

Dairy Industry Restructuring Act 2001: Review of Fonterra's 2013/14 base milk price calculation

Final report

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Foreword

This report sets out our conclusions on the extent to which the assumptions, inputs and process used by Fonterra in calculating the 2013/14 'base milk price' are consistent with the purpose of the milk price monitoring regime in s 150A of the Dairy Industry Restructuring Act 2001 (the Act) – ie, to promote the setting of a base milk price that provides an incentive for Fonterra to operate efficiently, while providing for contestability in the market for the purchase of milk from farmers.

The base milk price is the price Fonterra pays farmers for raw milk, and the purchase of raw milk is Fonterra's largest input cost.

The milk price monitoring regime simply provides a 'snapshot' assessment of each year's base milk price against the s 150A purpose, and this is only the second year in which we have undertaken a statutory review of Fonterra's base milk price calculation. Next year, the Act requires the Minister for Primary Industries to initiate a review of the state of competition in the New Zealand dairy industry (s 148). Given that context, we set out here some initial observations about our conclusions on the 2013/14 base milk price calculation in light of one of the Act's broader and longer term objectives—ie, to promote the efficient operation of New Zealand dairy markets by regulating Fonterra's activities to ensure those markets are contestable (s 4(f)).

For this year's review of the base milk price calculation, our overall conclusion is that Fonterra has not calculated the 2013/14 base milk price consistent with the s 150A purpose. By contrast, last year we concluded that the 2012/13 base milk price had been calculated in a way that was 'largely consistent' with that purpose. The main difference between last year's conclusion and this year's conclusion arises as a result of the downward adjustment Fonterra has made to the 2013/14 milk price found by applying its Milk Price Manual.

The Act allows and provides for Fonterra to set a price that is different from the milk price calculated in accordance with the Manual, and we have not reached our overall conclusion simply because Fonterra has not set a 'Manual-consistent' milk price. Rather, we consider the specific way the adjustment has been determined and applied is not consistent with setting a base milk price that provides incentives for Fonterra to operate efficiently. Fonterra is using the adjustment to entirely reverse out the adverse effects of a number of 'unanticipated' and 'unprecedented' events that would have otherwise detrimentally impacted its profitability due to current constraints on its milk processing asset footprint and physical capacity. Lowering the base milk price to reduce its input costs and protect its profits in this way would not be possible if Fonterra were operating in a contestable market.

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.

There are many factors which can, and do, provide incentives for Fonterra to operate efficiently. Our review of the base milk price calculation against the efficiency dimension of the s 150A purpose requires us to focus on only *one* of these possible factors—ie, whether that calculation provides those incentives. Therefore, any single year's conclusion that Fonterra has not calculated the base milk price in a way that is consistent with providing incentives for it to operate efficiently does not imply that Fonterra is inefficient. Rather, it means that Fonterra's approach to calculating the base milk price is not providing efficiency incentives in the manner contemplated by the s 150A purpose. However, we note that Fonterra's decision to vary the milk price from the Manual-consistent price reduces the level of predictability of the milk price and dividend paid to Fonterra's farmer or unit shareholders, and may affect the investment incentives of other industry participants as well.

The milk price monitoring regime was introduced primarily because, in the absence of a competitive market for the purchase of farmers' milk, there is a risk that Fonterra might have the incentive and ability to set a base milk price that is 'too high', and which could therefore act as a barrier to efficient entry by other milk processors. Setting aside Fonterra's adjustment to this year's Manual-consistent milk price, a number of concerns about the Manual-consistent milk price only became apparent this year. Fonterra's milk price calculation does not provide for a cost allowance to reflect the risk that 'super flush' peak milk flows at any time in a season might exceed the milk processing capacity of the notional producer (on which the Manual-consistent price is based). Consequently, and taking other factors into account, we consider it possible that this year's Manual-consistent milk price has not been calculated consistent with the contestability dimension of the s 150A purpose.

This year, however, Fonterra has opted to *reduce* the base milk price below the Manual-consistent level. That downward adjustment is sufficiently large that, overall, we consider the base milk price calculated by Fonterra is consistent with the contestability dimension. However, if such a material discount to the Manual-consistent milk price were to persist over time, Fonterra itself acknowledges that setting the price 'too low' might promote inefficient entry, which would be inconsistent with one of the key overall objectives of the Act (cited above). If the circumstances which led to this year's lower base milk price prove not to be a 'one-off' event, and result in future reductions of the base milk price from the Manual-consistent level, we might be more concerned about Fonterra's incentives to operate efficiently over the longer term, and whether inefficient entry might be promoted, rather than contestability.

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Executive Summary

- X1 This report sets out our conclusions, and the reasons for those conclusions, on the extent to which the assumptions adopted, and inputs and process used by Fonterra in calculating the 2013/14 base milk price are consistent with the purpose of the milk price monitoring regime set out in s 150A of the Dairy Industry Restructuring Act 2001 (the Act).¹ The base milk price is the price Fonterra pays farmers for raw milk, and the purchase of raw milk is its largest input cost.
- X2 Section 150A of the Act specifies that the purpose of the milk price monitoring regime is to promote the setting of a base milk price by Fonterra that:
- X2.1 provides an incentive for Fonterra to operate efficiently (the ‘efficiency dimension’),
 - X2.2 while providing for contestability in the market for the purchase of milk from farmers (the ‘contestability dimension’).
- X3 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.
- X4 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’).
- X5 Section 150A explains 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.
- X6 In assessing whether the base milk price calculation provides for contestability, we considered whether the assumptions adopted, and the inputs and process used to calculate the base milk price are practically feasible for Fonterra or another efficient processor. Consistent with last year’s review of the 2012/13 base milk price calculation, we have assessed the extent to which the components of this year’s calculation are practically feasible on both an individual component and aggregate price basis.

¹ This report relates to the second of two statutory reviews of Fonterra’s base milk price setting that we are required to complete for each dairy season under the Act. We published our report on the review of Fonterra’s Milk Price Manual for the current season in December 2013. In forming our conclusions in this report, we have also addressed outstanding matters raised in our report on the Review of Fonterra’s Milk Price Manual for 2013/14, as well as in our review of the base milk price calculation for the 2012/13 season.

Our overall conclusion

- X7 We consider that, in combination, the assumptions adopted, and inputs and process used by Fonterra to calculate the 2013/14 base milk price are not consistent with the s 150A purpose statement.
- X8 For 2013/14, Fonterra's Board has exercised its discretion to set a base milk price lower than the base milk price calculated in accordance with Fonterra's Milk Price Manual. Fonterra intends setting the base milk price by adjusting the 'Manual-consistent' milk price downwards by an 'Adjustment Amount'. In May 2014, Fonterra announced a base milk price of \$8.40 per kilogram of milk solids (kgMS), found from a Manual-consistent price of \$8.95/kgMS, reduced by an Adjustment Amount of 55 cents/kgMS.
- X9 We consider that Fonterra's approach to determining and applying that Adjustment Amount is consistent with the contestability dimension of the s 150A purpose, but not consistent with the efficiency dimension. Inconsistency with either of the two dimensions is sufficient for us to conclude that the base milk price has not been calculated consistent with the s 150A purpose.

Our conclusions on the efficiency dimension with and without the milk price adjustment

- X10 We consider that the 2013/14 base milk price has not been calculated consistent with the efficiency dimension of the s 150A purpose. Fonterra is intending to lower the 2013/14 Manual-consistent milk price by the Adjustment Amount. Doing so entirely reverses out the adverse effect on Fonterra's earnings due to relatively high stream returns from 'reference commodity products' (RCPs),² as well as due to the higher costs arising from unanticipated peak milk flows.
- X11 The reference commodity products of the notional producer, on which the Manual-consistent milk price is based, have turned out to be far more profitable than the mix of products that Fonterra actually produces. Also, the notional producer is effectively assumed to have the capacity to process all of the raw milk that Fonterra collects, whereas the 'super flush' peak milk flows exceeded Fonterra's actual processing capacity during the 2013/14 season. Without the milk price adjustment, these factors would have a detrimental financial impact on Fonterra due to current constraints on its actual milk processing asset footprint and physical capacity.
- X12 The efficiency incentive provided by setting the base milk price works as a result of the effect it has on Fonterra's actual profitability. Although Fonterra can increase its profits by improving efficiency, it can also control its profit levels by changing the level of the 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

² 'Stream return' refers to the net free alongside ship (FAS) return, less non-milk costs, to a kilogram of milk solids allocated to a 'product stream'. A 'product stream' is a basket of complementary products that utilises all the components in a kgMS. The reference commodity product (RCP) streams that inform the Manual-consistent milk price comprise WMP/Butter/BMP, WMP/AMF/BMP, SMP/Butter/BMP and SMP/AMF/BMP.

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.

- X13 If Fonterra sets the base milk price consistent with the Manual, which is based on the notional producer, Fonterra's actual profitability will depend on whether it is more or less efficient than that notional producer. Setting a price lower than the Manual-consistent milk price with the benefit of hindsight, to avoid the impact on its profitability from being unable to match the performance of the notional producer, undermines the incentives for Fonterra to operate efficiently that would otherwise be provided by setting a Manual-consistent milk price.
- X14 Because there are many incentives for Fonterra to operate efficiently, apart from the way Fonterra sets the base milk price, our conclusion on the efficiency dimension does not imply that Fonterra is inefficient. Rather, it means that Fonterra's approach to calculating the base milk price is not providing incentives for Fonterra to operate efficiently in the manner contemplated by the s 150A purpose.
- X15 Had Fonterra calculated the 2013/14 base milk price solely in accordance with the Manual (ie, not deducted the Adjustment Amount), its use of mostly notional data to set the inputs for the 2013/14 base milk price would have been consistent with providing Fonterra with incentives to operate efficiently, and therefore with the efficiency dimension of the s 150A purpose.

Our conclusions on the contestability dimension with and without the milk price adjustment

- X16 We consider that the 2013/14 base milk price has been calculated consistent with the contestability dimension of the s 150A purpose. This year's downward adjustment to the base milk price is sufficiently large that the assumptions adopted, and inputs and process used should, in aggregate (ie, after deducting the Adjustment Amount), be practically feasible for an efficient processor.
- X17 Had Fonterra calculated the 2013/14 base milk price solely in accordance with the Manual (ie, not deducted the Adjustment Amount), we consider it possible that the contestability dimension of the s 150A purpose would not have been met. The adverse events Fonterra has faced this year have highlighted that the Manual-consistent milk price calculation does not provide for a cost allowance to reflect the risk that 'super flush' peak milk flows at any time in a season might exceed the milk processing capacity of the notional producer (on which the calculation is based).
- X18 We consider it possible that the absence of such an allowance, when combined with the direction and potential impact of the three components on which we are unable to conclude (ie, energy costs, the fixed asset values used in the capital charge calculation, and the asset beta used in the weighted average cost of capital (WACC) calculation), means that the assumptions adopted, and inputs and process used to calculate the 2013/14 Manual-consistent milk price are not, in aggregate, practically feasible for an efficient processor.

- X19 The reason we consider the calculation of the 2013/14 base milk price is consistent with the contestability dimension, despite the calculation of the Manual-consistent milk price possibly not being so, is because the Adjustment Amount (ie, 55 cents/kgMS) is large enough to offset the possible extent by which the assumptions, inputs and process used to calculate the Manual-consistent price are not practically feasible, in aggregate.

Other matters

- X20 Further work is planned to resolve a number of outstanding matters for our 2014/15 base milk price calculation review.
- X20.1 We plan to review the expert opinion that Fonterra is obtaining on the asset beta, with a view to resolving with Fonterra our inability to conclude on the WACC.
- X20.2 We will further review the energy cost data and will review with Fonterra the assumptions on the level of required ancillary plant, such as boilers, for consistency with Fonterra's plant availability assumption.
- X20.3 We will work with Fonterra to enable it to devise a cost-effective breakdown of the asset composition of the notional processing plant that meets the requirements of our review.

1. Introduction

1.1 In this chapter, we:

- 1.1.1 set out the purpose of this report and the scope of our review of Fonterra's base milk price calculation (Review of the base milk price calculation);
- 1.1.2 explain how this report relates to our report on the Review of Fonterra's 2013/14 Milk Price Manual (Review of the Manual) published in December 2013;³
- 1.1.3 summarise how Fonterra calculates the base milk price;
- 1.1.4 highlight some of the concerns about the way Fonterra may calculate that price which the milk price monitoring regime is intended to address; and
- 1.1.5 outline the structure of this report.

Purpose of the report

- 1.2 The purpose of this report is to outline our conclusions, and reasons for those conclusions, on the extent to which the assumptions adopted, and the inputs and process used by Fonterra in calculating its 2013/14 base milk price are consistent with the purpose of the milk price monitoring regime set out in the Dairy Industry Restructuring Act 2001 (the Act).
- 1.3 We provided our draft report to Fonterra for comment in accordance with s 150U of the Act. We also sought comment from other interested parties on our draft report. We have formed our conclusions after considering all comments on our draft report.

Scope of this report: assessing Fonterra's assumptions, inputs and process that underpin its 2013/14 base milk price calculation

- 1.4 The Act requires us to undertake two separate reviews of Fonterra's base milk price setting in each dairy season:
 - 1.4.1 review of Fonterra's Farmgate Milk Price Manual (Review of the Manual), which sets out the methodology for calculating the base milk price for the season; and
 - 1.4.2 review of Fonterra's base milk price calculation (Review of the base milk price calculation).
- 1.5 We published our Review of the Manual for the 2013/14 season in December 2013.⁴

³ Fonterra's 2013/14 Milk Price Manual (the Manual) is available for download from Fonterra's website at: <http://www.fonterra.com>

⁴ Commerce Commission, *Final Report on the Review of Fonterra's 2013/14 Milk Price Manual*, 16 December 2013.

- 1.6 This report relates to the 2013/14 Review of the base milk price calculation.
- 1.7 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 Subpart 5A (s 150A) of the Act (the s 150A purpose). The s 150A purpose is to promote the setting of a base milk price by Fonterra:
- 1.7.1 that provides an incentive to Fonterra to operate efficiently, while
- 1.7.2 providing for contestability in the market for the purchase of milk from farmers.
- 1.8 Section 150A also explains 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.
- 1.9 In order for us to report on this, s 150T requires Fonterra to provide us with the following information:
- 1.9.1 the assumptions adopted, and the inputs and process used by Fonterra in calculating the base milk price for the relevant season; and
- 1.9.2 certification of the extent to which Fonterra considers the assumptions adopted, and the inputs and process used in calculating the base milk price are consistent with the purpose; and
- 1.9.3 reasons for the views expressed in Fonterra's certification.
- 1.10 This information is provided in Fonterra's Reasons Paper for the 2013/14 base milk calculation, which is available on our website.⁵
- 1.11 We have had regard to this information in making this report. We also had regard to the 2012/13 Review of the base milk price calculation and submissions received on our Process Paper and our draft report.⁶

How this report relates to our Review of the Manual

- 1.12 We published our 2013/14 Review of the Manual in December 2013.⁷ In that report we concluded that Fonterra's 2013/14 Manual was largely consistent with the s 150A purpose.

⁵ Fonterra, 'Reasons' Paper in support of Fonterra's base milk price for the 2013/14 Season, 1 July 2014, available at <http://www.comcom.govt.nz/review-of-milk-price-calculation-201314-season>

⁶ Commerce Commission, *Process Paper – Review of 2013/14 base milk price calculation*, 9 June 2014, and *Draft report – Review of Fonterra's 2013/14 base milk price calculation*, 15 August 2014.

⁷ Commerce Commission, *Review of Fonterra's 2013/14 Milk Price Manual: Final Report*, 16 December 2013.

- 1.13 However, we were unable to conclude on the extent to which several rules in the Manual are practically feasible for Fonterra or another efficient processor, pending our assessment of the application of those rules in our review of the actual Manual-consistent milk price calculation.
- 1.14 Table 1.1 below sets out the outstanding issues from our Review of the Manual and references the relevant parts of this report where we address these issues.

Table 1.1: Outstanding issues from our Review of the Manual

Topic	Parts of this report where we address the issues
Asset beta assumption in the weighted average cost of capital (WACC) calculation	Attachment V: Weighted average cost of capital, paragraphs V17-19
Asset stranding risk provided for in the calculation of the asset beta	Attachment V: Weighted average cost of capital, paragraphs V9-10
Basis of derivation of other costs, including site overheads, general overhead costs and R&D costs	Attachment P: Site overhead costs, paragraph P8
Change in basis of repairs and maintenance costs	Attachment O: Repairs and maintenance costs, paragraph O7

- 1.15 We consider the following issues still outstanding and propose to review these issues as part of our review of Fonterra's 2014/15 Milk Price Manual or 2014/15 milk price calculation:
- 1.15.1 Asset beta assumption in the weighted average cost of capital (WACC) calculation;
- 1.15.2 Asset stranding risk provided for in the calculation of the asset beta;⁸ and
- 1.15.3 Basis of derivation of other costs, including site overheads, general overhead costs and R&D costs.⁹

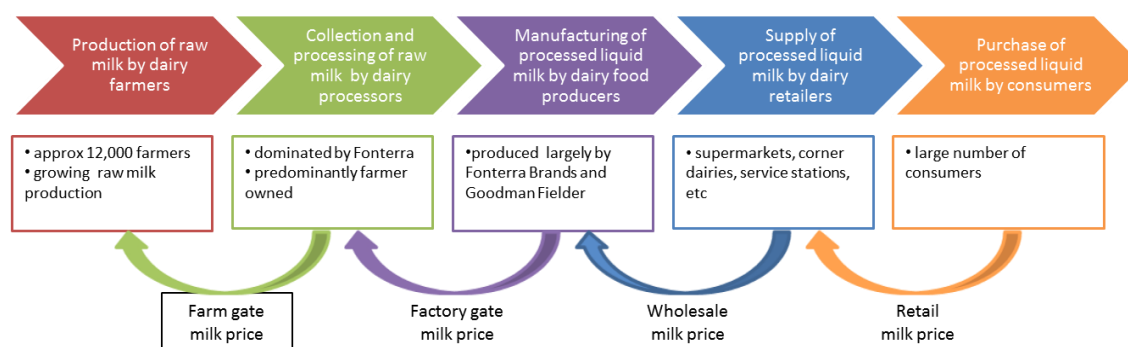
What is the 'base milk price' relative to other milk prices?

- 1.16 The phrase 'milk price' can have different meanings depending on which component of the milk supply chain is being considered. Figure 1.1 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.

⁸ Fonterra has amended Rule 40 and added Rule 41 in its 2014/15 Manual in response to our concerns on asset stranding risk. We will assess whether these amendments have addressed our concerns in the Review of the 2014/15 Manual.

⁹ Fonterra has previously signalled its intention to introduce methodological changes to calculating these costs without changing the Rule in the Manual. We note that there have been no methodological changes in the calculation of these costs for the 2013/14 base milk price calculation.

Figure 1.1: Milk supply chain in New Zealand



1.17 As Figure 1.1 shows, the milk price is made up of the following four components:

1.17.1 **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 is explained below);

1.17.2 **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;

1.17.3 **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

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

Definition of ‘base milk price’ for the purposes of our review

1.18 The term used by the Act for the farm gate milk price is ‘the base milk price set for that season’.

1.19 Our 2012/13 Review report noted that all references in that report to the farm gate milk price should be read as meaning the same as the base milk price. This year, due to the difference in milk price between that proposed to be paid by Fonterra, and that calculated under the Milk Price Manual, we have used the term ‘base milk price’ to refer to the milk price proposed to be paid by Fonterra after adjustment by Fonterra’s Board, and ‘Manual-consistent milk price’ to refer to the milk price calculated under the Manual before adjustment by Fonterra’s Board.¹⁰

¹⁰ In its 1 July 2014 Reasons Paper, Fonterra stated that “In preparing this submission we have used the term Farmgate Milk Price as meaning the average Milk Price calculated under the Milk Price Manual and have interpreted the term “base milk price” as meaning the average amount per kgMS actually paid by Fonterra.” (page 7)

- 1.20 The focus of our review is on the base milk price and not any other milk price within the milk supply chain.

How Fonterra calculates the base milk price

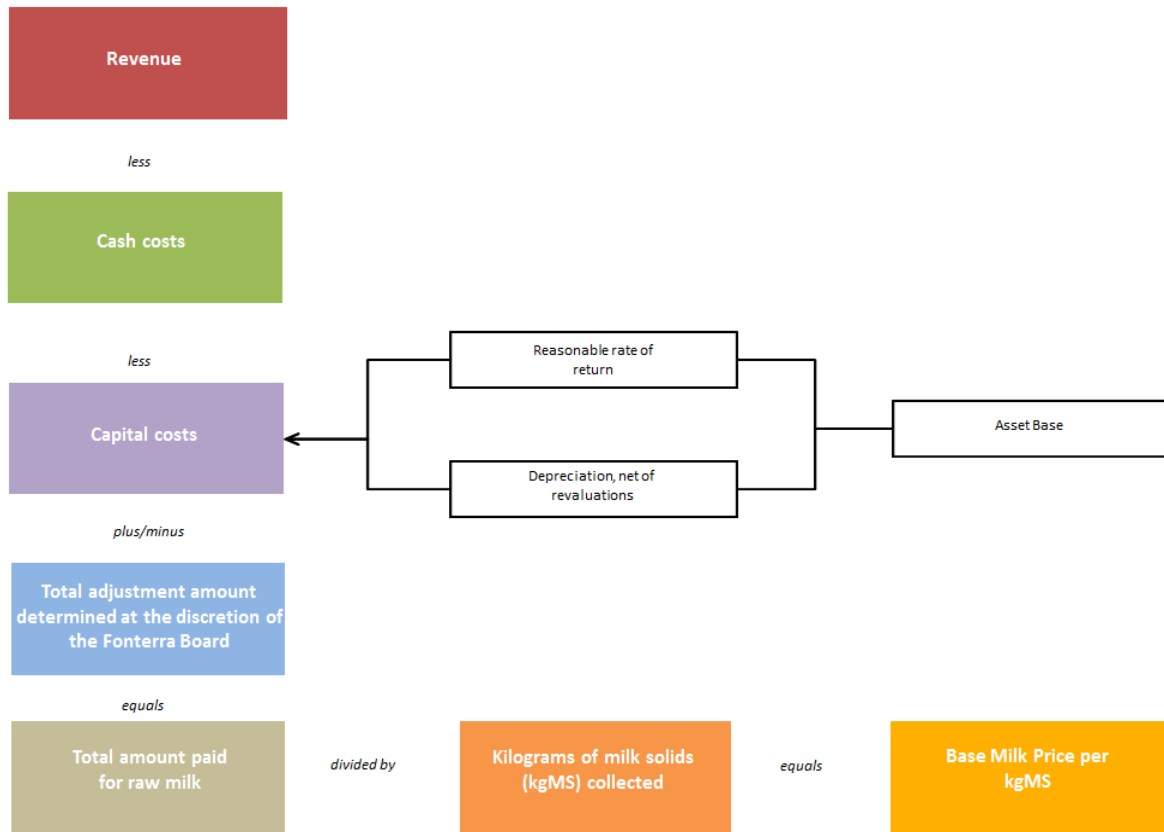
- 1.21 The Fonterra Board sets the base milk price paid to farmers for each dairy season. The Board is advised by the Milk Price Panel, whose role includes overseeing the governance of Fonterra's Farmgate Milk Price Manual. The Milk Price Panel has five members, with the majority and the chair of the panel being independent of farmer interests. All panel members are appointed by the Fonterra Board and ratified by Fonterra Farmer Shareholders.
- 1.22 The methodology for calculating the Manual-consistent milk price for each dairy season is guided by a set of principles in Fonterra's constitution and in the Manual.
- 1.23 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).
- 1.24 The base milk price is calculated by dividing:
- 1.24.1 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
 - 1.24.2 the total number of kilograms of milk solids (kgMS) supplied to Fonterra by farmers in a season.¹¹
- 1.25 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:
- 1.25.1 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
 - 1.25.2 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
 - 1.25.3 the notional capital costs, which provide for depreciation on fixed assets, return on capital investment, and working capital; less or plus

¹¹ 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).

- 1.25.4 any adjustment to the Manual-consistent milk price that results in the setting of a base milk price other than in accordance with the recommendation of the Milk Price Panel.
- 1.26 Given that approximately 95% of the total raw milk produced in New Zealand is exported, the first three components above of the base milk price that comprise the Manual-consistent milk price are influenced by the demand and supply characteristics of the international dairy markets and by foreign exchange fluctuations.
- 1.27 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).¹² This results in end of year 'wash-up' payments to farmers.
- 1.28 This year, the Fonterra Board has made a decision not to pay farmers the full Manual-consistent milk price, but to pay a reduced, adjusted base milk price. Figure 1.2 provides a visual representation of the methodology for calculating the base milk price Fonterra proposes to pay.

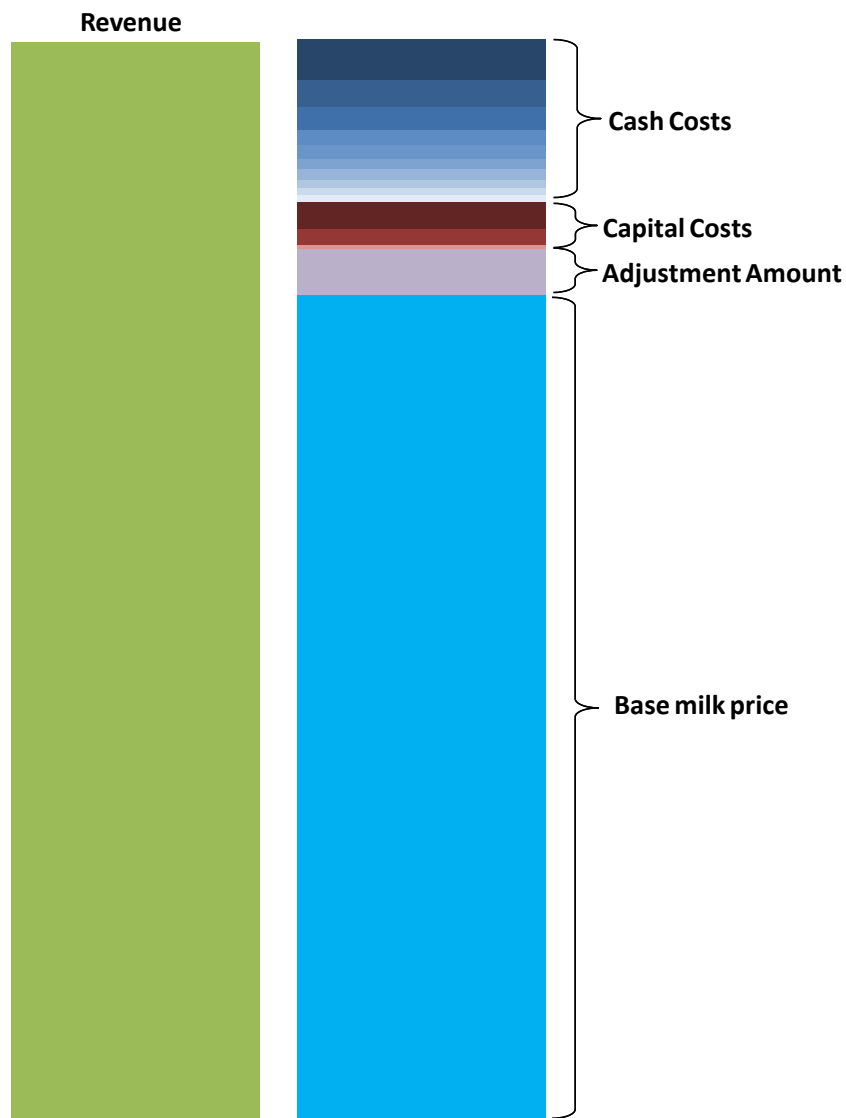
¹² We are required by s 150Q to finalise our report on the base milk price calculation by 15 September following the end of the season. This may mean that Fonterra will set the final base milk price for the season after we have completed our review. Our 2013/14 review was based on the latest forecast Manual-consistent milk price of \$8.95 per kgMS and forecast base milk price of \$8.40 per kgMS which were announced by Fonterra on 28 May 2014.

Figure 1.2: Fonterra’s base milk price methodology



1.29 Figure 1.3 illustrates the relative size of each component of the base milk price calculation and the Adjustment Amount that Fonterra’s Board is proposing to make in setting the base milk price.

Figure 1.3: Relative size of components of the base milk price



- Revenue
- Lactose costs
- Administration, Plant Labour, Overhead Costs
- Collection costs
- Energy Costs
- Supply Chain Costs
- Company tax
- Packaging costs
- Selling costs
- Repairs and Maintenance
- Water, cleaning and CIP, consumables, effluent and laboratory testing
- Capital charge on Fixed Assets
- Depreciation
- Capital charge on Net Working Capital
- Adjustment Amount
- Base milk price

Concerns about the way Fonterra may calculate the base milk price

- 1.30 The milk price monitoring regime was introduced because, in the absence of a competitive market for the purchase of farmers' milk, the price for that milk has to be determined using an 'administrative' methodology. Because 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'.¹³ In other words, 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 workably competitive or contestable.
- 1.31 The usual incentive for a purchaser with significant market power on the buyer's side of the relevant market (ie, 'monopsony' market power) would be to minimise those input costs over which it has market power, thereby increasing its profits. Profits could potentially be increased more easily by manipulating those input costs, rather than by seeking out efficiencies associated with other costs.
- 1.32 As is clear from Figure 1.3, the purchase of raw milk from farmers is Fonterra's largest input cost. All other things being equal, a higher (lower) base milk price results in higher (lower) input costs, and therefore lower (higher) earnings. Therefore, because Fonterra potentially has significant market power in the market for the purchase of raw milk, due to competition in that market being absent, Fonterra might be expected to set a base milk price that is as low as possible. However, Fonterra's majority shareholders are also the farmers that supply it with that raw milk.
- 1.33 Given these ownership arrangements, some industry participants have instead expressed the concern that Fonterra might instead have the opposite incentive—to maximise the base milk price.¹⁴ In fact, a key principle in Fonterra's Milk Price Manual is that "the Farmgate Milk Price should be the maximum amount that Fonterra, reflecting its status as a properly-managed and efficiently-run, sustainable co-operative, could pay for the Milk supplied to it in a Season".¹⁵

¹³ Refer: Dairy Industry Restructuring Amendment Bill 11-1, introduced 27 March 2012, pages 1-2.

¹⁴ For example: 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, paragraph 2.4.

¹⁵ Fonterra, *Farmgate Milk Price Manual for the 2013/14 Season*, 1 August 2013, page 8.

- 1.34 If the base milk price is set ‘too high’, compared to the efficient market price for the purchase of raw milk from farmers, it could potentially raise barriers to entry for independent processors of raw milk that wish to compete with Fonterra in either global dairy markets (eg, for exported milk powder) or domestic dairy markets (eg, supply of liquid milk). This could be achieved by Fonterra by maximising the notional revenue and minimising the notional costs derived from the approach set out in the Manual,¹⁶ or from making an upward adjustment to the Manual-consistent milk price.¹⁷
- 1.35 On the other hand, another key principle in Fonterra’s Milk Price Manual is that the base milk price should be set so that Fonterra bears “the financial consequences of costs exceeding an efficient rival’s costs”, because doing so “should provide incentives for Fonterra to minimise costs and to invest appropriately in processing quantity and quality.”¹⁸ Therefore, a base milk price that is set ‘too low’, or is set in a way which means Fonterra does not bear the financial consequences of decisions or risks that rivals would face in a competitive or contestable market for the purchase of raw milk, may not be consistent with incentives for Fonterra to operate efficiently.
- 1.36 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.¹⁹ Consequently, as is noted above, we are required to review the extent to which the assumptions adopted, and the inputs and process used by Fonterra in calculating the base milk price are consistent with providing an incentive for Fonterra to operate efficiently, while providing for contestability in the market for the purchase of milk from farmers.²⁰

¹⁶ For example, in its submission on Fonterra’s Reasons Paper, Synlait states that: “We have previously argued that Fonterra’s efforts to maximise the milk price, pushing it to levels that it cannot itself afford and earn WACC, is best seen as anti-competitive behaviour (because it does not affect the total payout to Fonterra’s suppliers, but materially impacts on the costs of corporate processors like Synlait)” (Synlait, *Submission on Fonterra’s ‘Reasons’ Paper in Relation to the 2013/14 Base Milk Price*, 15 July 2014, paragraph 12).

¹⁷ The Milk Price Manual notes that Fonterra’s Board’s farm gate milk price policy may from time to time address the circumstances where the Board could pay more for milk than the amount calculated under the Manual, but highlights that if the requirement to do so arises this would represent grounds to review the operational details of the Manual (Fonterra, *Farmgate Milk Price Manual for the 2013/14 Season*, 1 August 2013, page 5).

¹⁸ Fonterra, *Farmgate Milk Price Manual for the 2013/14 Season*, 1 August 2013, page 10.

¹⁹ Refer: Dairy Industry Restructuring Amendment Bill 11-1, introduced 27 March 2012, pages 1-2.

²⁰ Our interpretation of the s 150A purpose, and the other key legislative provisions guiding our review, are set out in Chapter 3.

How we present our conclusions and analysis in this report

- 1.37 We set out our conclusions from the review of Fonterra's 2013/14 base milk price calculation in Chapter 2 of this report. 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.
- 1.38 These 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. We set out our assessments of these components in Attachment A and Attachments C to Y of this report:
- 1.38.1 Attachment A sets out our analysis of the assumptions adopted, and inputs and process used to determine the Adjustment Amount in the 2013/14 base milk price.
 - 1.38.2 Attachments C to G cover the components of the Manual-consistent revenue calculation.
 - 1.38.3 Attachments H to T cover the components of the Manual-consistent operating costs calculation.
 - 1.38.4 Attachments U to Y cover the components of the Manual-consistent capital costs calculation.
- 1.39 We summarise our interpretation of the key provisions of the legislation and our approach to the review of Fonterra's base milk price calculation in Chapter 3 of this report. It explains the key questions and concepts that have guided our analysis of Fonterra's 2013/14 base milk price calculation and our rationale behind them. Attachment B provides a more detailed outline of our approach to reviewing the Manual-consistent milk price.

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

- 2.1 In this chapter, we summarise our conclusions, and the reasons for those conclusions, on the extent to which the assumptions adopted, and inputs and process used by Fonterra in calculating the 2013/14 base milk price are consistent with the efficiency and contestability dimensions set out in the s 150A purpose statement.
- 2.2 We also make a number of observations about the transparency and potential stability of the assumptions, inputs and process that underpin the base milk price calculation.
- 2.3 Our overall conclusion is based on an analysis of:
- 2.3.1 the implications for efficiency and contestability of Fonterra setting a base milk price for 2013/14 that is different from the milk price calculated in accordance with the Milk Price Manual (the 'Manual-consistent milk price'); and
 - 2.3.2 whether Fonterra has set the base milk price consistent with the mandatory assumptions in s 150C, which is required for the 150A purpose to be achieved.
- 2.4 Our detailed analysis of those issues is set out in Attachment A of this report, and is summarised below. In addition, consistent with our review last year of the 2012/13 base milk price calculation, we have:
- 2.4.1 analysed the individual assumptions, inputs and process used to calculate the components of the Manual-consistent milk price, as set out in Attachments C to Y of this report and summarised in Table 2.1 below; and
 - 2.4.2 undertaken a number of cross-checks relating to the aggregate impact and internal consistency of those components of the Manual-consistent milk price on which we are unable to conclude. These are also summarised below.

Our conclusions

Our overall conclusion

- 2.5 We consider that, in combination, the assumptions adopted, and inputs and process used by Fonterra to calculate the 2013/14 base milk price are not consistent with the s 150A purpose statement.
- 2.6 For 2013/14, Fonterra's Board has exercised its discretion to set a base milk price lower than the base milk price calculated in accordance with Fonterra's Milk Price Manual. Fonterra intends setting the base milk price by adjusting the 'Manual-consistent' milk price downwards by an 'Adjustment Amount'. In May 2014, Fonterra announced a base milk price of \$8.40 per kilogram of milk solids (kgMS), found from a Manual-consistent price of \$8.95/kgMS, reduced by an Adjustment Amount of 55 cents/kgMS.

- 2.7 We consider that Fonterra's approach to determining and applying that Adjustment Amount is consistent with the contestability dimension of the s 150A purpose, but not consistent with the efficiency dimension. Inconsistency with either of the two dimensions is sufficient for us to conclude that the base milk price has not been calculated consistent with the s 150A purpose.

Our conclusions on the efficiency dimension with and without the milk price adjustment

- 2.8 We consider that the 2013/14 base milk price has not been calculated consistent with the efficiency dimension of the s 150A purpose. Fonterra is intending to lower the 2013/14 Manual-consistent milk price by the Adjustment Amount. Doing so entirely reverses out the adverse effect on Fonterra's earnings due to relatively high stream returns from 'reference commodity products' (RCPs),²¹ as well as due to the higher costs arising from unanticipated peak milk flows.
- 2.9 The reference commodity products of the notional producer, on which the Manual-consistent milk price is based, have turned out to be far more profitable than the mix of products that Fonterra actually produces. Also, the notional producer is effectively assumed to have the capacity to process all of the raw milk that Fonterra collects, whereas the 'super flush' peak milk flow exceeded Fonterra's actual processing capacity during the 2013/14 season. Without the milk price adjustment, these factors would have a detrimental financial impact on Fonterra due to current constraints on its actual milk processing asset footprint and physical capacity.
- 2.10 The efficiency incentive provided by setting the base milk price works as a result of the effect it has on Fonterra's actual profitability. Although Fonterra can increase its profits by improving efficiency, it can also control its profit levels by changing the level of the 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.
- 2.11 If Fonterra sets the base milk price consistent with the Manual, which is based on the notional producer, Fonterra's actual profitability will depend on whether it is more or less efficient than that notional producer. Setting a price lower than the Manual-consistent milk price with the benefit of hindsight, to avoid the impact on its profitability from being unable to match the performance of the notional producer, undermines the incentives for Fonterra to operate efficiently that would otherwise be provided by setting a Manual-consistent milk price.

²¹ 'Stream return' refers to the net free alongside ship (FAS) return, less non-milk costs, to a kilogram of milk solids allocated to a 'product stream'. A 'product stream' is a basket of complementary products that utilises all the components in a kgMS. The reference commodity product (RCP) streams that inform the Manual-consistent milk price comprise WMP/Butter/BMP, WMP/AMF/BMP, SMP/Butter/BMP and SMP/AMF/BMP.

- 2.12 Because there are many incentives for Fonterra to operate efficiently, apart from the way Fonterra sets the base milk price, our conclusion on the efficiency dimension does not imply that Fonterra is inefficient. Rather, it simply means that Fonterra's approach to calculating the base milk price is not providing incentives for Fonterra to operate efficiently in the manner contemplated by the s 150A purpose.
- 2.13 Had Fonterra calculated the 2013/14 base milk price solely in accordance with the Manual (ie, not deducted the Adjustment Amount), its use of mostly notional data to set the inputs for the 2013/14 base milk price would have been consistent with providing Fonterra with incentives to operate efficiently, and therefore with the efficiency dimension of the s 150A purpose.

Our conclusions on the contestability dimension with and without the milk price adjustment

- 2.14 We consider that the 2013/14 base milk price has been calculated consistent with the contestability dimension of the s 150A purpose. This year's downward adjustment to the base milk price is sufficiently large that the assumptions adopted, and inputs and process used should, in aggregate (ie, after deducting the Adjustment Amount), be practically feasible for an efficient processor.
- 2.15 Had Fonterra calculated the 2013/14 base milk price solely in accordance with the Manual (ie, not deducted the Adjustment Amount), we consider it possible that the contestability dimension of the s 150A purpose would not have been met. The adverse events Fonterra has faced this year have highlighted that the Manual-consistent milk price calculation does not provide for a cost allowance to reflect the risk that 'super flush' peak milk flows at any time in a season might exceed the milk processing capacity of the notional producer (on which the calculation is based).
- 2.16 We consider it possible that the absence of such an allowance, when combined with the direction and potential impact of the three components on which we are unable to conclude (ie, energy costs, the fixed asset values used in the capital charge calculation, and the asset beta used in the WACC calculation), means that the assumptions adopted, and inputs and process used to calculate the 2013/14 Manual-consistent milk price are not, in aggregate, practically feasible for an efficient processor.
- 2.17 The reason we consider the calculation of the 2013/14 base milk price is consistent with the contestability dimension, despite the calculation of the Manual-consistent milk price not being so, is because the Adjustment Amount (ie, 55 cents/kgMS) is large enough to offset the possible extent by which the assumptions, inputs and process used to calculate the Manual-consistent price are not practically feasible, in aggregate.

Implications for efficiency and contestability of the milk price adjustment

Fonterra has not calculated a base milk price that is consistent with the efficiency dimension

- 2.18 For 2013/14, Fonterra's Board has exercised its discretion to set a base milk price lower than the Manual-consistent milk price. Despite this adjustment to the milk price, Fonterra still considers it has strong incentives to operate efficiently. However, the question we must consider is the extent to which those incentives are attributable to the way the base milk price has been calculated this year. Given the way that the Adjustment Amount has been determined and applied to the Manual-

consistent milk price, our conclusion is that Fonterra has not calculated the 2013/14 base milk price consistent with the efficiency dimension of the s 150A purpose statement.

Fonterra considers it has incentives to operate efficiently despite this year's challenges

- 2.19 In 2013/14, Fonterra considers it faced 'unprecedented' relative high stream returns, and 'unanticipated' peak milk flows. Across the peak milk production period, Fonterra experienced a material decrease in its earnings, which are based on returns to both RCP and non-RCP product streams, compared to the notional earnings assumed in the Manual-consistent milk price, which are based on RCP product streams alone.
- 2.20 Fonterra's ability to respond by switching production from non-RCPs to RCPs was substantially constrained by its actual asset footprint. Capacity constraints also meant that the high peak milk flows resulted in additional transportation costs, an inability to process all milk components, and lower returns for some milk powders (due to the 'partial standardisation' of those products).
- 2.21 Despite the challenges it faced in 2013/14, Fonterra sets out in its Reasons Paper why it considers that its incentives to operate efficiently remain strong.²²

Incentives for efficiency are also provided by the milk price monitoring regime

- 2.22 We acknowledge Fonterra's views about the incentives it has to operate efficiently. In addition, we consider that the transparency provided by Fonterra's public disclosure of the Manual-consistent milk price, including its explanations of the variances between that reference point and the actual base milk price, is likely to provide some incentives for Fonterra to operate efficiently.
- 2.23 However, the test we must apply for the purposes of this review is the extent to which the assumptions adopted, and the inputs and process used by Fonterra in *calculating* the base milk price are consistent with the s 150A purpose, not the extent to which publicly *disclosing* or *explaining* the base milk price is consistent with that purpose.

Applying the Adjustment Amount is not consistent with the efficiency dimension

- 2.24 The efficiency incentive provided by setting the base milk price works as a result of the effect it has on Fonterra's actual profitability. Although Fonterra can increase its profits by improving efficiency, it can also control its profit levels by changing the level of the 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.

²² Fonterra's Reasons Paper, page 47. These incentives are also summarised in paragraphs A21 to A24 below.

- 2.25 Fonterra will have a stronger incentive to operate efficiently where the base milk price is set independently of Fonterra's actual performance. For 2013/14, Fonterra's Board has exercised its discretion to set a lower base milk price by entirely reversing out the adverse effect on its earnings of relatively high stream returns, as well as the higher costs arising from unanticipated peak milk flows. Fonterra is able to observe the ongoing adverse impact on its profits throughout the course of the 2013/14 season, and to set the base milk price by making an *ex post* adjustment to the Manual-consistent milk price with the full benefit of hindsight.
- 2.26 We consider that lowering the base milk price to protect its profit levels in this manner is not consistent with setting a base milk price that provides incentives for Fonterra to operate efficiently. Therefore, our conclusion on efficiency is that Fonterra has not calculated the 2013/14 base milk price consistent with the efficiency dimension of the 150A purpose statement.

Fonterra has calculated a base milk price that is consistent with the contestability dimension

- 2.27 Fonterra considers that this year's Manual-consistent milk price is practically feasible for a manufacturer of RCPs of Fonterra's scale. Therefore, in Fonterra's view, the lower actual base milk price must also be practically feasible.
- 2.28 As is explained further below, we consider that most of the individual assumptions adopted, and inputs and process used to calculate the Manual-consistent milk price are practically feasible for Fonterra or another efficient processor, although we have been unable to conclude whether three of the components are practically feasible, given the information available to us at this stage. This year's energy costs review has raised a number of questions about the effect of that conclusion on other components of the base milk price calculation, and on the calculation in aggregate.
- 2.29 More generally, the adverse events Fonterra faced this year have highlighted that the Manual-consistent milk price calculation does not provide for a cost allowance to reflect the risk that 'super flush' peak milk flows at any time in a season might exceed the milk processing capacity of the notional producer (on which the calculation is based).
- 2.30 We have not been able to fully assess the implications of not providing such an allowance, but would expect to be in a better position to do such an assessment as part of next year's 2014/15 milk price calculation review.
- 2.31 Overall, having regard to the direction and potential impact of those components on which we are unable to make a conclusion, we consider that, in aggregate, it is possible that the assumptions adopted, and inputs and process used to calculate this year's Manual-consistent milk price are not practically feasible for an efficient processor.

2.32 Nevertheless, we consider that this year's downward adjustment to the base milk price is sufficiently large that the assumptions adopted, and inputs and process used should, in aggregate (ie, including the Adjustment Amount), be practically feasible for an efficient processor. The Adjustment Amount is 55 cents per kgMS, and large enough to offset the possible extent by which we consider the assumptions, inputs and process used to calculate the Manual-consistent price might not be practically feasible (paragraph 2.68). Therefore, our conclusion on contestability is that Fonterra has calculated the 2013/14 base milk price consistent with the contestability dimension of the s 150A purpose statement.

Fonterra has calculated a base milk price that is not consistent with the s 150A purpose

2.33 However, our overall conclusion is that Fonterra has not calculated the 2013/14 base milk price consistent with the s 150A purpose statement, because we consider inconsistency with either the efficiency or contestability dimension is sufficient for us to reach such a conclusion.

2.34 We therefore disagree with Fonterra's certification that the assumptions, inputs and processes used to calculate the 2013/14 base milk price are, in all material respects, consistent with the s 150A purpose.²³ Since making that certification, Fonterra has acknowledged our view on the consistency of its approach for calculating the 2013/14 base milk price, and particularly the Adjustment Amount, with the purpose of s 150A.²⁴

Fonterra has not complied with the mandatory assumptions in s 150C

2.35 One additional consideration supports our overall conclusion. As is explained in Chapter 3, s 150C sets out a number of mandatory assumptions that Fonterra is required to make in setting the base milk price for the s 150A purpose to be achieved. Notably, the revenues and costs taken into account by Fonterra in calculating the base milk price must be determined from the prices of the portfolio of RCPs, and the costs of processing milk into the same portfolio of RCPs.

2.36 Because the Adjustment Amount reverses out the effect of relatively high stream returns on the revenues and costs of non-RCPs, Fonterra's approach to setting the 2013/14 base milk price is not consistent with the mandatory assumptions in s 150C. This reinforces our conclusion that, in combination, the assumptions adopted, and inputs and process used by Fonterra to calculate the 2013/14 base milk price are not consistent with the s 150A purpose statement.

²³ Fonterra's Reasons Paper, page 3.

²⁴ 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 4.

Efficiency and contestability of the Manual-consistent milk price

We also assessed the assumptions, inputs and process used in the Manual-consistent price

- 2.37 Consistent with our review last year of the 2012/13 base milk price calculation, we have also assessed the extent to which the assumptions adopted, and inputs and process used by Fonterra in calculating the 2013/14 Manual-consistent milk price are consistent with the efficiency and contestability dimensions of the s 150A purpose statement.
- 2.38 Table 2.1 below outlines 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 2013/14 Manual-consistent milk price (ie, ignoring the application of the Adjustment Amount), are consistent with the s 150A purpose statement.

Table 2.1: Summary of conclusions on individual components of the Manual-consistent milk price

Component of the Manual-consistent milk price calculation	Notional or actual?	Provides incentive for Fonterra to operate efficiently?	Is it practically feasible?
Production plan	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	Yes	Yes
Product yields	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	Yes	Yes
Sales phasing	Aligned to Fonterra’s actual sales phasing	Yes	Yes
Pricing	Aligned to Fonterra’s actual prices received on GDT	Yes	Yes
Foreign exchange conversion	Fonterra’s average forecast foreign exchange conversion rate (actual)	‘safe harbour’	‘safe harbour’
Selling costs	Notional number of sales hubs; Notional cost per hub	Yes	Yes, although concluding on the number of sales hubs is difficult

Component of the Manual-consistent milk price calculation	Notional or actual?	Provides incentive for Fonterra to operate efficiently?	Is it practically feasible?
Lactose costs	Notional volumes of lactose; Notional lactose prices; Notional transport costs based on lower of Fonterra or competitor actual costs	Yes	Yes
Collection costs	Actual total operating costs; Notional diversion costs	Yes	Yes. However, the exclusion from the milk price model of certain actual costs that arose as a result of the 2013/14 peak milk supply raises questions of collection and manufacturing capacity which we consider in our aggregate level
Packaging costs	Average actual unit costs and usage rates; Notional loss allowances	Yes	Yes
Energy costs	Notional unit cost rates; Notional usage rates	Yes	Unable to conclude, based on differences in approach between Fonterra and our independent expert. Our expert on energy costs identified that Fonterra's assumption regarding manufacturing plant on product time (OPT) is higher than his analysis suggests is feasible. In his view, additional energy costs are required to operate at the assumed 95% OPT. In its submission on our draft report, Fonterra has provided further information which arguably better supports its approach to calculating energy costs. We intend to further review the information in our 2014/15 calculation review

Component of the Manual-consistent milk price calculation	Notional or actual?	Provides incentive for Fonterra to operate efficiently?	Is it practically feasible?
Water, cleaning, etc	Notional rates per MT for water, cleaning and CIP, consumables, effluent and laboratory costs based on Fonterra's budget values; Notional production volumes	Yes	Yes
Plant labour costs	Notional number of FTEs; Average actual cost per FTE; Notional number of plants	Yes	Yes
Repair and maintenance costs	Notional	Yes	Yes. However, this component is subject to reliance on the replacement cost of fixed assets as an input, on which we are unable to conclude
Site overhead costs	Notional number of FTEs; Average actual cost per FTE; Actual number of sites; Notional non-labour costs	Yes	Yes
Freight costs	Notional volumes of product transported; Actual average freight rates	Yes	Yes
Storage costs	Notional volumes of product stored; Notional storage period; Notional number of FTEs; Actual cost per FTE; Notional non-labour costs; Actual cool storage rates	Yes	Yes
Admin and other overhead costs	Notional data based on 2012 budgeted costs; Notional data based on actual Insurance costs	Yes	Yes, but concluding on the evidence or rationale for the adjustments made to the 2012 budgeted data is difficult
Other supply chain overhead costs	Notional data based on 2012 budgeted costs scaled down	Yes	Yes, but concluding on the evidence or rationale for the adjustments made to the 2012 budgeted data is difficult
Fixed assets	Notional	Yes	Unable to conclude

Component of the Manual-consistent milk price calculation	Notional or actual?	Provides incentive for Fonterra to operate efficiently?	Is it practically feasible?
WACC	Notional	Yes	Unable to conclude on the asset beta assumption and therefore unable to conclude on WACC
Tilted annuity methodology	Notional	N/A. This section deals with the process for converting asset values to annual charges. The process is appropriate	The process is practically feasible
Company tax expense	Notional	Yes	Yes
Net working capital	Actual debtor and creditor days; Fonterra's actual 'advance rate schedule'	Yes	Yes. However, this is subject to the asset beta assumption in the WACC calculation

The Manual-consistent price is consistent with the efficiency dimension

- 2.39 The Manual-consistent milk price calculation relies on a mix of actual and notional inputs. As outlined in Attachment B 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 (ignoring this year's application of the Adjustment Amount). We nevertheless accept that, in some instances, the use of actual performance data in calculating the Manual-consistent 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.
- 2.40 As noted in Table 2.1, we identified a number of components of the Manual-consistent milk price calculation that are based largely on Fonterra's actual performance levels.
- 2.41 Our assessment of the impact that using actual inputs has on each of the above components of the Manual-consistent milk price calculation is set out in the relevant Attachments to this report.
- 2.42 Our overall assessment is that the use of Fonterra's actual levels of performance in calculating these components of the Manual-consistent milk price would still have provided incentives for Fonterra to operate efficiently, had Fonterra not applied the Adjustment Amount. However, the incentive to operate efficiently would have been potentially weaker than if notional data were to have been used. 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:

- 2.42.1 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;
- 2.42.2 the use of Fonterra's actual data with respect to pricing is reasonable by using GDT prices for reference commodity products sold on GDT; and
- 2.42.3 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.

It is possible that the Manual-consistent price is not consistent with the contestability dimension

- 2.43 As outlined in Attachment B of this report, in assessing whether the assumptions adopted, and inputs and process used in the Manual-consistent price are practically feasible, we have applied a number of tests and cross-checks at the individual and aggregate levels.

Individual assessment

- 2.44 We consider that most assumptions adopted, and inputs and process used in the Manual-consistent milk price calculation are practically feasible for Fonterra or another efficient processor.
- 2.45 There are three components where we are unable to conclude on whether they are practically feasible. We are unable to conclude on energy costs, the WACC and the value of fixed assets, given the information available to us at this stage.
- 2.46 In our draft report we concluded that energy costs were not practically feasible.²⁵ Our independent expert had concluded that energy use based on the data supplied and on the assumed OPT would need to be higher than used by Fonterra in the milk price model. We have received additional information from Fonterra in its submission²⁶ which suggests to us that further work is needed to reach a conclusion on the assumed energy rates used by Fonterra.
- 2.47 For our 2014/15 base milk price calculation review we will further review the energy cost data and will review with Fonterra the assumptions on the level of required ancillary plant, such as boilers, for consistency with Fonterra's plant availability assumption. We have therefore reserved our position as 'unable to conclude' at this time and will be working with Fonterra to reconcile the differences.

²⁵ Commerce Commission, *Draft report – Review of Fonterra's 2013/14 base milk price calculation*, 15 August 2014, page 105.

²⁶ Fonterra, *Submission to the Commerce Commission on its draft report on Fonterra's base milk price for 2013/14 season*, 1 September 2014, page 7.

Key issues affecting the aggregate impact assessment

- 2.48 Table 2.2 below summarises the directions and potential sizes of the impacts on the base milk price calculation resulting from the three matters where we are unable to draw a conclusion at the individual component level (see Table 2.1 above).
- 2.49 In addition to the conclusions reached at the individual component level, we are faced this year with three matters that need to be separately considered at an aggregate level:
- 2.49.1 Our independent expert on energy costs identified that Fonterra's assumption regarding 'on product time' (OPT) is higher than his analysis suggests is feasible. We asked him to advise us of the categories of additional costs that he would expect the notional producer to incur in order to get from his estimate of OPT up to the level of the Fonterra assumption.
- 2.49.2 The higher stream returns for products that inform the milk price led to a higher Manual-derived milk price over the first half of the 2013/14 season. The Adjustment Amount therefore also identified the constraints on Fonterra's ability to respond by switching production from non-milk price products to RCPs was substantially constrained.
- 2.49.3 The Adjustment Amount has also identified for us that Fonterra has practical cost issues when faced with a 'super flush' peak milk supply in a season that exceeds the milk processing capacity.

Energy costs component

- 2.50 Our independent expert on energy costs identified that Fonterra's assumption regarding 'on product time' (OPT) is higher than his analysis suggests is feasible.²⁷ We asked him to advise us of the categories of additional costs that he would expect the notional producer to incur in order to get from his estimate of OPT up to the level of the Fonterra assumption. Notwithstanding his conclusion that, at the OPT level assumed by Fonterra he considers the energy costs component is not practically feasible (see Table 2.1 and Attachment L), we also consider it necessary to consider those other potential impacts on the Manual-consistent milk price in the aggregate.

Adjustment Amount for stream returns

- 2.51 The higher stream returns for products that inform the milk price led to a higher Manual-derived milk price over the first half of the 2013/14 season. The Adjustment Amount therefore also identified the constraints on Fonterra's ability to respond by switching production from non-milk price products to RCPs.²⁸

²⁷ Peter Walker Consultants Ltd, *On the use of energy per tonne of whole milk powder*, page 1, available at: <http://www.comcom.govt.nz/review-of-milk-price-calculation-201314-season>

²⁸ Fonterra's Reasons Paper, Part C, pages 42 and 43.

- 2.52 The question in this case is whether the forecast production capacity of the notional producer is specified in a way that would respond to such events without affecting the costs of the notional producer. As noted in the Castalia report to Open Country, capital costs are determined based on the forecast milk supply and revenue is determined based on the actual milk supply, with no reconciliation of the difference between the forecast and actual milk supply for capital costs.²⁹

Adjustment Amount for peak milk supply

- 2.53 The Adjustment Amount has also identified for us that Fonterra has practical cost issues when faced with a 'super flush' peak milk supply in a season that exceeds the milk processing capacity. Fonterra has identified in Attachment 4 of its Reasons Paper the categories of expenditure or loss that contributed in 2013/14 to peak milk costs.³⁰ To further inform our assessment of the specific costs of the 2013/14 higher than expected peak milk flows, Fonterra has also outlined in its submission on our draft report the treatment of the various cost categories affected.³¹
- 2.54 The question to consider is whether the costs of a higher than expected peak milk supply in a season might similarly affect the costs of the notional producer.
- 2.55 Fonterra considers that the need to make the Adjustment Amount in setting the base milk price results from an unprecedented confluence of events and has responded in part by accelerating its capital expenditure on new capacity.³² It has also advised us that mitigation steps have been planned in order to respond in the interim to any future peak milk supply event that exceeds the capacity of its plants.
- 2.56 Fonterra has provided us with its analysis of the 2013/14 daily milk supply versus capacity to demonstrate that the notional producer has the capacity to deal with the average peak supply. At Fonterra's average 'on product time' (OPT) assumption of []%, its analysis shows a relatively immaterial excess of supply. It considers that small variances between peak supply and capacity are well within margin of error territory and it has therefore not made any adjustment for them.

²⁹ Castalia Strategic Advisors, *Analysis of Fonterra's 2013/14 Season Milk Price Calculation – Report to Open Country Dairy*, August 2014, page 2, *Fonterra fixes the NMPB's processing capacity at the start of each season based on forecasts of milk supply*.

³⁰ Fonterra's Reasons Paper, Attachment 4, page 54.

³¹ Fonterra, *Submission to the Commerce Commission on its draft report on Fonterra's base milk price for the 2013/14 season*, 1 September 2014, Attachment 1, *Fonterra's super flush costs vs Notional Milk Price Business*.

³² Fonterra's Reasons Paper, page 47. In its submission on Fonterra's Reasons Paper, Synlait notes that Fonterra's proposal to accelerate capital expenditure to create greater capacity to switch between product streams at peak times is akin to buying a form of income insurance but that, in Synlait's view, this is an expense the Manual's notional producer does not have to bear (Synlait, *Submission on Fonterra's 'Reasons' Paper in relation to the 2013/14 base milk price*, 15 July 2014, paragraph 21).

- 2.57 Notwithstanding Fonterra's actions in response to the 2013/14 confluence of events, it is possible that similar events could occur again. It is unlikely to be optimal to have sufficient plant capacity to cover all possible peak supply events, and at the margin we would expect there would be a trade-off between fixed asset costs and other costs of collection and production of the notional producer.
- 2.58 Also, given typical lead times necessary to deliver Fonterra's capital expenditure, and the 'lumpiness' of large capex programmes (ie, the projects deliver capacity in step changes rather directly comparable to the increases in the volume of supply), there is the possibility that Fonterra may not be able to respond in the meantime to any peak milk flow that comes up against its capacity constraints without incurring additional cost.³³
- 2.59 We therefore consider that Fonterra should assess whether the notional milk price model should include a cost allowance for such events (ie, a separate aggregate level notional cost component for the cost effects of peak flows in excess of capacity), taking into account the likelihood of peak milk flows exceeding the capacity of the notional producer in any particular year.³⁴
- 2.60 The question of whether there should be an allowance for the cost effects of peak flows in excess of capacity is a matter we think Fonterra should consider for the 2014/15 base milk price calculation or, if this is not possible within the existing rules in the 2014/15 Manual, consider for inclusion in the 2015/16 Manual.³⁵
- 2.61 Fonterra has provided in its submission on our draft report a description of the combination of *ex ante* allowances and *ex post* adjustments applied to the base milk price to deal with a broad range of 'difficult to forecast' costs, including peak milk-related costs. It acknowledges that its current approach to providing for such costs is not explicitly set out in the Manual and it will consider amending the Manual for the 2015/16 season to make the approach more explicit.³⁶

³³ This is a conclusion also noted in the Castalia report in support of the Open Country submission on our draft report: Castalia Strategic Advisors, *Analysis of Fonterra's 2013/14 Season Milk Price Calculation – Report to Open Country Dairy*, August 2014, pages 2 and 3, *Fonterra does not include any allowance for the cost of holding capacity to process the highest peak milk flow in seasons where milk flows are lower.*

³⁴ Our suggestion in our draft report that Fonterra should assess whether there should be a cost allowance for such events was supported in the Open Country submission: Open Country Dairy Ltd, *Submission on the Commerce Commission's Draft Report – Review of Fonterra's Base Milk Price Calculation*, 1 September 2014.

³⁵ The 2015/16 Manual is the next opportunity for Fonterra to consider the drafting of a new or varied assumption into the Manual. The 2014/15 Manual was published on 1 August 2014.

³⁶ Fonterra, *Submission to the Commerce Commission on its draft report on Fonterra's base milk price for the 2013/14 season*, 1 September 2014, pages 12 to 14, *Peak milk costs.*

- 2.62 Our review suggests that a cost allowance in the milk price model for ‘super flush’ peak milk flow costs could potentially factor in a combination of plant optimisation (additional ancillary plant fixed assets and additional plant labour) and network optimisation (additional collection costs and revised yields). It is unlikely to be a constant amount each year, as the exposure to the cost effects of peak flows might be expected to decline as plant capital expenditure is commissioned, and then might build again as the milk supply catches up to capacity in the future.³⁷

Summary of our aggregate assessment

- 2.63 We set out the potential sizes of the impacts of the above issues on the Manual-consistent price in Table 2.2, for illustrative purposes only. We note that our review is focused on the assumptions, inputs and processes of the milk price setting process rather than the outcome of the calculation. Section 150P(3)(b) of the Act prevents us from stating the base milk price according to our own calculations. Our conclusion is therefore intentionally qualitative.

³⁷ Castalia suggests an approach for this in its report in support of the Open Country submission on our draft report: Castalia Strategic Advisors, *Analysis of Fonterra’s 2013/14 Season Milk Price Calculation – Report to Open Country Dairy*, August 2014, pages 3 and 4, *Setting the cost allowance to reflect the risk of milk supplies exceeding the optimal level of capacity*.

Table 2.2: Illustrative impacts on the Manual-consistent milk price calculation

Assumptions	Direction	Size
Individual components		
Energy usage rates	Reduction of the Manual-consistent milk price	Our expert considers that the practically feasible energy costs would result in a 2 cents per kgMS change in the Manual-consistent milk price. We note Fonterra's difference in view on our expert's methodology and conclusions
Fixed assets	Our experts in 2012/13 considered the uncertainty in the asset value could result in either an increase or a reduction of the Manual-consistent milk price. However, taking into account the factors giving rise to the Adjustment Amount and the level of detail available to us to quantify the fixed asset values, our review suggests that the variance in the Manual-consistent milk price is more likely down than up	On the downside, our expert's review in 2012/13 estimated a range of up to 6.5 cents per kgMS reduction in the Manual-consistent milk price
Asset beta assumption in the WACC calculation	An increase or reduction in the Manual-consistent milk price	In 2012/13 it was estimated that a 0.1 change in the asset beta would result in around 5.5 cents per kgMS change in the Manual-consistent milk price. We have continued to use this estimate pending a conclusion on the appropriate asset beta
Aggregate assessment resulting from Energy Costs review		
Collection costs Plant labour Ancillary plant (ie, fixed assets)	Reduction of the Manual-consistent milk price	Not separately quantified: this review effectively raised some capacity issues that are also raised by our aggregate assessment
Aggregate assessment resulting from Adjustment Amount review		
Yields Collection costs	Reduction of the Manual-consistent milk price	Based on the 2013/14 peak milk costs actually incurred by Fonterra, and taking into account mitigating steps subsequently put in place by Fonterra that would be applied against a future event, the estimated cost could range in any year between [] cents and [] cents per kgMS ³⁸

³⁸ The maximum number for this range is based on the 2013/14 peak milk costs in the Adjustment Amount of [] divided by the 2013/14 milk supply collected of [] kgMS. Fonterra has advised that steps subsequently put in place to mitigate such costs in response to a future peak flow event would be expected to reduce that impact by []% or more.

- 2.64 The final view on an appropriate asset beta assumption may result in the WACC going either up or down relative to the WACC used in the Manual-consistent milk price calculation. The size dimension illustrated in Table 2.2 is to give an indication of sensitivity of the Manual-consistent milk price in respect of this assumption and does not reflect any conclusion on the likely change to the asset beta assumption in the Manual-consistent milk price calculation.
- 2.65 In our draft report we concluded that, in the absence of the Adjustment Amount it would be 'probable' (ie, more likely than not) that the assumptions adopted, and inputs and process used to calculate the Manual-consistent milk price would not be, in aggregate, practically feasible. In response to that conclusion, Fonterra has provided us with additional information with its submission³⁹ and we have further considered the potential impacts of the size dimensions set out in Table 2.2.
- 2.66 We also note the difference in view between our expert and Fonterra on the energy usage component of the Manual-consistent milk price calculation. We do not consider the difference in their views on the cents per kgMS for energy costs would on its own change our overall aggregate conclusion.
- 2.67 The adverse events Fonterra has faced this year have highlighted that the Manual-consistent milk price calculation does not provide for a cost allowance to reflect the risk that 'super flush' peak milk flows at any time in a season might exceed the milk processing capacity of the notional producer (on which the calculation is based).
- 2.68 We consider it possible that the absence of such an allowance, when combined with the direction and potential impact of the three components on which we are unable to conclude (ie, energy costs, the fixed asset values used in the capital charge calculation, and the asset beta used in the WACC calculation), means that the assumptions adopted, and inputs and process used to calculate the 2013/14 Manual-consistent milk price are not, in aggregate, practically feasible for an efficient processor.
- 2.69 Our 2013/14 conclusion on the assumptions, inputs and process used, in aggregate, to calculate the Manual-consistent milk price differs from our 2012/13 conclusion⁴⁰ for the following reasons:

³⁹ Fonterra, *Submission to the Commerce Commission on its draft report on Fonterra's base milk price for the 2013/14 season*, 1 September 2014, Attachment 2, *Supplementary material provided in support of Fonterra submission*.

⁴⁰ Commerce Commission, *Review of Fonterra's 2012/13 base milk price calculation*, 16 September 2013, paragraph 2.3:

"Our conclusion is that the assumptions adopted, and inputs and process used by Fonterra to calculate the 2012/13 base milk price are largely consistent with the s 150A purpose statement."

- 2.69.1 We are better informed on the energy costs of the notional producer by the work carried out by Fonterra and our expert on energy costs, but at this time are not able to come to a conclusion.
- 2.69.2 We are better informed on the value of fixed assets, but still not able to come to a conclusion, by the work carried out by Fonterra in breaking down and comparing for us the plant replacement cost values.
- 2.69.3 Fonterra has explained its reasons for the Adjustment Amount.
- 2.69.4 Apart from the asset beta assumption, which could have either an up or down effect on the Manual-consistent milk price, the direction of the other potential impacts summarised in Table 2.2 this year are all assessed as downward impacts on the Manual-consistent milk price, whereas in 2012/13 the potential impacts were a broader mix of up and down impacts.⁴¹
- 2.70 Further work is planned to resolve each of the above matters for our 2014/15 base milk price calculation review:
- 2.70.1 We plan to review the expert opinion on the asset beta, with a view to resolving with Fonterra our inability to conclude on the WACC.
- 2.70.2 We will further review the energy cost data and will review with Fonterra the assumptions on the level of required ancillary plant, such as boilers, for consistency with Fonterra's plant availability assumption.
- 2.70.3 We will carry out a further review of the energy cost data for a plant for a complete 12 month period (ie, including peak and shoulder periods) and will further review with Fonterra the assumptions on the level of required ancillary plant, such as boilers, for consistency with Fonterra's OPT plant availability assumption.
- 2.70.4 We will work with Fonterra to enable it to devise a cost-effective breakdown of the asset composition of the notional processing plant that meets the requirements of our review.⁴²

⁴¹ Commerce Commission, *Review of Fonterra's 2012/13 base milk price calculation*, 16 September 2013, paragraph 2.15 and Table 2.2:

"Having regard to the direction and potential size of the impact these assumptions in aggregate might have on the base milk price calculation, we do not consider they would be likely to have a significant impact on our overall conclusion."

⁴² Synlait supported this approach in its submission on our draft report: Synlait Milk Limited, *Submission on draft review of Fonterra's 2013/14 base milk price*, 1 September 2014, paragraph 13, *Cost of Asset Base*.

Internal consistency among the assumptions, inputs and processes

- 2.71 We are satisfied that, apart from the exceptions noted in our aggregate impact assessment in Table 2.2 (ie, energy costs, WACC, fixed asset costs, and other potential additional costs highlighted by our energy costs review), the assumptions adopted, and inputs and process used to calculate the Manual-consistent milk price are internally consistent. For example, the lactose input volumes used in the product yield calculations are consistent with the volumes assumed to be purchased.

Transparency of assumptions, inputs and processes

- 2.72 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 2014.⁴³
- 2.73 If Fonterra sets a 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. Because Fonterra intends setting a base milk price for 2013/14 that differs from the Manual-consistent milk price, it has included the reasons why in its Reasons Paper for this year.
- 2.74 Fonterra and its advisers have also provided us with substantial additional information, including their financial models and supporting documentation, to support and explain the assumptions adopted, and inputs and process used in the base milk price calculation.
- 2.75 Although, by and large, we found the overall package of information provided to us by Fonterra sufficient for the purposes of our review, we make observations in Attachments C to Y about transparency and the potential stability of the assumptions, inputs and process that underpin the base milk price calculation. There are areas of the base milk price calculation where the proliferation of calculations and varying assumptions at a detailed level gives rise to a lack of transparency. These areas include the calculations of some parts of the allocation of overheads (Attachments S and T). This makes it difficult to assess these assumptions' overall consistency with the stated assumptions, inputs and process. We consider that a higher level calculation could be supported more easily and transparently.
- 2.76 Open Country, in its submission on our draft report, notes that there is still not enough transparency on how the base milk price is calculated and further notes that independent processors are facing a situation of being unable to reconstruct a critical industry benchmark that informs their business decisions.⁴⁴

⁴³ Fonterra, 'Reasons' Paper in support of Fonterra's base milk price for the 2013/14 Season, 1 July 2014, available at <http://www.comcom.govt.nz/review-of-milk-price-calculation-201314-season>

⁴⁴ Open Country, *Submission on the Commerce Commission's Draft Report – Review of Fonterra's 2013/14 base milk price calculation*, 1 September.

3. Our approach to this statutory review of the base milk price calculation

3.1 In this chapter, we:

- 3.1.1 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 2013/14 season; and
- 3.1.2 explain our practical approach to this review.

Our interpretation of key legislative provisions guiding our review

Our review and report – sections 150O, 150P and 150T

- 3.2 Section 150O of the Act requires us to review Fonterra's calculation of the base milk price for each dairy season.
- 3.3 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.
- 3.4 We interpret the terms "assumptions adopted, inputs and process used" to have the following meaning:
 - 3.4.1 'assumptions' refer to the underlying rationale as to why certain inputs and process were selected (ie, 'the why');
 - 3.4.2 'inputs' refers to what data or description of data sources are used to populate the base milk price calculation (ie, 'the what'); and
 - 3.4.3 '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

- 3.5 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').
- 3.6 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.
- 3.7 We consider that the efficiency and contestability requirements within s 150A are interlinked and that together, they require consideration of:

- 3.7.1 What is meant by ‘efficiency’?
- 3.7.2 What is meant by ‘contestability’?
- 3.7.3 How do the dimensions of efficiency and contestability inter-relate?

Our interpretation of efficiency

- 3.8 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.
- 3.9 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).⁴⁵

Our interpretation of contestability

- 3.10 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).
- 3.11 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?

- 3.12 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.

Section 150B – ‘safe harbours’

- 3.13 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.

⁴⁵ 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 reference commodity products 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.

- 3.14 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’

- 3.15 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 ‘reference commodity products’ (RCPs)—ie, the portfolio of commodities referred to in s 150C(2)—and the costs of processing milk into the same portfolio of RCPs.
- 3.16 Our review of the base milk price calculation therefore involves examining whether the calculation applies the assumptions in s 150C of the Act. Consistency with s 150C has been a more significant issue for this year’s review of the base milk price calculation because Fonterra has set a base milk price different from that calculated in accordance with the Manual (ie, the ‘Manual-consistent’ milk price).

Section 150N – what happens if Fonterra sets a different base milk price

- 3.17 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 Manual-consistent milk price.
- 3.18 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. For 2013/14, Fonterra intends setting the base milk price by deducting an ‘Adjustment Amount’ from the Manual-consistent milk price. Fonterra’s s 150T Reasons Paper for this year includes its reasons for making this adjustment.⁴⁶

⁴⁶ Fonterra’s Reasons Paper, Part C.

Our approach to this year's review, given the milk price adjustment

The Adjustment Amount is most significant factor affecting our overall conclusion

- 3.19 In last year's review of the 2012/13 base milk price calculation, we:
- 3.19.1 analysed the individual assumptions, inputs and process used to calculate the components of the Manual-consistent milk price recommended by the Milk Price Panel, which the Fonterra Board adopted as the base milk price; and
 - 3.19.2 undertook a number of cross-checks relating to the aggregate impact and internal consistency of the assumptions, inputs and process used to calculate that base milk price.
- 3.20 The Adjustment Amount which is deducted from this year's Manual-consistent milk price is effectively a new component in the calculation of the 2013/14 base milk price. However, unlike the other components, the Adjustment Amount is an *ex post* adjustment that Fonterra can and intends to make with the benefit of already knowing the Manual-consistent milk price.
- 3.21 Our analysis of the way the Adjustment Amount is determined and applied is set out in Attachment A. In particular, we considered:
- 3.21.1 the way in which the Manual-consistent milk price creates efficiency incentives for Fonterra;
 - 3.21.2 the impact of the adjustment proposed by Fonterra on those incentives; and
 - 3.21.3 Fonterra's explanation of the incentives it believes it still has to operate efficiently—in particular, the extent to which those incentives are attributable to the way Fonterra has set the 2013/14 base milk price, which is to use the Manual-consistent milk price as a reference point from which the Adjustment Amount is subsequently deducted.
- 3.22 We then:
- 3.22.1 reached our conclusion on whether applying this *ex post* adjustment to the Manual-consistent milk price is consistent with the efficiency dimension of the s 150A purpose statement, recognising that Fonterra will have a stronger incentive to operate efficiently where the base milk price is set independently of Fonterra's actual performance; and
 - 3.22.2 considered what a finding that the Adjustment Amount is not consistent with the efficiency dimension would mean for the overall consistency of this year's base milk price calculation with that purpose.

- 3.23 Our analysis resulted in a conclusion that the way the Adjustment Amount is determined and applied is not consistent with the efficiency dimension of the s 150A purpose. Because we consider that inconsistency with either the efficiency or contestability dimensions is sufficient for us to conclude that, in combination, the assumptions adopted, and inputs and process used by Fonterra in calculating the base milk price are not consistent with the s 150A purpose statement,⁴⁷ our analysis could potentially have finished at that point.

We also assessed the assumptions, inputs and process used in the Manual-consistent price

- 3.24 However, consistent with our review last year of the 2012/13 base milk price calculation, we have also assessed the extent to which the assumptions adopted, and inputs and process used by Fonterra in calculating the 2013/14 Manual-consistent milk price are consistent with the efficiency and contestability dimensions of the s 150A purpose statement.
- 3.25 As noted above, this analysis is not necessary to inform our overall conclusion. Nevertheless, it is still appropriate to present our conclusions from this analysis (as set out in Attachments C to Y, and summarised in Table 2.1) because:
- 3.25.1 we consider the test in s 150P requires us to undertake a component by component analysis, and the 2013/14 base milk price is derived from an adjustment to the Manual-consistent milk price (which comprises the same components as last year's base milk price);
 - 3.25.2 assuming that the circumstances which led to Fonterra lowering the 2013/14 base milk price are unprecedented and unlikely to occur regularly (which is Fonterra's view), documenting our component analysis, as well as any changes from our review of the 2012/13 base milk price calculation, puts us in a good position for undertaking next year's review;
 - 3.25.3 it follows up on our intention from last year's review to look at some specific issues in more detail this year;
 - 3.25.4 it provides interested parties with an ongoing trend assessment of the way the components of the Manual-consistent milk price calculation are determined by Fonterra, which contributes to the overall transparency of the milk price monitoring regime; and
 - 3.25.5 it indicates what our overall conclusion would be if Fonterra had not decided to reduce the Manual-consistent milk price by the Adjustment Amount this year.

⁴⁷ Although not part of the statutory test under s 150P, we also considered what a finding that the base milk price has not been set consistent with the s 150A purpose might mean in the longer term—ie, if Fonterra continued to make similar adjustments in future years—and in the context of one of the Act's broader and longer term objectives, which is to promote the efficient operation of New Zealand dairy markets by regulating Fonterra's activities to ensure those markets are contestable (s 4(f)). Refer paragraphs A45-A50.

- 3.26 Our approach to assessing the Manual-consistent components of the base milk price, ignoring this year's application of the Adjustment Amount, is described in Attachment B.

Attachment A: Milk Price Adjustment Amount

- A1 This attachment outlines our analysis of Fonterra's assumptions adopted, and inputs and process used to determine the Adjustment Amount in the 2013/14 base milk price. 'Adjustment Amount' is the term that Fonterra uses to refer to the difference between the farm gate milk price calculated in accordance with the Milk Price Manual (Manual-consistent milk price), and the base milk price that Fonterra actually proposes to pay farmers for raw milk.⁴⁸
- A2 Table A1 below sets out our conclusions on the milk price Adjustment Amount.

Table A1: Summary of conclusions on the milk price Adjustment Amount

Notional or Actual?	Actual
Does it provide an incentive for Fonterra to operate efficiently?	No
Is it practically feasible?	Yes

Circumstances which led to Fonterra lowering this year's base milk price

- A3 Fonterra outlines in its Reasons Paper the circumstances which led to the decision of its Board to exercise its discretion to set a base milk price lower than the Manual-consistent milk price.⁴⁹
- A4 Briefly, these comprise the impacts on Fonterra's earnings before interest and tax (EBIT) from:
- A4.1 a significant increase in demand from China for imported WMP as a result of a decline in domestic milk production in early 2013, causing significant increases in prices for WMP in 2013/14;
 - A4.2 asset footprint constraints limiting Fonterra's ability to fully respond to the above price signals by switching production to milk powders from non-RCP products;
 - A4.3 physical capacity constraints at the 2013/14 milk production peak causing Fonterra to transport milk at additional cost to plants that could process milk; and

⁴⁸ Fonterra, 'Reasons' Paper in support of Fonterra's base milk price for the 2013/14 Season, 1 July 2014, available at <http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation>, page 2. Part C of Fonterra's Reasons Paper sets out the reasons why Fonterra intends setting a base milk price that differs from that determined under the Manual.

⁴⁹ Fonterra's Reasons Paper, Part C, pages 40-44.

- A4.4 physical capacity constraints at the 2013/14 milk production peak causing Fonterra to undertake 'partial standardisation' of some RCP products, with resulting reduced returns.

Fonterra set a lower milk price for 2013/14 due to asset-related constraints

- A5 Fonterra considers that the challenges faced this year derive from asset footprint and physical capacity constraints, and these constraints detrimentally affected Fonterra's 2013/14 earnings in two ways.
- A6 Firstly, Fonterra considers that the relatively high stream returns⁵⁰ occurring during 2013/14 were 'unprecedented'. Returns on the RCP product streams, which underpin the Manual-consistent milk price, were significantly higher than returns to non-RCP product streams, which account for a significant proportion of Fonterra's actual production. Fonterra explains that, across the peak milk production period, it experienced a material decrease in its earnings compared to the notional earnings assumed in the calculation of the Manual-consistent milk price, because its ability to respond by switching production from non-RCPs to RCPs was substantially constrained by the 'sub-optimal asset footprint' that Fonterra inherited on its formation in 2001.⁵¹
- A7 Secondly, peak milk flows for 2013/14 were 'unanticipated'. Physical capacity constraints meant that Fonterra:
- A7.1 had to incur additional costs to transport milk to plants that could process milk (including between the North and South Islands);
 - A7.2 did not have sufficient capacity to process all milk components; and
 - A7.3 had to resort to 'partial standardisation' of some milk powders, reducing returns for those products.⁵²
- A8 As a result, Fonterra has adopted a two stage process toward setting the 2013/14 base milk price:⁵³
- A8.1 Under the first stage, Fonterra has calculated the milk price in accordance with the Milk Price Manual (the 'Manual-consistent' milk price). At 1 July 2014 the forecast Manual-consistent milk price for 2013/14 was \$8.95 per kgMS.

⁵⁰ 'Stream return' refers to the net free alongside ship (FAS) return, less non-milk costs, to a kilogram of milk solids allocated to a 'product stream'. A 'product stream' is a basket of complementary products that utilises all the components in a kgMS. The reference commodity product streams that inform the Manual-consistent milk price comprise WMP/Butter/BMP, WMP/AMF/BMP, SMP/Butter/BMP and SMP/AMF/BMP.

⁵¹ Fonterra's Reasons Paper, page 42.

⁵² Fonterra's Reasons Paper, page 42.

⁵³ Fonterra's Reasons Paper, page 4.

A8.2 Under the second stage, Fonterra has calculated an Adjustment Amount, which is deducted from the Manual-consistent milk price to determine the base milk price to be paid to farmers for raw milk. At 31 May 2014 the forecast 2013/14 Adjustment Amount was 55 cents per kgMS, and the forecast base milk price for 2013/14 was therefore \$8.40 per kgMS.

Fonterra's assumptions, inputs and process

A9 Table A2 sets out our summary of Fonterra's assumptions adopted, and inputs and process used, to determine the Adjustment Amount in the 2013/14 base milk price, as described by Fonterra in its Reasons Paper.⁵⁴

⁵⁴ Fonterra's Reasons Paper, Part C, pages 44-46.

Table A2: Fonterra's explanation of the Adjustment Amount

Inputs	Process	Assumptions
Stream Return Analysis		
Full year forecast NZD prices for shipments of all finished products by month (being YTD actual and YTG forecast prices) less variable costs per metric tonne.	Multiply the result for each product associated with a product stream by the yield of finished product per kgMS, and sum over all products in the stream. The result is returns per kgMS allocated to a product stream.	Prices used accurately reflect average base prices achieved for that product for that month Variable costs used in the calculation vary fully in accordance with milk solids.
Actual YTD and forecast YTG sales volumes of the principal product in each stream (e.g., SMP for the SMP/AMF/BMP stream).	Divide sales volume of the principal product of each stream by yields to determine kgMS allocated to that stream for each month.	
	Calculate weighted average stream return for milk price products and non-milk price productions. Multiply the difference by total solids allocated to non-milk price product streams. The result is forecast full-year stream return losses (or gains, as the case may be).	
Gross margin calibration		
Actual and forecast sales revenue for each month less COGS at the latest monthly milk prices derived according to the Milk Price Manual for each product (sourced from underlying accounting system). Note that otherwise for management reporting purposes, COGS is determined by applying the forecast actual milk price, including the forecast Adjustment Amount.	Compare resulting forecast full-year gross margin against full-year budget for non-milk price products. Compare this to result obtained under stream-return analysis.	
Peak Milk Costs		
Solids collected but disposed of.	Components valued at relevant 'four components' monthly rate (based on the milk price paid on kgMS).	
Transport costs.	Track costs incurred for extra freight movements, including inter-island.	
Partially or non-standardised manufacture.	Value of protein foregone (net or lactose savings) by producing partial or non-standardised product, with the four components valued by reference to the applicable monthly milk price.	Loss is assumed to be protein.

Basis of calculation

A10 Underpinning the calculation of both main elements of the Adjustment Amount is the key assumption that Fonterra seeks to optimise the allocation of milk having regard to relative stream returns and capacity constraints (including logistics).

Adverse implications of higher relative stream returns for RCP products

A11 To estimate the adverse implications of higher relative stream returns for RCPs that inform the Manual-consistent milk price, Fonterra uses:

A11.1 expected commodity prices;

A11.2 variable manufacturing costs; and

A11.3 manufacturing yields.

A12 Fonterra has calculated the weighted average stream returns separately for aggregate RCP and aggregate non-RCP product streams. It has then calculated the forecast EBIT impact of adverse returns to non-RCP product streams for the year by multiplying the difference between the stream returns by total milk solids allocated to non-RCP product streams.

A13 Fonterra carried out a gross margin cross-check of the forecast EBIT impact. We reviewed the methodology adopted for this and agree with the approach adopted by Fonterra to check the aggregate impact of the higher relative RCP product returns.

Additional costs and losses from capacity constraints during peak period

A14 To calculate the estimated costs and losses associated with record peak milk flows, Fonterra has calculated the EBIT impact of costs and losses that arose from capacity constraints during the peak period, including additional costs of transport and reduced returns arising from partial standardisation of some milk powders.

Aggregate of EBIT impacts

A15 The total aggregate dollar Adjustment Amount comprises the sum of the calculated forecast EBIT impact of adverse returns to non-RCP product streams (as in paragraph A12 above) and the EBIT impact of costs and losses associated with record peak milk flows (as in paragraph A14 above).

Milk price Adjustment Amount

A16 To calculate the kgMS effect of the aggregate EBIT impact (ie, impact on base milk price), Fonterra divides the total aggregate dollar Adjustment Amount by the total kgMS collected in the 2013/14 season that is forecast to be incorporated into products sold in the financial year ending 31 July 2014.

- A17 Fonterra notes in its Reasons Paper that some milk collected in 2013/14 will be incorporated into closing inventory at the end of Fonterra's 2014 financial year ended 31 July 2014, and the equivalent of the Adjustment Amount per kgMS is proposed to be made in the calculation of cost of goods sold in 2014/15. Accordingly, the divisor in the calculation of the Adjustment Amount is the estimated 2013/14 kgMS collected, but reduced by the estimated kgMS that will be incorporated in the 2013/14 closing inventory.
- A18 This calculation then provides the kgMS Adjustment Amount to the Manual-consistent milk price.⁵⁵

Does the calculation use notional or Fonterra actual data?

- A19 Although the calculation of the Adjustment Amount in some instances uses estimated returns and costs as being the best available data, we conclude that actual data for the 2013/14 year is used.
- A20 The Adjustment Amount is referenced to estimates of stream returns, stream return losses and extra costs arising from asset footprint constraints and capacity constraints across the 2013/14 peak milk production. The estimates are informed by Fonterra's actual 2013/14 production capacity, returns and costs.

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

Fonterra considers it has incentives to operate efficiently in the short term and long term

- A21 Despite making this year's adjustment to the base milk price, Fonterra considers that its incentives to optimally manage product mix and milk flows over the longer term remain strong, for reasons which, in its view, include the following.⁵⁶
- A21.1 Fonterra is continuing to take steps to reduce its reliance on non-RCP capacity. In particular, in February 2014 Fonterra announced it will accelerate \$400-\$500 million of expenditure on new capacity. Fonterra considers this indicates it has responded efficiently to this year's circumstances, and to potential ongoing volatility in relative stream returns and milk production. Compared to the counterfactual of paying a Manual-consistent milk price, Fonterra considers its intended approach to setting the base milk price facilitates this outcome.
- A21.2 Fonterra remains appropriately incentivised to make efficient incremental capital investment decisions, because its substantial sunk investment in facilities to process milk solids provides Fonterra with a strong incentive to continue to pay the highest-sustainable milk price in a competitive market for milk in New Zealand.

⁵⁵ Fonterra's Reasons Paper, page 45.

⁵⁶ Fonterra's Reasons Paper, page 46.

- A21.3 The unprecedented confluence of events in 2013/14, that were outside Fonterra's control and contributed to the rapid increase in prices of products that inform the milk price, are unlikely to occur regularly and are difficult to anticipate. Therefore, they are unlikely to adversely affect Fonterra's long-term incentives to operate efficiently.⁵⁷
- A21.4 Fonterra's shareholders, who have the same goal, are also incentivised to encourage Fonterra to make efficient investment and product mix decisions.
- A21.5 The milk price calculated under the Manual is the reference point from which adjustments are made to set a forecast base milk price. These adjustments reflect costs related to constrained capacity. Other parameters of the milk price calculated under the Manual (such as notional overheads and capital base) continue to provide an incentive for Fonterra to operate efficiently.
- A22 In addition, Fonterra considers that, to the extent that any of this year's costs arose from discretionary decisions made by Fonterra's management (such as product mix and contract phasing decisions across the peak period), these decisions would mainly have been made before the Board's decision in December to pay a milk price lower than the Manual-consistent milk price. Therefore, in Fonterra's view, the Board's decision to make the adjustment will not have had any adverse impact on Fonterra's incentives to make those management decisions efficiently.⁵⁸
- A23 More generally, Fonterra considers it is highly unlikely that the decision in 2013/14 to pay a lower base milk price will have any impact on Fonterra management's incentives to make efficient decisions about the allocation of milk to product streams on a day to day basis. For instance, Fonterra explains that, quite apart from the milk price, it has strong commercial incentives to extract the highest returns possible from every litre of milk collected. Fonterra states that it seeks to optimise the allocation of milk having regard to relative stream returns and capacity constraints (including logistics). The robustness of Fonterra's calculation of stream returns as a planning tool underpins production planning and optimisation, and its calculations are updated weekly.⁵⁹

⁵⁷ Miraka submits that it would be wrong for Fonterra to claim that the "unprecedented confluence of events in 2013" were outside its control, because "by its own admission Fonterra was unable to control them in 2013/14 because Fonterra had not addressed legacy-asset issues of some 13 years standing, although it had plans and intentions to do so" (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, paragraph 2.3).

⁵⁸ Fonterra's Reasons Paper, pages 45-46.

⁵⁹ Fonterra's Reasons Paper, page 44.

A24 Fonterra also notes that, while the efficiency dimension of s150A focuses on incentives for Fonterra to operate efficiently, the Act contains an overall efficiency test in s 4(f) that relates to the promotion of the efficient operation of dairy markets in New Zealand. At the end of 2013/14, Fonterra will have paid a base milk price identical to that calculated in accordance with the Manual in all but one of the last six seasons. Fonterra strongly considers that a price calculated under the Manual reflects a competitive benchmark. Accordingly, a material discount to the milk price calculated under the Manual would promote inefficient entry if it persisted over time, or was expected to be repeated. However, Fonterra considers its accelerated investment programme to address the fundamental legacy-asset causes of the challenges it faced this season will mitigate this risk.⁶⁰

Incentives are also provided by the milk price monitoring regime

A25 Fonterra states that the only practical way for the Board to set a base milk price that differs from the milk price calculated under the Manual is to use the latter as a reference point.⁶¹ As is explained above, the Adjustment Amount has been calculated relative to the assumptions and inputs used to determine the Manual-consistent milk price. However, Fonterra's Board has exercised its discretion to set a lower base milk price by entirely reversing out the adverse effect on its earnings of relatively high stream returns, as well as the higher costs arising from unanticipated peak milk flows.

A26 We acknowledge Fonterra's views about the incentives it has to operate efficiently; in particular the incentives associated with using the milk price calculated under the Manual as the reference point from which adjustments are made to derive the actual base milk price. These incentives may be reinforced by the way and extent to which the remuneration of staff is linked to the notional components of the Manual-consistent milk price. However, we do not consider that these various incentives, to the extent they exist, are primarily attributable to the setting or calculation of that price.

A27 The public disclosure of information about the Manual-consistent milk price and the actual base milk price is available to both Fonterra's farmer shareholders and unit holders in the publicly listed Fonterra Shareholders Fund. The transparency provided by Fonterra's public disclosure of the Manual-consistent milk price (and the components of that price), and its explanations of the variances between that reference point and the actual base milk price, is likely to provide some incentives for Fonterra to operate efficiently.

⁶⁰ Fonterra's Reasons Paper, page 46.

⁶¹ Fonterra's Reasons Paper, page 43.

- A28 However, as is explained in paragraphs B13-B15 below, for our review of the 2013/14 base milk price calculation, the test we must apply under s 150P is the extent to which the assumptions adopted, and the inputs and process used by Fonterra in *calculating* the base milk price are consistent with the s 150A purpose. The test is not the extent to which publicly *disclosing* or *explaining* the base milk price is consistent with that purpose.
- A29 Fonterra is required under s 150N to set out its reasons for setting a base milk price different from one that is consistent with the Manual. We do not consider an efficiency incentive arising from doing something which Fonterra is already required to do under the milk price monitoring regime to be relevant for the purposes of our s 150P assessment.

Is applying the Adjustment Amount consistent with the efficiency dimension?

- A30 The efficiency incentive provided by setting the base milk price works as a result of the effect it has on Fonterra's actual profitability. Although Fonterra can increase its profits by improving efficiency, it can also control its profit levels by changing the level of the 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.
- A31 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. Therefore, as is explained in paragraphs B8-B11 below, we consider that the use of mostly notional data to set the inputs for the Manual-consistent milk price is consistent with providing Fonterra with incentives to operate efficiently, if the base milk price were set in accordance with the Manual. However, for 2013/14, the base milk price has not been set that way.
- A32 Fonterra will have a stronger incentive to operate efficiently where the base milk price is set independently of Fonterra's actual performance. We consider that reversing out the effects of the relatively high stream returns and the higher costs from peak milk flows, by deducting the Adjustment Amount from the Manual-consistent milk price, is not consistent with setting a base milk price that provides incentives for Fonterra to operate efficiently. Fonterra is able to observe the ongoing adverse impact on its earnings throughout the course of the 2013/14 season, and to set the base milk price by making an *ex post* adjustment to the Manual-consistent milk price with the full benefit of hindsight.

- A33 For instance, in our ‘dry run’ report on Fonterra’s base milk price calculation, we noted that *ex post* adjustments made with the benefit of hindsight may erode the overriding principle that the calculation of the base milk price is designed to promote efficiency by allowing the base milk price to bear the risk that actual performance might fall below forecast performance.⁶² A similar principle is enshrined in the Milk Price Manual itself, which indicates that “Fonterra has the best information and capability to manage cost variances against an efficient near-term rival, and thus should bear the financial consequences of costs exceeding an efficient rival’s costs.”⁶³
- A34 We consider that deducting the Adjustment Amount from the Manual-consistent price, to avoid the financial consequences of Fonterra’s current asset-related constraints, is likely to undermine most of the positive efficiency incentives associated with Fonterra using notional inputs to calculate the majority of the other components of the base milk price.
- A35 Had the decision to make a discretionary *ex post* adjustment to protect earnings only been made at the end of the 2013/14 season, the use of mainly notional inputs for the Manual-consistent price might have maintained incentives for Fonterra to operate efficiently during that season, despite weakening incentives for efficiency for the subsequent season (or seasons). However, the decision to make an adjustment in that way was made at least as early as December 2013, and would likely have weakened incentives for Fonterra to operate efficiently from that time.

⁶² Commerce Commission, *Report on the dry run review of Fonterra’s farm gate milk price (dry run review)*, 27 August 2012, paragraphs A6.13-A6.15.

⁶³ Fonterra, *Farmgate Milk Price Manual for the 2013/14 Season*, 1 August 2013, page 10. One of Fonterra’s farmer shareholders highlights the Milk Price Manual’s allocation of risks between the base milk price and earnings, and emphasises that the Manual is very clear that any shortfall in stream returns should come out of dividends and not the milk price (Nick Barrett, *Submission to Commerce Commission – 2013/14 base milk price calculation review – release of draft report*, 1 September 2014).

Fonterra has not calculated a base milk price that is consistent with the efficiency dimension

A36 Therefore, given the way that the Adjustment Amount is determined and applied, our conclusion is that Fonterra has not calculated the 2013/14 base milk price consistent with the efficiency dimension of the s 150A purpose statement.⁶⁴

Is it practically feasible?

The outcome of applying the Adjustment Amount is practically feasible

A37 Fonterra considers that this year's Manual-consistent milk price is practically feasible for a manufacturer of RCPs of Fonterra's scale. In Fonterra's view, it follows that the lower actual base milk price, together with the assumptions adopted, and inputs and process used to determine the Adjustment Amount, are therefore also practically feasible.⁶⁵

A38 As is explained in Attachments C to Y, and summarised in Chapter 2, we consider that most of the individual assumptions adopted, and inputs and process used to calculate the Manual-consistent milk price are practically feasible for Fonterra or another efficient processor, although we have been unable to conclude whether three of the components are practically feasible. This year's energy costs review has raised a number of questions about the effect of that conclusion on other components of the base milk price calculation, and on the calculation in aggregate.

A39 More generally, the adverse events Fonterra faced this year have highlighted that the Manual-consistent milk price calculation does not provide for a cost allowance to reflect the risk that 'super flush' peak milk flows at any time in a season might exceed the milk processing capacity of the notional producer (on which the calculation is based). We have not been able to fully assess the implications of not providing such an allowance, but expect to be in a better position to do such an assessment as part of next year's 2014/15 milk price calculation review.

⁶⁴ In its submission on our draft report, Miraka submits that Fonterra is more likely to be incentivised to operate efficiently where the milk price reflects Fonterra's actual performance. Miraka strongly disagrees with our view on the efficiency dimension, considering that it is not supported by Fonterra's decision to accelerate its investment plans to address the inefficiencies disclosed in the 2013/14 base milk price when compared to the Manual-consistent milk price. In particular, Miraka agrees with Fonterra's assessment that a base milk price which discloses 'sub-optimal performance' has facilitated, in and of itself, the achievement of substantial efficiency improvements. Miraka also highlights Fonterra's confirmation that its shareholders are incentivised to encourage Fonterra to make efficient investment and product mix decisions (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 1.3.1, and 2.1-2.7). As is explained above, we acknowledge that there are a number of factors other than the calculation of the base milk price which provide incentives for Fonterra to operate efficiently, including disclosing and explaining that calculation. However, the statutory test requires us to focus on only one of those factors—ie, whether the calculation of the base milk price itself provides those incentives.

⁶⁵ Fonterra's Reasons Paper page 46.

- A40 Overall, having regard to the direction and potential impact of those components on which we are unable to make a conclusion, we consider that, in aggregate, it is possible that this year's Manual-consistent milk price is not practically feasible for an efficient processor.
- A41 Nevertheless, we consider that this year's downward adjustment to the base milk price is sufficiently large that the assumptions adopted, and inputs and process used should, in aggregate (ie, including the Adjustment Amount), be practically feasible for an efficient processor.

Fonterra has calculated a base milk price that is consistent with the contestability dimension

- A42 Therefore, our conclusion is that Fonterra has calculated the 2013/14 base milk price consistent with the contestability dimension of the s 150A purpose statement.⁶⁶

What is the effect of the Adjustment Amount on our overall conclusion?

Our overall conclusion is that the base milk price has not been calculated consistent with s 150A

- A43 We consider that inconsistency with either the efficiency or contestability dimension of the s 150A purpose is sufficient for us to conclude that, in combination, the assumptions adopted, and inputs and process used by Fonterra to calculate the 2013/14 base milk price are not consistent with the s 150A purpose statement. Our overall conclusion is therefore not affected by Fonterra setting the base milk price consistent with the contestability dimension.

⁶⁶ Miraka submits it is not clear what is meant by our conclusion that the 2013/14 base milk price has been "calculated" consistent with the contestability dimension. Miraka also submits that, because we consider the Adjustment Amount is sufficient to offset any overstatement of the Manual-consistent milk price, this suggests we consider the Adjustment Amount of 55 cents/kgMS is similar to the amount by which the costs of the notional producer are understated (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 5.1-5.3). Our task under s 150P(1) is to report on the extent to which the assumptions adopted and the inputs and process used by Fonterra in *calculating* the base milk price are consistent with the s 150A purpose. The Adjustment Amount is one of the most significant inputs to this year's calculation of the base milk price, and is sufficiently large to outweigh the possible amount by which the aggregated component costs of the Manual-consistent milk price might be understated. However, this does not imply that the extent of any understatement is in the order of 55 cents/kgMS. It simply means that the Adjustment Amount is greater than the possible cumulative impact of all the factors referred to in Table 2.2 above.

A44 We therefore disagree with Fonterra's certification that the assumptions, inputs and processes used to calculate the 2013/14 base milk price are, in all material respects, consistent with the s 150A purpose.⁶⁷ In its submission on our draft report since making that certification, Fonterra has acknowledged our view on the consistency of its approach taken to calculating the 2013/14 base milk price, and particularly the Adjustment Amount, with the purpose of s 150A.⁶⁸

Material discounts to the base milk price could be a concern if they persisted over time

A45 Fonterra acknowledges that its intention to pay a base milk price lower than the Manual-consistent price means its incentives to operate efficiently in the future, by optimally managing product mix and peak milk flows, have arguably been reduced.⁶⁹ We agree. By being able to set a base milk price different from the Manual-consistent milk price, Fonterra has the discretion to choose the level of its earnings associated with the collection and processing of raw milk within a relatively broad range. Although Fonterra has always had the ability to exercise this discretion, this is the first year it has chosen to do so since the Milk Price Manual was established.

⁶⁷ Fonterra's Reasons Paper page 3.

⁶⁸ 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 4.

⁶⁹ Fonterra's Reasons Paper page 46.

- A46 A milk processor in a contestable market would not be able to change the base milk price in a manner intended to protect its profits in the same way that Fonterra intends this year, which is implied by one of the Milk Price Manual's principles, referred to above (paragraph A33).⁷⁰ It would face the contestable market price for raw milk. Consequently, when faced with similar circumstances to Fonterra, such a milk processor may have had to reconsider its dividend and borrowing arrangements in light of its planned capital programme. If forced to book a loss it would likely have faced greater pressure from its shareholders. Such a milk processor may also have had greater incentives to have brought its capital programme forward, and to have more-developed contingency plans in place for the types of circumstances that Fonterra has faced this year.
- A47 For any single year's review of the base milk price calculation, a milk price lower than the Manual-consistent level is more likely to result in us concluding that the assumptions adopted, and inputs and process used by Fonterra in setting the base milk price are practically feasible, consistent with the contestability dimension of the s 150A purpose. Fonterra considers the circumstances which led to a base milk price lower than under the Manual are unlikely to be repeated.⁷¹

⁷⁰ Miraka submits that this view appears to be inconsistent with our overall conclusion on the contestability dimension (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 6.1-6.2). As noted in the next paragraph, under the milk price monitoring regime the statutory test for contestability in any single year is based on the relatively narrow concept of contestability set out in s 150A(2). Section 150A(2) simply involves considering the practical feasibility of the assumptions, inputs and process used in calculating in the base milk price, rather than forming a view of what might occur in a contestable market.

⁷¹ Synlait has submitted that, although Fonterra has called the issues it has faced in 2013/14 an "unprecedented confluence of events", Fonterra is clearly contemplating that they will occur to varying degrees, because: (i) Fonterra acknowledges the "potential ongoing volatility in relative stream returns"; and (ii) Fonterra would not accelerate \$400-\$500 million of capital expenditure if it did not think differences in stream returns between RCPs and non-RCPs were likely in the future. Consequently, Synlait asks: "if the dominant market participant cannot achieve WACC on its commodities business at the Manual's milk price, and if other processors cannot because they lack Fonterra's economies of scale, then how can that milk price be viewed as a reasonable proxy for the price that would pertain in a contestable market?" (Synlait, *Submission on Draft Review of Fonterra's 2013/14 Base Milk Price*, 1 September 2014, paragraphs 10-11).

- A48 As we have noted previously, Fonterra’s ability in any year to vary the milk price from the Manual-consistent price, either up or down, may reduce predictability for Fonterra’s farmer or unit shareholders.⁷² Open Country has submitted that ‘ad hoc adjustments’ to the base milk price affect the investment incentives of other industry participants as well, and that “contestability under the Act requires a principled approach to setting the base milk price”.⁷³ “Although Open Country clearly benefits from Fonterra’s adjustment of the base milk price this season, Open Country is more concerned with ensuring a principled approach in future seasons.”⁷⁴
- A49 Furthermore, as is noted above (paragraph A24), if a material discount to the Manual-consistent milk price were to persist over time, Fonterra itself acknowledges that this might promote inefficient entry.⁷⁵ The promotion of inefficient entry to New Zealand dairy markets would be inconsistent with one of the key overall purposes of the Act, which is to promote the efficient operation of New Zealand dairy markets by regulating Fonterra’s activities to ensure those markets are contestable (ie, s 4(f)).⁷⁶

⁷² Commerce Commission, Dairy Industry Restructuring Amendment Bill 2012, Submission to the Primary Production Select Committee, 24 April 2012, paragraph 23.

⁷³ Open Country, *Submission on Fonterra’s Reasons Paper for 2013/14 base milk price calculation*, 15 July 2014, page 1. In a similar vein, Synlait queries “why is it acceptable to reduce the milk price in response to Fonterra’s actual performance and commercial imperatives in one year, but not allow Fonterra’s actual performance to inform the milk price in other years?” (Synlait, *Submission on Draft Review of Fonterra’s 2013/14 Base Milk Price*, 1 September 2014, paragraph 8). Also, one of Fonterra’s farmer shareholders submits that farmer shareholders were assured the milk price calculation is robust and transparent, and they all could have confidence in the milk price manual—all they would need to do would be to watch GDT and the NZ dollar and they would “have an idea where the milk price was going” (Nick Barrett, *Submission to Commerce Commission – 2013/14 base milk price calculation review – release of draft report*, 1 September 2014).

⁷⁴ Open Country, *Submission on Commerce Commission’s Draft Report – Review of Fonterra’s 2013/14 Base Milk Price Calculation*, 1 September 2014, page 1.

⁷⁵ Miraka does not agree with either Fonterra’s view or our view on this point, and queries why a similarly calculated base milk price in future would no longer meet the contestability dimension of s 150A, but might encourage inefficient entry (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 7.1-7.3). As noted above, the contestability dimension of s 150A(2) only involves considering the practical feasibility of the notional costs, revenues or other assumptions taken into account in calculating the base milk price. The lower the base milk price, the more likely the notional costs, revenues or other assumptions taken into account in calculating that price are practically feasible for an efficient processor. However, at some point there will be a price level that is sufficiently low such that, if it persisted in the market over time, inefficient entry could occur. In our view, the reference to contestable dairy markets in s 4(f) is consistent with the promotion of efficient outcomes in those markets, not inefficient outcomes (also refer: Commerce Commission, *Dairy Industry Restructuring Amendment Bill 2012, Submission to the Primary Production Select Committee*, 24 April 2012, para B.11).

⁷⁶ In its submission on our draft report, Fonterra indicates it shares our concern that future reductions in the base milk price from the Manual-consistent level may promote inefficient entry into the New Zealand dairy processing market, and that this would not be consistent with the purpose of DIRA. Fonterra also reiterates that it has commenced an unprecedented programme of capital investment to, among other things, mitigate the risk that it will be required to make a similar adjustment to the milk price in future (Fonterra, *Submission to the Commerce Commission on its draft report on Fonterra’s base milk price for the 2013/14 season*, 1 September 2014, pages 4-5).

- A50 Our conclusion that Fonterra has not calculated the 2013/14 base milk price consistent with the efficiency dimension of the s 150A purpose statement is moderated by the incentives acting on Fonterra to operate efficiently from other means. Our conclusion on the efficiency dimension does not imply that Fonterra is inefficient. Rather, it means that Fonterra's approach to calculating the base milk price is not providing incentives for Fonterra to operate efficiently in the manner contemplated by the s 150A purpose.⁷⁷
- A51 However, if the circumstances which led to this year's lower base milk price prove not to be a 'one-off' event, and result in future reductions of the base milk price from the Manual-consistent level, we might be more concerned about Fonterra's incentives to operate efficiently over the longer term, and whether inefficient entry might be promoted, rather than contestability.⁷⁸

'Mandatory assumptions' in section 150C

- A52 One additional consideration supports our overall conclusion. Section 150C sets out a number of mandatory assumptions that Fonterra is required to make in setting the base milk price for the s 150A purpose to be achieved. Notably, the revenues and costs taken into account by Fonterra in calculating the base milk price must be determined from the prices of the portfolio of RCPs, and the costs of processing milk into the same portfolio of RCPs.
- A53 The Adjustment Amount reverses out the effect of relatively high stream returns on the revenues and costs of non-RCPs. Therefore, Fonterra's approach to setting the 2013/14 base milk price is not consistent with the mandatory assumptions in s 150C.⁷⁹ This reinforces our conclusion that, in combination, the assumptions adopted, and inputs and process used by Fonterra to calculate the 2013/14 base milk price are not consistent with the s 150A purpose statement.

⁷⁷ In its submission on our draft report, Fonterra welcomes and emphasises our acknowledgement that there are many factors other than the base milk price that provide incentives for Fonterra to act efficiently, and that our view on the efficiency dimension does not imply that the company is inefficient (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 4).

⁷⁸ Synlait argues that the response to the current situation should go further than a one-off adjustment to the base milk price, and that the Manual's milk price setting framework should be reassessed (Synlait, *Submission on Draft Review of Fonterra's 2013/14 Base Milk Price*, 1 September 2014, paragraph 6). As noted above (paragraph 2.60), we think Fonterra should consider for the 2014/15 milk price calculation, or in the 2015/16 Manual, whether there should be an allowance for the cost effects of 'super flush' peak flows in excess of capacity.

⁷⁹ Synlait has submitted that, in its view, the Adjustment Amount is not consistent with s 150C, and notes that Fonterra's Reasons Paper does not include an explanation of how the adjustment is consistent with that provision (Synlait, *Submission on Fonterra's 'Reasons' Paper in relation to the 2013/14 base milk price*, 15 July 2014, paragraphs 22-26(i)).

Attachment B: Our approach to reviewing the Manual-consistent milk price

- B1 This attachment outlines our approach to assessing the Manual-consistent components of the base milk price, ignoring this year's application of the Adjustment Amount (which is described in the previous attachment).

Our approach to reviewing Fonterra's calculation of the Manual-consistent milk price

- B2 In this section, we explain how we have assessed whether the assumptions adopted, and the inputs and process used by Fonterra in calculating the Manual-consistent milk price for the 2013/2014 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 Manual-consistent milk price is practically feasible for an efficient processor).
- B3 The approach described in this section is largely the same approach taken in our final report on our review of Fonterra's 2012/13 base milk price calculation.
- B4 Although this section primarily relates to our approach to assessing the Manual-consistent components of the base milk price (ignoring this year's application of the Adjustment Amount), the discussion on efficiency incentives is also relevant to this year's assessment of how applying that Adjustment Amount affects consistency with the efficiency dimension of the s 150A purpose.
- B5 Also, for this year's review, if we were to conclude that the Manual-consistent milk price is consistent with the contestability dimension of the s 150A purpose statement, then taking into account the Adjustment Amount should simply reinforce that conclusion. By lowering the base milk price below the Manual-consistent level by the Adjustment Amount, the assumptions adopted, and inputs and process used by Fonterra in setting the base milk price should, in aggregate, be even more likely to be practically feasible for an efficient processor. On the other hand, a negative finding for the contestability dimension of the Manual-consistent milk price would indicate that further consideration would be appropriate on the implications for contestability of applying the Adjustment Amount.

Our approach to the efficiency dimension – how Fonterra is provided with incentives

Fonterra has incentives to improve efficiency to maximise profits

- B6 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).

- B7 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.⁸⁰ 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.

The use of notional inputs in the base milk price provides incentives for efficiency

- B8 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 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. As is discussed in Attachment A, this principle is also particularly relevant to our assessment of Fonterra’s approach to setting the 2013/14 base milk price by deducting the Adjustment Amount from the Manual-consistent milk price.
- B10 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.
- B11 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’).

⁸⁰ 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).

- B12 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.⁸¹ 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.⁸²
- B13 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.
- B14 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.
- B15 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 Manual-consistent milk price

- B16 Notwithstanding the efficiency dimension of the s 150A purpose, there are instances where it is still reasonable to use actual data in setting the Manual-consistent milk price. These particularly include where:
- B16.1 there is insufficient information to know what an appropriate notional value would be, or it would be unreasonably costly to obtain this information; or
- B16.2 Fonterra has very limited control over the actual costs used for the benchmark.

⁸¹ 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.

⁸² 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.

- B17 Where actual data has been used to set the Manual-consistent 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.⁸³
- B18 We have practically assessed whether Fonterra has incentives to operate efficiently through the setting of the Manual-consistent milk price by identifying whether actual or notional values have been used for the inputs and assumptions used in the Manual-consistent 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

- B19 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'.
- B20 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).
- B21 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).

⁸³ 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.

- B22 Therefore, conceptually, we consider the calculation of the Manual-consistent 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.⁸⁴
- B23 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

- B24 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.
- B25 Rather, our practical approach for this review starts by deconstructing the Manual-consistent 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.⁸⁵ In highly technical areas (eg, energy costs) we have also been reliant on opinions from independent experts.
- B26 Fonterra's notional costs, revenues, and other assumptions used in determining the Manual-consistent 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 Manual-consistent milk price approximate the average capacity of Fonterra's actual plants, consistent with the safe harbour provision in s 150B(b).

⁸⁴ 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'.

⁸⁵ 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.

- B27 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 Manual-consistent 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.
- B28 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,⁸⁶ an efficient processor (building an efficient incremental plant) should also be able to achieve them.
- B29 In reaching our conclusion we have also 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 be practically feasible for another efficient processor. We therefore included a cross-check to identify whether our assessment is being affected by unique features which are not subject to 'safe harbour' provisions.

Cross-checks on whether the assumptions, inputs and processes are practically feasible in aggregate

- B30 Our aggregate cross-checks included:
- B30.1 checking the assumptions, inputs and processes used to determine the Manual-consistent milk price are internally consistent with each other. These tests are noted in Attachments C-Y in respect of each component;
 - B30.2 considering the overall impact on the base milk price of assumptions, inputs and processes which we are unable to conclude on at this stage. For example, we have estimated the impact on the base milk price of a 10% increase in energy costs to reflect the maximum effect of using annual average costs rather than peak production; and

⁸⁶ 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).

B30.3 as a pragmatic cross-check, exploring whether a number of key operating assumptions and inputs are practically feasible using data from a plant recently built by Fonterra.

Attachment C: Production plan

Purpose

- C1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the notional production plan (product volumes and product mix) for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

- C2 For our 2013/14 analysis of the notional production plan (product volumes and product mix), we updated our 2012/13 milk price review analysis and checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

- C3 Table C1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used to determine the notional production plan (product volumes and product mix) of the notional producer.⁸⁷

Table C1: Summary of conclusions on 2013/14 production plan

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

Selecting the basis for our 2013/14 analysis

- C4 Table C2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

⁸⁷ Fonterra in its Reasons Paper refer to the notional producer as the Notional Milk Price Business (NMPB)

Table C2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	N/A
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 process, assumptions and inputs

- C5 Table C3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the notional production plan (product volumes and product mix) for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 15.

Table C3: Fonterra's explanation of the production plan

Inputs	Process	Assumptions
Milk supply: Fonterra's total milk supply by month & average composition (fat, protein, lactose & minerals) by month.	Extracted from relevant Fonterra system (Aspire).	Use of all Fonterra's milk supply aligns to both Manual & to DIRA. Aggregation of data on monthly basis aligns to use of monthly averages throughout model.
Production mix: allocation of milk to SMP and WMP production, and of cream to AMF and Butter production, is aligned to Fonterra's actual allocation.	Calculated by reference to Fonterra's actual production for each month in the season. (Relevant calculation results in alignment of Fonterra's and the NMPB's ratios of WMP MT : (WMP MT + SMP MT), and of Butter MT : (Butter MT + AMF MT) for each month in the season.)	That Fonterra's product mix decisions are optimal, given information available at time decision is made. That use of Fonterra's actual product mix does not create any adverse incentives, and is therefore consistent with the efficiency criterion.

Basis of calculation

- C6 The notional production plan milk price is determined as a function of:
- C6.1 the monthly milk supply volumes;
 - C6.2 the monthly, national average product yields (derived from the actual milk composition, notional losses and assumed reference commodity products' specifications); and
 - C6.3 the allocation of milk to the production of the reference commodity products.
- C7 Rule 7 of the Manual specifies how the production plan should be established in each review assessment year. It states that the Manual-consistent milk price production plan will be calculated to utilise all milk supply and should reasonably reflect Fonterra's actual allocation of milk to different reference commodity

products, subject to that allocation being commercially supportable by reference to relevant information available at the time the allocation is made.

- C8 We consider the calculation of the milk supply volumes and the product mix to be consistent with Rule 7 of the Manual.

Does the calculation use notional or Fonterra actual data?

- C9 The production plan is based on Fonterra's actual data.
- C9.1 The monthly milk supply volumes are Fonterra's actual milk supply.
- C9.2 The monthly average milk composition is Fonterra's actual milk composition across the whole of New Zealand (ie, using national rather than regional data).
- C9.3 The allocation of milk to the reference commodity products is aligned to Fonterra's actual allocation (determined on a prospective basis) and scaled up to reflect that the notional producer is assumed to manufacture greater volumes of the reference commodity products. The monthly product mix targets are set prospectively.

'Safe harbour' provision in section 150B(d)

- C10 Those components of the Manual-consistent milk price calculation that are sheltered by the 'safe harbour' provisions under s 150B are excluded from our assessment for consistency against the s 150A purpose. 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.

Fonterra's milk supply volumes

- C11 Section 150B(d) allows for all milk collected by Fonterra to be used for the purposes of the Manual-consistent milk price calculation. We therefore accept that using Fonterra's milk supply volumes is consistent with the 'safe harbour' provision in s 150B(d).

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

- C12 In its Reasons Paper on page 16, Fonterra states 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.
- C13 We agree with Fonterra's explanation. As outlined in Attachment B, it is reasonable to use actual data in setting the base milk price if it would be unreasonably costly for Fonterra to obtain a notional benchmark.
- C14 Furthermore, to some extent, the raw milk composition is subject to environmental factors and is outside of Fonterra's control. In such cases, we also consider it is reasonable to use actual data in setting the Manual-consistent milk price.

- C15 Fonterra also notes that any efficient or inefficient decisions by it in respect of allocation of milk flow to the Manual-consistent milk price calculation. Fonterra believes that the use of actual allocations does not adversely affect Fonterra's incentives. We agree. The use of actual data provides Fonterra with some incentive to improve efficiency so as to increase the Manual-consistent milk price.

Is the calculation practically feasible?

- C16 In its Reasons Paper on page 16, Fonterra states that because the product mix is determined in a prospective basis, it is not possible to 'over optimise' this input.
- C17 We agree with Fonterra's explanation. We consider the assumed product volumes and mix to be practically feasible because they are based on Fonterra's actual product mix decisions made at the time that the decisions were required to optimise the revenue for Fonterra's actual business, and not adjusted *ex post*. Specifically, the model uses target proportions for WMP/SMP and Butter/AMF production which are Fonterra's actual proportions.
- C18 We do not consider that the calculation relies on any assumptions that are unique to Fonterra. The assumed product mix should, therefore, also be practically feasible for another efficient processor.

Attachment D: Product yields

Purpose

D1 This attachment summarises our analysis of Fonterra's assumptions adopted, and the inputs and process used to determine the product yields for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

D2 For 2013/14 there has been no change to the Manual or the calculation approach, so for our 2013/14 analysis of product yields we have focused on reviewing any changes to key inputs and carrying out consistency checks on the calculations.

Results of our 2013/14 analysis

D3 Table D1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table D1: Summary of conclusions on 2013/14 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 process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	Yes
Are the process, assumptions, and inputs practically feasible?	Yes
Are any features unique to Fonterra?	No

Selecting the basis for our 2013/14 analysis

D4 Table D2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table D2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	in 2012/13 it was recommended by our losses consultant that production losses should be adjusted for seasonal shoulder effects (we had noted this recommendation but also that the impact was not material)
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 process, assumptions and inputs

D5 Table D3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the product yields for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 15.

Table D3: Fonterra's explanation of the product yields

Inputs	Process	Assumptions
Fonterra's product specifications (principally minimum protein, minimum lactose, maximum moisture content) for each RCP.	Extracted from relevant Fonterra system (PSLM or QPM).	The base calculations (for both yields and costs) assume all product manufactured is 'standard' or 'base' specification product. The model in fact includes prices achieved on the sale of a range of specifications defined to be 'base commodity' products (differences may be as minor as customer-specific bags, or additional tests may be performed due to market-specific requirements, and the additional cost recovered from the customer). The incremental costs (including the cost of any incremental fat, protein or lactose, valued at a price consistent with the Farmgate Milk Price) relative to base specification costs and yields are determined as part of the revenue calculation.
Provisions for milk lost in the manufacturing process.	<p>Provisions for losses established by independent expert (T Gandell) having regard to:</p> <ul style="list-style-type: none"> - results from loss audits of relevant Fonterra plants (subject to separate independent expert review by Aurecon), and - manufacturer guarantees. <p>The loss provision covers:</p> <ul style="list-style-type: none"> - Losses in milk reception, treatment and standardisation - Effluent losses - Stack losses - 'Overweight' losses in the course of packaging. 	That these provisions accurately reflect expected losses that would be incurred by an efficient manufacturer of RCPs from all relevant sources over the course of a full season, having regard to assumed technology and efficient operating model.
Provision for actual usage of value components in excess of minimum allowed usage ('specification offsets').	Provisions for specification offsets established by independent expert (T Gandell) having regard to actual Fonterra performance for relevant plants and products.	That these provisions are appropriate, having regard to Fonterra data on the probability of failing relevant Codex tests and given the nature of assumed technology, including A&PC technology and capability.

Basis of calculation

- D6 The product yields are a function of the following inputs:
- D6.1 Fonterra's actual national average, monthly milk compositions;
 - D6.2 the target product compositions of fat and protein in each reference commodity product;
 - D6.3 the production losses in terms of kilograms of fat and kilograms of protein lost per MT production of each of the five reference commodity products;
 - D6.4 the fat content of separated cream; and
 - D6.5 Fonterra's actual production plan (discussed in Attachment C)
- D7 The calculation of lactose powder consumption additionally requires:
- D7.1 the lactose powder composition; and
 - D7.2 the lactose powder losses.
- D8 The calculations are carried out to determine:
- D8.1 the product yields as the ratios of MT product per '000 kgMS used to create the finished product; and
 - D8.2 the lactose powder requirements for standardisation as MT of lactose per MT of finished product.
- D9 The yields calculations are carried out in two main steps:
- D9.1 Calculation of product yields for each combination of powder and by-product assuming only a single stream of manufacturing, i.e., yields are calculated for SMP and WMP and for the by-products in single stream combinations of SMP/Butter/BMP, SMP/AMF/BMP, WMP/Butter/BMP, WMP/AMF/BMP.
 - D9.2 Application of allocation factors to the single stream yields to create a product and by-product mix to match the target product mix ratios (covered in Attachment C). Yields (and lactose usage) are then calculated on the allocated basis so that they can be used to multiply the milk solids collected and get production tonnages of each product net of product mix allocations.
- D10 Rule 8 of the Manual specifies how product yields should be established in each review assessment year. It states that the yields factors should reflect the composition of standard specification commodity product 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 reference commodity product.

D11 We consider the calculation of product yields to be consistent with Rule 8 of the Manual.

Does the calculation use notional or Fonterra actual data?

D12 The product yields calculation relies on notional values.

D13 The assumed target product compositions of fat and protein are notional and are based on:

D13.1 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).⁸⁸ 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); and

D13.2 manufacturing 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, in F11 and F12 (18 plants for WMP, eight plants for SMP and three plants for BMP).

D13.3 average cream product compositions achieved by Fonterra in F11 and F12 (4 plants for unsalted butter and six plants for AMF).

D14 The target product compositions set in this way meet the chemical composition limits specified in GDT.

D15 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 Manual-consistent milk price is set. They are therefore notional.

D16 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 Manual-consistent milk price is set; and is therefore notional.

D17 The lactose powder composition is set at 5% moisture and is not updated for Fonterra's actual values.

D18 Lactose powder losses are set at fixed figures of []%, []%, []% for use in WMP, SMP and BMP respectively, and not updated for Fonterra's actual values. Lactose losses are therefore notional.

⁸⁸ Codex Alimentarius, *Codex standard for milk powders and cream powder*, available at: www.codexalimentarius.org/input/download/standards/333/CXS_207e.pdf

- D19 Open Country expressed its concern that Fonterra was using its actual permeate costs in the milk price model.⁸⁹ We have confirmed with Fonterra that the notional producer does not use permeate in the production of RCPs in the milk price model.

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

- D20 In its Reasons Paper, Fonterra states that because its actual yield performance does not directly flow through into the Manual-consistent milk price calculation, Fonterra is appropriately incentivised to minimise yield losses.⁹⁰ Fonterra also states that the specification offsets assumed in the Manual-consistent milk price calculation are set independently of Fonterra's actual current year performance, and therefore appropriately incentivise Fonterra to minimise the extent to which valued component usage exceeds stated minimum levels for the relevant products.
- D21 We agree with Fonterra's explanation. As outlined in Attachment B, 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 purpose.

Is the calculation practically feasible?

- D22 We consider the product yields are practically feasible. We outline our reasons below.

Production losses

- D23 In 2012/13, we engaged an independent dairy losses 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. The experts' report is available on our website, along with his response to submissions on his report.⁹¹
- D24 In our expert's opinion, the then 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 recommended increasing overall losses by 10%. We determined that this increase would not have a material impact on milk price.
- D25 This year Fonterra has reduced the losses. The impact is an overall aggregate reduction of 0.19% which has a marginally material impact on milk price of 2.1 cents per kgMS.

⁸⁹ Open Country, *Submission on the Commerce Commission's Draft Report – Review of Fonterra's 2013/14 base milk price calculation*, 1 August 2014.

⁹⁰ Page 15 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 2013/14 Season*, 1 July 2014, available at <http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation>

⁹¹ 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>

- D26 The key changes in this year's loss allowances are a reduction in effluent losses for SMP and WMP. Fonterra has provided supporting material analysing a total of five loss audits and one commissioning acceptance study covering plant consistent with the notional producer plants. The supporting material provides an assessment by Aurecon that the loss data is of good quality (as identified as a process step in Fonterra's Reasons Paper - Table D3 above). We consider that the data analysis has been carried out appropriately and that the plants studied are achieving the losses identified.
- D27 We have also sought and received additional material which demonstrates that an adjustment for seasonal shoulders has been carried out in an appropriate way and is included within the losses used in the model.
- D28 We have therefore concluded that the revised losses are practically feasible.

Product specifications

- D29 We have assessed the practical feasibility of the product specifications in the model in light of the valued component limits of the reference commodity products as stated in GDT and the specification offsets allowed by the model to provide for manufacturing process control variability.
- D30 GDT specification minima are public information and are not subject to debate. The product compositions are consistent with these limits.
- D31 Fonterra has provided a report by a consultant which recommends:
- D31.1 For powders, specification offsets be used which were derived on the basis of detailed analysis of actual production measurements on multiple Fonterra plants, over two seasons (F11 and F12). [
-]
- D31.2 For cream products, the actual composition achieved on average at Fonterra plants was used.
- D32 The composition recommendations have not changed this year. We note that last year, we also requested and reviewed the raw data underpinning the offsets study.
- D33 We therefore consider that the assumed specification offsets and compositions are practically feasible for Fonterra.

D34 To assess whether the assumed product yields are likely to also be practically feasible for another efficient processor, we considered whether Fonterra's advanced process control system is a feature unique to Fonterra. 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). We understand that Fonterra has invested significantly in both software and human capital associated with running its process control system. We also understand that Fonterra does not hold any intellectual property rights over the software. 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 are practically feasible for another efficient processor.

Other inputs and the yield calculations

- D35 The product target compositions and the milk solids losses are the key inputs to the yields calculations and we have concluded that these are practically feasible. The other inputs are the national average monthly milk compositions, cream and lactose powder compositions and the product mix targets.⁹²
- D36 Product Mix targets are addressed in Attachment C and are considered practically feasible.
- D37 The milk compositions are Fonterra actuals and are therefore practically feasible.
- D38 The cream composition and lactose powder compositions are notional values consistent with independent data. We consider them to be practically feasible.
- D39 As a confirmation of the integrity of the formulae used in the calculations themselves, we undertook a calculation to verify that the total milk solids supplied into the model, less the losses assumed in the model, match the milk solids in the tonnage manufactured at the target product compositions. The match is exact. On this basis, and supported by inspection of the formulae themselves we conclude that the yield calculations are correctly installed in the model.

⁹² Fonterra has advised us that the normal form of lactose is what is called Lactose mono-hydrate, which contains one water molecule per lactose molecule, or 5% moisture. This water molecule is removed as part of the dissolving and drying process and does not end up in the final product. Therefore the useful lactose from a standardising point of view will be 95% lactose.

Attachment E: Sales phasing

Purpose

- E1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process as they relate to sales phasing provisions in the revenue calculation of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

- E2 For our 2013/14 analysis of sales phasings we:
- E2.1 reviewed Fonterra's assumptions, inputs and process to assess to the extent on whether sales phasings are consistent with the purposes of the Act and;
 - E2.2 checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

- E3 Table E1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table E1: Summary of conclusions on 2013/14 sales phasing

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

Selecting the basis for our 2013/14 analysis

- E4 Table E2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table E2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	N/A
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 assumptions, inputs and process

- E5 Table E3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the sales phasing for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 17.

Table E3: Fonterra's explanation of its sales phasing

Inputs	Process	Assumptions
The percentage of each RCP manufactured by Fonterra from current season milk that is sold in each month.	<p>1. A 'first in, first out' (FIFO) assumption is used to determine which of Fonterra's sales of each RCP can be deemed to be of product manufactured from current season milk.</p> <p>2. As each month in the season progresses, year to date volumes deemed to have been sold by the NMPB are 'locked down', to avoid subsequent revisions to forecast milk supply, product mix or sales plan having any impact on the volume of product assumed to have already been sold.</p>	<p>That use of Fonterra's actual sales phasing's does not create any adverse incentives.</p> <p>That any feasible alternative would reduce Fonterra's incentives to operate efficiently.</p>

Basis of calculation

- E6 The sales phasing model has two key outputs. It determines the sales phasing, and the split between contracted and un-contracted future sales.

Sales phasing

- E7 The sales phasing determines how much of the total production from the current season is sold in each month for each reference commodity product. It uses Fonterra's actual sales for each reference commodity product and calculates the percentage of total sales sold in each month. In the model the notional production volumes are then spread across the year using these percentages.
- E8 It estimates the sales of the production in the current year. This means that sales made from opening inventories are excluded, ie, it does not count product left over from production in the previous year. It does count the sale of product through into the next year from the current year's production. For the F14 year there are three to four months at the beginning where total sales are not counted or partially counted because they are attributed to remaining F13 production. There is also an additional three to four months added into the F15 year where F14 product is being sold. This approach means that farmers are paid for the value of the product they are producing in each year.

- E9 The sales phasing profile is updated throughout the season to reflect Fonterra's actual sales profile. At the start of the season the sales phasing is based on forecasts. Once each month's actual invoiced volumes have become available they are locked down in the model. The sales volumes for past months are not changed although if other changes happen later, such as an increase or decrease in total production, their percentage as a portion of the year's total will change.
- E10 Table E4 below is a worked example of how sales phasing works for a single reference commodity product for a single month. The volumes used for sales phasing include both volumes on and off GDT, measured in milk solids. In this example we determined the total volumes by multiplying the March figures by 12 (ie, for simplicity we have assumed March is equal to the average month).

Table E4: Example of sales phasing for a single month

	March	Total
GDT volumes	600	7200
Off GDT volumes	60	720
Total actual volumes	660	7,920
Sales phasing	8.3%	

- E11 Table E5 below shows how the sales phasing percentage is used in the model. The notional volumes are calculated by using Fonterra's actual sales phasing per reference commodity product, and multiplying this by the total notional production of that reference commodity product for the entire year, as established in the yields model.

Table E5: Example of how sales phasings are converted into notional volumes

Shipment month	March
Sales phasing	8.3%
Total notional production for the year	10,000
Notional volumes sold in March	833

- E12 Rule 10 of the Manual specifies that sales phasings must be set on a prospective basis during the year and must reflect the overriding principle that product is to be sold in the month in which it is expected to be sold.
- E13 We consider that Fonterra's calculation of the sales phasings component of the base milk price is consistent with this Rule of the Manual.

Split between contracted and un-contracted sales

- E14 In order to calculate the Manual-consistent milk price, the proportion of sales that are contracted and un-contracted needs to be determined. This is because contracted sales have an agreed upon price whereas the price for product that is not yet contracted needs to be forecasted.⁹³ When the final milk price is set this split will have little impact as the actual prices for most months will be available.
- E15 The sales phasing model sets the proportion of actual prices and forecasted prices by using Fonterra's actuals, less any exclusions. Sales are only excluded if they do not meet the definition of 'Qualifying Reference Sales' as set out in the Manual.

Does the calculation use notional or Fonterra actual data?

- E16 The calculation of sales phasing relies on actual data. Fonterra's actual sales phasing for the reference commodity products is used. For the split between contracted and un-contracted sales, Fonterra's actual data is used less any exclusions.

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

- E17 We consider that the current approach to sales phasing meets the efficiency criteria. We believe it is appropriate for Fonterra to use actual data for sales phasing because:

E17.1 there is insufficient data to develop a reasonable notional figure; and

E17.2 Fonterra only has limited discretion over its sales phasing.

There is insufficient information to develop notional data

- E18 In Fonterra's Reasons paper on page 17, Fonterra notes that it still 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 to minimise earnings risk. We have no comment at this stage on this point.

- E19 However, we continue to accept Fonterra's arguments that:

E19.1 using sales phasings from previous years would not be practically feasible because of the relationship with the production plan and storage capacity; and

E19.2 using lagged production volumes is not practically feasible because of logistical constraints around the times of peak production.

⁹³ Attachment F: Pricing sets out the transformation Fonterra has performed to determine the prices used in the model.

Fonterra only has limited control over sales phasing

- E20 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

- E21 We also consider that the use of actual data in this case provides incentives for Fonterra to operate efficiently so as to increase the Manual-consistent milk price. As outlined in Attachment B, we consider that Fonterra may have incentives to operate efficiently where actual data has been used to set the Manual-consistent milk price. We consider the calculation of the sales phasing is still consistent with the efficiency dimension of the purpose as Fonterra has incentives to improve its efficiency so as to increase the Manual-consistent milk price. However, the incentive to operate efficiently is potentially weaker than if notional data had been used.

Is the calculation practically feasible?

- E22 We consider that the sales phasing assumptions are practically feasible for Fonterra or another efficient processor. This is because the use of total phasings is consistent with the production profile of the notional producer. We therefore agree with Fonterra's conclusions on practical feasibility in its Reasons Paper on page 17.
- E23 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.
- E24 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

Attachment F: Pricing

Purpose

- F1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to set prices for the selected reference commodity products for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

- F2 For our 2013/14 analysis of pricing we:
- F2.1 reviewed Fonterra's inputs, process and assumptions to assess the extent to which the notional prices are consistent with the purposes of the Act and;
 - F2.2 checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

- F3 Table F1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table F1: Summary of conclusions on 2013/14 pricing

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

Selecting the basis for our 2013/14 analysis

- F4 Table F2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table F2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	N/A
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 assumptions, inputs and process

F5 Table F3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the reference commodity pricing for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 19.

Table F3: Fonterra's explanation of pricing

Inputs	Process	Assumptions
<p><u>Prices</u></p> <p>Monthly average 'include series' prices, on a FAS-equivalent basis, for each RCP, separately calculated as averages for sales contracted in each of months 1 – 5 prior to the relevant shipment month. Include-series prices comprise:</p> <ol style="list-style-type: none"> 1. Average across all Fonterra's GDT sales of NZ product for WMP, SMP & AMF. 2. For Butter & BMP, all prices achieved on GDT, plus all prices achieved for sales which are transacted on arm's length terms to parties independent of Fonterra, and at prices that reflect prevailing market prices at the time the contract for sale is entered into. 3. Prices for 'include' products that are not the standard specification products are adjusted for any incremental costs (relative to standard specification product) of manufacturing the product. 	<p>The relevant prices are determined using the following process:</p> <p>Step 1: Separate sales recognised in the month into sales contracted in each of months 1 - 5 prior to the month of sale.</p> <p>Step 2: Calculate the volume-weighted average price for the sales allocated to each of months 1-5 prior to the month of sale ('contract month' average prices).</p>	<p>That (primarily) GDT prices represent an unbiased estimate of the prices achievable for standard specification commodity product.</p> <p>That using GDT prices appropriately incentivises Fonterra management to maximise prices achieved for off-GDT sales.</p> <p>That governance arrangements in place to ensure credibility of GDT to its customers are sufficient to address concerns raised by others that Fonterra might manipulate volumes offered on GDT for the purpose of altering the milk price.</p>
<p><u>Contract month weightings</u></p> <p>Fonterra's contract profiles for sales contracted 1 - 5 months prior to shipment) for arm's length sales satisfying the 'Volume Criteria' specified in the Part C definition of Benchmark Selling Price are used to determine weighted average shipment month prices.</p>	<p>Determine percentage of 'volume include sales' (by MT) contracted in each of months 1 - 5 prior to shipment month. Apply these percentages to the contract month average prices determined above, to calculate the overall weighted average price to be applied to Milk Price sales of the relevant product in that month.</p>	<p>That Fonterra's overall contract profile for arm's length commodity sales, rather than just the GDT contract profile, is appropriate.</p>

<p><u>Downgrade</u></p> <p>Assumptions regarding:</p> <p>(a) % of product assumed to fall in each of the 3 'downgrade' categories (rework, stockfood and placement specifications), &</p> <p>(b) associated costs (relative to counterfactual of product not being downgrade), comprising discounts to 'good product' selling price for placement specifications and stockfood, and additional manufacturing costs for rework.</p>	<p>Established by reference to actual Fonterra performance over the period F09 - F11, and held constant for period F13 - F16.</p> <p>Established by reference to actual Fonterra costs, and updated regularly. (Do not however equal current year Fonterra costs.)</p>	<p>Use of a benchmark that is independent of actual current year performance provides an appropriate performance incentive, since actual deviations from the benchmark will accrue as gains / losses to earnings.</p> <p>Benchmark is independent of current Fonterra performance, and therefore incentivises efficient performance.</p>
<p><u>Ocean freight recoveries</u> Fonterra's average ocean freight cost for Milk Price products. Fonterra's average ocean freight recovery from customers for Milk Price products.</p>	<p>Deduct average ocean freight cost per MT from average on-charge to customer per MT, and multiply by total Milk Price production.</p>	<p>That ocean freight recovery is achievable, in addition to the FAS price, by an efficient processor of Fonterra's scale.</p>

Basis of calculation

- F6 For each reference commodity product, each shipment month average selling price is calculated by weighting the average price of qualifying sales (expressed in FAS-equivalent terms) contracted in each of the months one to five prior to the shipment month by the respective qualifying volumes in those same months.
- F7 All AMF, BMP, butter, SMP and WMP sales on GDT are qualifying sales. In addition, off GDT sales of BMP and butter transacted on an independent unbundled arm's length basis and subject to normal commercial terms, conditions and risks are also qualifying sales.
- F8 All AMF, BMP, butter, SMP and WMP sales on and off GDT that satisfy the selected volume criteria in the Manual are qualifying volumes.

Worked example of pricing

- F9 The tables below set out a worked example of how the prices are calculated. Table F4 shows that the sale price achieved in each shipment month is based on a weighted average of the included prices for the months in which the sales were contracted. Included sales can be contracted up to five months before shipment.

Table F4: Example of the calculation of prices

	Contract month				
	November	December	January	February	March
Shipment month	March	March	March	March	March
Actual include volumes*	100	100	150	200	50
Weighted average actual include price	5.0	5.0	4.5	4.0	6.0
Price used in the milk price model					4.6

- F10 Table F5 shows how the different selected prices are calculated. A method called ‘weighted contract tenor’ is used where different weighted averages are calculated for the combination of each contract month and shipment month. For example contracts reached in November will have different average prices calculated for each of the following five shipment months.

Table F5: Example of weighted contract tenor prices

		Contract Month				
		November	December	January	February	March
Shipment Month	November	7.0				
	December	6.5	6.5			
	January	6.0	6.0	5.5		
	February	5.5	5.5	5.0	4.5	
	March	5.0	5.0	4.5	4.0	6.0

- F11 Rule 9 of the Manual specifies how reference commodity 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.
- F12 We consider the calculation of the prices to be consistent with Rule 9 of the Manual.

Does the calculation use notional or Fonterra actual data?

- F13 The calculation use actual prices achieved by Fonterra for sales of reference commodity products.

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

- F14 In its Reasons Paper on page 19 and in Table F3, Fonterra states that, in its view, (primarily) GDT prices represent an unbiased estimate of the prices achievable for standard specification commodity products. It therefore considers that using GDT prices appropriately incentivises Fonterra management to maximise prices achieved for off GDT sales.

- F15 We agree with Fonterra's explanation. As outlined in Attachment B, 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 reference commodity pricing is therefore consistent with the efficiency dimension of the purpose.
- F16 We have previously stated that using GDT prices for the reference commodity products sold via GDT provides an incentive to operate efficiently.⁹⁴ We have reviewed and accepted additional supporting evidence provided by Fonterra that actual prices for reference commodity products achieved by Fonterra relative to those achieved by other New Zealand exporters of similar products which suggests that Fonterra is not achieving significantly different prices as a result of its large sales volumes. We therefore conclude that the GDT prices are outside the control of Fonterra.

Is the calculation practically feasible?

- F17 In its Reasons Paper on page 19, Fonterra states that the calculation of reference commodity pricing is practically feasible, because the prices are derived from prices actually achieved by Fonterra on GDT.
- F18 We agree that the pricing is practically feasible. This conclusion is based on 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.
- F19 We have investigated data from April 2011 to May 2014 and found that GDT and off GDT prices are usually very similar, and have a very similar volatility overall. Furthermore, off GDT prices are usually slightly higher. This may be because a premium is associated with the security of supply.
- F20 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

Impact of switching volumes between GDT and off GDT

- F21 We consider that switching volumes of currently manufactured products between alternative sales channels (ie, on and off GDT) should not, all things being equal, result in a significant price change over a medium term. This is because, in the medium term, the increase in volumes sold on GDT would be accompanied by a proportionate increase in demand as buyers would no longer be able to purchase volumes off GDT.

⁹⁴ Commerce Commission, *Final Report on the Dry Run Review of Fonterra's farm gate milk price*, 27 August 2012, page 66.

F22 In assessing the practical feasibility of GDT prices, we do not consider it necessary to consider the likely impact of an increase in the volume of product sold by a notional producer on prices. As discussed in Attachment B, our conceptual approach to assessing the contestability dimension in s 150A is to focus on whether the assumptions, inputs and processes are practically feasible for a processor efficiently building an incremental plant. The volumes arising from an incremental plant are unlikely to be of sufficient magnitude to have any impact on observable GDT prices. Therefore, the actual GDT prices used by Fonterra in the Manual-consistent milk price calculation are practically feasible.

Attachment G: Foreign exchange conversion

Purpose

- G1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the foreign exchange conversion rate for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

- G2 For our 2013/14 analysis of foreign exchange conversion we updated our 2012/13 milk price review analysis and checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

- G3 Table G1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table G1: Summary of conclusions on 2013/14 foreign exchange conversion

Are notional or actual values used?	Fonterra's average forecast foreign exchange conversion rate (actual)
Are the process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	'safe harbour'
Are the process, assumptions, and inputs practically feasible?	'safe harbour'
Are any features unique to Fonterra?	No

Selecting the basis for our 2013/14 analysis

- G4 Table G2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table G2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	N/A
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 assumptions, inputs and process

- G5 Table G3 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the foreign exchange conversion rate for the purposes of the revenue calculation of the Manual-consistent milk price calculation. These are described by Fonterra on page 20 of its Reasons Paper.

Table G3: Fonterra's explanation of foreign exchange conversion

Inputs	Process	Assumptions
<p>Fonterra's actual USD-equivalent net cash receipts in the relevant month.</p> <p>Fonterra's net NZD receipts, after allowing for (a) conversion from USD at spot and (b) net proceeds of hedging contracts (forwards and other) exercised in the month.</p>	<p>Calculated as the ratio of Fonterra net USD-equivalent receipts for the month to (a) net NZD receipts, at spot and (b) proceeds from FX contracts exercised in the month less any costs (e.g. option premia) of those contracts.</p> <p>Calculated costs include the holding costs (calculated at the pre-tax milk price WACC) for the period between acquisition and exercise or expiry of options.</p>	<p>That application of Fonterra's average FACR for the month to the calculated Milk Price USD cash receipts in the month (which will differ from Fonterra's) is consistent with s150B(d).</p>

Basis of calculation

- G6 The foreign exchange conversion milk price component is a function of the 'benchmark FX conversion rate' – the average USD: NZD conversion rate applied to convert notional milk price receipts for a month.
- G7 Fonterra in its Reasons Paper on page 20 states that the benchmark FX conversion rate is calculated through the following steps:
- G7.1 Converting all Fonterra's USD-equivalent receipts to NZD at the daily average spot exchange rate for the month.
 - G7.2 Adding (subtracting) to the NZD receipts the gains (losses) on foreign exchange contracts exercised by Fonterra in the month.
 - G7.3 Subtracting (adding) from the NZD receipts premiums paid (received) in respect of any options for foreign exchange that are exercised or which expire in the month.
 - G7.4 Subtracting (adding) from the NZD receipts a provision for interest on option premiums in respect of options exercised or expired in the month for the period elapsed since the acquisition (sale) of the option.
 - G7.5 Dividing the USD receipts by the adjusted NZD receipts obtained through steps 1-4, to derive Fonterra's 'benchmark FX conversion rate.' The resulting series of monthly benchmark rates is then used to convert the notional net USD cash receipts of the NMPB to NZD.
- G8 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.

G9 We consider the calculation of the foreign exchange conversion rates to be consistent with Rule 11 of the Manual.

Does the calculation use notional or Fonterra actual data?

G10 The calculation of the foreign exchange conversion rates relies on actual data.

Scope of our analysis given 'safe harbour' provisions in section 150B

G11 In undertaking this statutory review, we are not required to assess any components of the Manual-consistent milk price calculation that are sheltered by the 'safe harbour' provisions for consistency against the s 150A purpose. 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.

Fonterra's view on consistency with section 150B(c) 'safe harbour' provision

G12 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 Manual-consistent milk price calculation.

Our analysis and conclusion

G13 We accept that using Fonterra's average actual foreign exchange conversion rates for the purposes of the Manual-consistent milk price calculation is consistent with the 'safe harbour' provision in s 150B(c).

Attachment H: Selling costs

Purpose

H1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the selling costs for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

H2 For our 2013/14 analysis of selling costs we:

H2.1 reviewed Fonterra's assumptions, inputs and process to assess to the extent on whether the costs are consistent with the purposes of the Act and;

H2.2 checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

H3 Table H1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table H1: Summary of conclusions on 2013/14 selling costs

Are notional or actual values used?	Notional number of sales hubs; Notional cost per hub
Are the process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	Yes
Are the process, assumptions, and inputs practically feasible?	Yes, although concluding on the number of sales hubs is difficult
Are any features unique to Fonterra?	No

Selecting the basis for our 2013/14 analysis

H4 Table H2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table H2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	Insufficient evidence to conclude number of sales hubs
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 assumptions, inputs and process

H5 Table H3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the selling costs for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 21.

Table H3: Fonterra's explanation of the selling costs

Inputs	Process	Assumptions
GDT fee schedule. NMPB sales volumes. Estimated cost of maintaining 8 in-market hubs for customer service. Estimated cost of maintaining 4 in-country offices to support government procurement customers. Estimated cost of sales-related NZ costs not provided for elsewhere in the model (including IT, demurrage, letter of credit management and a provision for bad debts).	Determine aggregate direct GDT fee that would be payable by the NMPB if it sold 90% of its volume on GDT. (Remaining 10% assumed to be sold to government procurement customers.)	That NMPB would be able to participate on GDT and would face the same fee schedule as other third party sellers. That GDT prices are a reasonable proxy for the prices (net of any incremental costs) the NMPB would achieve on sales to government procurement agencies. That the provisions for in-market resourcing and for NZ sales-related costs are appropriate given the assumptions re volumes sold on GDT and volumes sold to government procurement customers.

Basis of calculation

H6 The selling costs calculation is based on the assumption that 90% of the notional producer's products are sold through GDT and 10% are sold to government procurement customers. The selling costs calculation relies on the following inputs using budgeted sales cost data:⁹⁵

H6.1 the cost of maintaining eight in-market hubs servicing GDT sales of 2.25 million tonnes and four in-market hubs servicing sales of 250,000 tonnes to government procurement customers;

H6.2 the cost of the New Zealand back office services; and

H6.3 the costs of selling on GDT.⁹⁶

⁹⁵ The F14 data was rolled forward with a 2.8% inflation adjustment from F13 data, which was established by reference to F12 budget data.

⁹⁶ F14 notional producer volumes used for F14 GDT selling costs.

- H7 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:
- H7.1 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
 - H7.2 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.
- H8 The Manual 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 reference commodity products and, where feasible, sold those products through GDT. However, it shall not exceed the amount that would be incurred by a manufacturer for the reference commodity products that paid an arm's length commission to a sales agent in respect of all costs incurred beyond the New Zealand wharf.
- H9 We consider the calculation of the selling costs to be consistent with Rule 6 of the Manual.
- H10 We have checked that the number of volumes sold on GDT is consistent with 90% of the volumes produced in the notional business.

Does the calculation use notional or Fonterra actual data?

- H11 The calculation of the selling costs relies on notional data.
- H12 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.
- H12.1 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.
 - H12.2 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.
 - H12.3 The GDT fee assumption is based on the tiered fee structure.⁹⁷ The total cost of selling through GDT assumes that the volumes sold are eligible for a reduced GDT fee.

⁹⁷ GDT Market Rules: appendix 2, available at <http://www.globaldairytrade.info/en/resources/gdt-market-rules/>

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

- H13 In its Reasons Paper on page 22, Fonterra states that while various elements of the selling costs calculation are derived from actual Fonterra costs, the approach does not result in Fonterra's actual current year selling costs flowing directly to the milk price, and is therefore consistent with the efficiency criterion.
- H14 We agree with Fonterra's explanation. As outlined in Attachment B, 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?

- H15 In its Reasons Paper on page 22, Fonterra states that the quantum of the various inputs for the selling costs calculation includes appropriate provisions for all relevant costs and they are practically feasible. Fonterra also believes that the assumption that the notional producer is a third party participant on GDT means that this component of the assumed selling costs is also practically feasible for a processor other than Fonterra (and also results in a higher assumed cost than the alternative approach of assuming the actual cost of operating GDT).
- H16 Whether the calculation of the selling costs is practically feasible depends largely on whether the assumed number and cost of operating the in-market hubs for customer service are practically feasible. We have compared the notional producer's selling costs with Fonterra's forecasted 2014 costs for the China hub, which is used as the benchmark for the eight in-market hubs. We are comfortable that these reflect a business selling the majority of its products through a relatively low cost sales channel (being GDT). Fonterra has supplied information on cost adjustments made for the notional producer's hubs located in other regions. Overall we accept that selling costs are practically feasible but would ask for further justification for the number of hubs in the 2014/15 calculation review.
- H17 We do not consider that the calculation relies on any assumptions that are unique to Fonterra. The assumed selling costs should therefore also be practically feasible for another efficient processor.
-

Attachment I: Lactose costs

Purpose

- I1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the lactose costs component of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

- I2 For our 2013/14 analysis of lactose costs we updated our 2012/13 milk price review analysis and checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

- I3 Table I1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table I1: Summary of conclusions on 2013/14 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 process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	Yes
Are the process, assumptions, and inputs practically feasible?	Yes, as prices used are benchmarked against those actually achieved by Fonterra's competitors in New Zealand
Are any features unique to Fonterra?	No

Selecting the basis for our 2013/14 analysis

- I4 Table I2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table I2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	N/A
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 assumptions, inputs and process

I5 Table I3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the lactose costs for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on pages 22 and 23.

Table I3: Fonterra's explanation of the lactose costs

Inputs	Process	Assumptions
<p>1. Price: lower of Fonterra's and other NZ processors' average landed monthly price, ex NZ Customs.</p> <p>2. Quantity: - yield calculations - loss allowance - revised for F13, based on actual Fonterra data.</p> <p>3. Transport Costs - CIF costs per Customs NZ data - inland transport costs per Fonterra contracted rates - payable days per analysis of typical contract terms, shipping days and holding days (revised for F13).</p> <p>4. Procurement costs: - reasonable allowance calculated by reference to Fonterra actuals.</p> <p>5. Storage and other holding and handling costs: - provision for storage capacity included in capital base - reasonable provisions for other costs calculated by reference to Fonterra actuals.</p>	<p>Step 1: For each month in the season, calculate the volume-weighted average price reported to NZ Customs by (a) Fonterra, and (b) other NZ processors, in respect of lactose landed in months 2, 3 and 4 prior to the relevant month.</p> <p>Step 2: Calculate the weighted average of the two price series determined under Step 1 over the 12 month season.</p> <p>Step 3: Calculate the monthly CIF costs (ocean freight, insurance) as a weighted average of the supplying markets for both Fonterra and competitive imports using for each market a Fonterra freight where applicable and the competitor rate only where there is no matching Fonterra rate.</p> <p>Step 4: Apply to the milk price calculation whichever of the series calculated under Step 1 generates the lower average price for the season under Step 2 and the corresponding CIF cost series.</p>	<p>That the approach appropriately incentivises efficient lactose procurement by Fonterra, since any adverse difference between Fonterra's costs and the average cost reported by other New Zealand processors would fall to earnings. That approach captures all lactose-related costs.</p>

Basis of calculation

I6 Rule 18 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.

- 17 The Rule 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).
- 18 The Rule also specifies that the lactose cost should include:
- 18.1 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
- 18.2 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).
- 19 The lactose costs are a function of the lactose price and the lactose volume requirements, which are based on lactose prices reported by Statistics New Zealand and an estimate of the monthly cost for the customs, insurance and international sea freights (CIF) of importing the lactose into NZ, again determined using data reported by Statistics New Zealand.
- 110 Statistics New Zealand sources lactose price information from importers (ie, Fonterra and other dairy processors). Fonterra is able to isolate its own price data from those of its competitors. Fonterra constructs two time series: one for Fonterra prices and one for its competitors' prices. A similar process is carried out for the CIF data.
- 111 The price time series that results in the lower annual average price, and its associated CIF time series, are then used as an input into the Manual-consistent milk price model.
- 112 The lactose volume requirements are calculated as part of the production and yields/losses calculations. The assumptions, inputs and process associated with the production plan feeding into the calculation of the assumed lactose volume requirements are discussed in Attachment D: Yields.
- 113 Based on our review, collection costs are consistent with the data and calculations used in other cost components of the milk price model:
- 113.1 Lactose volumes are consistent with lactose requirement calculations in the yields model and with units of production; and
- 113.2 Lactose freight costs are consistent with site-based production plans.
- 114 The Manual-consistent milk price calculation provides for the storage and domestic freight costs for lactose. The assumptions, inputs and process associated with these costs are discussed in Attachment Q: Freight Costs and Attachment R: Storage Costs.
- 115 We consider the calculation of the lactose costs to be consistent with Rule 18 of the Manual.

Does the calculation use notional or Fonterra actual data?

- I16 The calculation of the lactose costs relies on notional data.
- I17 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.
- I18 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 Manual-consistent milk price calculation in any given year can therefore be either Fonterra's actual price or a notional price.
- I19 The 2013/14 milk price calculation uses Fonterra's competitors' achieved average lactose prices and CIF. The input to the Manual-consistent milk price calculation is therefore notional.

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

- I20 Fonterra makes no statement in its lactose costs assumptions in its Reasons Paper on whether its approach to the lactose price assumptions appropriately incentivises efficient lactose procurement by Fonterra.
- I21 However, 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:
- I21.1 a relatively small decrease in Fonterra's actual lactose cost (due to the relatively small actual lactose volumes being imported by Fonterra); and
 - I21.2 a proportionately larger decrease in the lactose cost in the Manual-consistent milk price calculation (due to the significantly larger lactose volumes imported by the notional producer), which leads to a corresponding increase in the Manual-consistent milk price.
- I22 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.
- I23 If Fonterra was 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:
- I23.1 there would be no change in Fonterra's actual lactose cost; and
 - I23.2 there would be a significant decrease in the lactose costs in the Manual-consistent 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 Manual-consistent milk price.

- I24 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?

- I25 On page 22 of its Reasons Paper, Fonterra states that the use of the actually achieved costs for lactose landed in New Zealand necessarily implies the assumptions are practically feasible.
- I26 We consider the assumed lactose prices are practically feasible for an efficient processor, 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 Manual-consistent milk price, which does not affect the price that Fonterra or another processor actually pays for lactose. We consider that the retrospective use of the lowest figure provides incentives for Fonterra to operate efficiently.
- I27 As discussed in Attachment B, our conceptual approach to assessing the contestability dimension in s 150A is to consider whether the assumed lactose price is practically feasible for a processor efficiently building an incremental plant.
- I28 Although a consequence of the permitted assumption of the notional lactose requirement is that it results in quantities that would never be purchased in practice, we consider the assumed lactose prices are practically feasible for an efficient processor because:
- I28.1 the data used directly reflects the price that a processor was able to achieve; and
- I28.2 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.
- I29 Therefore, the assumed lactose price used by Fonterra in the Manual-consistent milk price calculation is practically feasible.
- I30 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.

Attachment J: Collection costs

Purpose

- J1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the collection costs component for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

- J2 For our 2013/14 analysis of collection costs we:
- J2.1 reviewed Fonterra's assumptions, inputs and process to assess whether the costs are consistent with the purposes of the Act; and
 - J2.2 checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

- J3 Table J1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table J1: Summary of conclusions on 2013/14 collection costs

Are notional or actual values used?	Actual total operating costs; Notional diversion costs
Are the process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	Yes
Are the process, assumptions, and inputs practically feasible?	Yes. However, the exclusion from the milk price model of certain actual costs that arose as a result of the 2013/14 peak milk supply raises questions of collection and manufacturing capacity, which we consider in our aggregate level assessment
Are any features unique to Fonterra?	No

Selecting the basis for our 2013/14 analysis

- J4 Table J2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table J2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	Lack of transparency on the calculations of inter-factory diversion costs
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 assumptions, inputs and process

J5 Table J3 sets out Fonterra's assumptions adopted, and inputs and process used to determine collection costs for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 23.

Table J3: Fonterra's explanation of its collection costs

Inputs	Process	Assumptions
<p>Fonterra's actual cash collection costs, excluding Fonterra's actual inter-factory diversion costs and inter-island milk transport costs. Modelled inter-factory diversion costs, based on calculated volumes of cream and buttermilk to be transported between sites, given asset footprint and product mix. These collection costs include Fonterra's actual diesel hedging and ETS credits costs/gains.</p>	<p>Diversion costs modelled by reference to assumed product mix (and therefore surplus cream/ buttermilk) at each site, average transport cost per km, and for sites without cream or buttermilk processing capacity, the assumed km between site and designated site with relevant capacity.</p>	<p>That it is not feasible to cost-effectively independently model the 'volume' drivers of Fonterra's collection costs (primarily kms travelled and average kms travelled per hour). That the NMPB assumes sufficient processing capacity in both the North Island and South Island, and would therefore not have had to transport milk between islands in 2013/14.</p> <p>That Fonterra's unit costs (eg, driver wages) are reasonably representative of the unit costs that would be incurred by an efficient processor. That differences between actual and Milk Price product mix (which can in practice result in milk not being delivered to the nearest site in the shoulders of the season, in circumstances where the Milk Price model would probably deliver to the nearest site) are not material.</p>

Basis of calculation

J6 The calculation of the collection costs component comprises:

J6.1 Fonterra's total actual cash collection costs; and

J6.2 an adjustment for modelled inter-factory diversion costs for transporting cream from the sites where it is generated to the sites where it is processed into butter or AMF, and transporting buttermilk to sites where BMP is manufactured.

J7 Rule 17 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.

- J8 Based on our review, collection costs are consistent with the data and calculations used in other cost components of the milk price model:
- J8.1 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
- J8.2 The costs of inter-site diversions of by-product feedstocks are consistent with site production plans and the location of powder and cream processing assets.
- J9 We consider the calculation of the collection costs in the milk price to be consistent with Rule 17 of the Manual.

Does the calculation use notional or Fonterra actual data?

- J10 The calculation of the collection costs relies largely on actual data.
- J11 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 incurred to collect all of Fonterra's milk from farms and deliver it to all of Fonterra's manufacturing sites.
- J12 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, but the calculation relies on forecast decisions as to where by-product feedstocks 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. We therefore do not consider that the use of forecast values affects the analysis.

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

- J13 On page 23 of its Reasons Paper, Fonterra notes that although the use of actual costs does not provide a strong incentive for Fonterra to minimise its collection costs, it 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.
- J14 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.
- J15 We accept Fonterra's explanation that setting an independent benchmark for the collection costs would be unreasonably costly. Fonterra relies on highly sophisticated fleet-management software to optimise its actual collection costs. We have no reason to question the effectiveness of Fonterra's software or believe that it produces sub-optimal results. While the use of actual collection costs weakens Fonterra's incentive to operate efficiently, it does not disincentivise it from operating efficiently, as outlined in Attachment B.

Is the calculation practically feasible?

- J16 On page 23 of its Reasons Paper, Fonterra states that the use of actual costs, which are incurred by Fonterra in respect of the same total volume of milk assumed to be collected by the notional producer, means the assumed costs are practically feasible for Fonterra.
- J17 In our 2012/13 draft report we addressed concerns with the potential 'over-optimisation' of the collection cost assumptions. Fonterra addressed those concerns in its submission on our draft report and we accepted Fonterra's explanation that, in light of the large processing capacity of Fonterra's recent actual investments, the assumed collection costs in the Manual-consistent milk price calculation are not over-optimised. For completeness, Fonterra states in its Reasons Paper that it does not consider the potential for 'over-optimisation' impacts the practical feasibility of the collection cost assumption.
- J18 However, the exclusion from the milk price model of certain actual costs that arose as a result of the 2013/14 peak milk supply again raise the question of collection and manufacturing capacity of the notional producer, which we consider in our aggregate level assessment of the Manual-consistent milk price in Chapter 2.
- J19 Excluding the capacity issue of peak milk supplies, we consider the collection costs at the cost component level to be practically feasible, as they are aligned to Fonterra's actual collection costs.
- J20 We do not consider that the calculation relies on any assumptions that are unique to Fonterra. The assumed collection costs should therefore also be practically feasible for another efficient processor.

Attachment K: Packaging costs

Purpose

- K1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the packaging costs for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

- K2 For our 2013/14 analysis of packaging costs we updated our 2012/13 milk price review analysis and checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

- K3 Table K1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table K1: Summary of conclusions on 2013/14 packaging costs

Are notional or actual values used?	Average actual unit costs and usage rates; Notional loss allowances
Are the process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	Yes
Are the process, assumptions, and inputs practically feasible?	Yes
Are any features unique to Fonterra?	No

Selecting the basis for our 2013/14 analysis

- K4 Table K2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table K2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	N/A
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 assumptions, inputs and process

- K5 Table K3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the packaging costs for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 24.

Table K3: Fonterra's explanation of packaging costs

Inputs	Process	Assumptions
<p>Fonterra's actual average unit packaging costs for relevant packaging materials.</p> <p>Fonterra's calculated packaging usages per MT of finished product (excluding wastage).</p> <p>A provision derived from Fonterra's budgeted provisions for wastage of each packaging item per MT of finished product.</p>	<p>Modelled as fully variable, as units of usage (including wastage allowance) per MT multiplied by cost per unit, & then by MT.</p>	<p>That Fonterra's budgeted wastage levels reasonably reflect the losses that would be incurred by an efficient processor (including that Fonterra does not have any procurement advantages not available to other industry participants of similar scale).</p> <p>That Fonterra's unit costs reasonably reflect the costs that would be incurred by an efficient processor.</p>

Basis of calculation

- K6 The packaging costs milk price component is a function of:
- K6.1 Fonterra's actual average packaging unit costs, per packaging item, achieved in the season for which the Manual-consistent milk price is being set;
 - K6.2 Fonterra's actual average usage rate per MT for each of the relevant reference commodity products (inclusive of loss allowance); and
 - K6.3 the relevant volume of reference commodity products manufactured, as per the notional production plan.
- K7 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.
- K8 We consider the calculation of the packaging costs to be consistent with Rule 13 of the Manual.

Does the calculation use notional or Fonterra actual data?

- K9 The calculation of the packaging costs relies largely on actual data.
- K10 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 reference commodity products. These averages are calculated over all relevant purchases incurred during the season for which the Manual-consistent milk price is being set, by all relevant manufacturing sites.
- K11 The loss allowances are based on Fonterra's average budget loss rates, and are therefore notional.
- K12 Our analysis of inputs, processes and assumptions used to calculate the volume of reference commodity products manufactured by the notional producer are outlined in Attachment D: product yields.

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

- K13 In its Reasons Paper on page 24, Fonterra states that the use of Fonterra's actual unit costs for packaging inputs arguably weakens the incentives on Fonterra to minimise the relevant costs.
- K14 Fonterra notes, however, that:
- K14.1 the packaging inputs used to establish the costs assumed in the Manual-consistent milk price calculation comprise a subset of the full range of packaging inputs used by Fonterra, and Fonterra still faces appropriate incentives to minimise the cost of inputs not referenced in the Manual-consistent milk price calculation, and
- K14.2 suppliers of packaging inputs referenced in the Manual-consistent milk price calculation generally also supply packaging inputs not used in the calculation. We have not observed any systematic increase in the price of milk price-related inputs relative to other packaging inputs over time (as would have been observed had Fonterra not been as proactive in minimising the cost of milk price-related inputs).
- K15 We noted last year that we considered that it was feasible to set a realistic achievable benchmark, established independently of Fonterra's actual packaging costs, and that doing so would – in principle – improve Fonterra's incentives to operate efficiently. We make the same comment this year.
- K16 However, using actual packaging costs does not disincentivise Fonterra to operate efficiently. As outlined in Attachment B, we consider that Fonterra may have incentives to operate efficiently where actual data has been used to set the Manual-consistent milk price. We consider the calculation of packaging costs is still consistent with the efficiency dimension of the purpose as Fonterra has incentives to improve its efficiency so as to increase the Manual-consistent milk price. However, the incentive to operate efficiently is potentially weaker than if notional data had been used.

Is the calculation practically feasible?

- K17 In its Reasons Paper on page 24, Fonterra states that the calculation of packaging costs is practically feasible because the unit cost and unit usage assumptions are derived from Fonterra actuals. Fonterra notes that it does not consider it has any procurement or technological advantages not available to other processors of similar scale, and therefore believes these assumptions to be practically feasible for other processors.
- K18 We agree that the packaging costs are practically feasible, as they reflect Fonterra's actual achieved costs.
- K19 We do not consider that the calculation relies on any assumptions that are unique to Fonterra. The assumed packaging costs should therefore also be practically feasible for another efficient processor.

Attachment L: Energy costs

Purpose

- L1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the energy costs for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

- L2 For our 2013/14 analysis of energy costs we:
- L2.1 reviewed Fonterra's assumptions, inputs and process to assess whether the costs are consistent with the purposes of the Act; and
 - L2.2 checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.
- L3 In 2012/13 we concluded that, as energy usage rates were based on peak, rather than average seasonal, capacity utilisation assumptions, the energy costs in the milk price model were not practically feasible. In view of that 2012/13 conclusion, we engaged an independent expert to assist us with our 2013/14 analysis.⁹⁸

Results of our 2013/14 analysis

- L4 Table L1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table L1: Summary of conclusions on 2013/14 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 process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	Yes

⁹⁸ Peter Walker Consultants Ltd, *On the use of energy per tonne of whole milk powder*, page 1, available at: <http://www.comcom.govt.nz/review-of-milk-price-calculation-201314-season/>

Are the process, assumptions, and inputs practically feasible?	Unable to conclude, based on differences in approach between Fonterra and our independent expert. Our expert on energy costs identified that Fonterra's assumption regarding manufacturing plant on product time (OPT) is higher than his analysis suggests is feasible. In his view, additional energy costs are required to operate at the assumed 95% OPT. In its submission on our draft report, Fonterra has provided further information which arguably better supports its approach to calculating energy costs. We intend to further review the information in our 2014/15 calculation review
Are any features unique to Fonterra?	No

Selecting the basis for our 2013/14 analysis

- L5 Table L2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table L2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	Not practically feasible. Energy usage rates were based on peak, rather than average seasonal, capacity utilisation assumptions
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 process, assumptions and inputs

- L6 Table L3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the energy costs for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on pages 24 and 25.

Table L3: Fonterra's explanation of the energy costs

Inputs	Process	Assumptions
<p>Fonterra's budgeted average unit energy costs for:</p> <ul style="list-style-type: none"> - electricity - gas - coal - steam <p>Manufacturer's specifications for energy usage per MT of finished product.</p> <p>Fonterra's contracted emission rate.</p> <p>Market price for carbon units.</p>	<p>Using Fonterra's budget energy costs for energy (excluding fixed transmission, R&M, depreciation and ETS costs, but including labour) calculated average \$/kwh and \$/MT of steam.</p> <p>These rates are applied to the manufacturer's specifications for energy usage per MT of finished product (adjusted for on site losses) to arrive at a \$/MT of energy cost for each RCP, which is applied to production to calculate the cost to the Milk Price business. ETS costs are calculated using the carbon emission amount specified in Fonterra's energy provider's contracts, the amount of energy consumed by the Milk Price business and the average spot price for emission units in the month the energy is consumed.</p>	<p>That Fonterra's energy budget is representative of actual costs and usage.</p> <p>That the energy consumption profile between sites within the Fonterra business is materially similar to the Milk Price business.</p> <p>That Fonterra's energy rates are representative of rates that would be paid by an efficient processor.</p> <p>That manufacturer's specified energy usages are practically feasible for plants operating under milk price model conditions.</p>
<p>Fonterra's prior year actual peak energy load by site for gas and electricity and Fonterra's budget costs for electricity and gas transmission.</p> <p>Manufacturer's specifications for peak energy consumption.</p> <p>Peak milk supply for the NMPB.</p>	<p>Peak energy demand for the NMPB is calculated with reference to the manufacturer's specified peak energy requirements and peak milk. Peak energy requirements are applied to Fonterra's budget average peak energy cost rate to arrive at a fixed cost for gas and electricity transmission costs.</p>	<p>That gas and electricity transmission costs are the only material fixed energy costs.</p> <p>That Fonterra's budget peak energy cost rate is representative of actual costs and rates an efficient processor would pay.</p>

Basis of calculation

L7 The energy costs milk price component is a function of:

L7.1 Fonterra's budgeted cost rates (derived from actual weighted average power prices paid by Fonterra sites);

L7.2 manufacturer's specifications for energy usage per MT of finished product; and

L7.3 the relevant volume of reference commodity products manufactured, as per the notional production plan.

- L8 Rule 13 of the Manual provides that “In calculating the Farmgate Milk Price 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.”
- L9 The Manual also provides that “Resource Usage Rates for each standard plant and for each reference commodity product will subsequently be updated in each review year. The updated Resource Usage Rates will be subject to sign-off by an independent reviewer that the Resource Usage Rates reasonably reflect optimal achievable usages...”
- L10 The last full review of the approach taken to deriving these rates was carried out in 2011.
- L11 Based on our review, energy costs are consistent with the volume assumptions in the milk price model.
- L12 We therefore consider the calculation of the energy costs to be consistent with Rule 13 of the Manual.

Does the calculation use notional or Fonterra actual data?

- L13 The calculation uses budgeted usage rates and budgeted average costs. The result is therefore a notional cost.

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

- L14 On page 25 of its Reasons Paper, Fonterra states that “The approach taken to establishing unit energy cost assumptions does not result in Fonterra’s actual current year prices being passed through into the Farm Milk Price, with any under or over-performance relative to budget going to earnings, and the energy usage assumptions are established independently of Fonterra’s actual usage. Fonterra is therefore appropriately incentivised to minimise both its usage and its unit energy costs.”
- L15 We agree with Fonterra’s explanation. As outlined in Attachment B, 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 energy costs is therefore consistent with the efficiency dimension of the purpose.

Is the calculation practically feasible?

- L16 On page 25 of its Reasons Paper, Fonterra states: “We have separately provided the Commission with analysis drawing on the results of an energy audit at the Darfield site conducted in February 2014, which we consider supports a conclusion that our assumed energy usages are practically feasible.” We acknowledge the additional supporting details provided to us by Fonterra.
- L17 Our independent expert concluded that, in his opinion, the practically feasible energy use figures based on the data supplied would be higher than used by Fonterra in the milk price model:

- L17.1 For WMP, [] tonnes of steam and [] kWh of electricity per tonne of WMP; and
- L17.2 For SMP, [] tonnes of steam and [] kWh of electricity per tonne of SMP.
- L18 Our independent expert expressed concern over the on product time (OPT) plant availability used by Fonterra, stating that the figure of 95% on plant availability assumed in the milk price model was not borne out by the Darfield data.⁹⁹ Our expert has noted:
- “Fonterra carried out an “energy and losses” audit on the Darfield D1 plant in February 2014. We monitored this audit and found the data collection to be reliable.
- However the 10-day duration of the audit was insufficient as far as average energy use was concerned. This led to our analysis of the historical energy and production data for the year from q1 March 2013 to 28 February 2014 (which included the audit period).”¹⁰⁰
- L19 We note that our independent expert expressed the same concern on the data used by Fonterra as our expert last year who reviewed the energy costs for the 2012/13 calculation review, ie, that energy usage should be derived from annual total actual usages rather than season-peak usage.¹⁰¹
- L20 When our 2013/14 expert’s resulting conclusions are applied to the milk price model, the result would be a reduction in the Manual-consistent milk price by approximately 2 cents per kgMS.¹⁰²
- L21 In view of our expert’s expressed concerns at the consistent achievability of the 95% OPT assumption, we discussed with our independent expert the further costs that he considered would need to be considered in the milk price model to achieve Fonterra’s assumed OPT level.
- L22 These costs do not affect his conclusion on energy costs and we have not requested him to quantify the estimated cost effect. We have however addressed them in our aggregate conclusion for the Manual-consistent milk price in Chapter 2. In his view, the costs would include additional:

⁹⁹ Peter Walker Consultants Ltd, *On the use of energy per tonne of whole milk powder*, page 2.

¹⁰⁰ Peter Walker Consultants Ltd, *On the use of energy per tonne of whole milk powder*, page 1.

¹⁰¹ Parsons Brinckerhoff, *A review of inputs determining the Fonterra Base Milk Price*, page 32, available at: <http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation>

¹⁰² Peter Walker Consultants Ltd, *On the use of energy per tonne of whole milk powder*, page 1. Note that although he refers to the 2012/13 milk price model, which was the model available to him at the time of his review, he has since checked the consistency of his conclusions with the 2013/14 model. See page 18 of his report.

- L22.1 collection costs;
- L22.2 plant labour costs; and
- L22.3 ancillary plant (fixed asset costs).
- L23 We do not consider that the calculation relies on any plant assumptions that are unique to Fonterra. It would be expected that an efficient processor would arrive at similar plant decisions and install cogeneration plants accordingly to minimise energy costs.
- L24 In respect of the cost rates, and given its national network of plants, it is possible Fonterra has a degree of negotiating power with energy providers. This would mean that the power prices paid by Fonterra sites that are used to derive budgeted costs could not be achieved by an efficient processor of Fonterra's scale without a similar network of plant within New Zealand.
- L25 However, the fact that Fonterra operates a national network of facilities for the collection and processing of milk is not a relevant consideration for our assessment, as it falls within the 'safe harbour' assumption under s 150B(a). This exclusion allows Fonterra to apply the benefits of its national network.
- L26 A further consequence of this 'safe harbour' provision is that we do not take into account any impact of any North Island/South Island cost rate differential due to the cost of gas compared with the cost of coal that might be faced by another processor building a plant in a specified location.
- L27 Our independent expert identified that Fonterra's assumption regarding OPT is higher than his analysis suggests is feasible.¹⁰³ We asked him to advise us of the categories of additional costs that he would expect the notional producer to incur in order to get from his estimate of OPT up to the level of the Fonterra assumption. Notwithstanding his conclusion that at the OPT level assumed by Fonterra he considers the energy costs component is not practically feasible, we also consider it necessary to consider those other potential impacts on the Manual-consistent milk price in the aggregate.
- L28 In its submission on our draft report, Fonterra contrasts the differences in its approach and our expert's on the estimation of energy use of the notional producer. It has argued in its submission that there are errors in our expert's approach and in his interpretation of Fonterra's data. Fonterra further notes that it intends to modify its energy usage assumptions for 2014/15 based on the energy audit carried out at the Darfield site in February 2014, and observes that its adjustments to steam and energy usages are largely offsetting.¹⁰⁴

¹⁰³ Peter Walker Consultants Ltd, *On the use of energy per tonne of whole milk powder*, page 1, available at: <http://www.comcom.govt.nz/review-of-milk-price-calculation-201314-season>

¹⁰⁴ Fonterra, *Submission to the Commerce Commission on its draft report on Fonterra's base milk price for the 2013/14 season*, 1 September 2014, pages 7 to 11, *Energy usage*.

- L29 In the time available for finalising this report, it has not been possible to fully reconcile the differences in methodology or the results of the alternative approaches adopted by our expert and Fonterra. For this reason, we are unable at this point in time to conclude if the energy costs are practically feasible.
- L30 For our 2014/15 base milk price calculation review we will further review the energy cost data and will review with Fonterra the assumptions on the level of required ancillary plant, such as boilers, for consistency with Fonterra's plant availability assumption.

Attachment M: Water, cleaning and CIP, consumables, effluent and laboratory testing costs

Purpose

M1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the water, cleaning and CIP, consumables, effluent and laboratory testing costs for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

M2 For our 2013/14 analysis of water, cleaning and CIP, consumables, effluent and laboratory testing costs we:

- M2.1 Updated our 2012/13 milk price review analysis;
- M2.2 analysed Fonterra's inputs, process and assumptions to assess the extent to which the costs are consistent with the purpose of the Act and;
- M2.3 checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

M3 Table M1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table M1: Summary of conclusions on 2013/14 water, cleaning and CIP, consumables, effluent and laboratory testing costs

Are notional or actual values used?	Notional rates per MT for water, cleaning and CIP, consumables, effluent and laboratory costs based on Fonterra's budget values; Notional production volumes
Are the process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	Yes
Are the process, assumptions, and inputs practically feasible?	Yes
Are any features unique to Fonterra?	Yes, but does not affect overall conclusion

Selecting the basis for our 2013/14 analysis

M4 Table M2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table M2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	N/A
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 assumptions, inputs and process

M5 Table M3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the water, cleaning and CIP, consumables, effluent and laboratory testing costs for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 25.

Table M3: Fonterra's explanation of the water, cleaning and CIP, consumables, effluent and laboratory testing costs

Inputs	Process	Assumptions
The allocated cost per MT for water, cleaning and CIP, consumables, effluent and laboratory testing, sourced from Fonterra's product costing system.	Multiply allocated cost per MT by total MT of each RCP.	That the relevant costs materially vary with production volumes. That Fonterra's cost allocation system generates materially supportable cost allocations.

Basis of calculation

M6 The water, cleaning and CIP, consumables, effluent, and laboratory testing milk price component is a function of:

M6.1 the budget Fonterra rates per MT for these items from Fonterra's product costing system;¹⁰⁵ multiplied by

M6.2 the number of MT of products in the notional producer's production plan.

M7 Rule 13 states the Farmgate Milk Price Commodity Business may recover the variable manufacturing costs that it could reasonably be expected to incur if it manufactured the reference commodity products to the Farmgate Milk Price Production Plan.

M8 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.

¹⁰⁵ The F14 data was rolled forward with inflation adjustment ranging from 4.45% to 5.88% from F13, which was established by reference to F12 budget data.

Does the calculation use notional or Fonterra actual data?

M9 The rates per MT are Fonterra budget values and therefore notional. The production tonnages are also notional.

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

M10 In its Reasons Paper on page 25, Fonterra states that because the allocated costs are not updated in the Manual-consistent milk price calculation for Fonterra's actual current year costs, this approach is consistent with the efficiency criterion.

M11 We agree with Fonterra's explanation. As outlined in Attachment B, 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 water, cleaning and CIP, consumables, effluent and laboratory testing costs is therefore consistent with the efficiency dimension of the purpose.

Is the calculation practically feasible?

M12 Fonterra has provided us with evidence that these costs are from the product costing system. We understand that:

M12.1 the budget costs are annually reconciled with actuals; and

M12.2 Fonterra has explained that these costs form part of the key data set affecting day to day decisions on the optimisation of product mix, and because this is an extremely important driver of Fonterra's actual revenue the figures are carefully established and reviewed.

M13 Fonterra in its Reasons Paper on page 25, states that it has provided the Commission with calculations undertaken on an alternative standalone basis, which are intended as a basis for an alternative approach to calculating these inputs to be implemented with respect to the 2014/15 Farmgate Milk Price calculations. We agree with Fonterra that these calculations support the practical feasibility of the costs calculated under the current approach.

M14 We accept that Fonterra faces strong incentives to maintain this data as accurately as possible. Therefore we accept that these costs are reflective of what Fonterra actually achieves in practice, and so these costs are practically feasible.

M15 There are no features specific to Fonterra that would bear upon our conclusions. Our engineering experts have noted an item affecting effluent costs,¹⁰⁶ the effect of which we consider to be insignificant.

¹⁰⁶ 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>

M16 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. Our experts in the 2012/13 base milk price calculation review 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.

Attachment N: Plant labour costs

Purpose

N1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the plant labour costs for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

N2 For our 2013/14 analysis of plant labour costs we updated our 2012/13 milk price review analysis and checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

N3 Table N1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table N1: Summary of conclusions on 2013/14 plant labour costs

Are notional or actual values used?	Notional number of FTEs; Average actual cost per FTE; Notional number of plants
Are the process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	Yes
Are the process, assumptions, and inputs practically feasible?	Yes
Are any features unique to Fonterra?	No

Selecting the basis for our 2013/14 analysis

N4 Table N2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table N2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	N/A
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 assumptions, inputs and process

N5 Table N3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the plant labour costs for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 26.

Table N3: Fonterra's explanation of plant labour costs

Inputs	Process	Assumptions
Numbers of each type of standard plant. Staffing requirements, by level, for each standard plant type. Fonterra's average DWU rate for FTEs at each level. Fonterra's average usage of temporary labour as percentage of total labour requirements. Fonterra's average 'regular' overtime %. Fonterra's average employee-related expenses, as a % of base wage / salary rates.	Calculate total wage cost for each standard plant type as FTEs at each level multiplied by average annual wage / salary rate. Add loading for employee-related expenses. Multiply through by plant numbers.	That Fonterra's labour rates are representative of the rates that would be paid by an efficient processor.

Basis of calculation

N6 The plant labour costs milk price component is a function of:

N6.1 the number of full time equivalent (FTEs), at different staffing levels, required to operate each of the notional plants; and

N6.2 the average annual salary/wage rate, plus employee-related expenses; and

N6.3 the number of notional plants

N7 Rule 15 of the Manual specifies how plant labour costs should be established in each review assessment year. It states that this cost is to be calculated based on "...Fonterra's budgeted resource requirements and its actual costs for the relevant year, and having regard to the Farmgate Milk Price Production Plan.."

N8 We consider the calculation of the plant labour costs to be consistent with Rule 15 of the Manual.

Does the calculation use notional or Fonterra actual data?

N9 The calculation of the plant labour costs relies on a combination of notional and actual data. The salary/wage rate and employee-related expenses are actual data, while the number of FTEs and the number of plants is notional.

Number of FTEs

N10 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.

- N11 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. We found that this difference has an insignificant impact on the overall Manual-consistent milk price calculation.
- N12 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-reference commodity products. This proportion is not fixed, but simply reflects the scale difference in the assumptions applied.

Salary/wage rate and employee-related expenses

- N13 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.
- N14 At the plant level, the model assumes that the only staff 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 expenses allowances and long service payments.
- N15 All other plant level staff are assumed to be paid on wages. 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.
- N16 The calculation of the wage costs also includes an allowance for overtime. Overtime is calculated based on Fonterra's actual overtime use and equates to []% of normal annualised hours, plus []% for every percentage point that milk supply exceeds budget. We do not consider these assumptions to have a significant impact on the plant labour costs and the overall Manual-consistent milk price calculation. We have not therefore tested the reasonableness of these assumptions.
- N17 The calculation also assumes that []% of the total FTEs is temporary labour. This reflects Fonterra's actual usage of temporary labour, which, over the last three years has been between []% and []%. The costs for these FTEs are adjusted down in line with Fonterra's temporary labour costs.

Number of plants

- N18 Our analysis of inputs, processes and assumptions used to calculate the number of notional plants and our assessment of those is outlined in Attachment U on fixed assets.

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

- N19 We agree with Fonterra’s assessment that staffing levels are independent of Fonterra’s actual staffing levels, and therefore meet the efficiency criterion. As outlined in Attachment B, we consider that using a benchmark set independently of Fonterra’s current year’s performance provides an incentive for Fonterra to operate efficiently. The calculation of staffing levels is therefore consistent with the efficiency dimension of the purpose.
- N20 In its Reasons Paper on page 26, Fonterra states that, in its view, any savings in plant labour unit costs by Fonterra will result in higher earnings, and Fonterra is therefore appropriately incentivised to minimise unit plant labour costs.
- N21 We agree with Fonterra's view. 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:
- N21.1 a decrease in Fonterra's actual plant labour costs, leading to an increase in revenue; and
- N21.2 a proportionally lesser decrease in the plant labour costs in the Manual-consistent milk price calculation (due to fewer FTE numbers of the notional producer), leading to a corresponding increase in the Manual-consistent milk price.
- N22 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?

- N23 In its Reasons Paper on page 26, Fonterra states that the above assumptions mean that the calculation of the plant labour costs are practically feasible for both Fonterra and for any other processor using similar manufacturing plants.
- N24 We agree that the plant labour costs are practically feasible. This is because:
- N24.1 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 reference commodity products; and
- N24.2 the unit cost assumption reflects Fonterra’s average actual rates.
- N25 We do not consider that the calculation relies on any assumptions that are unique to Fonterra. The assumed plant labour costs should therefore also be practically feasible for another efficient processor.

Attachment O: Repair and maintenance costs

Purpose

- O1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the repair and maintenance costs for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

- O2 For our 2013/14 analysis of repair and maintenance costs we:
- O2.1 updated our 2012/13 milk price review analysis;
 - O2.2 reviewed Fonterra's inputs, process and assumptions to assess the extent to which the costs are consistent with the purpose of the Act and;
 - O2.3 checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

- O3 Table O1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table O1: Summary of conclusions on 2013/14 repair and maintenance costs

Are notional or actual values used?	Notional
Are the process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	Yes
Are the process, assumptions, and inputs practically feasible?	Yes. However, this component is subject to reliance on the replacement costs of fixed assets as an input, on which we are unable to conclude
Are any features unique to Fonterra?	No

Selecting the basis for our 2013/14 analysis

- O4 Table O2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table O2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	As in 2012/13, the calculation of the R&M costs uses the notional producer's fixed asset replacement cost as an input. We were unable to conclude if fixed assets were practically feasible
Changes to the 2013/14 Milk Price Manual	The key changes are that the Manual is less prescriptive than in 2012/13. It allows for the consideration of Fonterra's average R&M expenditure on assets comparable to the model with consideration of assessed replacement cost, age and "any other relevant characteristics of those assets"
Issues brought forward from our 2013/14 Milk Price Manual review	Change in basis of repairs and maintenance costs (Rule 16)

Fonterra's 2013/14 assumptions, inputs and process

- O5 Table O3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the repairs and maintenance costs for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 26.

Table O3: Fonterra's explanation of the repairs and maintenance costs

Inputs	Process	Assumptions
Fonterra's average R&M spend as % of total replacement cost of Fonterra's fixed assets for seven manufacturing sites most similar to milk price model sites over the period F10 – F13. Total replacement cost of Milk Price asset base. (In both cases excluding collection assets & R&M costs & dry store assets & R&M costs.)	Calculate Fonterra's average R&M spend as % of asset replacement cost to replacement cost of equivalent Milk Price assets over the period F10 – F13 for seven sites most similar to milk price model sites. Apply the average ratio to the replacement cost of the relevant NMPB assets, to derive the Milk Price R&M provision.	That there are not material differences in average R&M spend, as a percentage of replacement cost, across (a) milk price vs non-milk price assets on the relevant sites, & (b) across assets older than those included in the Milk Price asset base vs assets with lives equivalent to those included in the Milk Price asset base.

Basis of calculation

- O6 The repairs and maintenance costs are determined by applying a percentage factor to the total notional fixed asset replacement cost. This percentage is calculated by:
- O6.1 selecting a subset of Fonterra sites which meet the criteria that they have a significant proportion of assets related to RCP type production, they have at least 50% of the capacity of the model plant, they have similar technology to that in the model, they have 4 years' data available, and their costs or cost trends are not demonstrably outliers to the norm set by the bulk of the plants meeting the other criteria (five sites meet these criteria []);

- O6.2 dividing the actual annual repairs and maintenance expenditure by the gross fixed asset insurance replacement cost for the relevant Fonterra sites; and then
- O6.3 taking the average ratio from the previous four years (2010-2013).
- O7 We accept that only five sites meet the selection criteria and we conclude that the calculation of the percentage ratio of R&M costs to fixed asset replacement costs is consistent with the explanation in the Reasons Paper and with Rule 16 of the Manual.

Does the calculation use notional or Fonterra actual data?

- O8 The calculation of repairs and maintenance costs uses notional data. The ratio of repairs and maintenance costs to asset value is calculated from Fonterra's actual data, but only uses data from previous years.

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

- O9 As noted by Fonterra on page 27 of their Reasons Paper, the repairs and maintenance costs are established with reference only to historical costs and as they are independent of Fonterra's current season's actual costs they provide an incentive to Fonterra to operate efficiently.
- O10 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 repairs and maintenance costs is therefore consistent with the efficiency dimension of the purpose.

Is the calculation practically feasible?

- O11 As it is based on costs already achieved by Fonterra for plant comparable to the notional producer, we consider that the calculated percentage of repairs and maintenance costs to fixed asset replacement costs is practically feasible.
- O12 The percentage ratio is then multiplied by the notional producer's fixed asset replacement cost in order to obtain the modelled repairs and maintenance cost. We are unable to conclude that fixed assets are practically feasible (outlined in Attachment U: fixed assets). However, for the purposes of calculating repairs and maintenance costs, the potential errors in the fixed assets do not lead to a material uncertainty. If the asset value was in error by 20%, which is a generous margin, the Manual-consistent milk price would change by around 1.4 cents per kgMS.
- O13 As we have concluded that the benchmark percentage ratio of repairs and maintenance costs to fixed assets is practically feasible and that the uncertainties in the notional fixed asset replacement costs are unlikely to lead to a material impact on repairs and maintenance costs, we conclude that the repairs and maintenance costs are practically feasible. However, we note a caveat that any error in the notional fixed asset replacement cost will translate into a proportionate error in the repairs and maintenance costs.

- O14 We do not consider that the calculation relies on any assumptions that are unique to Fonterra. The supporting report we have been shown is at pains to reject plant inconsistent with the model. The assumed repairs and maintenance costs should therefore also be practically feasible for another efficient processor.

Attachment P: Site overhead costs

Purpose

P1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the site overhead costs for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

P2 For our 2013/14 analysis of site overhead costs we:

P2.1 reviewed Fonterra's inputs, process and assumptions to assess whether to the extent the costs are consistent with the purposes of the Act and;

P2.2 checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

P3 Table P1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table P1: Summary of conclusions on 2013/14 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 process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	Yes
Are the process, assumptions, and inputs practically feasible?	Yes
Are any features unique to Fonterra?	No

Selecting the basis for our 2013/14 analysis

P4 Table P2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table P2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 Calculation review	N/A
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Manual review	Basis of derivation of other costs, including site overheads, general overhead costs and R&D costs (Rule 19 of the Manual)

Fonterra's 2013/14 assumptions, inputs and process

P5 Table P3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the site overhead costs for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 27.

Table P3: Fonterra's explanation of the site overhead costs

Inputs	Process	Assumptions
Assignment of each site to 'large', 'medium' or 'small' category. FTE provisions for non-plant site labour (comprising site management, administrative staff, cleaners, maintenance of buildings and grounds, management of consumables stores). Fonterra's average direct and indirect costs for each category of labour.	Multiply FTEs in each category by relevant average direct and indirect costs.	That the staffing assumptions are appropriate given the range of activities assumed to be undertaken on each site.

Basis of calculation

P6 The site overhead costs milk price component is a function of:

P6.1 Direct site level labour costs, which relate to site management, administrative staff, building services, operations excellence, etc. These are calculated based on:

P6.1.1 an assumed number of FTEs for each manufacturing site, which vary depending on the assumed site size (categorised as 'small', 'medium' and 'large' providing for one, two, or three or more plants respectively);¹⁰⁷

P6.1.2 the assumed cost per FTE; and

P6.1.3 the assumed number of sites of each size.

P6.2 Indirect, non-labour related costs, which comprise outside contracts, sundry overheads, rates, electricity and motor vehicle costs.

¹⁰⁷ The number of manufacturing sites and the volume of milk processed at each site reflect Fonterra's actuals.

- P7 Rule 19 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.
- P8 As previously stated in our 2013/14 Manual review,¹⁰⁸ Fonterra signalled its intention to introduce methodological changes to calculating these costs, without requiring changes to the Rule itself. In the absence of these methodological changes for the 2013/14 costs, we consider the calculation of the site overhead costs to be consistent with Rule 19.

Does the calculation use notional or Fonterra actual data?

- P9 The calculation of the site overhead costs relies on notional data.
- P10 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.
- P11 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 for salary and wage staff.
- P12 The only salaried staff in the milk price model are management. Their 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.
- P13 The costs per FTE for waged staff are based on Fonterra's 2011 budget costs.
- P14 The assumed number of sites is the same as Fonterra's actual 22 sites. Milk volumes are allocated to sites based on the assumption that each site will process approximately the same volume of milk as they do for Fonterra. This results in the assumption of 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.
- P15 As with 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.

¹⁰⁸ Commerce Commission, *Review of Fonterra's 2013/14 Milk Price Manual: Final Report*, 16 December 2013

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

- P16 In its Reasons Paper on page 27, Fonterra states that because the calculation of the site overhead costs is determined independently of the relevant Fonterra current year actual costs, it is consistent with the efficiency criterion.
- P17 We agree with Fonterra's explanation. As outlined in Attachment B, 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 site overhead costs is therefore consistent with the efficiency dimension of the purpose.

Is the calculation practically feasible?

- P18 In its Reasons Paper on page 27, Fonterra states that the calculation of site overhead costs is practically feasible because it was determined through a process of expert review, with Fonterra management input to ensure that all relevant costs were identified.
- P19 We agree that the site overhead costs are practically feasible. The most sensitive part of this calculation is the FTE numbers. Fonterra provided us with its justifications for each level of the assumed FTEs. We consider Fonterra's justifications to be reasonable.
- P20 We do not consider that the calculation relies on any assumptions that are unique to Fonterra. The assumed site overhead costs should therefore also be practically feasible for another efficient processor.

Attachment Q: Freight costs

Purpose

Q1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the freight costs for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

Q2 For our 2013/14 analysis of freight costs we updated our 2012/13 milk price review analysis and checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

Q3 Table Q1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table Q1: Summary of conclusions on 2013/14 freight costs

Are notional or actual values used?	Notional volumes of product transported; Actual average freight rates
Are the process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	Yes
Are the process, assumptions, and inputs practically feasible?	Yes
Are any features unique to Fonterra?	No

Selecting the basis for our 2013/14 analysis

Q4 Table Q2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table Q2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	N/A
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual Review	N/A

Fonterra's 2013/14 assumptions, inputs and process

Q5 Table Q3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the freight costs for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 27.

Table Q3: Fonterra's explanation of freight costs

Inputs	Process	Assumptions
Modelled production volumes of each RCP at each site, established by reference to Fonterra's actual allocation of milk to sites. Fonterra's average contracted freight rate per MT of product from relevant site to relevant port.	Use calculated production of (a) dry product and (b) butter at each site to determine weighted average inland freight costs per MT for dry product and butter, respectively. Multiply total volumes of dry product and butter by weighted average freight rates to derive total inland freight cost for NMPB production. Multiply total volume of NMPB lactose NMPB by average inland freight rate per MT for dry product to derive inland freight cost for added lactose.	That Fonterra's contracted freight rates (with third party vendors) are achievable by any third party processor. That the NMPB would not be able to achieve discounts relative to Fonterra rates for the back-haul advantages involved in transporting the NMPB's lactose requirements.

Basis of calculation

- Q6 The freight costs¹⁰⁹ in the calculation refer to freight to port costs.
- Q7 The freight costs milk price component is a function of:
- Q7.1 the assumed volumes of manufactured product, as per the notional producer's production plan; and
 - Q7.2 Fonterra's average actual contract rates for dry (AMF, SMP, BMP and WMP) and cool (butter) freight per MT of product for delivering product from the relevant sites to the relevant ports; as achieved in the season for which the base milk price is being set. The actual contract rates are adjusted for port rebates for the products freighted to ports that offer rebates.
- Q8 The freight costs for delivering lactose from ports to the manufacturing sites are assumed to be the same as those of transporting dry product from the manufacturing sites to ports.
- Q9 Rule 20 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 Farmgate Milk Price Production Plan, benchmark sales phasing and site footprint.
- Q10 We consider the calculation of the freight costs to be consistent with Rule 20 of the Manual.

¹⁰⁹ Inland freight costs

Does the calculation use notional or Fonterra actual data?

Q11 The calculation of the freight costs relies on a combination of notional and actual data.

Q11.1 The volumes of manufactured products are notional, as they are based on the notional producer's production plan.

Q11.2 The freight rates are based on Fonterra's actual average freight rates.

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

Q12 In its Reasons Paper on page 28, Fonterra states that the use of Fonterra's actual inland freight rates reduces the incentive on Fonterra to minimise the relevant costs. Fonterra notes, however, that the rates are independently negotiated by DTL (Dairy Transport Logistics Limited), the management of which is appropriately incentivised to maximise returns, and that Fonterra, through its part-ownership of DTL, has visibility over any 'excess returns' that would arise if DTL were to 'over charge' Fonterra for inland freight.

Q13 We consider that the calculation of the freight costs provides an incentive for Fonterra to operate efficiently. We accept Fonterra's explanation above and consider that because Fonterra's actual freight rates are negotiated independently of Fonterra, using actual values in the Manual-consistent milk price calculation is consistent with the efficiency dimension.

Is the calculation practically feasible?

Q14 In its Reasons Paper on page 28, Fonterra states that the calculation of freight costs is practically feasible because:

Q14.1 the average freight costs assumed in the model reflect Fonterra's actual unit costs for transporting product from its actual sites to relevant ports; and

Q14.2 Fonterra outsources its freight requirements to independent contractors, and believes it does not have any procurement advantages not available to other processors.

Q15 We agree with Fonterra's explanation, and consider that the assumed freight costs are practically feasible.

Q16 We do not consider that the calculation relies on any assumptions that are unique to Fonterra. If Fonterra had any negotiating power with independent contractors, any efficient processor of Fonterra's scale (as provided for by s 150B) would do too. The assumed freight costs should therefore also be practically feasible for another efficient processor.

Attachment R: Storage costs

Purpose

R1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the storage costs for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

R2 For our 2013/14 analysis of storage costs we updated our 2012/13 milk price review analysis and checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

R3 Table R1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table R1: Summary of conclusions on 2013/14 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 process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	Yes
Are the process, assumptions, and inputs practically feasible?	Yes
Are any features unique to Fonterra?	No

Selecting the basis for our 2013/14 analysis

R4 Table R2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table R2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	N/A
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 assumptions, process and inputs

R5 Table R3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the storage costs for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 28.

Table R3: Fonterra's explanation of storage costs

Inputs	Process	Assumptions
<p><u>Dry product (WMP, SMP, BMP & AMF):</u> Provision for capital costs. Assumed economic life of dry store assets. Storage space required per MT of each RCP. Provisions for relevant operating costs: Labour costs per FTE. FTE requirements per MT. Product write-off costs, vehicle costs and miscellaneous cost</p> <p><u>Butter:</u> A provision for third party cool storage costs, based on Fonterra's contracted rates, covering cost per MT per month, plus load in/load out costs.</p>	<p><u>Dry Product ((WMP, SMP, BMP & AMF):</u> Dry store capital requirements updated annually based on budget peak production volumes & lactose storage requirements, & with cost per square metre drawn from replacement cost valuation of relevant Fonterra assets. Operating costs all modelled as being fully variable with respect to finished product MT. Labour costs per MT calculated as product of FTE cost, FTE requirement per MT, & total MT of dry product.</p> <p><u>Butter:</u> Calculate load in/load out costs based on total NMPB Butter production. Calculate storage cost based on total NMPB Butter production and average months in storage, calculated by reference to production and sales profile for Butter.</p>	<p>That all relevant costs materially vary with MTs stored/handled. That the sample of Fonterra data used is representative of the costs an efficient processor would incur.</p>

Basis of calculation

R6 The storage cost component consists of capital and cash/operating costs for dry (ie, milk powders and lactose) and cool (ie, butter) products.

Dry product storage costs

R7 We set out our assessment of the capital costs of dry product storage in Attachment U.

R8 The dry product storage costs are calculated as a function of:

R8.1 the assumed volumes of manufactured dry products and lactose requirements, as per the notional producer's production plan;

- R8.2 an implicit assumption that the average storage time for dry products is the same as for Fonterra's actual dry storage, so that cost rates can be derived from Fonterra's actual costs per MT throughput, pro-rated to the model production;
- R8.3 the number of FTEs required to operate the assumed storage facilities, calculated on a variable rate per MT of dry product, derived from Fonterra's actual staffing and throughput and then multiplied by the assumed dry-stored throughput; and
- R8.4 the labour costs per FTE, based on Fonterra's actual costs achieved in the year for which the Manual-consistent milk price is set; as well as
- R8.5 the provisions for other, non-labour related costs, including product write-off costs, vehicle costs and miscellaneous costs; based on Fonterra's actual costs achieved in 2009 and inflated by 3.5% in 2014 from 2013 storage costs.

Cool product storage costs

- R9 The calculation does not provide for capital costs of cool product storage. It instead assumes that all cool product is stored on a contract basis by a third party. The cool product storage costs are therefore based on:
 - R9.1 the assumed volumes of manufactured butter, as per the notional producer's production plan;
 - R9.2 the assumed time period required to store cool product, based on Fonterra's average cool storage duration for butter of 3.5 months;
 - R9.3 the contracted rates, which are assumed to be variable on a MT of product stored basis, and based on Fonterra's actual rates achieved in the year for which the base milk price is set; and
 - R9.4 the provisions for in/outbound handling costs and product write-off, based on Fonterra's actual data.
- R10 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 Manual-consistent milk price production plan, benchmark sales phasing and site footprint, and be established by reference to Fonterra's actual costs for the relevant year.
- R11 We consider the calculation of the storage costs to be consistent with Rule 20 of the Manual.

Does the calculation use notional or Fonterra actual data?

- R12 The calculation of the storage costs relies on a combination of notional and actual data.
- R12.1 The volumes of manufactured dry and cool products are notional, as they are based on the notional producer's production plan.
- R12.2 The assumed time periods for dry products are based on analysis of historical Fonterra actuals and, therefore, are notional.
- R12.3 The number of FTEs required to operate dry storage facilities is notional.
- R12.4 The labour costs per FTE are actual Fonterra costs experienced in the year for which the Manual-consistent milk price is set.
- R12.5 The non-labour provisions of the dry storage costs are notional.
- R12.6 The cool storage rates are based on Fonterra's actual contract rates experienced in the year for which the Manual-consistent milk price is set.

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

- R13 In its Reasons Paper on page 28, Fonterra states that because several inputs of the storage costs are established independently of Fonterra's current season's actual costs, the overall calculation of the storage costs is consistent with the efficiency criterion.
- R14 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. As outlined in Attachment B, we consider that using a benchmark set independently of Fonterra's current year's performance provides an incentive for Fonterra to operate efficiently. The calculation of dry product costs is therefore consistent with the efficiency dimension of the purpose.
- R15 The cool storage costs are based on Fonterra's actual costs. As outlined in Attachment B, we consider that Fonterra may have incentives to operate efficiently where actual data has been used to set the Manual-consistent milk price. We consider the calculation of cool storage costs is still consistent with the efficiency dimension of the purpose as Fonterra has incentives to improve its efficiency so as to increase the Manual-consistent milk price. However, the incentive to operate efficiently is potentially weaker than if notional data had been used.

Is the calculation practically feasible?

- R16 In its Reasons Paper on page 28, Fonterra states that because the dry storage costs are established by reference to Fonterra's actual costs, and the cool storage costs are at actual arm-length rates incurred by Fonterra, they are practically feasible for Fonterra and other processors.
- R17 We accept Fonterra's explanation and consider that the assumed storage costs are practically feasible.

- R18 We again reviewed the assumption that the storage costs are considered to be variable. We have run sensitivity analysis by fixing the current variable costs in the model and assuming an extreme case of a 30% increase in volumes of product from year to year. This analysis showed that such assumptions would result in 0.6 cents per kgMS decrease in the base milk calculation, which we do not consider to be significant.
- R19 We do not consider that the calculation relies on any assumptions that are unique to Fonterra. The assumed storage costs should therefore also be practically feasible for another efficient processor.

Attachment S: Administration and other overhead costs

Purpose

- S1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the administration and other overhead costs for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

- S2 For our 2013/14 analysis of administration and other overhead costs we:
- S2.1 reviewed Fonterra's assumptions, inputs and process to assess whether to the extent the costs are consistent with the purposes of the Act and;
 - S2.2 checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

- S3 Table S1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table S1: Summary of conclusions on 2013/14 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 process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	Yes
Are the process, assumptions, and inputs practically feasible?	Yes, but concluding on the evidence or rationale for some of the adjustments made to the 2012 budget data is difficult
Are any features unique to Fonterra?	No

Selecting the basis for our 2013/14 analysis

- S4 Table S2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table S2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	Lack of evidence or rationale for the adjustments made to the 2012 budget data
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 assumptions, inputs and process

S5 Table S3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the administration and other overhead costs for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 29.

Table S3: Fonterra's explanation of the administration and other overhead costs

Inputs	Process	Assumptions
Provisions in respect of the costs of the various administrative and overhead functions of a large scale commodity processor, covering the range of activities identified in Attachment 1 (of Fonterra's Reasons Paper).	Established through an extensive 'review year' process, by reference to Fonterra's actual costs, and involving a review of all overhead costs incurred by Fonterra in New Zealand to determine the costs that would be relevant to a processor with the characteristics of the NMPB.	That the 'bottom up' process used to determine which of Fonterra's costs would be likely to be incurred by the NMPB means there is little possibility that any relevant category of costs would be omitted. That establishing the NMPB's costs by reference to Fonterra's actual costs does not result in a material overstatement of the relevant costs.

Basis of calculation

S6 The costs included by Fonterra under administration and overhead costs are:

- S6.1 Farm Milk Supply overheads;
- S6.2 supplier and external relations;
- S6.3 governance costs;
- S6.4 finance function costs;
- S6.5 manufacturing overhead costs;
- S6.6 human resources and health and safety;
- S6.7 information system costs;
- S6.8 senior management costs;
- S6.9 communications and branding; and
- S6.10 insurance costs.

Fonterra has applied a detailed bottom-up approach

- S7 Fonterra has adopted a bottom-up approach to determining administration and overhead costs. It has considered its full range of relevant costs budgeted for in the 2012 financial year for the global business and then adjusted each individual cost to better reflect the costs that are in Fonterra's view would be relevant for the business model of the notional producer.¹¹⁰
- S8 The adjustment was made by first taking the 2012 budgeted costs, then removing any parts outside of the scope of the notional producer. Then, if necessary, the remaining costs were scaled back to reflect the smaller and simpler nature of the notional producer.
- S9 Insurance costs are calculated by scaling Fonterra's actual costs forecasted for the year back to reflect the smaller scale of the notional model. This approach is consistent with Rule 19 of the Manual where, for costs that are likely to vary substantially across time or are one-off costs, inflation indexation may not be an appropriate method. The scaling factors applied range from 40% to 100%.
- S10 Rule 19 covers 'other costs' which includes site overheads, manufacturing overheads, corporate costs, and R&D costs. It states that the notional producer can recover any other costs it could reasonably be expected to incur. This is consistent with the approach taken to determining these costs.

Difficulties in assessing the cost factor for administration costs (excluding insurance)

- S11 In its Reasons Paper on page 29, Fonterra states that the detailed bottom-up approach helps ensure that the full complement of cost items is included in the model. We accept that this approach helps to ensure that costs are not left out. However, there remains a challenge with the degree to which the many decisions about eliminations and allocations can be individually substantiated. This is in part addressed by a report provided by Fonterra describing the process and rationale behind the adjustments.
- S12 Fonterra has signalled that the overhead costs will be reviewed in 2015 and this should help to address our concerns for future years.
- S13 In its Reasons Paper, Fonterra states that the allocation decisions were made through a process of expert review with extensive input from Fonterra management to ensure that all costs were appropriately identified. We have been provided with supporting evidence from Fonterra that shows thorough analysis of many of the allocations and the reasons given for the allocations. In our view, this is largely reasonable but we are still left with uncertainty around allocation factors which rest on judgement calls by Fonterra managers and as such are not testable for practical feasibility.

¹¹⁰ These costs were also increased for inflation based on a combination of the consumer price index (3.5%), and the labour cost index (4.7%). The exact split between these two inflators is determined on a cost by cost basis using assumptions on the level of labour involved.

Does the calculation use notional or Fonterra actual data?

- S14 The calculation of administration and overheads costs uses notional data:
- S14.1 Insurance costs are based on Fonterra's actual insurance costs; and
 - S14.2 All other overhead costs are based on Fonterra's 2012 budgeted costs with adjustments (exclusions and allocations).

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

- S15 In its Reasons Paper on page 29, Fonterra states that because this cost is set independently of the relevant Fonterra current year actuals, it is consistent with the efficiency criterion.
- S16 We agree with Fonterra's explanation. As outlined in Attachment B, 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 administration and other overhead costs is therefore consistent with the efficiency dimension of the purpose statement.

Is the calculation practically feasible?

- S17 Overall, we are comfortable that the level of administration and overhead costs provided for in the Manual-consistent milk price calculation is practically feasible. However, at a detailed level we are unable to conclude on some specific costs. The Overheads Report is of considerable value and has allowed us to conclude that a number of the cost allocations are practically feasible but there are still some gaps.
- S18 Specifically, we have remaining concerns over allocations for items worth some \$35m in budget costs which could potentially be incorrectly allocated by perhaps \$10m. The potential error in the milk price is less than 1 cent per kgMS.
- S19 We do not consider that the calculation relies on any assumptions that are unique to Fonterra. The assumed administration costs should therefore also be practically feasible for another efficient processor.

Attachment T: Other supply chain costs

Purpose

T1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the other supply chain costs for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

T2 For our 2013/14 analysis of other supply chain costs we:

T2.1 reviewed Fonterra's assumptions, inputs and process to assess whether to the extent the costs are consistent with the purposes of the Act and;

T2.2 checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

T3 Table T1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table T1: Summary of conclusions on 2013/14 other supply chain costs

Are notional or actual values used?	Notional data based on 2012 budgeted costs
Are the process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	Yes
Are the process, assumptions, and inputs practically feasible?	Yes, but concluding on the evidence or rationale for the adjustments made to the 2012 budget data is difficult
Are any features unique to Fonterra?	No

Selecting the basis for our 2013/14 analysis

T4 Table T2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table T2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	Lack of evidence or rationale for the adjustments made to the 2012 budget data
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual Review	N/A

Fonterra's 2013/14 assumptions, inputs and process

T5 Table T3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the other supply chain costs for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 29.

Table T3: Fonterra's explanation of the other supply chain costs

Inputs	Process	Assumptions
Comprise specific fixed provisions for: <ul style="list-style-type: none"> - Global supply chain management - Global market access costs - Documentation and customer services costs 	Reset at 4 year review, and based on analysis of relevant Fonterra costs, with indexation to PPI in other years.	That the process results in all relevant costs being accounted for, and that the 4 yearly reset appropriately incentivises Fonterra to operate efficiently.

Basis of calculation

T6 The other supply chain costs milk price component, which relates largely to the supply chain overhead costs, is a function of:

T6.1 Fonterra's 2012 budgeted costs (fixed and variable); and

T6.2 a scaling down factor to reflect that, unlike Fonterra, the notional producer only manufactures the reference commodity products, and is much simpler and better integrated business, with, for example, all manufacturing sites having dry storage facilities on site, whereas Fonterra uses both on and off site storage facilities.

T7 This approach is similar to the approach taken for administration and overhead costs, discussed in Attachment S: Administration and other overhead costs. We lack evidence or rationale for some of the scaling decisions made. This makes it difficult for us to assess the details of these assumptions. These costs include supply chain management costs, infrastructure costs and supply planning costs.

T8 Rule 20 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 producers price index. 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.

T9 We consider the calculation of the other supply chain costs to be consistent with Rule 20 of the Manual.

Does the calculation use notional or Fonterra actual data?

T10 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. The costs are also set once every 4 years, and adjusted for inflation using a combination of the consumer price index (CPI) and labour cost index (LCI) in other years.¹¹¹

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

T11 In its Reasons Paper on page 29, Fonterra states that because the provisions are set independently of the relevant Fonterra current year actual costs, they are consistent with the efficiency criterion.

T12 We agree with Fonterra's explanation. As outlined in Attachment B, 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?

T13 In its Reasons Paper on page 29, Fonterra states that the calculation of the other supply chain costs is practically feasible because it was determined through a process of expert review, with Fonterra management input to ensure that all relevant costs were identified.

T14 On an aggregate level we agree with Fonterra's conclusions and 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 explained in T7, as we have not received adequate evidence or rationale for the detailed decisions on the scaling factors applied.

T15 As noted in component S, Fonterra has signalled that overhead costs would be reviewed in 2015 to address our concerns.

T16 We do not consider that the calculation relies on any assumptions that are unique to Fonterra. The assumed other supply chain overhead costs should therefore also be practically feasible for another efficient processor.

¹¹¹ Inflation for F14 based on a combination of the consumer price index (3.5%) and the labour cost index (4.7%). 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.

Attachment U: Capital charge on fixed assets

Purpose

U1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used to determine the asset valuation used to calculate the capital charge on fixed assets for the purposes of the 2013/14 Manual-consistent milk price calculation.¹¹²

Approach to our 2013/14 analysis

U2 For our 2013/14 analysis of the capital charge on fixed assets we:

U2.1 updated our 2012/13 milk price review analysis;

U2.2 reviewed Fonterra's 2013/14 assumptions, inputs and process to assess whether to the extent the fixed asset values used are consistent with the purposes of the Act; and

U2.3 checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

U3 For our 2012/13 report we had commissioned an independent engineering consultancy firm, Parsons Brinckerhoff, to help assess the assumptions, inputs and process underpinning the calculation of the capital charge on fixed assets.¹¹³

U4 In updating our analysis for 2013/14 we have continued to rely on the report provided in 2012/13 by Parsons Brinckerhoff and have been provided with additional information by Fonterra to support the value of the notional manufacturing plant and ancillary assets. We comment in this Attachment U on the difference in approach adopted by Parsons Brinckerhoff and Fonterra.

Results of our 2013/14 analysis

U5 Table U1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

¹¹² The fixed asset value is used to set the amount of depreciation and the capital charge at the WACC rate.

¹¹³ Parsons Brinckerhoff, *A review of inputs determining the Fonterra Base Milk Price*, 1 August 2013.

Table U1: Summary of conclusions on 2013/14 capital charge on fixed assets

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?	Unable to conclude
Are any features unique to Fonterra?	Yes. Fonterra applies safe harbour provisions of s 150B

Selecting the basis for our 2013/14 analysis

U6 Table U2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table U2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	We were unable to conclude on the practical feasibility of the fixed asset costs
Issues brought forward from our 2013/14 Milk Price Manual review	N/A
Changes to the 2013/14 Milk Price Manual	N/A

Fonterra's 2013/14 assumptions, inputs and process

U7 Table U3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the fixed costs required for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 30.

Table U3: Fonterra's explanation of the determination of the value of required fixed assets

Inputs	Process	Assumptions
<p>Manufacturers' 2008 quotations for construction of WMP and SMP plants.</p> <p>Manufacturers' 2011 quotations for construction of WMP, SMP, BMP, Butter and AMF plants.</p> <p>Detail of actual construction costs for Darfield site.</p> <p>DTZ assessment of:</p> <ul style="list-style-type: none"> - economic lives and replacement cost valuations of (a) relevant Fonterra assets (comprising butter, AMF & BMP plants, ancillary site services and site infrastructure assets - additional costs relevant to assessment of full replacement costs (consents, capitalised interest etc) - Jones Lang LaSalle assessment of inflation in replacement costs subsequent to 2008 <p>Book values at 1 August 2012 of Fonterra's milk collection fixed assets.</p>	<p>Determine incremental plant requirements on a forward-looking basis, having regard to forecast changes in milk supply in the North Island and South Island respectively.</p> <p>Assume full replacement of each major plant component at the end of the component's economic life.</p> <p>'Spreading back' over time of initial asset base, with effect (for example) that 1/30th of assets with an assumed economic life of 30 years were assumed to have been acquired in each of the previous 30 years.</p>	<p>That approach to determining incremental capacity requirements maintains alignment between milk price asset base and approach to setting relevant cost inputs, including collection costs.</p> <p>That economic life (and implied replacement cost) assumptions are reasonable, including with respect to historic and assumed future rate of technological change.</p> <p>That there is no material difference between Fonterra's actual milk collection assets and the assets required by the NMPB.</p>
<p>MWH scaling of DTZ valuations of ancillary assets to requirements of NMPB.</p>		

Basis of calculation

U8 The calculation determines the capital charge and depreciation for the notional fixed assets in the milk price calculation. This is a function of:

U8.1 the asset base;

U8.2 the asset life;

U8.3 the return on capital, as discussed in Attachment V; and

U8.4 the tilted annuity methodology, as discussed in Attachment W.

- U9 The asset base is determined by establishing a replacement cost for manufacturing plants, the costs of ancillary assets, information systems, and land. The asset base used in the milk price model for the capital charge and depreciation is consistent with other assumptions in the milk price model:
- U9.1 Manufacturing assets are consistent with the assumed number of plants;
 - U9.2 Collection assets are consistent with the collection costs assumptions; and
 - U9.3 Advanced process control costs are at level required to produce assumed yields.
- U10 Assets in the model are assumed to have economic lives of between 4 years and 80 years. The majority of the key components of manufacturing plants are assumed to have an economic life of 35 years.
- U11 The tilted annuity approach described in Attachment W is then applied to the capital costs. This approach calculates an annuity charge that changes over time at the same rate at which the price of the asset is expected to change.
- U12 As explained in our 2012/13 report, our expert noted that the tilted annuity methodology approach is common practice and a reasonable method of allocation given the price of the assumed capital plant is expected to vary over time.¹¹⁴

'Safe harbour' provisions

- U13 Two of the 'safe harbour' provisions under section 150B of the Act affect the fixed asset base. In particular, Fonterra may assume that the notional producer:
- U13.1 operates a national network of facilities for the collection and processing of milk; and
 - U13.2 that the assumed units of processing capacity approximate to the average size of Fonterra's actual units of processing capacity.

Consistency with Fonterra's reasons

- U14 The calculation is carried out in accordance with the requirements for each of the four aspects set out in Rules 24 to 37 in the Manual. We therefore consider it to be consistent with the Manual.

¹¹⁴ Parsons Brinckerhoff, *A review of inputs determining the Fonterra Base Milk Price*, 1 August 2013, page 34, available at: <http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation>

Does the calculation use notional or Fonterra actual data?

U15 The data used to calculate the capital charge on fixed assets is all notional. As set out in Rule 24 of the Manual there are four types of fixed assets:

U15.1 standard plants;

U15.2 ancillary assets;

U15.3 information system assets; and

U15.4 land.

Standard plants

U16 The capital costs for standard plants are a function of the cost per plant, and the number of existing and new plants.

U17 The cost per plant is based on an estimated replacement value, and is therefore considered notional.

U18 The number of plants is a notional figure. It is calculated in accordance with the 'safe harbour' provision noted above, which allows for the assumed units of processing capacity to approximate to the average size of Fonterra's actual units of processing capacity.

U19 The number of plants is calculated by:

U19.1 determining the average of the peak processing capacity of Fonterra's actual plants producing the reference commodity products;¹¹⁵

U19.2 assuming that the standard plant is of the average peak processing capacity; and

U19.3 determining how many standard plants are necessary to process the total volume of milk collected.

U20 New standard plants are added to the calculation at the beginning of the year if milk collection volume forecasts suggest capacity needs to be increased.

Ancillary assets

U21 Ancillary assets comprise site services, site infrastructure, collection assets, milk reception and treatment assets, and process control assets. Each one is calculated differently.

¹¹⁵ 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.

- U22 The 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. These valuations have been scaled back to better reflect the assumed functions of the notional producer.
- U23 The 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.
- U24 The specifications of the 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.

Information systems assets

- U25 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 processor.

Land

- U26 The asset base for land was established through an independent valuation of Fonterra's actual sites. The actual sites are assumed to align to the notional sites.

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

- U27 On page 31 of its Reasons Paper, Fonterra states that because the asset base is established independently of Fonterra's actual fixed asset costs, it is consistent with the efficiency criterion.
- U28 We agree with Fonterra's explanation. As outlined in Attachment B, we consider that using a benchmark that is set independently of Fonterra's current year performance provides an incentive to Fonterra to operate efficiently. The calculation of the capital charge on fixed assets is therefore consistent with the efficiency dimension of the purpose.

Is the calculation practically feasible?

- U29 On the basis of the information currently available to us, we are unable to conclude on the practical feasibility of the fixed asset capital costs and therefore are unable to conclude on the capital charge on fixed assets.

- U30 In 2012/13 we were also unable to conclude on the practical feasibility of the fixed capital costs. In our expert's 2012/13 opinion, the specifications set out by Fonterra for the standard plant were not of sufficient detail to provide confidence that the cost was practically feasible. Our experts believed at that time that there could be a change in the costs of manufacturing assets of up to +/-15%.¹¹⁶
- U31 Our 2012/13 conclusion was primarily because:
- U31.1 a variety of sources of uncertainty gave rise to a significant level of overall uncertainty in the capital cost estimates. These included a lack of detailed definition of scope, cost variation with time, unforeseen site difficulties, unconfirmed subcontractor costs, unconfirmed costs assumed for purchased in items and contractual risk coverage;
- U31.2 there was a lack of detail on the allowance for advanced process control. We were unable to determine whether []% of the manufacturing plant replacement cost was an appropriate allowance for implementing advanced process control over and above the basic process control allowed for in the standard plant specifications. Such a system underpins the tight manufacturing offsets which are assumed in the yields calculations. It is therefore important that this cost is appropriately provided for in the model.
- U32 Fonterra submitted on our draft 2012/13 report that the fixed capital costs assumptions were practically feasible.¹¹⁷ We published our independent expert's response to Fonterra's submission and an independent expert review of that response.¹¹⁸
- U33 The fundamental difference between our approach (including that of our experts) and Fonterra's approach is that we have been seeking a more detailed 'bottom up' fixed asset register type demonstration of the asset composition of the notional manufacturing plant and Fonterra has been providing us with information that attempts that demonstration on more of a 'top down' analytical approach.
- U34 Fonterra has provided us with information that breaks down the cost of new manufacturing plants at Darfield and Pahiatua by cost centre. The information identified site-specific differences so we could carry out a comparison of the plant values, with a view to concluding on the replacement cost of a notional plant.

¹¹⁶ Parsons Brinckerhoff, *A review of inputs determining the Fonterra Base Milk Price*, 1 August 2013, page 19-25.

¹¹⁷ Fonterra, *Submission to the Commerce Commission on its Draft Report on its review of the F13 base milk price*, 30 August 2013.

¹¹⁸ Parsons Brinckerhoff, *Response to Fonterra's submission*, 11 September 2013, and *Statutory Review of Fonterra's Base Milk Price Calculation* by Peter Walker Consultants Ltd, 12 September 2013 available at: <http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation>

- U35 While the Fonterra information and analysis has been very useful in partially bridging the gap between the top-down and bottom-up approaches, we consider there is still more detailed asset-level information on recently-commissioned manufacturing plants that Fonterra could provide to us to enable a conclusion on whether the notional plant used in the Manual-consistent milk price calculation is practically feasible.
- U36 The information provided by Fonterra has therefore partially addressed our 2012/13 concerns on uncertainty on the value of fixed assets used to calculate the capital charge. However, those concerns have not yet been fully addressed.
- U37 The record peak flows in 2013/14 and the consequent costs that have given rise to the need for the Adjustment Amount, have raised for us new questions about whether the capacity of the notional plants is sufficient for the peak milk supply collected. In Fonterra's view the capacity is sufficient to deal with peak flows. However, the techniques used to deal with such peaks appear to come at a cost that we cannot see adequately provided for in the Manual-consistent milk price calculation. In respect of the value of fixed assets, part of those costs of responding to the peak flows relates to the possible need to include a greater allowance for ancillary assets.

Attachment V: Weighted average cost of capital

Purpose

- V1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the weighted average cost of capital (WACC) for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

- V2 For our 2013/14 analysis of WACC we:
- V2.1 reviewed Fonterra's assumptions, inputs and process to assess whether to the extent the costs are consistent with the purposes of the Act and;
 - V2.2 checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

- V3 Table V1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table V1: Summary of conclusions on 2013/14 WACC

Are notional or actual values used?	Notional
Are the process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	Yes
Are the process, assumptions, and inputs practically feasible?	Unable to conclude on the asset beta assumption and therefore unable to conclude on WACC
Are any features unique to Fonterra?	No, as markets view of the required return on capital

Selecting the basis for our 2013/14 analysis

- V4 Table V2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table V2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	Unable to conclude on the asset beta assumption
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	Asset stranding risk provided for in the calculation of the asset beta (Rules 31 and 32)

Fonterra's 2013/14 assumptions, inputs and process

V5 Table V3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the WACC for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 31.

Table V3: Fonterra's explanation of the WACC

Inputs	Process	Assumptions
5 year rolling average of monthly average 5 year government stock rates, as reported by RBNZ, adjusted for semi-annual coupon payments. 5 year average of average spread of 5 year A- rated debt issued by US industrials over US treasuries. Allowance for annualised debt issuance & other debt-related costs of 35 basis points. NZ company tax rate. Asset beta of 0.45. Assumption of tax-adjusted market risk premium of 7.0%. Assumption of debt : debt + equity ratio of 40%.	Use of the 'simplified Brennan-Lally' formula to convert inputs into WACC (8.6% for F14 Milk Price). ¹¹⁹	That the assumed asset beta appropriately reflects the systematic earnings risk to which the relevant portion of Fonterra's commodities and ingredients business is exposed, given the milk price methodology. That the approach to calculating WACC is appropriate. That use of 5 year rolling averages, rather than spot rates, does not leave Fonterra exposed to any incremental risk of not recovering its cost of capital over time on investments in assets equivalent to those assumed in the NMPB.

Basis of calculation

V6 The weighted average cost of capital is the weighted average of the:

V6.1 the cost of equity as calculated by applying the simplified Brennan-Lally capital asset pricing model, in conjunction with the simplified beta leveraging formula (ie, debt beta is assumed to be zero) to the inputs (whether specified as values or obtained by reference to a specific financial markets indicator) and;

V6.2 the cost of debt.

V7 Rule 39 of the Manual specifies that, to the extent possible, the weighted average cost of capital calculation should reflect the application of a mechanical or prescriptive calculation methodology, and reflect a calculation methodology which is familiar to suppliers and potential investors.

V8 We consider the calculation of the weighted average cost of capital to be consistent with Rule 39 of the Manual.

¹¹⁹ WACC rate in Fonterra's F14 Reasons Paper was not updated. WACC rate of 8.6% was used in the F14 Milk Price model.

- V9 As previously reported, the Manual provides for different treatment of assets stranded through a change in reference commodity products (Rule 31) and as a result of surplus capacity (Rule 32).¹²⁰ It is not clear why there should be a different basis for the timing of recovery and allocation of risk depending on the circumstances of stranding. Where the risk of asset stranding is provided for *ex ante* in the WACC, we do not consider that all of this should be through the asset beta as beta is a measure of an investment's exposure to market wide (systematic) factors, and we consider that most asset stranding risk is non-systematic.
- V10 We note that Fonterra has amended Rule 40 and added a new Rule 41 for the 2014/15 Manual in response to our concerns. We will assess whether these amendments address our concerns in the Review of the 2014/15 Manual.

Does the calculation use notional or Fonterra actual data?

- V11 The weighted average cost of capital is notional in the sense it is an estimate of the market determined cost of capital (and its constituent parts are also estimates). These estimates are based (to the extent possible) on observed external data, although Fonterra exercise some judgement over the approach and parameter choices. With the notable exception of the asset beta, these are made transparent and consistent over time by the rules in the Manual.

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

- V12 In its Reasons Paper on page 32, Fonterra states that, in its view, the relevant inputs are set independently of the corresponding Fonterra values, and are therefore consistent with the efficiency criterion.
- V13 We agree with Fonterra's explanation. As outlined in Attachment B, 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 weighted average cost of capital is therefore consistent with the efficiency dimension of the purpose.

Is the calculation practically feasible?

- V14 In its Reasons Paper on page 32, Fonterra states that the approach reasonably reflects the actual costs that would be faced by a processor with a similar credit rating to Fonterra's, and which had a debt profile with a similar maturity and refinancing profile to that assumed in the Manual-consistent milk price calculation, and is therefore practically feasible.

¹²⁰ Commerce Commission, *Review of Fonterra's 2012/13 Milk Price Manual: Final Report*, 14 December 2012.

- V15 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.
- V16 Rule 40 of the 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.
- V17 The information provided by Fonterra for the 2012/13 review in support of the asset beta of 0.45 consists of a report from the Milk Price Group and a brief internal memorandum from Ernst & Young (Australia).¹²¹ We note that these documents do not appear consistent with the independent reviewer requirement of Rule 40 of the Manual.
- V18 We were unable to reach a conclusion on asset beta, because the information provided to us failed to justify the practical feasibility of the asset beta used.¹²² For example, a key determinative is the comparator companies used to assess the asset beta. Beta is ultimately an empirical question and comparator data is key to assessing this. The evidence provided on this consists of two sets of comparator companies on which it is not explicit what the rationale was for inclusion and exclusion of companies from these sets.¹²³ The asset beta has been assessed against a presumption that the current value is supportable and that it should only be adjusted if that presumption can be proven incorrect on the balance of probabilities.
- V19 We are currently working with Fonterra in resolving this issue. We note that Fonterra has engaged in an independent reviewer to review the appropriateness of the asset beta of 0.45 used in the WACC calculation.¹²⁴ We have not been provided with the independent reviewer's report in time for this review and intend to assess the report as part of the 2014/15 calculation review.

¹²¹ "Milk Price Group assessment of asset beta for use in Milk Price WACC calculation over the period F13-F16", 15 August 2013. Ernst & Young, "Internal Memorandum: Comments on review of Milk Price Group assessment of asset beta for use in Milk Price WACC calculation over the period F13-F16", 21 August 2013.

¹²² We note that Fonterra's Reasons Paper does not state a reason why the value of the asset beta in particular is consistent with the purpose statement.

¹²³ There are several notable international dairy processors not included in the analysis. The information provided by Fonterra also does not discuss the estimates of beta for Synlait Milk and the Fonterra Shareholders' Fund, as determined by the research analysts of New Zealand investment banks. Such estimates are useful guides as to the level of asset beta that real-world investors would require to invest in the dairy processing industry in New Zealand.

¹²⁴ Open Country, *Submission on Fonterra's Reasons Paper for 2013/14 base milk price calculation*, 15 July 2014, available at <http://www.comcom.govt.nz/review-of-milk-price-calculation-201314-season/>

- V20 When we review the report from the independent reviewer, we will consider Synlait's request to consider that independent processors (and by implication, the notional processor) face higher risks than Fonterra as a result of materially more volatile commodity processing earnings, which are factored into investors' views on required rates of return.¹²⁵
- V21 The asset beta assumption is a sensitive input in the Manual-consistent milk price calculation. A 0.1 change in the asset beta would result in around 5.5 cents per kgMS change in the Manual-consistent milk price calculation.
- V22 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

¹²⁵ Synlait submission on our draft report: Synlait Milk Limited, *Submission on draft review of Fonterra's 2013/14 base milk price*, 1 September 2014, paragraphs 17-19, WACC.

Attachment W: Tilted annuity methodology

Purpose

W1 This attachment summarises our analysis of Fonterra's approach of using a tilted annuity methodology to determine annual capital costs for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

W2 For our 2013/14 analysis of the tilted annuity methodology we updated our 2012/13 milk price review analysis and checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

W3 Table W1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used in respect of the tilted annuity methodology.

Table W1: Summary of conclusions on 2013/14 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 process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs 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 process, assumptions, and inputs practically feasible?	The process is practically feasible
Are any features unique to Fonterra?	No

Selecting the basis for our 2013/14 analysis

W4 Table W2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table W2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	N/A
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 process, assumptions and inputs

W5 Table W3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the tilted annuity component of the capital costs calculation for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra on page 32 of its Reasons Paper.

Table W3: Fonterra's explanation of the tilted annuity methodology

Inputs	Process	Assumptions
<p>Outputs from process of establishing asset base (including spread-back over prior years) and WACC.</p> <p>Forecast of long-run rate of inflation in capital costs.</p>	<p>Use 'tilted annuity' formula to derive annuities in respect of assets (a) falling in each 'economic life' category, and (b) for each assumed acquisition year.</p> <p>Decompose calculated annuities into implied depreciation and WACC components, with depreciation calculated as the change in present value of remaining annuities.</p>	<p>That this approach results in a stream of capital charges that over an asset's expected life fully recovers (a) the asset's initial cost, and (b) an appropriate cost of capital on unrecovered capital costs.</p> <p>That the time profile of capital recoveries generated using this approach is reasonable.</p>

Basis of calculation

W6 Rule 34 of the 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 Manual-consistent milk price)."

W7 In its Reasons Paper on page 32, Fonterra notes that:

"The tilted annuity approach results in total annual capital costs (comprising depreciation, the 'WACC charge, or return on capital, and taxation) increasing over time at approximately the same rate as the rate of increase in capital costs. Consequently, annual capital costs assumed in the model are largely independent of the assumed timing of investment in plants. Under the obvious alternative approaches, however, assumed annual capital costs would have varied considerably depending on the specific assumptions made regarding the timing of investment decisions, and it would be difficult to make the case that any particular set of assumptions was 'correct'.

The tilted annuity approach provides for full recovery of capital costs and a return on capital. Consequently, so long as the WACC and asset base assumptions are practically feasible, the aggregate of the WACC charge and depreciation recovery resulting from the application of the approach are necessarily also practically feasible.

The tilted annuity methodology, given the approach taken to determining its inputs, results in a WACC charge and depreciation recovery that are independent of Fonterra's actual cost of capital and its actual depreciation expense, and are therefore consistent with the efficiency criterion."

W8 We consider the tilted annuity methodology calculation to be consistent with Rule 34 of the Manual.

Does the calculation use notional or Fonterra actual data?

W9 The inputs to the titled annuity calculation are notional and therefore the outputs are notional.

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

W10 Because 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?

W11 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. It thus 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 Manual-consistent milk price are independent of the timing of investment in plants.

W12 We consider this approach is reasonable. It is not clear whether an alternative approach would result in a value that is more 'correct' in that modelling an investment profile would result in an uneven capital charge over time with peaks and troughs at times.

W13 We do not consider that the calculation relies on any assumptions that are unique to Fonterra. Therefore the calculation is a methodology for allocating capital charges which is practically feasible.

Attachment X: Company tax

Purpose

- X1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the company tax expense for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

- X2 For our 2013/14 analysis of company tax we updated our 2012/13 milk price review analysis and checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

- X3 Table X1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table X1: Summary of conclusions on 2013/14 company tax

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

Selecting the basis for our 2013/14 analysis

- X4 Table X2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table X2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	N/A
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 assumptions, inputs and process

- X5 Table X3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the company tax expense for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 33.

Table X3: Fonterra's explanation of its company tax

Inputs	Process	Assumptions
<p>NZ Company Tax Rate.</p> <p>Fonterra's weighted-average tax depreciation rate on assets relevant to the NMPB.</p> <p>The calculated EBIT of the NMPB.</p>	<p>Determine ratio of tax depreciation (given Fonterra's average tax depreciation rate) to 'tilted annuity' depreciation implied by the various key inputs into the tilted annuity calculation, & scale tilted annuity depreciation by this amount to derive an estimate of tax depreciation for the NMPB.</p> <p>Adjust the NMPB's calculated EBIT for the difference between tilted annuity and calculated tax depreciation to arrive at an estimate of taxable earnings, exclusive of any interest tax shield, and apply the company tax rate to this amount to assess tax payable.</p> <p>Spread calculated tax in three equal instalments over the course of the relevant season.</p>	<p>That the approach taken to deriving an estimate of tax depreciation is reasonable.</p> <p>That the omission of any further adjustments for items that would in practice be relevant to the calculation of taxable income will not result in any systematic bias in the calculation of tax payable.</p>

Basis of calculation

- X6 To determine the tax provision, the model takes the calculated earnings before interest and tax (EBIT) of the notional producer, adds back the Manual-consistent milk price (ie, accounting) depreciation to the EBIT and deducts the tax depreciation to arrive at a measure of taxable income (before financing costs). It then applies the corporate tax rate of 28%. This gives rise to an unleveraged tax amount consistent with using a tax payable approach and a post-tax WACC without further adjustments.
- X7 The tax depreciation is calculated as being the total milk price tilted annuity depreciation scaled up by a fixed percentage which is determined in a separate workbook that models the relationship between milk price tilted annuity depreciation and historic cost diminishing value tax depreciation over time. The application of this fixed percentage therefore transforms the dollar value of milk price tilted annuity depreciation into the dollar value of historic cost DV tax depreciation.
- X8 The tax depreciation as a percentage of milk price depreciation is calculated using the total annual historic cost (tax) DV depreciation divided by the total annual tilted annuity depreciation.

- X9 The model assumes: an average accounting economic life of the assets of 31 years; Capital Goods Price Index (CGPI) which is aligned to the CGPI in the capital costs model; and WACC of 6.8% for 2014. Synlait has questioned the relativity between the economic lives of plants (35 years) and the implied tax lives (31 years).¹²⁶ 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 both for the milk price depreciation and tax depreciation.
- X10 The difference between total tax depreciation and milk price 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.
- X11 The implied tax life of the assets under the DV approach is derived from the 31 year economic life by using Fonterra's actual average DV rate¹²⁷ and an assumed residual tax asset value of 5% of the cost of the asset.
- X12 Rule 21 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.
- X13 We consider the calculation of the company tax expense to be consistent with Rule 21 of the Manual.
- X14 The application of Rule 21 provides that in calculating the Manual-consistent 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:
- X14.1 it only manufactured reference commodity products for sale GDT and for delivery to a New Zealand wharf;
 - X14.2 the notional producer were operated on a standalone basis; and
 - X14.3 the profits of the notional producer were not deductible on distribution to its owners.
- X15 The methodology for calculating the tax charge is not clear in the Manual. The wording of the application of Rule 21, "could reasonably expected to have paid", suggests that a tax payable approach as applied in the Manual-consistent milk price calculation is appropriate.

¹²⁶ Synlait submission on our draft report: Synlait Milk Limited, *Submission on draft review of Fonterra's 2013/14 base milk price*, 1 September 2014, paragraphs 14-16, *Tax Depreciation Shield*.

¹²⁷ 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.

- X16 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.
- X17 This has allowed a change from a straight-line approach in 2012 to a diminishing value approach in 2013, although the diminishing value approach is more consistent with the calculation of Fonterra's actual tax liabilities which are based on diminishing value depreciation.
- X18 We note that Fonterra has continued to use a diminishing approach in 2014.

Does the calculation use notional or Fonterra actual data?

- X19 The use of a notional asset base for the purpose of calculating tax depreciation means that the resultant tax provision is also notional.
- X20 The tax cost reflects the tax consequences of assumptions in the Manual-consistent 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.

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

- X21 In its Reasons Paper on page 33, Fonterra states that it considers that because the Manual-consistent milk price tax charge is calculated entirely independently of Fonterra's actual tax calculation, it leaves Fonterra appropriately incentivised to manage its actual tax expense.
- X22 While we accept Fonterra's explanation, we consider it needs to be considered in the wider context. We previously noted 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)."¹²⁸

Is the calculation practically feasible?

- X23 In its Reasons Paper on page 33, Fonterra states that the calculation of company tax is practically feasible because its calculation generates a provision for tax depreciation that is consistent with applying Fonterra's weighted average tax depreciation rate for the relevant assets to the notional producer's asset base.

¹²⁸ Commerce Commission, *Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper*, December 2010, paragraph 5.2.5.

- X24 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 DV tax depreciation reflects real world tax conditions.
- X25 The WACC and CGPI values used are consistent with those used in the capital costs model, which generates the tilted annuity depreciation values used for the tax depreciation ratio calculation and have been reviewed for practical feasibility there.
- X26 It should be noted that a potential entrant would in fact obtain greater tax relief than the notional producer through the use of DV depreciation, as the higher front-end depreciation would apply to all plant investment, whereas the steady state assumption underlying the tax treatment in Fonterra's milk model means the early high depreciation for new assets (relative to straight-line depreciation) 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.
- X27 In theory, the 2013 change from straight-line to DV, of itself, should not give 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 DV than under straight-line, the older assets have a lower depreciation component and so the net effect of the change in total dollar value of depreciation¹²⁹ is small in the context of a steady state asset base. An offsetting effect occurs because the change occurs retrospectively across the entire notional asset base (in effect rewriting depreciation already charged).
- X28 Thus, while the methodology provides for a change 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 Manual-consistent milk price.
- X29 We do not consider that the calculation relies on any assumptions that are unique to Fonterra. The assumed company tax should therefore also be practically feasible for another efficient processor.

¹²⁹ 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.

Attachment Y: Net working capital

Purpose

Y1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the net working capital for the purposes of the 2013/14 Manual-consistent milk price calculation.

Approach to our 2013/14 analysis

Y2 For our 2013/14 analysis of net working capital we:

Y2.1 reviewed Fonterra's assumptions, inputs and process to assess whether to the extent the costs are consistent with the purposes of the Act and;

Y2.2 checked the numbers from Fonterra's 2013/14 supporting analysis through to the 2013/14 Manual-consistent milk price calculation.

Results of our 2013/14 analysis

Y3 Table Y1 sets out a summary of our conclusions on Fonterra's assumptions adopted, and inputs and process used.

Table Y1: Summary of conclusions on 2013/14 net working capital

Are notional or actual values used?	Actual debtor and creditor days; Fonterra's actual 'advance rate schedule'
Are the process, assumptions, and inputs consistent with the Milk Price Manual?	Yes
Do the process, assumptions, and inputs provide an incentive for Fonterra to operate efficiently?	Yes
Are the process, assumptions, and inputs practically feasible?	Yes. However, this is subject to asset beta assumption in the WACC calculation
Are any features unique to Fonterra?	No

Selecting the basis for our 2013/14 analysis

Y4 Table Y2 sets out factors taken into account in setting our analysis approach in our 2013/14 Manual-consistent milk price calculation review.

Table Y2: Factors considered in setting our analysis approach

Issues brought forward from our 2012/13 review	N/A
Changes to the 2013/14 Milk Price Manual	N/A
Issues brought forward from our 2013/14 Milk Price Manual review	N/A

Fonterra's 2013/14 assumptions, inputs and process

Y5 Table Y3 sets out Fonterra's assumptions adopted, and inputs and process used to determine the net working capital for the purposes of the Manual-consistent milk price calculation. These are described by Fonterra in its Reasons Paper on page 33.

Table Y3: Fonterra's explanation of the net working capital

Inputs	Process	Assumptions
<p>Monthly net working capital balances implied by the NMPB phasings of milk supply, production, sales, and non-milk costs.</p> <p>Fonterra's weighted average debtor days for sales on terms used to determine the prices for sales of RCPs used in the milk price (ie, primarily sales on GDT).</p> <p>Fonterra's weighted average creditor days for costs relevant to the Milk Price.</p> <p>Fonterra's 'advance rate schedule', specifying timing and quantum of payments for milk supplied in the season.</p> <p>Assumptions with respect to inventories of inputs, such as lactose and packaging materials.</p> <p>Assumptions with respect to revenue and payables days, calculated by reference to relevant Fonterra actual data.</p> <p>The monthly compound WACC implied by the annual WACC.</p>	<p>Calculate implied opening net working balances for each month.</p> <p>Apply the monthly WACC to the monthly NWC balance.</p> <p>Deduct the implied WACC charge in the course of calculating the amount available to pay for milk.</p>	<p>That use of Fonterra's weighted average debtor days for (primarily) sales on GDT is consistent with use of prices from the same source.</p> <p>That use of Fonterra's weighted average creditor days in respect of costs relevant to the Milk Price is consistent, where relevant, with use of Fonterra's input prices.</p>

Basis of calculation

Y6 The net working capital milk price component is a function of:

- Y6.1 Fonterra's weighted average debtor days for the sales of reference commodity products;
- Y6.2 Fonterra's weighted average creditor days for costs relevant to the production and sales of the reference commodity product;.
- Y6.3 assumptions with respect to revenue and payables days, calculated by reference to relevant Fonterra actual data;
- Y6.4 Fonterra's 'advance rate schedule', specifying timing and quantum of payments for milk supplied in the season;

- Y6.5 assumptions with respect to inventories of inputs, such as lactose and packaging materials (assessed as part of our analysis of lactose and packaging costs); and
- Y6.6 the monthly compound weighted average cost of capital implied by the annual weighted average cost of capital (assessed in Attachment V).
- Y7 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.
- Y8 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 weighted average cost of capital to be applied to the monthly opening net working capital position. 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.
- Y9 We consider the calculation of the net working capital to be consistent with Rule 38 of the Manual.

Does the calculation use notional or Fonterra actual data?

- Y10 The inputs in the net working capital balances calculations are based on Fonterra's actual data, achieved in the year for which the Manual-consistent milk price is set.

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

- Y11 In its Reasons Paper on page 34, Fonterra states that while the various inputs in the working capital balances calculations are based on Fonterra's actual data, the derived balances are not Fonterra's actual current year working capital balances and is therefore consistent with the efficiency criterion.
- Y12 As stated above, 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.
- Y13 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.
- Y14 As outlined in Attachment B, we consider that Fonterra may have incentives to operate efficiently where actual data has been used to set the Manual-consistent milk price. 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 Manual-consistent milk price. However, the incentive to operate efficiently is potentially weaker than if notional data had been used.

Is the calculation practically feasible?

- Y15 In its Reasons Paper on page 34, Fonterra states that the calculation of net working capital is practically feasible because the key determinants of the monthly working capital balances (milk supply profile, sales phasings, cost phasings, credit and days, advance rate schedule) are aligned to relevant Fonterra actuals.
- Y16 We agree with Fonterra's explanation and consider that the inputs (other than the asset beta assumption in the weighted average cost of capital calculation, which we discuss in Attachment V) in the net working capital balances calculation are practically feasible for Fonterra or another efficient processor.
- Y17 We do not consider that the calculation relies on any assumptions that are unique to Fonterra. The assumed calculation should therefore also be practically feasible for another efficient processor.

Glossary

Term/Abbreviation	Definition
Adjustment Amount	The difference between the Manual-consistent milk price 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
AMF	Anhydrous milk fat
Base milk price	Milk price expressed per kilogram of milk solids
BMP	Butter milk powder
DIRA, or the Act	Dairy Industry Restructuring Act 2001
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, 2013/14 Manual)
GDT	Global dairy trade, Fonterra's online auction
kgMS	Kilogram of milk solids
MT	Metric tonne
NMPB	Notional milk price business
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