ISSN: 2382-0675
Project no. 16.03/14770

Public version

Review of Fonterra's 2014/15 base milk price calculation: Dairy Industry Restructuring Act 2001

Final report

The Commission: Sue Begg, Convenor

Dr Mark Berry

Dr Stephen Gale

Graham Crombie

Publication date: 15 September 2015

Associated documents

Publication date	Reference	Title
27 August 2012	ISBN 978-1-869452-06-3	Report on the dry run review of Fonterra's farm gate milk price: Final report
14 December 2012	ISBN 978-1-869452-19-3	Review of Fonterra's 2012/13 Milk Price Manual: Final report
16 September 2013	ISBN 978-1-869453-23-7	Review of Fonterra's 2012/13 base milk price calculation: Final report
16 December 2013	ISBN 978-1-869453-42-8	Review of Fonterra's 2013/14 Milk Price Manual: Final report
15 September 2014	ISSN 2382-0675	Review of Fonterra's 2013/14 base milk price calculation: Final report
15 December 2014	ISSN 2382-1779	Review of Fonterra's 2014/15 Milk Price Manual: Final report
7 April 2015	ISBN 978-1-869454-47-0	Process and Issues paper: Review of 2014/15 base milk price calculation
17 August 2015	ISSN 2382-0675	Review of Fonterra's 2014/15 base milk price calculation: Draft report

Commerce Commission
Wellington, New Zealand

Foreword

Our report sets out our conclusions on the consistency of Fonterra's calculation of its 2014/15 base milk price with the purpose of the milk price monitoring regime in section 150A of the Dairy Industry Restructuring Act 2001 (DIRA). The base milk price is the price Fonterra pays farmers for raw milk and is Fonterra's largest input cost.

The milk price monitoring regime requires us to provide a 'snapshot' assessment of each year's base milk price by considering whether Fonterra's Milk Price Manual and its assumptions, inputs and process used in calculating the base milk price provide:

- an incentive for it to operate efficiently; and
- for contestability in the market for the purchase of milk from farmers.

This report covers the calculation for the 2014/15 season that ended 31 May 2015, and does not relate to the forecasts for the current 2015/16 dairy season that have been the subject of recent and ongoing media coverage. Although our review is narrowly defined by the provisions of subpart 5A of DIRA, we are aware of an ongoing dynamic global and local backdrop that includes:

- volatile shifts in global dairy prices;
- Fonterra's recent restructuring decisions; and
- Fonterra's interest-free loans to its farmers.

We will consider some of those factors such as the loans scheme further in next year's review.

Separately to this review, we have been requested by the Minister of Primary Industries to review the state of competition in milk markets in New Zealand. That review is considering broader market issues that are outside the narrower defined scope of our Manual and calculation reviews under the milk price monitoring regime.

Our state of competition review is considering how competition has developed since Fonterra was established, what it might look like in the future, and whether the regulations under the DIRA are helping or hindering the efficient operation of the New Zealand dairy industry. We are due to report to the Minister about this review by 1 March 2016.

We have appreciated the engagement and effort from Fonterra and interested parties who met with us this year about our calculation review. In particular, we thank those who sent us their submissions on our Process and Issues paper published on 7 April 2015 and our draft report published on 17 August 2015.

We value continuing engagement by interested parties.

Sue Begg
Convenor, Dairy Division

CONTENTS

Executive Summary

Purpose of this report

X1 In this report we set out our conclusions on the extent to which Fonterra's calculation of its 2014/15 base milk price is consistent with the purpose of the milk price monitoring regime.

Report conclusions

X2 We consider that the assumptions adopted, and inputs and process used by Fonterra to calculate the 2014/15 base milk price are largely consistent with the purpose of the milk price monitoring regime.

X3 We consider we have resolved some outstanding issues from last year's review of the base milk price calculation. For example, we have concluded that the energy costs and the costs of fixed assets assumed in the base milk price calculation are consistent with the purpose of the regime.[1]

X4 In reaching our conclusions, we considered whether the assumptions adopted, and the inputs and process used in the base milk price calculation:

X4.1 provide an incentive for Fonterra to operate efficiently (the 'efficiency dimension'); and

X4.2 provide for contestability in the market for the purchase of milk from farmers (the 'contestability dimension').

Conclusion on the 'efficiency dimension'

X5 We consider that the 2014/15 base milk price has been calculated consistent with the efficiency dimension. In most cases Fonterra uses notional data to calculate components of the base milk price. However, Fonterra does use data based on its actual levels of performance to calculate some components of the base milk price. We consider that this still provides Fonterra with incentives to operate efficiently, although the incentives are potentially weaker in those cases than if notional data had been used.

Conclusion on the 'contestability dimension'

X6 We consider that most assumptions adopted, and inputs and processes used, in the base milk price calculation are consistent with the contestability dimension.

---

1 Refer: Chapter 6 and Chapter 8.

Progress made since last year's review of the base milk price calculation

X7 This year's review of the base milk price calculation builds on our previous reviews.

X8 We have put a greater emphasis on some specific areas of focus, while still reviewing whether the other components of the base milk price calculation are each fit for purpose. Our focus has been on those aspects of the calculation that have the most impact on the base milk price.

Stakeholder engagement

X9 We have sought to engage more with stakeholders this year. In particular, to support our technical analysis in this year's review, we met with independent processors and market analysts. This gave us an improved understanding of:

X9.1 independent processors' comments and concerns about the base milk price calculation; and

X9.2 investment markets' and industry views on the base milk price, and its impact on the attractiveness of investing in dairy farming, Fonterra or other milk processors.

X10 The stakeholder engagement also highlighted a desire for greater transparency over how Fonterra sets the milk price. We see continued engagement with Fonterra and other interested parties as an important part of ongoing reviews.

Improved transparency of Fonterra's information

X11 The information publicly released by Fonterra improved this year. For example, Fonterra's Reasons paper:[2]

X11.1 specifically addressed some concerns raised by independent processors; and

X11.2 provided more explanation than in previous years on key features of the base milk price calculation.

X12 Fonterra also published an independent report that it commissioned on the asset beta used in the weighted average cost of capital (WACC) component of the base milk price calculation, and published a version of its base milk price calculation model.

X13 All of this information is available on our website.[3]

---

2 Fonterra "'Reasons' Paper in support of Fonterra's base milk price for the 2014/15 Season" (1 July 2015).

3 Refer: http://www.comcom.govt.nz/regulated-industries/dairy-industry/review-of-fonterra-s-farm-gate-milk-price-and-manual/statutory-review-of-milk-price-calculation-2/review-of-milk-price-calculation-201415-season/.

We encourage further progress on Fonterra's transparency of information

X14 We encourage Fonterra to continue to provide versions of the underlying models that support the base milk price calculation at appropriate times in each season.[4]

X15 We also think that there needs to be a more explicit mapping from the Milk Price Manual to the base milk price calculation to enable interested parties to see the connection between the higher level Rules in the Milk Price Manual and the detailed base milk price component calculations. This would also identify areas where Fonterra has exercised judgement in applying the Rules in the Milk Price Manual.

X16 We support Fonterra's continued effort in improving the clarity of the detailed models provided to us that underpin its base milk price calculation. We have appreciated the progress made so far – its models and explanations have become easier to understand as a result.

Evaluation is an ongoing process

X17 There remain areas that we are seeking to conclude on for future reviews. For example, we are yet to conclude on whether the WACC component of the base milk price calculation is consistent with the purpose of the milk price monitoring regime.

X18 In future reviews we will continue to develop an approach to our aggregate assessment, which assesses whether individual components of the base milk price calculation are consistent with the regime's purpose when considered together as a package. We remain interested in whether this analysis supports our efficiency and contestability conclusions on individual components and the base milk price calculation overall.

WACC

X19 The overall value of the WACC component in this year's calculation looks to be within an expected range. Our experience is that judgement calls are necessary in this field. However, the judgement exercised in arriving at the value for the asset beta and specific risk premium in the WACC component is not explicit, and this has not yet been sufficiently explained by Fonterra or its independent reviewer.

[4] Fonterra confirmed in its submission on our draft report its intention to release a version of the 2014/15 model when it releases its milk price statement in late September 2015: Fonterra "Review of Fonterra's 2014/15 base milk price calculation" (1 September), page 1.

X20 Fonterra has confirmed that it will address the WACC issues in the course of the 2015/16 season. Once it has further developed its view on the WACC we will discuss with Fonterra whether it is practical to publish the additional information in advance of our 2015/16 review.[5]

X21 Open Country has raised concerns on the derivation of the asset beta and specific risk premium, arguing that the notional processor's WACC is still too low.[6] Synlait has also raised factors which it believes would lead to a higher WACC.[7] We highlight these points for Fonterra and its expert reviewer to further consider along with our comments on the asset beta and specific risk premium.

Aggregate assessment - overall consistency of the individual revenue and cost components

X22 Our Process and Issues paper stated our intention to build on our aggregate assessment work as part of this year's review.

X23 To support this aspect of our work, an infographic showing the make-up of the 'notional producer' is provided in Attachment E of this report.[8] The notional producer is distinct from Fonterra, though it has some of Fonterra's unique features.

X24 In our view, a key concept of the regime is that the base milk price calculation should be 'practically feasible' for a notional producer to achieve. We have worked to provide an improved reasonableness check of this concept as part of our monitoring, and this work will continue.

X25 Independent processors have raised concerns about material differences between the value of the base milk price calculation's components as a group and their own view of the notional costs. However, we do not yet have sufficient comparative information to assess the impact of these differences on the practical feasibility of any individual components.

---

5 Fonterra in its submission to our draft report notes that it will address our comments in the course of the 2015/16 season. Fonterra "Review of Fonterra's 2014/15 base milk price calculation" (1 September), page 1.

6 Open Country "Submission on the Commerce Commission's Draft Report – Review of Fonterra's 2014/15 milk price calculation (31 August 2015), page 2.

7 Synlait "Submission on the Commerce Commission's 2014/15 base milk price calculation review draft report" (1 September 2015), page 5.

8 This infographic is also available as a separate document on our website at: http://www.comcom.govt.nz/regulated-industries/dairy-industry/review-of-fonterra-s-farm-gate-milk-price-and-manual/statutory-review-of-milk-price-calculation-2/review-of-milk-price-calculation-201415-season/.

Looking ahead to the 2015/16 review

X26 For the 2015/16 calculation review, a proposed focus area for us is a comparison of the notional producer's costs with other processors' view of those costs. Earlier this year, we published a breakdown of the categories of the base milk price calculation as per Fonterra's milk price model.[9] Synlait has undertaken to give us their view of the notional producer's costs in Fonterra's categories ahead of the 2015/16 review.

X27 To progress this analysis, we welcome Fonterra's undertaking in its submission that it will release a version of its 2014/15 milk price model with final base milk price component values in conjunction with the 2014/15 Milk Price Statement in late September 2015.[10] This should allow interested parties to provide meaningful comparative information.

X28 In its submission on our draft report, Synlait noted that it is not clear why the full model cannot be made publically available.[11] We agree in principle that there is no fundamental reason why Fonterra cannot release its full model. However, the current underlying models were not intended for public release and may need to be modified to ensure they are suited for public purpose. We will continue to have ongoing discussions with Fonterra to improve granularity in the released models.

X29 On 1 September 2015 Fonterra announced that farmer shareholders can apply for an interest-free loan of 50 cents for every kilogram of share-backed milk solids produced from 1 June to 31 December 2015. The loan will be interest-free until 31 May 2017, after which Fonterra may charge interest. Farmers can repay all or part of the loan at any time and no security is required over their shares or any other assets.

X30 We propose to consider if the effects (if any) on the base milk price from Fonterra's interest-free loan scheme to farmer suppliers should be included in the model for the 2015/16 season.[12]

---

9 Refer: http://www.comcom.govt.nz/regulated-industries/dairy-industry/review-of-fonterra-s-farm-gate-milk-price-and-manual/statutory-review-of-milk-price-calculation-2/review-of-milk-price-calculation-201415-season/.

10 Fonterra "Review of Fonterra's 2014/15 base milk price calculation" (1 September), page 1.

11 Synlait "Submission on the Commerce Commission's 2014/15 base milk price calculation review draft report" (1 September 2015), paragraph 12.

12 In the Castalia report to Open Country in support of Open Country's submission on our draft report it notes that if an efficient notional processor would make the same (or similar) loans, then the financing costs of doing so should be included in the milk price model. Castalia "Review of Fonterra's 2014/15 milk price calculation and supporting analysis - Report to Open Country Dairy" (August 2015), page 8. We note that the Commission will also be separately addressing the competitive aspects of the loan scheme in our Report to the Minister on the state of competition in the New Zealand Dairy Industry.

Scope of our review of the base milk price calculation

X31 As described earlier, our review considers 'efficiency' and 'contestability' dimensions of the base milk price calculation. The base milk price is the average price paid to farmers by Fonterra per kilogram of milk solids (kgMS).[13]

X32 The focus of our review is solely on the farm gate milk price and not any other milk price within the milk supply chain. The term used in the Dairy Industry Restructuring Act 2001 (the Act) for the 'farm gate' milk price is 'the base milk price set for that season'.

Efficiency

X33 There are many factors which can, and do, provide efficiency incentives for Fonterra. Our review of the base milk price calculation against the efficiency dimension requires us to focus on only one of these possible factors (ie, whether the way Fonterra calculates the base milk price provides an incentive for it to operate efficiently).

X34 Our view is that setting independent notional benchmarks for the revenue and cost inputs that underpin the base milk price calculation would be expected to provide an incentive for Fonterra to operate efficiently. This is consistent with the Act which envisages the use of notional values, and involves the assumption of a notional milk processing and collecting business (a 'notional producer').

Contestability

X35 As explained by section 150A of the Act, the 'contestability dimension' is a function of whether any notional costs, revenues, or other assumptions taken into account in the base milk price calculation are 'practically feasible' for an efficient processor. Our review therefore considers whether the assumptions adopted, and the inputs and process used in the calculation are practically feasible for:

X35.1 Fonterra; or

X35.2 another efficient processor.

X36 Consistent with last year's review of the base milk price calculation (ie, 2013/14), we assessed the extent to which the components of this year's calculation are practically feasible on both an individual component and aggregate price basis.

---

[13] Payments to individual farmers for their milk are adjusted for the composition of milk supplied (in terms of the fat and protein components) and the timing of supply to Fonterra (eg, milk supplied during the winter period attracts certain premiums).

Purpose of the milk price monitoring regime

X37 The milk price monitoring regime is intended to promote greater transparency of Fonterra's base milk price setting processes, and greater confidence in the consistency of Fonterra's base milk price with contestable market outcomes.[14]

X38 The regime exists because, without a competitive market for the purchase of farmers' milk, the price for that milk has to be determined using an 'administrative' methodology. As Fonterra determines and applies that methodology itself, there is a risk that Fonterra might have the incentive and ability to set a base milk price that is 'inefficient'.

X39 In other words, the regime monitors whether the price that Fonterra chooses to set might be 'too high' or 'too low' relative to the price that would exist if the market for raw milk were contestable.

The monitoring regime consists of two separate reviews each dairy season

X40 The Act requires us to do two separate reviews of Fonterra's base milk price setting each dairy season.

X41 As well as a review of the base milk price calculation, we are also required to review Fonterra's Farmgate Milk Price Manual (Manual review). This Manual sets out Fonterra's methodology for calculating its base milk price for the season.

X42 We published our 2014/15 Manual review in December 2014. In that report, we concluded that Fonterra's 2014/15 Manual was largely consistent with the purpose of the milk price monitoring regime.

[14] The provisions of this regime are set out in s 150A of the Dairy Industry Restructuring Act 2001 (the Act). Section 150O of the Act requires us to review Fonterra's calculation of the base milk price for each dairy season. Refer also: Dairy Industry Restructuring Amendment Bill 11-1, introduced 27 March 2012, pages 1-2.

1. Introduction

Purpose of this report

1.1 In this report we set out our conclusions on the extent to which Fonterra's calculation of its 2014/15 base milk price is consistent with the purpose of the milk price monitoring regime.

Purpose of the milk price monitoring regime

1.2 The milk price monitoring regime is intended to promote greater transparency of Fonterra's base milk price setting processes, and greater confidence in the consistency of Fonterra's base milk price with contestable market outcomes.[15]

1.3 The regime exists because, without a competitive market for the purchase of farmers' milk, the price for that milk has to be determined using an 'administrative' methodology. As Fonterra determines and applies that methodology itself, there is a risk that Fonterra might have the incentive and ability to set a base milk price that is 'inefficient'.[16]

1.4 In other words, the regime monitors whether the price that Fonterra chooses to set might be 'too high' or 'too low' relative to the price that would exist if the market for raw milk were contestable.

Two reviews are required by the Act each dairy season

1.5 The Act requires us to do two separate reviews of Fonterra's base milk price setting each dairy season.

1.6 We are also required to review Fonterra's Farmgate Milk Price Manual (Manual review), which sets out Fonterra's methodology for calculating its base milk price for the season. We published our 2014/15 Manual review in December 2014.[17] In that report we concluded that Fonterra's 2014/15 Manual was largely consistent with the s 150A purpose.

1.7 This report relates to our 2014/15 review of Fonterra's base milk price calculation (Review of the base milk price calculation).

1.8 This year's review of the base milk price calculation builds on our previous reviews. We have put a greater emphasis on some specific areas of focus, while still reviewing the other components of the base milk price calculation.

---

15 Refer: Dairy Industry Restructuring Amendment Bill 11-1, introduced 27 March 2012, pages 1-2.

16 Refer: Dairy Industry Restructuring Amendment Bill 11-1, introduced 27 March 2012, pages 1-2.

17 Commerce Commission "Final Report - Review of Fonterra's 2014/15 Milk Price Manual" (15 December 2014).

How this report is structured

1.9 Our conclusions are set out in Chapter 2. These conclusions reflect our assessment of the extent to which the assumptions adopted, and inputs and process used in calculating the base milk price are consistent with the s 150A purpose.

1.10 Chapter 3 outlines our view on the how the monitoring regime has matured since our first 'dry run' review of Fonterra's Farmgate Milk Price.

1.11 Chapter 4 covers the scope of our review.

1.12 Chapter 5 covers:

1.12.1 the main attributes of the notional producer to enable our aggregate assessment and to check the consistency of individual revenue and cost components with the aggregate base milk price calculation;

1.12.2 our aggregate assessment of the notional producer; and

1.12.3 how processing capacity is treated in the base milk price calculation model and our assessment of the practical feasibility of the notional producer's processing capacity.

1.13 Our conclusions are supported by our assessments of the assumptions adopted, and inputs and process used to calculate each of the components of the base milk price. Those assessments are set out in Chapters 6 to 9.

1.14 Attachment A describes the approach we have used in our base milk price calculation review.

1.15 Attachment B summarises our interpretation of key provisions of the legislation relating to the review.

1.16 Attachment C summarises how Fonterra calculates the base milk price.

1.17 Attachment D describes the links between key assumptions and relevant base milk price components.

1.18 Attachment E provides an infographic of key features of the notional producer.

Additional published material supporting our report

1.19 Additional published material supporting this report is available on our website.[18] We recommend referring to this material as you read this paper. This material includes:

1.19.1 Fonterra's Reasons Paper in support of the 2014/15 base milk price calculation;

1.19.2 Fonterra's independent reviewer's report on the asset beta for Fonterra's New Zealand-based commodity manufacturing business and specific risk premium for Fonterra's notional business;

1.19.3 a version of Fonterra's 2013/14 base milk price calculation model; and

1.19.4 our independent expert's report on the practical feasibility of the assumed energy costs.

Submissions received in response to our draft report

1.20 We received three submissions on our draft report.[19] Each raised constructive points for this and future reviews of the base milk price calculation.

1.21 We propose to consider the outstanding material concerns that we have not been able to fully address in our upcoming reviews of the 2015/16 Manual and the 2015/16 base milk price calculation.

---

18 Refer: http://www.comcom.govt.nz/regulated-industries/dairy-industry/review-of-fonterra-s-farm-gate-milk-price-and-manual/statutory-review-of-milk-price-calculation-2/review-of-milk-price-calculation-201415-season/

19 Fonterra "Review of Fonterra's 2014/15 base milk price calculation" (1 September 2015);

Open Country "Submission to the Commerce Commission's Draft Report – Review of Fonterra's 2014/15 milk price calculation (31 August 2015) and Castalia "Review of Fonterra's 2014/15 milk price calculation and supporting analysis – Report to Open Country Dairy (August 2015); and

Synlait "Submission on the Commerce Commission's 2014/15 base milk price calculation review draft report" (1 September 2015).

1.22 We note that Fonterra has acknowledged a number of our comments and suggestions in our draft report, and is committed to fulfilling our key requests, in particular:

1.22.1 It will address our comments on providing additional support for the asset beta and specific risk premium;

1.22.2 It intends to release a version of the model supporting the 2014/15 base milk price calculation when it releases its Milk Price Statement later in September;

1.22.3 It will consider a more explicit mapping from the Manual to the base milk price calculation in 2015/16; and

1.22.4 It will work with us to identify suitable data on comparative cash costs between NZ Milk Products (NZMP) and the notional producer, as Synlait has agreed to provide data to assist our 2015/16 calculation review.

2. Conclusions on the review of the base milk price calculation

Purpose of chapter

2.1 In this chapter, we summarise our analytical approach and conclusions on the extent to which Fonterra's calculation of its 2014/15 base milk price is consistent with the purpose of the milk price monitoring regime.

2.2 We also make some observations about the transparency of information provided by Fonterra in support of the base milk price calculation.

Summary of our analytical approach

2.3 The basis for our approach is set out in s 150A of the Dairy Industry Restructuring Act (DIRA) 2001, ie, the purpose statement for the milk price monitoring regime. In reaching our conclusions, we considered whether the assumptions adopted, and the inputs and process used in the base milk price calculation:

2.3.1 provide an incentive for Fonterra to operate efficiently (the 'efficiency dimension'); and

2.3.2 provide for contestability in the market for the purchase of milk from farmers (the 'contestability dimension').

2.4 For the s 150A purpose to be achieved, our analysis must also consider whether Fonterra has set the base milk price consistent with the mandatory assumptions in s 150C.

2.5 Consistent with our review last year of the 2013/14 base milk price calculation, we have:

2.5.1 analysed the individual assumptions, inputs and process used to calculate the components of the base milk price, as set out in Chapters 6 to 9 and Attachment D of this report; and

2.5.2 as we reviewed each component, we carried out cross-checks of the internal consistency with other components of the base milk price calculation.

Our conclusions

2.6 We consider that the assumptions adopted, and inputs and process used by Fonterra to calculate the 2014/15 base milk price are largely consistent with the s 150A purpose statement.

Our conclusions on the efficiency dimension

2.7 We consider that the 2014/15 base milk price has been calculated consistent with the efficiency dimension of the s 150A purpose.

2.8 The base milk price calculation relies on a mix of actual and notional inputs. As outlined in Attachment A of this report, we consider that the use of notional inputs provides Fonterra with stronger incentives to operate efficiently relative to inputs based on Fonterra's actual performance.

2.9 We nevertheless accept that, in some instances, the use of actual performance data in calculating the base milk price is reasonable. This is particularly so where there is insufficient information or unreasonable cost associated with setting a notional input, or Fonterra has very limited control over the actual values used in the milk price calculation.

2.10 As noted in Table 2.1, we identified a number of components of the base milk price calculation that are based largely on Fonterra's actual performance levels.

2.11 Our assessment of the impact that using actual inputs has on components of the base milk price calculation is set out in the relevant chapters and attachments to this report.

2.12 Our overall assessment is that the use of Fonterra's actual levels of performance in calculating these components of the base milk price would still provide incentives for Fonterra to operate efficiently. However, the incentive to operate efficiently would be potentially weaker than if notional data was to have been used.

2.13 Consistent with our view that notional data need not be used for all components of the base milk price calculation to provide Fonterra with incentives to operate efficiently, we consider that:

2.13.1 the use of Fonterra's actual data with respect to product mix, sales phasing and milk collection costs is reasonable, as there is insufficient information, or it would be unreasonably costly, to derive notional inputs;

2.13.2 the use of Fonterra's actual data with respect to pricing is reasonable in using GlobalDairyTrade (GDT) prices for reference commodity products (RCPs) sold on GDT; and

2.13.3 the use of actual usage and unit cost rates in determining the packaging costs, although these could be readily changed to notional values, is unlikely to have a significant impact on the overall incentive for Fonterra to operate efficiently.

2.14 We consider that the one-off costs such as the additional testing costs incurred due to the 1080 threat that occurred during the 2014/15 season neither incentivises nor disincentivises Fonterra to act efficiently. However, we consider that this does not detract from our conclusion that the base milk price has been calculated consistent with the efficiency dimension.

Our conclusions on the contestability dimension

2.15 We consider that most assumptions adopted, and inputs and processes used, in the 2014/15 base milk price calculation are consistent with the contestability dimension of the s 150A purpose.

2.16 As outlined in Attachment A of this report, in assessing whether the assumptions adopted, and inputs and process used in the base milk price are practically feasible for an efficient processor, we have applied a number of tests and cross-checks at the individual and aggregate levels.

Assessment of individual components of the base milk price calculation

2.17 We consider that most of the assumptions adopted, and inputs and process used in the base milk price calculation are practically feasible for Fonterra or another efficient processor.

2.18 We have been able to conclude on the practical feasibility of two components that we have previously have been unable to conclude on. Those components are energy costs and fixed asset costs.

2.19 We consider that the overall value of the weighted average cost of capital (WACC) rate is in an expected range. However, we are unable to conclude on the extent to which the asset beta and specific risk premium for asset stranding risk assumptions are practically feasible. We outline our reasons in section 6.1.

Cross-check of consistency of assumptions across individual components

2.20 We have not identified any inconsistencies in assumptions, inputs or process across the individual components in our analysis. Some cross-checks performed are described in our analysis of the individual components in Chapters 6 to 9.

Summary of our conclusions on individual components in the base milk price

2.21 Table 2.1 is a summary of our conclusions on the extent to which the assumptions adopted, and inputs and process used to calculate the individual components of the 2014/15 base milk price are consistent with the s 150A purpose.

Table 2.1: Summary of conclusions on individual components of the base milk price

Component of the base milk price calculation	Component provides incentive for Fonterra to operate efficiently?	The component is practically feasible?	Notional or actual value of component?
Capital charge and related components			
WACC	Yes	Unable to conclude on the asset beta assumption and specific risk premium. We are therefore unable to conclude on the WACC rate	Notional
Capital costs of fixed assets	Yes	Yes	Notional
Tilted annuity methodology	N/A. This section deals with the process for converting asset values to annual charges. The process is appropriate	The process is practically feasible	Notional
Repair and maintenance costs	Yes	Yes	Notional
Revenues and net working capital			
Production plan	Yes	Yes	Actual volumes of Fonterra's milk supply; Actual raw milk composition of Fonterra's milk supply; Product mix aligned to Fonterra's actual product mix of RCPs

Component of the base milk price calculation	Component provides incentive for Fonterra to operate efficiently?	The component is practically feasible?	Notional or actual value of component?
Product yields	Yes	Yes	Actual national average, monthly compositions of Fonterra's milk supply; Notional production losses based on historical loss audits; Notional product compositions based on GDT composition limits plus notional manufacturing control offsets derived from historical actuals; Product mix ratios are Fonterra's actual product mix for RCP compatible products
Lactose costs	Yes	Yes	Notional volumes of lactose; Notional lactose prices; Notional transport costs based on lower of Fonterra or competitor actual costs
Sales phasing	Yes	Yes	Aligned to Fonterra's actual sales phasing
Pricing	Yes	Yes	Aligned to Fonterra's actual prices received on GDT; Fonterra's actual contract month weightings for RCPs; Notional product downgrade; Fonterra's average ocean freight recoveries
Foreign exchange conversion	'safe harbour'	'safe harbour'	Fonterra's average forecast foreign exchange conversion rate (actual)

Component of the base milk price calculation	Component provides incentive for Fonterra to operate efficiently?	The component is practically feasible?	Notional or actual value of component?
Net working capital	Yes	Yes. However, we are unable to conclude on the WACC to calculate capital charge	Actual debtor and creditor days; Fonterra's actual 'advance rate schedule'
Other operating costs			
Energy costs	Yes	Yes	Notional unit cost rates; Notional usage rates
Collection costs	Yes	Yes	Actual total operating costs; Notional diversion costs
Plant labour costs	Yes	Yes	Notional number of full time equivalents (FTEs); Average actual cost per FTE; Notional number of plants
Water, cleaning and CIP, consumables, effluent and laboratory testing costs	Yes	Yes	Fixed costs based on Fonterra's average 2014 costs; Resource usage rates based on notional producer's plan specifications; Unit rates based on Fonterra's average 2014 costs; Notional production volumes
Site overhead costs	Yes	Yes	Notional number of FTEs; Average actual cost per FTE; Actual number of sites; Notional non-labour costs
Packaging costs	Yes	Yes	Average actual unit costs and usage rates; Notional loss allowances

Component of the base milk price calculation	Component provides incentive for Fonterra to operate efficiently?	The component is practically feasible?	Notional or actual value of component?
Administration and other overhead costs	Yes	Yes	Notional data based on 2012 budgeted costs; Notional data based on actual Insurance costs
Storage costs	Yes	Yes	Notional volumes of product stored; Notional storage period; Notional number of FTEs; Actual cost per FTE; Notional non-labour costs; Actual cool storage rates
Freight costs	Yes	Yes	Notional volumes of product transported; Actual average freight rates
Other supply chain overhead costs	Yes	Yes	Notional data based on 2012 budgeted costs scaled down
Selling costs	Yes	Yes	Notional number of sales hubs; Notional cost per hub
One-off costs	No	Yes	Actual Fonterra costs scaled to what the notional producer business would incur
Tax			
Company tax expense	Yes	Yes	Notional

2.22 We have also assessed the notional producer's processing capacity, which impacts on the feasibility of the volumes of RCPs that the notional producer is assumed to have produced in the 2014/15 season.

2.23 We have concluded that given the current processing capacity, production plan and production yields, the assumed volumes produced are practically feasible.

Our conclusions on the aggregate assessment

2.24 The steps that we proposed in our Process and Issues paper included:

2.24.1 A 'top-down' analysis of the financial aspects of the notional producer to review the overall consistency of the individual revenue and cost components of the milk price calculation;

2.24.2 Comparing the aggregate financial result between Fonterra's notional and actual performance, by comparing the performance of Fonterra's NZMP dairy ingredients business with the notional producer's modelled performance;

2.24.3 Reviewing what the investment markets are saying about the performance of Fonterra and the impact of the base milk price (calculated on a notional basis) on the ability to forecast NZMP's (and Fonterra's) actual earnings; and

2.24.4 Inviting independent processors to provide cash cost information based on the categories outlined in our separate breakdown of the categories in the milk price model.

'Top-down analysis of the financial aspects of the notional producer

2.25 We found that because the base milk price calculation model is made up of a number of modules it proved too difficult for us in the time available to test the numerical sensitivity of key assumptions across the complete model against the base milk price.

2.26 There is no one place in the model where we can vary these assumptions and then see the results of doing that.

Comparing Fonterra's aggregate notional and actual financial performance

2.27 We found that comparing the cost structures of Fonterra and the notional producer directly is not practical without substantial investment on Fonterra's part to recast its financial data.

Reviewing what the investment markets are saying about the performance of Fonterra

2.28 We were advised that the short-term and long-term milk price informs farm budgets and informs decisions on lending to farmers. Lenders then use their own models and other publicly available models to inform their lending decisions to farmers.

2.29 Although we and Fonterra have provided details to interested parties, there was a call in our discussions for a more holistic description of what the notional producer looks like as a producer of RCPs, relative to the actual operations of Fonterra.

2.30 In respect of the composition of the current basket of RCPs, and the issue of the periodic review of the basket for the base milk price calculation, it was commented that global market stream returns for dairy products are usually 'in sync', but they have recently become 'out of sync', with butter and fat prices increasing. This was not expected to be a long-term trend.

2.31 Institutional investors are very interested in understanding the gap between the WACC for the notional processor and the actual WACC for Fonterra. The publication by Fonterra of the report on the review of the asset beta by the independent reviewer is seen as a positive step.

2.32 Investors are interested in the notional fixed asset base reflected in the base milk price calculation model. They want to understand what values are actual Fonterra values and what are notional values and how that impacts on the capital charge in the base milk price calculation.

Inviting independent processors to provide cash cost information

2.33 We found this comparison to be more difficult than expected. In its submission on our Process and Issues paper, Synlait indicated that it would endeavour to provide us with a breakdown of its efficient cash costs for the production of RCPs using the categories in the cost breakdown we published. It was not able to provide that information due to the complexity of mapping its data to the provided categories and time constraints.

2.34 We expect that this year's release by Fonterra of the model of the base milk price calculation will make the mapping of cost data a less complex task for Synlait or other interested parties. We expect this will allow them to provide us with the necessary information to do this cost benchmarking for the 2015/16 season.

2.35 We also expect to work with Fonterra to see if we can obtain the equivalent NZMP data for its RCP costs for this limited cost benchmarking exercise.

Transparency of assumptions, inputs and processes

2.36 Section 150T of the Act requires Fonterra to provide us with the assumptions adopted, and inputs and process used in calculating its base milk price, accompanied with reasons and certification for why Fonterra believes its assumptions, inputs and process are consistent with the purpose set out in s 150A. Fonterra provided us with this information in its Reasons paper on 1 July 2015.[20]

[20] Fonterra "'Reasons' Paper in support of Fonterra's base milk price for the 2014/15 Season" (1 July 2015)

2.37 Fonterra and its Milk Price Group have also provided us with substantial additional information, including financial models and supporting documentation, to support and explain the assumptions adopted, and inputs and process used in the base milk price calculation.

2.38 Although we found the overall package of information provided to us by Fonterra sufficient for the purposes of our review, we make additional observations in Chapter 3 about the transparency of public disclosure on the assumptions, inputs and process that underpin the base milk price calculation.

How our overall conclusion differs from our 2013/14 conclusion

2.38.1 Our overall conclusion from our review of Fonterra's 2013/14 base milk price calculation was that the base milk price calculated under the Milk Price Manual (if Fonterra had not adjusted its milk price) was consistent with the efficiency dimension. However, it was possible it was not consistent with the contestability dimension.[21]

2.39 Our 2014/15 conclusion on the assumptions, inputs and process used to calculate the base milk price differs from our 2013/14 conclusion for the following reasons:

2.39.1 We have been able to conclude on the practical feasibility of two components, energy costs and capital costs of fixed assets; and

2.39.2 We are satisfied that the notional producer has adequate measures to deal with peak milk supply capacity issues and that the associated costs have been adequately provided for.

[21] We concluded overall that Fonterra's approach to determining and applying an Adjustment Amount (53 cents per KgMS) to the base milk price calculated under the Manual was consistent with the contestability dimension of the s 150A purpose, but was not consistent with the efficiency dimension. See Commerce Commission "Final report: Review of Fonterra's 2013/14 base milk price calculation" (15 September 2014).

Other matters

2.40 Further work is planned to resolve a number of outstanding matters, including matters raised in submissions, in our draft report on our 2015/16 Manual review or in our 2015/16 base milk price calculation review:

2.40.1 We plan to request the relevant information from Fonterra in order to conclude on the WACC component;

2.40.2 We plan to assess whether Fonterra's approach in treatment of certain cash costs is appropriate; and

2.40.3 We will continue to build on our aggregate assessment work by seeking sufficient comparative information to assess any differences on the practical feasibility of individual components.

2.41 On 1 September 2015 Fonterra announced that farmer shareholders can apply for an interest-free loan of 50 cents for every kilogram of share-backed milk solids produced from 1 June to 31 December 2015. The loan will be interest-free until 31 May 2017, after which Fonterra may charge interest. Farmers can repay all or part of the loan at any time and no security is required over their shares or any other assets.

2.42 We propose to consider if the effects (if any) on the base milk price from Fonterra's interest-free loan scheme to farmer suppliers should be included in the model for the 2015/16 season.[22]

[22] In the Castalia report to Open Country in support of Open Country's submission on our draft report it notes that if an efficient notional processor would make the same (or similar) loans, then the financing costs of doing so should be included in the milk price model. See Castalia "Review of Fonterra's 2014/15 milk price calculation and supporting analysis - Report to Open Country Dairy" (August 2015), page 8. We note that the Commission will also be separately addressing the competitive aspects of the loan scheme in our Report to the Minister on the state of competition in the New Zealand Dairy Industry.

3. Maturity of the milk price monitoring regime

Purpose of chapter

3.1 This chapter outlines our view of the maturity of the milk price monitoring regime since it came into force in 2012.

The milk price monitoring regime since 2012

3.2 We initially started with a dry run review of the base milk price calculation in 2012.

3.3 For each dairy season we must complete a review of Fonterra's Milk Price Manual (Manual review) and a review of Fonterra's calculation of the base milk price (calculation review). The milk price monitoring regime is now in its fourth year, including our dry run review for the 2011/12 season.[23]

Maturity of the regime

3.4 Since the monitoring regime began, we have received numerous documents from Fonterra's Milk Price Group that underpin the data in the milk price model and that inform our understanding of the base milk price calculation.

3.5 We have built on previous reviews by focusing on areas that we could not previously conclude on by refining our approach. In particular, this year we have sought to resolve outstanding issues in respect of energy costs, asset beta in the WACC calculation and the cost of the fixed assets.

3.6 This year we increased the emphasis on reporting the key features of the notional producer. Other important developments include:

3.6.1 our meetings with independent processors to improve our understanding of their concerns; and

3.6.2 our engagement with market analysts to obtain their views on the base milk price calculation.

3.7 We have found our engagement with the independent processors, market analysts and economists valuable and we would like to see this engagement continue going forward.

[23] The dry run review was undertaken before the provisions in subpart 5A were enacted.

Increased emphasis on reporting the key features of the notional producer

3.8 This year, at the suggestion of interested parties, we have put more emphasis on reporting the key features of the notional producer that impact on the setting of the base milk price.[24] Fonterra has similarly endeavoured to expand these key features in its Reasons paper for this year.

3.9 By focusing on the key features of the notional producer, we have a greater understanding of how each of the individual components of the base milk price calculation are linked together.

Meetings with independent processors to improve our understanding of their concerns

3.10 For this year's calculation review, we met with some of the independent processors to better understand their comments and concerns about the calculation.

3.11 By publishing their submissions on our Process and Issues paper, we feel we have provided a better basis for Fonterra to engage with some of their concerns about aspects of the base milk price calculation. Fonterra has included responses to some of these concerns in its Reasons paper.

Engagement with market analysts to obtain their views on the base milk price calculation

3.12 We talked with certain industry analysts to find out how they saw the base milk price calculation and to get their views on the key drivers of the milk price.

3.13 In particular:

3.13.1 Equity analysts provided their views on how institutional and other shareholders, including international investors, saw the impact of the base milk price on their investing decisions; and

3.13.2 an industry economist and an industry analyst provided a more general industry view of the base milk price, focusing on the views of farmers and other dairy industry participants.

---

[24] Chapter 5 and Attachment E.

3.14 Points to come from our discussions include:

3.14.1 the short-term and long-term milk price informs farm budgets and informs decisions on lending to farmers;

3.14.2 the 'negative correlation' between market prices during a season on GDT and the profitability of Fonterra;

3.14.3 their encouragement for Fonterra to increase the transparency of the milk price model;

3.14.4 the mixed understanding in the investment community of the impact of the base milk price calculation on Fonterra's business; and

3.14.5 the interest of investors in improving their understanding of the milk price model.

The milk price informs lending decisions

3.15 Lenders use their own models and other publicly available models to inform their lending decisions to farmers. Some concerns were expressed on the transparency of information about how the base milk price is calculated.[25] In particular, we received comments on the lack of transparency of information on the calculation of the advance rate for a season.[26]

3.16 It was suggested that Fonterra should provide a monthly update on the base milk price (forecast milk price and year to date figures) in terms of volumes, average price of commodities and forecast milk price.

The 'negative correlation' between market prices on GDT and the profitability of Fonterra

3.17 It was clear that there needs to be better communication by us and Fonterra about the 'negative correlation' between market prices reflected during a season on GDT and the profitability of Fonterra. By negative correlation we mean the fact that as GDT prices rise, the revenues in the model increase and the base milk price increases. Because the milk price is a cost to Fonterra, any increase in the milk price has a negative impact on profitability.

---

[25] At the time this comment was made to us, Fonterra had not yet released its Reasons Paper and the accompanying model on the calculation of the base milk price. We have suggested to those we met that they provide us with updated comments once they saw Fonterra's 2014/15 information and this report.

[26] Whilst this is not a major feature of the base milk price calculation, primarily affecting the calculation of the capital charge on the net working capital, the comment goes to the overall point about Fonterra making disclosures that will assist the better understanding by interested persons of how the milk price calculation process works during a season.

3.18 This relationship also impacts the profitability of the independent processors to the extent their input costs track the base milk price. As GDT prices increase, the notional revenues in the base milk price calculation model increase and the base milk price increases. This results in a higher input cost to Fonterra, and a variability in the resulting profitability).

Encouragement for Fonterra to increase the transparency of the milk price model

3.19 There is encouragement for Fonterra to increase the transparency of the milk price model. Predictability of the milk price is seen as more important to equity investors than the actual value of the base milk price.

3.20 Even if investors perceive the price as too high or too low, if the impact of the base milk price on Fonterra's (or the independent processors') profitability is predictable, they will be more encouraged to invest.

3.21 We and Fonterra have provided details to interested parties in the past on key features of the notional producer in our respective reports on the base milk price calculations. However, there was a call in our discussions for a more holistic description of what the notional producer looks like as a producer of RCPs, relative to the actual operations of Fonterra.

Mixed understanding of the impact of the base milk price calculation

3.22 The view was expressed that Australian investors in particular did not have a good understanding of Fonterra's business and how the base milk price affected Fonterra's business. We also understand that those investors originally thought that Fonterra was solely a commodity business like the notional producer.

3.23 In respect of the composition of the current basket of RCPs, and the issue of the periodic review of the basket for the base milk price calculation, it was commented that global market stream returns for dairy products are usually 'in sync'. They have recently become 'out of sync', with butter and fat prices increasing. This was not expected to be a long-term trend.

Investors are interested in improving their understanding of the milk price model

3.24 Institutional investors are very interested in understanding the gap between the WACC for the notional processor and the actual WACC for Fonterra. The publication by Fonterra of the report on the review of the asset beta by the independent reviewer is seen as a positive step.

3.25 Investors are interested in the notional fixed asset base reflected in the base milk price calculation model. They want to understand what values are actual Fonterra values and what are notional values and how that impacts on the capital charge in the base milk price calculation. In particular, they seek a better understanding of how actual additions to Fonterra's asset base are reflected in the setting of the notional asset base for the base milk price.

3.26 Similarly, the differences in the inventory treatments adopted by Fonterra in respect of its production of the RCPs and the inventory assumptions reflected in the base milk price model need to be communicated.

Transparency of information on the base milk price calculation

3.27 Achieving transparency of information for interested parties is an ongoing development process goal from season to season. Our assessment is that Fonterra has made particular progress this year. It has engaged constructively with us to address our suggestions. For example, this year the following explanatory material has been made available for interested parties:

3.27.1 a stylised version of its 2013/14 Milk Price reporting model;

3.27.2 the asset beta report for the notional producer by Fonterra's independent expert, Alasdair Marsden;[27] and

3.27.3 Fonterra's Reasons paper now includes more detailed explanations on how each component of the base milk price is calculated, plus a more detailed breakdown of administration costs and the notional producer features.[28]

3.28 We have also been able to provide a more comprehensive breakdown of the notional producer cost categories than has been previously published in Fonterra's Milk Price Statement.[29]

3.29 We encourage Fonterra to provide further transparency on the calculations by releasing versions of the underlying models that inform its milk price model at appropriate times in each season.

---

27 Alasdair Marsden (Uniservices) "Asset beta for Fonterra's New Zealand-based Commodity Manufacturing Business and Specific Risk Premium for Fonterra's Notional Business" (2 December 2014).

28 Fonterra "'Reasons' Paper in support of Fonterra's base milk price for the 2014/15 Season" (1 July 2015).

29 Commerce Commission "Process and issues paper – review of 2014/15 base milk price calculation" (7 April 2015).

3.30 We see significant benefits in continuing to release these models at appropriate times in the future. This is a good way for interested parties to see how the calculations are done.[30]

3.31 Interested parties have highlighted areas where Fonterra providing additional transparency would be helpful:[31]

3.31.1 the calculation of the notional producer's capacity and the reconciliation of milk volumes with processing capacity;

3.31.2 sales phasing; and

3.31.3 how the advance rate is set for the forecast base milk price of the following season.

Fonterra is continuing to update the form of the calculations

3.32 Fonterra continues to invest in updating the detailed models provided to us that underpin its base milk price calculation. We are pleased to see Fonterra's underlying models becoming easier to understand in terms of:

3.32.1 where each input is sourced from;

3.32.2 when the inputs are updated;

3.32.3 the reset year for each input; and

3.32.4 which inputs are updated by inflation.

---

30 Synlait in its submission on our draft report notes that it is not clear why the full model cannot be made publically available. Synlait further notes that public disclosures are not adequate substitutes for an understanding of the actual values used and calculations performed in the model. Synlait "Submission on the Commerce Commission's 2014/15 base milk price calculation review draft report" (1 September 2015) pages 1-2. We agree in principle that there is no fundamental reason why Fonterra cannot release its full model. However, the current underlying models were not intended for public release and may need to be modified to ensure they are suited for public purpose. We will continue to have ongoing discussions with Fonterra to improve granularity in the released models.

31 Open Country "Submission on the Commerce Commission's Process and Issues Paper – Review of 2014/15 Base Milk Price Calculation" (28 August 2015) and our discussions with Market analysts.

Preliminary points to consider for the 2015/16 calculation review

3.33 For the 2015/16 calculation review, a proposed focus area for us is a comparison of notional producer's costs with other processors' costs. To assist with this exercise, in our draft report we encouraged Fonterra to release a version of its 2014/15 milk price model in conjunction with the 2014/15 Milk Price Statement in late September 2015. This would allow interested parties to provide meaningful comparative information and to also do their own analysis.

3.34 Fonterra has noted in its submission on our draft report that it does intend to release a version of its 2014/15 milk price model at the time of the release of the 2014/15 Milk Price Statement.[32]

[32] Fonterra "Review of Fonterra's 2014/15 base milk price calculation" (1 September 2015) page 1.

4. Scope of our review

Purpose

4.1 This chapter sets out:

4.1.1 the statutory basis of this review;

4.1.2 our approach to the review of the base milk price calculation; and

4.1.3 the areas of focus for our review this year.

Statutory basis of this review

4.2 Section 150P of the Act requires us to report on the extent to which the assumptions adopted, and the inputs and process used by Fonterra in calculating its base milk price are consistent with the purpose of the milk price monitoring regime each dairy season.

4.3 The purpose of the regime (as set out in s 150A) is to promote the setting of a base milk price by Fonterra:

4.3.1 that provides an incentive to Fonterra to operate efficiently, while

4.3.2 providing for contestability in the market for the purchase of milk from farmers.

4.4 Section 150A states that the setting of a base milk price provides for contestability in the market for the purchase of milk from farmers if any notional costs, revenues, or other assumptions taken into account in calculating the base milk price are 'practically feasible' for an efficient processor.

4.5 Fonterra is required to provide us with information under s 150T of the Act. In making this report, we have had regard to the information Fonterra provided under s 150T. We also had regard to our 2013/14 Review of the base milk price calculation and submissions received on our Process and Issues paper and our draft report.

4.6 We have not changed our interpretation of key legislative provisions for this review. However, we have reviewed it to make sure the way we have described it remains accurate within the context of our 2014/15 base milk price calculation review.

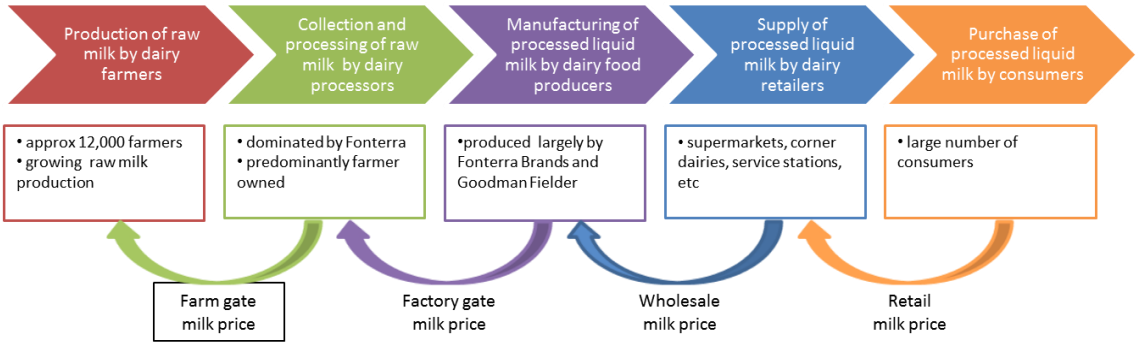
4.7 Our interpretation of the key legislative provisions is set out in Attachment B.

Our scope is limited to the base milk price

4.8 The focus of our review is solely on the farm gate milk price and not any other milk price within the milk supply chain. As noted in Section 4.12, the term used in the Act for the 'farm gate' milk price is 'the base milk price set for that season'.

4.9 The phrase 'milk price' can have different meanings depending on which component of the milk supply chain is being considered. Figure 4.1 describes the milk supply chain in New Zealand and shows the different components of the 'milk price' as generated by different milk markets within the supply chain.

Figure 4.1 Milk supply chain in New Zealand



4.10 Figure 4.1 shows the different markets for milk, and the term we use for the price of milk in each of those markets:

4.10.1 **Farm gate milk price** is the price paid by dairy processors (eg, Fonterra) to dairy farmers for raw milk (referred to in this report as the 'base milk price', as explained below);

4.10.2 **Factory gate milk price** is the price paid by dairy processors (eg, Synlait, and dairy food and beverage producers, eg, Goodman Fielder) to other dairy processors (eg, Fonterra) for either raw milk or dairy ingredients;

4.10.3 **Wholesale milk price** is the price paid by dairy retailers (eg, supermarkets) to dairy food and beverage producers (eg, Fonterra Brands and Goodman Fielder) for processed milk; and

4.10.4 **Retail milk price** is the price paid by dairy consumers to dairy retailers (eg, supermarkets) for processed milk.

4.11 Our review is solely focused on the first two stages of the milk supply chain relating to the farm gate price of milk.

Meaning of 'base milk price' for the purposes of this year's review

4.12 The term used by the Act for the 'farm gate' milk price is 'the base milk price set for that season'.

4.13 This report uses the terms 'farm gate milk price' and 'base milk price' interchangeably.

4.14 In our review last year, we used the term 'base milk price' to refer to the milk price Fonterra proposed to pay after adjustment by Fonterra's Board, and the term 'Manual-consistent milk price' to refer to the milk price calculated under the Milk Price Manual before adjustment by Fonterra's Board. This was due to the difference in milk price between that proposed by Fonterra, and that calculated under the Milk Price Manual. This distinction is not necessary this year as Fonterra has not proposed an adjustment to the milk price, and therefore we have simplified the terminology.

Our approach to reviewing the milk price calculation

4.15 We separated this year's review into four broad categories of analysis:

4.15.1 aggregate assessment of the milk price calculation of the notional producer; and

4.15.2 substantive review of a component of the base milk price; or

4.15.3 limited substantive review, comprising a general fit-for-purpose review of the component and a substantive review of an issue or issues raised for that component; or

4.15.4 fit-for-purpose review.

4.16 Our analytical approaches for each of these categories are explained below.

Aggregate assessment of the notional producer

4.17 Independent processors have raised the concern that the notional producer is not practically feasible in aggregate, citing material differences between an efficient processor and the performance of the notional producer. We have therefore commenced our review with a description of the features of the notional producer and have looked at the practical feasibility of the notional producer in order to focus our review of key individual components of the base milk price calculation that have the most impact on the base milk price.

4.18 To assist with our review, we invited independent processors to provide cash cost information based on the categories outlined in our publication of the breakdown of the categories in the milk price model.[33]

Assessment of the individual components

4.19 As with our previous reviews, we reviewed each revenue or cost component making up the base milk price.

Individual components: substantive review and limited substantive review

4.20 The areas in this year's report that have received substantive and limited substantive reviews have been selected for these levels of analysis because they:

4.20.1 are components of the milk price calculation where we were unable to reach a conclusion regarding practical feasibility in last year's base milk price calculation review and our 2014/15 Manual review;

4.20.2 had concerns raised about them in submissions for our 2014/15 Manual review relating to last year's base milk price calculation review;

4.20.3 are components that had changes in their calculation methodology;

4.20.4 had concerns raised about them in our meetings with independent processors; and

4.20.5 had concerns raised about them in submissions in our Process and Issues paper for this year's calculation review.

4.21 As with our previous reviews, we reviewed each revenue or cost component making up the base milk price. We also carried out an aggregate cross-check of the assumptions, inputs, and processes for the components.

[33] Can be found at: http://www.comcom.govt.nz/regulated-industries/dairy-industry/review-of-fonterra-s-farm-gate-milk-price-and-manual/statutory-review-of-milk-price-calculation-2/review-of-milk-price-calculation-201415-season/

4.22 The focus areas for this year's substantive reviews of components of the base milk price calculation are:

4.22.1 pricing;

4.22.2 product yields;

4.22.3 certain cash costs (energy, repairs and maintenance, administration and site overheads, selling costs; and water, cleaning and CIP, consumables, effluent and laboratory testing costs);

4.22.4 the capital charge on fixed assets (WACC rate, capital cost estimates, impact of peak flows of milk).

4.23 For limited substantive reviews, we focused on concerns raised by interested parties and outstanding issues from our 2014/15 Manual review and previous base milk price calculation reviews.

4.24 The focus areas for this year's limited substantive review are:

4.24.1 production plan;

4.24.2 sales phasings;

4.24.3 net working capital;

4.24.4 certain cash costs (collection costs, freight costs);

4.24.5 depreciation; and

4.24.6 company tax.

4.25 We published our 2014/15 Manual review in December 2014. In that report we concluded that Fonterra's 2014/15 Manual was largely consistent with the s 150A purpose.

4.26 However, we were unable to conclude on the extent to which several Rules in the Milk Price Manual are practically feasible for Fonterra or another efficient processor, pending our assessment of the application of those Rules in this review of the base milk price calculation.[34]

---

[34] In that review we were unable to conclude on the s 150A purpose statement for Rule 15: 'Repair and maintenance costs', Rule 18: 'Other costs, including site overheads, general overhead costs and R&D costs', Rule 30: 'Adjustments for amendments to reference commodity products' and Rule 41: 'Specific risk premium'.

Individual components: fit-for-purpose review of all other components

4.27 For all other components that are not part of the 'areas of focus', we performed a fit-for-purpose review. This involved a high-level analytical review of a component by refreshing our numerical analysis from previous reviews of the component.

4.28 Each fit-for-purpose review also included a review of the consistency of the component with the other components. If this review identified inconsistencies with our previous analyses or with other components of the model, we considered whether a more detailed analysis was required.

5. The notional milk producer

Purpose of chapter

5.1 In this chapter, we:

5.1.1 describe the main attributes of the notional milk producer business (ie, the notional producer); and

5.1.2 explain the results of our aggregate assessment of the base milk price calculation, and our analytical approach.

5.2 We also outline our assessment of the practical feasibility of the notional producer's processing capacity. As a result of our review, we identified that processing capacity, although not a cost component of itself, is a key driver of a number of cost elements in the base milk price calculation.

5.3 In particular, our conclusions on processing capacity informed our analysis of the assumed capital costs of plant and our analysis of how the notional producer is assumed to deal with surplus milk in peak seasons. We therefore include in this chapter a summary of our analysis of the processing capacity of the notional producer.

5.1 Description of the notional producer

5.4 In this section, we provide an overview of the notional producer's attributes by describing:

5.4.1 its products;

5.4.2 the safe harbour assumptions applied;

5.4.3 key attributes that are not covered by safe harbours; and

5.4.4 how real world assumptions are applied.

5.5 We have used this overview to check the consistency of assumptions, inputs and processes between individual milk price components. This also enables an assessment of an aggregate view of the base milk price calculation as a whole.

5.6 We have produced an infographic that outlines at a high level what the notional producer looks like. The infographic can be found in Attachment E of this report. A PDF version is also available on our website.[35]

The products that the notional producer produces

5.7 Section 150C constrains the notional producer to producing a portfolio of commodities that are likely to be the most profitable over a period not exceeding five years from the time when the portfolio is determined. The commodities in the portfolio must utilise all of the components of the milk.

5.8 Fonterra has determined that the current commodities which are likely to be the most profitable are WMP, SMP, AMF, butter and BMP. Therefore these are the notional producer's current products produced for the purposes of calculating the base milk price.

5.9 In the production plan section of this report we discuss the basis on which the current commodities are considered to be the most profitable products.[36]

Safe harbour assumptions

5.10 Section 150B lists certain assumptions that Fonterra may use in setting the base milk price. These assumptions may be adopted without detracting from the purpose of s 150A. These are commonly referred to as the 'safe harbour' assumptions.

5.11 Fonterra has adopted all four assumptions listed in section 150B in setting its base milk price. These assumptions are:

5.11.1 operation of a national network of facilities for the collection and processing of milk;

5.11.2 the size of the notional producer's assumed units of processing capacity approximates to the average size of Fonterra's actual units of processing capacity;

5.11.3 the gains and losses experienced by Fonterra resulting from foreign currency fluctuations, including Fonterra's foreign currency fluctuations from Fonterra's foreign currency risk management strategies, are incorporated in the base milk price; and

5.11.4 that all milk collected by Fonterra is processed into commodities at yields that are practically feasible.

---

35 http://www.comcom.govt.nz/regulated-industries/dairy-industry/review-of-fonterra-s-farm-gate-milk-price-and-manual/statutory-review-of-milk-price-calculation-2/review-of-milk-price-calculation-201415-season/

36 See section 7.1.

Operation of national network of facilities for the collection and processing of milk

5.12 The notional producer is assumed to have the same number and the same location of commodity manufacturing sites and plants as Fonterra's actual footprint of manufacturing sites. This assumption aligns the notional producer with where Fonterra collects milk for processing.

Size of processing capacity

5.13 The weighted average daily capacity of the notional producer's WMP and SMP plants is materially aligned to Fonterra's weighted average daily capacity of WMP and SMP plants. This assumption allows the notional producer to align its scale with Fonterra.

Gains and losses from Fonterra's foreign exchange fluctuations

5.14 The notional producer uses a 'benchmark foreign exchange conversion rate' to calculate its foreign exchange rate per month.

5.15 The benchmark foreign exchange rate for a month is defined in the Milk Price Manual as:

> the average rate at which Fonterra actually converts net receipts denominated in any currency other than NZD to NZD in the month, specified as a ratio of USD to NZD and calculated with regard to all costs and benefits of Fonterra's hedging activities in respect of amounts converted in that month.

All collected milk is processed into commodities at yields that are practically feasible

5.16 The notional producer processes all milk collected by Fonterra in New Zealand into RCPs. This total milk processed into RCPs includes milk sold to third party processors under the Act.

5.17 In this report we set out how we assessed that the assumed yields used in the 2014/15 base milk price calculation are practically feasible.[37]

5.18 We note that Fonterra is required to take milk from its shareholding farmers in New Zealand. This means that by applying this safe harbour assumption the notional producer is constrained in its ability to reduce its milk supply and is required to align its production capacity with the forecasted future milk supply.

---

[37] See section 7.2.

Key attributes not covered by the safe harbour assumptions

5.19 Key attributes of the notional producer that are not covered by the section 150B safe harbour assumptions, and which are therefore subject to our review, include:

5.19.1 The notional producer adds additional plants based on the current RCP mix, the forecast future milk supply and a notional plant approval, construction and commissioning process that is based on Fonterra's achieved processes and timelines;

5.19.2 The notional producer's plants are all operating with the latest production technology, regardless of the vintage of plant;

5.19.3 The notional producer's standard plant capacity of each plant is more than the specified capacity in the manufacturer's specifications;

5.19.4 The notional producer sells all of the volume of RCPs that it manufactures in a season and does not carry any closing inventory;

5.19.5 The notional producer is able to sell 90% of its produced volumes on the Global Dairy Trade auction platform (GDT) at Fonterra's achieved prices per unit for the season; and

5.19.6 The notional producer's WACC is lower than Fonterra's and other milk processors due to being wholly a high volume commodity processor of RCPs that passes risks, such as foreign exchange risks, through to its suppliers in the setting of the base milk price.

Application of real world assumptions

5.20 We have heard arguments that that features of the notional producer are not sufficiently grounded in real world assumptions. That issue is partially addressed by Fonterra in "aspects of the Farmgate Milk Price that are not 'fully optimised' in the Reasons paper".[38]

5.21 In respect of regional variations which are another potential source of real world features, Fonterra has provided us with a summary of points in the base milk price calculation model where regional cost allowances have been included to more closely align the inputs of the notional producer to the assumptions about the location of plants. These are described in Table 5.1.

---

[38] Fonterra "'Reasons' Paper in support of Fonterra's base milk price calculation for the 2014/15 season" (1 July 2015), page 45. Synlait disagrees with Fonterra's reasoning on how the milk price model is under-optimised and argues that the points made by Fonterra demonstrate how close the notional producer is to being fully optimised: Synlait "Submission on the Commerce Commission's 2014/15 base milk price calculation review draft report" (1 September 2015). We propose to consider Synlait's comments on Fonterra's reasoning on the model under-optimisation in our 2015/16 calculation review.

Table 5.1: Regional cost allowances in the base milk price calculation model

Milk composition and yield	Production yields are based on the weighted average actual milk composition by region by month as part of national production yields
Lactose usage	Lactose usage for sites is derived from the regional milk composition and product mix at sites National lactose usage is based on the weighted average of sites
Milk collection	Collection costs are based on Fonterra actual costs for all regions
Energy costs	Unit costs are based on the weighted average unit cost for steam and electricity at each site and also takes into account differences in fuel sources (eg coal vs gas)
Effluent disposal cost	Unit costs are based on the weighted average unit cost for waste treatment at each site and also takes into account differences in disposal methods (eg biological vs land spreading vs ocean outfall)
Lactose and packaging freight	Unit freight costs are included in lactose and packaging costs National rate is based on production weighted average costs of site costs
Finished product freight	National rate is based on production weighted average costs of site costs
Water	Unit costs are based on the weighted average unit at each site (eg, town vs bore water)

5.2 Aggregate assessment of base milk price

5.22 In this section, we explain:

5.22.1 the results of our aggregate assessment of the base milk price; and

5.22.2 the analytical approach to our aggregate assessment of the base milk price.

Results of our aggregate assessment of the base milk price

5.23 The results of our aggregate assessment of the base milk price calculation are that:

5.23.1 we did not note any material variations from our sensitivity analysis between seasons and different periods of this season to cause us to vary the scope of our review; and

5.23.2 based on the data currently available to us, we are not able to conclude on whether the apparent trend of a gap in performance between NZMP and the notional producer has a material impact on our conclusion that the cost components in the base milk price calculation are practically feasible.

5.24 Comparing the cost structures of NZMP and the notional producer directly was not practical without substantial further investment on Fonterra's part to recast its financial data. Information provided to us by an interested party allowed us to carry out a more high-level assessment of the performance gap between NZMP and the notional producer.

5.25 In order to come to a view on this we will need to be able to do a line by line comparison of cash cost components in the base milk price calculation with benchmark real world data for those components. We intend to do this in our review for the next season.

Analytical approach to our aggregate assessment of the base milk price

5.26 In our Process and Issues paper we described the approach that we intended to take to this base milk price calculation review:

> This year we intend to build on this aggregate assessment to provide an improved reasonableness check of the practical feasibility of the notional producer as a whole.[39]

5.27 Our approach consisted of:

5.27.1 identifying linkages between the key assumptions and the components of the base milk price;

5.27.2 a comparison of NZMP with the notional producer; and

5.27.3 an alternative top-down analysis.

Linkages between the key assumptions and the components of the base milk price

5.28 The depth of analysis we undertook on individual components was informed by:

5.28.1 the linkages between key assumptions that we identified in the base milk price calculation model; and

5.28.2 the components that we could see were being influenced by those assumptions.

---

39 Commerce Commission "Process and issues paper – review of 2014/15 base milk price calculation" (7 April 2015), page 1.

5.29 In Attachment D we set out our summary of the key linkages between some of the key assumptions that we identified in the base milk price calculation model and the components that we could see were being influenced by those assumptions. This shows the concentrations of effects from those key assumptions and helped inform the depth of analysis we undertook on individual components.

5.30 Our analysis was helped by an overview provided by Fonterra in its Reasons paper on the internal consistency of assumptions, inputs and process used in calculating to the base milk price calculation and the overall consistency with the s 150A purpose.[40]

5.31 However, because the base milk price calculation model is made up of a number of modules and the values for the assumptions for each module are set in that module, it was not possible in the time available (and with reasonable effort) to test the numerical sensitivity of key assumptions against the milk price in total. Our sensitivity analysis was limited to year-on-year comparisons of components as a proportion of the calculated forecast base milk price, calculated at two points in the season.

5.32 Our ability to vary the values for assumptions in one central place in the model, see the results on the base milk price, and then carry out a sensitivity analysis is something we will be discussing with Fonterra as it continues to refine its model in future seasons.

Comparison of NZMP with the notional producer

5.33 We used the overview of the main attributes of the notional producer to check the consistency of assumptions, inputs and processes between individual milk price components and to assess an aggregate view of the base milk price calculation.

5.34 We have discussed with Fonterra whether information is readily available to enable a direct comparison of the dairy ingredients business of NZMP with the assumed business of the notional producer. Prior to that discussion, we had carried out our own review of the publicly available information.

5.35 We came to the conclusion that the information is at a relatively high level and presents aggregated financial information. We explored the feasibility of obtaining a breakdown of NZMPs costs and revenues that more closely replicates the base milk price calculation for the notional producer.

---

40 Fonterra "'Reasons' Paper in support of Fonterra's base milk price for the 2014/15 season" (1 July 2015), page 43 to 46.

5.36 We found that comparing the cost structures directly is not practical without substantial investment on Fonterra's part to recast its financial data. Fonterra's information systems are not currently set up to report costs as if part of NZMP was the notional producer. Creating this information would be both costly and very approximate.

5.37 We expect there to be some gap between the performance of the notional producer and the actual performance of Fonterra. However, the notional base milk price calculation was established as one incentive (amongst other incentives) for Fonterra to be as efficient as possible.

5.38 Two reasons why we would expect the actual performance of Fonterra's NZMP business to be lower than that of the notional producer are:

5.38.1 The base milk price calculation is based on a product mix of the five RCPs that represent the most profitable of Fonterra's commodity products, but based on significantly greater volumes than for NZMP;[41] and

5.38.2 The assumption of the standardised plant in the base milk price calculation.

5.39 Regarding product mix, NZMP produces a more complex range of products including cream, cheese, specialty products (such as Probiotics and Lactoferrin) and milk proteins (including whey protein concentrates and casein).

5.40 Also, the milk price calculation benefits from a standardised plant based on the performance of Fonterra's highly efficient Darfield operation (for milk powders). In reality, and as a result of the historical commissioning of plants over a long time span, Fonterra owns and operates plants with greater ranges of sizes, ages and processing capabilities.

5.41 The average performance of Fonterra's actual plants would therefore be expected on average to be less efficient than that of a standard plant assumed in the milk price calculation.[42] The question is whether the size of any gap in performance indicates that the base milk price overall is or is not practically feasible.

---

41 Fonterra does not consider value-add products such as UHT and nutritional milk powders as commodities. See paragraph 7.25.

42 This raises the question of why Fonterra does not undertake the plant investment and repairs and maintenance that it assumes for the notional producer to bring its actual plant up to the standards assumed in the base milk price calculation model. Fonterra has advised us that its actual plant replacement or upgrade decisions take into account a wider range of commercial factors. We concluded that replacements and upgrades are not driven by benchmarking with the standard plant of the notional producer.

5.42 In its submission on our draft report Synlait considers that investigating the performance gap between the notional producer and NZMP (particularly at EBIT per KgMS level) is critical to assessing the practical feasibility of the notional producer. We will work with Fonterra to obtain comparable NZMP information for our aggregate assessment for the 2015/16 season.

Alternative top-down analysis

5.43 In view of the difficulties in making a direct comparison between NZMP and the notional producer, we considered alternative ways of carrying out our top-down analysis. As indicated in Synlait's submission on our Process and Issues paper, we were provided with information to allow us to carry out a more high-level assessment of the performance gap between NZMP and the notional producer.[43]

5.44 We have reviewed an analysis that compares the performance of the NZMP ingredients business with the performance of the notional efficient processor used in Fonterra's base milk price calculation.

5.45 The analysis is based on publicly available information found in Fonterra's segment reporting from its financial statements and the Milk Price Statements published by Fonterra on its website. The information is therefore necessarily at a relatively high level and uses aggregated financial information.

5.46 The analysis compares Fonterra's normalised EBITDA per kgMS to the value of the capital cost per kgMS forecast in the milk price model (as published in Fonterra's Milk Price Statement). It shows that Fonterra's EBITDA per kgMS performance has declined since the introduction of the current milk price calculation methodology. The actual EBITDA per kgMS for NZMP is substantially lower than the notional producer is expected to achieve.

5.47 The questions this analysis raises are:

5.47.1 whether the cost structure of the notional producer that is represented in the base milk price calculation model is lower than practically feasible for an efficient processor; and

5.47.2 whether the base milk price is consequently set at a level that is too high for an efficient processor.

---

[43] Synlait Milk Limited "Submission on Process and Issues Paper – Review of 2014/15 Base Milk Price", page 5, paragraph 27(v).

5.48 We were unable to come to a conclusion on whether this apparent trend has a material impact on our conclusions on the practical feasibility of cost components of the base milk price. This is because we were unable to carry out a direct comparison of NZMP and the notional producer and this alternative analysis was based on highly aggregated information.

5.49 In order to come to a view on this we need to be able to do a line by line comparison of cash cost components in the base milk price calculation with benchmark real world data for those components.

5.50 In its submission on our Process and Issues paper, Synlait indicated that it would endeavour to provide us with a breakdown of Synlait's efficient cash costs using the categories in the breakdown we published.[44]

5.51 However, Synlait was not able to provide that information due to the complexity of mapping its data to the provided categories and to its time constraints.

5.52 We expect that this year's release by Fonterra of the model of the base milk price calculation will make this a less complex task for Synlait. Other interested parties may also be able to provide us with the necessary information to do this cost benchmarking for the 2015/16 season.

5.53 In particular, we consider that this analysis would be assisted if Fonterra was to publish that model again with the final numbers for the 2014/15 season when it releases the 2014/15 Farmgate Milk Price Statement. We also expect to work with Fonterra to obtain the equivalent NZMP data for its RCP costs for this limited cost benchmarking exercise.

5.54 Fonterra in its submission on our draft report has stated that it will work with us to identify data suitable for this purpose.[45]

---

44 Synlait "Submission on Process and issues paper – review of 2014/15 base milk price" (28 April 2015), paragraph 19.

45 Fonterra "Review of Fonterra's 2014/15 base milk price calculation" (1 September 2015), page 2.

5.3 Processing capacity

5.55 This section:

5.55.1 explains how processing capacity is calculated in the base milk price calculation model;

5.55.2 describes how the model treats one-off costs that might be expected to arise if the model does not include sufficient processing capacity at various times, such as costs of dealing with unusually high peak milk flows; and

5.55.3 outlines our assessment of the practical feasibility of the notional producer's processing capacity.

Processing capacity in the base milk price calculation model

5.56 The notional producer carries a fixed amount of processing capacity into each season based on prior decisions on how many plants are assumed in the model. The approach to adding processing capacity into the model aims to replicate how plants would be approved for construction and be commissioned in the real world. There is therefore a step change element to capital additions in the model over time as the additional plants track against the milk supply forecasts.

5.57 The decision on how many plants are to be included in the model is made approximately 18 months in advance of a season based on Fonterra's internal forecasts of milk supply.[46]

5.58 The milk supply forecast is split into forecasts for the North and South Islands. Fonterra's Milk Price Group (MPG) then determines whether there is sufficient production capacity allowed for in the model in each island to process all of the milk supplied in each island, given the assumed level of the average plant on-product time (OPT).[47]

5.59 Once a decision is made to add an additional plant to the model in an island and this decision is locked in, the updated plant numbers become fixed from the relevant future season as if the additional plant had been commissioned for that season.

5.60 The capital costs and capital charges in the model for a season therefore include all plants that have notionally been commissioned, regardless of whether or not the plants are used to process milk in that season. Labour costs are also calculated under the assumption that all plants are appropriately staffed.

---

46 The milk supply forecast for the purposes of planning for capacity in the model is prepared in the February of the year preceding the year that the season commences.

47 On-product time refers to the hours in a particular period when a plant is used to manufacture finished product. The additional time allows for cleaning, planned maintenance and unexpected breakdown and production stoppages.

5.61 The model assumes two vintages of WMP and SMP powder plant[48], being the 2008 and 2012 plants, and which can process 1.95 million litres of milk per day.

5.62 If an incremental powder plant is added to the notional asset base, that plant is currently assumed to process 2.47 million litres of milk per day.

5.63 When a powder plant is required to be replaced in the base milk price calculation model, it is assumed to be replaced with an incremental powder plant (ie, a plant with a capacity of 2.47 million litres of milk per day).

5.64 The number of plants in the 2014/15 model is:

5.64.1 WMP = 27 plants (includes 2 incremental plants)

5.64.2 SMP = 20 plants

5.64.3 Butter = 6 plants

5.64.4 AMF = 4 plants

5.64.5 BMP = 4 plants

5.65 The features of the Darfield Dryer 1 (Darfield D1) are used as a reference for the features of the standard WMP plant. The plant is assumed to have the same technology as Darfield D1 and is assumed to be able to achieve a processing capacity in a season that exceeds the manufacturer's specifications for Darfield D1.

5.66 The features of the Edendale Dryer 3 (Edendale D3) are used as a reference for the features of the standard SMP plant. The plant is assumed to have the same technology as Edendale D3.[49]

5.67 For the 2014/15 season, the on-product time for the powder plants is set in the model above 95%.The OPT is reviewed annually.

5.68 The notional producer's total processing capacity for each island is calculated by multiplying the total capacity of the assumed plants in each island[50] by the OPT.

---

48 Powder plants in this chapter refer to plants producing the primary reference commodity products (ie, WMP and SMP).

49 We note that there is no direct equivalent Fonterra SMP plant in terms of capacity. We comment on the assumption of the standard SMP plant capacity exceeding manufacturing capacity in paragraphs 5.91 - 5.93.

50 Plant processing capacity is assumed to be equal to manufacturer's specified capacity.

How the model deals with a shortage of capacity

5.69 The approach for the notional producer is that the processing capacity is approximately equal to the forecast peak milk flow in each island.

5.70 There is buffer capacity in the model to the extent that the maximum available daily processing capacity in each island in the model exceeds the forecast daily peak milk flows in each island. This buffer will vary year to year depending on the number of notional plants in the asset base for each island and the forecast daily milk flows for each island. We note that there is no target buffer allowance for each plant in the model. Plants are assumed to be able to operate at up to their maximum capacity, which equals plant capacity multiplied by the OPT.[51]

5.71 If there is a shortage of capacity in the model within an island based on actual supplies of milk at any stage in the season, the first assumption in the model is that all of the milk is processed within that island, but on a basis of reduced standardisation and therefore potentially reduced yield of the RCPs.

5.72 The non-standardisation approach for the notional producer in these circumstances is consistent with Fonterra's approach to dealing with any constraints on processing capacity.[52]

5.73 A key assumption under this approach is that the notional producer receives the same selling price for non-standardised products as for standardised products. This means that the notional producer does not receive any additional price premium for selling products that have a higher resulting protein specification.

5.74 A further option when there are large peaks of milk supply that cannot be dealt with solely through non-standardisation of products is to transport milk between islands (ie, essentially using the excess capacity in the other island). However, this option is seen to be less economic, as non-standardisation can be done across all plants and is simpler from a modelling point of view.

Non-standardisation has occurred for the notional producer in the 2014/15 season

5.75 In the 2014/15 season, the notional producer did not have sufficient capacity to process all of the milk supplied in the North Island during the months of September to November 2014.

---

51 In their submissions on our draft report, Open Country and Synlait sought clarification on buffer capacity in the model.

52 Non-standardisation refers to not adding lactose to the non-fat solids during processing. Fonterra incurred foregone returns from manufacture of non-standardised milk powders in the 2013/14 season as part of the peak milk flow costs. See "Fonterra's submission to the Commerce Commission on its draft report on Fonterra's base milk price for the 2013/14 season" (1 September 2014), page 15.

5.76 The marginal impact of the net cost of non-standardisation on the base milk price was estimated by Fonterra at 0.3 cents.

The calculation of yields for standardised and non-standardised processing

5.77 The model adopts the following approach for the notional producer:

5.77.1 The maximum MT that can be processed by each plant and by island is calculated;

5.77.2 The two sets of yields (standardised yield and non-standardised yield) are calculated using the daily composition levels;[53]

5.77.3 The maximum kgMS of milk that can be processed at the assumed processing capacity is calculated under both sets of yields.[54]

5.77.4 Based on the daily volume and composition data, kgMS are allocated to standardised and non-standardised processing;

5.77.5 The allocation is a ratio of the difference of the milk solids collected and the maximum non-standardised processing capacity over the difference of the maximum standardised and maximum non-standardised capacity; and

5.77.6 The allocation is then applied to the maximum standardised processing capacity and the remaining milk solids are assumed to be processed as non-standardised RCPs.

Treatment of one-off or difficult-to-forecast costs linked to capacity

5.78 The base milk price calculation model provides for these costs in the base milk price calculation through a combination of ex ante allowances and ex post adjustments.

5.79 In our 2013/14 calculation review and our 2014/15 Manual review, we questioned whether the base milk price methodology adequately provides for costs associated with one-off or difficult-to-forecast events. For example, the 'super flush' peak milk flows which occurred for Fonterra in the 2013/14 dairy season.[55]

---

53 The non-standardised yield varies the protein level to a degree where no additional lactose is required.

54 The non-standardised yield enables more kgMS to be processed due to non-fat raw solids being substituted for lactose that would be required under standardising.

55 'Super flush' is the term used by Fonterra to describe the event relating to a peak milk supply that exceeds milk processing capacity. Synlait has asked how any resulting costs of a super flush are dealt with in the base milk price. See Synlait "Submission on process and issues paper – review of 2014/15 base milk price" (28 April 2015).

5.80 In its submission to our 2013/14 draft report Fonterra described how the base milk price calculation includes the following ex ante allowances:

5.80.1 The insurance premium expense for the cover of costs, which includes the opportunity costs associated with not being able to process milk, arising from large scale catastrophic events;

5.80.2 The fixed asset base contains provisions for asset redundancy, including multiple boilers, and packing line capacity in excess of processing capacity; and

5.80.3 The fixed asset base also includes a certain amount of buffer capacity, comprising an excess of peak processing capacity over forecast peak milk supply.

5.81 Costs of an event affecting processing capacity that are more difficult to forecast are dealt with through an ex post adjustment. Examples include:

5.81.1 Costs that arise where Fonterra has a contractual obligation to pay for milk but is unable to collect it, for example, a significant snow storm; and

5.81.2 Costs incurred by Fonterra due to one-off events that cannot be forecasted and which are not covered by insurance policies.[56].

5.82 The MPG's view is that these costs are not appropriate to be treated ex ante, as these costs and factors may be wholly specific to Fonterra or only a proportion of the costs incurred by Fonterra would affect the notional producer.

5.83 Fonterra has stated that the combination of the ex ante and ex post costs adequately captures the full range of costs that would be incurred by a milk powder manufacturer of Fonterra's scale.[57]

5.84 We note that the notional producer has incurred additional costs in relation to additional testing costs due to the 1080 threat that occurred during the 2014/15 season. As this is not a capacity-linked cost, our analysis on this cost can be found in our analysis of other operating costs.

---

[56] For example, the Canterbury earthquakes, the Maui gas pipeline failure and the costs arising from 'super flush' peak milk flows such as Fonterra experienced in the 2013/14 season.

[57] Fonterra 'Submission to the Commerce Commission on its draft report on Fonterra's base milk price for the 2013/14 season" (1 September 2014), page 14.

Our assessment of the treatment of the notional producer's processing capacity

5.85 Overall, we are largely comfortable that the assumed processing capacity is practically feasible. We set out comments on key elements of that conclusion below. We do not have concerns on the processing capacity of the other plants assumed in the model (butter, AMF and buttermilk plants).

5.86 As a cross-check, we have received information from Fonterra that demonstrates that there was sufficient capacity to process the cream (from the WMP and SMP plants). We note that Fonterra has not completed a formal cross-check on the BMP plants. Fonterra has noted that the BMP standard plant capacity was greater than the production volumes assumed for the 2014/15 season.

W*hat we considered in making our assessment*

5.87 In its submission on our 2014/15 Process and Issues paper, Open Country set out its view of the relevant component relationships that we should consider when making our aggregate assessment of the base milk price this year.[58] We consider that the following matters in those identified relationships should be looked at when assessing the processing capacity assumptions:

5.87.1 Whether the notional producer's costs in the base milk price model reflect all of the plant needed to process the milk supplied in the season;

5.87.2 Whether the notional producer allocates supplied milk to RCPs and always produces the profit maximising product mix given its assumed plants;[59] and

5.87.3 Whether the notional producer has plants in the right place when the milk supply in regions varies.

---

58 Open Country "Submission on the Commerce Commission's Process and Issues Paper – Review of 2014/15 Base Milk price Calculation" (28 April 2015), page 2.

59 We interpret this to mean that the model should apply real world assumptions about how the assumed plants in the model would be operated by the notional producer to profit-maximise the product mix given the assumed available plants in the model, and not that there should always be an optimum number of plants assumed in the model that are operating at a profit–maximising product mix.

5.88 In general these matters are satisfied by the standard plant configuration in the model. In particular, we comment below on:

5.88.1 the feasibility of various vintages of plants to achieve the same performance as the standard plant;

5.88.2 the assumed 'OPT' assumption used to determine yields and therefore to define the required processing capacity; and

5.88.3 the assumption that the notional producer's plants can exceed the manufacturer's specifications when processing non-standardised products.

5.89 However, as described above, some matters are not assumed to be satisfied in the base milk price model and the model accordingly assumes that there is some cost allowance to be made when those matters are not satisfied. For example, the base milk price model does not reflect all of the plant needed in every milk supply circumstance. The model therefore includes estimated costs of not having sufficient processing capacity at any stage to process the milk actually supplied.[60]

5.90 Similarly, the model does not assume processing capacity at every location to deal with every circumstance of regional supplies of milk. However, it does address the real world cost implications of receiving milk that cannot be processed locally and must be transported between plants to be processed into RCPs.

5.91 We also set out below our assessment of the assumed strategies adopted in the model to deal with situations where the assumed processing capacity of the notional producer is not sufficient to deal with the milk supplied.

The feasibility of different vintages of plant achieving the same performance

5.92 We consider that the feasibility of plants achieving the same level of performance is a question of whether there is adequate replacement capital expenditure provided for in the model to bring earlier vintage plants up to the same performance level of newer plants.

[60] Although the Open Country submission refers to 'buffer capacity' in this regard, the base milk price model demonstrates other strategies for dealing with large peak supplies of milk that do not involve capital additions, but which do involve additional costs, and impacts on yields which impact on the revenues reflected in the model.

5.93 Based on our discussions with Fonterra and the information provided to us, we have not seen anything to suggest that the notional producer is not able to achieve the necessary periodic technology upgrades.[61] We have therefore assumed for the purposes of addressing the question of processing capacity that this requirement is satisfied. We have then separately addressed the cost of that replacement capital in considering the capital charge.

The OPT assumption

5.94 In 2013/14, concerns were raised by our independent expert on the review of the energy component about whether the assumed OPT in the model is achievable.

5.95 Fonterra submitted that the data provided to the Commission on the actual OPT for Fonterra powder plants shows that over the peak October and November months, the average difference between OPT and plant availability was only 0.5%.[62]

5.96 Fonterra further noted that the difference of the OPT and plant availability reflects 'standby time', which is when Fonterra voluntarily chooses to stand down a plant due to a lack of milk to process, rather when a plant is not available to process milk due to factors beyond Fonterra's ability to control.

5.97 We have reviewed the OPT data for Fonterra powder plants over the peak months for the past three seasons, which shows that the average OPT for seven older powder plants (ie, plants older relative to Darfield D1) is very close to the OPT assumption used in the model.

5.98 We consider the mix of vintages of plants with the same technology could achieve the OPT assumed in the model. We therefore conclude that the OPT assumption used is practically feasible.

Assumed non-standardisation response to pressures on capacity in a season

5.99 The non-standardisation approach adopted in the model for the notional producer reflects an approach that a real world processor of Fonterra's scale and location could take to deal with milk supply issues. Such issues put pressure on the assumed processing capacity of the notional producer in the season.

5.100 We consider this approach reflects that under realistic assumptions of when additional plants are commissioned under the model, there will be step increases in the number of plants (and therefore processing capacity). Therefore, this will not always provide for a buffer capacity at times of high peaks of milk supply.

---

61 See the description of the further analysis on the consistency of the various elements of the capital costs in section 6.5 of this report.

62 Fonterra "Submission to the Commerce Commission on its draft report on Fonterra's base milk price for the 2013/14 season" (1 September 2014), page 13.

5.101 To offset the slower processing of non-standardised powders, processing capacity is assumed to be able to operate at above the manufacturer's specification.

5.102 Our independent expert for the review of the 2013/14 energy costs component noted that Darfield D1 (which the standard WMP plant is referenced off) was consistently achieving higher than the nameplate rating.[63]

5.103 We have also reviewed additional evidence from Fonterra and obtained comfort that Darfield D1 can achieve a processing capacity above the manufacturer's specifications.

5.104 For the standard SMP plant, there is no direct equivalent Fonterra plant in terms of capacity. The reference plant for SMP, Edendale D3 has a larger processing capacity than the standard plant in the model.

5.105 Fonterra has noted to us that it is difficult to support the assumption that an SMP plant would achieve the same level of actual capacity over manufacturer's capacity as achieved by Darfield D1 for the standard WMP plant. Fonterra notes that the notional producer is the same for both WMP and SMP standard plants. Therefore it is reasonable to assume that it would build a similar allowance for conservatism into its rated capacity for SMP plants.

Balancing of processing capacity within islands

5.106 The estimate of collection costs in the model includes an allowance for inter-regional transport costs. These are based on Fonterra's actual costs. We therefore do not consider that the notional producer would need to incur extra collection costs. For example, by diverting milk to other powder plants within an island if powder plants have insufficient processing capacity at any stage to process the supplied milk.

63 Peter Walker Consultants "On the use of energy per tonne of whole milk powder" (15 August 2015) , page 10.

6. Capital charge and related components

Purpose of chapter

6.1 This chapter assesses whether the capital charge and related component calculations provide an incentive for Fonterra to operate efficiently and whether the calculations are practically feasible.

6.2 The two elements that feed into the calculation of the capital charge are:[64]

6.2.1 The WACC; and

6.2.2 The capital costs of fixed assets.

6.3 The related components to the capital charge are:

6.3.1 The calculation of the notional producer's depreciation in the model under the tilted annuity method; and

6.3.2 The allowance for repairs and maintenance costs in the cash components of the base milk price calculation.

6.4 Summaries of our conclusions of Fonterra's assumptions adopted, and inputs and process used to determine the capital charge and related components for the purposes of the 2014/15 base milk price calculation are provided in each section of this chapter.

6.5 We also include in a separate section of this chapter a description of the additional analysis provided by Fonterra to assist us in our review of the overall consistency of the various elements of the capital costs.

64 Our assessment of the net working capital is contained in Chapter 7: Revenues and Net Working Capital.

6.1 WACC

Approach to our 2014/15 analysis

6.6 In our 2013/14 report we said:

> While we accept Fonterra's reasons for most of the inputs in the weighted average cost of capital calculation, we are still unable to conclude on the extent to which the asset beta assumption is practically feasible and therefore are unable to conclude on whether the cost of equity is practically feasible.
>
> Rule 40 of the Milk Price Manual states that an independent reviewer will provide an updated asset beta in a review year. In calculating the asset beta, the independent reviewer is required to have particular regard to the allocation of risks and to the allocation of stranded asset risk between Fonterra and its suppliers under the Manual-consistent Milk Price Methodology.[65]

6.7 Our key issue on coming to a conclusion on the WACC rate is therefore the estimate of the asset beta. This year Fonterra engaged an independent reviewer to consider this matter and we have considered his report.[66]

6.8 For our 2014/15 analysis of the WACC calculation we also:

6.8.1 updated our 2013/14 milk price review analysis;

6.8.2 analysed Fonterra's assumptions, input and process to assess the extent to which the costs are consistent with the s 150A purpose; and

6.8.3 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 milk price calculation.

Results of our 2014/15 analysis

6.9 Table 6.1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used, to determine the WACC calculation of the notional producer for the purposes of the 2014/15 base milk price calculation.

---

65 Commerce Commission "Final Report - Review of Fonterra's 2013/14 base milk price calculation" (15 September 2014), paragraphs V15 and v16.

66 Alasdair Marsden (Uniservices) "Asset beta for Fonterra's New Zealand-based Commodity Manufacturing Business and Specific Risk Premium for Fonterra's Notional Business" (2 December 2014).

Table 6.1: Summary of our conclusions on the 2014/15 WACC

Are notional or actual values used?	Notional
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Unable to conclude on the asset beta assumption and the specific risk premium. We are therefore unable to conclude on the WACC rate
Are any features unique to Fonterra?	No, as this is the market's view of the required return on capital

Does the calculation use notional or Fonterra actual data?

6.10 The WACC rate is notional in the sense it is an estimate of the market-determined cost of capital; its constituent parts are also estimates.

6.11 The estimates of these component parts of the WACC are based where possible on observed external data. However, Fonterra does exercise judgement over the approach and parameter choices. With the notable exception of the asset beta and the specific risk premium, the approach and parameter choices are made transparent and consistent over time by the Rules in the Milk Price Manual.

Is the calculation consistent with the Milk Price Manual?

6.12 We consider the WACC calculation to be consistent with Rules 39, 40, and 41 of the Milk Price Manual. In particular, Rule 39 of the Milk Price Manual states that the WACC calculation, to the extent possible, should reflect the application of a 'mechanical' or prescriptive calculation methodology and reflect a calculation methodology which is familiar to suppliers and potential investors.[67]

6.13 Rule 40 of the Milk Price Manual states that an independent reviewer will provide an updated asset beta in a review year.

6.14 Rule 41 of the Milk Price Manual states that an independent reviewer will recommend a specific risk premium in a review year. An independent reviewer has recommended an asset beta and a specific risk premium for the 2014/15 calculation.

[67] Rule 39 states that the WACC rate will be recalculated each year and the post-tax market risk premium and asset beta will be updated in each review year.

Does the calculation provide an incentive for Fonterra to operate efficiently?

6.15 The inputs in the WACC calculation are set independently of Fonterra's values. We consider that using a benchmark set independently of Fonterra's current year performance provides an incentive to Fonterra to operate efficiently. The calculation of the WACC rate in the base milk price calculation is therefore consistent with the efficiency dimension of the s 150A purpose.

Is the calculation practically feasible?

6.16 We consider that the overall value of the WACC rate is in an expected range. However, we are unable to conclude on the extent to which the asset beta and specific risk premium for asset stranding risk assumptions are practically feasible. We outline our reasons below. Fonterra has confirmed that it will address the WACC issues in the course of the 2015/16 season. Once it has further developed its view on the WACC we will discuss with Fonterra whether it is practical to publish the additional information in advance of our 2015/16 review.[68]

6.17 In its submission on our draft report, Open Country has raised concerns on the derivation of the asset beta and specific risk premium, arguing that the notional processor's WACC is still too low.[69] Similarly, Synlait has also raised factors which it believes would lead to a higher WACC.[70] We highlight these points for Fonterra and its expert reviewer to further consider along with our comments on the asset beta and specific risk premium.

6.18 We also comment on Fonterra's use of a five-year average rolling risk free rate in the WACC rate calculation for the notional producer.

Asset beta

6.19 In our 2013/14 calculation review, we were unable to reach a conclusion on the asset beta for the notional producer, as the information provided to us failed to justify the practical feasibility of the asset beta used.

6.20 Fonterra subsequently engaged an independent reviewer to recommend an asset beta for the notional producer. Fonterra has implemented the independent reviewer's recommendation of an asset beta of 0.38 for the 2014/15 season.

---

68 Fonterra in its submission to our draft report notes that it will address our comments in the course of the 2015/16 season. Fonterra "Review of Fonterra's 2014/15 base milk price calculation" (1 September), page 1.

69 Open Country "Submission on the Commerce Commission's Draft Report – Review of Fonterra's 2014/15 milk price calculation (31 August 2015), page 2.

70 Synlait "Submission on the Commerce Commission's 2014/15 base milk price calculation review draft report" (1 September 2015), page 5.

6.21 We are unable to conclude on the practical feasibility of the asset beta. In particular, we were not able to understand the reduction in the asset beta from 0.48 for Fonterra's actual business to 0.38 for the notional producer. The independent reviewer notes that Fonterra's actual business is exposed to 'stream return' risk for commodities not included in the milk price basket.[71] It is not clear to the Commission that the stream return risk is systematic, or that this risk justifies the adjustment to the asset beta that is made.

6.22 It is also not clear in his report the extent to which any Fonterra Board decision (or the ability to make such a decision) to subordinate (ie, reduce) milk price payments to farmers in favour of the returns to capital providers has been reflected in the asset beta.

Specific risk premium for asset stranding risk

6.23 Fonterra has added a new Rule in the 2014/15 Manual in response to our concern that the asset stranding risk is an unsystematic risk which should not be included in the calculation of the asset beta. Fonterra's independent reviewer has recommended that the specific risk premium for the notional producer be in the range of 0.08% to 0.19%.[72] Fonterra has set the specific risk premium at 0.15%.

6.24 The independent reviewer has noted the asset stranding risk results in an increment to the WACC rate. Fonterra has accordingly included an allowance for the specific risk premium in the cost of equity in the WACC calculation.

6.25 Although we agree with the independent reviewer that there should be quantification of an allowance for the asset stranding risk, we are unclear if the quantification was made on an empirical basis or by using subjective assumptions. It is not clear how Fonterra has selected 0.15% from the independent reviewer's suggested range of values.

6.26 Also, our view is that the asset stranding risk would be more appropriately dealt with as an addition to the WACC rate rather than to the cost of equity.[73] Applying the specific risk premium to the WACC rate estimate rather than to the cost of equity has the effect of increasing the WACC rate and reducing the base milk price.

---

71 Alasdair Marsden (Uniservices) "Asset beta for Fonterra's New Zealand-based Commodity Manufacturing Business and Specific Risk Premium for Fonterra's Notional Business" (2 December 2014), paragraph 12.7, page 43.

72 Alasdair Marsden (Uniservices) "Asset beta for Fonterra's New Zealand-based Commodity Manufacturing Business and Specific Risk Premium for Fonterra's Notional Business" (2 December 2014), page 8.

73 Assuming the percentage adopted (ie, 0.15%) is not affected by this, the addition of the specific risk premium to the cost of equity in the WACC calculation formula has a 63% scaling effect, giving an effective specific risk premium in the WACC rate estimate of approximately 0.09%.

6.27 Overall, these issues leave us unable to conclude on the practical feasibility of the 0.15% value or its application in calculating the effect of the specific risk premium.

Risk free rate – long-term average versus current

6.28 Under Rule 39 the risk free rate is an input to the WACC rate calculation for the notional producer. The risk free rate is defined in the Milk Price Manual as the average secondary market yield on five-year government stock for the 60 months (five years) preceding the first day of each season (ie, the five-year average of the risk free rate).

6.29 We have previously noted in our final report on the dry run review:[74]

> Under Input Methodologies for the cost of capital under Part 4 of the Commerce Act, the Commission has generally preferred the use of current rates. This is consistent with the Purpose of Part 4 of the Commerce Act, the objectives of which include providing suppliers with incentives to invest and innovate.
>
> Using long-term average actual risk free rates will lead to estimated costs of equity and debt which tend to be relatively stable over time. In a price setting context, this relative stability will tend to lead to relatively stable returns to processors over time. The resulting WACC estimates will tend to be more easily forecast. However, this apparent stability could blunt the signals from structural changes in the financial markets with respect to new investment in infrastructure.

6.30 Castalia, on behalf of Open Country has raised a concern regarding the practical feasibility of Fonterra's use of this 5 year rolling average risk free rate rather than a current risk free rate stating:[75]

> Fonterra's use of a five-year rolling average risk free rate currently results in a WACC that is not practically feasible for other milk processing businesses. This is because the risk free rate is rising as interest rates increase. Changing to the current rate would result in a WACC that is practically feasible (because competing processors could obtain finance reflecting the risk free rate), and would be consistent with the approach the Commission has adopted for other regulated industries (GPBs, electricity distribution businesses and airports).

---

74 Commerce Commission "Final Report - Report on the dry run review of Fonterra's farm gate milk price" (27 August 2012), page 111.

75 Castalia "Concerns on the Practical Feasibility of Fonterra's Capital Charge" (18 December 2014), page 2.

6.31 We consider that a five-year rolling average approach in calculating the risk free rate for the notional producer is practically feasible for Fonterra or another processor that is already established in the market. However, the risk free rate from using a five-year rolling average may not be practically feasible for an entrant if the current rate in the market was to become greater than the rate using the five-year rolling average rolling average (that is, the rate of cost of raising capital by a new entrant would reflect current prevailing rates in the market, not a long-term average of historical rates. When current rates are above the 5 year average, the new entrant may not be able to raise capital at the rates assumed by Fonterra).

6.32 At this current time, we consider Fonterra using a five-year rolling average to calculate the risk free rate is practically feasible as current rates are below the five-year average calculated by Fonterra. We propose to consider Castalia's concern in future Manual and calculation reviews.

Perceptions of low WACC rate relative to Fonterra and other independent processors

6.33 We note that the calculated WACC rate estimate for the notional producer is substantially lower than that of Fonterra, or for independent processors. We consider a lower WACC rate estimate is not an unexpected conclusion. It reflects the nature of the notional producer as a processor solely of the RCPs and the basis of sharing of risks and returns between the farmer suppliers of milk and the notional shareholders of the notional producer.

6.34 However, we also note that for the technical reasons outlined above (ie, the treatment of the specific risk premium for asset stranding), the calculated WACC rate for 2014/15 is lower than if different technical conclusions had been reached by Fonterra on those matters.

Features unique to Fonterra?

6.35 We do not consider that the WACC rate estimate calculation for the notional producer relies on any assumptions that are unique to Fonterra.

6.2 Capital cost of fixed assets

Approach to our 2014/15 analysis

6.36 For our 2014/15 analysis of the capital cost of fixed assets we:

6.36.1 updated our 2013/14 milk price review analysis;

6.36.2 analysed Fonterra's inputs, process and assumptions to assess the extent to which the costs are consistent with the s 150A purpose; and

6.36.3 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 milk price calculation.

Results of our 2014/15 analysis

6.37 Table 6.2 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used to determine the notional producer's capital cost of fixed assets for the purposes of the 2014/15 base milk price calculation.[76]

Table 6.2: Summary of our conclusions on the 2014/15 capital cost of fixed assets

Are notional or actual values used?	Notional
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	Yes. Fonterra applies safe harbour provisions of s 150B

Does the calculation use notional or Fonterra actual data?

6.38 The data used to calculate the fixed asset values used in the calculation of the capital cost of fixed assets for the notional producer is all notional values. As set out in Rule 23 of the Milk Price Manual, there are four types of fixed assets:

6.38.1 Standard plants;

6.38.2 Ancillary assets;

6.38.3 Information system assets; and

6.38.4 Land.

Standard plants

6.39 The capital costs for the notional producer's standard plants are a function of the cost per plant, and the number of existing and new plants.

6.40 The cost per plant is based on an estimated replacement value, and is therefore considered notional.

[76] Fonterra sets out an overview of the calculation of 2014/15 capital costs at: Fonterra "'Reasons' Paper in support of Fonterra's base milk price for the 2014/15 Season" (1 July 2015), p.37 to 40.

6.41 The number of plants is a notional figure. It is calculated in accordance with the 'safe harbour' provision in s 150B(b), which allows for the assumed units of processing capacity to approximate to the average size of Fonterra's actual units of processing capacity.

6.42 The number of plants is calculated by:

6.42.1 determining the average of the peak processing capacity of Fonterra's actual plants producing the RCPs;[77]

6.42.2 assuming that the standard plant is of the average peak processing capacity; and

6.42.3 determining how many standard plants are necessary to process the total volume of milk collected.

6.43 New standard plants are assumed to be commissioned and are added to the calculation at the beginning of the season if milk collection volume forecasts suggest capacity needs to be increased. The method and timing for the assumed commissioning of new plants by the notional producer was discussed earlier in our discussion on the notional producer in Chapter 5 of this report, where we reviewed the processing capacity of the notional producer.

Ancillary assets

6.44 Ancillary assets comprise site services, site infrastructure, collection assets, milk reception and treatment assets, and process control assets. Each one has a different basis of calculation.

6.45 The notional producer's capital costs for the site services and site infrastructure include gas and coal boiler plants, treatment plants, the capital costs of administration, and dry storage. These costs are based on asset valuations of Fonterra's actual plants. The valuations have been scaled back to better reflect the assumed functions of the notional producer.

6.46 The notional producer's costs of the milk collection assets are based on the value of Fonterra's actual milk collection assets determined by a replacement cost valuation of Fonterra's milk collection assets.

---

77 In previous years Fonterra used the same number for new plants as existing plants. The change was made in 2012/13 to make the capacity of new plants reflect the actual capacity achieved at a recently commissioned plant.

6.47 The specifications of the notional producer's standard plants include a basic level of process control. On top of this the calculation also allows for the capital cost of advanced process control based on a percentage of the plant replacement cost.

6.48 The assumption used to arrive at this percentage is based on an average of advanced process control costs at two recently commissioned plants. Fonterra has also advised us that it does not expect a material change to this assumption given estimated costs for a new plant that has been approved for building.

Information systems assets

6.49 The value of the asset base for information systems is based on an estimate of Fonterra's actual asset value. It is assumed that the notional producer would have the same core systems as Fonterra. Other ancillary systems are scaled back to reflect the different business model assumed for the notional processer.

Land

6.50 The notional processing sites in the base milk price model are assumed to align with Fonterra's sites.

6.51 The value of the notional producer's asset base for land was established through an independent valuation of Fonterra's actual sites.

Is the calculation consistent with the Milk Price Manual?

6.52 We consider that the calculation of the capital cost of fixed assets in the base milk price model is consistent with Rules 23 to 37 of the Milk Price Manual.

6.53 Fonterra has added a new Rule 33 to the Milk Price Manual for 2014/15, which relates to the site footprint. We consider that this change had no impact on the inputs, processes or assumptions employed in the 2014/15 milk price calculation.

6.54 Fonterra sets out its assumptions, inputs and process used for the calculation of the capital cost of fixed assets on pages 37 to 41 of its Reasons paper. In particular, an overview of the five steps taken in making this calculation is provided on page 37 of the Reasons paper.[78]

6.55 This section of the report refers to the first of those steps (ie, determine the fixed assets required to collect the milk assumed to be supplied to the notional producer, and to manufacture and store the RCPs manufactured by the notional producer).

---

78 Fonterra "'Reasons' Paper in support of Fonterra's base milk price for the 2014/15 Season" (1 July 2015), p.37.

Does the calculation provide an incentive for Fonterra to operate efficiently?

6.56 In its Reasons paper on page 38, Fonterra states that because the asset base is established independently of Fonterra's actual fixed asset costs, it is consistent with the efficiency criterion.[79]

6.57 We agree with Fonterra's explanation. We consider that using a benchmark set independently of Fonterra's current year performance provides an incentive for Fonterra to operate efficiently.[80] The calculation of the capital cost of fixed assets is therefore consistent with the efficiency dimension of the s 150A purpose.

Is the calculation practically feasible?

6.58 Based on our high-level analysis, we have concluded that Fonterra's calculation of the notional producer's capital cost on fixed assets is practically feasible.

6.59 Our analysis of this component of the base milk price has used averages in an attempt to establish whether the replacement costs used in the model are adequate given the assumed processing capacity.

6.60 In carrying out our analysis and coming to this conclusion, we have followed the calculation steps outlined by Fonterra on page 37 of its Reasons paper:

6.60.1 Determine the fixed assets required to collect the milk supplied to the notional producer, and to manufacture and store the RCPs manufactured by the notional producer;

6.60.2 Determine an appropriate value for the cost of capital;

6.60.3 Determine an appropriate approach for spreading capital recoveries in respect of the fixed assets of the notional producer over time, and for otherwise fully recovering relevant capital costs;

6.60.4 Determine an appropriate allowance for the company tax that would be paid by the notional producer; and

6.60.5 Determine an appropriate allowance for financing costs in respect of the net working capital balances implied by the notional producer's collection and sales profiles, and by other assumptions relevant to an assessment of the notional producer's net working capital requirements.

---

79 Fonterra "'Reasons' Paper in support of Fonterra's base milk price for the 2014/15 Season" (1 July 2015), page 38.

80 Commerce Commission "Final report - Review of Fonterra's 2013/14 base milk price calculation" (15 September 2014), paragraph U28.

6.61 We have also considered factors that might cause the average replacement cost values of a plant to materially vary from the average of the standard plant depending on the assumed location of the plant. For example, costs associated with irrigation, biological treatment and seismic reinforcement, which can each vary significantly between sites.

6.62 Overall, based on our review we are satisfied that site-specific factors have been taken account of in the average values used for the standard plant. The specific costs in these categories for any individual plant do not have a material impact on the average replacement costs of the notional producer. This is the basis for our conclusion that Fonterra's calculation of the capital cost of fixed assets is practically feasible.

6.63 Fonterra's general practice is to add a replacement site into its fixed asset base in the year after an old site has reached the final year of its deemed economic life, subject to there not being surplus capacity in the region to which the asset is allocated. We consider this approach to be reasonable, which contributes to our conclusion that the calculation of the capital cost of fixed assets is practically feasible.

6.64 We have considered costs associated with technological upgrades that are assumed in the calculation of capital costs of fixed assets. The assumptions used appear reasonable from information provided to us about such costs for recently commissioned and upgraded plants.

Features that are unique to Fonterra

6.65 Two of the 'safe harbour' provisions under Section 150B of the Act affect the fixed asset base. In particular, Fonterra has assumed that:

6.65.1 the notional producer operates a national network of facilities for the collection and processing of milk (s 150B(a)); and

6.65.2 the notional producer's assumed units of processing capacity approximate to the average size of Fonterra's actual units of processing capacity (s 150B(b).

6.3 Tilted annuity methodology

Approach to our 2014/15 analysis

6.66 For our 2014/15 analysis of the tilted annuity methodology we:

6.66.1 updated our 2013/14 milk price review analysis;

6.66.2 analysed Fonterra's inputs, process and assumptions to assess the extent to which the costs are consistent with the s 150A purpose; and

6.66.3 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 milk price calculation.

Results of our 2014/15 analysis

6.67 Table 6.3 sets out a summary of our conclusions on Fonterra's approach of using a tilted annuity methodology to determine annual capital costs for the purposes of the 2014/15 base milk price calculation.

Table 6.3: Summary of our conclusions on the 2014/15 tilted annuity methodology

Are notional or actual values used?	The inputs to the tilted annuity calculation are notional therefore the outputs are notional
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	N/A. This section deals with the process for converting asset values to annual capital charges. The process is appropriate
Are the assumptions, inputs and process practically feasible?	The process is practically feasible
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

6.68 The inputs to the titled annuity calculation are notional and therefore the outputs are notional.

Is the calculation consistent with the Milk Price Manual?

6.69 We consider the tilted annuity methodology calculation to be consistent with Rule 34 of the Milk Price Manual.

6.70 Rule 34 of the Milk Price Manual provides that Fonterra may recover an Annual Capital Recovery Amount in respect of each Reference Asset, which over the economic life of the asset is sufficient to recover the present value of the cost of installing the asset and of maintaining its productive capacity over its assessed economic life (to the extent such costs are not otherwise deductible in calculating the base milk price).

Does the calculation provide an incentive for Fonterra to operate efficiently?

6.71 Because the tilted annuity is a method for allocating capital costs between periods, it has no implications in respect of the efficiency of those costs.

Is the calculation practically feasible?

6.72 The reason for modelling a tilted annuity is to produce a smoothed charge over time. Without this assumption of steady investment, a specific profile of investment would need to be created and, regardless of the profile created (other than steady state), would produce depreciation and capital charges that fluctuated from year to year.

6.73 This results in a constant annual capital cost in real terms (ie, the capital cost increases in time only by the forecast rate of inflation in capital costs). This means that the annual capital costs used to calculate the base milk price are independent of the timing of investment in plants.

6.74 We consider this approach is reasonable. It is not clear whether an alternative approach would result in a value that is more 'correct' in modelling an investment profile that would result in an uneven capital charge over time with peaks and troughs at times.

Features that are unique to Fonterra

6.75 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

6.4 Repairs and maintenance

Approach to our 2014/15 analysis

6.76 For our 2014/15 analysis of the repairs and maintenance costs we:

6.76.1 updated our 2013/14 milk price review analysis;

6.76.2 analysed Fonterra's inputs, process and assumptions to assess the extent to which the costs are consistent with the s 150A purpose; and

6.76.3 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 milk price calculation.

Results of our 2014/15 analysis

6.77 Table 6.4 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used, to determine the repairs and maintenance costs component for the purposes of the 2014/15 base milk price calculation.

Table 6.4: Summary of our conclusions on the 2014/15 repairs and maintenance

Are notional or actual values used?	Notional repairs and maintenance expenditure Notional gross current replacement costs
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

6.78 The calculation of repairs and maintenance costs uses notional data.

6.79 The ratio of repairs and maintenance costs to asset value is calculated from Fonterra's actual data, but only uses data from the previous four years.

6.80 The replacement costs of fixed assets are based the notional producer's asset base, and therefore notional.

Is the calculation consistent with the Milk Price Manual?

6.81 We consider the calculation of the repairs and maintenance to be consistent with Rule 15 of the Milk Price Manual.

6.82 Rule 15 of the Milk Price Manual states that in calculating the milk price, a reasonable provision for repairs and maintenance be calculated by:

6.82.1 For costs that are largely fixed in nature and where sufficiently accurate information on Fonterra's actual costs is available, a provision is calculated by reference to Fonterra's actual prior-year costs, adjusted where appropriate for inflation and differences between Fonterra's and the notional producer's asset base; and

6.82.2 For other costs, the amount is calculated by multiplying:

6.82.2.1 the ratio of Fonterra's average repairs and maintenance expenditure over the preceding four years that are broadly comparable to those in the notional producer's fixed asset base to the average assessed replacement cost of those assets; and

6.82.2.2 the current year assessed replacement cost of the notional producer's fixed asset base.

6.83 We note that the calculation of the 2014/15 assumed repairs and maintenance does not use the approach of separating the fixed costs, set out in para 6.81.1.

6.84 Fonterra in its Reasons paper on page 31, states it has not been able to obtain for 2014/15 data that is sufficiently consistent and comparable across sites to undertaken the envisaged calculation for fixed costs, and have therefore retained the approach used in 2013/14.

6.85 In our review of the 2014/15 Manual, we were unable to conclude on the extent to which Rule 15 is consistent with the contestability dimension given the level of discretion to its application. After reviewing the application of Rule 15, we consider the calculation of the repairs and maintenance costs to be consistent with Rule 15 of the Milk Price Manual.

Does the calculation provide an incentive for Fonterra to operate efficiently?

6.86 The repairs and maintenance costs are established with reference only to historical costs. As they are independent of Fonterra's current season's actual costs, we consider that using a benchmark provides an incentive to Fonterra to operate efficiently.

Is the calculation practically feasible?

6.87 We consider that the assumed repairs and maintenance costs are practically feasible. We outline our reasons below.

Practical feasibility of replacement fixed asset costs

6.88 We have concluded that the replacement fixed asset costs as practically feasible. Our reasons can be found in Section 6.2.

Adequate repairs and maintenance provision for same level of performance of plants

6.89 For the 2014/15 calculation, Fonterra has identified seven sites that are considered to be 'broadly comparable' to the notional producer sites.[81]

6.90 The plants in the seven Fonterra sites used are relatively older than the vintages of plant in the model and therefore we do not consider that the repairs and maintenance costs have been understated. We also consider that the seven Fonterra sites are representative of the plant types in the model (WMP, SMP, butter, AMF and BMP plants).

6.91 We consider the use of Fonterra's repairs and maintenance expenditure for sites that are comparable to the notional producer's sites is reasonable. However, if all Fonterra sites were used to calculate the repairs and maintenance ratio to the percentage of replacement costs (the approach taken for the 2012/13 milk price), the impact would be approximately a 0.66 cent decrease to the milk price.

Features that are unique to Fonterra

6.92 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

[81] Five sites were used in the 2013/14 calculation.

6.5 Consistency of capital cost assumptions

6.93 In its submission on our draft report Synlait requested that it be provided with more disclosure on key assumptions used in the calculation of the capital charge in the model, including:

6.93.1 The age profile of plants and their 'technology vintage' (ie, initial yield performance);

6.93.2 The profile of the initial capital costs for each plant and the upgrade costs to bring them up to the notional producer's assumed current yield performance; and

6.93.3 The repairs and maintenance costs assumed over the life of the plants and the assumed residual value.

6.94 Synlait argues that this area of the milk price model is opaque to all but Fonterra and us, and requests further disclosure to enable interested parties to confirm:

6.94.1 The internal consistency between the age, vintage, depreciation and upgrade cost assumptions; and

6.94.2 that the assumptions used in the milk price model are feasible and commercially realistic.[82]

6.95 We consider publication of this type of information would be a further useful advance in the transparency of information provided by Fonterra, to the extent that it did not compromise Fonterra's confidentiality of competitive information. We will include this topic in our discussions with Fonterra for our review of the 2015/16 base milk price calculation.

6.96 However, we note that during our 2014/15 review Fonterra did provide us with a high-level assessment of the reasonableness of allowances in the model for replacement capex having regard to relevant factors, including the assumption that all plants operate at a level consistent with modern efficient technology.

82 Synlait "Submission on the Commerce Commission's 2014/15 base milk price calculation review draft report" (1 September 2015), paragraphs 16-17.

6.97 It advised that the asset base in the model was populated under the assumption that the initial asset base reflected 2008-era installation costs and operating performance. It considered this approach was consistent with:

6.97.1 Its intention that the base milk price generated under the Milk Price Manual should be consistent with the price that would be paid in a competitive market for raw milk, where it could be expected that the price paid would be consistent with the generation of a WACC return to the most efficient marginal processing assets.

6.97.2 Our interpretation of the contestability dimension of s 150A, where we recognise that "the assumed notional plant has to be least cost to compete successfully for a farmer's milk. The calculation of the base milk price will therefore be partially optimised relative to Fonterra's average level of performance."[83]

6.98 Fonterra's key design aspect of the base milk price model is that it should generate a milk price that is consistent with the s 150A contestability test in every year. It then posed the question of whether the milk price does (or can) satisfy the following constraints:

6.98.1 Does the base milk price for any particular year equate to the price that an efficient processor using modern processing facilities could afford to pay while still earning a WACC return (but not materially more than a WACC return).

6.98.2 Is it feasible to satisfy this test for all years, while still satisfying the Milk Price Manual requirement (in Principle 1) that "Fonterra should be able to earn a risk-adjusted return … that is sufficient to warrant long-term investment in new and replacement assets …"

6.99 Fonterra acknowledged that independent processors (e.g. Synlait in its submission on our Process and Issues paper)[84] have questioned the decision to 'spread back' the initial asset base, by effectively assuming the asset base had been installed in even tranches in prior years (e.g. that assets with a 30 year effective live had been installed evenly over the 30 years from 1979 – 2008).

---

83 Commerce Commission "Report on the dry run review of Fonterra's farm gate milk price**"** (27 August 2012), paragraph A.3.53.

84 Fonterra "Review of Fonterra's 2014/15 base milk price calculation" (1 September 2015), paragraph 2.2.

6.100 It noted this approach gives rise to an apparent potential inconsistency between Fonterra's assumption that all assets incorporate modern technology and operating costs, and the technology actually available at the time the assets were assumed to have been installed. However, it further noted the 'spread back' approach was intended to result in capital charges in both the initial year and in subsequent years that were independent of the year in which the notional producer's assets were assumed to have been installed.

6.101 Fonterra made two observations to us:

6.101.1 It considers that incorporating either an assumption that some RCP is manufactured using older assets, with higher operating costs, or providing for additional costs to bring 'old' plants up to modern equivalent operating levels will necessarily result in a base milk price that is lower than the price that could be paid by a processor operating a marginal, least cost plant.

6.101.2 Its approach to spreading assets back in time, under which it assumes notional inflation of 2% for all years prior to 1998,[85] rather than the actual, materially higher inflation rates, results in the implied starting book values of 'old' assets included in the initial notional producer asset base, and the resulting capital charges, being materially higher than would have been the case had it employed estimates of actual historical installation costs.

6.102 We note here Fonterra's conceptual concerns with our interest in whether the milk price model provides for sufficient capital costs in respect of plants assumed to have been installed prior to 2008 to support Fonterra's assumption that all plants operate at a level consistent with modern efficient technology. However, to assist our review it did provide an analysis on the additional costs that the notional producer would potentially face if it had installed its assets over slightly more than a 30 year timeframe, and on the extent to which these costs are provided for in the model.

---

85 Commerce Commission "Final Report - Report on the dry run review of Fonterra's farm gate milk price" (27 August 2012), p. 101 (Table 18).

Additional costs associated with older technology

6.103 Fonterra provided us with a description of key features of all of Fonterra's powder plants installed since 1984. This provided an appropriate reference point on technological features impacting on operating performance that were actually available at a particular point in time. The various technological features identified as being relevant to operating performance, and which are reflected in the Milk Price Manual specifications, are:

6.103.1 Multiple evaporators;

6.103.2 MVR evaporators;

6.103.3 Continuous running;

6.103.4 CIPable baghouses; and

6.103.5 Automated packing.

6.104 Those technologies identified have the following implications for operating performance and costs:

6.104.1 Plants with bag houses which can be cleaned in place (CIPed) have lower stockfood yield losses as fines from the bag house can be incorporated back into the product;

6.104.2 WMP plants with whole milk filtration have lower milk treatment losses as only a small amount of the milk is separated prior to being sent to milk standardisation;

6.104.3 Plants with continuous running have much higher OPT and energy efficiency, and lower losses, as the drier does not need to stop when an evaporator goes down for a CIP;

6.104.4 MVR evaporators have better overall energy efficiency than TVR/DSE evaporators; and

6.104.5 Automated packing plants require less labour than conventional packing lines.

6.105 Fonterra advised us that it does not routinely collate data on the average differences in operating costs or yield performance associated with the absence of these features. However it provided us with an indicative analysis of the additional costs that would be faced by the notional producer if its plants had the same proportion of 'old' technology as Fonterra:[86]

6.105.1 Fonterra assumed stockfood losses have a nil value, which is conservative;

6.105.2 The calculations assumed plants with higher cost technology are operated at the same levels of capacity utilisation as plants with modern technology, which Fonterra believes is a conservative position, since the higher cost plants would be the first plants closed down within a region on the shoulders of a season; and

6.105.3 The calculations assumed the notional producer would have made the same decisions (proportionately) as Fonterra regarding the installation of lower cost features.

6.106 Fonterra noted that all aspects of the lower cost technology (other than automated packing) have been available since around 1990, and the initial installation costs assumed in the establishment of the notional producer asset base in 2008 include provisions for the associated capital costs.

Model's provisions for higher capital costs

6.107 The assumption in the base milk price model that all manufacturing plants are replaced in full at the end of a weighted average effective life of approximately 31 years means the notional producer is assumed to spend substantially more on replacement capex than Fonterra actually spends. For the six year period in the analysis it identified a $524 million greater capex 'spend' by the notional producer than Fonterra's actual spend on capex other than capex relating to incremental capacity.

6.108 To identify this difference, Fonterra compared the assumed notional capital expenditure under the milk price model and Fonterra's actual capex spend over the period 2008/09 to 2013/14 on manufacturing-related capex (ie, excluding capex on collection assets and stores). It identified a category of spend by Fonterra that included Fonterra's actual replacement capex, plus the full range of other capex that a real world dairy processor would be exposed to and which is captured in the milk price model's provision for replacement capex.

---

86 Because the base milk price model has always incorporated the capital costs associated with multiple evaporators required for continuous running, Fonterra did not calculate the costs that would be incurred by the notional producer if some of its plants did not have this feature.

6.109 Using the tilted annuity formula, with inputs aligned to the capital model in the base milk price calculation, it then calculated the impact on the 2014/15 base milk price of the difference between Fonterra's and the milk price model's non-incremental capex. This demonstrated to us that the annualised cost associated with the excess of the milk price model's replacement capex over Fonterra's actual capex is sufficient to offset the incremental operating costs of instead incorporating plants with older technology into the base milk price calculation.

7. Revenues and net working capital

Purpose of chapter

7.1 This chapter sets out how we assessed whether the calculations of revenues and net working capital provide an incentive for Fonterra to operate efficiently, and whether the calculations are practically feasible.

7.2 The sections of this chapter include summaries of our conclusions on Fonterra's assumptions adopted, and inputs and process used to determine the notional producer's production plan, production yields, lactose costs, sales phasing, pricing, foreign exchange conversion and net working capital.

7.1 Production plan

Approach to our 2014/15 analysis

7.3 For our 2014/15 analysis of the production plan we:

7.3.1 updated our 2013/14 milk price review analysis;

7.3.2 analysed Fonterra's inputs, process and assumptions to assess the extent to which the costs are consistent with the s 150A purpose;

7.3.3 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 milk price calculation.

Results of our 2014/15 analysis

7.4 Table 7.1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used in determining the notional producer's production plan.

Table 7.1: Summary of our conclusions on the 2014/15 production plan

Are notional or actual values used?	Product mix is aligned to Fonterra's actual product mix of RCPs Uses actual volumes of Fonterra's milk supply Uses actual raw milk composition of Fonterra's milk supply
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

7.5 The product mix uses Fonterra's actual data.

7.6 The monthly milk supply volumes are Fonterra's actual milk supply collected.[87]

7.7 The monthly average milk composition for the notional producer in the model is Fonterra's actual milk composition across the whole of New Zealand, which is calculated as the weighted average composition by region.[88]

7.8 The allocation of milk to the RCPs is aligned to Fonterra's actual allocation,[89] which is determined on a forward-looking basis and the result is scaled up to reflect that the notional producer is assumed to manufacture greater volumes of the RCPs. The monthly product mix targets are also set on a forward-looking basis.

7.9 The notional producer does not use permeate in the production of RCPs.[90] The assumption in the model is that there is no permeate available for standardisation, as the notional producer is assumed not to produce any cheese or casein. We understand that Fonterra uses bought in lactose when permeate is not available.

'Safe harbour' provisions in Section 150B(d)

7.10 Where components of the base milk price calculation apply the 'safe harbour' provisions of s 150B, they are excluded from our assessment against the s 150A purpose. Our analysis of these components is therefore limited to verifying whether the calculation of these components is carried out in a way that is consistent with the 'safe harbour' provisions in s 150B.

---

87 The milk supply includes winter milk. We note that the costs of winter milk are not included in the base milk price calculation. Fonterra in its Farmgate Milk Price Statement for the 2013/14 season, stated "that a commodity manufacturer of milk powders is unlikely to pay premiums for specialty milk or pay the level of premiums for winter milk that an integrated processor such as Fonterra would pay. These payments are therefore not funded from the total amount calculated under the Manual". See Fonterra "Fonterra Farmgate Milk Price Statement 2014" (23 September 2014), page 2. Open Country in its submission on our draft report has suggested that Fonterra's approach to winter milk is not practically feasible and that winter milk premiums should be included as a cost in the model: Open Country "Submission on the Commerce Commission's Draft Report – Review of Fonterra's 2014/15 milk price calculation (31 August 2015), page 4. We propose to consider whether the winter milk premium should be included as a cost in the base milk price calculation when we carry out our 2015/16 Manual review.

88 An example of a region is Waikato.

89 Allocated into four product streams (WMP/Butter/BMP, WMP/AMF/BMP, SMP/Butter/BMP and SMP/AMF/BMP)

90 Permeate is a natural component of milk created by the ultrafiltration process of milk products used to standardise milk products.

Milk supply volumes

7.11 Section 150B(d) allows for all milk collected by Fonterra to be used for the purposes of the base milk price calculation. We therefore accept that using Fonterra's milk supply volumes as the notional producer's milk supply volumes is consistent with the 'safe harbour' provision in s 150B(d).

Is the calculation of the production plan consistent with the Milk Price Manual?

7.12 We consider the calculation of the notional producer's milk supply volumes and the product mix is consistent with Rule 7 of the Milk Price Manual.

7.13 Rule 7 of the Milk Price Manual specifies how the Farmgate Milk Price Production Plan should be established. The Rule states that the base milk price production plan will be calculated to utilise all milk supply, given the product yields established. It should reasonably reflect Fonterra's actual allocation of milk to different RCPs. This is subject to that allocation being commercially supportable by reference to relevant information available at the time the allocation is made.

Does the calculation provide an incentive for Fonterra to operate efficiently?

7.14 In its Reasons paper on page 17, Fonterra states that the approach of aligning the product mix to Fonterra's allocation results in the consequences of any 'poor' decisions in respect of the allocation of milk to WMP and SMP, and cream to butter and AMF, flowing to the milk price, and therefore does not provide a strong incentive for Fonterra to operate efficiently.

7.15 Fonterra concluded that establishing an independent benchmark product mix would require it to maintain independent capability to forecast prices and monitor global demand and supply conditions, and that it is unlikely that the associated additional cost would be warranted.

7.16 We consider it is reasonable to use actual data in setting the base milk price if it would be unreasonably costly for Fonterra to obtain notional values.

7.17 Fonterra concludes that the use of actual allocations does not adversely affect Fonterra's incentives. We agree that the use of actual data does provide Fonterra with some incentive to improve efficiency so as to increase the base milk price.

7.18 The raw milk composition is subject to environmental factors and is outside of Fonterra's control. In such cases, we consider it is reasonable to use Fonterra's actual data in setting the base milk price.

Is the calculation practically feasible?

7.19 We consider the assumed product volumes and product mix to be practically feasible. They are based on Fonterra's actual product mix decisions made at the time that decisions were required to optimise the revenue for Fonterra's actual business, and are not adjusted ex post. Specifically, the model uses target proportions for WMP/SMP and Butter/AMF production which are Fonterra's actual proportions.

7.20 We have reviewed Fonterra's data used to calculate the notional producer's monthly average milk composition and consider that the milk composition used adequately accounts for regional composition differences. We do not consider that the milk composition data in the model is required at any more granular regional level.

Features that are unique to Fonterra

7.21 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

Portfolio of commodities included in the reference basket

7.22 Under s 150C(2)(a), Fonterra must determine the RCP portfolio of commodities for the notional producer using the commodities that are likely to be the most profitable over a period not exceeding 5 years.

7.23 This provision places a general requirement on Fonterra to ensure the commodity mix is current and relevant when setting the base milk price.

7.24 The current portfolio was established in the 2008/09 season. For the 2014/15 season, Fonterra has partially completed its review of the current commodity mix.

7.25 Fonterra identified the primary products that are considered to be a commodity:[91]

7.25.1 WMP;

7.25.2 SMP;

7.25.3 Cheeses;

7.25.4 Casein and caseinates; and

7.25.5 Milk protein concentrates.

7.26 Fonterra, as part of its review has done the following:

7.26.1 analysed forecast stream returns relative to WMP for the next year; and

7.26.2 assessed whether there are any structural factors that could show a change in the most profitable commodity mix.

---

91 Products such as UHT milk and nutritional milk powders are not considered as commodities. The final composition and packaging is generally customer specific.

Possible non-RCPs for inclusion of the RCP basket

7.27 We have received analysis from Fonterra that shows forecasted stream returns for milk protein concentrates (MPC) for the next year are consistently higher relative to WMP.[92] However, the analysis has indicated that the stream returns for MPC will be weaker from August 2016. We have not received data beyond August 2016.

7.28 Fonterra has noted that there is considerably less certainty that there will be accessible additional demand for higher volumes of non-RCPs given the nature of the markets for non-RCPs and that Fonterra currently supplies most of its non-RCPs to restricted markets. We accept Fonterra's explanation and we consider that Fonterra and the notional producer would have limited opportunities to increase sales of non-RCPs including MPCs.

Assessment of structural factors to show that the current RCP basket is still the most profitable

7.29 Fonterra's forecasting assumption is that because in the global market there is scope to move from production of different commodities in response to changes in relative prices, the supply of commodities will adjust to bring returns of different streams to an equilibrium at the margin over time. Therefore, Fonterra has focused its review on whether there are any structural factors that might show that:

7.29.1 a current RCP will be less profitable, compared to non-RCPs over time; or

7.29.2 non-RCPs will be more profitable than current RCPs over time.

7.30 Fonterra has not been able to identify any structural factors that would result in either of the two above outcomes. Fonterra has therefore concluded that there is no reason to believe that the current RCP mix would be less profitable than a different mix.

7.31 Based on the above we have no reason to consider that a different RCP basket than the current RCP basket is more likely to be the most profitable over time. We note that the review has not been completed and formally reported. We recommend that Fonterra completes this review.

---

92 We note that this is a continuing trend as MPC stream returns relative to WMP have been consistently higher from January 2014 to January 2015.

7.2 Product yields

Approach to our 2014/15 analysis

7.32 For our 2014/15 analysis of the product yields we:

7.32.1 updated our 2013/14 milk price review analysis;

7.32.2 analysed Fonterra's inputs, process and assumptions to assess the extent to which the costs are consistent with the s 150A purpose; and

7.32.3 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 milk price calculation.

7.33 We have focused our analysis on the practical feasibility of the assumed product yields due to Fonterra reducing the notional producer's yields for the 2014/15 season and concerns from interested parties that the yields are not practically feasible.

Results of our 2014/15 analysis

7.34 Table 7.2 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used in calculating the assumed product yields.

Table 7.2: Summary of our conclusions on the 2014/15 product yields

Are notional or actual values used?	Actual national average, monthly compositions of Fonterra's milk supply Notional production losses based on historical loss audits Notional product compositions based on GDT composition limits plus notional manufacturing control offsets derived from historical actuals Product mix ratios are Fonterra's actual product mix for RCP compatible products
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

7.35 The product yields calculation relies on notional values.

7.36 The assumed target product compositions of fat and protein are notional and are based on:

7.36.1 powder fat minimum content, and minimum protein to solids-non-fat ratios (as specified in the Codex Alimentarius, which is the international standard for food descriptions).[93] The Codex limits are consistent with those in the GDT chemical composition specifications and where Codex does not specify a limit (e.g., fat minimum content of BMP), the GDT chemical composition is used);

7.36.2 specification offsets, which allow for production to achieve the specification limits despite process variability. These are based directly on historical process control achieved by Fonterra over representative plants, with F11 to February F14 data used; and

7.36.3 average cream product compositions achieved by Fonterra in F11 and F12 (four plants for butter and six plants for AMF).

7.37 The target product compositions set in this way meet the chemical composition limits specified in GDT.

7.38 The production losses are based on Fonterra's historical loss studies at model-compatible plants and are not updated for actual performance levels achieved by Fonterra in the year for which the base milk price is set. They are therefore notional values.

7.39 The fat content of cream is a fixed input of 42% and is not updated to reflect Fonterra's actual fat content in the year for which the base milk price is set and is therefore a notional value.

7.40 The lactose powder composition is set at 5% moisture and is not updated for Fonterra's actual values.

7.41 Lactose powder losses are set at fixed figures for use in WMP, SMP and BMP respectively, and are not updated for Fonterra's actual values. Lactose losses are therefore notional values.

---

93 Codex Alimentarius, *Codex standard for milk powders and cream powder*, available at: www.codexalimentarius.org/input/download/standards/333/CXS_207e.pdf

Is the calculation consistent with the Milk Price Manual?

7.42 We consider the calculation of product yields is consistent with Rule 8 of the Manual.

7.43 Rule 8 of the Manual specifies how product yields should be established in each review assessment year. The Rule states that the yields factors should reflect the composition of standard specification commodity products and a target level of losses that is subject to independent verification. The Manual also specifies that the yield assumptions should reflect the composition target and the allowable losses for each RCP.

Does the calculation provide an incentive for Fonterra to operate efficiently?

7.44 We consider that using a benchmark set independently of Fonterra's current year performance provides an incentive to Fonterra to operate efficiently. The calculation of product yields is therefore consistent with the efficiency dimension of the s 150A purpose.

7.45 In its Reasons paper, Fonterra states that because its actual yield performance does not directly flow through into the base milk price calculation, Fonterra is appropriately incentivised to minimise yield losses.[94]

7.46 Fonterra also states that because the specification offsets assumed in the base milk price calculation are set independently of Fonterra's actual current year performance, they appropriately incentivise Fonterra to minimise the extent to which valued component usage exceeds stated minimum levels for the relevant products.

Is the calculation practically feasible?

7.47 We consider that the practical feasibility of the product yields largely depends on the practical feasibility of the assumed product losses and assumed specification offsets. Our reasoning and conclusions are outlined below:

Production losses

7.48 In 2012/13, we engaged an independent expert to help us assess the practical feasibility of the total fat and protein losses, taking into account wash and maintenance cycles, normal operational variances/errors, and seasonal impact.[95]

7.49 In our expert's opinion, the loss targets in the 2012/13 calculation were challenging but these targets were being actively achieved by plants operated by Fonterra.

---

94 Fonterra "'Reasons' Paper in support of Fonterra's base milk price for the 2014/15 Season" (1 July 2015), page 17.

95 Greg Winter "Report on the yield component of the milk price model for the Commerce Commission" (July 2012), available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

7.50 However, our expert noted that the 2012/13 total production losses aggregated across all production did not sufficiently provide for reduced duty cycles (ie, more plant start-up and shut-downs) during the shoulder months of the dairy season. Our expert concluded that the loss audit data could be inaccurate by up to 10%, due to the lower volumes of milk processed at the beginning and the end of the season.

7.51 Since our independent expert's review, the MPG through its expert, Tina Gandell has adjusted the loss audit results data to reflect a normal seasonal operation.[96] This adjustment provides for the impact of additional start-up, shutdown and cleaning. We consider this adjustment of the same magnitude as our independent expert recommended.

7.52 We note the losses assumed for the 2014/15 base milk price have been marginally reduced from the losses assumed in the 2013/14 base milk price. The impact of the reduction in losses results in a 0.2 cents decrease in the 2014/15 milk price.

7.53 We consider the loss data used from Aurecon's audits are reliable. Our independent expert for the energy costs, observed the energy portion of Aurecon's 10 day audit of Edendale D3 which included an audit of Fonterra's losses and concluded that the audit was conducted using a well-planned process. We have confirmed with Fonterra that the loss audits were undertaken with as many of the milk price conditions as possible, with Tina Gandell adjusting the data, where required, to reflect fully the milk price conditions.

Loss data received

7.54 We have been provided with analysis from an independent processor, which suggests that the notional producer's assumed losses are not practically feasible for a commodity business.

7.55 However, having considered the analysis, we are still in the view that the losses assumed in the 2014/15 calculation are practically feasible given the reasons in paragraphs 7.49 to 7.53.

Specification offsets

7.56 We have assessed the practical feasibility of the product specifications in the model in light of the valued component limits of the RCPs as stated in GDT and the specification offsets allowed by the model to provide for manufacturing process control variability.

---

96 The adjustment was first implemented for the 2013/14 season.

7.57 We note that the specification offsets have remained largely the same as the specification offsets used for the 2013/14 calculation, with the most significant difference being the target level of moisture content for WMP. Fonterra has noted that the amended WMP target moisture is materially below the maximum content specified in the Codex standard, and is consistent with its understanding of the moisture content targeted by other New Zealand processors.

7.58 Fonterra states in its Reasons paper on page 19, that the specification offsets are an area where it has over time invested considerable capital (which is appropriately provided for in the milk price) and built up considerable expertise. Fonterra further notes that it accepts it is possible for Fonterra to achieve tighter offsets than those achieved by other processors in New Zealand. However Fonterra does not apply propriety intellectual property and therefore believes that the offsets are potentially achievable for other processors.

7.59 We have been provided with analysis from an independent processor, which has indicated that the specification offsets for WMP and SMP should be higher. We consider that the impact on the milk price resulting in using the data is largely immaterial.

7.60 We therefore consider the specification offsets to be practically feasible and accept Fonterra's explanation on the reduction of WMP moisture content for WMP.

Other inputs in the yield calculations

7.61 The other inputs are the national average monthly milk compositions, cream and lactose powder compositions, and the product mix targets.

7.62 Product mix targets are addressed in Section 7.1 and are considered practically feasible.

7.63 The milk compositions are Fonterra actuals and are therefore practically feasible.

7.64 The cream composition and lactose powder compositions are notional values consistent with independent data. We consider them to be practically feasible.

Mass balance calculation

7.65 As an additional cross-check, we were able to reconcile the notional producer's mass balance calculation (ie, the amount of milk going in to the production process can produce the volumes of RCPs coming out).

7.66 In its submission on our draft report, Synlait has stated that according to its calculation it was not feasible for the notional producer to manufacture its 2013/14 output if the output matched the typical specifications sold on GDT, even with a nil plant loss assumption.[97] We were unable to reconcile the calculations in Synlait's submission with data previously provided by Synlait and therefore cannot yet form a view on Synlait's conclusions outlined in its submission. We will continue to engage with Synlait on this matter with a view to having a clear position by the time we commence our 2015/16 base milk price calculation review.

Achievability of yields on all plants

7.67 We have considered whether the notional producer's plants could achieve the same yields. We have concluded that the model provides for sufficient replacement fixed asset costs to provide for the same level of performance of plants, regardless of the vintage of plant.[98]

7.68 We have also considered whether the differences in milk composition in the different regions could result in the achievement of the assumed yields across all plants in its locations. At this point in time, we are satisfied with the granularity of the composition data used by Fonterra but we acknowledge that more analysis can be done in this area.

Fonterra's advanced control system

7.69 We have also considered Fonterra's advanced control system. Such a system underpins the high performing process control that allows Fonterra to achieve product compositions which 'give away' very little fat and protein (ie, exceed specification minima by only small margins).

7.70 As stated in our reports on past seasons' base milk price calculations, we understand that Fonterra has invested significantly in both software and human capital associated with running its process control system. This advanced control system further adds weight to the practical feasibility of the yields.

7.71 We have confirmed that the costs of running its advanced process control system are included in the costs of fixed assets in the model.

---

[97] Synlait "Submission on the Commerce Commission's 2014/15 base milk price calculation review draft report" (1 September 2015), page 4.

[98] See our reasons in section 6.2 and the description of the analysis provided to us by Fonterra on the consistency of the various elements of the capital costs in section 6.5.

Consideration for our 2015/16 calculation review

7.72 We acknowledge that it has been two years since our last independent review on the losses. We will consider for our 2015/16 calculation review engaging with an independent reviewer to assist us with reviewing the practical feasibility of the assumed yields for all the notional producer's plants with focus on the losses and specification offsets. This is also because we have received information from other processors about the reduction in assumed losses and concerns on the overall feasibility of the yields.

7.73 Synlait has requested that the loss, specification offset assumption and the full mass balance calculation be disclosed to allow interested parties to check the feasibility of the notional producer's yields and assumed product pricing.[99] We will work with Fonterra in releasing yield-related information to allow interested parties to assess the practical feasibility of the assumed yields and product pricing.

Features that are unique to Fonterra

7.74 Fonterra's advanced process control system is a feature unique to Fonterra and one which is assumed for the notional producer. However, we understand that Fonterra does not hold any intellectual property rights over the software.

7.75 We consider that because the option of purchasing such software, implementing and configuring it, and investing in the human capital to run it is available to other processors, the assumed specification offsets resulting from the application of the advanced process control systems are practically feasible for another efficient processor.

7.3 Lactose costs

Approach to our 2014/15 analysis

7.76 For our 2014/15 analysis of the cost of lactose we updated our 2013/14 milk price review analysis and checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 base milk price calculation.

[99] Synlait "Submission on the Commerce Commission's 2014/15 base milk price calculation review draft report" (1 September 2015), page 5.

Results of our 2014/15 analysis

7.77 Table 7.3 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used in calculating the costs of lactose used for the production of the RCPs.

Table 7.3: Summary of our conclusions on the 2014/15 lactose costs

Are notional or actual values used?	Notional volumes of lactose; Notional lactose prices based on lower of Fonterra or competitor actual prices; Notional transport costs based on lower of Fonterra or competitor actual costs
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

7.78 The calculation of the lactose costs relies on notional data.

7.79 The lactose volume requirements are based on the amount of lactose that would be required by the notional producer to standardise the assumed volumes of WMP, SMP and BMP, and are therefore notional.

7.80 The lactose price calculation uses the lower of the lactose and CIF average price series actually achieved by either Fonterra or the equivalent average price series achieved by its competitors during the year. The price series used for the base milk price calculation in any given year can therefore be either Fonterra's actual price or a notional price.

7.81 The 2014/15 milk price calculation uses Fonterra's competitors' achieved average lactose prices and CIF. The input to the base milk price calculation is therefore notional.

Is the calculation consistent with the Milk Price Manual?

7.82 We consider the calculation of the lactose costs to be consistent with Rule 17 of the Milk Price Manual.

7.83 Rule 17 of the Manual allows for lactose costs that reflect the cost of the lactose required by the assumed production plan at a reasonable estimate of prevailing global prices.

7.84 Rule 17 specifies that the lactose price for a financial year should reflect a supportable estimate of the arm's-length price that would be negotiated under a contract for supply of at least 5,000 MT of lactose over a period of at least 12 months between an international producer and a commercially astute NZ purchaser (or vice versa).

7.85 The Rule also specifies that the lactose cost should include:

7.85.1 an estimate of an annual cost for the CIF that would have been incurred in the course of importing lactose into NZ (converted to NZD at the benchmark foreign exchange rate); and

7.85.2 an estimate of an annual cost of transporting the notional volumes of lactose from the NZ wharf to Fonterra sites (expressed in NZD per MT).

Does the calculation provide an incentive for Fonterra to operate efficiently?

7.86 We consider that using the lower of Fonterra's or its competitors' actual lactose and CIF prices, in combination with notional lactose volume requirements that are significantly larger than Fonterra's actual volumes, incentivises Fonterra to reduce its actual lactose costs (ie, operate efficiently). A reduction in Fonterra's actual lactose and CIF prices would result in:

7.86.1 a relatively small decrease in Fonterra's actual lactose cost (due to the relatively small actual lactose volumes being imported by Fonterra); and

7.86.2 a proportionately larger decrease in the lactose cost in the base milk price calculation (due to the significantly larger lactose volumes imported by the notional producer), which leads to a corresponding increase in the base milk price.

7.87 The overall impact on Fonterra's profit would be a negative one (despite a decrease in its lactose costs). However, the magnitude of this impact is likely to be smaller than if Fonterra does not strive to reduce its actual lactose and CIF prices.

7.88 If Fonterra were not to drive a reduction in its actual lactose and CIF prices, but its competitors continued to do so (which is reasonable to assume given that Fonterra's key competitors are profit maximising companies), the following would occur:

7.88.1 there would be no change in Fonterra's actual lactose cost; and

7.88.2 there would be a significant decrease in the lactose costs in the base milk price calculation, using the lower competitors' lactose and CIF price and significantly larger lactose volume requirements of the notional producer, leading to a corresponding increase in the base milk price.

7.89 To minimise the negative impact on its profit, Fonterra management is incentivised to reduce its actual lactose cost and operate efficiently. The calculation of the lactose costs is therefore consistent with the efficiency dimension of the purpose.

Is the calculation practically feasible?

7.90 We consider the assumed lactose prices are practically feasible as the data used directly reflects the price that a processor was able to achieve. The use of the lowest figure is a computational aspect of calculating the base milk price, which does not affect the price that Fonterra or another processor actually pays for lactose.

7.91 We consider that the retrospective use of the lowest figure provides incentives for Fonterra to operate efficiently.

7.92 We also consider the assumed lactose prices are practically feasible for an efficient processor because:

7.92.1 the data used directly reflects the price that a processor was able to achieve; and

7.92.2 the volume of lactose required by a processor building an incremental plant would not be of sufficient magnitude to have an impact on international lactose prices.

Features that are unique to Fonterra

7.93 We do not consider that the calculation relies on any assumptions that are unique to Fonterra. The assumed lactose costs should therefore also be practically feasible for another efficient processor.

7.4 Sales phasing

Approach to our 2014/15 analysis

7.94 For our 2014/15 analysis of the sales phasing profile we:

7.94.1 updated our 2013/14 milk price review analysis;

7.94.2 analysed Fonterra's inputs, process and assumptions to assess the extent to which the costs are consistent with the s 150A purpose; and

7.94.3 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 milk price calculation.

Results of our 2014/15 analysis

7.95 Table 7.4 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used in calculating the sales phasing profile.

Table 7.4: Summary of our conclusions on the 2014/15 sales phasing

Are notional or actual values used?	Aligned to Fonterra's actual sales phasing
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

7.96 The calculation of sales phasing relies on actual data.

7.97 Fonterra's actual sales phasing for the RCPs is used.

7.98 For the split between contracted and un-contracted sales, Fonterra's actual data is used less any exclusions.[100]

[100] Exclusions are sales that do not meet the definition of 'qualifying reference sales' in the Milk Price Manual.

Is the calculation consistent with the Milk Price Manual?

7.99 We consider that the calculation is consistent with Rule 10 of the Manual.

7.100 Rule 10 of the Manual states that the sales phasings must be set on a prospective basis during the course of the year, and must reflect the overriding principle that product is to be sold in the month in which it is expected (at the time the phasings are set).

7.101 Rule 10 further states that the sales phasings for each RCP will be aligned to Fonterra's actual phasing of each product manufactured from milk supplied in the season.

Does the calculation provide an incentive for Fonterra to operate efficiently?

7.102 We continue to accept it is appropriate for Fonterra to use actual data for sales phasing because:

7.102.1 there is insufficient data to develop a reasonable notional figure; and

7.102.2 Fonterra only has limited discretion over its sales phasing.

There is insufficient information to develop notional data

7.103 Fonterra in its previous Reasons Papers notes that it has not been able to identify any approach to establishing a practically feasible set of notional sales phasings that would not have significant disadvantages, including creating incentives at the margin for Fonterra management to default to 'managing to the model' so as minimise earnings risk.

7.104 We continue to accept Fonterra's arguments that:

7.104.1 using sales phasings from previous years would not be practically feasible because of the relationship with the production plan and storage capacity; and

7.104.2 using lagged production volumes is not practically feasible because of logistical constraints around the times of peak production.

Fonterra only has limited control over sales phasing

7.105 Fonterra has noted in a previous submission to the Commission that it only has limited discretion during the year to alter its sales phasing profile. Fonterra's documentation shows that for each month only approximately 5% of product is uncommitted, and available for spot contracts. Therefore, Fonterra has limited ability to take advantage of short-term changes in the market.

Fonterra has incentives to operate efficiently

7.106 We consider the calculation of the sales phasing is still consistent with the efficiency dimension of the s 150A purpose as Fonterra has incentives to improve its efficiency so as to increase the base milk price. However, the incentive to operate efficiently is potentially weaker than if notional data had been used.

Is the calculation practically feasible?

7.107 We consider that the use of total phasings is consistent with the production profile of the notional producer. We therefore consider that the sales phasing profile is practically feasible.

7.108 We have reviewed the sales phasings model, and have no concerns with the calculation of the notional producer's sales phasing profile and the calculation of the split of contracted sales.

7.109 We have confirmed that, month by month, Fonterra progressively locks down volumes that have been sold. These volumes are then not adjusted on the basis of profitability. However, they may be changed to reflect data that may have been forecast inaccurately at the time, such as actual milk composition for the month.

Features that are unique to Fonterra

7.110 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

7.5 Pricing

Approach to our 2014/15 analysis

7.111 For our 2014/15 analysis of the pricing for the RCPs we:

7.111.1 updated our 2013/14 milk price review analysis;

7.111.2 analysed Fonterra's assumptions, inputs and process to assess the extent to which the pricing in the base milk price calculation model is consistent with the s 150A purpose; and

7.111.3 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 milk price calculation.

Results of our 2014/15 analysis

7.112 Table 7.5 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used, to set prices for the RCPs for the purposes of the 2014/15 base milk price calculation.

Table 7.5: Summary of our conclusions on the 2014/15 pricing

Are notional or actual values used?	Aligned to Fonterra's actual prices received on GDT; Fonterra's actual contract month weightings for RCPs; Notional product downgrade; Fonterra's average ocean freight recoveries
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

Prices

7.113 The base milk price calculation model uses actual prices achieved by Fonterra for sales of RCPs:

7.113.1 The prices for WMP, SMP and AMF in the model are actual prices achieved on GDT; and

7.113.2 The prices for butter and BMP are actual prices achieved on GDT and off GDT. The off GDT prices used in the model are assumed to be based on transactions made at GDT-equivalent prices.

7.114 We note that under Act, Fonterra must use its prices received for the RCP at the time that the RCP is contracted to be sold in setting the base milk price.[101]

Contract month weightings

7.115 The base milk price calculation uses Fonterra's contract profiles for sales contracted one to five months prior to shipment for arm's length sales.

---

[101] Section 150c (1)(c) requires that revenue taken into account in calculating the base milk price is determined from prices of a portfolio of commodities at the times that those commodities are contracted to be sold by Fonterra.

Product downgrade

7.116 The calculation uses a notional product downgrade,[102] which is referenced to actual Fonterra performance over 2009 to 2011 and held constant for the period 2013 to 2016.

Ocean freight recoveries

7.117 The calculation of ocean freight recoveries uses Fonterra's average current year margins.[103]

Is the calculation consistent with the Milk Price Manual?

7.118 We consider that the calculation of the prices is consistent with Rule 9 of the Manual.

7.119 Rule 9 of the Manual specifies how RCP pricing should be established in each review assessment year. It states that prices should reflect actual prices realised by Fonterra on the sale on a FAS-equivalent basis of standard quality commodity product across a range of contract terms consistent with prevailing market conventions.

Does the calculation provide an incentive for Fonterra to operate efficiently?

Prices

7.120 We consider that the prices achieved on GDT represent an unbiased estimate of the prices achievable for standard specification commodity products and that the prices appropriately incentivise Fonterra management to maximise prices achieved for off GDT sales.

7.121 We consider that using a benchmark set independently of Fonterra's current year performance provides an incentive to Fonterra to operate efficiently. The calculation of the prices for the RCPs is therefore consistent with the efficiency dimension of the purpose.

Contract month weightings

7.122 We agree with Fonterra that using an alternative approach such as an independently determined set of contract month weightings or GDT contract month weightings would likely drive inefficient decisions. We consider that aligning GDT and non-GDT contract month weightings provides some incentive for Fonterra to act efficiently.[104]

---

102 Product downgrade refers to the products that do not meet manufacturing specifications. These downgrade products are sold but are adjusted for prices achieved by Fonterra.

103 These are rebates from the shippers to Fonterra.

104 Fonterra "'Reasons' Paper in support of Fonterra's base milk price for 2014/15 Season" (1 July 2015), page 23.

Product downgrade

7.123 We consider that using Fonterra's historical performance is consistent with the efficiency dimension of the purpose.

Ocean freight recovery

7.124 We consider the use of Fonterra's current year average ocean freight recoveries weakens Fonterra's incentive to operate efficiently but it does not disincentivise it from operating efficiently.

Is the calculation practically feasible?

Prices

7.125 In assessing the practical feasibility of the prices achieved by the notional producer, we considered the following:

7.125.1 The practical feasibility of the notional processor achieving the prices on GDT, given the assumed volume sold;

7.125.2 The reasonableness of the treatment of non-GDT prices; and

7.125.3 The price achieved by other New Zealand producers.

Prices: The practical feasibility of the notional producer achieving GDT prices given the notional volumes

7.126 We consider that the practical feasibility of the prices achieved on GDT is largely dependent on whether the notional producer can achieve the prices on GDT given the increased volumes sold relative to Fonterra's actual volumes sold on GDT.

7.127 We agree with Miraka's assessment that there is little that could be gained from assessing the 'consistency' of GDT prices with the notional producer modelled volumes.[105] Therefore, we have not attempted a 'bottom up' analysis of the consistency of the assumed prices and volumes.

7.128 We concluded in our 2013/14 report that in assessing the practical feasibility of GDT prices, we did not consider it necessary to consider the likely impact of an increase in the volume of product sold by the notional producer on prices, since the relevant test is whether GDT prices would be practically feasible for an incremental plant.

---

105 Miraka "Miraka submission to the Commerce Commission: Process and Issues Paper – Review of 2014/15 Base Milk Price Calculation" (7 April 2015), page 5.

7.129 Also, when considering the aggregate level of total sales of the notional producer, we also consider that the base milk price calculated based on GDT prices represents an equilibrium pricing for milk as an input to all products (ie, RCPs and non-RCPs, not just for RCPs).[106] We therefore do not consider the prices achieved for RCPs would vary as a consequence of all of the milk supplied to the notional producer being processed into RCPs, rather than the mix of RCPs and non-RCP products actually produced by Fonterra. We therefore consider that the assumed prices are practically feasible.

Prices: The reasonableness of using off GDT prices

7.130 We have reviewed RCP price data from June 2013 to May 2015 provided to us by Fonterra that shows that GDT and off GDT prices are usually very similar, and have a very similar level of volatility overall. Furthermore, we note that off GDT prices are usually slightly higher. Therefore the use of GDT prices for off GDT sales of the notional producer gives a conservative (ie, potentially lower) outcome for the base milk price.

Prices: Prices achieved by other New Zealand producers

7.131 We have received analysis provided to us by Fonterra that demonstrates that the prices achieved on GDT are not systematically higher than prices achieved by Fonterra off GDT or prices achieved by other New Zealand producers.

Other inputs in the pricing calculation

7.132 The contract month weightings are aligned to Fonterra's contract profiles for sales contracted 1 to 5 months prior to shipment and therefore we consider the contract month weightings are practically feasible.

7.133 The downgrade percentage of production is calculated with reference to Fonterra's downgrade data for 2009 to 2010. We consider that if the notional producer was using more up to date Fonterra downgrade production data, the result would be immaterial to the milk price.

7.134 We have reviewed evidence on Fonterra's downgrade prices and we are comfortable that the downgrade product prices in the model reflect Fonterra's downgrade achieved contracted prices in 2011 to 2013. We therefore consider that the downgrade allowance is practically feasible.

7.135 We consider that the ocean freight recovery is an immaterial component to the average commodity price calculation.

---

[106] We regard this to be the general case, and there can be instances where the relative prices for RCPs and non-RCPs can get 'out of sync' for periods. For example, the global prices for WMP and SMP have recently been 'out of sync' with cheese prices, but the view from market analysts is that the trend would not continue in the long term.

Features that are unique to Fonterra

7.136 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

7.6 Foreign exchange conversion

Approach to our 2014/15 analysis

7.137 For our 2014/15 analysis of the foreign exchange conversion we updated our 2013/14 milk price review analysis and checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 base milk price calculation.

Results of our 2014/15 analysis

7.138 Table 7.6 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used in calculating the foreign exchange conversion of US dollars to NZ dollars.

Table 7.6: Summary of our conclusions on the 2014/15 foreign exchange conversion

Are notional or actual values used?	Fonterra's average forecast foreign exchange conversion rate
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	'safe harbour'
Are the assumptions, inputs and process practically feasible?	'safe harbour'
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

7.139 The calculation of the foreign exchange conversion rates relies on actual data.

Is the calculation consistent with the Milk Price Manual?

7.140 Rule 11 of the Manual specifies how foreign exchange conversion rates should be established in each review assessment year. It states that because the management and execution of Fonterra's actual hedging activities are governed by an established Financial Risk Management framework, it is appropriate to convert Manual-consistent milk price USD receipts to NZD at Fonterra's actual average economic conversion rate.

7.141 We consider the calculation of the foreign exchange conversion rates to be consistent with Rule 11 of the Manual.

Scope of our analysis given 'safe harbour' provisions in Section 150B

7.142 In undertaking this statutory review, we are not required to assess any components of the base milk price calculation that are sheltered by the 'safe harbour' provisions for consistency against the s 150A purpose.

7.143 Our analysis of these components is, therefore, limited to simply verifying whether the calculation of these components is carried out in a way that is consistent with the 'safe harbour' provisions in s 150B.

Our conclusion

7.144 Section 150B(c) allows for gains and losses experienced by Fonterra resulting from foreign currency fluctuations, including from Fonterra's foreign currency risk management strategies, to be used for the purposes of the base milk price calculation.

7.145 We accept that using Fonterra's average actual foreign exchange conversion rates for the purposes of the base milk price calculation is consistent with the 'safe harbour' provision in s 150B(c).

7.7 Net working capital

Approach to our 2014/15 analysis

7.146 For our 2014/15 analysis of the net working capital we:

7.146.1 updated our 2013/14 milk price review analysis;

7.146.2 analysed Fonterra's inputs, process and assumptions to assess the extent to which the costs are consistent with the purpose of the Act and;

7.146.3 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 milk price calculation.

Results of our 2014/15 analysis

7.147 Table 7.7 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process determine the capital charge on net working capital for the purposes of the 2014/15 base milk price calculation.

Table 7.7: Summary of our conclusions on the 2014/15 net working capital

Are notional or actual values used?	Actual weighted average debtor days; Actual weighted average creditor days; Fonterra's actual 'advance rate schedule';
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes. However, unable to conclude on WACC to calculate the capital charge
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

7.148 The inputs in the net working capital balances calculations are based on Fonterra's actual data, achieved in the year for which the base milk price is set.

Is the calculation consistent with the Milk Price Manual?

7.149 We consider the calculation of the net working capital to be consistent with Rule 38 of the Milk Price Manual.

7.150 Rule 38 of the Manual specifies how net working capital should be established in each review assessment year. It states that the net working capital is to be calculated on a monthly basis, with the monthly WACC to be applied to the monthly opening net working capital position.

7.151 The Rule further specifies that Fonterra's actual advance rate schedule for the year will be applied to the calculation of the opening supplier payables balance for each month; and that commercially reasonable and supportable assumptions will be applied with respect to relevant parameters, such as debtor and creditor days, in calculating the net working capital.

Does the calculation provide an incentive for Fonterra to operate efficiently?

7.152 Given that the profile of the net working capital balance is purely a mathematical consequence of the assumptions made for each of the inputs, we focused our analysis on the inputs themselves.

7.153 We consider that it is feasible to set a realistic achievable benchmark, established independently of Fonterra's actual data, and that doing so would in principle improve Fonterra's incentives to operate efficiently.

7.154 We consider the calculation of working capital balances is still consistent with the efficiency dimension of the purpose as Fonterra has incentives to improve its efficiency so as to increase the base milk price. However, the incentive to operate efficiently is potentially weaker than if notional data had been used.

Is the calculation practically feasible?

7.155 We consider that the calculation of the net working capital to be practically feasible. However, we cannot conclude on the WACC rate used to calculate the capital charge on the net working capital. We have outlined our reasons in Chapter 6.

7.156 The weighted average debtor days used in the calculation of cash received Fonterra's actual weighted average days and therefore practically feasible.

7.157 The notional producer assumes that there is no closing inventory (all products produced in the season are sold by the end of October or November of each year, which is aligned to the sales phasing profile). The notional producer does not hedge revenue by holding inventory. We consider this reasonable.

7.158 We note that there is insufficient transparency on how the initial advance rate is set. The advance rate is an important factor for interested parties in forecasting the milk price and we would recommend Fonterra to increase transparency in this area.

Features that are unique to Fonterra

7.159 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

8. Other operating costs

Purpose of chapter

8.1 This chapter assesses whether the other operating cost calculations provide an incentive for Fonterra to operate efficiently, and, whether the calculations practically feasible.

8.2 Summaries of our conclusions of Fonterra's assumptions adopted, and inputs and process used to determine the other operating costs are also provided.

8.1 Energy costs

Approach to our 2014/15 analysis

8.3 In our 2013/14 report, we could not conclude on the practical feasibility of the assumed energy costs due to differences in approach between Fonterra and our independent expert.

8.4 For our 2014/15 analysis of the energy costs we:

8.4.1 updated our 2013/14 milk price review analysis;

8.4.2 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 milk price calculation; and

8.4.3 engaged an independent expert who analysed Fonterra's inputs, process and assumptions to assess the extent to which the costs are consistent with the s 150A purpose.

Results of our 2014/15 analysis

8.5 Table 8.1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used, to determine the energy costs (fixed and variable) component for the purposes of the 2014/15 base milk price calculation.

Table 8.1: Summary of our conclusions on the 2014/15 energy costs

Are notional or actual values used?	Notional unit cost rates; Notional usage rates
Are the process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

8.6 The calculation uses notional data. This is because the calculation uses plant manufacturer's usage rates and budgeted average costs.

8.7 The resource unit rates (energy units consumed per tonne of RCP produced) are based initially on plant manufacturers' specifications and have subsequently been updated to consider Fonterra's actual resource usage rates.

8.8 The allowable unit resource costs (energy unit costs) are based on Fonterra's budgeted energy costs for all production sites.

Is the calculation consistent with the Milk Price Manual?

8.9 We consider the calculation of the energy costs to be consistent with Rule 13 of the Manual.

8.10 Rule 13 of the Manual states that a reasonable provision for variable manufacturing costs shall be deducted, calculated for each category of cost by reference to the Resource Usage Rate and the Unit Resource Cost.

8.11 The Manual also provides that resource usage rates for each standard plant and for each RCP will subsequently be updated in each review year and the updated resource usage rates will be subject to sign-off by an independent reviewer.

8.12 The last full review of the approach taken to derive these rates was carried out in 2011.

Does the calculation provide an incentive for Fonterra to operate efficiently?

8.13 We consider the calculation of the energy costs is consistent with the efficiency dimension. We consider this is consistent because the energy assumptions are established independently of Fonterra's actual usage.

Is the calculation practically feasible?

8.14 The calculation is practically feasible. We engaged with Strata Energy Consulting (our independent expert) to assist us to conclude on whether the assumed energy costs are practically feasible. We consider that our independent expert's approach to the review and conclusions are sound. We therefore consider that the assumed fixed and variable energy costs are practically feasible.

8.15 In our 2013/14 calculation review, we were unable to conclude on the practical feasibility of the assumed energy costs due to differences in approach between Fonterra and our then independent expert.[107]

---

[107] Peter Walker Consultants.

8.16 We considered that a 'top-down' approach would be required to reach a conclusion rather than a 'bottom up' empirical approach, which was the approach in previous calculation reviews[108] and engaged with Strata Energy Consulting as our independent expert.[109]

8.17 Our independent expert concluded that:

8.17.1 The variable and fixed allowable resource cost for electricity and steam are practically feasible; and

8.17.2 The resource usage rates for electricity and steam are practically feasible.

8.18 Our independent expert has therefore concluded that:

8.18.1 The assumed electricity variable and fixed unit costs are practically feasible; and

8.18.2 The assumed steam variable and fixed costs are practically feasible.

8.19 Our independent expert has also concluded that the Edendale D3 audit conducted by Aurecon (MPG's external auditor) on the use of the electricity, steam, compressed air and chilled water meters for determining the resource usage rates was conducted using a well-planned process, with care taken to select the appropriate measurement points so as to isolate relevant measurement quantities.[110]

8.20 We note that our independent expert's review focused on the electricity and steam components of the energy calculation. We consider that the chilled water and compressed air components to be largely immaterial to the overall milk price (less than 1 cent).

Features that are unique to Fonterra

8.21 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

---

108 2012/13 base milk calculation review and 2013/14 base milk price calculation review.

109 Strata Energy Consulting "FY 2015 Base Milk Price Energy Inputs Review" (31 July 2015). Available on our website: http://www.comcom.govt.nz/regulated-industries/dairy-industry/review-of-fonterra-s-farm-gate-milk-price-and-manual/statutory-review-of-milk-price-calculation-2/review-of-milk-price-calculation-201415-season/

110 Strata Energy Consulting "FY 2015 Base Milk Price Energy Inputs Review" (31 July 2015), page 42.

8.2 Collection costs

Approach to our 2014/15 analysis

8.22 For our 2014/15 analysis of the collection costs we:

8.22.1 updated our 2013/14 milk price review analysis;

8.22.2 analysed Fonterra's inputs, process and assumptions to assess the extent to which the costs are consistent with the s 150A purpose; and

8.22.3 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 milk price calculation.

Results of our 2014/15 analysis

8.23 Table 8.2 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used, to determine the collection costs for the purposes of the 2014/15 base milk price calculation.

Table 8.2: Summary of our conclusions on the 2014/15 collection costs

Are notional or actual values used?	Actual total operating costs from collecting raw milk from farms; Notional diversion costs for transporting to sites without cream or buttermilk processing capacity
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

8.24 The calculation of the collection costs relies largely on actual data.

8.25 The cost of collecting raw milk from farms and delivering it to the notional producer's manufacturing sites is based on Fonterra's total actual variable and fixed operating costs. It covers the costs incurred to collect all of Fonterra's milk from farms and deliver it to all of Fonterra's manufacturing sites.

8.26 The diversion costs are notional. They are modelled based on the budget SMP and WMP production, split by site. The diversion costs are updated at season end to recognise actual milk solids processed. However the calculation relies on forecast decisions as to where by-products (cream and buttermilk) will be transported and does not appear to be subject to any optimisation decisions based on milk volumes. Diversion costs are a minor element of the calculation equating to less than 5% of total collection costs.

Is the calculation consistent with the Milk Price Manual?

8.27 We consider the calculation of the collection costs to be consistent with Rule 16 of the Manual.

8.28 Rule 16 of the Manual states that the collection costs should reflect Fonterra's actual milk collection costs for the year, adjusted for any significant difference between the actual cost to Fonterra of diverting product between sites and the diversion costs implied by the notional producer's production plan and the allocation of reference assets to sites.

8.29 We consider that the collection costs are consistent with the data and calculations used in other cost components of the milk price model:

8.29.1 The approach for setting number and location of plants in milk price model is consistent with the actual location of plants used as the basis for cost data; and

8.29.2 The costs of inter-site diversions of by-products (cream and buttermilk) are consistent with site production plans and the location of powder, cream and buttermilk processing plants.

Does the calculation provide an incentive for Fonterra to operate efficiently?

8.30 Fonterra in its Reasons paper on page 28 notes that the use of actual costs does not provide a strong incentive for Fonterra to minimise its collection costs. Fonterra considers that it is not practicable to independently model the collection costs at a sufficiently detailed level to be able to generate a materially reasonable estimate of costs.

8.31 Fonterra also notes that the inter-site product diversion costs are modelled on a basis that is independent of Fonterra's actual costs, and considers that the approach does appropriately incentivise efficiencies.

8.32 We accept that setting an independent benchmark for the collection costs would be unreasonably costly.

8.33 We understand Fonterra relies on highly sophisticated fleet-management software to optimise its actual collection costs and we have no reason to question the effectiveness of Fonterra's software or believe that it produces sub-optimal results.

8.34 While the use of actual collection costs weakens Fonterra's incentive to operate efficiently, it does not disincentivise it from operating efficiently.

Is the calculation practically feasible?

8.35 We consider that the use of Fonterra's actual collection costs incurred from collecting raw milk to the manufacturing sites to be practically feasible, because the total milk volume collected is the same for the notional producer and Fonterra.

8.36 We also consider that the collection cost assumptions are not 'over optimised'. This is because the number and location of manufacturing sites for the notional producer are the same as for Fonterra. Also the annual volumes processed on each of the notional producer's sites are materially aligned to volumes processed by Fonterra.

8.37 Fonterra has previously noted that a level of over-optimisation of collection costs might occur if Fonterra's actual incremental plants had a smaller processing capacity than the notional producer's incremental plants.[111] Fonterra further notes that the opposite situation has occurred in practice, which it is more likely that the notional producer could have achieved lower incremental collection costs than those actually achieved by Fonterra.

8.38 In our 2013/14 final report, we had concerns on the exclusion of certain actual costs that arose as a result of the 2013/14 peak milk supply. We are comfortable with Fonterra's approach in dealing with the 'super flush' capacity issues. As noted in paragraph 5.61, the notional producer had insufficient capacity in the North Island to standardise the milk powders. This resulted in the notional producer producing non-standardised powders to increase capacity.

8.39 We consider that transporting milk between islands was not required in the model for the 2014/15 season.

8.40 The collection costs which are calculated using Fonterra's actual collection costs provides the costs for inter-factory milk diversion costs and therefore we consider that additional transport costs would not be required to divert the milk to other powder sites within the islands.

8.41 We confirm that the diversion costs for transporting extra cream and butter from the production of non-standardised powders for the 2014/15 season have been accounted for in the model.

---

111 Fonterra 'Submission to the Commerce Commission on its Draft Report on Fonterra's 2012/13 Farmgate Milk Price Manual '(15 November 2012) page 5.

8.42 Open Country in its submission on our draft report has concerns regarding the possibility of tactical transfer pricing in the calculation of collection costs.[112] We propose to consider Open Country's concerns in our 2015/16 calculation review.

Features that are unique to Fonterra

8.43 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

8.3 Plant labour costs

Approach to our 2014/15 analysis

8.44 For our 2014/15 analysis of plant labour costs[113] we updated our 2013/14 milk price review analysis and checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 base milk price calculation.

Results of our 2014/15 analysis

8.45 Table 9.3 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used, to determine the plant labour costs for the purposes of the 2014/15 base milk price calculation.

Table 8.3: Summary of our conclusions on the 2014/15 plant labour costs

Are notional or actual values used?	Notional number of FTEs; Average actual cost per FTE; Notional number of plants
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

8.46 The calculation of the plant labour costs relies on a combination of notional and actual data:

---

[112] Open Country "Submission on the Commerce Commission's Draft Report – review of Fonterra's 2014/15 milk price calculation (31 August 2015), page 4.

[113] As direct manufacturing and employee-related expenses in Fonterra's Reasons Paper.

8.46.1 The number of full time equivalents (FTEs) is notional.

8.46.2 The salary/wage rate and employee related expenses are actual data.

8.46.3 The number of plants is notional.

Number of FTEs

8.47 The number of FTEs of each role for each type of plant is notional. They are based on Fonterra's budgeted requirements of comparable actual Fonterra plants and adjusted for the requirements of standard plants and the notional production plan.

8.48 The adjustments are made on the basis of Fonterra's management expertise. We tested these adjustments by calculating the difference in cost of using Fonterra's actual FTE numbers in the most comparable actual plants.

8.49 Overall, the assumed number of FTEs represents approximately 70% of Fonterra's actual plant level FTE requirements across all of Fonterra's actual plants/products. This difference reflects the higher labour requirements of non-reference plants, which are older and/or produce non-RCPs. This proportion is not fixed, but simply reflects the scale difference in the assumptions applied.

Salary/wage rate and employee related expenses

8.50 The salary/wage and employee related expenses (eg, employer superannuation contributions) are based on Fonterra's actual average costs and are updated at the end of each year.

8.51 At the plant level, the model assumes that the only employee paid a salary is the plant manager. The salary rate is determined by reference to the average salary rate of Fonterra's actual plant managers. This includes the average employee related expense allowances and long service payments.

8.52 All other plant level employees are assumed to be paid a wage. The wage rates are based on Fonterra's weighted average dairy workers' union rate for each FTE, at each level. As there are different rates for different regions, the weighted average rate is calculated based on the regional location of the standard plants.

8.53 The calculation of the wage costs also includes an allowance for overtime. Overtime is calculated based on Fonterra's actual overtime use.

8.54 The calculation also assumes that a percentage of the total FTEs are temporary labour. This reflects Fonterra's actual usage of temporary labour. The costs for these FTEs are adjusted down in line with Fonterra's temporary labour costs.

Number of plants

8.55 The number of plants is a notional figure. It is calculated in accordance with the 'safe harbour' provision s 150B, which allows for the assumed units of processing capacity to approximate to the average size of Fonterra's actual units of processing capacity.

8.56 The current number of plants are:

8.56.1 47 WMP/SMP plants;

8.56.2 6 Butter plants;

8.56.3 4 AMF plants; and

8.56.4 4 BMP plants.

Is the calculation consistent with the Milk Price Manual?

8.57 We consider the calculation of the plant labour costs to be consistent with Rule 14 of the Manual.

8.58 Rule 14 of the Manual specifies how plant labour costs should be established in each review assessment year. It states that a reasonable provision for fixed manufacturing costs, which includes direct manufacturing labour and employee related expenses, shall be deducted. The Rule states that the notional producer may recover the fixed manufacturing costs that it could reasonably be expected to incur if it manufactured the RCPs to the milk price production plan.

Does the calculation provide an incentive for Fonterra to operate efficiently?

Number of FTEs

8.59 We consider that the staffing levels are independent of Fonterra's actual staffing levels, and therefore meet the efficiency criterion.

Salary/wage rate and employee related expenses

8.60 The combination of Fonterra's average actual salary and wage rates and notional (fewer than Fonterra's actual) labour requirements incentivises Fonterra to reduce its actual plant labour costs, ie, to operate efficiently. This is because a reduction in Fonterra's actual salary and wage rates would result in:

8.60.1 a decrease in Fonterra's actual plant labour costs, leading to an increase in milk price; and

8.60.2 a proportionally lesser decrease in the plant labour costs in the base milk price calculation (due to fewer FTE numbers of the notional producer), leading to a corresponding increase in the base milk price.

8.61 We consider that the overall impact on Fonterra's profit (all else being equal) would be a positive one as its costs would decrease by a greater amount than the milk price would increase. However, the increase in profit is smaller than would be the case under completely notional data. The incentive to operate efficiently is therefore potentially weaker than if notional data was used.

Is the calculation practically feasible?

8.62 We consider that the plant labour costs are practically feasible. This is because:

8.62.1 the number of FTEs assumed for the reference plant are materially comparable to Fonterra's actual FTEs for the same type of plants, ie, a modern plant focused on one of the RCPs; and

8.62.2 the unit cost assumption reflects Fonterra's average actual rates.

8.63 We consider that the plant labour costs adequately provide for plant labour for the 61 plants in operation for the 2014/15 season.

Features that are unique to Fonterra

8.64 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

8.4 Water, cleaning and CIP, consumables, effluent and laboratory testing costs

Approach to our 2014/15 analysis

8.65 For our 2014/15 analysis of the water, cleaning and CIP, consumables, effluent and laboratory testing costs we:

8.65.1 analysed Fonterra's inputs, process and assumptions to assess the extent to which the costs are consistent with the s 150A purpose; and

8.65.2 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 milk price calculation.

Results of our 2014/15 analysis

8.66 Table 8.4 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used, to determine the water, cleaning and CIP, consumables and laboratory costs for the purposes of the 2014/15 base milk price calculation.

Table 8.4: Summary of our conclusions on 2014/15 water, cleaning and CIP, consumables and laboratory testing costs

Are notional or actual values used?	Fixed costs: Fixed costs based on Fonterra's average 2014 costs Variable costs: Resource usage rates based on notional producer's plant specifications; Unit rates based on Fonterra's average 2014 costs; Notional production volumes
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

8.67 The model splits water, cleaning and CIP, consumables and laboratory costs as both fixed and variable costs. The fixed costs refer to plant and site level costs that are not driven off production volumes.

Fixed costs

8.68 The fixed costs are based on Fonterra's average 2013/14 actual costs at both a plant and site level. At a plant level, Fonterra excludes costs that are not directly relatable to the Milk Price products. At a site level, Fonterra excludes sites not included for the notional producer.

Variable costs

8.69 The resource usage rates are based on Aurecon's report on standard plant specifications. Therefore the resource usage rates are notional.

8.70 The unit rates per MT are based on Fonterra's 2013/14 actual costs and inflated annually.[114]

8.71 The production volumes are notional.

[114] Annual inflation using Producers Price Index will be applied to the final 2014/15 milk price (announced in September 2015).

Is the calculation consistent with the Milk Price Manual?

8.72 We consider the calculation of the water, cleaning and CIP, consumables, effluent, and laboratory testing costs to be consistent with Rule 13 of the Manual. However, we have confirmed with Fonterra that the resource usage rates used in the calculation have not been independently reviewed.

8.73 Rule 13 states in calculating the milk price, a reasonable provision for variable manufacturing costs shall be calculated for each category of cost by reference to the Resource Usage Rate and Unit Resource Cost.

8.74 The Resource Usage Rate is subject to independent review.

8.75 Rule 13 allows the manufacturing costs to be split into fixed and variable costs to the extent any material portion of these costs does not vary significantly with production volume.

Does the calculation provide an incentive for Fonterra to operate efficiently?

8.76 We consider that the calculation is not based on Fonterra's current actual year data and therefore consider that it provides an incentive for Fonterra to act efficiently.

Is the calculation practically feasible?

8.77 Fonterra has changed its approach for calculating the assumed costs relating to water, cleaning and CIP, consumables, effluent, and laboratory testing for the 2014/15 calculation.

8.78 Fonterra has separately modelled the fixed and variable costs associated with the relevant activities, using the relevant Fonterra actual rates and equipment manufacturer's specifications. Fonterra's previous approach was to take allocated budgeted costs per MT from Fonterra's product costing system.

8.79 We note that the application of the new approach has reduced the milk price by approximately 0.7 cents.[115]

8.80 We are comfortable with the revised approach given the differences between Fonterra and the notional producer's plant specifications.

8.81 We have reviewed the Aurecon report on the notional producer's plant specifications which informs the resource usage rates used in the calculation and we have no reason to consider that the report is not reliable.

---

[115] This is based on the May 15 Milk Price. As noted in footnote above, annual inflation will be applied to the final 2014/15 milk price.

8.82 We consider that even though the resource usage rates have not been independently reviewed, we do not expect this to have a material impact on the milk price. We therefore conclude that the water, cleaning and CIP, consumables, effluent, and laboratory testing costs are practically feasible. However, we request that an independent review be carried out before our review of the 2015/16 calculation.

Features that are unique to Fonterra

8.83 As noted in our previous reports, our engineering experts in our 2012/13 calculation review noted an item affecting effluent costs,[116] the effect of which we consider to be insignificant.

8.84 The effluent costs are established as a Fonterra average and so include a small component of costs related to ocean effluent outfall, which is a relatively cheap form of effluent disposal.

8.85 Our experts noted that in the future it is not likely that either Fonterra or any other processor would be granted resource consents for further ocean outfall.

8.5 Site overhead costs

Approach to our 2014/15 analysis

8.86 For our 2014/15 analysis of the site overhead costs we:

8.86.1 updated our 2013/14 milk price review analysis;

8.86.2 analysed Fonterra's inputs, process and assumptions to assess the extent to which the costs are consistent with the s 150A purpose; and

8.86.3 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 milk price calculation.

Results of our 2014/15 analysis

8.87 Table 8.5 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used, to determine the site overhead costs for the purposes of the 2014/15 base milk price calculation.

---

116 Parsons Brinckerhoff "A review of inputs determining the Fonterra Base Milk Price" (1 August 2013). Available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Table 8.5: Summary of our conclusions on the 2014/15 site overhead costs

Are notional or actual values used?	Notional number of FTEs; Average actual cost per FTE; Actual number of sites; Notional non-labour costs
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

8.88 The calculation of the site overhead costs relies on notional data.

Number of FTEs

8.89 The composition of the assumed number of FTEs is based on Fonterra's estimates of the FTEs required to run each site. These numbers are set once every four years, most recently in 2012. The number of FTEs include: 66 managers and administration staff, and 152 other staff.

Costs per FTEs

8.90 The costs per FTE are also set once every four years, most recently in 2012, and then updated for inflation in the interceding years, using the labour cost index. The rates are set differently between employees on salaries and wages.

8.91 The only employees paid salaries are management. Management costs have been built from the ground up because the notional business has a significantly different management structure, responsibilities, span of control and complexity than Fonterra.

8.92 The costs per FTE for waged staff are based on Fonterra's 2011 budget costs.

Number of sites

8.93 The assumed number of sites is the same as Fonterra's actual 22 processing sites. Milk volumes are allocated to sites based on the assumption that each site will process approximately the same volume of milk as Fonterra. This assumes the following number of sites: four 'large' sites with four or more WMP/SMP plants and cream and BMP plants each; six 'medium' size sites with two WMP/SMP plants each; and 12 'small' sites with a single WMP or SMP plant.

8.94 Like direct site labour costs, the indirect, non-labour related site overhead costs are set every four years and updated for inflation in other years using the labour cost index (LCI) and consumer price index (CPI). The most recent reset year was 2012. The costs were set using 2011 budgeted costs.

Is the calculation consistent with the Milk Price Manual?

8.95 We consider the calculation of the site overhead costs to be consistent with Rule 18 of the Manual.

8.96 Rule 18 of the Manual specifies how site overhead costs should be established in each review assessment year. It states that this cost should be based on Fonterra's actual costs, adjusted to reflect the costs that would be incurred by the Farmgate Milk Price Commodity Business (and subject to independent review). In any other year this cost is set equal to the prior year's provision adjusted for movements in relevant Statistics New Zealand indices.

8.97 As previously stated in our 2014/15 Manual review,[117] Fonterra signalled its intention to introduce methodological changes to calculating these costs, without requiring changes to the Rule itself.

8.98 In the absence of these methodological changes for the 2014/15 costs, we consider the calculation of the site overhead costs to be consistent with Rule 18.

Does the calculation provide an incentive for Fonterra to operate efficiently?

8.99 We consider that the site overhead costs are set independently of the relevant Fonterra current year actuals.

8.100 We consider that using a benchmark set independently of Fonterra's current year performance provides an incentive to Fonterra to operate efficiently. However we consider that using Fonterra's 2011 budgeted costs as the basis for calculating the site overhead costs could weaken the incentive, given the age of the budgeted data used.

Is the calculation practically feasible?

8.101 We consider that the site overhead costs are practically feasible. However, we have questions about the continued use of Fonterra's 2011 budgeted costs as a basis of calculation and whether inflation indexation is an appropriate approach to update these costs yearly.

---

[117] Commerce Commission "Final Report - Review of Fonterra's 2014/15 Milk Price Manual" (15 December 2014)

8.102 We will consider a substantive review of these costs as part of our 2015/16 milk price calculation review. By the next review, we will have a better understanding on the appropriateness of the current approach in calculating the site overhead costs.

8.103 We note that the most sensitive part of site overhead cost calculation is the FTE numbers. Fonterra has previously provided us with its justifications for each level of the assumed FTE and we had considered Fonterra's justifications to be reasonable.

Features unique to Fonterra?

8.104 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

8.6 Packaging costs

Approach to our 2014/15 analysis

8.105 For our 2014/15 analysis of packaging costs we updated our 2013/14 milk price review analysis and checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 base milk price calculation.

Results of our 2014/15 analysis

8.106 Table 8.6 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used in calculating the packaging costs for the purposes of the 2014/15 base milk price calculation.

Table 8.6: Summary of our conclusions on the 2014/15 packaging costs

Are notional or actual values used?	Average actual unit costs and usage rates; Notional loss allowances
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

8.107 The calculation of the packaging costs relies largely on actual data.

8.108 The unit cost and usage rates are based on averages derived from Fonterra's actual unit costs and usage rates for packaging of the relevant RCPs. These averages are calculated over all relevant purchases incurred during the season for which the base milk price is being set, by all relevant manufacturing sites.

8.109 The loss allowances are based on Fonterra's average budget loss rates, and are therefore notional.

Is the calculation consistent with the Manual?

8.110 We consider the calculation of the packaging costs to be consistent with Rule 13 of the Manual.

8.111 Rule 13 of the Manual specifies how packaging costs should be established in each review assessment year. It states that packaging costs should reflect the actual average unit costs for the year, and that usage rates should reasonably reflect optimal achievable usage rates.

8.112 Rule 13 allows the manufacturing costs to be split into fixed and variable costs to the extent any material portion of these costs does not vary significantly with production volume.

Does the calculation provide an incentive for Fonterra to operate efficiently?

8.113 We consider the calculation of packaging costs is still consistent with the efficiency dimension of the s 150A purpose as Fonterra has incentives to improve its efficiency so as to increase the base milk price. However, the incentive to operate efficiently is potentially weaker than if notional data had been used.

Is the calculation practically feasible?

8.114 We consider that the packaging costs are practically feasible, as they reflect Fonterra's actual achieved costs.

8.115 We note that Fonterra states in its Reasons paper on page 28, that it considers its procurement or technological advantages are available to other processors of similar scale, and therefore believes these assumptions to be practically feasible for other processors.

Features that are unique to Fonterra

8.116 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

8.7 Administration and other overhead costs

Approach to our 2014/15 analysis

8.117 For our 2014/15 analysis of the administration and other overhead costs we:

8.117.1 updated our 2013/14 milk price review analysis;

8.117.2 analysed Fonterra's inputs, process and assumptions to assess the extent to which the costs are consistent with the purpose of the Act; and

8.117.3 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 milk price calculation.

Results of our 2014/15 analysis

8.118 Table 8.7 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used in calculating the costs of the administration and other overhead costs for the purposes of the 2014/15 base milk price calculation.

Table 8.7: Summary of our conclusions on the 2014/15 administration and other overhead costs

Are notional or actual values used?	Notional data based on 2012 budgeted costs; Notional data based on actual insurance costs
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

8.119 The calculation of administration and other overheads costs uses notional data:

8.119.1 Insurance costs are based on Fonterra's actual insurance costs; and

8.119.2 All other overhead costs are based on Fonterra's 2012 budgeted costs with adjustments (exclusions and allocations) and inflated annually.

Is the calculation consistent with the Milk Price Manual?

8.120 We consider the calculation of the administration and other overhead costs to be consistent with Rule 18 of the Manual.

8.121 Rule 18 covers 'other costs' which includes site overheads, manufacturing overheads, corporate costs, and Research and Development costs.

8.122 The Rule states that the costs that Fonterra could reasonably expect to incur if Fonterra only undertook the activities performed by the notional producer. These particular costs shall be deducted and apportioned into two categories:

8.122.1 costs that can reasonably be anticipated to be relatively constant across time; and

8.122.2 costs that are likely to vary substantially across time which inflation indexation may not be appropriate.

8.123 The Manual also specifies that an independent reviewer will review the reasonableness of the provision for administration and other overhead costs in each review year.

Does the calculation provide an incentive for Fonterra to operate efficiently?

8.124 We consider that the cost is set independently of the relevant Fonterra current year actuals.

8.125 We consider that using a benchmark set independently of Fonterra's current year performance provides an incentive to Fonterra to operate efficiently. However we consider that using Fonterra's 2012 budgeted costs as the basis for calculating the administration costs could weaken the incentive, given the age of the budgeted data used.

Is the calculation practically feasible?

8.126 In our 2013/14 review, we concluded that the level of administration and other overhead costs provided for in the base milk price calculation is practically feasible. However, at a detailed level we were unable to conclude on some specific costs. We are still unable to conclude on these specific costs for 2014/15.

8.127 There are questions about whether Fonterra's current approach to using 2012 budgeted data and using inflation indexation annually continues to be appropriate, especially given that the calculation is in its third year of using the 2012 budgeted data.

8.128 We note that Rule 18 states that the continuing reasonableness of the resulting administration and other overhead cost provision for each year will be reviewed by the MPG against budgeted Fonterra costs for the previous years and for overhead costs, having particular regard to any significant changes in Fonterra's actual or budgeted overhead costs.

8.129 As to date, we have not received any evidence from Fonterra that a review comparing Fonterra's previous years budgeted costs and the 2014/15 administration and other overhead costs had been completed.

8.130 We understand Fonterra as part of its corporate costs reset for the 2015/16 milk price calculation will be thoroughly documenting its rationale for excluding certain costs and the level of allocation of Fonterra costs that the notional producer would be expected to incur.

8.131 We will consider a substantive review of these costs as part of our 2015/16 milk price calculation review. By the next review, we will have a better understanding on the appropriateness of the current approach in calculating the administration and other overhead costs.

8.132 For future reviews, we will be looking at how the provision in Rule 18 is applied and we would expect real world events such as the Fonterra corporate restructure to be incorporated into the milk price.

Features that are unique to Fonterra

8.133 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

8.8 Storage costs

Approach to our 2014/15 analysis

8.134 For our 2014/15 analysis of freight costs we updated our 2013/14 milk price review analysis and checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 base milk price calculation.

Results of our 2014/15 analysis

8.135 Table 8.8 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used to determine the storage costs for the purposes of the 2014/15 base milk price calculation.

Table 8.8: Summary of our conclusions on the 2014/15 storage costs

Are notional or actual values used?	Notional volumes of product stored; Notional storage period; Notional number of FTEs; Actual cost per FTE; Notional non-labour costs; Actual cool storage rates
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

8.136 The calculation of the storage costs relies on a combination of notional and actual data.

8.136.1 The volumes of manufactured dry[118] and cool[119] products are notional. They are based on the notional producer's production plan.

8.136.2 The assumed time periods for dry products are based on analysis of historical Fonterra actuals and, therefore, are notional.

8.136.3 The number of FTEs required to operate dry storage facilities is notional.

8.137 The labour costs per FTE are actual Fonterra costs experienced in the year for which the base milk price is set.

8.138 The non-labour provisions of the dry storage costs are notional.

8.139 The cool storage rates are based on Fonterra's actual contract rates experienced in the year for which the base milk price is set.

[118] WMP, SMP, AMF and BMP.

[119] Butter.

Is the calculation consistent with the Milk Price Manual?

8.140 We consider the calculation of the storage costs to be consistent with Rule 20 of the Manual.

8.141 Rule 20 of the Manual specifies how storage costs should be established in each review assessment year. It states that the storage costs should be established given the base milk price production plan, benchmark sales phasing and site footprint, and be established by reference to Fonterra's actual costs for the relevant year.

Does the calculation provide an incentive for Fonterra to operate efficiently?

8.142 We consider that the dry product storage costs calculation, although it relies on some actual data, is notional overall and, therefore, provides an incentive to Fonterra to operate efficiently.

8.143 We consider the calculation of cool storage costs is still consistent with the efficiency dimension of the s 150A purpose as Fonterra has incentives to improve its efficiency so as to increase the base milk price. However, the incentive to operate efficiently is potentially weaker than if notional data had been used.

Is the calculation practically feasible?

8.144 We consider that the dry storage costs are established by reference to Fonterra's actual costs and they are practically feasible.

8.145 The cool storage products reflect Fonterra's arm's length costs and therefore are practically feasible.

8.146 Fonterra has noted in its Reasons paper on page 33 that it annually assesses whether the model has sufficient dry store capacity, given the inventory volumes for the year, with the cost of any excess of stock over space assumed to be stored with third parties at Fonterra's contracted rates.

Features that are unique to Fonterra

8.147 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

8.9 Freight costs

Approach to our 2014/15 analysis

8.148 For our 2014/15 analysis of freight costs we updated our 2013/14 milk price review analysis and checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 base milk price calculation.

Results of our 2014/15 analysis

8.149 Table 8.9 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used in calculating the freight costs for the purposes of the 2014/15 base milk price calculation.

Table 8.9: Summary of our conclusions on the 2014/15 freight costs

Are notional or actual values used?	Notional volumes of product transported; Actual average freight rates
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

8.150 The calculation of the freight costs[120] relies on a combination of notional and actual data.

8.150.1 The volumes of manufactured products are notional, as they are based on the notional producer's production plan.

8.150.2 The freight rates are based on Fonterra's actual average freight rates.

Is the calculation consistent with the Milk Price Manual?

8.151 We consider the calculation of the freight costs to be consistent with Rule 19 of the Manual.

8.152 Rule 19 of the Manual specifies how freight costs should be established in each review assessment year. It states that the freight costs should be established given the milk price production plan, benchmark sales phasing and site footprint.

Does the calculation provide an incentive for Fonterra to operate efficiently?

8.153 We consider that the calculation of the freight costs provides an incentive for Fonterra to operate efficiently. We consider that because Fonterra's actual freight rates are negotiated independently of Fonterra, using actual values in the base milk price calculation is consistent with the efficiency dimension.

Is the calculation practically feasible?

8.154 We consider that the calculation of the freight rates are practically feasible.

[120] Freight costs refers to factory to wharf transport costs.

8.155 We consider that the average freight rates used reflect Fonterra's actual unit costs for transporting product from its actual sites to the relevant ports.

8.156 We have accepted Fonterra's view that it does not have any procurement advantages that are not available to other processors.

Features that are unique to Fonterra

8.157 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

8.158 If Fonterra had any negotiating power with independent contractors, any efficient processor of Fonterra's scale (as provided for under safe harbour s 150B) would also.

8.10 Other supply chain costs

Approach to our 2014/15 analysis

8.159 For our 2014/15 analysis of the collection costs we:

8.159.1 updated our 2013/14 milk price review analysis;

8.159.2 analysed Fonterra's inputs, process and assumptions to assess the extent to which the costs are consistent with the s 150A purpose; and

8.159.3 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 milk price calculation.

Results of our 2014/15 analysis

8.160 Table 8.10 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used in calculating the other supply chain costs.

Table 8.10: Summary of our conclusions on the 2014/15 other supply chain costs

Are notional or actual values used?	Notional data based on 2012 budgeted costs
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

8.161 The other supply chain costs component is based on notional values. The inputs reflect Fonterra's 2012 budgeted costs scaled down to reflect a much simpler and better integrated notional producer's business model.

8.162 The costs are also set once every 4 years, and adjusted for inflation using a combination of the CPI and LCI in other years.[121]

Is the calculation consistent with the Milk Price Manual?

8.163 We consider the calculation of the other supply chain costs to be consistent with Rule 19 of the Manual.

8.164 Rule 19 of the Manual specifies that the other supply chain costs (consisting of minor supply chain and supply chain-related overhead costs) will be established in each review assessment year for the following review year; and in the intervening years, the provision will be set equal to the prior year's provision indexed by the producer's price index.

8.165 The Manual also specifies that an independent reviewer will review the reasonableness of the provision for minor supply chain costs and supply chain-related overhead costs in each review year.

Does the calculation provide an incentive for Fonterra to operate efficiently?

8.166 We consider that because the provisions are set independently of the relevant Fonterra current year actual costs Fonterra are consistent with the efficiency criterion.

8.167 We agree with Fonterra's explanation. We consider that using a benchmark set independently of Fonterra's current year performance provides an incentive to Fonterra to operate efficiently. The calculation of the other supply chain costs is therefore consistent with the efficiency dimension of the purpose.

Is the calculation practically feasible?

8.168 On an aggregate level we are comfortable that the notional producer could operate with the level of other supply chain costs provided for in the calculation. However, at a detailed level we cannot conclude on some of the specific costs, as we have not received adequate evidence or rationale for the detailed decisions on the scaling factors applied.

---

[121] Inflation for F15 based on a combination of the consumer price index and the labour cost index. The exact split between these two inflators is determined on a cost by cost basis using assumptions on the level of labour involved. These assumptions are not significant.

8.169 We have the same questions as with administration and other overhead costs ie, Fonterra's current approach to using 2012 budgeted data and using inflation indexation annually may not still be appropriate, especially given that the calculation is in its third year of using the 2012 budgeted data.

8.170 We will consider a substantive review of these costs as part of our 2015/16 milk price calculation review. By next review (2015/16), we aim to have a better understanding about the appropriateness of the current approach.

Features that are unique to Fonterra

8.171 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

8.11 Selling costs

Approach to our 2014/15 analysis

8.172 For our 2014/15 analysis of the collection costs we:

8.172.1 updated our 2013/14 milk price review analysis;

8.172.2 analysed Fonterra's inputs, process and assumptions to assess the extent to which the costs are consistent with the s 150A purpose; and

8.172.3 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 milk price calculation.

Results of our 2014/15 analysis

8.173 Table 8.11 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used in calculating the selling costs for the purposes of the 2014/15 base milk price calculation.

Table 8.11: Summary of our conclusions on the 2014/15 selling costs

Are notional or actual values used?	Notional number of sales hubs; Notional cost per hub; Notional sales volumes
Are the assumptions, inputs and process consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

8.174 The calculation of the selling costs largely relies on notional data.

8.175 The cost estimates for the hubs are based on the costs of the benchmark hubs from within Fonterra's current sales costs, adjusted to meet the expected needs of the notional producer, as specified below.

8.175.1 The GDT support hub is based in large part on the budgeted costs of Fonterra's China ingredients hub inflated by 10% to reflect the higher cost of hub operations outside of China. China has been selected as a baseline as a high proportion of China commodity sales are made through GDT.

8.175.2 The government procurement customers support hub is based on Fonterra's budget Venezuela 'cost to serve', and an additional allowance for staff and travel costs.

8.175.3 The GDT fee assumption is based on the tiered fee structure.[122] The total cost of selling through GDT assumes that the volumes sold are eligible for a reduced GDT fee.

Is the calculation consistent with the Milk Price Manual?

8.176 We consider the calculation of the selling costs to be consistent with Rule 6 of the Manual.

8.177 Rule 6 of the Manual specifies how selling costs should be established in each review assessment year. It states that the sales costs of the notional producer should not exceed the lesser of:

8.177.1 the costs Fonterra would incur if it sold the product implied by the Farmgate Milk Price Production Plan on an arm's length basis through a sales agent; and

8.177.2 the selling costs actually incurred by Fonterra adjusted to reflect the Farmgate Milk Production Plan and having regard to any cost reductions achievable through the extension of GDT.

---

122 GDT Market Rules: appendix 2, available at http://www.globaldairytrade.info/en/resources/gdt-market-rules/

8.178 The Rule also requires that the sales costs are to be calculated with reference to the costs Fonterra could reasonably be expected to incur if it converted all milk into standard RCPs and, where feasible, sold those products through GDT. However, it shall not exceed the amount that would be incurred by a manufacturer for the RCPs that paid an arm's length commission to a sales agent in respect of all costs incurred beyond the New Zealand wharf.

Does the calculation provide an incentive for Fonterra to operate efficiently?

8.179 We consider the approach taken by Fonterra does not result in Fonterra's actual current year selling costs flowing directly to the milk price.

8.180 We consider that using a benchmark set independently of Fonterra's current year performance provides an incentive to Fonterra to operate efficiently. The calculation of the selling costs is therefore consistent with the efficiency dimension of the purpose.

Is the calculation practically feasible?

8.181 In assessing the practical feasibility of the assumed selling costs, we considered the following:

8.181.1 The effect of the increased volumes on the number of sales hubs;

8.181.2 The practical feasibility of the notional processor selling 90% of its volumes on GDT;

8.181.3 Fonterra's China hub selling costs, which is used as a benchmark for the eight in-market hubs; and

8.181.4 Whether the prices achieved on GDT are practically feasible.

8.182 As a cross-check, we confirm that the number of volumes sold on GDT is consistent with 90% of the volumes produced in the notional business.

8.183 We consider the assumed selling costs practically feasible. We outline our reasons below.

The effect of the increased volumes on the number of sales hubs

8.184 We considered whether the increase in the average notional volumes sold by the notional producer on GDT[123] would increase the number of sales hubs assumed in the model.

[123] Average notional volumes sold on GDT taken from 2013-2015 volumes.

8.185 We have received clarification from Fonterra that the number of sales hubs relates to the location of the key markets and that it does not necessarily change as the volume increases.

8.186 Fonterra has confirmed that the number of countries included in the milk price is 77 (compared with 75 for the 2011/12 season) and this result would flex the volumes sold by hubs rather than the number of hubs.

The practical feasibility of selling 90% of volumes on GDT

8.187 We consider that whether the notional producer can sell 90% of its product on GDT, given the increased volumes and therefore taking advantage of GDT's tier structure fees when compared to Fonterra is a question of whether the volume discounts for the use of GDT are feasible.

8.188 We have received clarification from Fonterra that if the notional volumes were used on the GDT platform, the GDT platform would be over recovering its costs, due to the extra volumes sold on GDT. Fonterra has further clarified that if an alternative platform was available, the notional producer would most likely receive a fee structure lower than currently selling on GDT.

8.189 Fonterra notes in its Reasons paper on page 44 that there is an assumption that the notional producer participates on GDT on an arm's length basis, with the difference between the calculated arm's length fee and Fonterra's lower actual costs are therefore being excluded from the milk price.

8.190 We accept that the notional producer is able to receive the GDT fee structure on its volume sold on GDT.

China hub selling costs

8.191 We have compared the notional producer's selling costs with Fonterra's budgeted 2015 costs for its China hub, which is used as the benchmark for the eight in-market hubs. We are comfortable that the current costs for an in-market hub in the model reflect the costs of Fonterra's China hub.

8.192 We understand that Fonterra is currently reviewing the selling costs as part of its overhead costs reset. We propose to do a substantive review of these costs as part of our 2015/16 milk price calculation review.

Prices achieved on GDT practically feasible

8.193 We have concluded in section 7.5 that the prices achieved by Fonterra on GDT are practically feasible. We therefore conclude that the assumed selling costs are practically feasible.

Features that are unique to Fonterra

8.194 We do not consider that the selling costs calculation relies on any assumptions that are unique to Fonterra.

8.12 One-off costs

Approach to our 2014/15 analysis

8.195 For our 2014/15 analysis of the one-off costs we:

8.195.1 analysed Fonterra's assumptions, inputs and process to assess the extent to which the assumed costs are consistent with the s 150A purpose; and

8.195.2 checked the numbers from Fonterra's 2014/15 supporting analysis through to the 2014/15 base milk price calculation.

Results of our 2014/15 analysis

8.196 Table 8.12 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used, to determine the one-off costs for the purposes of the 2014/15 base milk price calculation.

Table 8.12: Summary of our conclusions on the 2014/15 one-off costs

Are notional or actual values used?	Actual Fonterra costs are used, scaled to the amount the notional producer business would incur
Are the assumptions, inputs and process consistent with the Milk Price Manual?	No provision in the Manual
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	No
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

8.197 The calculation for the allowances for one-off costs, such as the additional testing as a result of the 1080 product threat uses Fonterra actual data which is scaled to reflect the cost amounts the notional producer would incur given its asset configuration, product mix and sales volumes. The cost calculation for the purposes of the base milk price calculation is therefore notional.

8.198 The one-off costs allowed for in the calculation of the base milk price do not include:

8.198.1 'force majeure' events for circumstances where Fonterra is unable to collect milk from a farm, but is still obliged to pay for the milk; and

8.198.2 costs that are covered by Fonterra's insurance policy.

Is the calculation consistent with the Milk Price Manual?

8.199 There is currently no Rule or provision in the Manual dealing with one-off costs such as the 1080 product threat.

8.200 We noted in our review of Fonterra's 2014/15 Manual that we would consider, on the basis of the actual circumstances of the 2014/15 season, whether a more explicit provision for costs of a one-off or difficult-to-forecast nature is warranted.[124] In this case we consider the allowance is warranted, being a cost that an efficient processor of the scale and footprint of the notional producer would more likely than not incur.

8.201 We note that Fonterra have added a new Rule in its 2015/16 Manual to make explicit the treatment of these one-off costs. We will assess this new Rule as part of our review of the 2015/16 Manual.

Does the calculation provide an incentive for Fonterra to operate efficiently?

8.202 We consider that the ex post adjustment does not create any incentive Fonterra to operate efficiently. The one-off costs such as the costs relating to 1080 threat or events such as the Whitecliffs pipeline event or the Canterbury earthquakes, are largely outside of Fonterra's control and therefore do not create any efficiency incentives.

8.203 Fonterra in its Reasons paper on page 36 notes that it would be unlikely that use of a provision based on Fonterra's actual costs will have much, if any, impact on Fonterra's incentives to act efficiently.

Is the calculation practically feasible?

8.204 We consider the calculation of the costs resulting from the 1080 threat is practically feasible, as the costs reflect the relevant actual costs incurred by Fonterra.

8.205 We agree that these costs should be included in the milk price to reflect costs that a real world processor would incur.

8.206 We agree with Fonterra that an ex ante allowance for these costs would not be appropriate and consider the approach taken by Fonterra in its treatment of these costs is appropriate.

---

[124] Commerce Commission "Final Report – Review of Fonterra's 2014/15 Milk Price Manual" (15 December 2014), page 28.

Features that are unique to Fonterra

8.207 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

9. Company tax

Purpose of chapter

9.1 This chapter assesses whether the company tax calculation provides an incentive for Fonterra to operate efficiently, and, whether the calculation is practically feasible.

9.2 A summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used to determine company tax for the purposes of the 2014/15 base milk price calculation is also provided.

9.1 Tax

Results of our 2014/15 analysis

9.3 Table 9.1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used, to determine the company tax component for the purposes of the 2014/15 base milk price calculation.

Table 9.1: Summary of conclusions on 2014/15 company tax

Are notional or actual values used?	Notional
Are the process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the assumptions, inputs and process provide an incentive for Fonterra to operate efficiently?	Yes
Are the assumptions, inputs and process practically feasible?	Yes
Are any features unique to Fonterra?	No

Does the calculation use notional or Fonterra actual data?

9.4 The use of a notional asset base for the purpose of calculating tax depreciation means that the resultant tax provision is also notional.

9.5 The tax cost reflects the tax consequences of assumptions in the base milk price, determined independently from Fonterra’s actual costs. Fonterra is therefore incentivised to minimise its tax liabilities, as these will be reflected in higher profits.

Is the calculation consistent with the Milk Price Manual?

9.6 Rule 20 of the Manual specifies how company tax should be established in each review assessment year. It states that the notional producer may recover a provision for tax on the Farmgate Milk Price taxable EBIT.

9.7 The application of Rule 20 provides that in calculating the base milk price, a provision will be deducted for the amount of income tax (Farmgate Milk Price Tax Recovery) that the notional producer could reasonably have expected to have paid if:

9.7.1 it only manufactured RCPs for sale on the GDT and for delivery to a New Zealand wharf;

9.7.2 the notional producer were operated on a standalone basis; and

9.7.3 the profits of the notional producer were not deductible on distribution to its owners.

9.8 The methodology for calculating the tax charge is not clear in the Manual. The wording of the application of Rule 20, “could reasonably expected to have paid”, suggests that a tax payable approach as applied in the base milk price calculation is appropriate.

9.9 We again comment on the lack of a requirement in the Manual to adhere to a particular tax methodology over time means that changes could be introduced from time to time to raise or lower the milk price, in a way that would not be practically feasible, given Inland Revenue tax rules.

9.10 This allowed a change from a straight-line depreciation approach in 2011/12 to a diminishing value approach in 2012/13. We note that Fonterra has continued to use a diminishing value approach in 2014/15.

9.11 We consider the calculation of the company tax expense to be consistent with Rule 20 of the Manual.

Does the calculation provide an incentive for Fonterra to operate efficiently?

9.12 We have noted in previous reports on other regulated sectors that "a focus on incentives to achieve tax efficiencies on their own ought not to outweigh the consideration of incentives to promote improvements in overall economic efficiency. This is because tax liabilities arise as a result of many other business decisions and as such a move that increases tax costs may be desirable, provided it leads to, or is caused by, a reduction in costs overall. It is difficult to conclude that decisions with very different tax consequences are not equally legitimate. Tax efficiency savings are therefore only desirable insofar as they are consistent with a reduction in costs overall (ie, that they are to the long-term benefit of consumers)."[125]

Is the calculation practically feasible?

9.13 We consider the calculation of the tax depreciation as a percentage of milk price depreciation to be conceptually sound, assuming the underlying modelling of the historic diminishing value tax depreciation reflects real world tax conditions.

9.14 The WACC and capital goods price index (CGPI) values used in the tax calculation are consistent with those used in the capital costs model, which in turn generates the tilted annuity depreciation values used for the tax depreciation ratio calculation.

9.15 It is noted that a potential entrant would in fact obtain greater tax relief than the notional producer through the use of diminishing value depreciation, as the higher front-end depreciation available under the income tax rules would apply to all plant investment, whereas the steady state assumption underlying the tax treatment in Fonterra's milk price model means the early high depreciation for new assets is offset by much lower depreciation on older assets. We have not attempted to quantify this advantage, as it depends upon the tax cost of the investment.

9.16 In theory, the 2012/13 change from straight-line to diminishing value depreciation should not of itself have given rise to a significant change in the ratio of tax depreciation to tilted annuity depreciation. While the newer assets in the aggregate total asset base have a higher depreciation component under diminishing value depreciation than under straight-line depreciation, the older assets have a lower depreciation component and so the net effect of the change in total dollar value of depreciation[126] was small in the context of a steady state asset base. An offsetting effect occurred because the change occurred retrospectively across the entire notional asset base (in effect rewriting depreciation already charged).

---

125 Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (December 2010), paragraph 5.2.5.

126 Previously the ratio of average depreciation was used rather than the ratio of total dollar value depreciation. This artificially inflated the ratio as 31 values were used for the tilted annuity average but only 26 values (the effective tax life in years) were used for the tax average.

9.17 Thus, while the methodology provides for a charge that is practically feasible per se, the way in which changes are effected (to occur retrospectively across the entire notional asset base) would not be allowed under Inland Revenue tax rules. This suggests that the methodology needs to be fixed to fully satisfy the practical feasibility test. This would include formally prescribing the threshold at which changes in the tax calculation ratio must flow on into the calculation of the tax costs in the base milk price.

Relativity between the economic lives of plants and the implied tax lives

9.18 We have previously looked at the relativity between the economic lives of plants (31 years) and the implied tax lives (26 years).[127]

9.19 The tax model uses the economic lives of all assets except collection assets and software, but in practice it does not matter whether there are differences, as the calculation of the scaling ratio uses the same life for the milk price depreciation and tax depreciation. The difference between the total tax depreciation allowance and the milk price economic depreciation arises from the combination of the negative depreciation in the early years on the annuity-based depreciation and the use of CGPI in the milk price model.

9.20 The tax depreciation needs to be scaled up because the economic milk price depreciation is an annuity calculation based on replacement cost using CGPI. In the early years of annuity-based depreciation on replacement plant the depreciation is negative, which is at a time when the diminishing value tax depreciation on that replacement plant is at its highest annual value. The use of the CGPI makes it more highly negative.[128]

9.21 The implied 26 year tax life of the assets under the diminishing value approach is derived from the 31 year economic life by using Fonterra's actual average diminishing value depreciation rate[129] and an assumed tax residual asset value of 5% of the cost of the asset.

Features that are unique to Fonterra

9.22 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

---

127 Commerce Commission "Final Report: Review of Fonterra's 2013/14 base milk price calculation" (15 September 2015), page 166.

128 In its submission on our draft report, Synlait has sought clarification on why there is a difference between tax depreciation and milk price depreciation.

129 The weighted average tax depreciation rate on a diminishing value basis is aligned to Fonterra's actual weighted average for FY11 for the NZ manufacturing and related assets (excluding collection assets and software). For F13, actual depreciation is used for collection assets, so continued exclusion is appropriate. A provision for actual, rather than tilted annuity, software amortisation is provided for within corporate costs.

Attachment A: Our approach to reviewing the base milk price

A1 This attachment outlines our approach to reviewing the base milk price.

A2 We explain how we have assessed whether the assumptions adopted, and the inputs and process used by Fonterra in calculating the base milk price for the 2014/2015 season are consistent with the purpose of the milk price monitoring regime in s 150A (ie, that Fonterra has incentives to operate efficiently, and the base milk price is practically feasible for an efficient processor).

Our approach to the efficiency dimension – how Fonterra is provided with incentives

Fonterra has incentives to improve efficiency to maximise profits

A3 We consider that Fonterra has an incentive to maximise its overall payments to farmers and to shareholders, including unit holders in the publicly listed Fonterra Shareholders Fund created as part of the trading among farmers (TAF) regime. Improvements in efficiency may be passed through into a higher base milk price or a higher dividend (ie, profit).

A4 We consider Fonterra's management has a stronger incentive to maximise profits (which benefits both farmers and shareholders, including unit holders in the publicly listed Fonterra Shareholders Fund) relative to increasing the base milk price.[130] These incentives are reinforced by the transparency associated with the listing on the stock exchange of the non-voting units, and the importance to Fonterra of ensuring that its TAF regime works.

[130] The use of the term 'profits' throughout this report refers to the difference between Fonterra's revenues and costs (including the cost of raw milk) and includes dividends paid to shareholders (including farmers and unit holders in the publicly listed Fonterra Shareholders Fund). Open Country and Castalia disagree with our view that Fonterra management is incentivised to maximise the dividend rather than the milk price, citing there are plausible conditions under which Fonterra is incentivised to over-price milk: Open Country "Submission on the Commerce Commission's Draft Report – Review of Fonterra's base milk price calculation (31 August 2015), page 2 and Castalia "Review of Fonterra's 2014/15 milk price calculation and supporting analysis - Report to Open Country Dairy" (August 2015), page 6. We note that we are referring to 'Fonterra management' and not Fonterra as an entity. We have not reviewed Fonterra's management incentives for the 2014/15 season. For a more detailed explanation, refer to A5..

A5 In our 2012/13 report on the base milk price calculation we noted:[131]

> Our consideration of the efficiency dimension focuses on incentives to improve efficiency so as to earn higher profits. The remuneration of Fonterra's senior executive team (ie, its management) recognises this, and provides incentives to maximise profits. Incentives for senior management are related largely to Fonterra's profits and earnings with a smaller component (less than 10%) related to the farm gate milk price. As such, we consider the Fonterra management has a stronger incentive to maximise its profit (which benefits both farmers and shareholders, including unit holders in the publicly listed Fonterra Shareholders Fund) relative to increasing the base milk price.

The use of notional inputs in the base milk price provides incentives for efficiency

A6 There are many factors which can, and do, provide efficiency incentives for Fonterra. Our review of the base milk price calculation against the efficiency dimension requires us to focus on only *one* of these possible factors—ie, whether the way Fonterra calculates the base milk price provides an incentive for it to operate efficiently.

A7 The efficiency incentive provided by setting the base milk price works as a result of the effect it has on Fonterra's actual profitability. Fonterra will have a stronger incentive to operate efficiently where the base milk price is set independently of Fonterra's actual performance (ie, it uses notional data). This is because, for a given level of revenue, any improvements in cost efficiency will result in higher profits.

A8 Using notional data also provides Fonterra with a benchmark to beat, and increases transparency to shareholders about whether Fonterra is achieving efficiency gains relative to using data on Fonterra's actual performance to set the base milk price. The notional data used is, in some cases, based on Fonterra's actual data in a previous year. Therefore, efficiency savings achieved in one year (which result in a reduction in actual costs) may lead to a higher base milk price in a later year.

A9 Subpart 5A of Act is consistent with this view. It envisages the use of notional values and involves the assumption of a notional milk processing and collecting business (a 'notional producer').

---

131 Commerce Commission "Final report: Review of Fonterra's 2012/13 base milk price calculation" (16 September 2013), paragraph B39.

A10 Our view is that setting any independent benchmark for the costs that underpin the base milk price calculation would provide an incentive for Fonterra's management to improve efficiency.[132] There is no unique price that needs to be ascertained to provide incentives for Fonterra to improve its efficiency. Setting any independent benchmark provides a target and would mean that any improvements in efficiencies will always result in higher profits, all things being equal.[133]

A11 Although Fonterra can maximise its profits by improving efficiency, it can also control its profit levels by changing the level of base milk price. All other things being equal, setting a higher base milk price results in higher input costs for Fonterra, and therefore lower profits. By choosing to set a lower base milk price, Fonterra can reduce its largest input cost and increase its profits, but doing so does not represent an efficiency gain. A lower price does not reflect greater efficiencies in producing raw milk. It simply means farmers receive a lower value for that milk, and Fonterra earns a higher profit.

A12 Incentives for efficiency will be attributable to the calculation and setting of the base milk price to the extent that the price is set largely based on independent benchmarks, and to the extent that the base milk price bears the risk that actual performance might fall below forecast performance. If Fonterra sets the base milk price consistent with the Manual, which is based on the performance of a notional producer, Fonterra's actual profitability will depend on whether it is more or less efficient than that notional producer.

A13 We recognise that, even where the base milk price is set based on actual data, that incentives for operating efficiently may be provided simply by publicly disclosing and explaining the base milk price calculation; however, we consider that is not relevant to the s 150P test we must apply for the purposes of this review.

It may be reasonable to use some actual data in setting in the base milk price

A14 Notwithstanding the efficiency dimension of the s 150A purpose, there are instances where it is still reasonable to use actual data in setting the base milk price. These particularly include where:

A14.1 there is insufficient information to know what an appropriate notional value would be, or it would be unreasonably costly to obtain this information; or

A14.2 Fonterra has very limited control over the actual costs used for the benchmark.

---

[132] Ideally the benchmark should be stable over time in order to provide an incentive to operate efficiently over time and to provide transparency to shareholders on efficiency gains achieved.

[133] This means that using a notional cost assumption that is less than the average across all of Fonterra's plants is still consistent with the efficiency dimension.

A15 Where actual data has been used to set the base milk price, we have assessed whether the use of this data distorts or weakens incentives to improve efficiency. For example, whether it provides Fonterra with an opportunity to earn higher profits without achieving efficiencies.[134]

A16 We have practically assessed whether Fonterra has incentives to operate efficiently through the setting of the base milk price by identifying whether actual or notional values have been used for the inputs and assumptions used in the base milk price calculation. As discussed above, where notional values are used, we consider this provides Fonterra with incentives to operate efficiently. Where actual values are used, we have explored whether notional data could reasonably have been used instead, and whether the use of actual data provides incentives for Fonterra not to operate efficiently, in all cases ignoring this year's application of the Adjustment Amount.

Our approach to the contestability dimension – what is practically feasible

Our interpretation of efficient processor in s 150A

A17 Section 150A states that 'for the purposes of this subpart, the setting of the base milk price provides for contestability in the market for the purchase of milk from farmers if any notional costs, revenue, or other assumptions taken into account in calculating the base milk price are practically feasible for an efficient processor'.

A18 The term 'efficient processor' is not defined in the Act. It is our interpretation, within the context of the Act, including s 150A, that the term means a processor that is able to operate at least cost over time. This is consistent with our view that the primary focus of the efficiency dimension is on improving incentives for Fonterra to drive cost efficiencies over time (ie, productive and dynamic efficiency).

A19 We consider that expansion by an existing processor or entry by a new processor would be most likely to achieve least cost operation over time. That is because a newly built (ie, 'incremental') plant would be able to take advantage of the latest technology, and could be built at a capacity to take the best possible advantage of cost efficiencies in not only processing, but in associated activities as well (such as the collection of milk).

[134] For example, through a combination of using actual and notional values in the Manual-consistent milk price calculation. Further consideration of this issue is discussed in the relevant Attachments to this report.

A20 Therefore, conceptually, we consider the calculation of the base milk price is consistent with the contestability dimension in s 150A of the Act if the assumptions adopted, and inputs and processes used are practically feasible for Fonterra or another processor that is efficiently building an incremental plant.[135]

A21 In assessing whether the assumptions adopted, and the inputs and process used are practically feasible, we have made both an individual and an aggregate assessment.

We have assessed whether the individual assumptions, inputs and processes are individually practically feasible for Fonterra

A22 We have not determined what the costs and revenues of an efficient processor building an incremental plant would be, on either an individual or an aggregate basis. This is consistent with s 150P(3)(a), which confirms that we are not required to model the costs of an independent processor, and with s 150P(3)(b), which confirms that we are not required to, and must not, state the amount of the base milk price according to our own calculations.

A23 Rather, our practical approach for this review starts by deconstructing the base milk price into the line item components to which the assumptions adopted, and the inputs and processes used by Fonterra relate. Assessing whether these individual assumptions, inputs and processes are practically feasible for an efficient processor (building an incremental plant) involves examining, wherever possible, whether they reflect activities and achievable levels of performance based on evidence provided by Fonterra itself as part of this review.[136] In highly technical areas (eg, energy costs) we have also been reliant on opinions from independent experts.

---

135 In its submission on Fonterra's Reasons Paper, Synlait notes that it has previously argued against our interpretation of 'efficient processor' because, in its view, the only feasible processor of Fonterra's scale in the New Zealand market is Fonterra itself [Synlait "Submission on Fonterra's 'Reasons' Paper in relation to the 2013/14 base milk price" (15 July 2014), paragraph 14]. Miraka agrees with Synlait's view. Miraka "Miraka submission on New Zealand Commerce Commission Draft Report: Review of Fonterra's 2013/14 Base Milk Price Calculation (report date 15 August 2014)" (1 September 2014), paragraphs 4.1-4.5. We do not agree that the only interpretation of 'efficient processor' is to mean Fonterra itself. Had Parliament intended s 150A(2) to mean 'practically feasible for Fonterra' then it could have used the term 'new co-op' rather than 'efficient processor'.

136 For future reviews, we remain open to considering data provided by other dairy processors to assess whether the assumptions, inputs and processes are practically feasible for them. However, to date we have only been provided with limited information from other dairy processors.

A24 Fonterra's notional costs, revenues, and other assumptions used in determining the base milk price are, for the most part, based on the average across all relevant (reference commodity product) Fonterra notional plants, rather than on a single recently built Fonterra plant. Doing so is consistent with assuming that there is a national network of facilities for the collection and processing of milk (ie, the safe harbour provision in s 150B(a)). In addition, the notional plants assumed by Fonterra in setting the base milk price approximate the average capacity of Fonterra's actual plants, consistent with the safe harbour provision in s 150B(b).

A25 Reflective of the majority of data that we have available to us, our practical approach examines whether the assumptions adopted, and inputs and process used to calculate the base milk price are practically feasible for Fonterra. This approach is appropriate because, more often than not, the data used reflects the costs of Fonterra's 'average' plant rather than its most cost efficient plant(s), and therefore an efficient processor (building an incremental plant) should be able to achieve lower costs.

A26 We have only relied on data from Fonterra's specific recently built plants where we have not been able to conclude that Fonterra's notional average values are in fact practically feasible for Fonterra, or where Fonterra has not used average data. In those circumstances, we consider that if some part of Fonterra's business, such as a specific plant, is able to achieve those costs, subject to the 'safe harbour' provisions,[137] an efficient processor (building an efficient incremental plant) should also be able to achieve them.

A27 In reaching our conclusion, as a cross-check we have considered whether the assumptions, inputs and processes are practically feasible for Fonterra due to features unique to Fonterra, which do not relate to Fonterra acting efficiently. In that case, the assumptions, inputs and processes may not also be practically feasible for another efficient processor. We therefore included this cross-check to identify whether our assessment is being affected by unique features which are not subject to 'safe harbour' provisions.

---

137 Synlait acknowledges that "Fonterra's economies of scale is an allowable assumption", but considers that the safe harbour provisions in s 150B do not override s 150A, or the need for s 150A(2) to be satisfied. We stress that s 150B provides that Fonterra's use of any of the 'safe harbour' assumptions in setting the base milk price, such as operating a national network of facilities, *does not detract from* the achievement of the s 150A purpose. Synlait considers that if our interpretation means there is an internal inconsistency in the construction of the relevant provisions then "that is a further reason to reassess the milk price setting regime" [Synlait "Submission on Draft Review of Fonterra's 2013/14 Base Milk Price" (1 September 2014), paragraph 21].

Cross-check on whether the assumptions, inputs and processes are practically feasible in aggregate

A28 Our aggregate cross-check included checking the assumptions, inputs and processes used to determine the base milk price are internally consistent with each other.

Attachment B: Our interpretation of key legislative provisions for this review

B1 In this attachment, we summarise our interpretation of the key provisions in the Act relevant to the statutory review of Fonterra's calculation of its base milk price for the 2014/15 season.

Our review and report – sections 150O, 150P and 150T

B2 Section 150O of the Act requires us to review Fonterra's calculation of the base milk price for each dairy season.

B3 Section 150P of the Act requires us to report on the extent to which the assumptions adopted, and the inputs and process used by Fonterra in calculating the base milk price for this season are consistent with the purpose set out in s 150A of the Act.

B4 We interpret the terms "assumptions adopted, inputs and process used" to have the following meaning:

B4.1 'assumptions' refer to the underlying rationale as to why certain inputs and process were selected (ie, 'the why');

B4.2 'inputs' refers to what data or description of data sources are used to populate the base milk price calculation (ie, 'the what'); and

B4.3 'process' refers to how inputs are being transformed into the components of the base milk price calculation (ie, 'the how').

The purpose statement – Section 150A

B5 Section 150A(1) states that the purpose of Subpart 5A of the Act is to promote the setting of a base milk price that provides an incentive to Fonterra to operate efficiently (the 'efficiency dimension') while providing for contestability in the market for the purchase of milk from farmers (the 'contestability dimension').

B6 Section 150A(2) specifies that the setting of the base milk price provides for contestability in the market for the purchase of milk from farmers if any notional costs, revenues, or other assumptions taken into account in calculating the base milk price are practically feasible for an efficient processor.

B7 We consider that the efficiency and contestability requirements within s 150A are interlinked and that together, they require consideration of:

B7.1 What is meant by 'efficiency'?

B7.2 What is meant by 'contestability'?

B7.3 How do the dimensions of efficiency and contestability inter-relate?

Our interpretation of efficiency

B8 Section 150A refers to incentives for Fonterra to 'operate efficiently'. There are many factors which can, and do, provide efficiency incentives for Fonterra. Our review of the base milk price calculation against the efficiency dimension requires us to focus on only *one* of these possible factors—ie, whether the way Fonterra calculates the base milk price provides an incentive for it to operate efficiently.

B9 We have interpreted the primary focus of the efficiency dimension to be improving incentives for Fonterra to drive cost efficiencies (ie, productive and dynamic efficiency).[138]

Our interpretation of contestability

B10 While the Act does not define contestability, practical guidance on what is required to provide for contestability in the market for the purchase of milk from farmers is provided by s 150A(2).

B11 Section 150A(2) states that the setting of a base milk price will provide for contestability if "any notional costs, revenues, or other assumptions taken into account in calculating the base milk price are practically feasible for an efficient processor". Therefore, our interpretation of s 150A is that if the assumptions adopted, and inputs and process used in setting the base milk price are practically feasible, the contestability dimension is satisfied.

How are the two dimensions reconciled?

B12 It is our interpretation that in order for the assumptions adopted, and the inputs and process used by Fonterra in calculating the base milk price to be consistent with the s 150A purpose, they must be consistent with both dimensions independently.

---

[138] Productive efficiency is present when producers use inputs in such a manner as to minimise costs, subject to technological constraints. Dynamic efficiency relates to decisions made over time which result in improvements in productive efficiency. We are primarily concerned with productive and dynamic efficiencies when reviewing Fonterra's costs. For revenue items (such as the selection of RCPs and sales prices), where productive efficiency is not relevant, we necessarily focus on allocative efficiency. Allocative efficiency occurs when there is an optimal distribution of goods and services, and involves taking into account consumers' preferences.

Section 150B – 'safe harbours'

B13 Section 150B lists certain assumptions that, if used in the base milk price calculation, are considered to not detract from the achievement of the purpose set out in s 150A.

B14 We interpret s 150B as being intended to create 'safe harbours' where Fonterra sets the base milk price using any of the assumptions listed in subparagraphs (a) to (d). Section 150B prevents the use of any of those assumptions from having the effect of detracting from the achievement of the purpose set out in s 150A where the use of any such assumption might otherwise have had that effect.

Section 150C – 'mandatory assumptions'

B15 We interpret s 150C of the Act as setting out certain assumptions that Fonterra is required to make in setting the base milk price if that price is to be consistent with s 150A. In particular, the revenues and costs taken into account by Fonterra in calculating the base milk price must be determined from the prices of a portfolio of RCPs—ie, the portfolio of commodities referred to in s 150C(2)—and the costs of processing milk into the same portfolio of RCPs.

B16 Our review of the base milk price calculation therefore involves examining whether the calculation applies the assumptions in s 150C of the Act.

Section 150N – what happens if Fonterra sets a different base milk price

B17 The Fonterra Board sets the base milk price for each dairy season based on the recommendations of a Milk Price Panel (established under s 150D of the Act). It is expected that the panel would always recommend to the Board that the base milk price be set equal to the milk price set in accordance with the Manual.

B18 In the event that Fonterra sets the base milk price other than in accordance with a recommendation by the Milk Price Panel, s 150N of the Act requires Fonterra to make publicly available a statement of its reasons for doing so.

B19 For the 2013/14 season, Fonterra set the base milk price by deducting an 'Adjustment Amount'[139] from the milk price set in accordance with the Manual. Fonterra's s 150T Reasons paper for the 2013/14 year includes its reasons for making this adjustment.[140]

---

139 The difference between the milk price calculated under the Manual and the base milk price proposed to be paid by Fonterra for the 2013/14 dairy season, which at 31 May 2014 was forecast by Fonterra to be a reduction to the Manual-consistent milk price by 55 cents per kgMS. The adjustment to the final 2013/14 milk price was 53 cents per KgMS. This adjustment has not been applied in 2014/15.

140 Fonterra "'Reasons' Paper in support of Fonterra's base milk price for the 2013/14 season" (1 July 2014), Part C.

Attachment C: How Fonterra calculates the base milk price

C1 In this attachment, we provide a high-level overview of how Fonterra calculates the base milk price.

C2 Further detail can be found in Fonterra's:

C2.1 2014/15 Milk Price Manual and its supporting 'Reasons' paper; and

C2.2 'Reasons' Paper in support of Fonterra's base milk price for the 2014/15 season.

C3 The Fonterra Board sets the base milk price paid to farmers for each dairy season. The Board is advised by the Milk Price Panel, whose role includes overseeing the governance of Fonterra's Farmgate Milk Price Manual. The Milk Price Panel has five members, with the majority and the chair of the panel being independent of farmer interests. All panel members are appointed by the Fonterra Board and ratified by Fonterra Farmer Shareholders.

C4 The methodology for calculating the base milk price for each dairy season is guided by a set of principles in Fonterra's constitution and in the Manual.

C5 Fonterra's current policy is that its Manual is subject to comprehensive review every four years. However, changes to the Manual can be made in the interim on a prospective basis. Any changes to the Manual take effect in the financial year after the year in which the changes are made (Fonterra's financial year is from 1 August to 31 July).

C6 The base milk price is calculated by dividing:

C6.1 the total pool of money determined by Fonterra's Board to be available for payment to farmers for their raw milk supply to Fonterra in a season; by

C6.2 the total number of kilograms of milk solids (kgMS) supplied to Fonterra by farmers in a season. [141]

[141] This is the average price paid to farmers per kgMS. Payments to individual farmers for their milk are adjusted for the composition of milk supplied (in terms of the fat and protein components) and the timing of supply to Fonterra (eg, milk supplied during the winter period attracts certain premiums).

C7 Fonterra determines the total pool of money available for payment to farmers for their raw milk supply to Fonterra in a season, as the residual of:

C7.1 the notional revenue Fonterra would earn in NZ dollars if the equivalent of all the raw milk supplied to Fonterra in New Zealand was converted into a chosen product mix, and sold on international dairy markets; less

C7.2 the notional 'cash' (or operating) costs of collecting raw milk from farms, processing it into the chosen product mix and then transporting this product mix to the point of export from New Zealand, along with the costs of selling the finished product, administration/overhead costs and tax expense; less

C7.3 the notional capital costs, which provide for depreciation on fixed assets, return on capital investment, and working capital; less or plus

C7.4 any adjustment to the base milk price that results in setting a base milk price other what is recommended by the Milk Price Panel.

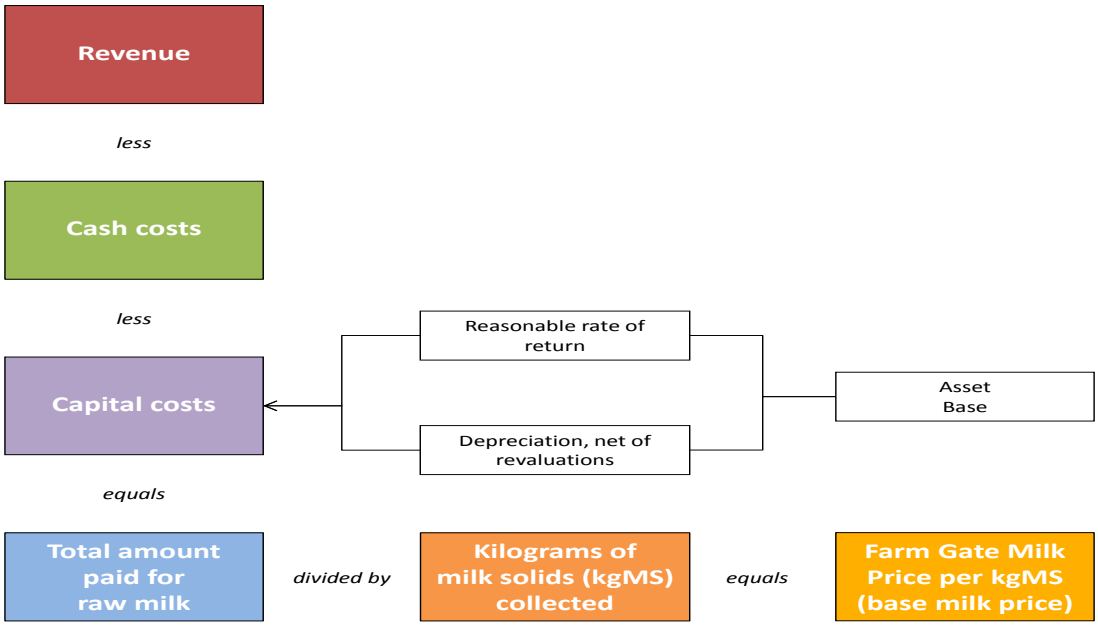
C8 Given that around 95% of the total raw milk produced in New Zealand is exported, the first three components above are heavily influenced by the demand and supply characteristics of the international dairy markets and by foreign exchange fluctuations.

C9 Although Fonterra makes a number of payments to farmers for raw milk during the dairy season (based on its forecast base milk price), its current policy is to confirm the final base milk price for the season after the end of that season. The dairy season runs from 1 June to 31 May. Fonterra's final base milk price is typically set in September after the end of the relevant season and after the end of Fonterra's financial year ending 31 July (and after the Act requires us to complete our statutory review).[142] This results in end of year 'wash-up' payments to farmers.

[142] We are required by s 150Q to finalise our report on the base milk price calculation by 15 September following the end of the season. This may mean that Fonterra will set the final base milk price for the season after we have completed our review. Our 2014/15 review was based on the latest forecast base milk price of $4.40 per kgMS which were announced by Fonterra on 28 May 2015.

C10 Figure C1 provides a visual representation of the methodology for calculating the base milk price Fonterra proposes to pay.

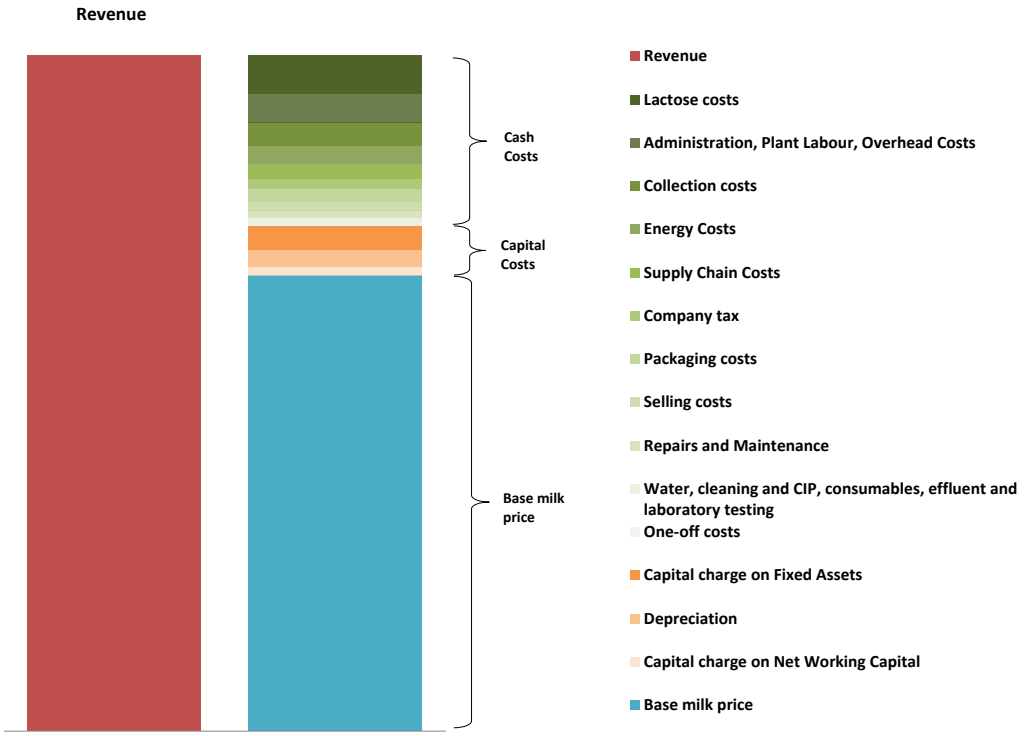
Figure C1: Fonterra's base milk price methodology[143]



143 This figure does not include an adjustment noted in para C7.4.

C11 Figure C2 shows the relative size of each component of the base milk price calculation, based on 2014/15 figures.

Figure C2: Relative size of components of the base milk price



Attachment D: Links between key assumptions and relevant base milk price components

Assumption	Source of assumption (Reasons paper)	Production plan	Yields	Sales phasing	Pricing	Foreign exchange	Selling costs	Lactose costs	Collection costs	Packaging costs	Energy costs	Water, cleaning and CIP, consumables, effluent and laboratory	Repairs and maintenance costs	Freight costs	Storage costs	Capital charge on fixed assets	Tilted annuity methodology	Company tax	Net working capital
Capacity and production is split between the North Island and South Island	Page 12 (safe harbour)	Y	Y			Y				Y		Y		Y	Y			Y	Y
Each plant is modelled on a "standard plant" and account is taken of regional variations (Powder plants are modelled on Darfield D1)	Page 38	Y	Y			Y				Y				Y	Y	Y	Y	Y	Y
Standard plant capacity is greater than the manufacturer's specification (name plate capacity)	Pages 12 (safe harbour) and 38	Y	Y			Y		Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y

Assumption	Source of assumption (Reasons paper)	Production plan	Yields	Sales phasing	Pricing	Foreign exchange	Selling costs	Lactose costs	Collection costs	Packaging costs	Energy costs	Water, cleaning and CIP, consumables, effluent and laboratory	Repairs and maintenance costs	Freight costs	Storage costs	Capital charge on fixed assets	Tilted annuity methodology	Company tax	Net working capital
Plants are assumed to have the same technology (more or less), regardless of age	Page 38	Y	Y			Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
The standard milk powder plant on average has an OPT of greater than 95% for the F15 season	Page 17	Y	Y			Y		Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y
90% of products are sold through GDT, 10% are sold to government procurement customers	Pages 22-24				Y	Y	Y											Y	
Notional producer sells all of its products for the season	Page 20			Y	Y	Y	Y							Y	Y			Y	
Notional producer can achieve actual prices achieved on GDT (ie, applied to the notional volumes)	Page 22				Y	Y	Y												

Attachment E

Milk price notional producer

This infographic is designed to illustrate what the notional producer business looks like for the purposes of calculating Fonterra's base (farmgate) milk price. The Commission is required annually to review Fonterra's Milk Price Manual and Fonterra's base milk price calculation.

Notional producer assumptions:

- All raw milk collected by Fonterra in a dairy season is processed into Reference commodity products
- Foreign Exchange gains and losses experienced by Fonterra are incorporated into model
- All Reference commodity products sold overseas
- The notional producer not constrained by financial year (ie. what is produced in a season is sold)

Site and plant assumptions:

- Site footprint is the same as Fonterra's commodity processing site footprint (assumed number of sites equals the number of Fonterra actual processing sites)
- Site sizes: small (1 plant), medium (2 plants), large (4 plants with one site with 6 plants)
- Weighted average daily capacity of all standard plants in the model is materially aligned with Fonterra's current weighted average
- Each plant is modelled off a standard plant then adjusted for regional variations (gas or coal boilers, effluent and seismic costs). South Island uses coal, North island uses mixture of gas and coal
- Standard powder plant modelled off Darfield D1
- All plants are assumed to have the latest technology
- Capacity of initial 2008 powder plant and incremental plant from 2009-2012 is assumed to be 1.95 million litres (ml) per day
- Capacity of new powder plants added post 2012 is 2.47 ml per day

WMP/SMP

Standard WMP/SMP plant features:

- Milk collection
- Milk reception including silos
- Milk treatment including separators
- Major WMP/SMP milk processing plant
  - Evaporators
  - Dryer
  - Powder packing and handling
- Plant control and monitoring
- Waste processing
- Energy supply system (including boilers)
- Maintenance, testing, operational and administrative facilities
- Product storage facilities and handling

2008 plants based on manufacturer 2008 quotations for construction of WMP and SMP plants

2012 plants were based on manufacturer 2011 quotations for construction of WMP and SMP plants

*Fonterra's Darfield **Dryer 1** plant is used as the reference WMP plant*

*Fonterra's Edendale **Dryer 3** plant is used as the reference SMP plant*

2014/15 WMP and SMP plants:

North Island = 28 plants
(*Sites*: 4 small, 6 medium, 2 large)

South Island = 19 plants
(*Sites*: 4 small, 2 medium, 2 large)

Total 47 plants

Additional plants only added if not enough forecast plant capacity [five incremental plants have been added since 2009 *(3x1.95ml plants and 2x2.47ml plants)*]

Lactose purchased overseas
(Quantity = specifications of RCP in production plan)*

Lactose used to standardise milk powders

- Price is lower of Fonterra or other processor landed cost
- Purchased in USD then converted into NZD using Forex safe harbour assumption (Gains and losses experienced by Fonterra incorporated in model)
- Costs include shipping to NZ wharf

Lactose freight costs from wharf to site*

AMF

Standard AMF plant features:

- Major AMF processing plant
  - Cream reception
  - Cream storage tanks
  - Cream separator
  - Buttermilk separator
  - Fat return
  - Product storage
  - AMF drum filling, sealing and warehousing
- Plant control and monitoring
- Waste processing
- Energy supply system
- Maintenance, testing, operational and administrative facilities
- Product storage and handling

Fonterra's Edendale plant is used as the reference plant

2014/15 AMF plants:

North Island = 2 plants
South Island = 2 plants
(1 plant added since 2009)

LEGEND

RCP	Reference commodity products
WMP	Whole milk powder
SMP	Skim milk powder
AMF	Anhydrous milk powder
BMP	Buttermilk powder

Revenue | Costs

Makeup of revenue and costs

* Notional data (*independent from Fonterra's current performance)*

\+ Actual data

Raw milk from farmers

Fonterra's actual total raw milk supply

All raw milk collected by Fonterra is processed into Reference commodity products (RCP)
*[**RCP** = WMP; SMP; AMF; Butter and BMP]*

Site containing WMP plant

Actual Fonterra collection costs to WMP/SMP plant
Same processing site footprint as Fonterra which means that Fonterra sites that produce Non-RCPs are populated in the model with WMP/SMP plants

Site containing SMP plant

Notional Diversion costs to site with AMF plant **(Transport cream)**

Produces **cream** (as a by-product of WMP and SMP)

Notional Diversion costs to site with Butter plant **(Transport cream)**

AMF plant

Produces **buttermilk** (as a by-product of AMF and Butter)

Butter plant

Notional Diversion costs to BMP plant **(Transport buttermilk)**

Notional Diversion costs to BMP plant **(Transport buttermilk)**

BMP plant

Milk collected in each island x yields	Cream generated in each island x yields	Buttermilk generated in each island x yields	Cream generated in each island x yields	Milk collected in each island x yields
WMP finished product *(notional volumes produced)* 67% of total production (2013/14 season)	**AMF finished product** *(notional volumes produced)* 5% of total production (2013/14 season)	**BMP finished product** *(notional volumes produced)* 2% of total production (2013/14 season)	**Butter finished product** *(notional volumes produced)* 8% of total production (2013/14 season)	**SMP finished product** *(notional volumes produced)* 18% of total production (2013/14 season)

Prices+

- WMP, SMP and AMF Prices: to Fonterra's actual prices received on GlobalDairyTrade platform (GDT)
- Butter and BMP: Fonterra's actual prices received on GDT, prices achieved on arm's length basis and prices that reflect market prices at time of contract sales
- Prices calculated by weighted average price by pricing month (Average base commodity prices)
- Downgrade products are sold at lower prices

Sales Phasing (% of product sold each month)+

- Fonterra's actual sales phasings profile for each month of dairy season
- Forecasted at the start of season and updated when actual sales phasing data available
- Sales volumes include GDT and off-GDT

Sales revenue

- Revenues recognised when sales are invoiced, at time of shipment

Sales Revenue converted from USD to NZD using 'benchmark FX conversion rate'

Freight costs from plant to the wharfs for shipping+
Based on Fonterra actual contract rates for dry and cool per MT of product

RCPs shipped to the customer

(90% to GDT customers, 10% to government procurement customers)
ALL PRODUCTS SOLD OVERSEAS

Notional Producer Product mix+

- Monthly product mix targets are set prospectively
- Aligned to Fonterra's targeted monthly allocation of milk to SMP and WMP production and cream to AMF and butter production
- Monthly average milk composition used is Fonterra's actual milk composition across New Zealand

BMP

Standard BMP plant features:

- Major BMP processing plant
  - Evaporators
  - Dryer
  - Powder packing and handling
  - Cooler/ sifting
  - Baghouse filter
- Buttermilk reception
- Buttermilk standardisation
- Plant control and monitoring
- Waste processing
- Energy supply system
- Maintenance, testing, operational and administrative facilities
- Product storage and handling

Fonterra's Te Awamutu plant is used as the reference plant

2014/15 BMP plants:

North Island = 2 plants
South Island = 2 plants

Lactose purchased overseas
(Quantity = specifications of RCP in production plan)*

Lactose freight costs from wharf to site*

BUTTER

Standard Butter plant features:

- Major Butter processing plant
  - Chilled cream reception
  - Cream crystallising silos
  - Additive system (salt)
  - Butter making machine
  - Chilled water supply
  - Buttermilk storage
- Plant control and monitoring
- Waste processing
- Energy supply system
- Maintenance, testing, operational and administrative facilities
- Product storage and handling

Fonterra's Clandeboye plant is used as the reference plant

2014/15 Butter plants:

North Island = 5 plants
South Island = 1 plant

Storage costs (cool product)+
Third party storage

YIELDS*

Monthly national average yields, notional losses and RCP specifications

Comprised of:

- Target product composition of fat and protein – based on minimum fat and protein content international standard
- Production losses (fat and protein)
- Fat content of cream
- Yields calculated for each combination of SMP/Butter/BMP; SMP/AMF/BMP; WMP/Butter/BMP and WMP/AMF/BMP

OTHER COSTS

Site and plant costs for WMP/SMP/AMF/BMP/Butter

FIXED

- Energy costs*
- Plant labour costs (wages)*
- Rerairs and maintenance costs*
- Site overhead costs*
- Water, cleaning, effluent, laboratory and consumables*

VARIABLE (by volumes produced)

- Storage costs (dry products)*
- Packaging costs+
- Energy costs (includes Carbon credit requirements)*
- Water, cleaning, effluent, laboratory and consumables*

Selling costs*

- The costs of selling through GDT (GDT fees)
- The costs of maintaining 8 in-market hubs for customer service
- The costs of maintaining 4 in-house country offices to support government procurement customers
- The costs of sales-related NZ costs

Assumption: That 90% of product is sold via GDT and 10% to government procurement customers

Administration costs*

- Corporate overheads
- IS costs
- Communication and branding
- Governance costs
- Sustainability costs
- FTO corporate and supply chain overheads (includes main office)
- Insurance

Supply chain operating and overhead costs

Depreciation on fixed assets
(including collection assets)*

Tax expense*

One-off costs*

Capital charge*

Function of:

- Notional producer's Weighted cost of capital (WACC) rate
- Old assets, land & IS 2008-2012
- New assets, land & IS from 2012
- Collection and dry store assets
- Depreciation (Tilted annuity methodology)
- Capital charge on net working capital

Cost of Fixed assets (calculated for capital charge)*

Glossary

Term/Abbreviation	Definition
The Act, or DIRA	Dairy Industry Restructuring Act 2001
AMF	Anhydrous milk fat
Base milk price	Farm gate milk price expressed per kilogram of milk solids
BMP	Butter milk powder
CGPI	Capital goods price index
CIF	Customs, insurance and freight
CIP	Clean in place
dairy season	1 June to 31 May
dry run review	Non-statutory review of Fonterra's 2011/12 methodology for setting the base milk price and Fonterra's application of that methodology
DV	Diminishing value
EBIT	Earnings before interest and tax
ERE	Employee related expenses
FAS	Free alongside ship
Milk Price Manual or the Manual	Fonterra's Farm Gate Milk Price Manual, generally referred to by the version relating to each dairy season (for example, 2014/15 Manual)
GDT	Global dairy trade, Fonterra's online auction
kgMS	Kilogram of milk solids
MT	Metric tonne
Notional producer	The notional commodity business that is used to calculate the base milk price
RCP	Reference commodity product, being WMP, SMP, BMP, butter, AMF
SMP	Skim milk powder
TAF	Trading Among Farmers
USDA	United States Department of Agriculture
WACC	Weighted average cost of capital
WMP	Whole milk powder