholesale prices that retailers pay for fuel, and we know that at least some of these (e.g. retail-minus prices) are not cost-based. Using the Singapore benchmark to measure costs could mean that the econometric analysis is less able to capture the relationship between retail fuel suppliers' actual costs and the prices they charge.

F84 Further, while we have to the extent possible addressed any unusual observations in the data to mitigate any distortion on our analyses, the assumptions we made in addressing these could have affected our econometric analysis and potentially made them less robust compared to a scenario where we do not have these unusual observations in the first place.

F85 The modelling approach relies on examining price changes at particular retail fuel sites over time, but our main cost indicator does not vary by site. Variation between sites is captured by a single time-invariant "fixed effect" that shows whether headline retail fuel prices are generally higher or lower at particular sites. With the exception of the Auckland regional fuel tax dummy, our model is not able to account for the effect of factors that vary both by retail fuel sites and time, and this limits our ability to precisely estimate the pass-through. For example, the "fixed effect" captures the cost of delivering fuel to a retail site, but only on average across our sample: if delivery costs have increased over time, our model will not pick this up.

F86 In addition, we also acknowledge that the industry-wide rate of cost pass-through are affected not only by changes in the price of the landed cost of fuel in New Zealand, but also by other costs along the fuel supply chain that impacts the wholesale (and ultimately the retail) price of fuel. If these costs vary over time, only their average effect over the sample period will show up in our model, where it will contribute to the fixed effect for each retail site.

[822] We have not been able to obtain complete data for average daily transaction prices for all retailers. Further, we have only obtained COGS for some retailers and it appears that different retailers measure COGS in different ways.

F87 Finally, while the econometric model can help reveal cost pass-through, as well as potentially, whether cost increases are passed-through more than cost decreases, or whether pass-through has changed over time, we acknowledge that this is only one indication of whether competition has changed over time and does not of itself tell us how effective competition is. This analysis should therefore not be regarded as conclusive on any aspects related to the effectiveness of competition in the New Zealand retail fuel market.

Econometric analysis on loyalty schemes

F88 This section describes the results and limitations of our econometric analysis on loyalty schemes so far. Similar to our econometric analyses on cost pass-through rates, the models we used here are also fixed effects models applied to daily retail site level data. Fixed effects models allow for headline retail fuel prices to vary by fixed amounts between retail fuel sites in New Zealand, all else being held equal.

F89 In this section we discuss:

- F89.1 the purpose of our analysis;
- F89.2 model specification and results, including
  - F89.2.1 the base econometric model;
  - F89.2.2 an extension to the base model that covers the inclusion of leads and lags of the discount size variable; and
  - F89.2.3 further extensions to the base model using the proportion of discounted volume and revenue, as well as the proportion of fuel card revenue as opposed to discount size as the measure for discount schemes; and
- F89.3 limitations of the analysis.

Purpose of the analysis

F90 The purpose of the analysis is to examine the impact of loyalty schemes (i.e. discount schemes and loyalty reward programs) used at retail fuel sites in New Zealand on retail fuel prices. Our analysis tests whether changes in board prices can be explained by changes in discount size, and whether the magnitude of these changes vary across years. In addition, we also test whether there is a short-term relationship between the retail margin and the level of discount.

F91 We note that this analysis is complementary to the long-term trend analysis that shows discounting rising over the last decade more or less in line with importer margins (see Chapter 7). In our econometric analysis we are interested in testing short-run interactions between discounting and board prices.

Model specification

F92 In this section we discuss the specification and results of the base econometric model we used for purposes of assessing the impact of loyalty schemes on retail fuel prices. We also describe the model specification and results of extensions to the base model.

Base model

F93 The base econometric model we use relies on the specification of the base regression model used to assess cost pass-through as discussed in the previous section of this attachment, to which we then also add variables that measure discount size on a cents per litre basis for each year between 2011 and 2019.[823] Discount size was calculated by subtracting the discounted price (i.e. revenue from discounted sales divided by volume from discounted sales) from the headline board price.[824] Note that this discount variable is observed daily, for each fuel type at each retail site.

F94 We set 2011 as the base year for 91, 95-octane petrol and diesel, and 2014 as the base year for 98-octane petrol.[825] We then use this model to examine whether changes in board prices can be explained by changes in discount size, and whether the magnitude of these changes vary across years.

Table F8 Base econometric model on loyalty schemes analysis

Variables	91-octane petrol	95-octane petrol	98-octane petrol	Diesel
Singapore benchmark cost index	0.825***	0.787***	0.863***	0.999***
Singapore benchmark cost index (2012)	0.053	0.028		-0.088
Singapore benchmark cost index (2013)	0.020	0.091		-0.152
Singapore benchmark cost index (2014)	0.029	0.040		-0.029
Singapore benchmark cost index (2015)	0.253**	0.272***	0.212***	0.186*
Singapore benchmark cost index (2016)	-0.028	0.069	0.337***	-0.026
Singapore benchmark cost index (2017)	0.179	0.202*	0.267**	-0.235**

823 We note that fuel card data were not included in the base model used to analyse loyalty schemes. The fuel card data was used in the extension to the model (see Table 13).

824 For example, the board price, revenue and volume from discounted sales for site A's 91-octane petrol on a given day are \$2.10, \$100,000 and 50,000 litres, respectively. The discount size would therefore be \$2.10 – \$100,000 / 50.000 = \$0.10.

825 This is because the data on discounted sales for 98-octane petrol provided by BP were not available for the period prior to 2014.

Singapore benchmark cost index (2018)	-0.008	0.128	0.375***	-0.355***
Singapore benchmark cost index (2019)	-0.448**	-0.226	0.122	-0.625***
Discount size per litre	0.051	0.019	-0.087**	0.057
Discount size per litre (2012)	0.041	0.088		-0.103
Discount size per litre (2013)	0.004	-0.007		-0.051
Discount size per litre (2014)	-0.010	-0.005		-0.054
Discount size per litre (2015)	-0.037	-0.043	0.195***	-0.008
Discount size per litre (2016)	0.088	0.063	0.069*	0.186***
Discount size per litre (2017)	0.222***	0.214***	0.063	0.432***
Discount size per litre (2018)	0.045	-0.010	0.083**	0.294***
Discount size per litre (2019)	0.111	-0.007	0.172***	0.209***
Auckland regional fuel tax dummy	0.114***	0.109***	0.108***	0.102***
Other non-GST taxes, levies and ETS	1.317***	1.260***	1.213***	1.579***
Number of observations	405,431	307,994	89,437	408,337
R-squared	0.889	0.890	0.959	0.915
Within R-squared	0.889	0.890	0.959	0.915
Adjusted R-squared	0.888	0.890	0.959	0.915
Hausman test p-value	0.603	0.783	0.773	0.886

Source: Analysis on data provided to the Commission by industry participants.

Notes: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels respectively.
The models include year and month dummies, which are not reported in the tables. The fixed effects model also includes dummies for each retail fuel site, which are also not shown in the table. The within R-squared is the variation within groups (i.e. retail sites) explained by the fixed effects model. The Hausman test is a test for the validity of the random effects estimator compared to the fixed effects estimator.

F95 As shown in Table F8 above, most estimated coefficients on discount size in the years 2011 to 2014 are not statistically significant, while those in the years 2015 to 2019 generally are. It therefore appears as if there is a positive correlation between board prices and discounts over the last four years.

F96 Specifically, at the one percent significance level, the coefficients are significant for 91 and 95-octane petrol in 2017 (0.222 and 0.214, respectively), 98-octane petrol in 2015 (0.195) and 2019 (0.172), and diesel in all years between 2016 and 2019 (0.186, 0.432, 0.294 and 0.209).

F97 Statistical significance of these coefficients means that the effect of the discount is statistically different from the effect in the base year (i.e. 2011). We then estimate whether the sum of these coefficients with those of the base year (i.e. the estimated magnitude of the impact of discount size on board prices) is statistically significant. This is detailed in Table F9 below.

Table F9 Magnitude of estimated effect of discount size on board prices for years 2011 to 2019 under the base model

Years	91-octane petrol	95-octane petrol	98-octane petrol	Diesel
2011	0.051	0.019	-0.087**	0.057
2012	0.092*	0.106**		-0.046
2013	0.055	0.012		0.005
2014	0.041	0.013		0.002
2015	0.014	-0.024	0.108**	0.048**
2016	0.139***	0.082***	-0.018	0.243***
2017	0.273***	0.232***	-0.024	0.489***
2018	0.096***	0.008	-0.004	0.350***
2019	0.162***	0.011	0.085***	0.266***

Source: Analysis on data provided to the Commission by industry participants.

Notes: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels respectively for the null hypothesis that pass-through equals to zero.

F98 Table F9 above shows the estimated magnitude of the impact of discount size on board prices for each year from 2011 to 2019 and an indication of whether the null hypothesis that the impact is equal to zero can be accepted.

F99 These results suggest that changes in discount size per litre are related to changes in board price in the same direction for years 2016 to 2019, especially for 91-octane petrol and diesel. The changes in board prices, however, are significantly smaller than those in discount size. In particular, at the one per cent statistical significance level we identified the following.

F99.1 A 10 cents increase in discount size per litre is associated with an estimated price increase of 0.96 cents to 2.73 cents (10% to 27% of the discount) for 91-octane petrol, and 2.43 cents to 4.89 cents (24% to 49% of the discount) for diesel, depending on the year looked at within 2016 to 2019.

F99.2 The estimated price increase is 0.82 cents (8% of the discount) in 2016 and 2.32 cents (23% of the discount) in 2017 for 95-octane petrol and 0.85 cents (9% of the discount) for 98-octane petrol in 2019.

F100 We note that the estimated magnitude in 2017 for 91-octane, 95-octane petrol and diesel are slightly higher than those in other years. This, as well as the statistically insignificant results for the years before 2015, could be due to the fact that the samples available for the discount size analysis are much smaller, and also potentially less reliable, than those used for the cost pass-through analysis.

Model including leads and lags of the size of discounts

F101 In this section, we provide an extension to the base model described above by including lags and leads of the size of discounts variables of 7 and 14 days. This is to examine the extent to which fuel retailers change board prices pre-emptively in anticipation of change in the size of discounts, contemporaneously and/or continuously after when the change in the size of discounts took place.

F102 Our analysis shows that retailers would change board prices slightly in the same direction contemporaneously, and 7 and 14 days before the change in discount size takes place for diesel in years where we observed a statistically significant relationship between the two variables in the base model (ie, years 2016 to 2019).

F103 We have not identified any clear pattern on whether fuel retailers change board prices before or after changes in discount size take place for other fuel types (ie, 91, 95 and 98-octane petrol) under this model. This is potentially due to the combination of data limitations as discussed previously and the complexity of this model.

F104 We were however able to obtain more meaningful results using a simplified model, which excludes the year interaction and dummy variables and therefore assumes that pass-through and effect of discount remain constant across all years. In particular, under this model, we have identified the following at the one per cent statistical significance level.

F104.1 The majority of price change would take place on the same day and 14 days before for 91-octane petrol and diesel. Specifically, a 10 cents change in the discount size is associated with an estimated price change in the same direction of 0.84 cents (8%) and 1.08 cents (11%) 14 days before, and 1.60 cents (16%) and 1.44 cents (14%) contemporaneously, for these two fuel types, respectively.

F104.2 Retailers appear to change price before, after, as well as on the same day for 98-octane petrol and diesel. Specifically, a 10 cents change in the discount size for 98-octane petrol is associated with an estimated price change in the same direction of 0.42 cents (4%) and 0.56 cents (6%) 14 and 7 days before, 0.54 cents (5%) contemporaneously, as well as 0.64 cents (6%) and 0.47 cents (5%), 7 and 14 days later. The equivalent results for diesel are 1.08 cents (11%) 14 days before, 0.82 cents (8%) 7 days before, 1.44 cents (14%) on the same day, 0.60 cents (6%) 7 days later and 0.53 cents (5%) 14 days later.

F105 In Table F10 below we show the results obtained from the simplified version of the extension to the base model.

Table F10 Detailed regression outputs for the simple model with leads and lags of 7 and 14 days for the discount variable

Variables	91-octane petrol	95-octane petrol	98-octane petrol	Diesel
Singapore benchmark cost index	0.970***	0.939***	1.098***	0.910***
Discount size per litre ($)	0.160***	0.076***	0.054***	0.144***
Discount size per litre – 7 days lead	0.040*	0.022	0.056***	0.082***
Discount size per litre – 14 days lead	0.084***	0.039**	0.042***	0.108***
Discount size per litre – 7 days lag	0.046*	0.028	0.064***	0.060***
Discount size per litre – 14 days lag	0.034	0.014	0.047***	0.053***
Auckland regional fuel tax dummy	0.092***	0.082***	0.106***	0.107***
Other non-GST taxes, levies and ETS	1.559***	1.643***	0.860***	1.277***
Number of observations	389,778	286,986	86,139	364,737
R-squared	0.855	0.847	0.939	0.885
Within R-squared	0.855	0.847	0.939	0.885
Adjusted R-squared	0.854	0.847	0.939	0.884
Hausman test p-value	0.662	0.965	0.957	0.926

Source: Analysis on data provided to the Commission by industry participants.

Notes: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels respectively.
The models include month dummies, which are not reported in the tables. The fixed effects model also includes dummies for each retail fuel site, which are also not shown in the table. The within R-squared is the variation within groups (i.e. retail sites) explained by the fixed effects model. The Hausman test is a test for the validity of the random effects estimator compared to the fixed effects estimator.

Model using proportion of discounted sales

F106 We provide an extension to the base model, by using the proportion of volume sold at a discount (as opposed to discount size) as the measure for discount schemes. The results are shown in the tables below. Specifically, Table F11 below provides the results using proportion of volume sold via discounts, and Table F12 below provides the results using proportion of revenue sold via discounts.

F107 The results show that changes in proportion of volume sold at a discount, in most cases, are associated with slight changes in board prices in the opposite direction. Using 91-octane petrol as an example, an increase in the proportion of volume sold at a discount from 0 to 100 per cent (i.e. from no discounted sales to all volume sold at a discount) is associated with an estimated price decrease of 2.0 to 9.2 cents (namely 2014, for which the effect for 91-octane petrol is 2.0 cents plus 7.2 cents, i.e. 9.2 cents in total). We obtain similar results when we use the proportion of revenue sold at a discount, as opposed to the proportion of volumes sold at a discount. We note that the negative correlation between the proportion of revenue sold at a discount and board prices from our results so far could be an indication that an increase in discounts in recent years might have resulted in a net reduction of revenue earned by retailers.

F108 We note that changes in volume sold at a discount and in discount size impact prices in opposite directions. This reflects a negative correlation between discount size and proportion of discounted sales.

Table F11 Detailed regression outputs for model using proportion of discounted volume

Variables	91-octane petrol	95-octane petrol	98-octane petrol	Diesel
Singapore benchmark cost index	0.819***	0.783***	0.873***	0.992***
Singapore benchmark cost index (2012)	0.048	0.018		-0.069
Singapore benchmark cost index (2013)	0.036	0.098		-0.141
Singapore benchmark cost index (2014)	0.034	0.044		0.010
Singapore benchmark cost index (2015)	0.260**	0.274***	0.201**	0.217**
Singapore benchmark cost index (2016)	-0.028	0.070	0.320***	-0.047
Singapore benchmark cost index (2017)	0.199*	0.219*	0.251*	-0.228**
Singapore benchmark cost index (2018)	-0.003	0.133	0.364***	-0.367***
Singapore benchmark cost index (2019)	-0.426**	-0.232	0.124	-0.664***
Proportion of discounted volume	-0.020***	0.016***	-0.004	-0.053***

Proportion of discounted volume (2012)	-0.027***	-0.032***		-0.023*
Proportion of discounted volume (2013)	-0.047***	-0.069***		-0.016
Proportion of discounted volume (2014)	-0.072***	-0.108***		0.082***
Proportion of discounted volume (2015)	-0.052***	-0.103***	-0.026***	0.051***
Proportion of discounted volume (2016)	-0.011	-0.033***	-0.003	0.038***
Proportion of discounted volume (2017)	-0.028**	-0.033***	0.002	0.052***
Proportion of discounted volume (2018)	-0.015*	-0.042***	0.012	0.061***
Proportion of discounted volume (2019)	-0.023**	-0.054***	0.041***	0.064***
Auckland regional fuel tax dummy	0.114***	0.108***	0.106***	0.100***
Other non-GST taxes, levies and ETS	1.338***	1.275***	1.212***	1.762***
Observations	405,450	308,139	90,053	408,423
R-squared	0.889	0.890	0.954	0.911
Within R-squared	0.889	0.890	0.954	0.911
Adjusted R-squared	0.889	0.890	0.954	0.911
Hausman test p-value	0.615	0.800	0.783	0.870

Source: Analysis on data provided to the Commission by industry participants.

Notes: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels respectively.
The models include year and month dummies, which are not reported in the tables. The fixed effects model also includes dummies for each retail fuel site, which are also not shown in the table. The within R-squared is the variation within groups (i.e. retail sites) explained by the fixed effects model. The Hausman test is a test for the validity of the random effects estimator compared to the fixed effects estimator.

Table F12 Detailed regression outputs for model using proportion of discounted revenue

Variables	91-octane petrol	95-octane petrol	98-octane petrol	Diesel
Singapore benchmark cost index	0.820***	0.783***	0.873***	0.992***
Singapore benchmark cost index (2012)	0.048	0.019		-0.069
Singapore benchmark cost index (2013)	0.035	0.098		-0.142
Singapore benchmark cost index (2014)	0.034	0.044		0.010
Singapore benchmark cost index (2015)	0.260**	0.274***	0.201**	0.218**
Singapore benchmark cost index (2016)	-0.029	0.070	0.321***	-0.047
Singapore benchmark cost index (2017)	0.199*	0.219*	0.252*	-0.228**
Singapore benchmark cost index (2018)	-0.004	0.132	0.364***	-0.367***
Singapore benchmark cost index (2019)	-0.427**	-0.233	0.127	-0.665***
Proportion of discounted revenue	-0.020***	0.016***	-0.003	-0.054***
Proportion of discounted revenue (2012)	-0.028***	-0.032***		-0.022*
Proportion of discounted revenue (2013)	-0.047***	-0.069***		-0.017
Proportion of discounted revenue (2014)	-0.072***	-0.108***		0.079***
Proportion of discounted revenue (2015)	-0.052***	-0.103***	-0.029***	0.047***
Proportion of discounted revenue (2016)	-0.011	-0.033***	-0.004	0.032***
Proportion of discounted revenue (2017)	-0.030**	-0.037***	0.001	0.046***
Proportion of discounted revenue (2018)	-0.013*	-0.039***	0.011	0.055***
Proportion of discounted revenue (2019)	-0.023**	-0.052***	0.033***	0.059***
Auckland regional fuel tax dummy	0.114***	0.108***	0.106***	0.100***
Other non-GST taxes, levies and ETS	1.337***	1.273***	1.213***	1.763***
Observations	405,450	308,139	90,053	408,423
R-squared	0.889	0.890	0.954	0.911

Within R-squared	0.889	0.890	0.954	0.911
Adjusted R-squared	0.889	0.890	0.954	0.911
Hausman test p-value	0.613	0.800	0.783	0.869

Source: Analysis on data provided to the Commission by industry participants.

Notes: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels respectively. The models include year and month dummies, which are not reported in the tables. The fixed effects model also includes dummies for each retail fuel site, which are also not shown in the table. The within R-squared is the variation within groups (i.e. retail sites) explained by the fixed effects model. The Hausman test is a test for the validity of the random effects estimator compared to the fixed effects estimator.

Model using proportion of fuel card sales

F109 We also examine the extent to which board prices are affected by the loyalty reward programs offered by fuel retailers, by using the proportion of sales via fuel cards as the relevant measure. Table F13 below provides the results using proportion of volume sold via fuel cards, and Table F14 provides the results using proportion of revenue sold via fuel cards.[826]

F110 Overall, the results show that change in the proportion of fuel card sales are associated with small changes in board prices in the same direction for both 91 and 95-octane petrol. Specifically, an increase in proportion of volume sold via fuel card from 0 per cent to 100 per cent is associated with an increase in board prices of 4.3 cents in 2018 for 91-octane petrol, 1.5 cents for 95-octane petrol, and 2.4 cents for diesel. The results are similar when we use the proportion of revenue sold via fuel cards, as opposed to volume.

Table F13 Detailed regression outputs for model using proportion of fuel card volume

Variables	91-octane petrol	95-octane petrol	Diesel
Singapore benchmark cost index	0.805***	0.784***	0.988***
Singapore benchmark cost index (2012)	0.057	0.026	-0.081
Singapore benchmark cost index (2013)	0.048	0.092	-0.111
Singapore benchmark cost index (2014)	0.046	0.042	-0.018
Singapore benchmark cost index (2015)	0.252**	0.261**	0.165

826 These analyses do not cover 98-octane petrol, as none of the fuel retailers were able to provide data to us on fuel card sales of 98-octane petrol.

Singapore benchmark cost index (2016)	-0.043	-0.001	-0.062
Singapore benchmark cost index (2017)	0.193*	0.174	-0.213*
Singapore benchmark cost index (2018)	0.002	0.060	-0.332***
Singapore benchmark cost index (2019)	-0.487**	-0.460**	-0.707***
Proportion of fuel card volume	0.043***	-0.022***	0.021**
Proportion of fuel card volume (2012)	0.044**	0.039***	0.017**
Proportion of fuel card volume (2013)	0.050***	0.055***	0.023**
Proportion of fuel card volume (2014)	-0.000	0.032***	-0.029***
Proportion of fuel card volume (2015)	0.005	0.031***	-0.011
Proportion of fuel card volume (2016)	0.017	0.057***	0.015*
Proportion of fuel card volume (2017)	0.027**	0.066***	0.004
Proportion of fuel card volume (2018)	-0.000	0.037***	0.003
Proportion of fuel card volume (2019)	-0.046***	0.002	-0.015
Auckland regional fuel tax dummy	0.118***	0.112***	0.098***
Other non-GST taxes, levies and ETS	1.432***	1.366***	1.784***
Observations	403,717	306,192	405,370
R-squared	0.878	0.877	0.899
Within R-squared	0.878	0.877	0.899
Adjusted R-squared	0.878	0.877	0.898
Hausman test p-value	0.610	0.734	0.901

Source: Analysis on data provided to the Commission by industry participants.

Notes: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels respectively.
The models include year and month dummies, which are not reported in the tables. The fixed effects model also includes dummies for each retail fuel site, which are also not shown in the table. The within R-squared is the variation within groups (i.e. retail sites) explained by the fixed effects model. The Hausman test is a test for the validity of the random effects estimator compared to the fixed effects estimator.

Table F14 Detailed regression outputs for model using proportion of fuel card revenue

Variables	91-octane petrol	95-octane petrol	Diesel
Singapore benchmark cost index	0.806***	0.784***	0.988***
Singapore benchmark cost index (2012)	0.056	0.026	-0.081
Singapore benchmark cost index (2013)	0.048	0.092	-0.111
Singapore benchmark cost index (2014)	0.046	0.042	-0.018
Singapore benchmark cost index (2015)	0.252**	0.261**	0.165
Singapore benchmark cost index (2016)	-0.043	-0.001	-0.063
Singapore benchmark cost index (2017)	0.193*	0.174	-0.214*
Singapore benchmark cost index (2018)	0.002	0.060	-0.332***
Singapore benchmark cost index (2019)	-0.487**	-0.460**	-0.704***
Proportion of fuel card revenue	0.043***	-0.023***	0.020**
Proportion of fuel card revenue (2012)	0.042**	0.039***	0.017**
Proportion of fuel card revenue (2013)	0.049***	0.054***	0.023**
Proportion of fuel card revenue (2014)	-0.003	0.030***	-0.031***
Proportion of fuel card revenue (2015)	0.004	0.031***	-0.012
Proportion of fuel card revenue (2016)	0.017	0.056***	0.014
Proportion of fuel card revenue (2017)	0.026**	0.066***	0.002
Proportion of fuel card revenue (2018)	-0.001	0.036***	0.001
Proportion of fuel card revenue (2019)	-0.048***	0.001	-0.017*
Auckland regional fuel tax dummy	0.118***	0.112***	0.098***
Other non-GST taxes, levies and ETS	1.431***	1.366***	1.783***
Observations	403,714	306,187	405,360
R-squared	0.878	0.877	0.899

Within R-squared	0.878	0.877	0.899
Adjusted R-squared	0.878	0.877	0.898
Hausman test p-value	0.611	0.734	0.904

Source: Analysis on data provided to the Commission by industry participants.

Notes: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels respectively.
The models include year and month dummies, which are not reported in the tables. The fixed effects model also includes dummies for each retail fuel site, which are also not shown in the table. The within R-squared is the variation within groups (i.e. retail sites) explained by the fixed effects model. The Hausman test is a test for the validity of the random effects estimator compared to the fixed effects estimator.

Limitations of the loyalty scheme and discount analysis

F111 The limitations on the econometric analysis of loyalty schemes mainly relate to data and sample size limitations.

F112 The sample sizes we have for these analyses are much smaller compared to those associated with the cost pass-through analysis. We note that a large proportion of the daily discount size data upon which we rely for this analysis, especially before 2015, were Z Energy's data. These data may not be appropriate to be interpreted at the daily level due to the way in which some discounts are recorded at only a monthly or more aggregated level.

F113 Further, with the exception of the Auckland regional fuel tax dummy, we are not able to account for factors that may affect the costs and vary both across sites and over time.

F114 Finally, we note that an econometric analysis of the effects of loyalty discounts on headline retail fuel prices provides only partial information about their competitive effects.

Regional variation in retail fuel prices and margins over time

F115 This section contains details on the regional maps, site maps and key line charts we produced to show how board prices and importer margins[827] of refined fuel vary over time and across different areas in New Zealand.

F116 Our analysis shows the following.

F116.1 Overall, prices and margins in the South Island are higher than those in the North Island.

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[827] This is defined as headline retail fuel board price data submitted by market participants, minus duties, taxes, levies, the ETS cost and the importer cost based on the Singapore benchmark cost index.

F116.2 Prices and margins in Wellington City are similar to those in the South Island and are therefore higher than those in other regions and territories within the North Island. Those in Wellington Region, while still higher than those in other North Island regions and territories, are slightly lower than those in the South Island.[828]

F116.3 Within the South Island, prices and margins for 2019 in Westland District and Queenstown-Lake District are higher compared to those in other territories. In particular, the board prices of 95-octane petrol in Westland District and Queenstown-Lake District are higher than those of 98-octane petrol in other territories within New Zealand.

F116.4 Despite having higher prices, margins in Auckland are similar to those in other regions and territories of the North Island in 2019. The recent increase of retail fuel prices in Auckland is likely to be associated with the pass-through of the 11.5 cents per litre Auckland regional fuel tax.

F116.5 When comparing across territories within high population density regions:

F116.5.1 prices and margins in Masterton District are lower than those in other territories within Wellington Region; and

F116.5.2 prices and margins in Waimate District are higher than those in other territories within Canterbury Region before 2014, but lower compared to these territories after 2017.

Regional maps

F117 The regional maps compare the board prices and importer margins of 91-octane, 95-octane, 98-octane petrol and diesel across different regions in New Zealand for the year 2019. These maps colour each territory based on its average board prices and importer margins in 2019, using four different colours. These colours graduate from yellow to red and represent the four different bands of prices and margins based on the range of regional averages across different regions in New Zealand. We note that the lack of colour for some territories are reflective of instances where we don’t have any pricing and/or margin data available for some of the premium petrol types.

- Territories with board prices / importer margins between the minimum and the first quartile are coloured in yellow.
- Territories with board prices / importer margins between the first quartile and the median are coloured in light orange.
- Territories with board prices / importer margins between the median and the third quartile are coloured in dark orange.

[828] This is because average price and margin in Wellington City are slightly higher than those averaged across the Wellington Region.

- Territories with board prices / importer margins between the third quartile and the maximum are coloured in red.

F118 These maps are detailed in the figures below.

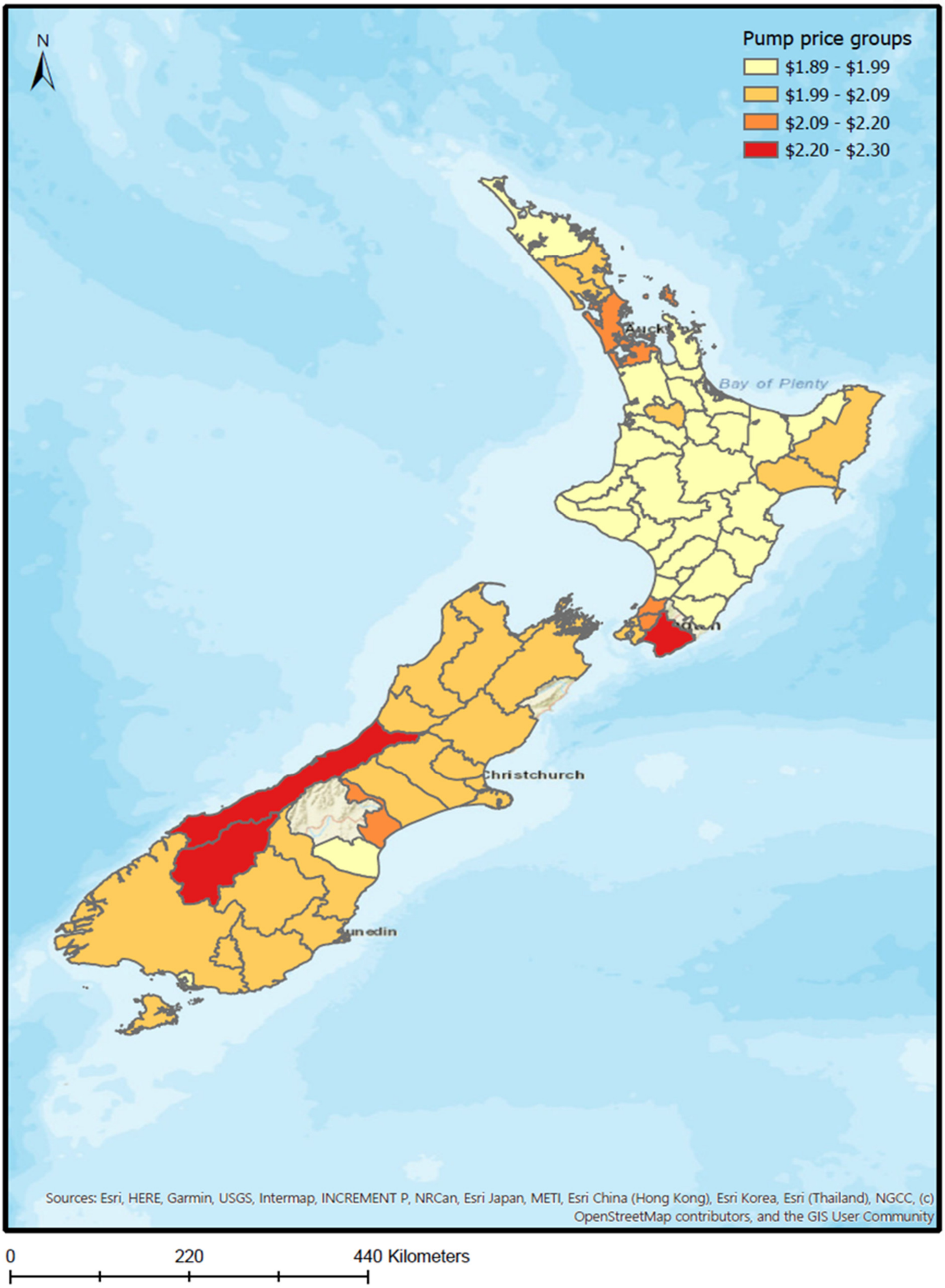
F118.1 Figure F1 and Figure F2 below show the average 91-octane petrol board prices and importer margins in 2019 across territories within New Zealand, with average board prices ranging from $1.89 to $2.30 NZD, and average importer margins ranging from 7.99% to 22.68%. Prices and margins in South Wairarapa District, Queenstown-Lakes District and Westland District appear to be the highest, with board prices between $2.20 and $2.30 NZD and importer margins between 19.00% and 22.68%

F118.2 Figure F3 and Figure F4 below show the average 95-octane petrol board prices and importer margins in 2019 across territories within New Zealand, with average board prices ranging from $1.98 to $2.44 NZD, and average importer margins ranging from 11.68% to 25.78%. Prices and margins in Westland District appear to be the highest, with a board price of $2.44 NZD and an importer margin of 25.78%.

F118.3 Figure F5 and Figure F6 show the average 98-octane petrol board prices and importer margins in 2019 across territories within New Zealand, with average board prices ranging from $2.03 to $2.27 NZD, and average importer margins ranging from 11.75% to 20.55%. For most regions in the South Island retailers do not retail this type of premium petrol, and those who do would have a higher board price ($2.21 to $2.27 NZD) and importer margins (18.35% to 20.55%) than most territories in the North Island.

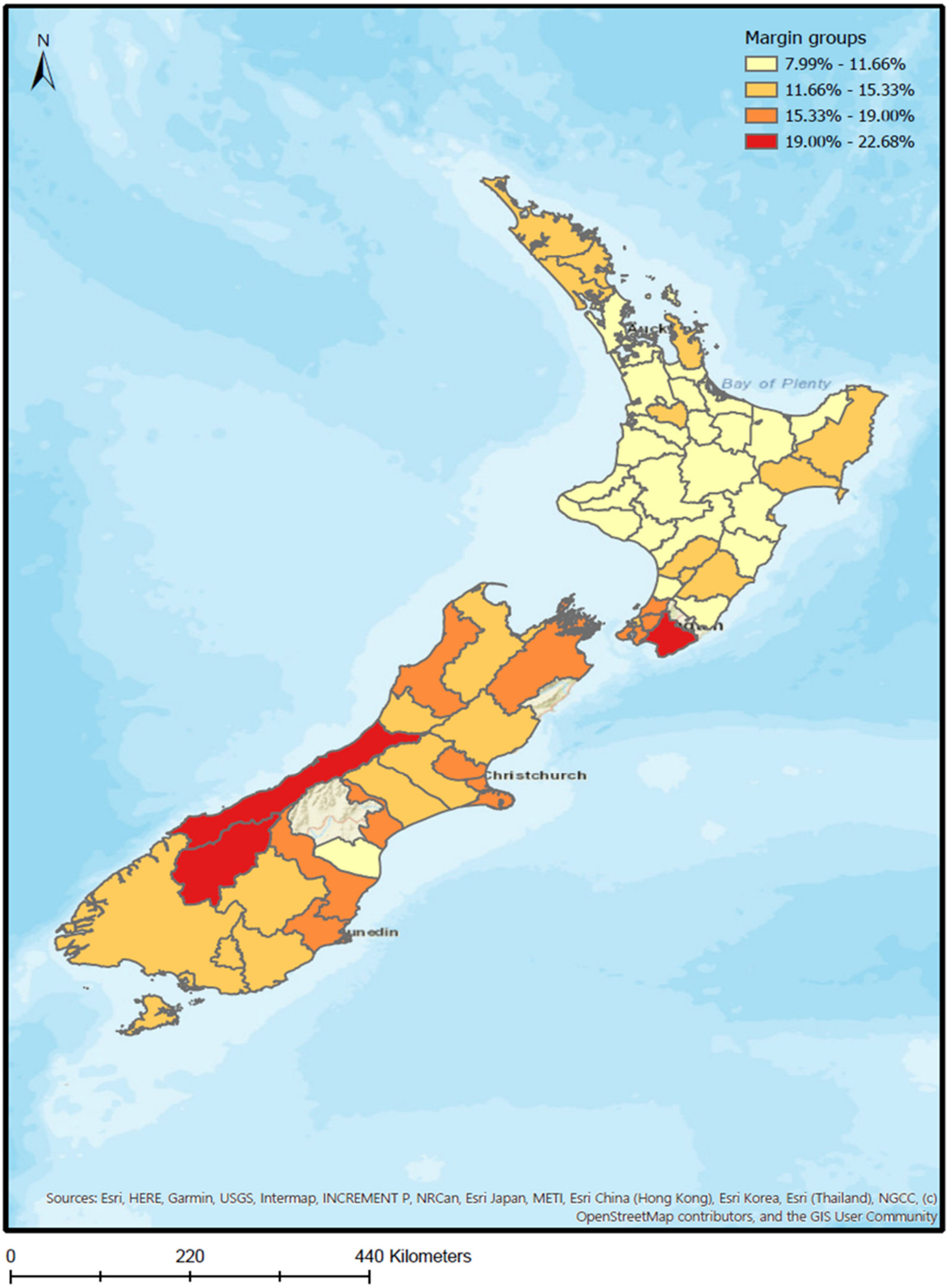
F118.4 Figure F7 and Figure F8 show the average diesel board prices and importer margins across territories in 2019 within New Zealand, with average board prices ranging from $1.23 to $1.79 NZD, and average importer margins ranging from 11.16% to 35.60%. Prices and margins in the Westland District appear to be the highest, with a board price of $1.79 NZD and importer margins of 35.60%.

Figure F1 91-octane petrol board prices across territories in New Zealand (2019)



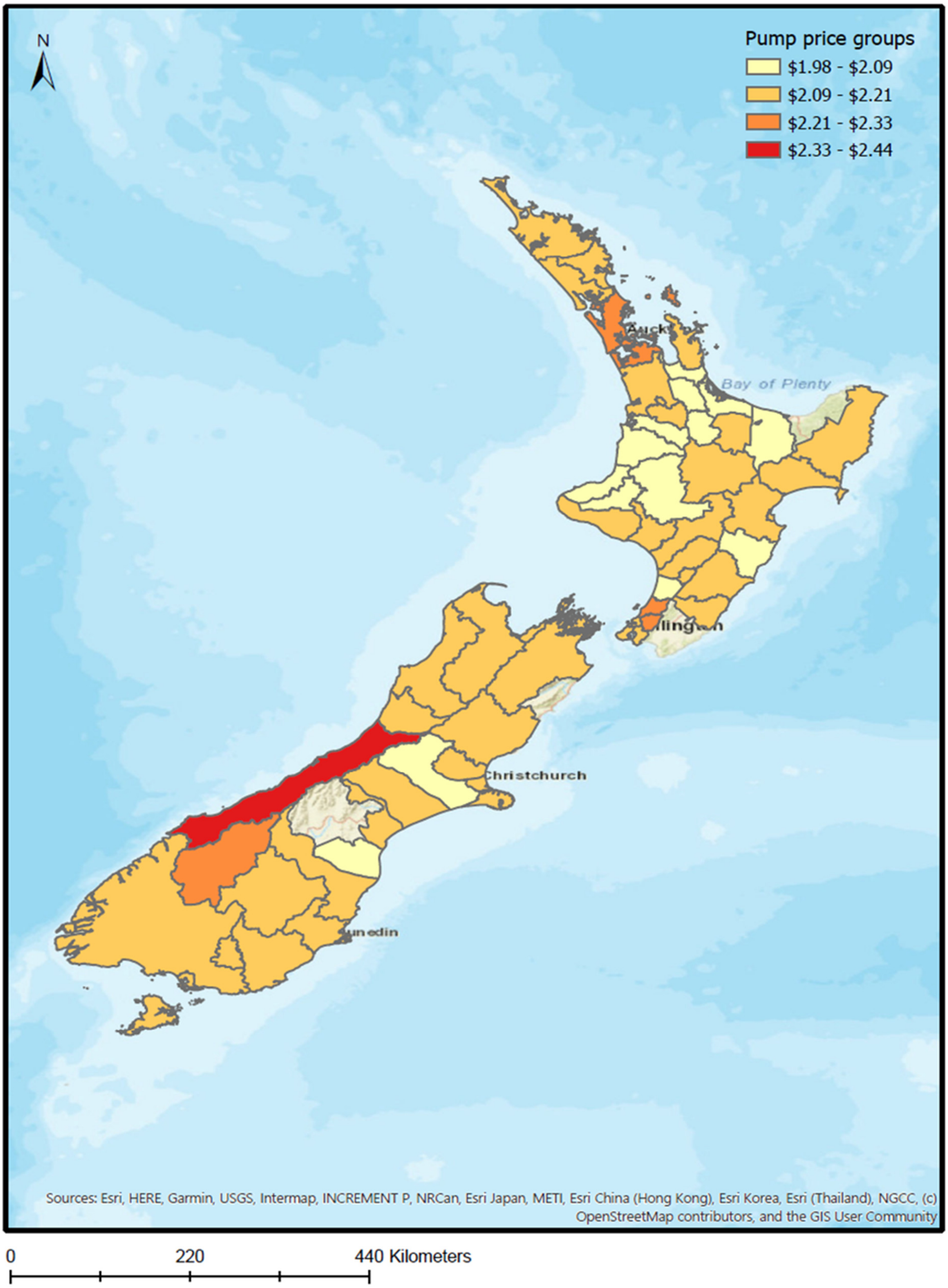
Source: Analysis on data provided to the Commission by industry participants.

Figure F2 91-octane petrol importer margins across territories in New Zealand (2019)



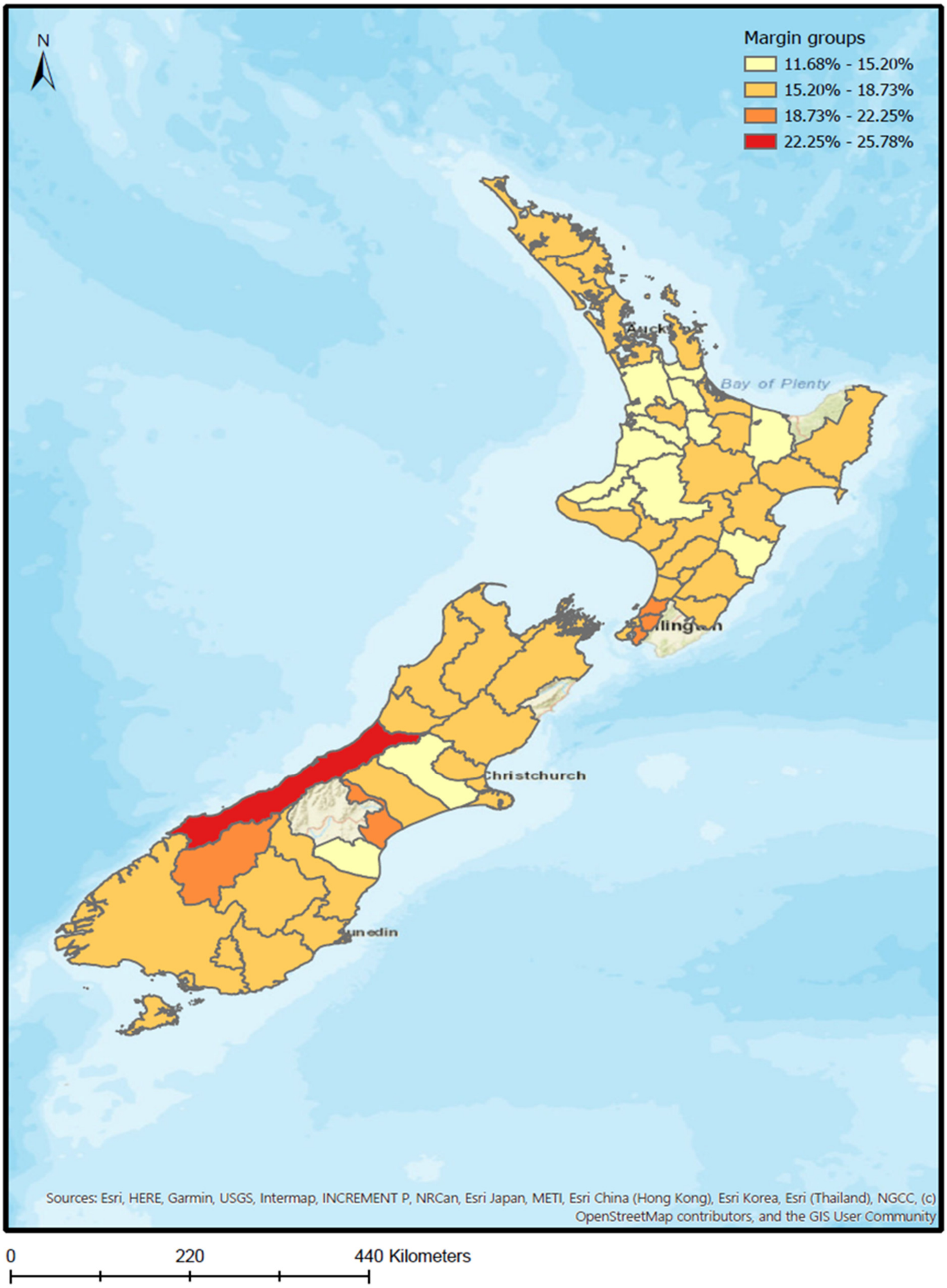
Source: Analysis on data provided to the Commission by industry participants.

Figure F3 95-octane petrol board prices across territories in New Zealand (2019)



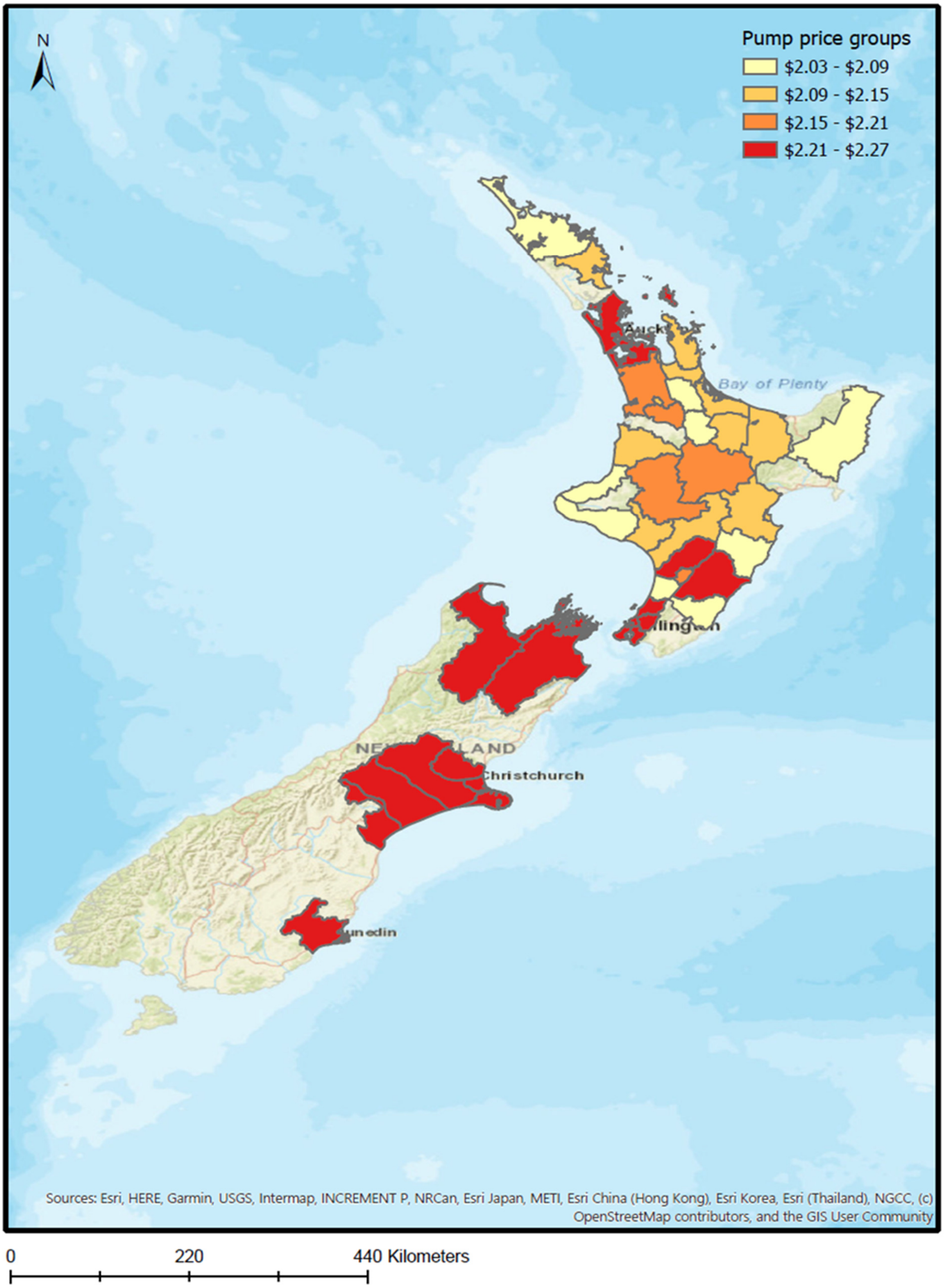
Source: Analysis on data provided to the Commission by industry participants.

Figure F4 95-octane petrol importer margins across territories in New Zealand (2019)



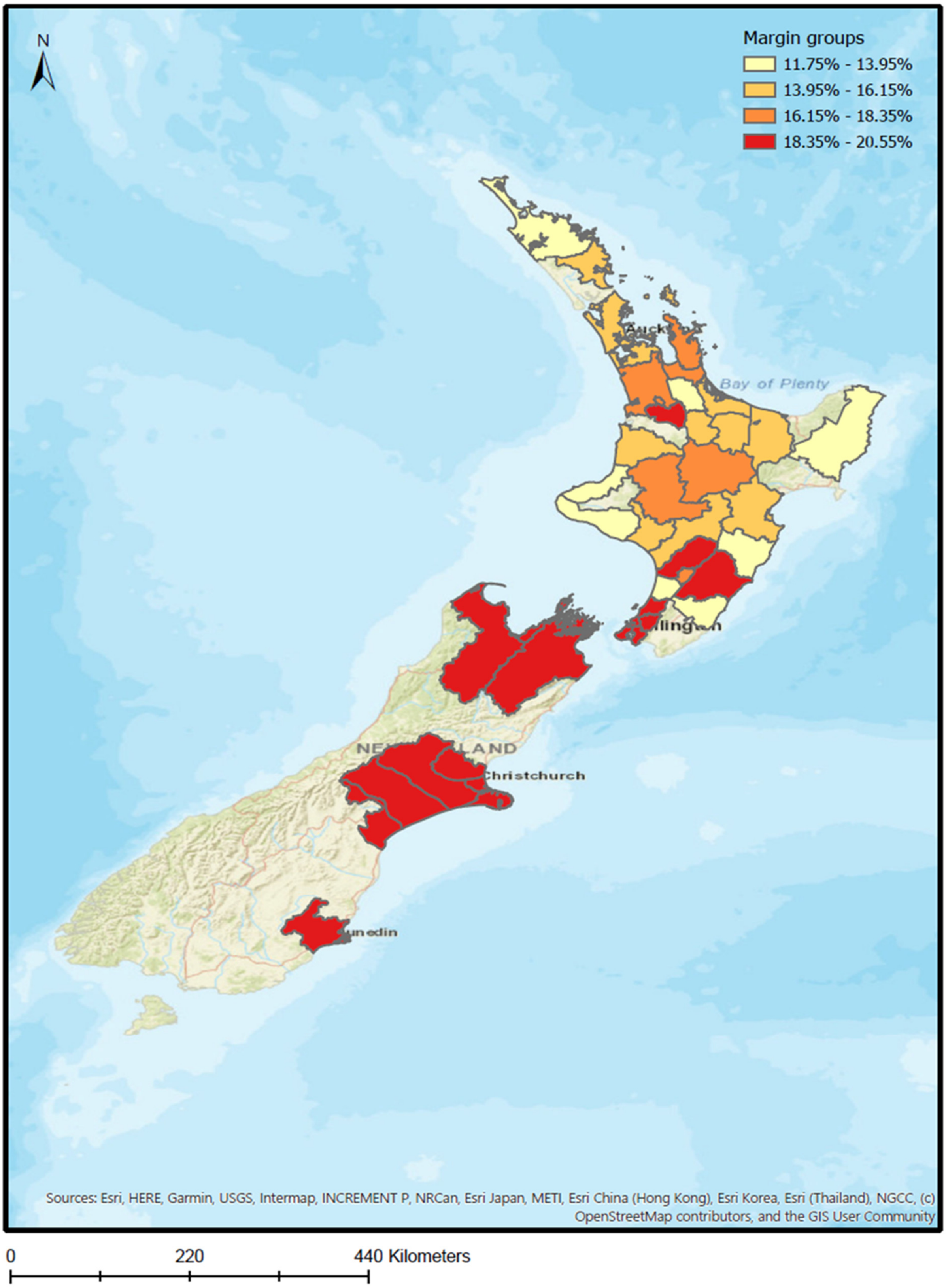
Source: Analysis on data provided to the Commission by industry participants.

Figure F5 98-octane petrol board prices across territories in New Zealand (2019)



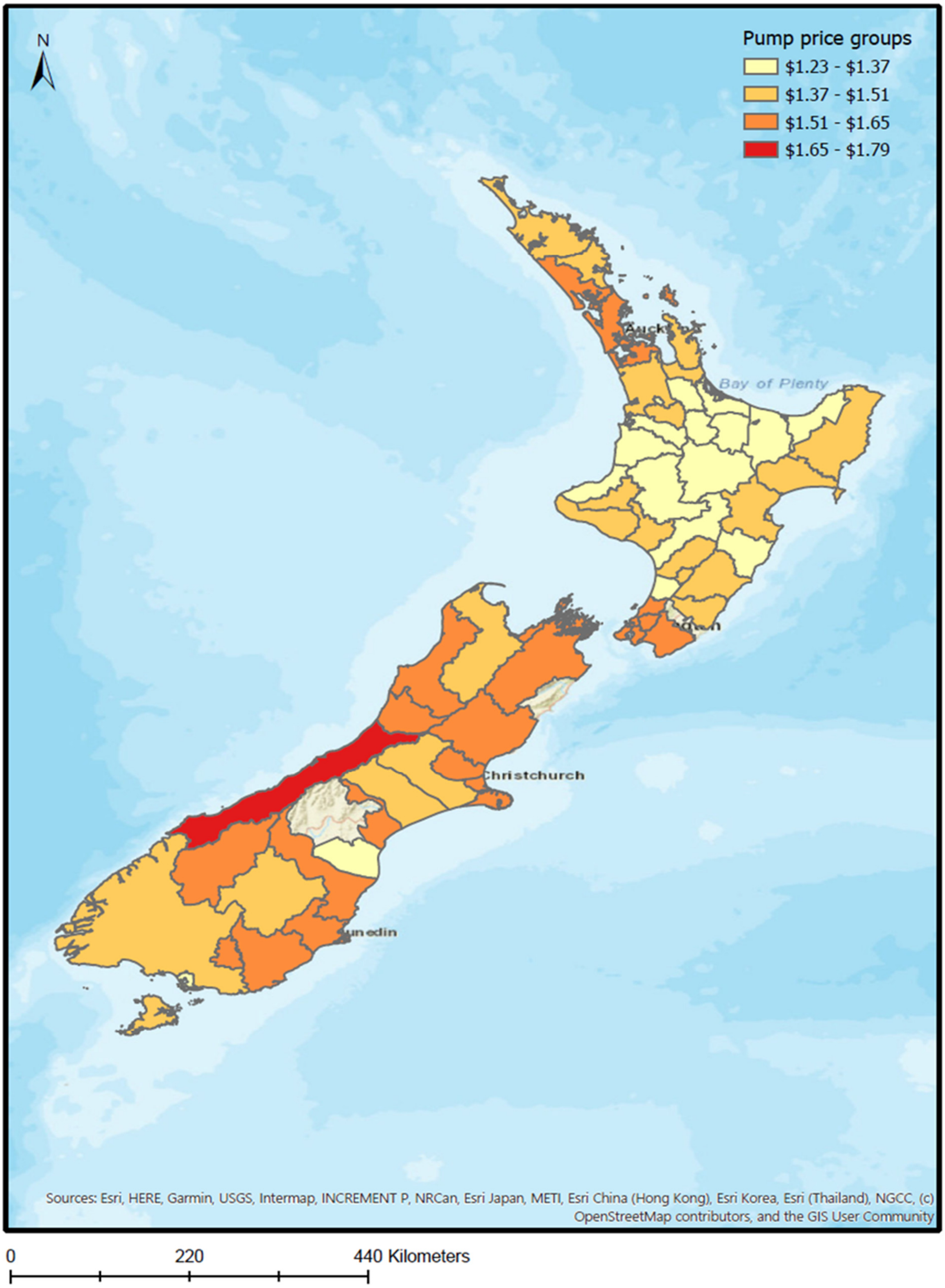
Source: Analysis on data provided to the Commission by industry participants.

Figure F6 98-octane petrol importer margins across territories in New Zealand (2019)



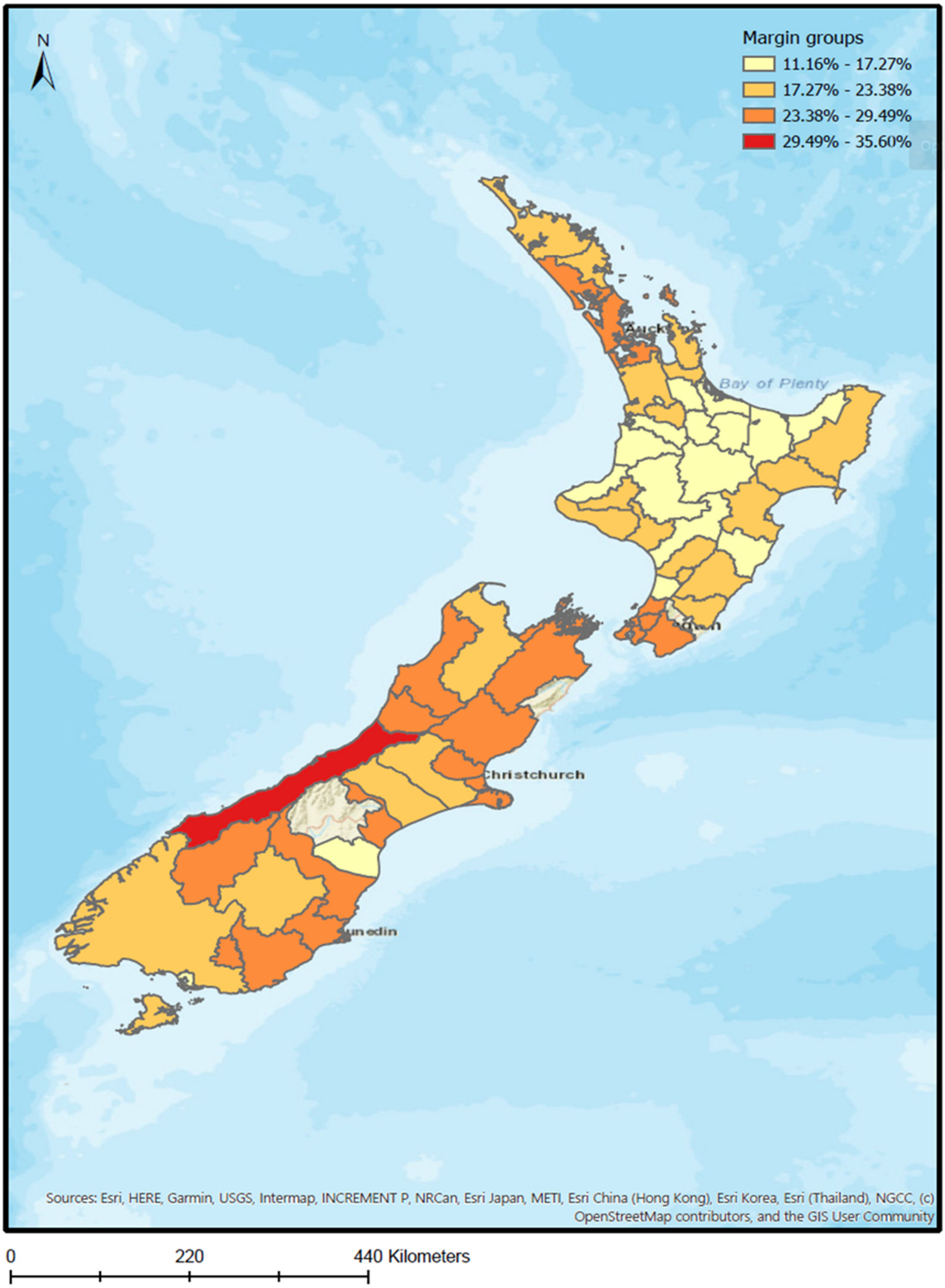
Source: Analysis on data provided to the Commission by industry participants.

Figure F7 Diesel board prices across territories in New Zealand (2019)



Source: Analysis on data provided to the Commission by industry participants.

Figure F8 Diesel importer margins across territories in New Zealand (2019)



Source: Analysis on data provided to the Commission by industry participants.

Site maps

F119 The site maps compare board prices and importer margins of 91-octane petrol across sites (for which we have reliable board price data) in areas with high population density, for the year 2019. These areas are the Auckland Region, the Waikato Region, the Wellington Region and Christchurch City. These maps colour each site based on its average board prices and importer margins in 2019, using four different colours. These colours graduate from yellow to red and represent the four different bands of prices and margins based on the range of site averages of each of the above four areas. Specifically, for each of the Auckland Region, the Waikato Region, the Wellington Region and Christchurch City:

- Sites with board prices / importer margins between the minimum and the first quartile are coloured in yellow.
- Sites with board prices / importer margins between the first quartile and the median are coloured in light orange.
- Sites with board prices / importer margins between the median and the third quartile are coloured in dark orange.
- Sites with board prices / importer margins between the third quartile and the maximum are coloured in red.

F120 These maps are detailed in the figures below.

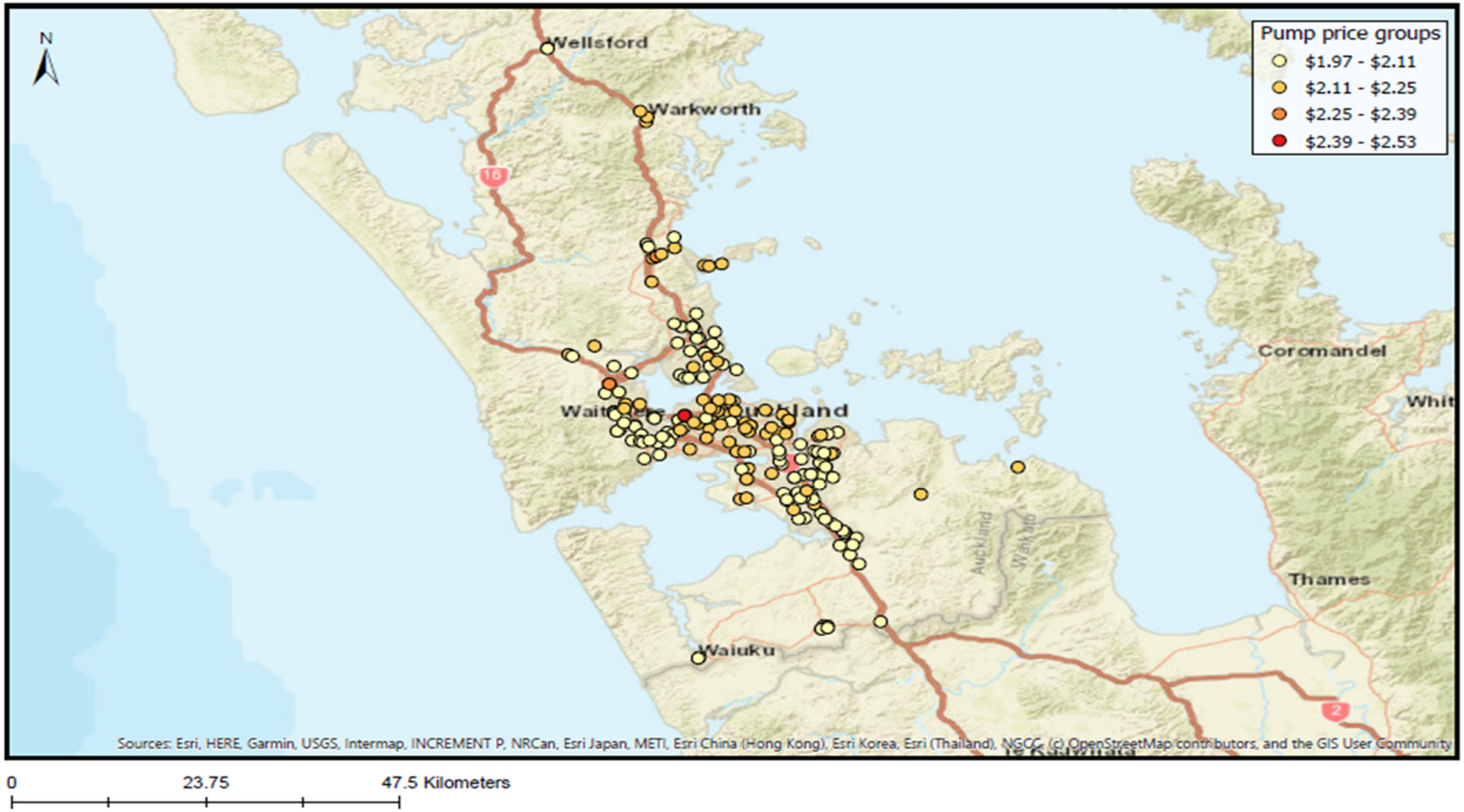
F120.1 Figure F9 and Figure F10 below show the average 91-octane petrol board prices and importer margins in 2019 for sites within the Auckland Region, with average board prices ranging from $1.97 to $2.53 NZD, and average importer margins ranging from 5.30 per cent to 24.64 per cent.

F120.2 Figure F11 and Figure F12 below show the average 91-octane petrol board prices and importer margins in 2019 for sites within the Christchurch City, with average board prices ranging from $1.97 to $2.33 NZD, and average importer margins ranging from 10.26 per cent to 23.68 per cent.

F120.3 Figure F13 and Figure F14 below show the average 91-octane petrol board prices and importer margins in 2019 for sites within the Waikato Region, with average board prices ranging from $1.79 to $2.17 NZD, and average importer margins ranging from 2.30 per cent to 19.01 per cent.

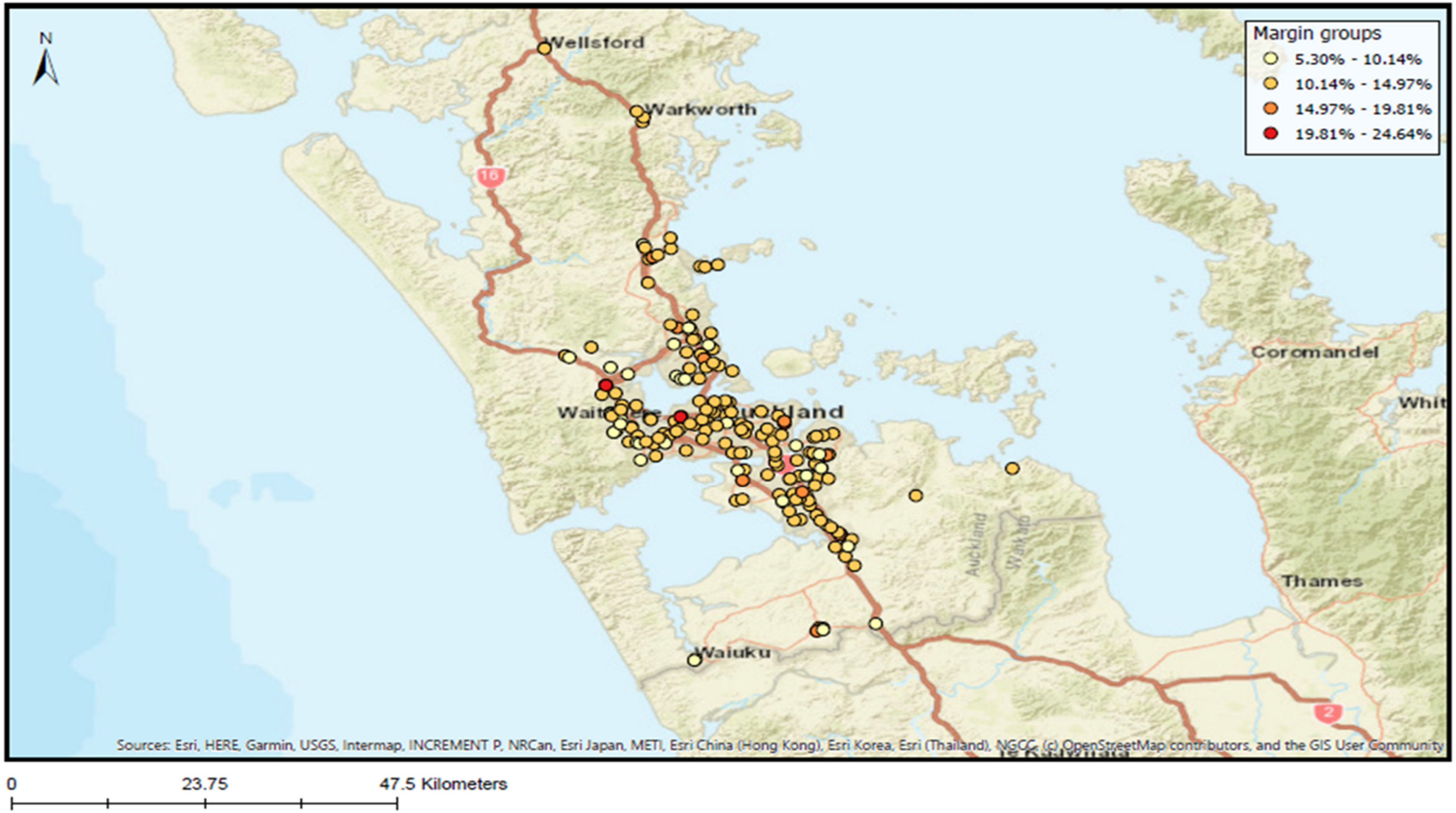
F120.4 Figure F15 and Figure F16 below show the average 91-octane petrol board prices and importer margins in 2019 for sites within the Wellington Region, with average board prices ranging from $1.91 to $2.33, and average importer margins ranging from 7.66 per cent to 23.68 per cent.

Figure F9 91-octane petrol board prices across sites in the Auckland Region (2019)



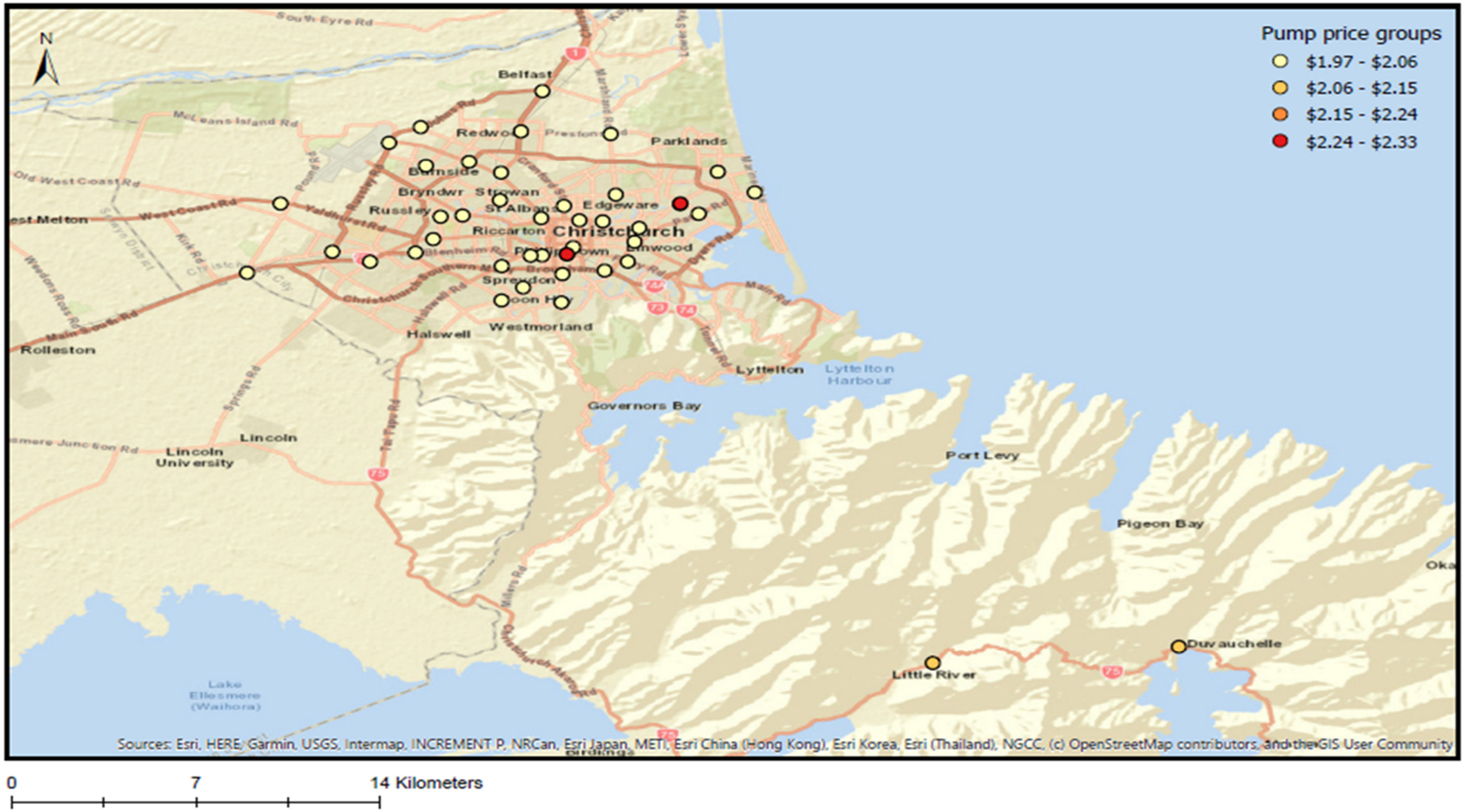
Source: Analysis on data provided to the Commission by industry participants.

Figure F10 91-octane petrol importer margins across sites in the Auckland Region (2019)



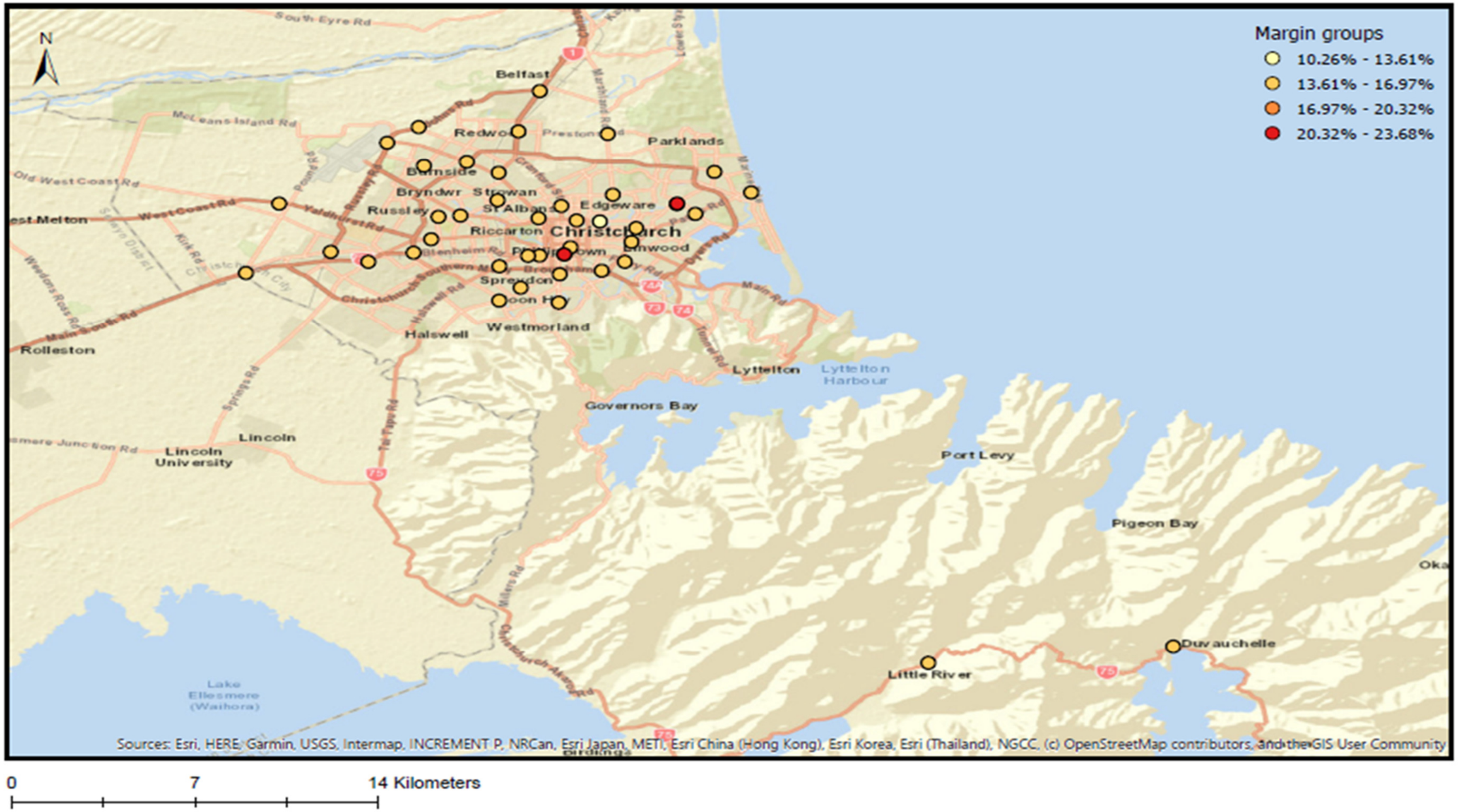
Source: Analysis on data provided to the Commission by industry participants.

Figure F11 91-octane petrol board prices across sites in Christchurch City (2019)



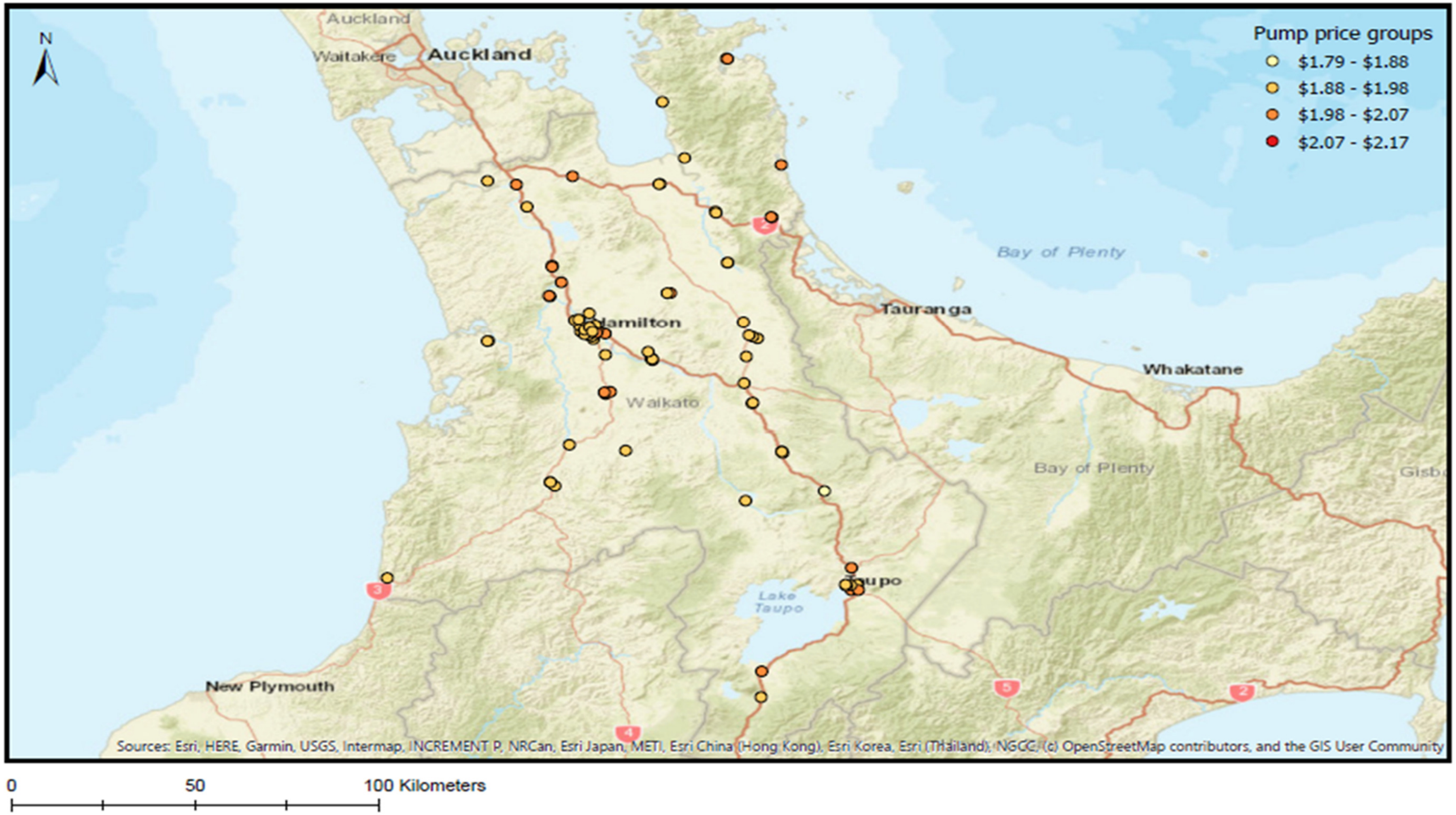
Source: Analysis on data provided to the Commission by industry participants.

Figure F12 91-octane petrol importer margins across sites in Christchurch City (2019)



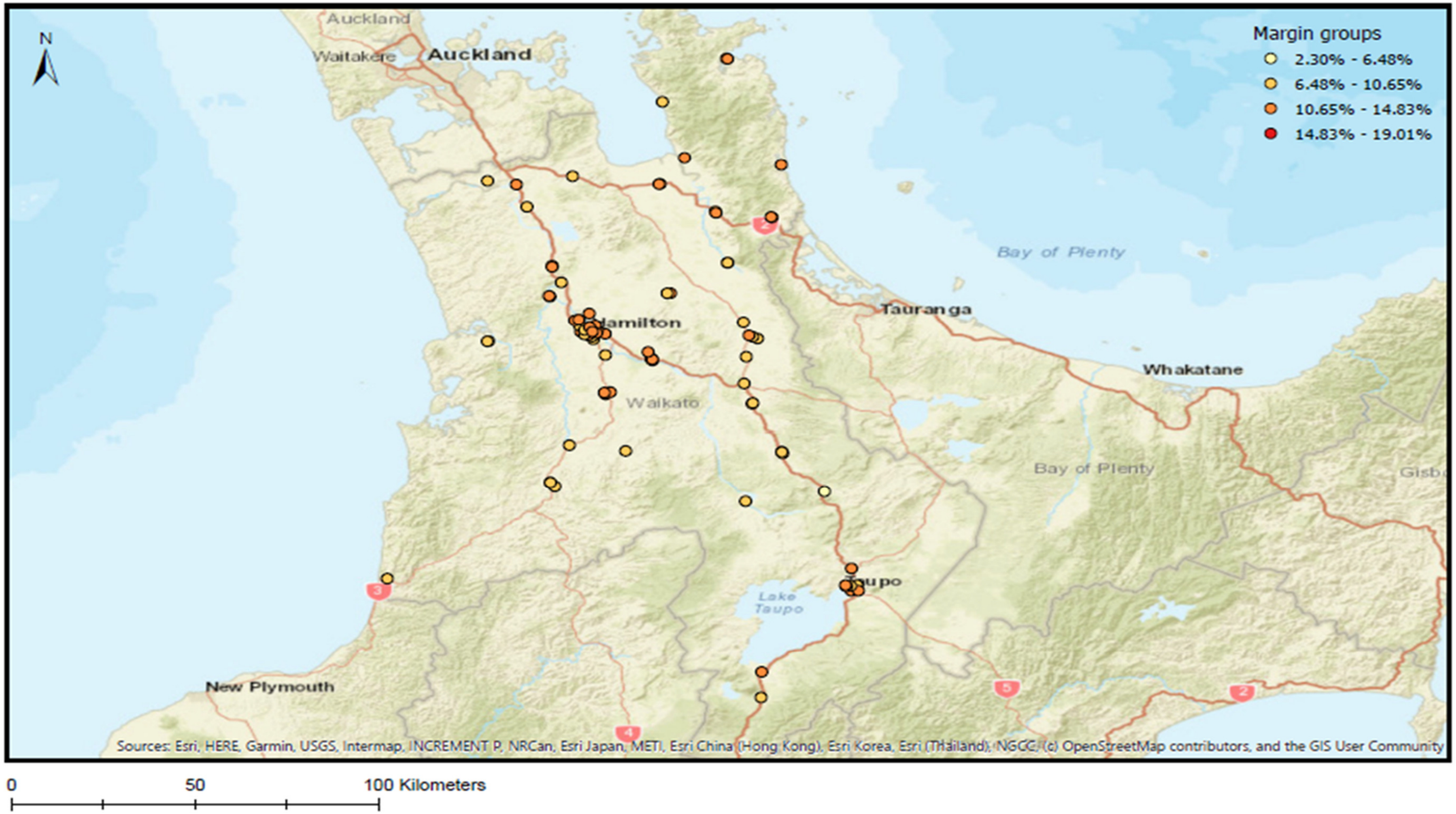
Source: Analysis on data provided to the Commission by industry participants.

Figure F13 91-octane petrol board prices across sites in the Waikato Region (2019)



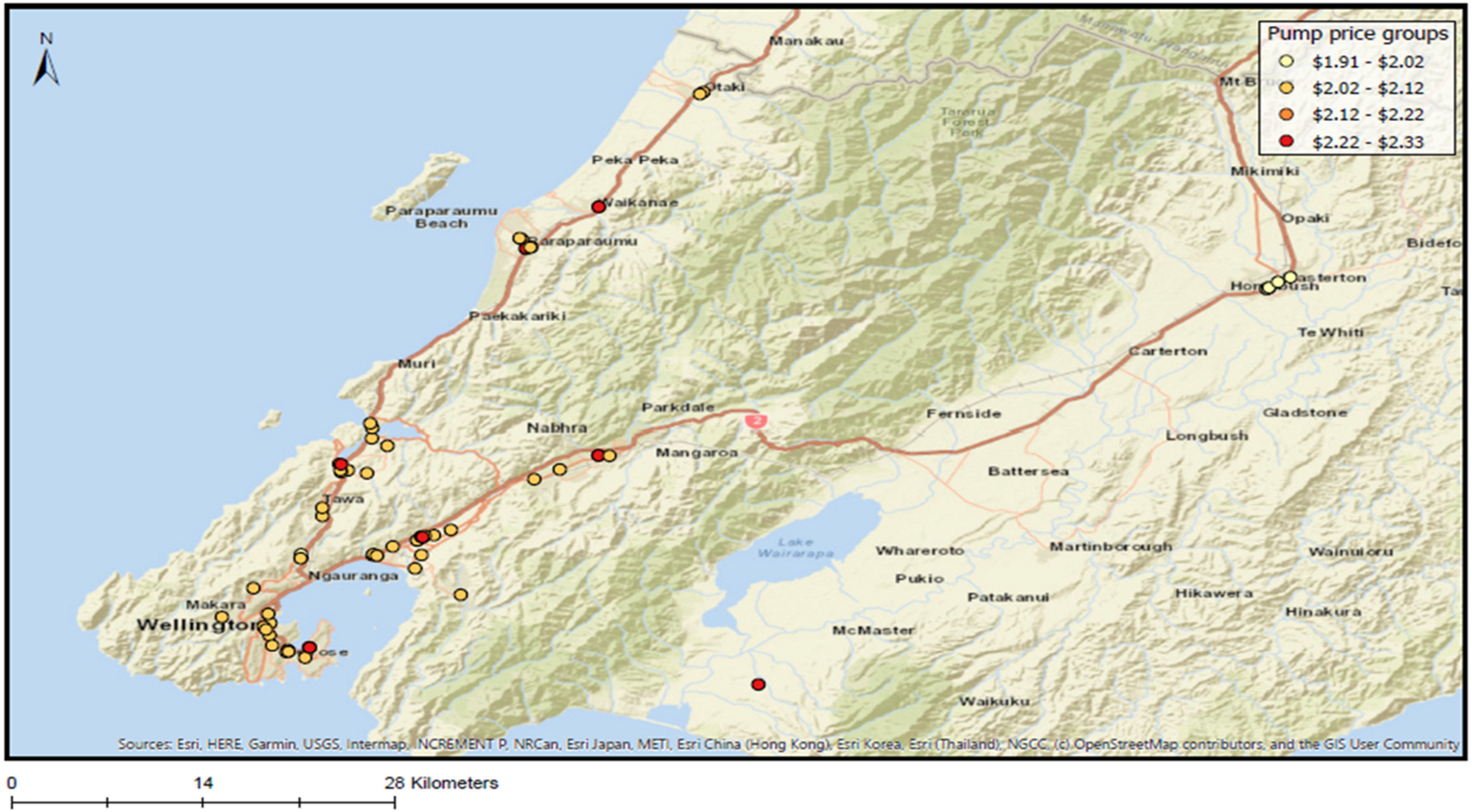
Source: Analysis on data provided to the Commission by industry participants.

Figure F14 91-octane petrol importer margins across sites in the Waikato Region (2019)



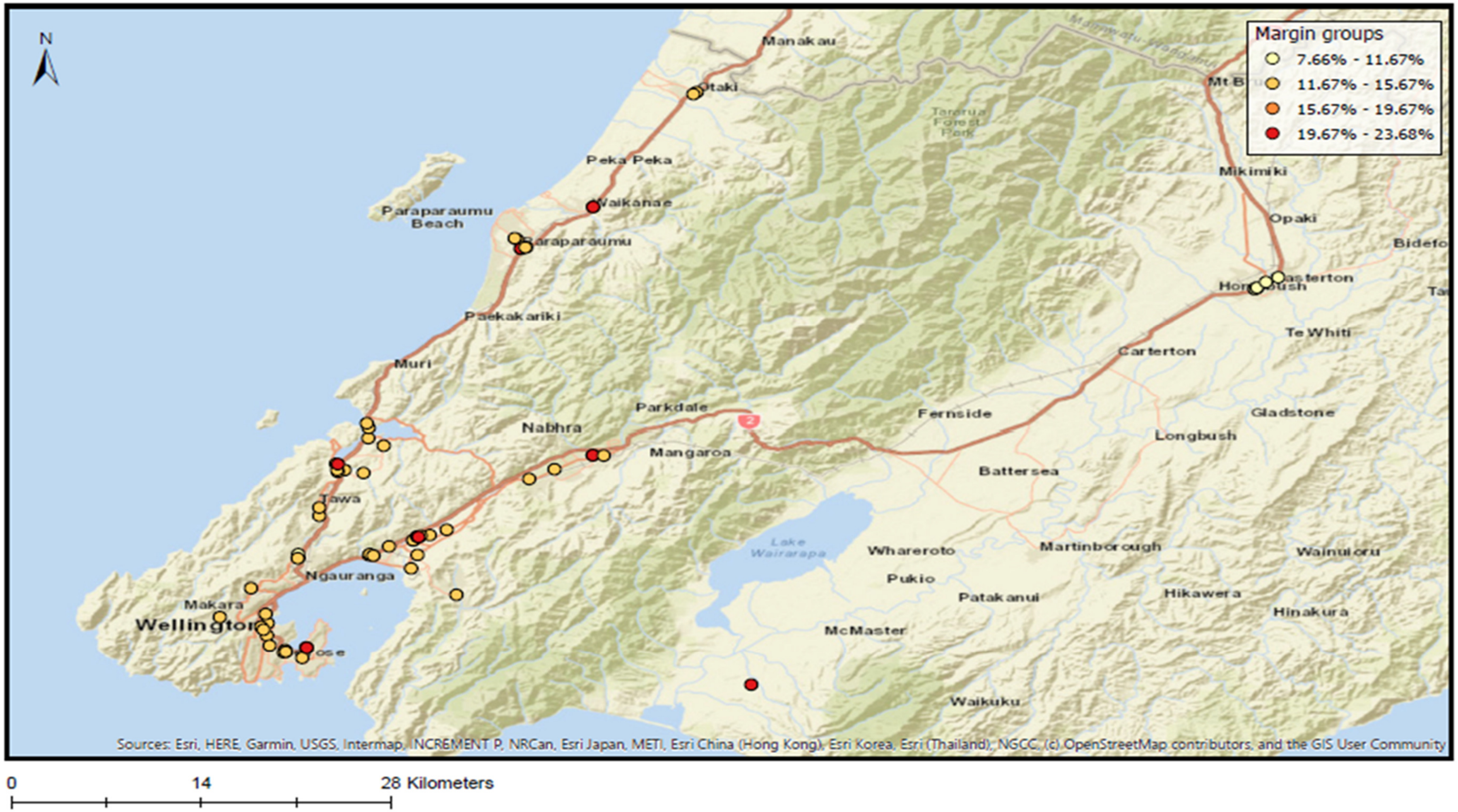
Source: Analysis on data provided to the Commission by industry participants.

Figure F15 91-octane petrol board prices across sites in the Wellington Region (2019)



Source: Analysis on data provided to the Commission by industry participants.

Figure F16 91-octane petrol importer margins across sites in the Wellington Region (2019)



Source: Analysis on data provided to the Commission by industry participants.

Line charts

F121 The key line charts we have produced so far compare variation in weekly average board prices (for regular petrol) over time across:

F121.1 South and North Island of New Zealand;

F121.2 South and North Island, and Wellington Region;

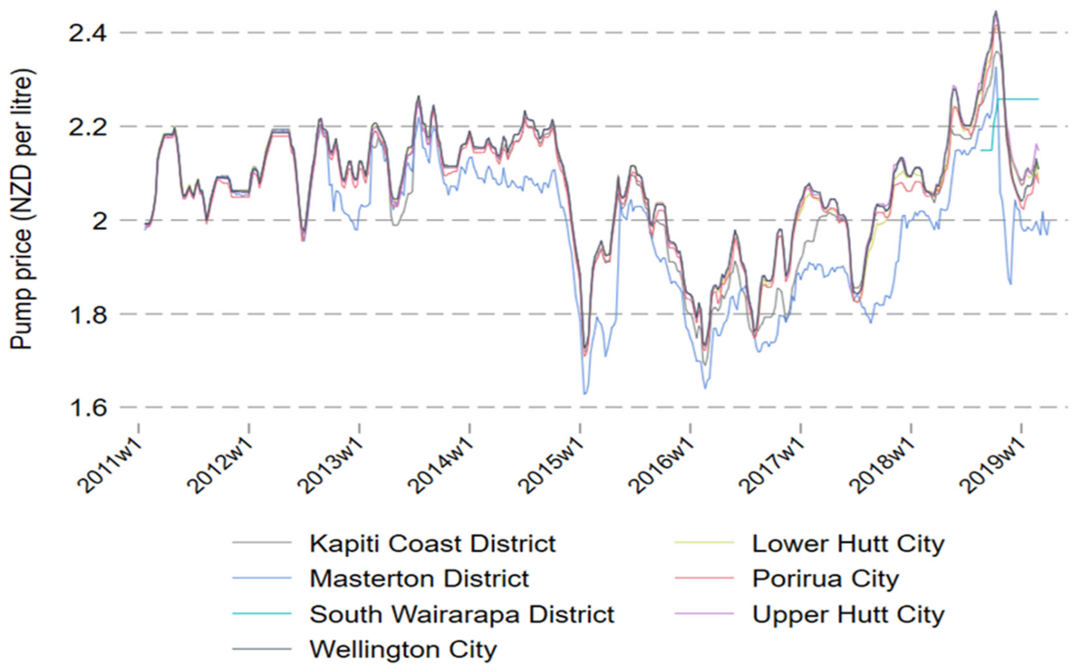
F121.3 South and North Island, and Wellington City;

F121.4 each region[829] within the South Island and North Island, respectively; and

F121.5 each territory within the Auckland Region, Canterbury Region, Waikato Region and Wellington Region, respectively.

F122 Figure F17 show that weekly average board prices for regular petrol in Wellington City are slightly higher than those averaged across the Wellington Region. This is because prices in Wellington City are generally higher than those in other districts within Wellington Region (eg, Masterton District).

Figure F17 91-octane petrol board prices over time across districts within Wellington Region

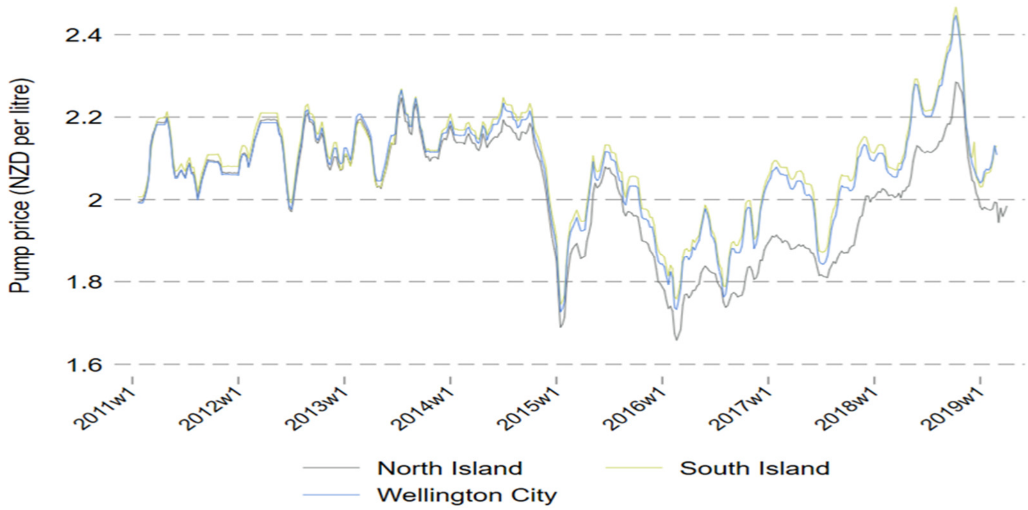


Source: Analysis on data provided to the Commission by industry participants.

829 Regions are defined based on the first tier of local government in New Zealand.

F123 Figure F18 show that the weekly average board prices for regular petrol in South Island are higher than those in the North Island, especially for the years after 2015. They also show that board prices in Wellington City are similar to those in the South Island and are therefore higher than those in the rest of the North Island.

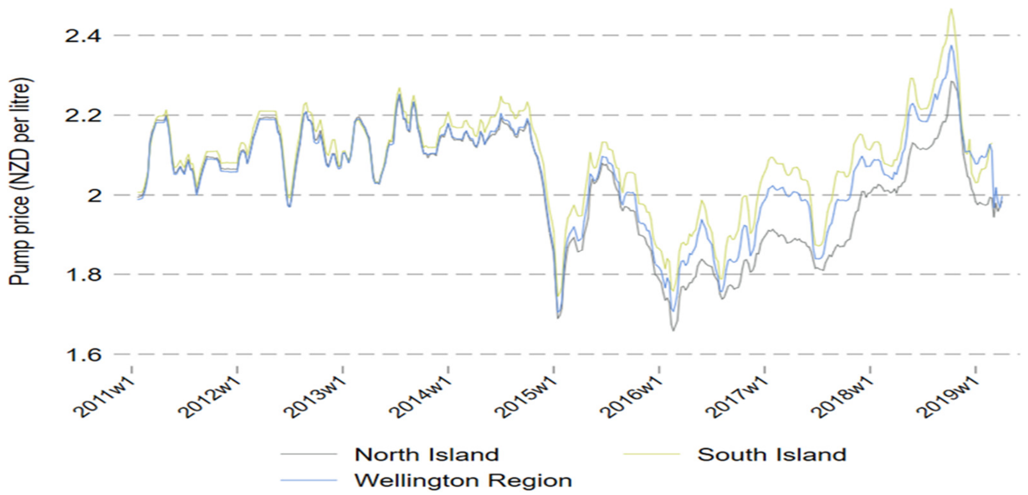
Figure F18 91-octane petrol board prices over time in South and North Island and Wellington City



Source: Analysis on data provided to the Commission by industry participants.

F124 Figure F19 show that the weekly average board prices for regular petrol in Wellington Region, while still higher than those in the North Island, are slightly lower than those in the South Island. This is because board prices in Wellington City are generally higher than those in other districts within Wellington Region (eg, Masterton District).

Figure F19 91-octane petrol board prices over time in South and North Island and Wellington Region



Source: Analysis on data provided to the Commission by industry participants.

New site event analysis – the impact of new retail sites on competition

F125 This section describes our analysis regarding the impact of new retail sites on competition in the New Zealand retail fuel market. Specifically, we discuss:

F125.1 the purpose of our analysis;

F125.2 results and what we think they indicate;

F125.3 limitations of our analysis; and

F125.4 our possible future work.

Purpose of our analysis

F126 Over the past few years fuel retailers have increased their network of retail sites across New Zealand. Many of these sites are new retail sites (new-to-industry or NTI sites), while others have been rebranded from existing sites. However, we cannot assume that these sites have materially affected competition. For example, the resellers buy fuel from the majors, which may limit where they can put NTIs and how much they can discount.

F127 These new retail sites will benefit consumers in those areas that are opened because it might be more convenient or a lower priced unmanned retail site. This might also improve competition to at least some extent. The purpose of our analysis so far was to test how far these benefits extend.

F128 The main focus of our analysis was on NTI sites as they are most likely to affect competition (since they increase the number of competitors in their local markets) than rebranded sites. However, we have also analysed the impact of rebranded sites on competition, as we acknowledge that a rebrand might also affect competition.

F129 In a competitive market, it is expected that when margins rise above competitive levels it would attract new entry. This entry then competes the margins down towards competitive levels again. The purpose of this analysis is therefore to test how new retail sites and rebranded sites have affected competition in local markets with the majors.

F130 The main analyses we have done so far to assess the benefits of new retail sites are:

F130.1 to determine the location where fuel resellers and retailers have built their sites to see if these new retail sites were being located close to those of the majors (including the distributor's supplier);

F130.2 to assess whether these new retail sites had led to a fall in the price and volumes at nearby retail sites of majors as measured by:

F130.2.1 a fall in the board price of regular petrol of nearby retail sites relative to a benchmark;

F130.2.2 a fall in the effective price of regular petrol (total revenues earned divided by total volume), relative to a benchmark; and/or

F130.2.3 a fall in volumes of regular petrol.

Analysis done so far

Location of new sites in proximity to the majors

F131 If the new reseller and retailer sites were competing directly with the majors, we would expect to find they were located near to the majors (see Chapter 6).

F132 In our analysis so far, we have taken the following steps to assess this.

F132.1 We used retail site data provided by market participants to identify all reseller and retail new and rebranded sites over the past 10 years. So far, we have focused our analysis on the impact of new sites from January 2017 onwards.

F132.2 Using GIS data that shows the distance between each new site and competing fuel sites within 100km (based on drive distance) we counted the number of sites of majors located within 2km, 5km and 10km of each new or rebranded site for the period 2017 to 2019.

F133 The distance at which a station imposes a constraint on a given new or rebranded retail site will depend on factors such as traffic flows and the quality of rivals. Our analysis was based on the premise that the closer two retail sites are located to one another, the more likely it is that they will impose a competitive constraint on each other. For these reasons, a retail site within 2km is very likely to compete closely with the new retail site. Although retail sites within 5km and 10km may also compete with the new or rebranded retail site, the extent of competition will become weaker at these greater distances.

F134 We have treated all retail sites that are independently owned and operated but that carry the brand of a major fuel firm (such as most Caltex stations) as a major fuel firm. As such, our count of the major fuel firm sites includes:

F134.1 all Z Energy and Caltex branded sites;

F134.2 all BP branded sites (including Connect and 2GO); and

F134.3 all Mobil branded sites.

F135 The data we used includes two sets of counts:

F135.1 the number of retail sites of the majors located within 2km, 5km and 10km of the new or rebranded site, respectively; and

F135.2 the number of sites within 2km, 5km and 10km of the new or rebranded retail site that is operated by the supplier of the reseller in question to determine if the reseller is competing directly against its supplier.

The impact on board prices, discounts and volumes of majors in small local markets

F136 To test the extent of benefits to consumers of new or rebranded retail site entry our analysis so far has looked at how the new retail sites have affected prices and volumes at those stations nearby, and if so, how far away the effect extended to. We have so far focused our analysis on 91-octane fuel only.

F137 We have tested the new and rebranded retail sites on the following metrics.

F137.1 Board price relative to Z Energy's main port price (MPP). We have compared the board price against MPP as a means to control for the normal changes in prices as the price of crude oil goes up and down.

F137.2 Effective price relative to Z Energy's MPP. Effective price was calculated as total revenues divided by total volumes so that it will capture any discounts. If effective price has decreased (even if board price has stayed the same) it may reflect competing fuel sites responding to the new or rebranded site by doing more promotions or encouraging the take up of loyalty programs.[830]

F137.3 Volumes of regular petrol sold by majors close to new or rebranded sites. A fall in volumes of competing firms within small local markets might suggest that customers have switched from purchasing fuel at a site of a major fuel firm to the new or rebranded site.

F138 We have completed an analysis on each of these metrics for each of the 56 new or rebranded retail sites in our sample. Our analysis so far was limited to include only the five closest sites to each of the new or rebranded retail sites.

Results

F139 We have looked at the evidence on how these new retail sites are impacting on the sites of the nearest majors. This analysis is still in progress. The evidence so far suggests mixed results as to whether new retail sites have had a positive competitive impact on the offers of majors.

F139.1 Our analysis so far suggests that Gull is most likely to put a site near those of the majors. By contrast, resellers seem to avoid putting their sites near those of the major fuel firm, especially those of their own fuel supplier.

F139.2 We looked at prices and volumes of the majors within 2km, 5km and 10km of new sites before and after each new site opened. So far, the analysis

[830] As effective price is quite volatile we smoothed the data by using a moving average of 7 days observations before and after any given date.

showed only some examples where the board price or volume clearly fell after entry occurred. In almost all cases the board price did not change, or the change was unclear. There were only few cases where the board price clearly fell.

F139.3 However, there were quite a few instances when the effective price (which is the price after average discounts) fell following an NPD site opening. This may indicate that the majors have reacted by offering more discounts and encouraging loyalty offers. Further, we note that on the few occasions when the volumes of the majors dropped materially after a new site opened, these instances were observed most commonly when an NPD site opened.

F139.4 There were few examples in our analysis where prices clearly fell after a Gull, Allied or GAS site opened. So far, our analysis has not provided many examples of the "Gull effect" on new site openings. This could be because the most recent Gull sites are filling in their network and most of the Gull effect has already occurred (in the areas our regional analysis identified) or simply because the data we had in this analysis was not clear enough to see the impact Gull had on nearby competitors.

F140 In summary, our analysis so far shows that Gull was most likely to put its new sites in direct competition with the majors. NPD appeared to have the most impact on the majors' prices. There is less evidence that the sites of Gull, Allied and GAS are impacting on the majors.

Limitations of the analysis

F141 We do not have pricing, discount and volume data for independently operated sites that are branded as a major fuel site. This means that we do not have data for Caltex, BP2GO and independently operated Mobil sites. We have therefore not been able to assess the potential impact on prices, discounts and volumes on all majors located in close proximity to new or rebranded retail sites.

F142 Our focus so far has also been on assessing the impact of new retail site and rebranded entry on the majors. However, we note that it is possible that new retail sites could also have had an impact on prices, discounts and volumes of other resellers and retailers within small local markets. Similarly, our analysis so far was limited to assessing the potential impact on competition to the five closest sites from the site of new entry. However, it is possible that in some instances the greatest impact of new entry was on sites outside the five closest sites.

F143 Finally, our analysis so far focused only on assessing the potential impact on competition of new and rebranded sites for a relatively small sample size over the past two years. This might have an effect on the robustness of our results.

Possible future work

F144 So far, this analysis has been conducted as a series of relatively short-term case studies looking at effects a few months before and after a new retail site opening. We may expand our initial analysis by assessing the impact of new and rebranded retail sites on competition with the majors over a longer time period. Further, we also may expand our analysis by using a similar methodology as described above to assess the impact of new retail sites on both majors and other retailers within small local markets. Finally, we will consider including all retail sites located within 2km, 5km and 10km in our future analysis (ie, not only the five closest sites).

F145 In addition to our analysis on the impact of new sites by resellers and retailers on existing competition we are also considering a more systematic analysis using the dataset as described in this attachment that would have regard to the impact of concentration levels and retail fuel site characteristics on board prices, effective prices and margins in local markets throughout New Zealand. The purpose of this analysis would be to test the impact of local competition and market concentration levels on retail fuel prices, discounts and margins in New Zealand.

F146 We will consider using a random effects panel regression model to test the effect on board prices, effective prices and margins of a number of explanatory variables, including (but not limited to) variables such as the number of competitors within 2km, 5km, 10km; market shares and revenues of competing sites; as well dummy variables to account for the characteristics of sites (eg, manned versus unmanned sites) within local markets.

F147 Our initial focus would be on doing this analysis on local markets that have seen new entry. However, depending on data limitations we may also expand our analysis to include both new and existing retail sites throughout New Zealand in our analysis.

F148 We may also carry out further analysis of regional variations between board prices and margins in New Zealand.

F149 We invite comment on matters that might be relevant to the further analysis we intend to carry out.

Attachment G Overview of distributors' retail sites

Distributor	Fuel supplier	Description
Waitomo KIWIS FUELING KIWIS	Mobil	– **Waitomo**[831] has a supply contract with Mobil. – Waitomo provides bulk fuel delivery services to commercial customers and delivers fuel to its own reseller network of around 33 Waitomo branded retail sites and around 17 diesel stops in the North Island. – Waitomo has announced plans to open sites in the South Island.
	Farmlands co-operative Z ENERGY	– **Challenge**[832] is supplied fuel by Farmlands, which is in turn supplied by Z Energy. – There are around 85 Challenge branded retail sites throughout New Zealand, which are dealer sites owned and operated by individual owners who set the retail price. The owners each have individual agreements with Farmlands to be supplied fuel. – Some retail sites have a mechanical workshop and ancillary business attached (eg, tyre fitter or retailer).
RD petroleum	bp	– **RD Petroleum**[833] has a supply contract with BP, who also has a 49% ownership interest in RD Petroleum. – RD Petroleum distributes bulk fuel, lubricants and petroleum related products to the rural, residential and commercial sectors, and to its own reseller network of around 20 retail sites in the South Island. It operates tankers from bases in Nelson, the West Coast, Christchurch, Timaru, Dunedin and Invercargill.
npd	Mobil	– **NPD**[834] has a supply contract with Mobil. – NPD provides bulk fuel delivery services to commercial customers and around 51 NPD branded retail sites and around 20 diesel stops, including some independently owned and operated. Some retail sites have a workshop attached. – NPD's retail sites are concentrated at the top of the South Island, though NPD has a growing number of sites, as far south as Invercargill.
southfuels	Z ENERGY	– **Southfuels**[835] has a supply contract with Z Energy. – Southfuels distributes fuel and lubricants to the primary sector throughout New Zealand. Southfuels also delivers fuel to around nine of its own retail sites operating under the Southfuels or Northfuels brand, including some independently owned and operated sites.
McFALL FUEL	bp	– **McFall Fuel**[836] has a supply contract with BP, who also has a 49% ownership interest in McFall Fuel. – McFall Fuel primarily provides bulk fuel delivery services to commercial customers and delivers fuel to the small number of retail sites it owns. – McFall Fuel operates around four retail sites that operate under the name "Fuelling [location name]" (eg, "Fuelling Kapiti"). – McFall purchased Rural Fuel in 2017.

831 See http://www.waitomogroup.co.nz/

832 See https://www.challenge.net.nz/

833 See https://www.rdp.co.nz/

834 See https://www.npd.co.nz/npd-retail-network/

835 See https://southfuels.co.nz/

836 See https://www.mcfallfuel.co.nz/

Allied	Mobil	– **Allied Petroleum**[837] provides bulk fuel delivery services to Mobil's retail service station network, Mobil's commercial customers, and its own commercial customers. – Allied Petroleum also delivers fuel to its own reseller network of around 97 retail sites throughout New Zealand, including fuel stops, which primarily cater to commercial vehicles and do not sell petrol. – Some of Allied Petroleum's sites are independently owned and operated. – Allied Petroleum also has a 50 percent shareholding, and management control, of Weallans Allied Petroleum Ltd. There are around four Weallans retail sites.
McKEOWN	Z ENERGY	– **McKeown**[838] supplies bulk fuel to commercial customers and its own retail sites, of which there are around 38 in the South Island. Many are unmanned sites operating in the Otago region.
g.a.s. Petrol Service Stations	bp	– **GAS**[839] has a supply contract with BP. – BP distributes fuel to a network of around 128 GAS retail sites operating throughout the country. – Most GAS sites are independently owned and operated.

Source: Commerce Commission analysis based on publicly available sources.

[837] See https://alliedpetroleum.co.nz/

[838] See https://mckeown.co.nz/

[839] See https://www.gas.kiwi/

Attachment H The impact of EVs on future fuel demand

Introduction to this attachment

H1 This attachment contains more information on the impact of EVs on future fuel demand, which was discussed in Chapter 2.

The impact of EV uptake on fuel demand is sufficiently distant

H2 Overall, evidence suggests that while EV uptake will eventually have a meaningful impact on reducing demand for retail fuel, this is unlikely to have a substantial impact on fuel sales for at least 10 years.

H3 We have been provided with fuel demand forecasts that suggest that over the short-medium term, New Zealand petrol and diesel demand is expected to grow marginally. These forecasts include annual growth estimates that range from below 1% to up to 6%, depending on the fuel type.[840]

H4 BP Global expects demand for fuel used by cars to be broadly flat out to 2040. While it expects demand for travel to grow, this is not expected to increase fuel demand, largely due to improvements in fuel efficiency. In comparison, it expects EVs will have an immaterial dampening effect on fuel demand.[841]

H5 Projections of EV uptake in New Zealand are uncertain. We recognise that even uncertain expectations of reductions in retail fuel demand in 10 to 20 years' time may discourage some investment in expensive and long-lived assets that help supply retail fuel, which otherwise would have gone ahead. However, the negative effect that EVs may have on fuel firms' investment strategies and viability is likely to be somewhat offset by expectations of increasing growth in diesel and aviation fuel demand (which are less affected by EV uptake).[842] For instance, Z Energy's 2019 annual report notes (emphasis added):[843]

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840 Macquarie Research "Z Energy" (2 August 2018) at 12, [ ]; and [ ]

841 BP "BP Energy Outlook – 2019 edition" at 51. Available at <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/energy-outlook/bp-energy-outlook-2019.pdf>.

842 A 2018 report from the Columbia Centre on Global Energy Policy notes that "…any decline in oil demand from the passenger vehicle sector could be offset by demand growth in the petrochemical, aviation, or freight transport sectors, which have fewer and more costly substitutes for oil." Columbia Center on Global Energy Policy "Electric vehicles and their impact on oil demand: Why forecasts differ" (July 2018) at 1.

843 Z Energy "Annual Report 2019", at 15. This is also supported by [ ]

> This year the Board travelled overseas to learn how other countries and industry participants are preparing for a lower carbon future. As a result of the trip the Board is confident that we will have adequate time to properly navigate the expected market transition. **We accept that our industry faces long-term disruption, but it will not manifest as material demand destruction in New Zealand for some considerable time.**

EVs represent a small but growing portion of the light vehicle fleet

H6 The proportion of light vehicles primarily fuelled by electricity is currently low but is growing strongly. At the end of 2017, EVs represented about 0.3% of all registered vehicles in New Zealand and 0.2% of light vehicles.[844]

H7 The 1,446 new and used light EVs registered in the first quarter of 2019 represented 2.16% of total new and used vehicles registered in that period.[845] By July 2019 there were 15,421 EVs registered in New Zealand, a 148% increase on the 6,217 EVs in December 2017. This is still under 0.4% of the total vehicle fleet (as at December 2017).[846]

H8 The growth in New Zealand's EV fleet size over time is shown in Figure H1 below.

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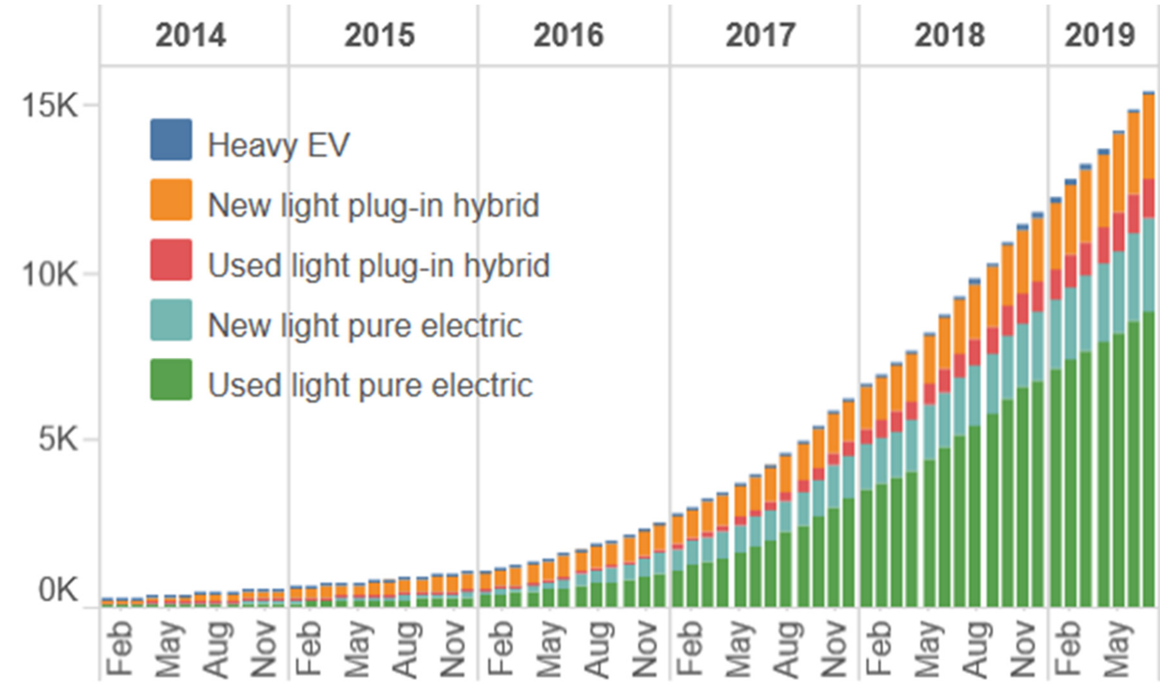
844 There were over 4 million registered vehicles in 2017. Ministry of Transport "Annual fleet statistics 2017" (2017), at 6 and Table 6 at 46. Available for download at <https://www.transport.govt.nz/mot-resources/vehicle-fleet-statistics/>.

845 Ministry of Transport "Annual fleet statistics 2017" (2017).

846 We have compared to December 2017, as this is when total fleet size data is available. Ministry of Transport <https://www.transport.govt.nz/mot-resources/vehicle-fleet-statistics/monthly-electric-and-hybrid-light-vehicle-registrations/>. (Viewed on 16 August 2019).

Figure H1 New Zealand's EV fleet size



Source: Ministry of Transport (2019).[847]

H9 The adoption rate of EVs will depend on factors that improve the performance of EVs and reduce their price, compared to fuel powered vehicles. These factors include:

H9.1 technological developments, such as changes in the cost and capacity of batteries; and

H9.2 government regulations that change the supply and demand for EVs. For example, the Government currently has a range of policies in place, with a goal of increasing EV uptake to 64,000 by 2021.[848]

H10 The rate at which petrol and diesel vehicles exit the fleet (rather than just being sold between vehicle users) will depend on when these vehicles are scrapped and whether they are replaced by EVs or new petrol and diesel vehicles. Government policy can affect this too. For example, some countries and cities have announced commitments to ban sales of new petrol and diesel vehicles from specified dates.[849]

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[847] See <https://www.transport.govt.nz/mot-resources/vehicle-fleet-statistics/monthly-electric-and-hybrid-light-vehicle-registrations/>. (Viewed on 16 August 2019).

[848] See <https://www.transport.govt.nz/multi-modal/climatechange/electric-vehicles/ and https://driveelectric.org.nz/individuals/ev-incentives/>. (Viewed on 7 June 2019).

[849] Michael J. Coren "Nine countries say they'll ban internal combustion engines. So far, it's just words" (7 August 2018). QUARTZ <https://qz.com/1341155/nine-countries-say-they-will-ban-internal-combustion-engines-none-have-a-law-to-do-so/>. (Viewed on 7 June 2019).

A range of projections of EV uptake have been modelled

H11 A range of projections of future EV uptake have been modelled in New Zealand.[850] These remain highly uncertain.

H12 A 2018 report by Vivid Economics, Concept Consulting and Motu considered three main scenarios regarding EV take up. These are noted in Table H1 below along with broad indications of the impact these scenarios have on reductions in fuel volume.

Table H1 EV uptake scenarios to 2030 and impact on fuel demand

Scenario[851]	Number of EVs (assuming vehicle fleet remains at 4.1m)	Displacement of the petrol consumed in 2017[852]
The stabilising scenario: EVs reach 5% of the total vehicle fleet by 2030	0.21m	Displacing 224mlpa in 2030
The policy-driven scenario: EVs reach 10% of the total vehicle fleet by 2030	0.42m	Displacing 448mlpa in 2030
The disruptive scenario: EVs reach over 40% of the total vehicle fleet by 2030	1.7m	Displacing 1.82blpa in 2030

Source: Commerce Commission analysis based on Ministry of Transport data and Vivid Economics et al. assumptions.

H13 If every new vehicle purchased was an EV, it would take over 20 years to replace the entire petrol vehicle fleet, assuming the current trends in vehicle addition and attrition rates continue.[853]

850 For example, see BusinessNZ Energy Council "New Zealand Energy Scenarios Navigating energy futures to 2050" (2015); and Vivid Economics, Concept Consulting and Motu "Modelling the transition to a lower net emissions New Zealand: Uncertainty analysis" (July 2018) at 21-22.

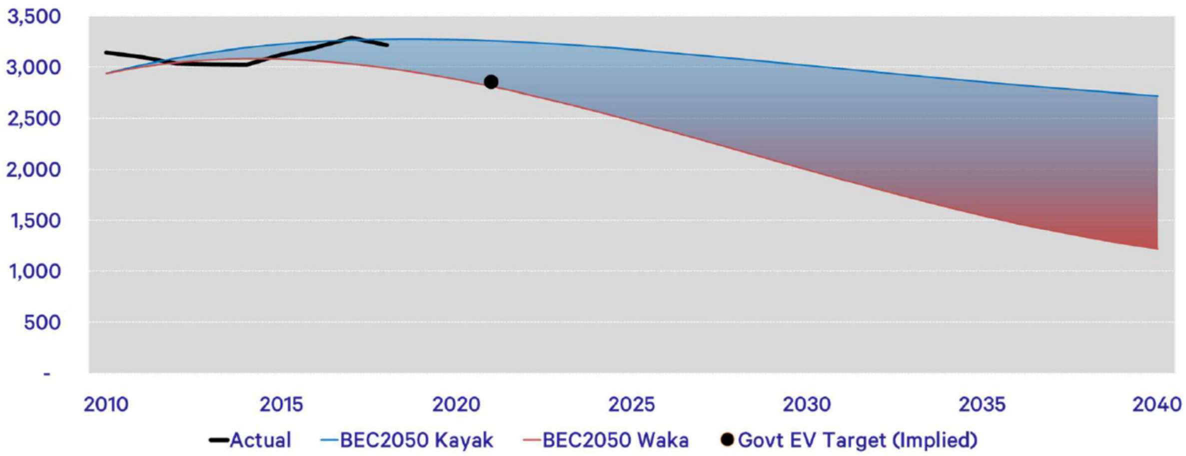
851 Vivid Economics, Concept Consulting and Motu "Modelling the transition to a lower net emissions New Zealand: Uncertainty analysis" (July 2018) at 21-22.

852 Calculated using assumptions about light vehicle travel, given EVs are expected to replace light vehicles and assuming the total vehicle fleet size remains at 4.15m vehicles (as at December 2017). Key assumptions include: fuel consumption per vehicle of 9.14 litres per 100km (based on the mean economy for light vehicles in 2017) and average distance travelled per light passenger vehicle of 11,691 km per year. These assumptions are based on: Ministry of Transport - New Zealand Fleet Statistics 2017 data, available at <https://www.transport.govt.nz/news/land/we-are-driving-further-and-more-than-ever-before>. (Viewed on June 12 2019).

853 Over the last 17 years, the number of new vehicles added to the fleet each year is between 150 and 300 thousand. The vehicle attrition rate is steadier, at around 150 to 180 thousand vehicles each year. Ministry of Transport "Annual fleet statistics 2017" (2017), at 6 and Table 6 at 46. Available for download at <https://www.transport.govt.nz/mot-resources/vehicle-fleet-statistics/>.

H14 Z states that the BusinessNZ Energy Council (BEC) has developed two plausible scenarios for energy supply and demand extending out to 2050.[854] Both scenarios predict that industry demand for petrol fuels will decline, with the "waka" scenario leading to a much more significant decline than the alternative "kayak" scenario. BEC forecasts for petrol demand to 2040 are shown in Figure H2 below.

Figure H2 Industry petrol demand tracking to upper range of the Kayak scenario (ML)



Source: Z Energy "2019 results presentation: For the year ended 31 March 2019" (2 May 2019), at 21.

EV uptake unlikely to disrupt the market soon

H15 While the retail fuel industry can be viewed as a "sunset" industry, as submitted by Z Energy,[855] evidence suggests this is likely to be a relatively long sunset period, with no material acceleration of decline in fuel demand over the medium term:

H15.1 Current industry fuel volumes are much more aligned with the upper range of BEC kayak scenario (gradual reduction in fuel demand) and well above the Waka scenario (accelerated reduction in fuel demand).[856]

H15.2 EV growth is considered unlikely to impact fuel volumes over the medium term,[857] with the material impact from technology expected to occur at least 10 years out for New Zealand.[858]

H15.3 The market (enterprise) value of Z Energy carries a significant premium relative to the replacement costs of its assets. This suggests that investors in Z Energy do not value Z Energy as if it were operating in a sunset

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854 Z Energy "Annual Report 2019" at 46 and Z Energy "Market study into the retail fuel sector: Z energy's response to invitation to comment on preliminary issues", para 70.

855 Z Energy "Z Energy comments on 18 April working papers" (7 May 2019) at 28-30.

856 Z notes that the BEC scenarios are currently being updated. Z Energy "2019 results presentation: For the year ended 31 March 2019" (2 May 2019) at 21.

857 For example, [ ]; and [ ]

858 For example, [ ]

industry (although they do expect a sunset eventually). See Chapter 3and Attachment D where we discuss this in more detail.