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Dairy Industry Restructuring Act 2001:

Review of Fonterra's 2012/13 base milk price calculation

Final report

Date: 16 September 2013

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

Contents

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 2012/13 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]

X2 Section 150A of the Act specifies that the purpose of the milk price monitoring regime is to promote the setting of the base milk price by Fonterra:

X2.1 that provides an incentive for Fonterra to operate efficiently, while

X2.2 providing for contestability in the market for the purchase of milk from farmers.

X3 Our view is that setting any independent notional benchmarks for the revenue and cost inputs that underpin the base milk price calculation would provide an incentive for Fonterra to operate efficiently. This is consistent with the Act which envisages the use of notional values and in some instances requires the use of a notional business.

X4 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.

X5 Our review of Fonterra's 2012/13 base milk price calculation concludes that the assumptions adopted, and inputs and process used to calculate the base milk price are largely consistent with the s 150A purpose statement.

Efficiency dimension

X6 The use of mostly notional data to set the inputs for the base milk price calculation provides Fonterra with incentives to operate efficiently. Fonterra has used its actual levels of performance to calculate some components of the base milk price. Our review indicates that, in these instances, this still provides Fonterra with incentives to operate efficiently, although potentially these incentives are weaker than if notional data had been used.

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[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 first review of Fonterra's Farm Gate Milk Price Manual in December 2012. In forming our conclusions in this report, we have also addressed outstanding matters raised in our report on the Review of Fonterra's Farm Gate Milk Price Manual for 2012/13

Contestability dimension

X7 Most assumptions adopted, and inputs and process used to calculate the base milk price – individually and in aggregate – appear to be practically feasible for Fonterra or another efficient processor.

X8 We have identified one assumption that does not appear to be practically feasible. This relates to the assumed energy usage rates, which rely on data generated during peak capacity utilisation, and therefore do not take account of normal plant operation across the season. There are also two assumptions that we are unable to conclude on, given the information available to us in this review. These relate to the assumed costs of manufacturing plant assets and the asset beta assumption in the weighted average cost of capital calculation. However, having regard to the direction and potential size of the impact these three assumptions 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.

Other matters

X9 Due to the late provision of information by Fonterra to support the assumed asset beta, we were unable to carry out our own analysis in response to the insufficiency of Fonterra's information.[2] This has contributed to our inability to conclude on the practical feasibility of the asset beta.

X10 There would be stronger alignment of Fonterra's certified assumptions, inputs and process with the practical detail of the base milk price model if these were more formally linked.[3] This would help to ensure that all relevant assumptions, inputs and processes are appropriately documented, and therefore improve the transparency of the base milk price calculation.

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2 The supporting information, which does not appear to be consistent with Rule 40 in the Milk Price Manual that requires an independent reviewer to provide an updated asset beta, was provided to us on 24 August 2013.

3 Fonterra's certified assumptions, inputs and processes are set out in Fonterra*, 'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation. Attachment 2 of Fonterra's 'Reasons ' paper does contain a list of supporting model files but it is often difficult to ascertain, without further substantial investigation, what the relevant operative assumptions inputs and calculation processes, at a more detailed level, are within these model files.

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;

1.1.2 explain how this report relates to our report on the Review of Fonterra's 2012/13 Milk Price Manual (Review of the Manual) published in December 2012;

1.1.3 summarise how Fonterra calculates the base milk price; and

1.1.4 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 2012/13 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 2012/13 base milk price calculation

1.4 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.[4]

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

1.5.1 Review of Fonterra's Farm Gate Milk Price Manual (Review of the Manual), which sets out the methodology for calculating the base milk price for the season.

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[4] Along with this report, we are also releasing our experts' responses to submissions we received on the draft report. These responses include: Response to Fonterra's submission by Parsons Brinckerhoff, 11 September 2013; Response to Miraka's submission by Greg Winter, 2 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

1.5.2 Review of Fonterra's base milk price calculation (Review of the base milk price calculation).

1.6 We published our report on the first statutory review (Review of the Manual) in December 2012.[5]

1.7 This report relates to the review of the base milk calculation. 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 purpose). The 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 In order for us to report on this, s 150T requires Fonterra to provide us with the following information:

1.8.1 the assumptions adopted and the inputs and process used by Fonterra in calculating the base milk price for the relevant season; and

1.8.2 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

1.8.3 reasons for the views expressed in Fonterra's certification.

1.9 This information is provided in Fonterra's 'Reasons' paper for the 2012/13 base milk calculation, which is available on our website.[6]

1.10 We have had regard to this information in making this report. We also had regard to submissions we received on our process and key issues papers, as well as our draft report.[7]

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

6 Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

7 Commerce Commission, *Process Paper – Review of base milk price calculation*, 3 May 2013, *Key Issues - Review of base milk price calculation*, 5 July 2013, and *Draft Report – Review of Fonterra's 2012/13 base milk price calculation*, 15 August 2013.

How this report relates to our Review of the Manual

1.11 We published our report on the first statutory review (Review of the Manual) in December 2012.[8] In that report we concluded that Fonterra's 2012/13 Manual was not inconsistent with the purpose. However, in a number of areas, we were unable to form a view on the Manual's consistency with the purpose in isolation of the way in which it is applied.

1.12 Although our primary focus in this report is on the second statutory review (review of the base milk price calculation), we also comment on the extent to which the detailed calculation of the base milk price provides clarity about the operation of certain rules in the Manual, and the implications of this in light of the purpose statement.[9] 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 stranding	Attachment V: Weighted Average Cost of Capital
Milk collection costs and potential over-optimisation of notional assets	Attachment J: Collection costs
Operating costs – Use of actual resource usage and unit rates	Attachment K: Packaging costs Attachment Q: Freight costs Attachment R: Storage costs

1.13 These issues have been satisfactorily addressed with the exception of asset stranding. We have not received an explanation for why there should be different rules for the treatment of stranding risk depending on the circumstances of stranding. Nor have we received an explanation of why the risk of asset stranding should be a matter to be considered in the assessment of the asset beta.

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

9 The areas of the Manual we indicated would be further investigated in our Review of the Base Milk Price calculation are set out on pages 18 - 22 of our report on the *Review of Fonterra's 2012/13 Milk Price Manual: Final Report*, 14 December 2012.

How Fonterra calculates the base milk price

1.14 Fonterra calculates the base milk price by dividing:

1.14.1 the total pool of money available for payment to farmers for their raw milk supply to Fonterra in a season; by

1.14.2 the total number of kilograms of milk solids (kgMS) supplied to Fonterra by farmers in a season. [10]

1.15 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:

1.15.1 the 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

1.15.2 the '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

1.15.3 the capital costs, which provide for depreciation on fixed assets, return on capital investment, and working capital.

1.16 Attachment A provides a more detailed overview of Fonterra's methodology for setting the base milk price.

1.17 Figure 1.1 below illustrates the size of each component of the base milk price calculation relative to the base milk price and points to the relevant Attachments to this report where we discuss the calculation of each of these components.

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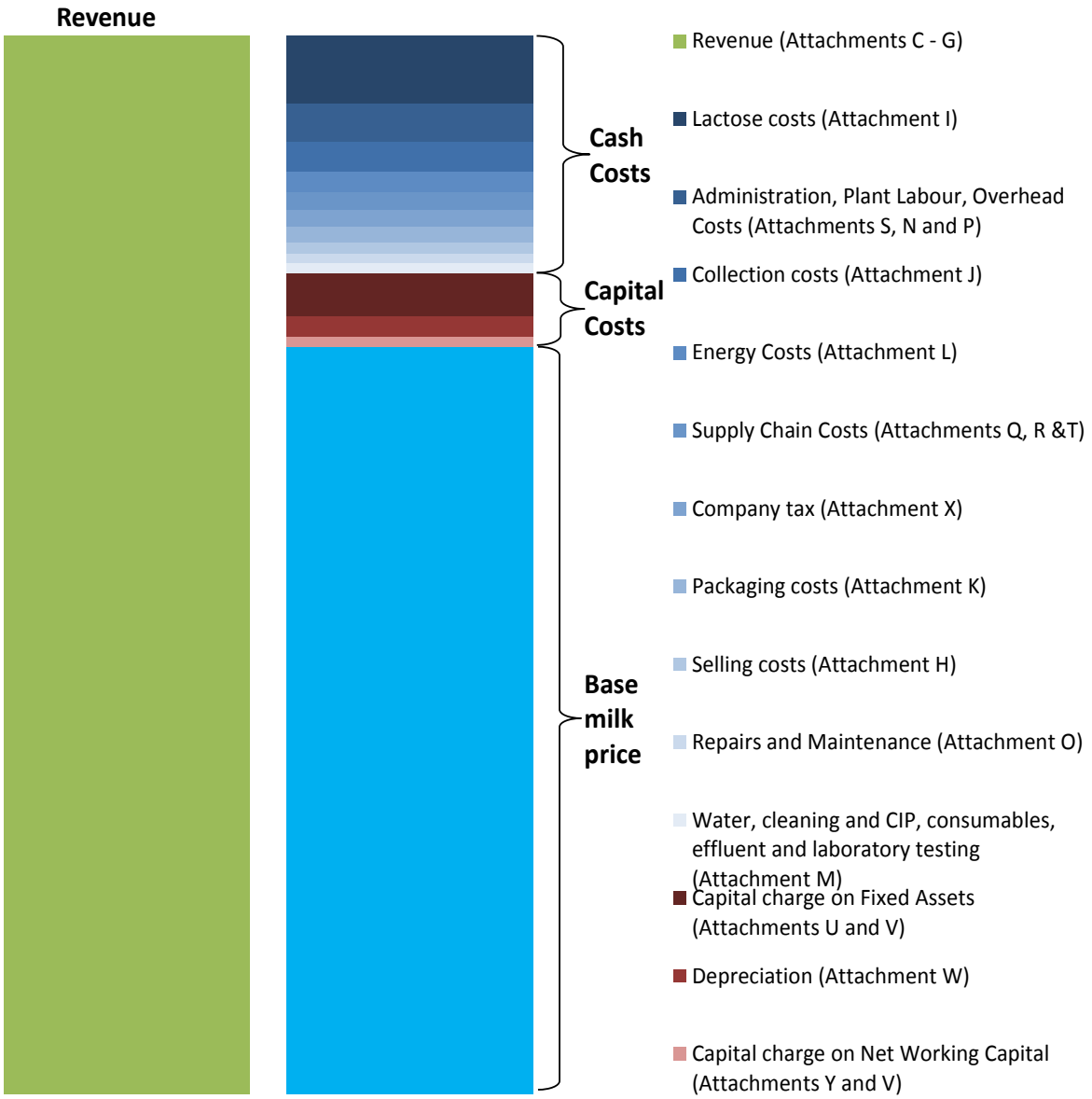
[10] Payments to individual farmers for their milk are, however, adjusted for the composition of milk supplied (in terms of the fat and protein components) and the timing of supply (eg, milk supplied during the winter period attracts certain premiums).

Figure 1.1: Relative size of components of the base milk price calculation



Notes
Revenue is net of downgrade costs.

Supplier and External Relations costs are inluded in the Administration, Overhead and Manufacturing Cost category. In the base milk price model, this cost is recorded together with the Collection Costs.

How we present our conclusions and analysis in this report

1.18 We set out our conclusions from the review of Fonterra's 2012/13 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 purpose in s 150A of the Act.

1.19 These conclusions are supported by our assessments of the assumptions, inputs and process used to calculate each of the key components of the base milk price. We set out our assessments of these key components in Attachments C to Y of this report.

1.19.1 Attachments C to G relate to the key components of the revenue calculation.

1.19.2 Attachments H to T relate to the key components of the operating costs calculation.

1.19.3 Attachments U to Y relate to the key components of the capital costs calculation.

1.19.4 Attachment Z provides an overview of the tests and cross-checks we undertook with regards to the individual components of the base milk price calculation.

1.20 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. This chapter explains the key questions and concepts that have guided our analysis of Fonterra's 2012/13 base milk price calculation and our rationale behind them. Attachment B provides a more detailed outline of our interpretation of this statutory framework.

2. Our 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 2012/13 base milk price are consistent with the efficiency and contestability dimensions set out in the s 150A purpose statement.

2.2 Our conclusions are based on analysis of:

2.2.1 the individual assumptions, inputs and process used to calculate the components of the base milk price calculation, as set out in Attachments C to Y of this report and summarised in Table 2.1 below;

2.2.2 the cross-check of the aggregate impact on the base milk price calculation resulting from the assumptions that do not appear to be practically feasible or that we are unable to conclude on at this stage;

2.2.3 the cross-check on the internal consistency among the assumptions, inputs and process used to calculate the base milk price; and

2.2.4 the cross-check against Fonterra's and other processors' recent and planned investment decisions.

Our conclusion

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.

2.3.1 *Efficiency dimension:* The use of mostly notional data to set the inputs for the base milk price calculation provides Fonterra with incentives to operate efficiently. Where data on Fonterra's actual levels of performance has been used to calculate components of the base milk price, our review has found that this still provides Fonterra with incentives to operate efficiently, although potentially the incentives are weaker than if notional data had been used.

2.3.2 *Contestability dimension:* Most assumptions adopted, and inputs and process used to calculate the base milk price appear to be practically feasible for Fonterra or another efficient processor. The exceptions include an assumption that does not appear to be practically feasible and two assumptions that we are unable to conclude on, given the information available to us at this stage. However, we do not consider these assumptions would be likely to have a significant impact on our overall conclusion.

2.4 Table 2.1 below outlines our conclusions summary on the extent to which the assumptions adopted, and inputs and process used to calculate components of the 2012/13 base milk price calculation, are consistent with the s 150A purpose statement.

Table 2.1: Conclusions summary

Component of the base 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	Yes	Yes
Product yields	Actual national-average compositions of Fonterra's milk supply; Notional production losses; Notional product compositions based on Codex composition limits; Fonterra's historical actual manufacturing offsets	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	'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
Lactose costs	Notional volumes of lactose;	Yes	Yes, as prices used are those actually achieved

Component of the base milk price calculation	Notional or actual?	Provides incentive for Fonterra to operate efficiently?	Is it practically feasible?
	Notional lactose prices		by Fonterra's competitors in NZ
Collection costs	Actual total operating costs; Notional overheads; Notional diversion costs	Yes	Yes
Packaging costs	Average actual unit costs and usage rates; Notional loss allowances	Yes	Yes
Energy costs	Notional unit cost rates; Notional usage rate	Yes	No, as energy usage rates are based on peak, rather than average seasonal, capacity utilisation assumptions
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
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;	Yes	Yes

Component of the base milk price calculation	Notional or actual?	Provides incentive for Fonterra to operate efficiently?	Is it practically feasible?
	Actual cost per FTE; Notional non-labour costs; Actual cool storage rates		
Admin and other overhead costs	Notional data based on 2012 budgeted costs	Yes	Yes, but some concern with lack of evidence or rationale for the adjustments made to the 2012 budget data
Other supply chain overhead costs	Notional data based on 2012 budgeted costs scaled down by generally 50%	Yes	Yes, but some concern with lack of evidence or rationale for the adjustments made to the 2012 budget data
Fixed assets	Notional	Yes	Unable to conclude
WACC	Notional	Yes	Unable to conclude on asset beta
Tilted annuity methodology	n/a	n/a	Yes
Company tax expense	Notional	Yes	Yes, but the way changes are effected is not
Net working capital	Actual debtor and creditor days; Fonterra's actual 'advance rate schedule'	Yes	Yes (subject to asset beta assumption in the weighted average cost of capital calculation)

Our conclusions on the consistency with the efficiency dimension

2.5 The base milk price calculation relies on a mix of actual and notional inputs. As outlined in Chapter 3 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. We nevertheless accept that, in some instances, the use of actual performance data 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 base milk price calculation.

2.6 We identified a number of components of the base milk price calculation that are based largely on Fonterra's actual performance levels.

2.6.1 Product mix

2.6.2 Sales phasing

2.6.3 Pricing

2.6.4 Milk collection costs

2.6.5 Packaging costs

2.7 Our assessment of the impact that using actual inputs has on each of the above components of the base milk price calculation is set out in the relevant Attachments to this report.

2.8 Our overall assessment is that the use of Fonterra's actual levels of performance in calculating these components of the base milk price still provides incentives for Fonterra to operate efficiently. However, the incentive to operate efficiently is potentially weaker than if notional data has 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:

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

2.8.2 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.

Our conclusions on the consistency with the contestability dimension

2.9 As outlined in Chapter 3 and Attachment B to this report, in assessing whether the assumptions adopted and inputs and process used are practically feasible, we have applied a number of tests and cross-checks at the individual and aggregate levels. Attachment Z to this report provides an overview of these tests and cross-checks.

Individual assessment

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

2.11 We have identified one assumption that does not appear to be practically feasible. This relates to the assumed energy usage rates, which rely on data generated during peak capacity utilisation. This means that the assumed energy usage rates do not take account of normal plant operation across the season. Our independent energy

experts consider that the energy usage rates would need to increase by up to 10% to reflect the practical difference between the likely annual average usage rates and those achieved during the peak season.[11] A 10% increase in the energy usage rates would result in a 1.4 cents per kgMS reduction in the base milk price calculation.

2.12 There are also two assumptions that we are unable to conclude on, given the information available to us at this stage. These relate to the assumed costs of manufacturing plant assets and the asset beta assumption in the weighted average cost of capital calculation.

2.12.1 We have engaged an independent engineering consultancy firm to help assess practical feasibility of the standard plant configuration for the purposes of capital costs calculations. A key finding outlined in the experts' report is that the capital cost calculation is not supported by a feasibility study that describes the key features of the notional producer.[12] Without additional information, or indeed a feasibility study, we are unable to conclude on the practical feasibility of the capital costs in the base milk price calculation model. Our experts believe that this could result in up to a +/- 15% change in the costs of manufacturing plant assets, which would result in an increase or a reduction of up to 6.92 cents per kgMS in the base milk price calculation.

2.12.2 The information on the asset beta provided by Fonterra fails to justify the practical feasibility of the asset beta used in the weighted average cost of capital calculation in the base milk price. Given the time available due to late provision of the evidence, we were unable to carry out an independent assessment of the asset beta ourselves. The asset beta assumption is a sensitive input in the base milk price calculation. A 0.1 change in the asset beta would result in around 5.5 cents per kgMS change in the base milk price calculation.

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11 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

12 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

Aggregate impact assessment

2.13 Table 2.2 below summarises the direction and potential size of the impact on the base milk price calculation resulting from assumptions that are not practically feasible, or where we are unable to draw a conclusion.

2.14 We set out the potential size of the impact for illustrative purposes only. Miraka, in its submission on our draft report, suggested that we adopt a transparent materiality threshold. However, our review is focused on the assumptions, inputs and processes of the base milk price setting process rather than the outcome of the calculation, ie, the base milk price, itself. Section 150P(3)(b) of the Act also prevents us from stating the base milk price according to our own calculations. Our conclusion is therefore intentionally qualitative.

Table 2.2: Aggregate impact on the base milk price calculation

Assumptions	Direction	Size
Energy usage rates	Reduction of the base milk price	10% increase in the energy usage rates would result in 1.4 cents per kgMS change in the base milk price
Fixed assets	An increase or a reduction of the base milk price	Up to 6.92 cents per kgMS change in the base milk price
Asset beta assumption in the WACC calculation	An increase or reduction in the base milk price	A 0.1 change in the asset beta would result in around 5.5 cents per kgMS change in the base milk price

2.15 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.

Internal consistency among the assumptions, inputs and processes

2.16 We are satisfied that the assumptions adopted, and inputs and process used to calculate the base 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. We describe the internal consistency checks we have performed on the various assumptions, inputs and processes in the base milk price calculation in Attachment Z to this report.

Fonterra's recent investment

2.17 Our review of Fonterra’s recent investments supports our conclusion that the assumptions, inputs and processes that underpin the base milk price setting are practically feasible.

2.18 As part of our dry run review we reviewed Fonterra's analysis to support its recent business cases for large milk processing investment.[13] That analysis had indicated that these investments were expected to provide a normal rate of return on Fonterra's recent incremental investment at the current base milk price setting.

2.19 Since our dry run review, Fonterra has provided us with further information and data that demonstrate the actual performance of recently built plant. We have been able to draw on these reports to assist us to assess the practical feasibility of key operating assumptions in such areas as production losses, product compositions, energy consumption, and process control costs.

2.20 With the exception of the manufacturing plants' capital costs, which we are unable to conclude on, our review of Fonterra's recent investments supports our conclusion that the inputs that underpin the base milk price setting are practically feasible.

Recent and planned investment in the dairy processing sector

2.21 Our conclusion on the contestability dimension is also supported by the history of recent and planned investment in the dairy processing sector, committed to or announced since the current approach to setting the base milk price has been adopted by Fonterra.

2.22 Table 2.3 below summarises our understanding of such investment, in terms of type of production and indicative levels of investment.[14]

Table 2.3: Recent and planned investment in dairy processing sector in New Zealand

Dairy processor	Manufacturing plant becoming operational	Approximate level of investment made
Fonterra Cooperative Group Ltd	2014 – UHT plant (planned) 2012 – WMP plant	$100m $150m
Miraka Ltd	2014 – UHT plant (planned)	$25m
Synlait Milk Ltd	2014 – Various growth initiatives (planned)	Part of $75m raised in a successful public listing
Westland Milk Products Ltd	2014 – New milk processing plant (planned) 2012 – Upgrade of existing plant	$ not readily available $23m

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

14 Our understanding of recent and planned investment in the dairy processing sector in New Zealand is based on public announcements by the dairy processors and media releases.

Yashili International Holdings	2014 – Ingredients for infant formula manufacturing (planned)	$212m
Inner Mongolia's Yili Industrial Group	2014 – Ingredients for infant formula manufacturing (planned)	$214m

2.23 We do not agree with Miraka and Synlait/Open Country submissions that question the relevance of the recent and planned investment in the dairy sector to our review. Miraka and Synlait/Open Country submitted that the investment shown in Table 2.3 should not be viewed as evidence that the base milk price does not preclude investment in the dairy processing industry. This is because the investment relates to value-added products and not commodity processing.[15] We note that this evidence is used as an additional cross-check on our main analysis of the contestability dimension. Furthermore, as made explicit in s 150A, the relevant market in our assessment is the market for the purchase of milk from farmers, and not the product market. Even if the base milk price were to potentially preclude entry from a dairy processor intending to produce the commodity milk powders, it may not preclude potential competition for farmers' raw milk from a dairy processor intending to produce differentiated milk products. We therefore consider the evidence in Table 2.3 still provides a useful cross-check that dairy processors are able to purchase raw milk at the current base milk price setting and earn an appropriate return.

Transparency of assumptions, inputs and processes

2.24 Section 150T of the Act requires Fonterra to provide us with the assumptions adopted, inputs and process used, in the setting of 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 has provided us with this information in its 'Reasons' paper on 1 July 2013 and we published the 'Reasons' paper on our website.[16]

2.25 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.

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15 Section 4.3 in Miraka, *Submission to the Commerce Commission: Review of the Fonterra 2012/13 Base Milk Price – Draft Report dated 15 August 2013*, 29 August 2013; and paragraph 13 in Synlait/Open Country, Joint Submission on the Commerce Commission's Draft Report in relation to its review of the 2012/13 base milk price, 29 August 2013, available at: http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

16 Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

2.26 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 a number of observations about transparency and potential stability of the assumptions, inputs and process that underpin the base milk price calculation.

2.26.1 Due to the late provision of information by Fonterra to support the assumed asset beta, we were unable to carry out our own analysis in response to the insufficiency of Fonterra's information.[17] This has contributed to our inability to conclude on the practical feasibility of the asset beta.

2.26.2 We consider that there would be stronger alignment of Fonterra's certified assumptions, inputs and process with the practical detail of the model if these were more formally linked.[18] This would help to ensure that all relevant assumptions, inputs and processes are appropriately documented, and therefore improve the transparency of the base milk price calculation.

2.26.3 The submissions by interested parties also indicate that further public disclosure on the detail of how and why the assumptions, inputs and process are determined and key quantitative information used (where these are not commercially sensitive) would greatly improve the transparency of the base milk price calculation and enable our review process to better focus on the key issues of substance.

2.26.4 There are a number of areas in Fonterra's description of assumptions adopted, and inputs and process used (with the tax expense calculation being one), which are stated at a relatively high level and therefore lack prescription. In some other areas, such as the allocation of overheads, the basis for input selection is not always documented. This leaves discretion for Fonterra to make year-on-year methodological changes to the way individual assumptions, inputs and processes are determined. This could lead to year-on-year changes in the base milk price that are due to methodological choices rather than the underlying performance factors. We recognise that in some instances methodological improvements in the base milk price calculation would be beneficial (eg, where more or better evidence becomes available over time). However any such improvements should be signalled through transparent changes to documented methodology.

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17 The supporting information, which does not appear to be consistent with Rule 40 in the Milk Price Manual that requires an independent reviewer to provide an updated asset beta, was provided to us on 24 August 2013.

18 Attachment 2 of Fonterra's 'Reasons' paper does contain a list of supporting files but it is often difficult to ascertain, without further substantial investigation, what the relevant operative assumptions inputs and calculation processes, at a more detailed level, are within these model files.

2.26.5 Similarly, given that a rolling review programme has been adopted, it is not always clear when particular assumptions must be subjected to 'review year' verification by independent experts.

2.26.6 There are also 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 inter-factory diversion costs and some parts of the allocation of overheads. 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.

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 2012/13 season; and

3.1.2 explain our practical approach to this review.

3.2 Attachment B expands on the discussion in this chapter and sets out the relevant provisions in full.

Our interpretation of key legislative provisions guiding our review

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

3.3 Section 150O of the Act requires us to review Fonterra's calculation of the base milk price for each dairy season.

3.4 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.

3.5 We interpret the terms "assumptions adopted, inputs and process used" to have the following meaning:

3.5.1 'assumptions' refer to the underlying rationale as to why certain inputs and process were selected (ie, 'the why');

3.5.2 'inputs' refers to what data or description of data sources are used to populate the base milk price calculation (ie, 'the what'); and

3.5.3 '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

3.6 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 new co-op to operate efficiently while providing for contestability in the market for the purchase of milk from farmers.

3.7 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.

3.8 We consider that the efficiency and contestability requirements within s 150A are interlinked and that together, they require consideration of:

3.8.1 What is meant by 'efficiency'?

3.8.2 What is meant by 'contestability'?

3.8.3 How do the dimensions of efficiency and contestability inter-relate?

Our interpretation of efficiency

3.9 Section 150A refers to incentives for Fonterra to 'operate efficiently'. We have therefore interpreted the primary focus of the efficiency dimension to be improving incentives for Fonterra to drive cost efficiencies (ie, productive and dynamic efficiency).[19]

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 the new co-op in calculating the base milk price to be consistent with the s 150A purpose, they must be consistent with both dimensions independently.[20]

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[19] 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.

[20] We agree with Castalia, on behalf of Synlait/Open Country, that contestability contributes to greater operational efficiency (page 3 in Castalia's Comments on the Commerce Commission Review of the 2012/13 Base Milk Price). Castalia submitted that we should therefore place greater weight on the contestability requirement relative to the efficiency requirement. It is our interpretation of the s 150A purpose statement that we are not required to choose between the priority of the contestability and

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.

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 Section 150C states that for the achievement of the purpose set out in s 150A, the base milk price must be set in a way that is consistent with a number of principles, listed in s 150C.

3.16 We interpret s 150C of the Act as setting out certain assumptions that Fonterra is required to make in setting the base milk price. Our review of the base milk price calculation is therefore limited to examining whether the calculation contains those provisions in s 150C of the Act.

Our practical approach to the statutory review of Fonterra's calculation of its base milk price

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

3.17 Fonterra has incentives to maximise the overall payments it makes to farmers and to shareholders. It has incentives to increase the base milk price, to ensure farmers continue to supply Fonterra, and to satisfy its farmer shareholders. Fonterra also has incentives to maximise profits so it can pay dividends to its shareholders (including unit holders in the publicly listed Fonterra Shareholders Fund). Fonterra's incentives to maximise profits are reinforced by the remuneration arrangements that apply to its senior management. For the most part, management are rewarded on the basis of profits and earnings, with the farm gate milk price accounting for less than 10% of their remuneration.[21]

3.18 We consider that these arrangements mean that Fonterra's incentives to maximise its profits are stronger than its incentives to increase the base milk price. Therefore, Fonterra will have a stronger incentive to operate efficiently where the base milk price is set independently of Fonterra's actual performance (ie, the calculation of the base milk price relies on notional data). This is because, for a given revenue, any

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efficiency dimensions in s 150A, and that the assumptions, inputs and processes must be consistent with both dimensions independently in order to be consistent with the s 150A purpose statement.

21 Page 56 in Fonterra Shareholders' Fund Prospectus and Investment Statement, 26 October 2012, available at http://www.fonterra.com/nz/en/Financial/Fonterra+Shareholders+Fund

improvements in cost efficiency will result in higher profits, providing Fonterra management with a benchmark to beat and therefore improve efficiency. Where actual data is used, improvements in cost efficiency will instead result in increases in the base milk price.

3.19 There are also instances where it is still reasonable to use Fonterra's actual data in setting the base milk price. These include where:

3.19.1 there is insufficient information to know what an appropriate notional value would be, or it would be unreasonably costly to obtain this information; or

3.19.2 Fonterra has very limited control over the actual costs used for the benchmark.

3.20 Where actual values are used, we have explored whether notional data could reasonably have been used instead, and whether the use of actual data distorts or weakens incentives for Fonterra to improve efficiency.

Our approach to the contestability dimension – what is practically feasible

Our interpretation of efficient processor in s 150A

3.21 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'.

3.22 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).

3.23 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).

3.24 Therefore, conceptually, we consider the calculation of the base milk price is consistent with the contestability dimension in s 150A of the Act if the assumptions adopted, and inputs and processes used are practically feasible for Fonterra or another processor that is efficiently building an incremental plant.

3.25 In assessing whether the assumptions adopted and 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

3.26 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 section 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.

3.27 Rather, our practical approach for this review starts by deconstructing the base milk price into the line item components to which the assumptions adopted and 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.[22] In highly technical areas (eg, energy costs) we have also been reliant on opinions from independent experts.

3.28 Fonterra's notional costs, revenues, and other assumptions used in setting the base milk price are, for the most part, based on the average across all relevant (reference commodity product) Fonterra notional plants, rather than on a single recently built Fonterra plant. Doing so is consistent with assuming that there is a national network of facilities for the collection and processing of milk (ie the safe harbour provision in s 150B(a)). In addition, the notional plants assumed by Fonterra in setting the base milk price approximate the average capacity of Fonterra's actual plants, consistent with the safe harbour provision in s 150B(b).

3.29 Reflective of the majority of data that we have available to us, our practical approach examines whether the assumptions adopted, and inputs and process used to calculate the base milk price are practically feasible for Fonterra. This approach is appropriate because, more often than not, the data used reflects the costs of Fonterra's 'average' plant rather than its most cost efficient plant(s), and therefore an efficient processor (building an incremental plant) should be able to achieve lower costs.

3.30 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,

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[22] 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.

an efficient processor (building an efficient incremental plant) should also be able to achieve them.

3.31 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. For example, Fonterra's effluent costs used in the base milk price calculation include a small component of costs related to ocean effluent outfall. This is a relatively cheap form of effluent disposal that is not likely to be available to Fonterra or any other processor in the future. This is discussed further in our independent experts' report.[23]

We undertake a number of cross-checks to ensure the assumptions, inputs and processes are practically feasible in aggregate

3.32 We acknowledge there is a potential risk that the individual assumptions, inputs and processes may not collectively be practically feasible. To ensure this does not occur:

3.32.1 we check the assumptions, inputs and processes are internally consistent with each other. For example, we checked that the milk solids produced by the product yields calculation are the same as the milk solids shown for the finished product specification. The internal consistency checks we have undertaken are summarised in Attachment Z. We have been largely guided by submissions to identify areas where there are potential inconsistencies between the assumptions adopted and inputs and process used to calculate the base milk price, and have reviewed these areas in our analysis;

3.32.2 we consider the overall impact on the base milk price of assumptions, inputs and processes which are not individually practically feasible or that 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. This is discussed further in Chapter 2; and

3.32.3 as a pragmatic cross-check, we explored whether a number of key operating assumptions and inputs are practically feasible using data from a plant recently built by Fonterra. Attachment Z highlights the components of the

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[23] 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

base milk price calculation that we applied this cross-check to. This is discussed further in Chapter 2.[24]

Response to key points raised in submissions on our approach to the contestability dimension

3.33 Synlait/Open Country submitted that neither Fonterra nor an independent processor is able to achieve the yields, economies of scale, or cost of capital assumed in the base milk price calculation.[25] Miraka has also submitted that no current or potential competitor can match the economies of scale Fonterra experiences, and that our assessment of contestability should take this into account.[26]

3.34 However, no evidence is provided to support these assertions. Meanwhile, our analysis and our independent experts' review has indicated that the assumed yields are practically feasible, based on Fonterra data. This is discussed further in attachment D. We have been unable to conclude on the cost of capital as a whole because we have not been able to form a view on the practical feasibility of the value of the asset beta, based on the information provided by Fonterra. This is discussed further in attachment V.

3.35 Fonterra may be able to take advantage of economies of scale in some of its activities that cannot be achieved by other processors, because it operates a national network of facilities for processing and collecting milk. However, s 150B provides that 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. Therefore our analysis does not include an adjustment to the notional costs to remove efficiencies resulting from any economies of scale experienced by Fonterra or the notional processor.

3.36 Synlait/Open Country have also submitted that an assessment of contestability should consider whether the assumptions, inputs and processes are practically feasible for an efficient processor rather than an efficient incremental plant.[27] However Synlait/Open Country have not defined their interpretation of an efficient

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24 We have also reviewed the history of recent and planned investment in the dairy processing sector. Rather than providing a cross-check to ensure the assumptions, inputs and process used in the base milk price are practically feasible in aggregate, this review provides a direct cross-check on contestability in the market for the purchase of milk from farmers. This review is discussed further in Chapter 2.

25 Synlait/Open Country, Joint Submission on the Commerce Commission's Draft Report in Relation to its Review of the 2012/13 Base Milk Price 29 August 2013.

26 Miraka, Submission to the Commerce Commission: Review of Base Milk Price Calculation for 2010/13 Season 19 July 2013.

27 Synlait/Open Country, Joint Submission on the Commerce Commission's Draft Report in Relation to its Review of the 2012/13 Base Milk Price 29 August 2013

processor. As discussed above it is our interpretation that the efficient processor in s 150A of the Act refers to a processor efficiently building an incremental plant.[28]

Information used for this review

3.37 Section 150T of the Act requires Fonterra to provide us with the assumptions adopted, inputs and process used, in the setting of 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.

3.38 Fonterra has provided us with this information in its 'Reasons' paper on 1 July 2013. Fonterra's 'Reasons' paper is published on our website.[29]

3.39 Fonterra has also provided us with its financial models and supporting documentation.

3.40 We have had regard to all of Fonterra's information in making our report.

3.41 We also had regard to written submissions on our process and key issues papers, as well as our draft report and the information from our dry run review.[30] We also held individual meetings with Fonterra and existing independent processors, where we sought clarifications of these parties' previous submissions and invited them to submit additional data and evidence to assist us with our analysis.

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28 We consider that, given that the Act is a piece of economic regulation, terms used in the Act should be interpreted in the broader context of its regulatory purpose and economic theory. This is how we have interpreted the term "efficient processor".

29 Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

30 Commerce Commission, *Process Paper – Review of base milk price calculation*, 3 May 2013; *Key Issues - Review of base milk price calculation,* 5 July 2013; *Draft Report – Review of Fonterra's 2012/13 base milk price*, 15 August 2013; and *Report on the dry run review of Fonterra's farm gate milk price* (dry run review), 27 August 2012.

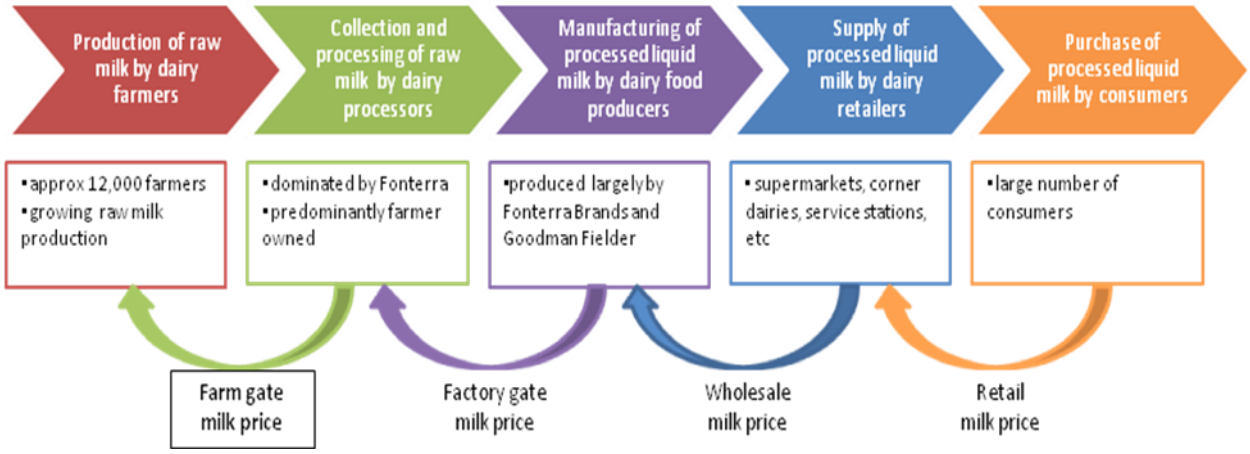
Attachment A: The setting of the farm gate milk price in New Zealand

A1 This attachment outlines the different milk prices within the milk supply chain and explains the unique nature of the farm gate milk market in New Zealand. It also provides an overview of our understanding of Fonterra's rationale for calculating its farm gate milk price and the methodology Fonterra uses to calculate its farm gate milk price. The Act uses the term "base milk price" and all references here to the farm gate milk price should be read as meaning the same.

Milk prices in New Zealand

A2 The phrase "milk price" can have different meanings depending on which component of the milk supply chain is being considered. Figure A.1 describes the milk supply chain in New Zealand and shows the different components of the "milk price" as generated by different milk markets within the supply chain.

Figure A1: Milk supply chain in New Zealand



A3 As Figure A.1 shows, the "milk price" in New Zealand is made up of the following four components:

A3.1 **Farm gate milk price** is the price paid by dairy processors (eg, Fonterra) to dairy farmers for raw milk;

A3.2 **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;

A3.3 **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

A3.4 **Retail milk price** is the price paid by dairy consumers to dairy retailers (eg, supermarkets) for processed milk.

A4 Given that approximately 95% of the total raw milk produced in New Zealand is exported, all four components of the "milk price" are influenced by the demand and supply characteristics of the international dairy markets and by foreign exchange fluctuations.

A5 The focus of our review is solely on the **farm gate milk price** and not any other milk price within the milk supply chain. The farm gate milk price accounts for between one quarter and one third of the retail milk price.[31]

Farm gate milk market in New Zealand

A6 In a workably competitive farm gate milk market, the level of the farm gate milk price would be determined both through the process of competition between suppliers of raw milk (ie, farmers) to processors, and through those processors competing in both the purchase of raw milk and its onward sale after processing.

A7 In New Zealand, the majority of farmers are also the owners of the majority of processing capacity (ie, Fonterra, which collects approximately 89% of total raw milk supply in New Zealand). In this situation there is not a workably competitive market process to derive a farm gate milk price and it is determined by Fonterra using an administrative methodology. Given Fonterra's dominant position in the market for farmers' raw milk, Fonterra's farm gate milk price also effectively sets the minimum price that other dairy processors need to pay farmers for raw milk in order to attract and retain supply.

Fonterra's approach to calculating its farm gate milk price

A8 Since its formation and until 2009, Fonterra's payment to dairy farmers for their raw milk was bundled together with the returns to dairy farmers for their shareholding in Fonterra. During that time, Fonterra's farm gate milk price was calculated only for the purposes of estimating Fonterra's long-run earnings for share valuation purposes.

A9 Shareholding dairy farmers have had two separate but related interests in Fonterra and have been recompensed through two revenue streams: payment for the raw milk they supplied and the dividend payments for the share capital they held in the cooperative.[32] As a result, it is the total return on raw milk and share capital invested in the cooperative that supplier-shareholders have tended to be interested in, rather than its individual components.

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31 The actual proportion of the farm gate milk price to the total combined milk price is difficult to estimate as each of the milk price components (particularly the retail milk price) varies among retailers.

32 To supply raw milk to Fonterra, dairy farmers are required to hold one share for every kilogram of milk solids they wish to supply the cooperative. We understand that an average Fonterra supplier holds approximately half a million dollars in Fonterra shares at the current share valuation. There are a small number of dairy farmers who supply Fonterra with raw milk on a contract supply basis and do not hold shares.

A10 In 2009, Fonterra unbundled its total return to farmers into a farm gate milk price paid for raw milk and returns on share capital. With the unbundling came the need to set the farm gate milk price independently of Fonterra's share valuation processes.

A11 In 2010, Fonterra shareholders voted to change Fonterra's capital structure to implement Trading Among Farmers (TAF). TAF replaces the Fonterra share purchase and sale process, where the Shares were issued and redeemed by Fonterra. TAF was endorsed by Fonterra shareholders in June 2012. Live trading of Shares commenced on 30 November 2012.

A12 As explained by Fonterra, there are two components to TAF:[33]

> Fonterra Shareholders' Market. This is a private market on which Farmer Shareholders can now buy and sell Shares among themselves, not with Fonterra. It is a private market because only Farmer Shareholders, Fonterra, and a specially appointed market maker will be allowed to trade Shares.
>
> The Fonterra Shareholders' Fund. The Fund is intended to:
>
> – supplement liquidity in the Fonterra Shareholders' Market through a liquid market for Units which can effectively be "exchanged" for Fonterra Shares (by Farmer Shareholders, Fonterra and the market maker) and vice versa;
>
> – provide additional financial flexibility for Farmer Shareholders, who will have the opportunity to sell Economic Rights of Shares to the Fund; and
>
> – permit a broader range of investors to buy a security (a Unit in the Fonterra Shareholders' Fund) that essentially passes through the Economic Rights.
>
> Although the markets are separate, they have been designed to work together. Farmer Shareholders, Fonterra and the RVP[34] can buy or sell Shares in the Fonterra Shareholders' Market, and buy or sell Units on the NZX Main Board or ASX. They can effectively exchange Shares for Units and vice versa and therefore can shift between the two markets. Other investors will not be able to transact in the Fonterra Shareholders' Market and exchange Units for Shares.
>
> The Economic Rights of a Share are the rights to receive dividends and other economic benefits derived from a Share, as well as other rights derived from owning a Share. However, these rights do not include the right to hold legal title to the Share (i.e. to become registered as the holder of the Share), or to exercise voting rights, except in very limited circumstances.

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33 Source: http://www.fonterra.com/global/en/Financial/Trading+Among+Farmers

34 There is a market maker (known as the Registered Volume Provider or RVP) who is continuously active in offering to buy and sell Shares on the Fonterra Shareholders' Market during the periods of operation of the Fonterra Shareholders' Market (other than in the case of a temporary halt in, or suspension of, trading in Shares). This is intended to assist the liquidity of trading on the Fonterra Shareholders' Market to make it easier for Farmer Shareholders to buy or sell Shares on that market.

A13 Under TAF, the economic interests of external (non-farmer) investors will be to maximise the share price and the return on share capital invested in Fonterra, rather than the return on raw milk.

A14 In 2011, Fonterra released its methodology for calculating the farm gate milk price, contained in Fonterra's Manual, on its website. Fonterra's release of its methodology was accompanied by a Milk Price Statement which provided some information about the key elements of the 2010/11 calculation.[35]

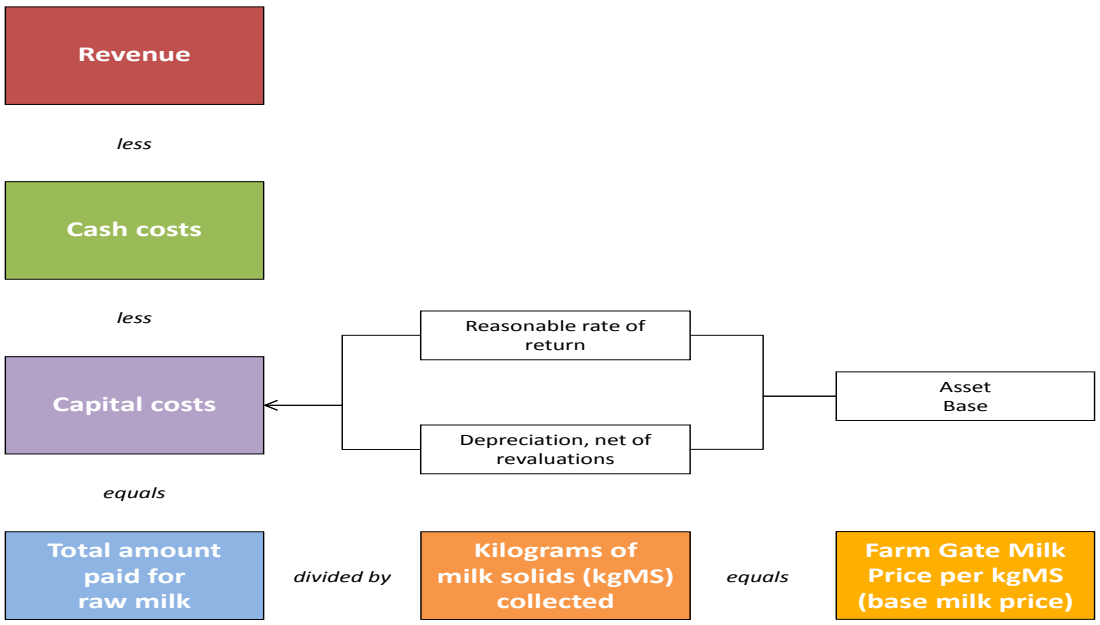
A15 The Fonterra Board sets the farm gate milk price for each dairy season. The Board is advised by a Milk Price Panel, whose role is to oversee the governance of Fonterra's Manual. The Milk Price Panel has five members, with the majority and the chair of the panel being independent of farmer interests. All panel members are appointed by the Fonterra Board and ratified by Fonterra Farmer Shareholders.

Fonterra's methodology for setting its farm gate milk price

A16 Fonterra's methodology for calculating its farm gate milk price is guided by a set of principles set out in Fonterra's constitution and outlined in Fonterra's Manual. Figure A.2 provides a visual representation of Fonterra's methodology.

[35] Miraka, in its submission on our draft report (section 3.4), suggested that we recommend Fonterra increase disclosures it its annual Milk Price Statement. We understand that Fonterra is considering providing greater disclosure in its annual Milk Price Statement. We consider a recommendation for greater disclosure is, however, outside the scope of our review of Fonterra's base milk price setting.

Figure A2: Fonterra's Farm Gate Milk Price methodology



A17 Fonterra calculates the farm gate milk price from the total pool of money available for payment to farmers for their raw milk supply to Fonterra in a season, which is determined by:

A17.1 the **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

A17.2 the '**cash' costs** (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 and tax expenses; less

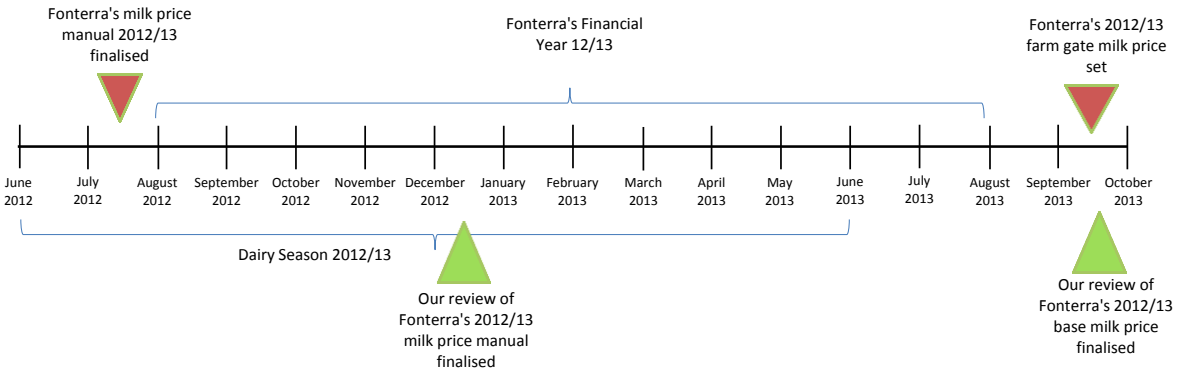
A17.3 the **capital costs**, which provide for depreciation on fixed assets, return on and of capital investment, and working capital.

A18 The farm gate milk price is expressed in terms of dollars per kilograms of milk solids (kgMS) supplied to Fonterra. Payments to individual farmers for their milk are, however, adjusted for the composition of milk supplied (in terms of the fat and protein components) and the timing of supply (eg, milk supplied during the winter period attracts certain premiums).

A19 Although Fonterra makes a number of payments to farmers for raw milk during the dairy season (based on its forecast farm gate milk price), its current policy is to confirm the final farm gate milk price for the season a few months after the end of that season. The dairy season runs from 1 June to 31 May. Fonterra's final farm gate milk price is typically set in September after the end of the relevant season. This results in end of year 'wash-up' payments to farmers.

A20 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). Figure A.3 shows a timeline of Fonterra's decisions for the 2012/13 season and how it fits with our statutory review processes.

Figure A3: Timeline for Fonterra's FGMP setting processes and statutory review process



Attachment B: Our approach to statutory review of Fonterra's base milk price calculation

Purpose

B1 In this attachment we describe our interpretation of the key provisions in the Dairy Industry Restructuring Act 2001 (the Act) relevant to the statutory review of Fonterra's calculation of its base milk price for the 2012/13 season and set out our practical approach to this review.

B2 The 2012 amendments introduced a new Subpart 5A into Part 2 of the Act relating to Fonterra's calculation of its base milk price.

B3 Under the Act, we are required to carry out two statutory reviews of Fonterra's base milk price setting for each milk season, namely:

B3.1 review Fonterra's Farm Gate Milk Price Manual (Manual) and report on the extent to which the Manual is consistent with the purpose of the milk price monitoring regime in s 150A of Subpart 5A (ss 150H and 150I); and

B3.2 review Fonterra's calculation of the base milk price and 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 purpose of the milk price monitoring regime in s 150A of Subpart 5A (ss 150O and 150P).[36]

B4 On 14 December 2012 we published our report on the review of Fonterra's 2012/2013 Milk Price Manual.[37]

B5 This report completes our base milk price statutory review requirements for the 2012/2013 season by setting out our review of Fonterra's calculation of its base milk price and reporting on the extent to which the assumptions adopted and the inputs and process used in calculating the base milk price are consistent with the purpose of the milk price monitoring regime. In practice, this has involved us reviewing how the Manual has been applied by Fonterra in calculating the base milk price.

B6 This attachment sets out:

B6.1 the scope of this review;

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[36] Attachment A to this report provides an overview of how Fonterra sets the base milk price and the timing of our reviews.

[37] Commerce Commission, *Review of Fonterra's 2012/2013 Milk Price Manual: Final report*, 14 December 2012 (Review of the Manual).

B6.2 the processes for our review;

B6.3 the key legislative provisions of the Act relating to the purpose of Subpart 5A;

B6.4 our interpretation of those provisions; and

B6.5 our approach to the review of Fonterra's calculation of its base milk price.

Scope of our review

B7 The scope and purpose of this review is set out in ss 150O and 150P of the Act. These sections provide:

Subpart 5A – Base Milk Price

150O Commission must review calculation of base milk price

(1) The Commission must, for each season, review new co-op's calculation of the base milk price set for that season and make a report under section 150P.

(2) The first review under this section must be the review to be held in 2013 in respect of the 2012/2013 season.

150P Commission's report

(1) The Commission must make a report on the extent to which the assumptions adopted and the inputs and process used by new co-op in calculating the base milk price for the season are consistent with the purpose of this subpart (*see* section 150A).

(2) In making the report, the Commission must-

(a) have regard to the information provided to it by new co-op under section 150T or under the procedure agreed under section 150S; and

(b) have regard to any submission made by new co-op under section 150U(2)(a) or under the procedure agreed under section 150S; and

(c) give reasons for its conclusions.

(3) In making the report, the Commission -

(a) is not required to calculate the costs of an independent processor; and

(b) is not required to, and must not, state the amount of the base milk price according to its own calculations.

B8 Under s 150O the Commission is required to review Fonterra's calculation of the base milk price for the 2012/2013 season.

B9 Section 150P requires the Commission 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.[38]

B10 Under s 150T of the Act, Fonterra is required to provide the Commission with the assumptions adopted, inputs and process used in the setting of its base milk price, accompanied with reasons and certification:

150T New co-op must provide Commission with certain information

(1) New co-op must, not later than 1 July in each year, -

(a) provide the Commission with the assumptions adopted and the inputs and process used by new co-op in calculating the base milk price for the preceding season; and

(b) certify to the Commission the extent to which, in new co-op's view, the assumptions adopted and the inputs and process used by new co-op in calculating the proposed base milk price are consistent with the purpose of this subpart (*see* section 150A); and

(c) provide the Commission with reasons for the view expressed in new co-op's certificate given under paragraph (b).

B11 Fonterra's list of its assumptions adopted, and inputs and process used, together with its reasons and certification were provided to the Commission on 1 July 2013. Fonterra's Reasons Paper, including the list and certifications is published on our website.[39]

B12 We have interpreted the terms "assumptions adopted, inputs and process used" to have the following meaning:

B12.1 'assumptions' refer to the underlying rationale as to why certain inputs and process were selected (ie, 'the why');

B12.2 'inputs' refers to what data or description of data sources are used to populate the base milk price calculation (ie, 'the what'); and

B12.3 'process' refers to how inputs are being transformed into the components of the base milk price calculation (ie, 'the how').

B13 Our interpretation of these terms applies to the calculation of each component of the base milk price. Our analysis therefore incorporates the inputs, process and

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[38] We note that the Act also contains a purpose statement in s 4(f) that more generally seeks to "promote the efficient operation of dairy markets in New Zealand by regulating the activities of new co-op to ensure New Zealand markets for dairy goods and services are contestable". We consider that this general purpose statement is consistent with the more specific purpose statement in s 150A, and therefore does not alter the interpretation of that section.

[39] Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 2012/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

assumptions in the detailed models and calculations used to calculate these components. As such, our interpretation of the term 'inputs' includes the raw data used by Fonterra in its calculation of the base milk price.

B14 Fonterra's interpretation of these terms is broadly consistent with ours.[40] While our interpretation of the term 'assumptions' is wider than that of Fonterra's, as it includes the rationale for the use of both inputs and process, we do not consider there to be any significant difference in the practical application of these terms.

Provisions relating to the process for this review

B15 The requirements and procedure for our review are contained in ss 150O to 150U of the Act.

B16 Section 150P(2) sets out the consultation requirements for our report, and s 150Q provides that our final report must be publicly available.

150P Commission's report

(2) In making the report, the Commission must-

(a) have regard to the information provided to it by new co-op under section 150T or under the procedure agreed under section 150S; and

(b) have regard to any submission made by new co-op under section 150U(2)(a) or under the procedure agreed under section 150S; and

(c) give reasons for its conclusions.

150Q Commission must make final report publicly available

The Commission must finalise its report under section 150P and make it publicly available by 15 September following the season to which it relates.

B17 The procedure for our review is contained in ss 150S to 150U:

150S Procedure for review of base milk price calculation

(1) The procedure for the review by the Commission of the calculation of the base milk price is—

(a) the procedure set out in sections 150T and 150U; or

(b) if a procedure is agreed between new co-op and the Commission, that procedure.

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[40] Fonterra's interpretation is set out in its submission on our process paper: Fonterra, *Submission on Review of base milk price calculation process paper*, 17 May 2013 and in Fonterra's 'Reasons' paper: Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 2012/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

(2) If new co-op fails to comply with the agreed procedure,—

(a) the agreed procedure lapses; and

(b) the procedure set out in sections 150T and 150U applies to the extent that anything that is required to be done by new co-op under those sections remains still to be done.

150U Draft Commission report

(1) No later than 15 August following the season to which the report under section 150P relates, the Commission must provide new co-op with a draft of its report.

(2) No later than 1 September following the season to which the report relates, new co-op must –

(a) make a submission to the Commission on the draft report; or

(b) notify the Commission that it does not wish to make a submission.

B18 We note that the Act requires us to have regard to information provided by, and any submission made by Fonterra. There is no requirement to consult more broadly with other interested parties.

B19 We have provided a summary of our consultation process and the indicative timeline in our process and key issues papers, as well as in our draft report.[41]

B20 We extended the consultation for this first statutory review of the base milk price calculation and afforded an opportunity for interested parties to provide submissions. We have formed our conclusions after considering all comments on our draft report.

The purpose of Subpart 5A of the Act

B21 We set out the purpose and other related provisions of Subpart 5A of the Act below.

150A Purpose of this subpart

(1) The purpose of this subpart is to promote the setting of a base milk price that provides an incentive to new co-op to operate efficiently while providing for contestability in the market for the purchase of milk from farmers.

(2) For the purposes of this subpart, the setting of 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.

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41 Commerce Commission, *Process Paper – Review of Base Milk Price Calculation,* 3 May 2013; Commerce Commission, *Key Issues Paper – Review of base milk price calculation*, 5 July 2013; *Draft Report – Review of Fonterra's 2012/13 base milk price calculation*, 15 August 2013.

150B Certain assumptions do not detract from purpose of subpart

It does not detract from the achievement of the purpose set out in section 150A that new co-op sets the base milk price using assumptions that include any of the following:

(a) that new co-op operates a national network of facilities for the collection and processing of milk:

(b) that the size of new co-op's assumed units of processing capacity approximates to the average size of new co-op's actual units of processing capacity:

(c) that gains and losses experienced by new co-op resulting from foreign currency fluctuations, including from new co-op's foreign currency risk-management strategies, are incorporated in the base milk price:

(d) that all milk collected by new co-op is processed into commodities at yields that are practically feasible.

150C Setting of base milk price in way that is consistent with certain principles

(1) For the achievement of the purpose set out in section 150A, the base milk price must be set in a way that is consistent with the following principles:

(a) revenue taken into account in calculating the base milk price is determined from prices of a portfolio of commodities at the times that those commodities are contracted to be sold by new co-op:

(b) costs taken into account in calculating the base milk price include costs (including capital costs and a return on capital) of—

(i) collecting milk; and

(ii) processing milk into the same portfolio of commodities as the portfolio adopted for the purposes of paragraph (a); and

(iii) selling those commodities:

(c) new co-op collects all milk that it processes from the farms on which the milk is produced.

(2) For the purposes of subsection (1)(a) and (b)(ii), the portfolio of commodities must be determined having regard to the following:

(a) in respect of the commodities included in the portfolio,—

(i) the commodities that are likely to be the most profitable over a period not exceeding 5 years from the time when the portfolio is determined; and

(ii) the need for commodities included in the portfolio to utilise all components of milk; and

(b) in respect of the relative proportions of the commodities included in the portfolio, the quantities of commodities likely to be produced by new co-op based on—

(i) the mix of commodities that are likely to be most profitable; and

(ii) new co-op's physical manufacturing capacity for the production of those commodities; and

(iii) the need to utilise all components of the milk processed.

Our interpretation of sections 150A, 150B and 150C of the Act

B22 In summary, we have interpreted the purpose provisions of Subpart 5A of the Act as follows.

B22.1 The focus of the base milk price monitoring regime is on providing incentives for Fonterra to drive efficiencies while also providing for contestability in the farm gate milk market.

B22.2 The base milk price is intended to reflect notional costs (which may be lower than Fonterra's current actual costs) to encourage Fonterra to be efficient.

B22.3 To ensure contestability in the market, any assumptions adopted, and inputs and process used in calculating the base milk price must be practically feasible for an efficient processor to replicate.

B22.4 It is not mandatory for us to model the base milk price that independent processors can afford to pay.

B23 We explain how we have reached this view below.

B24 Sections 150B and 150C provide for 'safe harbours' and mandatory assumptions that Fonterra must apply. Many of the assumptions that Fonterra adopts in the setting of the base milk price are not referred to in ss 150B or 150C. When considering these assumptions, we will be guided by our interpretation of the purpose statement.

The purpose statement – section 150A

B25 We consider that the efficiency and contestability requirements within s 150A are interlinked and that together, they require consideration of:

B25.1 What is meant by 'efficiency'?

B25.2 What is meant by 'contestability'?

B25.3 How do the dimensions of efficiency and contestability inter-relate?

Our interpretation of efficiency

B26 Section 150A refers to incentives for Fonterra to 'operate efficiently'. We have therefore interpreted the primary focus of the efficiency dimension to be improving

incentives for Fonterra to drive cost efficiencies including over time (ie, productive and dynamic efficiency).[42] We discuss our practical approach to assessing against the efficiency dimension of the purpose statement below.

Our interpretation of contestability

B27 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).

B28 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.

B29 We discuss our practical approach to assessing against the contestability dimension of the purpose statement below.

How are the two dimensions reconciled?

B30 It is our interpretation that in order for the assumptions adopted and the inputs and process used by the new co-op in calculating the base milk price to be consistent with the s 150A purpose, they must be consistent with both dimensions, independently.

B31 As such, we are not required to choose between the priority of the contestability and efficiency dimensions in s 150A to assess whether the purpose is satisfied.

B32 The Primary Production Select Committee commentary in its report back of the Dairy Industry Restructuring Amendment Bill 2012 (which was ultimately enacted to amend the Act) confirmed that the efficiency dimension was not intended to have priority over the contestability dimension:

> The Bill introduced [ie the draft Bill] could have the effect of prioritising Fonterra's efficiency over the contestability of the farm gate milk market. This is contrary to the intent of the principal Act where contestability is a means to achieving efficient dairy markets. To reflect the principal Act's intention, the farm gate milk price should be set at a level that provides an

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[42] 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.

incentive to Fonterra to operate efficiently, while also providing for contestability in the farm gate milk market. [43]

B33 Our statutory task is not to determine what the base milk price should be, ie, to make trade-offs on the likelihood of meeting each of the objectives. We must simply determine the extent to which the objectives are met, rather than exercise any further judgement on what costs reflect the most efficient market outcome. This is also consistent with s 150P(3)(b).[44]

Section 150B – 'safe harbours'

B34 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"

B35 We interpret s 150C of the Act as setting out certain assumptions that Fonterra is required to make in setting the base milk price. Our review of the base milk price calculation is therefore limited to examining whether the calculation contains those provisions in s 150C of the Act.

Our practical approach to the statutory review of Fonterra's calculation of the base milk price

B36 In this section we explain in more detail how we have assessed whether the assumptions adopted, and the inputs and process used by Fonterra in calculating the base milk price for the 2012/2013 season are consistent with the purpose of the milk price monitoring regime in s 150A (ie, that Fonterra has incentives to operate efficiently and the base milk price is practically feasible for an efficient processor).

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

B37 This section explains our approach to assessing whether the assumptions adopted, and inputs and processes used in the base milk price calculation provide incentives to Fonterra to operate efficiently.

B38 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

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43 Select Committee Commentary; section "Milk Price" on page 2 http://www.parliament.nz/en-NZ/PB/SC/Documents/Reports/2/6/9/50DBSCH_SCR5490_1-Dairy-Industry-Restructuring-Amendment-Bill-11-2.htm.

44 Section 150P(3)(b) provides that the Commission, in making the report "is not required to, and must not, state the amount of the base milk price according to its own calculations."

Shareholders Fund created as part of the TAF regime). Improvements in efficiency may be passed through into a higher base milk price or a higher dividend (ie, profit).

B39 Our consideration of the efficiency dimension focuses on incentives to improve efficiency so as to earn higher profits.[45] The remuneration of Fonterra's senior executive team (ie, its management) recognises this, and provides incentives to maximise profits. Incentives for senior management are related largely to Fonterra's profits and earnings with a smaller component (less than 10%) related to the farm gate milk price. [46] As such, we consider the Fonterra management has a stronger incentive to maximise its profit (which benefits both farmers and shareholders, including unit holders in the publicly listed Fonterra Shareholders Fund) relative to increasing the base milk price. 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. We do not therefore agree with Miraka's submission that Fonterra's incentive to increase profits is secondary to its incentive to maximise the base milk price.[47] However, we acknowledge Fonterra may have incentives to operate efficiently to increase the base milk price.

B40 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 revenue, any improvements in cost efficiency will result in higher profits. 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. Box B1 below explains how the use of notional data provides incentives for Fonterra to operate efficiently so as to increase its profits. We do not consider that using notional data adversely impacts on any incentives Fonterra may have to operate efficiently so as to increase the base milk price. The notional data used is, in some cases, based off 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.

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45 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).

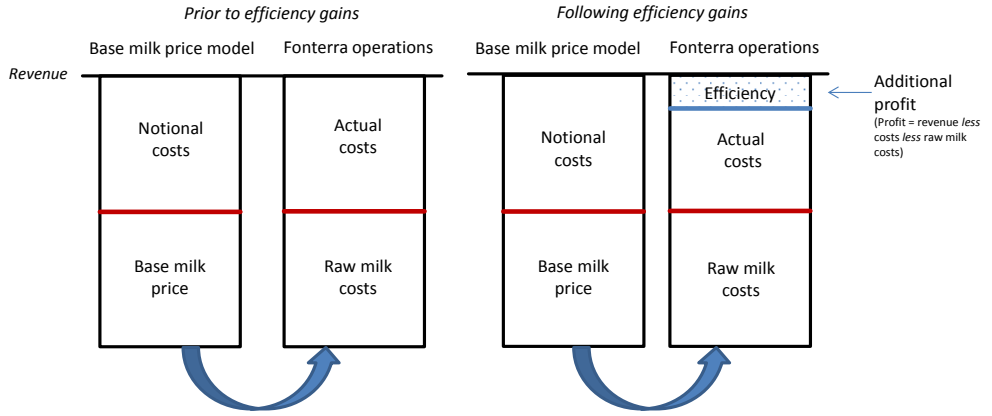
46 Page 56 of Fonterra Shareholders' Fund Prospectus and Investment Statement, 26 October 2012, available at http://www.fonterra.com/nz/en/Financial/Fonterra+Shareholders+Fund

47 Miraka, *Submission to the Commerce Commission: Review of Base Milk Price Calculation for 2012/13 Season*, 19 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Box B1: Using notional data provides Fonterra with incentives to operate efficiently

Figure B1 provides a stylised illustration of how, for a given revenue, the use of notional data to set the base milk price can lead to higher profits through improvements in operational efficiency. Figure B1 shows that the base milk price (and therefore raw milk costs) does not change as a result of the efficiency improvement. Notional data is not affected by events that occur during the year the base milk price is set. Therefore, for a given revenue, a base milk price based on notional costs will not change if actual costs are lower than the notional costs used. This means that any efficiency improvement will result in higher profits.

Figure B1: Incentives to operate efficiently through the use of notional costs



Note: The notional and actual costs include operating costs, depreciation of assets, and a reasonable return on assets. The base milk price is calculated as the difference between notional revenues and notional costs.

B41 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.[48] 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.[49]

B42 Subpart 5A of Act is consistent with this view. It envisages the use of notional values and in some instances requires the use of a notional business.

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48 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.

49 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. We do not therefore think that the base milk price needs to be set in a way that reflects Fonterra's actual costs in order to promote efficiency, as suggested by Miraka in its submission on our draft report (section 3.7).

B43 Notwithstanding the efficiency dimension of the s 150A purpose, there are instances where it is still reasonable to use actual data in setting the base milk price. These particularly include where:

B43.1 there is insufficient information to know what an appropriate notional value would be, or it would be unreasonably costly to obtain this information; or

B43.2 Fonterra has very limited control over the actual costs used for the benchmark.

B44 Where actual data has been used to set the base milk price, we have assessed whether the use of this data distorts or weakens incentives to improve efficiency. For example, whether it provides Fonterra with an opportunity to earn higher profits without achieving efficiencies.[50]

B45 We have practically assessed whether Fonterra has incentives to operate efficiently through the setting of the base milk price by identifying whether actual or notional values have been used for the inputs and assumptions used in the base milk price calculation. As discussed above, where notional values are used, we consider this provides Fonterra with incentives to operate efficiently. Where actual values are used, we have explored whether notional data could reasonably have been used instead, and whether the use of actual data provides incentives for Fonterra not to operate efficiently.

Our approach to the contestability dimension – what is practically feasible

B46 This section explains our practical approach to assessing whether the assumptions adopted and inputs and process used by Fonterra in setting the base milk price are consistent with the contestability dimension in s 150A of the Act. The approach described in this section is the same approach taken in our draft report on our review of Fonterra's 2012/13 base milk price calculation and our review of the Manual for the 2012/13 dairy season.[51]

Our interpretation of efficient processor in s 150A

B47 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'.

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50 For example, through a combination of using actual and notional values in the base milk price calculation. Further consideration of this issue is discussed in the relevant Attachments to this report.

51 In this final report, we have attempted to further clarify our approach to avoid any confusion. Submissions from Synlait/Open Country and from Miraka indicate we have potentially not been clear in our explanation.

B48 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).

B49 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).

B50 Therefore, conceptually, we consider the calculation of the base milk price is consistent with the contestability dimension in s 150A of the Act if the assumptions adopted, and inputs and processes used are practically feasible for Fonterra or another processor that is efficiently building an incremental plant.

B51 In assessing whether the assumptions adopted and 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

B52 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 section 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.

B53 Rather, our practical approach for this review starts by deconstructing the base milk price into the line item components to which the assumptions adopted and 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.[52] In highly technical areas (eg, energy costs) we have also been reliant on opinions from independent experts.

B54 Fonterra's notional costs, revenues, and other assumptions used in setting the base milk price are, for the most part, based on the average across all relevant (reference

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[52] 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.

commodity product) Fonterra notional plants, rather than on a single recently built Fonterra plant. Doing so is consistent with assuming that there is a national network of facilities for the collection and processing of milk (ie the safe harbour provision in s 150B(a)). In addition, the notional plants assumed by Fonterra in setting the base milk price approximate the average capacity of Fonterra's actual plants, consistent with the safe harbour provision in s 150B(b).

B55 Reflective of the majority of data that we have available to us, our practical approach examines whether the assumptions adopted, and inputs and process used to calculate the base milk price are practically feasible for Fonterra. This approach is appropriate because, more often than not, the data used reflects the costs of Fonterra's 'average' plant rather than its most cost efficient plant(s), and therefore an efficient processor (building an incremental plant) should be able to achieve lower costs.

B56 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, an efficient processor (building an efficient incremental plant) should also be able to achieve them.

B57 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. For example, Fonterra's effluent costs used in the base milk price calculation include a small component of costs related to ocean effluent outfall. This is a relatively cheap form of effluent disposal that is not likely to be available to Fonterra or any other processor in the future. This is discussed further in our independent experts' report.[53]

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[53] 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

We undertake a number of cross-checks to ensure the assumptions, inputs and processes are practically feasible in aggregate

B58 We acknowledge there is a potential risk that the individual assumptions, inputs and processes may not collectively be practically feasible. To ensure this does not occur:

B58.1 we check the assumptions, inputs and processes are internally consistent with each other. For example, we checked that the milk solids produced by the product yields calculation are the same as the milk solids shown for the finished product specification. The internal consistency checks we have undertaken are summarised in Attachment Z. We have been largely guided by submissions to identify areas where there are potential inconsistencies between the assumptions adopted and inputs and process used to calculate the base milk price, and have reviewed these areas in our analysis;

B58.2 we consider the overall impact on the base milk price of assumptions, inputs and processes which are not individually practically feasible or that 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. This is discussed further in Chapter 2; and

B58.3 as a pragmatic cross-check, we explored whether a number of key operating assumptions and inputs are practically feasible using data from a plant recently built by Fonterra. Attachment Z highlights the components of the base milk price calculation that we applied this cross-check to. This is discussed further in Chapter 2.[54]

Response to key points raised in submissions on our approach to the contestability dimension

B59 Synlait/Open Country submitted that neither Fonterra nor an independent processor is able to achieve the yields, economies of scale, or cost of capital assumed in the base milk price calculation.[55] Miraka has also submitted that no current or potential competitor can match the economies of scale Fonterra experiences, and that our assessment of contestability should take this into account.[56]

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54 We have also reviewed the history of recent and planned investment in the dairy processing sector. Rather than providing a cross-check to ensure the assumptions, inputs and process used in the base milk price are practically feasible in aggregate, this review provides a direct cross-check on contestability in the market for the purchase of milk from farmers. This review is discussed further in Chapter 2.

55 Synlait/Open Country, Joint Submission on the Commerce Commission's Draft Report in Relation to its Review of the 2012/13 Base Milk Price 29 August 2013.

56 Miraka, Submission to the Commerce Commission: Review of Base Milk Price Calculation for 2010/13 Season 19 July 2013.

B60 However, no evidence is provided to support these assertions. Meanwhile, our analysis and our independent experts' review has indicated that the assumed yields are practically feasible, based on Fonterra data. This is discussed further in attachment D. We have been unable to conclude on the cost of capital as a whole because we have not been able to form a view on the practical feasibility of the value of the asset beta, based on the information provided by Fonterra. This is discussed further in attachment V.

B61 Fonterra may be able to take advantage of economies of scale in some of its activities that cannot be achieved by other processors, because it operates a national network of facilities for processing and collecting milk. However, s 150B provides that 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. Therefore our analysis does not include an adjustment to the notional costs to remove efficiencies resulting from any economies of scale experienced by Fonterra or the notional processor.

B62 Synlait/Open Country have also submitted that an assessment of contestability should consider whether the assumptions, inputs and processes are practically feasible for an efficient processor rather than an efficient incremental plant.[57] However Synlait/Open Country have not defined their interpretation of an efficient processor. As discussed above it is our interpretation that the efficient processor in s 150A of the Act refers to a processor efficiently building an incremental plant.[58]

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57 Synlait/Open Country, Joint Submission on the Commerce Commission's Draft Report in Relation to its Review of the 2012/13 Base Milk Price 29 August 2013

58 We consider that, given that the Act is a piece of economic regulation, terms used in the Act should be interpreted in the broader context of its regulatory purpose and economic theory. This is how we have interpreted the term "efficient processor".

Attachment C: Production plan

C1 This attachment outlines our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the notional production plan (volumes and product mix) for the purposes of the base milk price calculation.

C2 Table C1 below sets out our summary analysis of the assumptions, inputs and process used to determine the production plan of the notional producer.

Table C1: Summary analysis of production plan

Notional or Actual?	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
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes

Fonterra's assumptions, inputs and process

C3 Table C2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the production plan (product volumes and product mix) for the purposes of the revenue calculation of the base milk price, as specified by Fonterra in its 'Reasons' paper.[59]

Table C2: 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 thoughout 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 :	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

[59] Pages 13 - 14 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http:// www.comcom.govt.nz/statutory-review-of-milk-price-calculation

	(Butter MT + AMF MT)for each month in the season.)	the efficiency criterion.

Basis of calculation

C4 The notional production plan is determined as a function of:

C4.1 the monthly milk supply volumes;

C4.2 the monthly, national average product yields (derived from the actual milk composition, notional losses and assumed reference commodity products' specifications); and

C4.3 the allocation of milk to the production of the reference commodity products.

C5 Rule 7 of the Manual stipulates that the Farmgate 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.

C6 We consider the determination of milk supply volumes and the product mix to be consistent with Rule 7 in the Manual.

Does the calculation use notional or Fonterra actual data?

C7 The production plan is based on Fonterra's actual data.

C7.1 The monthly milk supply volumes are Fonterra's actual milk supply.

C7.2 The monthly average milk composition is Fonterra's actual milk composition across the whole of New Zealand (ie, using national rather than regional data).

C7.3 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)

C8 Those components of the base 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.

C9 Section 150B(d) allows for all milk collected by Fonterra to be used for the purposes of the base milk price calculation. We therefore accept that using Fonterra's milk supply volumes is consistent with the 'safe harbour' provision in s 150B(d).

C10 We have not sought to independently verify the accuracy of Fonterra's actual milk supply volumes data extraction. We have, instead, relied on Fonterra's external audit review process, undertaken by PricewaterhouseCoopers (PWC). We understand that PWC have tested the completeness and accuracy of the data and did not identify any discrepancies. We have reviewed PWC reports and are satisfied that the milk supply volumes used in the base milk price calculation are consistent with the 'safe harbour' provision in s 150B(d). In addition the total milk volume can be validated against Fonterra's audited accounts at the release of its annual report.

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

C11 In its 'Reasons' paper, 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.[60]

C12 We accept Fonterra's explanation. As discussed in Chapter 3 and 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.

C13 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 base milk price.

C14 Fonterra also notes that any efficient or inefficient decisions by it in respect of allocation of milk flow to the base 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 base milk price.

Is it practically feasible?

C15 In its 'Reasons' paper, Fonterra states that because the product mix is determined on a prospective basis, it is not possible to 'over-optimise' this input, and therefore this input is practically feasible.[61]

C16 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

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60 Page 15 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http:// www.comcom.govt.nz/statutory-review-of-milk-price-calculation

61 Page 15 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

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.

C17 We do not consider that the determination of the assumed product mix is affected by any features that are unique to Fonterra. The assumed product mix should, therefore, also be practically feasible for another efficient processor.

C18 We also considered whether using national, rather than regional, raw milk composition was likely to result in a potential level of over-optimisation. Our analysis does not suggest this is the case. Our comparison of the total production tonnages from the national and regional analyses shows minor differences of 0.03% between using national average and regional data. If the regional calculation approach was adopted, it would considerably complicate the model. We estimate that the impact on the base milk price would not be significant.

Attachment D: Product yields

D1 This attachment outlines our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the product yields for the purposes of the base milk price calculation.

D2 Table D1 below sets out our summary analysis of the assumptions, inputs and process used to derive product yields.

Table D1: Summary analysis of product yields

Notional or Actual?	Actual national-average compositions of Fonterra's milk supply; Notional production losses; Notional product compositions based on Codex composition limits; Fonterra's historical actual manufacturing offsets;
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes

Fonterra's assumptions, inputs and process

D3 Table D2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the product yields for the purposes of the revenue calculation of the base milk price, as specified by Fonterra in its 'Reasons' paper.[62]

Table D2: 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).	The base calculations (for both yields and costs) assume allproduct 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

62 Page 14 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season,* 1 July 2013, available at http:// www.comcom.govt.nz/statutory-review-of-milk-price-calculation

		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 base 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.	Provisions for losses established by independent expert (T Gandell) having regard to: - results from loss audits of relevant Fonterra plants (subject to separate independent expert review by Aurecon), and - manufacturer guarantees. The loss provision covers: - Losses in milk reception, treatment & standardisation. - Effluent losses. - Stack losses. - 'Overweight' losses in the course of packaging.	That provisions adequately reflect expected losses that would be incurred by an efficient manufacturer of RCPs from all relevant sources over course of a full season, having regard to assumed technology & 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 provisions are appropriate, having regard to Fonterra data on probability of failing relevant Codex tests & given nature of assumed technology, including A&PC technology & capability.

Basis of calculation

D4 The product yields are a function of the following inputs:

D4.1 Fonterra's actual national average, monthly milk compositions;

D4.2 the target product compositions of fat and protein in each reference commodity product;

D4.3 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;

D4.4 the fat content of separated cream (based on annual notional historical average); and

D4.5 Fonterra's actual production plan (discussed in Attachment C)

D5 The calculation of lactose powder consumption additionally requires:

D5.1 the lactose powder composition; and

D5.2 the lactose powder losses.

D6 The calculations are carried out to determine:

D6.1 the product yields as the ratios of MT product per '000 kgMS used to create the finished product; and

D6.2 the lactose powder requirements for standardisation as MT of lactose per MT of finished product.

D7 The yields calculations are carried out in two main steps.

D7.1 Calculation of product yields for each combination of powder & by-product assuming only a single stream of manufacturing, ie, 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.

D7.2 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 allocations (referred to here as "allocated yields").

D8 Rule 8 of the Manual 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.

D9 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?

D10 The product yields calculation is based on notional values.

D10.1 The assumed target product compositions of fat and protein are notional and based on:

D10.1.1 specifications for 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) ;[63] and

D10.1.2 the manufacturing offsets, which allow for production to remain within the specification limits despite process variability. These are set as budget values based on an analysis of process control actually achieved by Fonterra over all powder plants, for the previous two seasons.

D10.2 The target product compositions set in this way fall within the ranges specified in the GDT Sales Specifications.

D10.3 The production losses are based on Fonterra's historical loss study measurements and are not updated for actual performance levels achieved by Fonterra in the year for which the base milk price is set; and are therefore notional.

D10.4 The fat content of cream is a fixed input of 42% and is not updated to reflect Fonterra's actual fat content in the year for which the base milk price is set; and is therefore notional.

D10.5 The lactose powder composition is set at 5% moisture and is not updated for Fonterra's actual values.

D10.6 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.

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

D11 While the assumptions, inputs and process related to the product yields fall within the "safe harbour" provision in s 150B(d) of the Act, Fonterra, in its 'Reasons' paper, states that because its actual yield performance does not directly flow through into the base milk price calculation, Fonterra is appropriately incentivised to minimise yield losses.[64] Fonterra also state that the specification offsets assumed in the base milk price calculation are set independently of Fonterra's actual current year performance, and therefore appropriately incentivise Fonterra to minimise the

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63 Codex Alimentarius standard for milk powders and cream powder is available at: www.codexalimentarius.org/input/download/standards/333/CXS_207e.pdf. We note the target product specification is based on the specification minimums stated in the Codex plus manufacturing offsets; and not on the GDT Typical Compositions. The target specifications set in this way contain approximately 2.5% less milksolids per tonne of product than the GDT typical product specifications.

64 Page 15 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

extent to which valued component usage exceeds stated minimum levels for the relevant products.

D12 We agree with Fonterra's explanation. As outlined in Chapter 3 and 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 yields is therefore consistent with the efficiency dimension of the purpose.

Is it practically feasible?

D13 In its "Reasons' paper, Fonterra states that the practical feasibility of production losses and specification offsets is supported by the results obtained from Fonterra's detailed testing, expert input and analysis of Fonterra's actual performance. Fonterra noted that specification offsets is an area where Fonterra has, over time, invested considerable capital and built up considerable expertise in the use of advanced process control. However, Fonterra believes that any competitive advantage achieved by Fonterra in this area does not involve the application of proprietary intellectual property, and is therefore potentially replicable by other processors. [65]

D14 We consider the product yields to be practically feasible. We outline our reasons below.

Production losses

D15 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.[66]

D16 In our experts' opinion, the current total production losses - set at 0.7% averaged across all production - do not sufficiently provide for reduced duty cycles (ie, more plant start-up and shut-downs) during the shoulder months of the dairy season. As outlined in our experts' report, a more practically feasible estimate for the total production losses would be an assumption of 0.77% weighed-averaged across all model production.

D17 We assessed the impact of the 0.07% change in production losses and concluded that at most, if implemented, this change may result in 0.65 cents per kgMS reduction in the base milk price calculation.

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65 Page 15 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

66 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

D18 We note however that performance data made available to us from Fonterra's [ ] plant ([ ]) show that this plant considerably improves on the model value of average losses. In consideration of the additional evidence from [ ], which is a relevant benchmark plant, though the data are at this time from a partial season, we consider the assumed production losses to be practically feasible. There is in our view no reason why another efficient producer could not replicate the model loss performance, particularly given our comments on process control below.

Product specifications

D19 We have assessed the practical feasibility of the product specifications in the model in light of the Codex limits of the reference commodity products sold on GDT and the specification offsets allowed by the model to provide for manufacturing process control variability.

D20 Codex specification minima are public information and are not subject to debate.

D21 Fonterra have provided a report by a consultant which recommends the specification offsets on the basis of detailed statistical analysis of actual production measurements on 18 Fonterra powder plants, over the last two seasons.
[

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D22 In addition to this documentation, we have also been provided with the raw data underpinning the offsets study, and several other papers among which is the analysis of the performance of Fonterra's [ ] dryer. The [ ] data demonstrate that the [ ] actual control performance outstrips that of the production variability assumed in the base milk price calculation.

D23 We therefore consider that the assumed specification offsets are practically feasible for Fonterra.

D24 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 specifications which "give away" very little fat and protein (ie, exceed specification minima by only small margins). We understand that Fonterra have 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.

Yield Calculations

D25 As a confirmation of the integrity of the formulae used in the calculations themselves, and as suggested in a submission by Miraka[67], 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 finished product specifications, as calculated from production tonnages multiplied by product composition factors. Using a consistent set of model composition and production data provided to us, we have checked this match and are satisfied that it 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.

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67 Miraka, *Submission to the Commerce Commission: Review of Base Milk Price Calculation for 2012/13 Season*, 19 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Attachment E: Sales phasing

E1 This attachment summarises our analysis of Fonterra's assumptions, inputs and process as they relate to sales phasing provisions in the revenue calculation of the base milk price.

E2 Table E1 below outlines our conclusions.

Table E1: Summary analysis of sales phasing

Notional or Actual?	Aligned to Fonterra's actual sales phasing
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes

Fonterra's assumptions, inputs and process

E3 Table E2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the sales phasing for the purposes of the revenue calculation of the base milk price, as specified by Fonterra in its 'Reasons' paper.[68]

Table E2: Fonterra's explanation of the sales phasing

Inputs	Process	Assumptions
The percentage of each RCP manufactured by Fonterra from current season milk that is sold in each month.	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. 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 plans having any impact on the volume of product assumed to have already been sold.	That use of Fonterra's actual sales phasings does not create any adverse incentives. That any feasible alternative would reduce Fonterra's incentives to operate efficiently.

[68] Page 16 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Basis of calculation

E4 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

E5 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.

E6 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 F13 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 F12 production. There are also an additional three to four months into the F14 year added where F13 product is being sold. This approach means that farmers are paid for the value of the product they are producing in each year.

E7 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 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.

E8 Table E3 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 E3: 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%**	

E9 Table E4 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 E4: 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

Split between contracted and un-contracted sales

E10 In order to calculate the base 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.[69] When the final milk price is set this split will have little impact as the actual prices for most months will be available.

E11 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?

E12 The model uses Fonterra actual data. Fonterra's actual sales phasing for the reference commodities products are 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?

E13 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:

E13.1 there is insufficient data to develop a reasonable notional figure; and

E13.2 Fonterra only has limited discretion over its sales phasing.

There is insufficient information to develop notional data

E14 We agree with Fonterra's assessment in its 'Reasons' paper that no appropriate notional data has been identified.[70] In our dry run review we suggested that notional sales phasing data could be constructed by taking the sales phasing from previous

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

70 Page 16 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

years, or using lagged production volumes.[71] However, after considering Fonterra's 'Reasons' paper we accept its arguments that:

E14.1 using sales phasings from previous years would not be practically feasible because of the relationship with the production plan and storage capacity; and

E14.2 using lagged production volumes is not practically feasible because of logistical constraints around the times of peak production.[72]

E15 However, we disagree with Fonterra's argument that any notional approach would be inherently flawed. Fonterra notes that any notional approach would not be desirable because management would be incentivised to adopt the notional approach if they could not out-perform it, and therefore the model would drive actual business decisions.[73] However, we consider that, just as with any other notional input, Fonterra management would be incentivised to beat a notional figure. We would only expect the actual sales phasing to mimic the notional one if it were the most efficient approach possible.

Fonterra only has limited control over sales phasing

E16 Fonterra noted in its 'Reasons' paper 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.[74] Therefore, Fonterra has limited ability to take advantage of short term changes in the market.

Fonterra has incentives to operate efficiently

E17 We also consider that the use of actual data in this case provides incentives for Fonterra to operate efficiently so as to increase the base milk price. As outlined in Chapter 3 and Attachment B, we consider that Fonterra may have incentives to operate efficiently where actual data has been used to set the base 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 base milk price. However, the incentive to operate efficiently is potentially weaker than if notional data had been used.

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71 Page 64 in Commerce Commission, *Report on the dry run review of Fonterra's farm gate milk price* (dry run review), 27 August 2012.

72 Page 16 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

73 Page 16 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

74 Confidential Annex in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Is it practically feasible?

E18 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 business. We therefore agree with Fonterra's conclusions on practical feasibility in its 'Reasons' paper.[75]

E19 Synlait and Open Country Dairy have expressed a concern that Fonterra was retrospectively setting the sales phasing to optimise it for the prices achieved.[76] We have confirmed that this is not the case.[77] 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.

E20 Miraka has raised a concern about differences in Fonterra's sales phasing and the sales phasing on-GDT.[78] They are concerned that when GDT volumes dip that this is not fully reflected in the calculation. Therefore, increased prices from any supply constraints would be applied to a greater proportion of volumes.

E21 As noted earlier the sales phasings used in the calculation are based on Fonterra's actual sales phasings. Therefore any changes in the actual phasing profile will be reflected in the base milk price calculation. Differences between GDT and total phasings, may occur, although in a less pronounced way than Miraka suggests.

E22 We have reviewed pricing and phasing data for the 2013 season and are satisfied that there has been no significant effect on revenue caused by variations in GDT volume.

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75 Page 16 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

76 Synlait and Open Country Dairy, *Joint submission on the Commerce Commission's Key Issues Paper in relation to its review of the 2012/13 base milk price*, 19 July 2013, available at http://www.comcom.govt.nz/ statutory-review-of-milk-price-calculation

77 This is also confirmed by the PWC audit report.

78 Pages 3-4 in Miraka *Submission to the Commerce Commission: Review of the Fonterra 2012/13 Base Milk Price – Draft Report*, 29 August 2013; and Page 3 in Miraka, *Submission to the Commerce Commission: Review of Base Milk Price Calculation for 2012/13 Season,* 19 July 2013, both available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Attachment F: Pricing

F1 This attachment outlines 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 base milk price calculation.

F2 Table F1 below outlines our summary analysis of the assumptions, inputs and process used to derive prices for the reference commodity products.

Table F1: Summary analysis of pricing

Notional or Actual?	Aligned to Fonterra's actual prices received on GDT
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes

Fonterra's assumptions, inputs and process

F3 Table F2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the pricing of the reference commodity products for the purposes of the revenue calculation of the base milk price, as specified by Fonterra in its 'Reasons' paper.[79]

Table F2: Fonterra's explanation of pricing

Inputs	Process	Assumptions
<u>Prices</u> 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: 1. Average across all Fonterra's GDT sales of NZ product for	The relevant prices are determined using the following process: Step 1: Separate sales recognised in the month into sales contracted in each of months 1 - 5 prior to the month of sale. 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	That (primarily) GDT prices represent an unbiased estimate of the prices achievable for standard specification commodity product. That using GDT prices appropriately incentivises Fonterra management to maximise prices achieved for off-GDT sales. That governance arrangements in place to ensure credibility of GDT

[79] Pages 17-18 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

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.	month' average prices).	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.
<u>Contract month weightings</u> 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.	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.	That Fonterra's overall contract profile for arm's length commodity sales, rather than just the GDT contract profile, is appropriate.
<u>Downgrade</u> Assumptions regarding: (a) % of product assumed to fall in each of the 3 'downgrade' categories (rework, stockfood and placement specifications), & (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.	Established by reference to actual Fonterra performance over the period F09 - F11, and held constant for period F13 - F16. Established by reference to actual Fonterra costs, and updated regularly. (Do not however equal current year Fonterra costs.)	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. Benchmark is independent of current Fonterra performance, and therefore incentivises efficient performance.
<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.	Deduct average ocean freight cost per MT from average on-charge to customer per MT, and multiply by total Milk Price production.	That ocean freight recovery is achievable, in addition to the FAS price, by an efficient processor of Fonterra's scale.

Basis of calculation

F4 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.

F5 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.

F6 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

F7 The tables below set out a worked example of how the prices are calculated. Table F3 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 F3: 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**

F8 Table F4 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 F4: 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**

F9 Rule 9 of the Manual specifies 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. We consider the calculation of prices to be consistent with Rule 9 of the Manual.

Does the calculation use notional or Fonterra actual data?

F10 The base milk price calculation uses actual prices achieved by Fonterra for sales of reference commodity products.

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

F11 In its 'Reasons' paper, Fonterra states that, in its view, (primarily) GDT prices represent an unbiased estimate of the prices achievable for standard specification commodity products. They, therefore, consider that using GDT prices appropriately incentivises Fonterra management to maximise prices achieved for off GDT sales.[80]

F12 We agree with Fonterra's view. We have previously stated that using GDT prices for the reference commodity products sold via GDT provides an incentive for Fonterra to operate efficiently. [81] Our analysis of actual prices for reference commodity products achieved by Fonterra relative to those achieved by other New Zealand exporters of similar products, as reported by Statistics New Zealand, 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 of the control of Fonterra.

Is it practically feasible?

F13 In its 'Reasons' paper, Fonterra states that because the prices are derived from prices actually achieved by Fonterra on GDT these prices are practically feasible for both Fonterra and for any other processor. [82]

F14 We agree that GDT prices are representative of a practically feasible price level. 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.

F15 Submitters asked that we consider the impact on prices of:

F15.1 switching volumes between GDT and off GDT;

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80 Page 16 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

81 Fonterra has recently commenced selling butter on GDT, the last reference commodity product to be added to GDT.

82 Page 18 in Fonterra, 'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

F15.2 selling the notional volumes on GDT; and

F15.3 GDT price volatility.

Impact of switching volumes between GDT and off GDT

F16 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. This is supported by data supplied by Fonterra on the impact of seasonal factors on Fonterra's production during the 2012/13 season and the allocation of product between Fonterra's sales channels including GDT. [83]

Impact of the notional volumes on GDT prices

F17 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 suggested by Miraka.[84] 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 base milk price calculation are practically feasible.

F18 In response to this argument, Miraka submitted that the volumes produced by an incremental plant may not be sufficient for it to receive the reduced GDT fee that applies for volumes sold in excess of 200,000 MT, and that the assumed GDT fees are therefore not practically feasible. The presence of the 'safe harbour' provisions in s 150B means that it does not detract from the achievement of the purpose set out in s 150A (including the contestability dimension) if it is assumed that the processor operates a national network and is processing all the milk collected into the reference commodity products. We interpret this to mean that the processor efficiently building an incremental plant is able to receive the reduced GDT fee.

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83 Page 18 in Fonterra, 'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

84 Miraka submitted that because the volumes produced by the notional producer is substantially higher than currently sold on GDT and Fonterra's actual production, it would result in lower GDT prices. Pages 5-6 in Miraka *Submission to the Commerce Commission: Review of the Fonterra 2012/13 Base Milk Price – Draft* Report, 29 August 2013

Impact of GDT price volatility

F19 Miraka submitted that the base milk price could be inflated inadvertently by using GDT prices, particularly when there is volatility in prices and GDT availability, as has been the case in the 2012/13 season.[85] We accept that there is some price volatility, but consider that the issue raised by Miraka is dependent on greater volatility in GDT prices than off GDT prices. We do not consider this effect has materialised.

F20 As noted in paragraph F14 above we have investigated data from April 2011 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.

Correction of data error

F21 Our review of prices achieved off GDT relative to prices achieved on GDT did identify an issue, which we were advised Fonterra itself had already identified, in respect of off GDT contracts whose volumes were referenced to prices for more than one GDT month. The particular contracts were long-term sales agreements under which a customer might agree to purchase a fixed quantity of a product, for example, in each of the next six months at a price to be determined as the average of the C2 GDT price two months prior to shipment and the C3 GDT price three months prior to shipment, plus a specified margin. The effect of this contract is equivalent to having two separate contracts, each for half of the volume, with one being set three months and the other two months prior to shipment. Because, however, the pricing capture system, only allows for a single pricing date for each contract, all of the volume gets priced in the base milk price at the average GDT price for just one of the two relevant months.

F22 The effect of manually correcting for this contract pricing error in respect of all affected contracts, along with some pricing date input errors that were identified at the same time, was a decrease in the forecast base milk price of around 3.8 cents.

F23 Offsetting this error, and the effect of various other trivial adjustments, was the effect of an omission from the forecast base milk price of a period of recent GDT sales data. This was due to updates to the pricing capture system in March which involved the implementation of automated uploading of data. Contract Data generally carries two types of volume information – Ordered Volume and Confirmed Volume. The base milk price calculation uses the Confirmed Volume, but the IT configuration of the contracts meant that the Confirmed Volume field was not being

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[85] Pages 3-4 in Miraka *Submission to the Commerce Commission: Review of the Fonterra 2012/13 Base Milk Price – Draft* Report, 29 August 2013; and Miraka, *Submission to the Commerce Commission: Review of Base Milk Price Calculation for 2012/13 Season,* 19 July 2013, both available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation.

populated for some contracts for a period of around two months. The correction of this error in June resulted in a 4.7c increase to the forecast base milk price.

F24 Fonterra commissioned PWC to audit the correction of these errors, and we have reviewed a copy of their audit report to confirm the corrections have been properly processed.

Attachment G: Foreign exchange conversion

G1 This attachment outlines our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the foreign exchange conversion rate for the purposes of the base milk price calculation.

G1 Table G1 below outlines our analysis of the assumptions, inputs and process used to derive the foreign exchange conversion rate.

Table G1: Summary analysis of the foreign exchange conversion rate

Notional or Actual?	Fonterra's average forecast foreign exchange conversion rate
Does it provide an incentive for Fonterra to operate efficiently?	'safe harbour'
Is it practically feasible?	'safe harbour'

Fonterra's assumptions, inputs and process

G2 Table G1 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 base milk price, as specified by Fonterra in its 'Reasons' paper.[86]

Table G2: Fonterra's explanation of foreign exchange conversion

Inputs	Process	Assumptions
Fonterra's actual USD-equivalent net cash receipts in the relevant month. Fonterra's net NZD receipts, after allowing for: (a) conversion from USD at spot, (b) net proceeds of hedging contracts (forwards & other) exercised in the month.	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. Calculated costs include the holding costs (calculated at the pre-tax base milk price WACC) for the period between acquisition and exercise or expiry of options.	That application of Fonterra's average forecast average conversion rate for the month to the calculated base milk price USD cash receipts in the month (which will differ from Fonterra's) is consistent with s150B(d).[87]

[86] Page 19 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

[87] We understand that the reference to s 150B(d) has been made in error. The reference should instead be made to s150B(c).

Basis of calculation

G3 The foreign exchange conversion rate of the notional producer is based on Fonterra's 'benchmark foreign exchange conversion rate'. This is calculated as Fonterra's average actual foreign exchange conversion rate for the month. In its 'Reasons' paper, Fonterra specifies its calculation process as per the following steps:

G3.1 step 1: converting all Fonterra's USD-equivalent receipts to NZD at the daily average spot exchange rate for the month;

G3.2 step 2: adding (subtracting) to the NZD receipts the gains (losses) on foreign exchange contracts exercised by Fonterra in the month;

G3.3 step 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;

G3.4 step 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; and

G3.5 step 5: dividing the USD receipts by the adjusted NZD receipts obtained through steps 1 – 4, to derive Fonterra's 'benchmark foreign exchange conversion rate.' The resulting series of monthly benchmark rates is then used to convert the notional net USD cash receipts of the notional producer to NZD.

Does the calculation use notional or Fonterra actual data?

G4 The foreign exchange rates are based on Fonterra's average actual foreign exchange conversion rates.

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

G5 In undertaking this statutory review, we are not required to assess any components of the base milk price calculation that are sheltered by the 'safe harbour' provisions for consistency against the s 150A purpose. 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

G6 Section 150B (c) allows for gains and losses experienced by Fonterra resulting from foreign currency fluctuations, including from Fonterra's foreign currency risk-management strategies, to be used for the purposes of the base milk price calculation.

G7 In its 'Reasons' paper, Fonterra states that despite the conversion process generally resulting in a difference between the annual quantum of foreign currency gains and losses actually achieved by Fonterra and those assumed to have been achieved by

the notional producer, it is nonetheless consistent with the s 150B(c) 'safe harbour' provision.[88]

G8 Fonterra notes that the forecast average conversion rate (used in the base milk price calculation) is being calculated 'as if' the notional producer had applied Fonterra's foreign currency risk-management policies with respect to its (the notional producer's) forecast monthly USD-equivalent foreign exchange exposure. This approach means that any inaccuracies in the notional producer's forecasts were proportionately equivalent to any inaccuracies in Fonterra's actual forecasts.

Our analysis and conclusion

G9 We accept that using Fonterra's average actual foreign exchange conversion rates for the purposes of the base milk price calculation is consistent with the 'safe harbour' provision in s 150B(c).

G10 We have not sought to independently verify the accuracy of Fonterra's actual foreign exchange data extractions and the conversion of these data into the forecast average conversion rate. We have, instead, relied on Fonterra's external audit review process, undertaken by PWC. We understand that PWC have tested the completeness and accuracy of the inputs in the monthly forecast average conversion rate calculation by recalculating the monthly forecast average conversion rate based on the rules of the Manual.

G11 We have reviewed PWC reports and are satisfied that the calculation of the foreign exchange conversion rate used to calculate the revenue component of the base milk price calculation has been subject to appropriate independent verification.

G12 Miraka submitted that the currency conversion in the base milk price does not correctly reflect Fonterra's actual currency risk-management across the base milk price season.[89] They consider that applying the average conversion rate over the period covered by the base milk price calculation would better reflect the currency risk faced by Fonterra.

G13 We have considered this issue and have not found any material error in the currency conversion rate used by Fonterra.

G14 There are differences arising between the actual conversion rates Fonterra achieves and the conversion rates used in the base milk price due to the following factors.

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88 Page 19 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

89 Section 3.3 in Miraka *Submission to the Commerce Commission: Review of the Fonterra 2012/13 Base Milk Price – Draft* Report, 29 August 2013; and Section 4.1 in Miraka, *Submission to the Commerce Commission: Review of Base Milk Price Calculation for 2012/13 Season*, 19 July 2013, both available at http://www.comcom.govt.nz/ statutory-review-of-milk-price-calculation

G14.1 The scope of Fonterra's operations compared to the operations of the Notional Producer. As Fonterra has noted in its 'Reasons' paper, on average it converts a higher quantum of USD-equivalent receipts than the Notional Producer. [90]

G14.2 Sales made out of last year's inventory at the beginning of the season are excluded and forecast sales from closing inventory for the current season are added at forecast conversion rates.

G15 We do not consider that these give rise to significant differences.

G16 We understand that Miraka's concern may also relate to a possible misalignment of the sales phasing used in the base milk price and the sales phasing used for hedging. We consider that the foreign exchange conversion rates used in the base milk price calculation are average actual conversion rates, and therefore are not relevant considerations as they are covered by the s 150B(c) 'safe harbour' provision.

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90 Page 19 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Attachment H: Selling costs

H1 This attachment outlines our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the selling costs for the purposes of the base milk price calculation.

H2 Table H1 below outlines our summary analysis of the assumptions, inputs and process used to derive the selling costs.

Table H1: Summary analysis of selling costs

Notional or Actual?	Notional number of sales hubs; Notional cost per hub
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes, although concluding on the number of sales hubs is difficult

Fonterra's assumptions, inputs and process

H3 Table H2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the selling costs for the purposes of the cash costs calculation in the base milk price, as specified by Fonterra in its 'Reasons' paper.[91]

Table H2: 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, L/C management and a provision for bad dets).	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 face 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 resources and for NZ sales-related costs are appropriate given the assumptions re volume sold on GDT and volumes sold to government procurement customers.

[91] Page 21 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Basis of calculation

H4 The selling costs calculation is based on the assumption that 90% of the notional producer's products is sold through GDT and 10% is sold to government procurement customers. The selling costs calculation relies on the following inputs using budgeted sales cost data: [92]

H4.1 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;

H4.2 the cost of the New Zealand back office services; and

H4.3 the costs of selling on GDT.

H5 Rule 6 of the Manual states that the sales costs of the notional producer should not exceed the lesser of:

H5.1 the costs Fonterra would incur if it sold the product implied by the Farmgate Milk Production Plan on an arm's length basis through a sales agent; and

H5.2 the selling costs actually incurred by Fonterra adjusted to reflect the Farm Gate Milk Production Plan and having regard to any cost reductions achievable through the extension of GDT.

H6 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.

H7 We consider the calculation of the selling costs to be consistent with Rule 6 in the Manual.

Does the calculation use notional or Fonterra actual data?

H8 The selling costs calculation is based on notional values.

H9 The cost estimates for the hubs are based on benchmark hubs from within Fonterra's current sales costs, adjusted to meet the expected needs of the notional producer, as specified below.

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92 The F13 data was rolled forward with a 2.3% inflation adjustment from F12 data, which was established by reference to F12 budget data.

H9.1 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.

H9.2 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.

H9.3 The GDT fee assumption is based on the tiered fee structure published on the GDT website. The total cost of selling through GDT assumes that the volumes sold are eligible for a reduced GDT fee. GDT fees are lower for volumes in excess of 200,000 MT. This is because the output of the notional incremental plant could be added to the output of the assumed national network, and this will likely exceed 200,000 MT.[93]

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

H10 In its 'Reasons' paper, 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.[94]

H11 We agree with Fonterra's explanation. As outlined in Chapter 3 and 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 selling costs is therefore consistent with the efficiency dimension of the purpose.

Is it practically feasible?

H12 In its 'Reasons' paper, Fonterra states that the quantum of the various inputs for the selling costs calculation include 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

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93 Miraka submitted that this is inconsistent with the concept on the incremental plant when assessing contestability, as the volumes produced by an incremental plant may not be sufficient for it to receive the reduced GDT fee. See pages 5-6 in Miraka *Submission to the Commerce Commission: Review of the Fonterra 2012/13 Base Milk Price – Draft* Report, 29 August 2013. We disagree with this assessment. As discussed in Attachment F (paragraph F17), this does not detract from the achievement of the purpose set out in s 150A. This is because the 'safe harbour' provisions allow the assumptions that the processor operates a national network and is processing all the milk collected into the reference commodity products.

94 Page 22 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

(and also results in a higher assumed cost than the alternative approach of assuming the actual cost of operating GDT).[95]

H13 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 compared the notional producer's selling costs with Fonterra's actual selling costs for reference commodity products and, given the assumption that (unlike Fonterra) the notional producer sells the vast majority of its products through a relatively low cost sales channel (being GDT), we consider that the assumed selling costs are practically feasible.

H14 We do not consider that the selling costs calculation relies on any assumptions that are unique to Fonterra. The assumed selling costs should, therefore, also be practically feasible for another efficient processor.

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95 Page 22 in *Fonterra, 'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season,* 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Attachment I: Lactose costs

I1 This attachment outlines our analysis of Fonterra's assumptions adopted, and inputs and process used, to calculate the lactose costs component of the base milk price calculation.

I2 Table I1 below sets out our summary analysis of the assumptions, inputs and process used to derive the lactose costs

Table I1: Summary analysis of lactose costs

Notional or Actual?	Notional volumes of lactose; Notional lactose prices
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes, as prices used are those actually achieved by Fonterra's competitors in NZ

Fonterra's assumptions, inputs and process

I3 Table I2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the lactose costs component of the base milk price calculation, as specified by Fonterra in its 'Reasons' paper.[96]

Table I2: Fonterra's explanation of lactose costs

Inputs	Process	Assumptions
1. Price: lower of Fonterra's & other NZ processors' average landed monthly price, ex NZ Customs. 2. Quantity: - yield calculations - loss allowance - revised for F13, based on actual Fonterra data. 3. Transport Costs - CIF costs per Customs NZ data - inland transport costs per Fonterra contracted rates	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. Step 2: Calculate the weighted average of the two price series determined under Step 1 over the 12 month season.	That approach appropriately incentivises efficient lactose procurement by Fonterra, inasmuch as any adverse difference between Fonterra's costs & the average cost reported by other New Zealand processors would fall to earnings. That approach captures all lactose-related costs.

[96] Page 22 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

- payable days per analysis of typical contract terms, shipping days & holding days (revised for F13). 4. Procurement costs - reasonable allowance calculated by reference to Fonterra actuals. 5. Storage and other holding & handling costs - provision for storage capacity included in capital base - reasonable provisions for other costs calculated by reference to Fonterra actuals.	Step 3: 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. (The same approach is also used to determine lactose ocean freight and other import costs from each source country, with the lower series of freight costs over the course of the season used in the milk price calculation.)	

Basis of calculation

I4 The lactose costs are a function of the lactose price and the lactose volume requirements.

I4.1 Estimate of monthly lactose prices reflecting the lactose prices as reported by Statistics New Zealand and calculated in USD as the weighted average price for the previous three months lagged by one month. Because Statistics New Zealand sources this information from importers themselves (ie, Fonterra and other dairy processors) Fonterra is able to isolate its own data from those of its competitors. This data is used for the purposes of constructing two time-series: one for Fonterra and one for its competitors. Having established which of the two time-series results in the lower annual average price, the base milk price model then chooses that as an input into the base milk price calculation, having converted the monthly prices into NZD at the benchmark foreign exchange rate.

I4.2 Estimate of monthly cost for the customs, insurance and international sea freights (CIF) of importing lactose into NZ. This cost is also determined with reference to data as reported by Statistics NZ and calculated in USD as the weighted average cost for the previous three months lagged by one month. As with the price for lactose itself, the data is split into two time-series: Fonterra's and its competitors' costs, with the lowest annual average cost time-series being used as an input into the base milk price calculation, having converted the monthly prices into NZD at the benchmark foreign exchange rate.

I4.3 The lactose volume requirements are calculated as part of the production and yields/losses calculations. We assess the assumptions, inputs and process associated with the calculation of the assumed lactose volume requirements in Attachment C on the production plan.

I5 The base milk price calculation also provides for the storage and domestic freight costs for lactose. The assumptions, inputs and process associated with these costs are discussed in Attachment Q on freight costs and Attachment R on storages costs.

I6 Rule 18 of Fonterra's Manual specifies that lactose costs should reflect the cost of the lactose required by the assumed production plan at a reasonable estimate of prevailing global prices. The Rule also specifies that the lactose prices should comprise:

I6.1 an estimate of a monthly price for lactose used to standardise milk powders in that month (converted to NZD at the benchmark foreign exchange rate);

I6.2 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

I6.3 an estimate of an annual cost of transporting lactose from the NZ wharf to Fonterra sites (expressed in NZD per MT).

I7 The Rule further specifies that 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 spanning 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).

I8 We consider the calculation of the lactose price to be consistent with Rule 18 of the Manual.

Does the calculation use notional or Fonterra actual data?

I9 The lactose costs calculation is based on notional values.

I10 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.

I11 The lactose price calculation uses the lower of the lactose and CIF average price series actually achieved by either Fonterra or its competitors during the year. Which of the two price series is used for the base milk price calculation is determined on an ex-post basis. The lactose price in any given year can therefore be either Fonterra's actual or notional. The 2012/13 milk price calculation picks up Fonterra's competitors' achieved average prices and is, therefore, notional.

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

I12 In its 'Reasons' paper, Fonterra states that its approach to the lactose price assumptions appropriately incentivises efficient lactose procurement by Fonterra, inasmuch as any adverse difference between Fonterra's costs and the average cost reported by other New Zealand processors would fall to earnings.[97]

I13 We consider that using the lower of Fonterra's or its competitors' actual lactose and CIF prices, in combination with notional (and significantly larger than Fonterra actual) lactose volume requirements, incentivises Fonterra to reduce its actual lactose costs, ie, operate efficiently.

I14 A reduction in Fonterra's actual lactose and CIF prices would result in:

I14.1 a relatively small decrease in Fonterra's actual lactose cost (due to the relatively small actual lactose volumes being imported by Fonterra); and

I14.2 a proportionally larger decrease in the lactose cost in the base milk price calculation (due to the significantly larger lactose volumes being imported by the notional producer) leading to a corresponding increase in the base milk price.

I15 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 compared to a situation where Fonterra does not strive to reduce its actual lactose and CIF prices. That is, if Fonterra were not to drive a reduction in its lactose and CIF prices, but its competitors continued to do so (which we consider is reasonable to assume given that Fonterra's key competitors are profit maximising companies) the following would occur:

I15.1 there will be no change in Fonterra's actual lactose cost; and

I15.2 a significant decrease in the lactose costs in the base milk price calculation (which would use the lower competitors' lactose and CIF price and significantly larger lactose volume requirements of the notional producer compared to that of Fonterra) leading to a corresponding increase in the base milk price.

I16 The overall impact on Fonterra's profit would still be a negative one. However, without any associated decrease in Fonterra's actual lactose cost, it is likely to be larger than under the scenario where Fonterra strives to reduce its actual lactose and CIF prices.

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[97] Page 23 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

I17 To minimise the negative impact on its profit, Fonterra management is incentivised to reduce its actual lactose cost, ie, operate efficiently.

Is it practically feasible?

I18 In its 'Reasons' paper, Fonterra states that the use of the actually achieved costs for lactose landed in New Zealand (either by Fonterra or its competitors) necessarily implies the assumptions are practically feasible.[98]

I19 We consider the assumed lactose prices are practically feasible for an efficient processor as the data used directly reflects the price that a processor (Fonterra or otherwise) was able to achieve. Synlait/Open Country submitted that the ability to retrospectively pick the lowest figure is not an option available to processors in practice.[99] The retrospective use of the lowest figure is a computational aspect of calculating the base milk price, which does not affect the price that Fonterra or another processor actually pays for lactose. It does not therefore affect our conclusion with regard to the contestability standard for lactose prices. We consider that the retrospective use of the lowest figure also provides incentives for Fonterra to operate efficiently.

I20 Submitters have previously suggested that lactose prices and CIF costs should be adjusted to reflect that the prices used in the base milk price calculation were achieved on much smaller quantities of lactose being purchased than the notional quantities of lactose assumed in the base milk price calculation. The consequence of the permitted assumption of the notional lactose requirement results in quantities that would never be purchased in practice.

I21 As discussed in paragraph I19, 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. Furthermore, as discussed in Attachment B, our conceptual approach to assessing the contestability dimension in s 150A, in this context, is to consider whether the assumed lactose price is practically feasible for a processor efficiently building an incremental plant. 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. Therefore, the assumed lactose price used by Fonterra in the base milk price calculation is practically feasible.

I22 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

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98 Page 23 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

99 Synlait and Open Country Dairy, *Joint submission on the Commerce Commission's Key Issues Paper in relation to its review of the 2012/13 base milk price,* 19 July 2013; and section 5.1 in Miraka, *Submission to the Commerce Commission: Review of Base Milk Price Calculation for 2012/13 Season,* 19 July 2013, available at http://www.comcom.govt.nz/ statutory-review-of-milk-price-calculation

Attachment J: Collection costs

J1 This attachment outlines our analysis of Fonterra's assumptions adopted, and input and process used, to calculate the collection costs component of the base milk price calculation.

J2 Table J1 below summarises our summary analysis of the assumptions, inputs and process used to derive the collection costs.

Table J1: Summary analysis of collection costs

Notional or Actual?	Actual total operating costs; Notional overheads; Notional diversion costs
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes

Fonterra's assumptions, input and process

J3 Table J2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the collection costs component of the base milk price calculation, as specified by Fonterra in its 'Reasons' paper.[100]

Table J2: Fonterra's explanation of the collection costs

Inputs	Process	Assumptions
Fonterra's actual cash collection costs, excluding Fonterra's actual inter-factory diversion costs. Modelled inter-factory diversion costs, based on calculated volumes of cream & buttermilk to be transported between sites, given asset footprint & product mix.	Diversion costs modelled by reference to assumed product mix (& therefore surplus cream / buttermilk) at each site, average transport cost per km, & for sites without cream or buttermilk processing capacity, the assumed km between site & designated site with relevant capacity.	That it is not feasible to cost-effectively independently model the 'volume' drivers of Fonterra's collection costs (primarily kms travelled & average kms travelled per hour). 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 & Milk Price product mix (which can

[100] Page 23 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

		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.

Basis of calculation

J4 The calculation of the collection costs component comprises:[101]

J4.1 Fonterra's total actual cash collection costs; and

J4.2 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 the buttermilk to sites where BMP is manufactured.

J5 Rule 17 of the Manual specifies 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.

J6 We consider that Fonterra's calculation of the collection costs component of the base milk price is consistent with this Rule of the Manual.

Does the calculation use notional or Fonterra actual data?

J7 The calculation of the collection costs relies largely on actual data.

J8 The cost of collecting raw milk from farms and delivering it to the notional producer's manufacturing sites are based on Fonterra's total actual variable and fixed operating costs (excluding overheads) incurred to collect all of Fonterra's milk from farms and deliver it to all of Fonterra's manufacturing sites.

J9 The operating overheads are notional. They are based on the prior season's budget with an adjustment for inflation. This is a very minor component of the collection cost calculation.

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[101] The milk price model includes 'supplier and external relations' costs in with collection costs. However, to be consistent with Fonterra's reasons paper, we have considered these costs in Attachment S: Administration and Other Overhead Costs.

J10 The diversion costs are notional. They are modelled based on the budget SMP & WMP production split by site. The diversion costs are updated at season end to recognise actual milk solids processed, but the calculation relies on ex-ante 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. This is a very minor component of the collection cost calculation.

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

J11 In its 'Reasons' paper, Fonterra states that although the use of actual costs does not provide a strong incentive for Fonterra to minimise its actual collection costs, Fonterra considers that it is not feasible to cost-effectively independently model the key inputs of Fonterra's collection costs calculation (eg, kilometres travelled and average kilometres travelled per hour). Fonterra also notes that the inter-site product diversion costs are modelled on a basis that is independent of Fonterra's actual costs, and that the approach therefore does appropriately incentivise efficiencies in this respect.[102]

J12 In our report on the Review of the Manual we expressed a concern with using Fonterra's actual collection costs in the base milk price calculation. The use of actual performance data weakens the incentive to operate efficiently compared to using a notional benchmark. This is because variations in performance affect the base milk price rather than Fonterra's profits. We therefore considered whether a realistic achievable benchmark independent of Fonterra's actual performance could be set.

J13 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.

Is it practically feasible?

J14 In its 'Reasons' paper, Fonterra acknowledges a concern we previously raised with the potential 'over-optimisation' of the collection costs. Fonterra, however, states that it does not believe that there is likely to have an impact on the practical feasibility of the collection costs assumptions.[103]

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[102] Pages 23-24 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

[103] Pages 23 -24 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

J15 In our report on the Review of the Manual, we expressed a concern with the potential 'over-optimisation' of the collection costs assumption. In particular, we noted that there could be potential inconsistency between the approach for setting the number and location of standard plants, and the data used for the calculation of the collection costs (and other relevant operating costs, eg, freight to port). Because the notional producer only adds standard plants to meet peak milk supply requirements at the level of the North and South Islands, rather at the regional, manufacturing site specific, level, the incremental number of standard plants is implicitly optimised for each island. We therefore questioned whether using Fonterra's actual collection costs (which are reflective of the regional, manufacturing site specific, plant locations) should be adjusted upward to reflect this potential optimisation.[104]

J16 Fonterra submits that the notional producer's allowance for site overhead costs and site capital reflect an assumption that the number and location of manufacturing sites are the same as those Fonterra actually maintains. Fonterra also submits that the annual volumes of milk processed on each site by the notional producer are materially aligned to the volumes actually processed by Fonterra.

J17 Fonterra accepts, however, that a level of over-optimisation of collection costs might occur if Fonterra's actual incremental plants had a materially smaller processing capacity than the notional producer's assumed incremental plant's capacity. If this were the case, Fonterra could, for example, add say two plants, each on a separate site, while the notional producer might be assumed to have added only one plant. In this case, the assumed incremental collection costs of the notional producer would be lower than those achieved by Fonterra in terms of its actual incremental collection costs. However, Fonterra states that the opposite situation has occurred in practice. Since 2009, the notional producer has been assumed to have added four incremental plants, each with a daily capacity of 1.95m litres, whereas Fonterra has actually added two incremental plants, with approximate capacity of 4.5m litres and 2.4m litres, respectively. Fonterra therefore believes that there is a degree of under-optimisation in the collection costs calculation; though Fonterra submits it is not material.

J18 We accept Fonterra's explanation and consider that, in light of the large processing capacity of Fonterra's recent actual investments, the assumed collection costs in the base milk price calculation are not over-optimised.

J19 We do not consider that the calculation of the collection costs relies on any assumptions that are unique to Fonterra.

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[104] The fewer the assumed manufacturing sites, the greater the costs of transporting milk to them.

Attachment K: Packaging costs

K1 This attachment sets out our analysis of Fonterra's assumptions adopted, and inputs and process used to calculate the packaging costs component of the base milk price calculation.

K2 Table K1 sets summarises our analysis of the assumptions, inputs and process used to derive the packaging costs.

Table K1: Summary analysis of packaging costs

Notional or Actual?	Average actual unit costs and usage rates; Notional loss allowances
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes

Fonterra's assumptions, inputs and process

K3 Table K2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the packaging costs sub-component of the base milk price calculation, as specified by Fonterra in its 'Reasons' paper.[105]

Table K2: Fonterra's explanation of the packaging costs

Inputs	Process	Assumptions
Fonterra's actual average unit packaging costs for relevant packaging materials. Fonterra's calculated packaging usages per MT of finished product (excluding wastage). A provision derived from Fonterra's budgeted provisions for wastage of each packaging item per MT of finished product.	Modelled as fully variable, as units of usage (including wastage allowance) per MT multiplied by cost per unit, & then by MT.	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). That Fonterra's unit costs reasonably reflect the costs that would be incurred by an efficient processor.

[105] Page 24 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Basis of calculation

K4 The packaging costs of the notional producer are a function of:

K4.1 Fonterra's actual average packaging unit costs, per packaging item, achieved in the season for which the base milk price is being set;

K4.2 Fonterra's actual average usage rate per MT for each of the relevant reference commodity products (inclusive of loss allowance); and

K4.3 the relevant volume of reference commodity products manufactured, as per the notional production plan.

K5 Rule 13 of Fonterra's Manual specifies that packaging costs should reflect the actual average unit costs for the year, and that usage rates should reasonably reflect optimal achievable usage rates.

K6 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?

K7 The calculation of the packaging costs relies largely on actual data.

K8 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 season for which the base milk price is being set, by all relevant manufacturing sites.

K9 The loss allowances are based on Fonterra's average budget loss rates, and are therefore notional. There appears to be some variability between allowances by site and the values selected for the purposes of the base milk price calculation. In particular, the base milk price calculation does not take into account packaging costs of manufacturing sites with no budget or with outlying loss allowances. The loss rates are assumed to be 1% for most packaging items and, based on the experience of some manufacturing sites, represent an achievable target. However, it is unlikely that any realistic variation to this loss rate assumption would be significant, as doubling of the loss rate would reduce the base milk price by only 0.1 cents per kgMS.

K10 Our analysis of inputs, process and assumptions used to calculate the volume of reference commodity products manufactured by the notional producer are outlined in Attachment D on product yields.

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

K11 In its 'Reasons' paper, 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.[106]

K12 Fonterra notes, however, that:

K12.1 the packaging inputs used to establish the costs assumed in the base 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 base milk price calculation; and

K12.2 suppliers of packaging inputs referenced in the base milk price calculation generally also supply packaging inputs not used in the calculation. Fonterra has 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 pro-active in minimising the cost of milk price-related inputs).

K13 We consider that it is 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.

K14 However, using actual packaging costs does not disincentivise Fonterra to operate efficiently. As outlined in Chapter 3 and Attachment B, we consider that Fonterra may have incentives to operate efficiently where actual data has been used to set the base 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 base milk price. However, the incentive to operate efficiently is potentially weaker than if notional data had been used.

K15 We do not consider that moving from the current approach of using actual Fonterra data to notional values established independently of Fonterra's actual performance would result in a significant impact on the overall base milk price calculation. We understand that any potential changes in the packaging costs (which may result from moving to notional values) are likely to be of a very small magnitude, eg, in the order of 1%. A 1% increase in packaging costs would result in a 0.1 cents per kgMS decrease in the base milk price calculation.

Is it practically feasible?

K16 In its 'Reasons' paper, Fonterra states that because the unit cost and unit usage assumptions are derived from Fonterra actuals, they are therefore practically

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[106] Pages 24-25 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

feasible for Fonterra. 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.[107]

K17 We consider the packaging costs to be practically feasible, as they reflect Fonterra's actual achieved costs. We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

[107] Page 25 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Attachment L: Energy costs

L1 This attachment outlines our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the energy costs component of the base milk price calculation.

L2 Table L1 below sets out our summary analysis of the assumptions, inputs and process used to derive the energy costs.

Table L1: Summary analysis of the energy costs

Notional or Actual?	Notional unit cost rates; Notional usage rate
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	No, as energy usage rates are based on peak, rather than average seasonal, capacity utilisation assumptions

Fonterra's assumptions, inputs and process

L3 Table L2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the energy costs for the purposes of the cash costs calculation of the base milk price, as specified by Fonterra in its 'Reasons' paper.[108]

Table L2: Fonterra's explanation of the energy costs

Inputs	Process	Assumptions
Fonterra's budgeted average unit energy costs for: - electricity - gas - coal - steam Manufacturer's specifications for energy usage per MT of finished product. Fonterra's contracted emission rate Market price for carbon units	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. These rates are applied to the manufacturer's specifications for energy usage per MT of finished product (adjusted for onsite losses) to arrive at a $/MT of energy cost for each RCP, which is applied to production to calculate the cost to	Fonterra's energy budget is representative of actual costs and usage. That the energy consumption profile between sites within the Fonterra business is materially similar to the Milk Price business. That Fonterra's energy rates are representative of rates that would be paid by an efficient processor.

[108] Page 25 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

	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.	
Fonterra's prior year actual peak energy load by site for gas and electricity and Fonterra's budget costs for electricity and gas transmission. Manufacturer's specifications for peak energy consumption. Peak milk supply for the NMPB.	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.	Gas and electricity transmission costs are the only material fixed cost in energy provision. That Fonterra's budget peak energy cost rate is representative of actual costs and rates an efficient processor would pay.

Basis of calculation

L4 The energy costs of the notional producer are a function of:

L4.1 Fonterra's budgeted cost rates (derived from actual weighted average power prices paid by Fonterra sites);

L4.2 Manufacturer's specifications for energy usage per MT of finished product; and

L4.3 the relevant volume of reference commodity products manufactured, as per the notional production plan.

L5 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." It 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…"

L6 The last full review of the approach taken to deriving these rates was carried out in 2011.

L7 We 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?

L8 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?

L9 In its 'Reasons' paper, Fonterra states: "The approach taken to establishing unit energy cost assumptions does not result in Fonterra's actual current year prices being passed through into the base 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 energy usage and its unit energy costs."[109]

L10 We agree with Fonterra's explanation. As outlined in Chapter 3 and 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 energy costs is therefore consistent with the efficiency dimension of the purpose.

Is it practically feasible?

L11 In its 'Reasons' paper, Fonterra states: "The unit cost assumptions along with the provisions for transmission charges represent budgeted estimates of the average prices expected to be paid by Fonterra, and are therefore practically feasible for Fonterra. The energy usage assumptions reflect manufacturer's specifications, and have been subject to expert review. We therefore consider them to be practically feasible for Fonterra. We do not consider Fonterra has any procurement advantages with respect to energy costs that are not available to other processors of similar scale, and therefore also believe these assumptions are practically feasible for other processors."[110]

L12 Our independent expert reports that the daily usage rates for electricity and steam reflect usage at peak production and that energy usage rates would need to increase by up to 10% to reflect an annual average approach.[111] We therefore conclude that the energy costs based on these usage rates are not practically feasible.

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109 Pages 25-26 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

110 Pages 25-26 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

111 Paragraph 5.2.1. in 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

L13 Fonterra submitted that the assumed energy costs are practically feasible.[112] Our independent experts' response to Fonterra's submission concludes that supporting data from Fonterra indicates that practically feasible annual cost items cannot be adequately estimated by extrapolating peak production rates across the total production. Our independent experts' advice is published on our website.[113]

L14 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.

L15 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, such that the power prices paid by Fonterra sites (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. The fact that Fonterra operates a national network of facilities for the collection and processing of milk is not a relevant consideration for this assessment as it is falls within the 'safe harbour' assumption under s 150B(a). This exclusion functions to allow Fonterra the benefits of its national network.

L16 A further consequence of this 'safe harbour' provision is that we do not consider the 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.

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112 Fonterra, *Submission to the Commerce Commission on its Draft Report on its review of the F13 base milk price,* 30 August 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

113 Parsons Brinckerhoff, Response to Fonterra's submission, 11 September 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

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

M1 This attachment outlines 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 of the base milk price calculation.

M2 Table M1 below sets out our summary analysis of the assumptions, inputs and process used to derive the water, cleaning and CIP, consumables, effluent and laboratory testing costs.

Table M1: Summary analysis of water, cleaning and CIP, consumables, effluent and laboratory testing costs

Notional or Actual?	Notional rates per MT for water, cleaning and CIP, consumables, effluent and laboratory costs based on Fonterra's budget values; Notional production volumes
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes

Fonterra's assumptions, inputs and process

M3 Table M2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the water, cleaning and CIP, consumables, effluent and laboratory testing costs the purposes of the cash costs calculation of the base milk price, as specified by Fonterra in its 'Reasons' paper.[114]

Table M2: 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 & 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. Fonterra's cost allocation system generates materially supportable cost allocations.

[114] Page 26 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Basis of calculation

M4 The water, cleaning and CIP, consumables, effluent, and laboratory expenses are a function of:

M4.1 the budget Fonterra rates per MT for these items from Fonterra's product costing system; multiplied by

M4.2 the number of MT of products in the notional producer's production plan.

M5 The calculations are consistent with Rule 13 of the Manual.

Does the calculation use notional or Fonterra actual data?

M6 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?

M7 As outlined in Chapter 3 and 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 this cost component is therefore consistent with the efficiency dimension of the purpose.

Is it practically feasible?

M8 Fonterra has provided us with evidence that these costs are from the product costing system. We understand that:

M8.1 the budget costs are annually reconciled with actuals; and

M8.2 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.

M9 Fonterra has noted that the allocation of the fixed cost component of the product costs could be improved on, which has been flagged for inclusion in Fonterra's internal work programme. Nonetheless, Fonterra considers these figures to be reasonably accurate to ± 5%.

M10 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.

Features unique to Fonterra?

M11 There are no features specific to Fonterra that would bear upon our conclusions. Our engineering experts have noted an item affecting effluent costs, the effect of which we consider to be insignificant.

M12 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 note that in the future it is not likely that either Fonterra or any other processor would be granted resource consents for further ocean outfall. However, we have assessed the impact of the presence of ocean outfall as no more than 1/25 (i.e. one site) of the overall effluent cost of [ ] cents per kgMS. This is no more than [ ] cents per kgMS and so this is not a significant consideration.

Attachment N: Plant labour costs

N1 This attachment outlines our analysis of Fonterra's assumptions adopted, and inputs and process used, to calculate the plant level costs in the base milk price calculation.

N2 Table N1 below sets out summary analysis of the assumptions, inputs and process used to derive the plant labour costs.

Table N1: Summary analysis of plant labour costs

Notional or Actual?	Notional number of FTEs; Average actual cost per FTE; Notional number of plants
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes

Fonterra's assumptions, inputs and process

N3 Table N2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the plant labour component of the base milk price calculation, as specified by Fonterra in its 'Reasons' paper.[115]

Table N2: 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 dairy workers union (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.

[115] Page 26 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Basis of calculation

N4 The plant labour costs are the function of:

N4.1 the number of full time equivalent (FTEs), at different staffing levels, required to operate each of the notional plants;[116] and

N4.2 the average annual salary/wage rate, plus employee related expenses; and

N4.3 the number of notional plants.

N5 Part B, Rule 15 of Fonterra's Manual sets out the rules for calculating direct manufacturing wages and employee related expenses. The Manual's section on the application of the Rule 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…".

N6 We consider the calculation of plant labour costs to be consistent with Rule 15 of the Manual.

Does the calculation use notional or Fonterra actual data?

N7 The calculation of plant labour costs relies on a combination of actual and notional 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

N8 The numbers 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.

N9 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 base milk price calculation.

N10 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.

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[116] As each notional plant is assumed to manufacture only one reference commodity product, the FTE requirements for each type of plant (eg, WMP plant v AMF plant) are different. Therefore, each type of plant uses different numbers of FTEs and different composition of FTEs over the various roles.

Salary/wage rate and employee related expenses

N11 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.

N12 At the plant level, the model assumes that the only staff that is 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.

N13 All other plant level staff is 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.

N14 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 milk supply exceeds budget. We do not consider these assumptions to have a significant impact on the plant labour costs and the overall base milk price calculation. We have not therefore tested the reasonableness of these assumptions.

N15 The calculation also assumes that [ ]% of the total FTEs are 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

N16 Our analysis of inputs, process 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?

N17 We agree with Fonterra's assessment that staffing levels are independent of Fonterra's actual staffing levels, and therefore meet the efficiency criterion.[117] As outlined in Chapter 3 and 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.

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[117] Page 27 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

N18 In its 'Reasons' paper, 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.[118]

N19 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:

N19.1 a decrease in Fonterra's actual plant labour costs, leading to an increase in revenue; and

N19.2 a proportionally lesser decrease in the plant labour costs in the base milk price calculation (due to fewer FTE numbers of the notional producer), leading to a corresponding increase in the base milk price.

N20 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 it practically feasible?

N21 In its 'Reasons' paper, 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 plant.[119]

N22 We agree with Fonterra's conclusion because:

N22.1 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;[120] and

N22.2 the unit cost assumption reflects Fonterra's average actual rates,

N23 We therefore consider the assumptions to be practically feasible for Fonterra. We also do not consider that the calculation relies on any assumptions that are unique to Fonterra.

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[118] Page 27 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

[119] Page 27 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

[120] Many of Fonterra's actual plants have a higher FTE requirement because they are older and/or focus on more labour intensive products.

Attachment O: Repairs and maintenance costs

O1 This attachment outlines our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the repair and maintenance costs in the base milk price calculation.

O2 Table O1 below sets out our summary analysis of the assumptions, inputs and process used to derive the repair and maintenance costs.

Table O1: Summary analysis of repair and maintenance costs

Notional or Actual?	Notional
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes

Fonterra's assumptions, inputs and process

O3 Table O2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the repair and maintenance costs in the base milk price, as specified by Fonterra in its 'Reasons' paper.[121]

Table O2: Fonterra's explanation of the repair and maintenance costs

Inputs	Process	Assumptions
Fonterra's average R&M spend as % of total replacement cost of Fonterra's fixed assets for its manufacturing sites over the period F09 – F12. Total replacement cost of Milk Price asset base. (In both cases excluding collection assets & R&M.)	Calculate Fonterra's average R&M spend as % of asset replacement cost to replacement cost of equivalent Milk Price assets over the period F09 – F12. 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, & (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. That the assumed level of R&M spend is consistent with the revised assumption that no 'birthday capex' allowance is required.

[121] Page 27 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Basis of calculation

O4 We commissioned an independent engineering consultancy firm to help assess the assumptions, inputs and processes underpinning the repairs and maintenance costs. Their expert report is available on our website.[122]

O5 The repairs and maintenance costs are determined by applying a percentage to the total notional asset base. This percentage is calculated by:

O5.1 dividing the actual annual repairs and maintenance expenditure by the asset insurance replacement cost for all relevant Fonterra sites; and then

O5.2 taking the average ratio from the previous four years for which actual data is available (2009-2012).

Removal of birthday capital expenditure

O6 This year Fonterra has made a change to the way the notional assets are maintained in the long-run. Previously it allowed for 'birthday capex' which was a one-off additional capital expenditure investment once an asset reached 15 years. This year Fonterra has removed this allowance from the calculation and instead increased the repairs and maintenance costs to reflect a focus on an on-going preventative maintenance approach.[123]

O7 In their 'Reasons' paper, Fonterra notes that this change was made to align with its current actual asset maintenance practices.[124] Our expert concluded that this change is appropriate because most of the capital in the base milk price is from larger plant components. Larger plant components are better suited to a strategy of extending asset lives using regular, routine expenditure, rather than large one-off capitalised refurbishments.[125]

O8 This results in an increase in the repairs and maintenance costs. However, this is largely offset by a decrease in the capital charge on fixed assets.

O9 Rule 16 of the Manual states that the notional producer may recover a reasonable provision of the repairs and maintenance costs. The amount recovered must be set

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122 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

123 Fonterra back-dated this change to 1998, ie, 15 years ago. Therefore, the amended repairs and maintenance cost fully accounts for this change.

124 Page 27 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

125 Page 34 in 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

in relation to the standard implied in an independent reviewer's selection of economic lives for these assets.

O10 Because of the change in the approach to birthday capital expenditure, we consider this year to be a review year. The implementation of this Rule stipulates that in a review year the insurance costs must be independently assessed. We have received information from Fonterra showing that the insurance costs have been assessed by Jones Lang LaSalle for each of the last four years, as used in the calculation.

O11 We conclude that the application is consistent with this part of the Manual.

Does the calculation use notional or Fonterra actual data?

O12 The calculation of repairs and maintenance costs uses notional data. The ratio of repairs and maintenance 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?

O13 Fonterra notes in its 'Reasons' paper that repairs and maintenance costs provide an incentive to operate efficiently. This is because the provision for repairs and maintenance is established independently of Fonterra's actual current year repairs and maintenance costs.[126]

O14 We agree with Fonterra's explanation. As outlined in Chapter 3 and 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 repairs and maintenance costs is therefore consistent with the efficiency dimension of the purpose.

Is it practically feasible?

O15 We consider that this part of the calculation is practically feasible because it is based on repairs and maintenance expenditure that Fonterra has already achieved. Furthermore, our expert notes that there is a reasonable correspondence between Fonterra sites and the notional producer's sites.[127]

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[126] Page 27 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

[127] Pages 34-35 in 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

Attachment P: Site overhead costs

P1 This attachment outlines our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the site overhead costs for the purposes of the base milk price calculation.

P2 Table P1 below sets out our summary analysis of the assumptions, inputs and process used to derive the site overhead costs.

Table P1: Summary analysis of site overhead costs

Notional or Actual?	Notional number of FTEs; Average actual cost per FTE; Actual number of sites; Notional non-labour costs
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes

Fonterra's assumptions, inputs and process

P3 Table P2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the site overhead costs for the purposes of the cash costs calculation of the base milk price, as specified by Fonterra in its 'Reasons' paper.[128]

Table P2: 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 building 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.

[128] Page 28 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Basis of calculation

P4 The site overhead costs component is a function of:

P4.1 Direct site level labour costs, which relate to site management, administrative staff, building services, operations excellence, etc. These are calculated based on:

P4.1.1 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); [129]

P4.1.2 the assumed cost per FTE; and

P4.1.3 the assumed number of sites of each size.

P4.2 Indirect, non-labour related costs, which comprise outside contracts, sundry overheads, rates, electricity and motor vehicle costs.

P5 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.

P6 We consider the calculation of the site overhead costs to be consistent with Rule 19 of the Manual.

Does the calculation use notional or Fonterra actual data?

P7 The calculation of the site overhead costs relies on notional data.

P8 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 154 other staff.

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.

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

The only salary staff in the 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.

The costs per FTE for waged staff are based on Fonterra's 2011 budget costs.

P9 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 site with two WMP/SM plants each, and 12 'small' sites with a single WMP or SMP plant.

P10 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 labour cost index (LCI) and consumer price index (CPI). The most recent reset year was 2012. The costs were set using 2011 budgeted costs.

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

P11 In its 'Reason' paper, 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.[130]

P12 We agree with Fonterra's explanation. As outlined in Chapter 3 and Attachment B, we consider that using a benchmark set independently of Fonterra's current year's 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 it practically feasible?

P13 In its 'Reasons' paper, Fonterra states that the calculation of the 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.[131]

P14 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.

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130 Page 28 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

131 Page 28 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

P15 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

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 base milk price calculation.

Q2 Table Q1 below sets out our summary analysis of the assumptions, inputs and process used to derive the freight costs.

Table Q1: Summary analysis of freight costs

Notional or Actual?	Notional volumes of product transported; Actual average freight rates
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes

Fonterra's assumptions, inputs and process

Q3 Table Q2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the freight costs for the purposes of the cash costs calculation of the base milk price, as specified by Fonterra in its 'Reasons' paper.[132]

Table Q2: Fonterra's explanation of the freight costs

Inputs	Process	Assumptions
Modelled production volumes of each RCP at each site (established by reference to budget allocation of milk to site & budget product mix, but adjusted for actual milk supply & product mix). 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 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.

[132] Page 28 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Basis of calculation

Q4 The freight costs component is a function of:

Q4.1 the assumed volumes of manufactured product, as per the notional producer's production plan; and

Q4.2 Fonterra's average actual contract rates for dry and cool 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.

Q5 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.

Q6 Rule 20 of the Manual specifies that the freight costs should be established given the Farmgate Milk Price production plan, benchmark sales phasing and site footprint. We consider the calculation of the freight costs to be consistent with Rule 20 of the Manual.

Does the calculation use notional or Fonterra actual data?

Q7 The calculation of the freight costs relies on a combination of notional and actual data.

Q7.1 The volumes of manufactured products are notional, as they are based on the notional producer's production plan.

Q7.2 The freight rates are based on Fonterra's actual average freight rates.

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

Q8 In its 'Reasons' paper, Fonterra states that the use of Fonterra's actual inland freight rates reduces the incentive on Fonterra to minimise the relevant costs.[133] 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.

Q9 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 base milk price calculation is consistent with the efficiency dimension.

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[133] Pages 28-29 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Is it practically feasible?

Q10 In its 'Reasons' paper, Fonterra states that the assumed freight costs are practically feasible because: a) the average freight costs assumed in the model reflect Fonterra's actual unit costs for transporting product from its actual sites to relevant ports, which are mapped to the manufacturing sites in the model, and b) Fonterra outsources its freight requirements to independent contractors, and believes it does not have any procurement advantages not available to other processors.[134]

Q11 We agree with Fonterra's explanation, and consider that the assumed freight costs are practically feasible.

Q12 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.

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[134] Pages 28-29 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Attachment R: Storage costs

R1 This attachment outlines our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the storage costs of the base milk price calculation.

R2 Table R1 below sets out our summary analysis of the assumptions, inputs and process used to derive the storage costs..

Table R1: Summary analysis of storage costs

Notional or Actual?	Notional volumes of product stored; Notional storage period; Notional number of FTEs; Actual cost per FTE; Notional non-labour costs; Actual cool storage rates
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes

Fonterra's assumptions, inputs and process

R3 Table R2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the storage costs for the purposes of the cash costs calculation of the base milk price, as specified by Fonterra in its 'Reasons' paper.[135]

Table R2: Fonterra's explanation of the storage costs

Inputs	Process	Assumptions
Dry Product ((WMP, SMP, BMP & AMF): 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.	Dry Product ((WMP, SMP, BMP & AMF): 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	That all relevant costs materially vary with MTs stored / handled. That sample of Fonterra data used is representative of costs an efficient processor would incur.

[135] Page 29 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Product write-off costs, vehicle costs & miscellaneous cost Butter: 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.	per MT, & total MT of dry product Butter: 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.	

Basis of calculation

R4 The storage costs component consists of capital and cash/operating costs for dry (ie, milk powders and lactose) and cool (ie, butter) products.

Dry product storage costs

R5 We set out our assessment of the capital costs of dry product storage in Attachment U.

R6 The dry product storage costs are calculated as a function of:

R6.1 the assumed volumes of manufactured dry products and lactose requirements, as per the notional producer's production plan;

R6.2 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.;

R6.3 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

R6.4 the labour costs per FTE, based on Fonterra's actual costs achieved in the year for which the base milk price is set; as well as

R6.5 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 2.6%.

Cool product storage costs

R7 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:

R7.1 the assumed volumes of manufactured butter, as per the notional producer's production plan;

R7.2 the assumed time period required to store cool product, based on Fonterra's average cool storage duration for butter of 3.5 months;

R7.3 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

R7.4 the provisions for in/outbound handling costs and product write-off, based on Fonterra's actual data.

R8 Rule 20 of the Manual specifies that the storage costs should be established given the Farmgate Milk Price production plan, benchmark sales phasing and site footprint; and be established by reference to Fonterra's actual costs for the relevant year.

R9 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?

R10 The calculation of the storage costs relies on a combination of notional and actual data.

R10.1 The volumes of manufactured dry and cool products are notional, as they are based on the notional producer's production plan.

R10.2 The assumed time periods for dry products are based on analysis of historical Fonterra actuals and, therefore, are notional.

R10.3 The number of FTEs required to operate dry storage facilities is notional

R10.4 The labour costs per FTE are actual Fonterra costs experienced in the year for which the base milk price is set.

R10.5 The non-labour provisions of the dry storage costs are notional.

R10.6 The cool storage rates are based on Fonterra's actual contract rates experienced in the year for which the base milk price is set.

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

R11 In its 'Reasons' paper, 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.[136]

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[136] Page 29 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

R12 We consider that the dry product storage costs calculation, although it relies on some actual data, is overall notional, and therefore provides an incentive to Fonterra to operate efficiently. As outlined in Chapter 3 and 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.

R13 The cool storage costs are based on Fonterra's actual costs. As outlined in Chapter 3 and Attachment B, we consider that Fonterra may have incentives to operate efficiently where actual data has been used to set the base 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 base milk price. However, the incentive to operate efficiently is potentially weaker than if notional data had been used.

Is it practically feasible?

R14 In its 'Reasons' paper, 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.[137]

R15 We accept Fonterra's explanation and consider that the assumed storage costs are practically feasible. We have tested a number of assumptions in the storage costs calculations. For example, we tested the impact of changing the inflation rate applied to non-labour related costs in the dry storage costs calculation. We consider that any potential increase in overall storage costs would not be significant.

R16 We also queried the assumption that the storage costs are considered to be variable. We consider that the choice of fixed versus variable treatment would be at its most significant - in terms of the impact on the base milk price calculation - if the volumes of product assumed to be stored were to change by a large amount from year to year. 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 a 0.7 cents per kgMS decrease in the base milk price calculation, which we do not consider to be significant.

R17 Similarly, we have tested the assumption of the notional producer relying only on one month storage for its significant lactose requirements. Increasing this assumption from one to three months, does not result in any significant impacts.

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[137] Page 29 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

R18 Given our sensitivity analysis, and that a number of inputs are based on Fonterra's actual rates, we conclude that the overall storage costs are practically feasible for Fonterra and another efficient processor.

Attachment S: Administration and other overhead costs

S1 This attachment summarises our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the administration and other overhead costs of the base milk price calculation.

S2 Table S1 below outlines our conclusions.

Table S1: Summary analysis of administration and other overhead costs

Notional or Actual?	Notional data based on 2012 budgeted costs
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes, but some concern with lack of evidence or rationale for the adjustments made to the 2012 budget data

Fonterra's assumptions, inputs and process

S3 Table S2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the administration and other overhead costs for the purposes of the cash costs calculation of the base milk price, as specified by Fonterra in its 'Reasons' paper.[138]

Table S2: 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 to Fonterra's 'Reasons' papers.	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.

[138] Page 30 and Attachment 1 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Basis of the calculation

S4 The costs included by Fonterra under administration and overhead costs are:

S4.1 supplier and external relations;[139]

S4.2 governance costs;

S4.3 finance function costs;

S4.4 manufacturing overhead costs;

S4.5 human resources and health and safety;

S4.6 information system costs;

S4.7 senior management costs; and

S4.8 insurance costs

Fonterra have applied a detailed bottom up approach

S5 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.[140]

S6 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. The specifics of how costs were adjusted are discussed in the section on practical feasibility below.

Difficulties in assessing this factor

S7 This approach has made it difficult for us to assess the details of the assumptions applied to some of these costs. This is because we have not received sufficient evidence or rationale to support the detailed decisions, particularly where allocations are a result of a large number of individual decisions.

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139 The milk price model includes 'supplier and external relations' costs in with collection costs. However, to be consistent with Fonterra's reasons paper, we have considered these costs in this Attachment.

140 These costs were also increased for inflation based on a combination of the Consumer Price Index (2.6%) from the Treasury's "Budget Economic and Fiscal Update 24 may 2012", and the Labour cost index (3.9%). 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.

S8 In its 'Reasons' paper, Fonterra states that the detailed bottom up approach helps ensure that the full complement of cost items is included in the model.[141] However, we believe that any accuracy from this approach is undermined by the lack of transparency.

S9 We are encouraged by Fonterra's submission to our draft report which accepts the difficulties outlined above, and commits to examine what can be done to rectify this issue for the calculation next season.[142] We therefore consider that on this key issue our views are largely aligned. However, we make the following comments on Fonterra's more detailed explanation.

S10 Fonterra argues that a simpler approach is not possible because of the diverse and highly granular costs involved. While we can accept the need for some complexity, we maintain that a greater degree of simplicity would be desirable. Trying to find some way of grouping costs together would improve the accessibility, and reduce the time to assess these costs, many of which are not large on their own.

S11 Fonterra also notes that the decisions were generally made by the Milk Price Group (and its advisors), and the relevant Fonterra managers. Fonterra believes this process created the correct tension between the Milk Price Group aiming to increase the milk price, and Fonterra managers trying to increase profits. We have no way of testing this assertion. It is therefore difficult for us to either agree or disagree with this point.

S12 Rule 19 of the Manual 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.

Does the calculation use notional or Fonterra actual data?

S13 The calculation of administration and overheads costs uses notional data based on Fonterra's 2012 budgeted costs.

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

S14 Fonterra notes in its 'Reasons' paper that because this cost is set independently of the relevant Fonterra current year actuals it is consistent with the efficiency criterion.[143]

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141 Page 30 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

142 Page 11 in Fonterra, *Submission to the Commerce Commission on its Draft Report on its review of the F13 base milk price*, 30 August 2013.

143 Page 30 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

S15 We agree with Fonterra's explanation. As outlined in Chapter 3 and 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 administration and overhead costs is therefore consistent with the efficiency dimension of the purpose.

Is it practically feasible?

S16 Overall, we are comfortable that the level of administration and overhead costs provided for in the base milk price calculation is practically feasible. However, at a detailed level we are unable to conclude on some specific costs. This is because we have not received adequate evidence or rationale for the detailed decisions.

S17 Fonterra notes in its 'Reasons' paper that these costs were determined through a "process of expert review".[144] We are unable to comment on this review, because as mentioned, we do not have transparency on the decisions made.

S18 There are three broad approaches that Fonterra have used to adjust the 2012 budget costs.[145] These are:

S18.1 scaling costs back based on managerial assessments;

S18.2 scaling costs back based on the assumed size of the notional business;[146] and

S18.3 only removing those parts considered out of scope.

Scaling based on managerial assessment

S19 Under the first approach each relevant Fonterra cost manager adjusts the 2012 budget costs. This approach presents the greatest difficulty in assessing whether the costs are practically feasible at a detailed level. This is because we have not received adequate evidence or rationale for the scaling factors that each manager has applied.

S20 This approach is applied to costs that contribute more than $65 million to the base milk price calculation. This approach is used for certain costs in:

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144 Page 30 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation. Fonterra also notes that the model includes some costs, such as regulatory costs, that a potential competitor would not face. We agree with the inclusion of these costs because a notional producer of the same scale as Fonterra would also likely face this cost.

145 A fourth approach is used for senior management costs, where they use the CEO cost from Murray Goulburn and extrapolate from there. However, this applies to less than $1 million of costs in the model.

146 Some costs are subject to both the first and second approach.

S20.1 the finance function;

S20.2 manufacturing overhead;

S20.3 governance;

S20.4 supplier and external relations;

S20.5 senior management team; and

S20.6 insurance.

S21 The relevant cost centre managers at Fonterra considered the 2012 budgeted costs and typically made two adjustments.

S22 First they removed those parts that they considered would not be necessary for the notional producer. We agree with the rationale and implementation of the first part of this approach. As represented to us, it appears that only costs that would not be incurred by the notional producer have been removed.

S23 The second adjustment is to scale down the remaining costs to take account of the simpler business model assumed for the notional producer and the fewer manufacturing FTEs. The scaling factors applied range from 18% to 90%, but the two most common were:

S23.1 80% for the simpler business model; and

S23.2 50%, based on an assessment of the relevant cost manager.

S24 We cannot conclude on the appropriateness of the scaling factors that are applied under this approach. This is because we have not been presented with adequate evidence to support these decisions.

Scaling back to reflect the smaller scale of the notional model

S25 A number of costs are scaled back in line with assumptions made about the size of the notional producer. This approach applies to more than $75 million of costs in the calculation. It specifically relates to:

S25.1 human resources and health and safety;

S25.2 information systems;

S25.3 some corporate costs;

S25.4 some manufacturing costs; and

S25.5 some insurance costs.

S26 For the relevant costs related to human resources and health and safety, information systems, corporate and manufacturing, Fonterra has scaled back the 2012 budget

costs to reflect the fewer employees of the notional producer. First it estimated the number of employees for the notional producer based on estimates for each cost area. Fonterra then compared this to its actual employee numbers to obtain a ratio that was applied to the 2012 budgeted costs.[147] The most typical percentage is 70% which reflects the overall ratio of actual to notional FTEs. However various other ratios are applied, for specific business areas ranging from 85% to 20%.

S27 We believe that scaling based on the relative number of FTEs is appropriate for these costs. We consider that these costs would increase or decrease in line with the number of employees assumed in the notional business compared with Fonterra's actual business. The ratios applied are also consistent with our understanding of the relative size of Fonterra's actual business and the modelled notional business established through other parts of the calculation.

S28 Insurance costs are calculated by identifying the cost of insurance as a percentage of the asset replacement value. This percentage is then multiplied by the notional asset value.[148] We agree with this approach, because we consider that a similar cost percentage would arise if the notional asset base was insured on the same terms as Fonterra's actual asset base.

Adjusted to only remove those parts outside of the scope of operations of the notional producer

S29 Many of Fonterra's relevant costs have been included in their entirety. In some cases specific parts have been removed as they are considered to be outside of the scope of operations of the notional producer. We have reviewed these exclusions and agree with their treatment. This approach applies to more than $50 million of costs in the model. Specifically it relates to:

S29.1 Supplier and external relations costs;

S29.2 Governance costs;

S29.3 some costs associated with the finance function;

S29.4 some insurance costs; and.

S29.5 some manufacturing costs.

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147 For information systems, 20% of costs are considered fixed, with the remaining costs determined by comparing Fonterra's actual FTEs and the FTEs assumed for the notional producer.

148 This applies to asset and business interruption insurance costs, which is the largest part of this cost. Directors, liability and brokerage insurance cost is determined by the first approach, and marine (product in store in New Zealand) insurance cost is determined by the third approach.

Attachment T: Other supply chain costs

T1 This attachment outlines our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the other supply chain costs of the base milk price calculation.

T2 Table S1 below sets out our summary analysis of the assumptions, inputs and process used to derive the supply chain costs.

Table T1: Summary analysis of other supply chain costs

Notional or Actual?	Notional data based on 2012 budgeted costs scaled down by generally 50%
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes, but some concern with lack of evidence or rationale for the adjustments made to the 2012 budget data

Fonterra's assumptions, inputs and process

T3 Table S2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the other supply chain costs for the purposes of the cash costs calculation of the base milk price, as specified by Fonterra in its 'Reasons' paper.[149]

Table T2: Fonterra's explanation of the other supply chain costs

Inputs	Process	Assumptions
Comprise specific fixed provisions for: 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 for calculation

T4 The other supply chain costs component, which relate largely to the supply chain overhead costs, is a function of:

T4.1 Fonterra's 2012 budgeted costs (fixed and variable); and

[149] Page 30 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

T4.2 a scaling down factor of generally 50% to reflect that, unlike Fonterra, the notional producer only manufactures the reference commodity products, and is a 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.

T5 This approach is similar to the approach taken for administration and overhead costs, discussed in Attachment S. We lack evidence or rationale for the scaling decisions made. This makes it difficult for us to assess the details of these assumptions.

T6 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.

T7 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?

T8 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 LCI and CPI in other years.

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

T9 In its 'Reasons' paper, Fonterra states that because the provisions are set independently of the relevant Fonterra current year actual costs, they are consistent with the efficiency criterion.[150]

T10 We agree with Fonterra's explanation. As outlined in Chapter 3 and Attachment B, we consider that using a benchmark set independently of Fonterra's current year's 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.

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[150] Page 30 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Is it practically feasible?

T11 In its 'Reasons' paper, 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.[151]

T12 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 many specific costs. This is because we have not received adequate evidence or rationale for the detailed decisions on the scaling factors applied.

[151] Page 30 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Attachment U: Fixed assets

U1 This attachment outlines our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the capital charge on fixed assets for the purpose of the base milk price calculation.

U2 Table U1 below sets out our summary analysis of the assumptions, inputs and process used to derive the fixed assets.

Table U1: Summary analysis of fixed assets

Notional or Actual?	Notional
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Unable to conclude

Fonterra's assumptions, inputs and process

U3 Table U2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the fixed assets for the purposes of calculating the capital costs in the base milk price, as specified by Fonterra in its 'Reasons' paper.[152]

Table U2: Fonterra's explanation of the fixed assets

Inputs	Process	Assumptions
Manufacturers' 2008 quotations for construction of WMP & SMP plants. Manufacturers' 2011 quotations for construction of WMP, SMP, BMP, Butter & AMF plants. Detail of actual construction costs for Darfield site. DTZ assessment of: - economic lives & replacement cost valuations of (a) relevant Fonterra assets (comprising butter, AMF & BMP plants, ancillary site services & site infrastructure assets - additional costs relevant to assessment of full replacement costs (consents,	Determine incremental plant requirements on a forward-looking basis, having regard to forecast changes in milk supply in the North Island & South Island, respectively. Assume full replacement of each major plant component at the end of the component's economic life. '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.	That approach to determining incremental capacity requirements maintains alignment between milk price asset base & approach to setting relevant cost inputs, including collection costs. That economic life (& implied replacement cost) assumptions are reasonable, including with respect to historic and assumed future rate of technological change. That removal of any provision for 'birthday capex' is consistent with assumed level (& nature) of R&M spend. That there is no material difference between the Fonterra's

[152] Pages 31-32 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

capitalised interest etc) - Jones Lang LaSalle assessment of inflation in replacement costs subsequent to 2008. Book values at 1 August 2012 of Fonterra's milk collection fixed assets.		actual milk collection assets & the assets required by the NMPB.
MWH scaling of DTZ valuations of ancillary assets to requirements of NMPB.		

Basis of calculation

U4 We commissioned an independent engineering consultancy firm to help assess the assumptions, inputs and processes underpinning the calculation of the capital charge on fixed assets. Their expert report is available on our website.[153]

U5 The calculation determines the capital charge and depreciation for the notional assets in the milk price calculation. This is a function of:

U5.1 the asset base;

U5.2 the asset life;

U5.3 the return on capital, as discussed in Attachment V; and

U5.4 the tilted annuity methodology, as discussed in Attachment W.

U6 The asset base is determined by establishing a replacement cost for manufacturing plants, the costs of ancillary assets, information systems, and land. The details of these inputs are discussed in the next section.

U7 Assets in the model are assumed to have economic lives 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. The asset lives have been determined by Fonterra's independent expert, Jones Lang LaSalle.

U8 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. Our expert notes that this

153 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

approach is common practice and a reasonable method of allocation given the price of the assumed capital plant is expected to vary over time.[154]

'Safe harbour' provisions

U9 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:

U9.1 operates a national network of facilities for the collection and processing of milk; and

U9.2 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

U10 In our draft report we identified an inconsistency between the inputs stated by Fonterra, and those included in the calculation. In its 'Reasons' paper Fonterra states that the inputs include manufacturer's 2011 quotations for construction of reference commodity product plants. The 2011 figures had not been included in the calculation, which at that time relied on 2008 quotations. The final models used to calculate the F13 base milk price have now been updated to include the 2011 figures. The updated costs only apply to incremental plant and replacement capex, which represents approximately 5% of the total capital costs calculation. The effect of this update along with some other late asset cost adjustments was to reduce the base milk price by 0.9c. [155] We have not separately assessed the practical feasibility of these adjustments.

U11 The calculation is carried out in accordance with the requirements for each of the four aspects set out in Rule 24 in the Manual. We therefore consider it to be consistent with the Manual.

Does the calculation use notional or Fonterra actual data?

U12 The data used to calculate the charge on fixed capital are all notional. As set out in Rule 24 of the Manual there are four types of fixed assets:

U12.1 standard plants;

U12.2 ancillary assets;

U12.3 information system assets; and

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[154] Page 34 in 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

[155] These included the use of the Fonterra actual milk collection asset base, updated for new and replacement plants, incorporation of the new Studholm (NZDL) site, and removal of "town milk" sites.

U12.4 land.

Standard plants

U13 The capital costs for standard plants are a function of the cost per plant, and the number of existing and new plants.

U14 The cost per plant is based on an estimated replacement value, and is therefore considered notional. The replacement value is calculated differently for different types of plants.

U14.1 For WMP and SMP plants the capital costs are derived from a 2008 estimate developed by the engineering firm GEA Niro based on a specification set out by Fonterra.

U14.2 For AMF, BMP and butter plants, the replacement value is based on 2008 valuation of existing Fonterra plant.

U15 The number of plants is also 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.

U16 The number of plants is calculated by:

U16.1 determining the average of the peak processing capacity of Fonterra's actual plants producing the reference commodity products (this value is 1.9 million litres of raw milk per day for existing plants and 2.4 million litres per day for new plants);[156]

U16.2 assuming that the standard plant is of the average peak processing capacity;

U16.3 determining how many standard plants are necessary to process the total volume of milk collected.

U17 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.

U18 Table U3 below sets out the cost per standard plant and the number of plants for each type.

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[156] In previous years Fonterra used the same number for new plants as existing plants. The change was made this year to make the capacity of new plants reflect the actual capacity achieved at [ ] plant. This affected approximately 1% of the total manufacturing asset base, reducing costs by approximately $4 - 5 million.

Table U3: Replacement cost and number of standard plants

Type of standard plant	Assumed replacement cost $million	Number of plants	Total (2008 $million)
WMP	86.377	24	2,073.062
SMP	78.235	18	1,408.247
BMP	51.955	4	207.820
Butter	33.308	6	199.852
AMF	20.515	3	61.546
Total		**55**	**3,950.530**

Ancillary assets

U19 Ancillary assets comprises site services, site infrastructure, collection assets, milk reception and treatment assets, and process control assets. Each one is calculated differently.

U20 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 developed by their independent expert (DTZ ltd) in May 2008. These valuations have been scaled back to better reflect the assumed functions of the notional producer.

U21 The cost of the milk collection assets are based on the value of Fonterra's actual milk collection assets. This value has been determined by a replacement cost valuation of Fonterra's milk collection assets undertaken by Ernst and Young in April 2009.

U22 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. This is set at [ ]% of the plant replacement cost.

U23 Table U4 below sets out the replacement costs for each ancillary asset.

Table U4: Replacement costs of ancillary assets

Asset category	Total replacement cost (2008 $million)
Site services	834.207
Site infrastructure	795.308
Milk reception and treatment assets	581.324
Collection assets	611.631
Total	2,822.470

Information systems assets

U24 The asset base for information systems is based on an estimate of Fonterra's actual asset value from 2009. It is assumed that the notional producer would have the same

core systems as Fonterra. Other ancillary systems are scaled back to reflect the different business model assumed for the notional processer.

Land

U25 The asset base for land was established through an independent valuation by DTZ ltd of Fonterra's actual sites, which are assumed to align to the notional sites. In the final capital model a further land allowance was included for the acquisition of the Darfield and Studholme sites.

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

U26 Fonterra notes in its 'Reasons' paper that because the asset base is established independently of Fonterra's actual fixed asset costs, it is consistent with the efficiency criterion.[157]

U27 We agree with Fonterra's explanation. As outlined in Chapter 3 and 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 the capital charge on fixed assets is therefore consistent with the efficiency dimension of the purpose.

Is it practically feasible?

U28 Given the information available to us at this point we are unable to conclude on the practical feasibility of the fixed capital costs.

U29 This is primarily because:

U29.1 a variety of sources of uncertainty including lack of detailed definition of scope, cost variation with time, unforeseen site difficulties, un-confirmed subcontractor costs, unconfirmed costs assumed for purchased-in items and contractual risk coverage have given rise to a significant level of overall uncertainty in the capital cost estimates.

U29.2 There is also lack of detail on the allowance for advanced process control. We were unable to determine whether [ ]% of the manufacturing plant replacement cost is 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.

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[157] Page 32 in Fonterra, *'Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

U30 In our experts' opinion, the specifications set out by Fonterra for the standard plant are not of sufficient detail to provide confidence that the cost is practically feasible. There may be some costs not sufficiently accounted for, but equally there may be some costs that are over-estimated. Our experts believe that there could be a change in the costs of manufacturing assets of up to +/- 15%.[158] This would result in an increase or a reduction of up to 6.92 cents per kgMS in the base milk price calculation.

U31 Fonterra submitted that the fixed capital costs assumptions are practically feasible.[159] Our independent experts' response to Fonterra's submission and an independent expert review of that response are published on our website.[160]

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158 Pages 19-25 in 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

159 Fonterra, *Submission to the Commerce Commission on its Draft Report on its review of the F13 base milk price,* 30 August 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

160 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

Attachment V: Weighted average cost of capital

V1 This attachment outlines our analysis of Fonterra's assumptions adopted, and inputs and process used, to determine the weighted average cost of capital of the base milk price calculation.

V2 Table V1 below sets out our summary analysis of the assumptions, inputs and process used to derive the weighted average costs of capital.

Table V1: Summary analysis of weighted average cost of capital

Notional or Actual?	Notional
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Unable to conclude on the asset beta assumption

Fonterra's assumptions, inputs and process

V3 Table V2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the weighted average cost of capital component of the capital costs calculation in the base milk price, as specified by Fonterra in its 'Reasons' paper.[161]

Table V2: Fonterra's explanation of the weighted average cost of capital

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 (7.4% for F13 Milk Price).	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.

[161] Page 32 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Basis of calculation

V4 The weighted average cost of capital is 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).

V5 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. We consider the calculation of the weighted average cost of capital to be consistent with Rule 39 of the Manual.

V6 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). [162] 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.

Does the calculation use notional or Fonterra actual data?

V7 The weighted average cost of capital is notional in the sense that both the calculation formula and the input values are outside of the control of Fonterra.

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

V8 In its 'Reasons' paper, 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.[163]

V9 We agree with Fonterra's explanation. As outlined in Chapter 3 and 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 the weighted average cost of capital and the resulting capital charge is therefore consistent with the efficiency dimension of the purpose.

Is it practically feasible?

V10 In its 'Reasons' paper, Fonterra states that the approach reasonably reflects the actual costs that would be faced by a processor with a similar credit rating to

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

[163] Pages 32-33 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Fonterra's, and which had a debt profile with a similar maturity and refinancing profile to that assumed in the base milk price calculation, and is therefore practically feasible.[164]

V11 While we accept Fonterra's reasons for most of the inputs in the weighted average cost of capital calculation, we are unable to conclude on the extent to which the asset beta assumption is practically feasible in the time available from receipt of the information on the asset beta.

V12 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 Farmgate Milk Price Methodology.

V13 The information provided by Fonterra 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).[165] We note that these documents do not appear consistent with the independent reviewer requirement of Rule 40 of the Manual. We also note that neither the Milk Price Group report nor the Ernst & Young (Australia) memorandum comment on the reason why the Manual provides for different treatment of asset stranding through a change in the reference commodity products (Rule 31 of the Manual) and as a result of surplus capacity (Rule 32 of the Manual) and why there should be a different basis for the timing of recovery and allocation risk depending on the circumstances of stranding. Additionally, there is no discussion in the Milk Price Group report of why the asset beta should include provision for the risk of asset stranding. The Milk Price Group report merely concludes that any explicit increment would be immaterial. We therefore consider that these matters, raised in our review of the Manual, remain outstanding.

V14 We are unable to reach a conclusion on asset beta, because the information provided to us fails to justify the practical feasibility of the asset beta used[166]. 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

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164 Pages 32-33 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

165 "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. We received no submissions on asset beta.

166 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.

exclusion of companies from these sets.[167] Moreover, 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.

V15 Given the time available due to late provision of the evidence, we were unable to carry out an independent assessment of the asset beta ourselves. We also note the absence of investor views of dairy processors within New Zealand.[168] Overall we have not been able to reach a view as to whether an efficient processor could expect to attract investors where the expectation of the return to their investment is based on an asset beta of 0.45.[169] The internal memorandum from Ernst & Young (Australia) provided alongside the Milk Price Group's report, did not address these issues and did not itself express a view on the appropriate level of asset beta.

V16 We expect to see these issues addressed by Fonterra in time for our review of Fonterra's 2013/14 base milk price calculation.

V17 The asset beta assumption is a sensitive input in the base milk price calculation. A 0.1 change in the asset beta would result in around 5.5 cents per kgMS change in the base milk price calculation.

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167 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.

168 There are several analyst reports available for dairy processors operating in New Zealand.

169 These are not the only issues. There are substantive issues as to what business is being assessed for asset beta, the relevance of building blocks regulation to Fonterra, and why the commodities business is necessarily lower risk than the total Fonterra business.

Attachment W: Tilted annuity methodology

W1 This attachment outlines our analysis of Fonterra's approach to determining annual capital costs in the base milk price calculation.

W2 Table W1 below sets out our summary analysis of the tilted annuity methodology.

Table W1: Summary analysis of the tilted annuity methodology

Notional or Actual?	n/a
Does it provide an incentive for Fonterra to operate efficiently?	n/a
Is it practically feasible?	Yes

Fonterra's assumptions, inputs and process

W3 Table V2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the tilted annuity component of the capital costs calculation in the base milk price, as specified by Fonterra in its 'Reasons' paper.[170]

Table W2: Fonterra's explanation of the tilted annuity methodology

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

Basis of calculation

W4 Rule 34 of the Milk Price Manual provides that "Fonterra may recover an Annual Capital Recovery Amount in respect of each Reference Asset, which over the economic life of the asset is sufficient to recover the present value of the cost of installing the asset and of maintaining its productive capacity over its assessed

[170] Page 33 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

economic life (to the extent such costs are not otherwise deductible in calculating the Farmgate Milk Price)."

W5 The tilted annuity formula specified in Rule 34 is consistent with the calculations performed in calculating the base milk price.

Does the calculation use notional or Fonterra actual data?

W6 While the inputs to the titled annuity calculation are notional we do not consider this question to be relevant to the tilted annuity calculation.

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

W7 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 it practically feasible?

W8 The reason for modeling steady investment over time in each category of asset is to produce a steady state depreciation charge and capital charge. 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 base milk price are independent of the timing of investment in plants.

W9 We consider this approach is a suitable proxy for economic depreciation. As such, it reflects outcomes in workably competitive markets and is practically feasible. It is not clear whether an alternative approach would result in a value that is more 'correct'.

W10 Synlait/Open Country Dairy have asked us to consider whether there is an inconsistency between assuming modern technology plants but spreading capex back over 30 years or so to derive the capital charge.[171] They presume that this is feasible in practice only if modern process control technology that enables Fonterra to achieves its yield and loss offset assumptions can be effectively retrofitted to 30 year old plants, and queries whether Fonterra has in fact done this.

W11 Standard plants with specified capacity and capabilities were defined and their replacement cost, expressed in 2008 dollars, obtained from external parties. The modelling uses the replacement cost of these standard plants to produce the

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[171] Page 3 in Synlait and Open Country Dairy, *Joint submission on the Commerce Commission's Key Issues Paper in relation to its review of the 2012/13 base milk price*, 19 July 2013, available at http://www.comcom.govt.nz/ statutory-review-of-milk-price-calculation

depreciation and capital charges. Therefore, it is implicit in this process that the modern process control technology is factored into the capital cost of the standard plants used in the modelling, and thus the depreciation and capital charges.

W12 Our expert consultants have considered whether the capital costs of advanced process control have been adequately provided for in the capital costs model, which defines the standard reference plant. Their findings are reported in Attachment U.

W13 We understand that Fonterra has in fact retrofitted old plants with modern process control technology, with the exception of its Studholme plant, and our work on yields using detailed performance data provided by Fonterra confirms the resultant performance is the basis for the yield and offset assumptions used in the model.

Attachment X: Company tax

X1 This attachment outlines our analysis of Fonterra's assumptions adopted, and inputs and process used, to calculate the tax provision in the base milk price calculation.

X2 Table X1 below sets out our summary analysis of the assumptions, inputs and process used to derive the tax expense.

Table X1: Summary analysis of the tax expense

Notional or actual?	Notional
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes, but the way changes are effected is not

Fonterra's assumptions, inputs and process

X3 Table X2 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the quantum and timing of the notional producer's tax expense assumed in the calculation of the base milk price.[172]

Table X2: Fonterra's explanation of tax expense

Inputs	Process	Assumptions
NZ Company Tax Rate. Fonterra's weighted-average tax depreciation rate on assets relevant to the NMPB. The calculated EBIT of the NMPB.	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. 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. Spread calculated tax in three equal instalments over the course of the relevant season.	That the approach taken to deriving an estimate of tax depreciation is reasonable. 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.

[172] Pages 33-34 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

Basis of calculation

X4 To determine the tax provision, the model takes the calculated Earnings before Interest and Tax (EBIT) of the notional producer, adds back the base 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.

X5 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.

X6 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.

X7 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 7.4% for 2013.

X8 The calculation methodology has changed from that used for the 2012 base milk price calculation, which was based on using historic cost straight-line tax depreciation and a 20% tax loading to adjust the economic life of the asset in order to gross up the average depreciation rate per annum for tax purposes.[173]

X9 The DV approach now used is more consistent with the calculation of Fonterra's actual tax liabilities which are based on DV depreciation.

X10 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 rate[174] and an assumed residual tax asset value of 5% of the cost of the asset. The additional 20% tax loading used under the previous straight- line approach is not applied as it is already built in to the actual DV rate.

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[173] This was consistent with the Inland Revenue's depreciation loading allowance for qualifying assets acquired after 1996 and before 2010 which was introduced as an incentive to encourage New Zealand businesses to invest in new capital equipment.

[174] 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 & related assets (excluding collection assets & 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.

X11 Rule 21 of the Manual states that the notional producer may recover a provision for tax on the target manufacturing before tax profit.

X12 The application of Rule 21 provides that in calculating the base milk price, a provision will be deducted for the amount of income tax (Farmgate Milk Price Tax Recovery) that the notional producer could reasonably have expected to have paid if:

X12.1 It only manufactured reference commodity products for sale GDT and for delivery to a New Zealand wharf;

X12.2 The notional producer were operated on a standalone basis; and

X12.3 The profits of the notional producer were not deductible on distribution to its owners.

X13 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 base milk price calculation is appropriate.

X14 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.

X15 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.

X16 The tax depreciation as a percentage of milk price depreciation is calculated as 145 per cent in 2013. While this has changed from the 150% ratio used for 2012, this had not had any impact on the milk price, as a new policy which rounds the ratio to the nearest 10% (i.e. 150%) has been adopted.

Does the calculation use notional or Fonterra actual data?

X17 The use of a notional asset base for the purpose of calculating tax depreciation means that the resultant tax provision is also notional.

X18 The tax cost reflects the tax consequences of assumptions in the base milk price, determined independently from Fonterra's actual tax costs. Fonterra is therefore incentivised to minimise its tax liabilities, as these will be reflected in higher profits.

Does it provide an incentive for Fonterra to operate efficiently?

X19 In its 'Reasons' paper, Fonterra states that it considers that because the base 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.[175]

X20 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)." [176]

Is it practically feasible?

X21 In its 'Reasons' paper, Fonterra states that 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, and is therefore practically feasible.[177]

X22 We consider the calculation of the tax depreciation as percentage of milk price depreciation to be conceptually sound, assuming the underlying modelling of the historic DV tax depreciation reflects real world tax conditions.

X23 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.

X24 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

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175 Page 34 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

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

177 Page 34 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

much lower depreciation on older assets. We have not attempted to quantify this advantage, as it depends upon the tax cost of the investment.

X25 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 depreciation[178] 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).

X26 Thus, while the methodology provides for a charge that is practically feasible per se, the way in which changes are effected (to occur retrospectively across the entire notional asset base) would not be allowed under Inland Revenue tax rules. This suggests that the methodology needs to be fixed to fully satisfy the practical feasibility test. This would include formally prescribing the threshold at which changes in the tax calculation ratio must flow on into the calculation of the tax costs in the base milk price.

X27 We do not consider that the calculation relies on any assumptions that are unique to Fonterra.

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[178] 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

Y1 This attachment summarises our analysis of Fonterra's approach to determining the net working capital cost in the base milk price calculation.

Y2 Table Y1 below sets out our summary analysis of the net working capital assumptions, inputs and process.

Table Y1: Summary analysis of the net working capital

Notional or Actual?	Actual debtor and creditor days; Fonterra's actual 'advance rate schedule'
Does it provide an incentive for Fonterra to operate efficiently?	Yes
Is it practically feasible?	Yes (subject to asset beta assumption in the weighted average cost of capital calculation)

Fonterra's assumptions, inputs and process

Y3 Table Y1 sets out Fonterra's assumptions adopted, and inputs and process used, to determine the net working capital component of the capital costs calculation in the base milk price, as specified by Fonterra in its 'Reasons' paper.[179]

Table Y2: Fonterra's explanation of the net working capital

Inputs	Process	Assumptions
Monthly net working capital balances implied by the NMPB phasings of milk supply, production, sales, & non-milk costs. Fonterra's weighted average debtor days for the sales used to determine the prices for sales of RCPs used in the milk price (i.e. primarily sales on GDT). Fonterra's weighted average creditor days for costs relevant to the Milk Price. Fonterra's 'advance rate schedule',	Calculate implied opening net working balances for each month. Apply the monthly WACC to the monthly NWC balance. Deduct the implied WACC charge in the course of calculating the amount available to pay for milk.	That use of Fonterra's weighted average debtor days for (primarily) sales on GDT is consistent with use of prices from the same source. 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.

[179] Page 34 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

specifying timing & quantum of payments for milk supplied in the season. Assumptions with respect to inventories of inputs, such as lactose and packaging materials. Assumptions with respect to revenue and payables days, calculated by reference to relevant Fonterra actual data. The monthly compound WACC implied by the annual WACC.		

Basis of calculation

Y4 The net working capital calculation is a function of the following inputs:

Y4.1 Fonterra's weighted average debtor days for the sales of reference commodity products.

Y4.2 Fonterra's weighted average creditor days for costs relevant to the production and sales of the reference commodity products

Y4.3 Assumptions with respect to revenue and payables days, calculated by reference to relevant Fonterra actual data.

Y4.4 Fonterra's 'advance rate schedule', specifying timing and quantum of payments for milk supplied in the season.

Y4.5 Assumptions with respect to inventories of inputs, such as lactose and packaging materials (assessed as part of our analysis of lactose and packaging costs).

Y4.6 The monthly compound weighted average cost of capital implied by the annual weighted average cost of capital (assessed in Attachment V to this report).

Y5 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.

Y6 We have not sought to independently verify the accuracy of Fonterra's mathematical calculation of the net working capital balance calculation. We have, instead, relied on Fonterra's external audit review process, undertaken by PWC, to perform such accuracy check. We understand that PWC did not identify any issues with the net working capital balance calculation.

Y7 Rule 38 in the Manual specifies 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.

Y8 We consider the inputs of the net working capital balances calculations are consistent with Rule 38 of the Manual.

Does the calculation use notional or Fonterra actual data?

Y9 The inputs in the net working capital balances calculations are based on Fonterra's actual data, achieved in the year for which the base milk price is set.

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

Y10 In its 'Reasons' paper, Fonterra stated that while the various inputs in the net 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.[180]

Y11 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.

Y12 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.

Y13 As outlined in Chapter 3 and Attachment B, we consider that Fonterra may have incentives to operate efficiently where actual data has been used to set the base 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 base milk price. However, the incentive to operate efficiently is potentially weaker than if notional data had been used.

Is it practically feasible?

Y14 In its 'Reasons' paper, Fonterra stated that because the key determinants of the monthly working capital balances are aligned to the relevant Fonterra actuals, the derived balances are practically feasible.

Y15 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

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[180] Page 35 in Fonterra, '*Reasons' Paper in support of Fonterra's base milk price for the 202/13 Season*, 1 July 2013, available at http://www.comcom.govt.nz/statutory-review-of-milk-price-calculation

discuss in Attachment V) in the net working capital balances calculation are practically feasible for Fonterra or another efficient processor.

Attachment Z: Overview Schedule of Base Milk Price Tests

Attachment	Fonterra Actual	Fonterra Actual Scaled to Notional Producer Business	Fonterra Recently Built Plant Cross-check	Description of Internal Consistency Cross-check
C: Production Plan		✓		Units of production are consistent with units used as basis for variable manufacturing costs Aggregate units of production from site-based production plans which are used to calculate transport and freight costs are consistent with total national production used to calculate other variable costs Allocations of milk to SMP and WMP and of cream to Butter and AMF are consistent with target product mix ratios
D: Product Yields		✓	Average losses	• Input assumptions for yields mass balance calculations are internally consistent given mix of RCPs • Calculations of yield are internally consistent and consistent with international standards for product compositions • Advanced process control costs are at level required to produce assumed yields
E: Sales Phasing	✓			Include/exclude criteria are consistent with pricing
F: Pricing		✓		Include/exclude criteria are consistent with sales phasing
G: Foreign Exchange Conversion	✓			Consistent with monthly sales phasing
H: Selling Costs		✓		Number of hubs assumed is consistent with GDT and government procurement volumes
I: Lactose Costs		✓		Lactose volumes are consistent with lactose requirement calculations in the yields model and with units of production. Lactose freight costs are consistent with site-based production plans.
J: Collection Costs	✓			Approach for setting number and location of plants in Milk Model is consistent with actual location of plants constituting basis for cost data Costs of inter-site diversions of by-product feedstocks are consistent with site production plans and the location of powder and cream processing assets.
K: Packaging Costs		✓		Variable costs of packaging purchased are consistent with volume assumptions
L: Energy Costs		✓	Usage rates	Energy costs are consistent with volume assumptions
M: Water, cleaning, CIP		✓		Variable costs are consistent with volume assumptions
N: Plant labour		✓	FTEs required for a single plant	Labour costs are consistent with number of notional plants
O: R&M		✓		R&M costs are consistent with capital costs and assumed age of plants
P: Site Overheads		✓		Site overhead costs are consistent with assumed number of sites of each size (and number of plants)
Q: Freight Costs		✓		Freight costs are consistent with site-based production plans
R: Storage Costs		✓		Storage costs are consistent with volume assumptions
S: Admin & Other		✓		Admin costs are consistent with nature of notional business
T: Other Supply Chain		✓		Supply chain costs are consistent with nature of notional business
U: Fixed Assets		✓	Advanced process control costs	Manufacturing assets are consistent with the assumed number of plants Collection assets are consistent with the collection costs assumptions Advanced process control costs are at level required to produce assumed yields
V: WACC		✓		WACC is consistent with risk exposure of notional business
W: Tilted Annuity		✓		Tilted annuity methodology is consistent with modern plant process control technology assumptions
X: Tax		✓		The depreciation used for the tax calculation is consistent with the notional asset base and assumed economic life.
Y: Net Working Capital		✓		The monthly compound weighted average cost of capital used is implied by the annual weighted average cost of capital.

Glossary

Term/Abbreviation	Definition
AMF	Anhydrous Milk Fat
Base milk price	Farm gate milk price expressed in kilograms of milksolids
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 – 31 May
dry run review	Non-statutory review of Fonterra's 2011/12 methodology for setting the farm gate milk price and Fonterra's application of that methodology
DV	Diminishing value
ERE	Employee related expenses
FAS	Free alongside ship
FGMP	Farm gate milk price, calculated from the total pool of money available for payment to farmers for their raw milk supply to Fonterra in a season divided by the milksolids (in kilograms) collected by Fonterra in that season
FGMP Manual or the Manual	Fonterra's farm gate milk price manual, the milk price Manual, or the Manual
GDT	Global dairy trade, Fonterra's online auction
kgMS	kilogram of milksolids
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