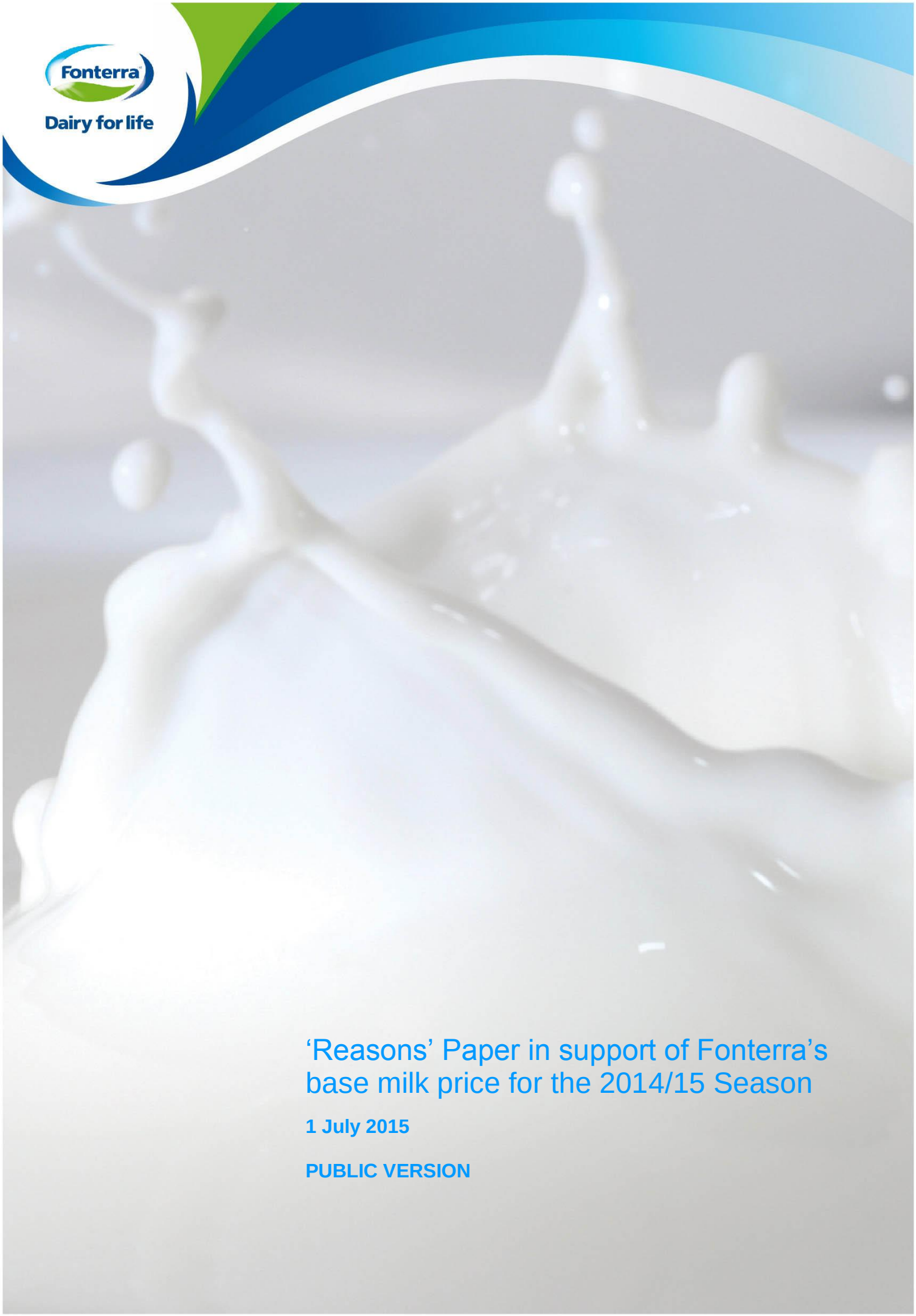


‘Reasons’ Paper in support of Fonterra’s base milk price for the 2014/15 Season

1 July 2015

PUBLIC VERSION

Glossary

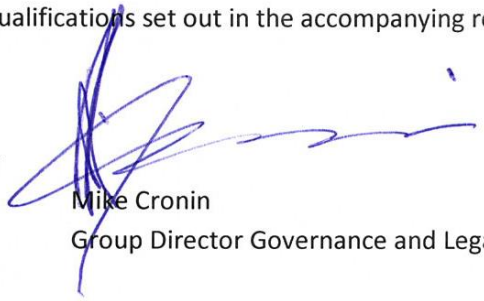
2012/13 Base Milk Price Report	Commerce Commission, Dairy Industry Restructuring Act 2001: Review of Fonterra's 2012/13 base milk price calculation, Final report, 16 September 2013. http://comcom.govt.nz/regulated-industries/dairy-industry/review-of-fonterra-s-farm-gate-milk-price-and-manual/statutory-review-of-milk-price-calculation-2/review-of-milk-price-calculation-201213-season/
2013/14 Base Milk Price Report	Commerce Commission, Dairy Industry Restructuring Act 2001: Review of Fonterra's 2013/14 base milk price calculation, Final report, 15 September 2014. http://comcom.govt.nz/regulated-industries/dairy-industry/review-of-fonterra-s-farm-gate-milk-price-and-manual/statutory-review-of-milk-price-calculation-2/review-of-milk-price-calculation-201314-season/
2014/15 Process Paper	Commerce Commission, Process and issues paper – review 2014/2015 base milk price calculation, 7 April 2015. http://comcom.govt.nz/regulated-industries/dairy-industry/review-of-fonterra-s-farm-gate-milk-price-and-manual/statutory-review-of-milk-price-calculation-2/review-of-milk-price-calculation-201415-season/
AMF	Anhydrous milkfat
BCP	Base commodity price, or FAS-equivalent commodity price.
BMP	Buttermilk powder
Codex	The Codex Alimentarius Commission, which is responsible for the development of harmonised international food standards, guidelines and codes of practice.
DIRA	Dairy Industry Restructuring Act 2001
DWU	Dairy workers union
EBIT	Earnings before interest and tax
FAS	Free alongside ship.
GDT	GlobalDairyTrade
Farmgate Milk Price	The average price per kilogram of milksolids calculated according to the Farmgate Milk Price Manual
kgMS	Kilogram of milksolids
MPG	Milk Price Group, the independent group responsible for calculating the base milk price.
NMPB	Notional Milk Price Business, comprising the notional milk powder manufacturing business implied by Fonterra's Farmgate Milk Price Manual.
NZD	New Zealand dollars.
NI	North Island
OCD Process Paper Submission	Open Country Dairy Ltd, Submission on the Commerce Commission's Process and Issues Paper – Review of 2014/15 Base Milk Price Calculation, http://comcom.govt.nz/regulated-industries/dairy-industry/review-of-fonterra-s-farm-gate-milk-price-and-manual/statutory-review-of-milk-price-calculation-2/review-of-milk-price-calculation-201415-season/
RCP	Reference commodity product, comprising WMP, SMP, BMP, Butter and AMF.
Reference Basket	The basket of RCPs used to calculate the Farmgate Milk Price.
Season	The period commencing on 1 June 2014 and ending on 31 May 2015.
SI	South Island
SMP	Skimmilk powder
USD	United States dollars.
WACC	Weighted average cost of capital.
WMP	Wholemilk powder

1 July 2015

To: The Commerce Commission

1. Fonterra Co-operative Group Limited ("Fonterra"), certifies that in terms of section 150T(a) of the Dairy Industry Restructuring Act 2001 ("Act"), Fonterra considers that the assumptions, inputs and processes described in this document and set out in the documents listed in Attachments 2 and 3 and provided to the Commission pursuant to section 150T(a) are, in all material respects, consistent with the purpose of subpart 5A of the Act.
2. This view is based on our interpretation of subpart 5A, and the other relevant assumptions, views and qualifications set out in the accompanying reasons provided pursuant to s 150T(c).

Signed by



Mike Cronin
Group Director Governance and Legal

PART A

This paper provides detailed submissions in support of Fonterra's certification in respect of the 2014/15 base milk price, as required under section 150T of the Dairy Industry Restructuring Act 2001 (DIRA). Section 150T provides that Fonterra must:

- Provide the Commission with the assumptions adopted and the inputs and process used by Fonterra in calculating the base milk price for the relevant season (section 150T(a));
- Certify to the Commission the extent to which, in Fonterra's view, the assumptions adopted and the inputs and process used in calculating the base milk price are consistent with the purpose of subpart 5A of DIRA (section 150T(b)); and
- Provide the Commission with reasons for the view expressed in its certificate (section 150T(c)).

The paper is structured as follows:

- In this part (Part A), we set out our interpretation of the key legislative provisions (section 1) and provide an overview of the governance and assurance mechanisms relevant to both the base milk price and the Farmgate Milk Price calculation (section 2).
- In Part B, we set out the inputs, assumptions and processes applied in the calculation of the Farmgate Milk Price for 2014/15, and explain the reasons why, in our view, these inputs, assumptions and processes are in all material respects consistent with the purpose of subpart 5A of DIRA.

The paper has been prepared under the oversight of the Milk Price Panel, and where relevant reflects the Panel's views.

1 Our interpretation of key legislative provisions

This submission is provided in accordance with section 150T of DIRA, under which we are required to "certify … the extent to which, in [our] view, the assumptions adopted and the inputs and process used … in calculating the proposed base milk price are consistent with the purpose of this subpart", which is located in section 150A. We set out in this section the assumptions we have made regarding the interpretation of sections 150T and 150A in preparing this submission.[1] We also comment briefly on the definition of 'base milk price'.

Section 150A

Section 150A(1) provides that "the purpose of this subpart is to promote the setting of a base milk price that provides an incentive to [Fonterra] to operate efficiently while providing for contestability in the market for the purchase of milk from farmers. Section 150A(2) further provides that the 'contestability' test is satisfied if 'any' "notional costs, revenues or other assumptions ... are practically feasible for an efficient processor."

The Commission has set out its interpretation of section 150A in a number of documents, including in its review of the 2012/13 base milk price calculation[2] and its report on its review of Fonterra's 2013/14 Milk Price Manual.[3] In brief, the Commission's view is that:

- "The primary focus of the efficiency dimension [is on] ... improving incentives for Fonterra to drive cost efficiencies."[4]
- "If the assumptions used in setting the base milk price are practically feasible, the contestability dimension is satisfied."[5]
- It is "not required to choose between the priority of the contestability and the efficiency dimensions in section 150A to assess whether the purpose is satisfied."[6]

We have previously noted that we broadly agree with the Commission's interpretation of section 150A, but again emphasise that we consider dimensions of efficiency other than productive efficiency are also relevant in considering whether the base milk price appropriately incentivises Fonterra to operate efficiently. In particular, the milk price methodology is intended to create appropriate incentives for Fonterra to make efficient and innovative investment decisions. The absolute level of the milk price is relevant in this context, since a base milk price that was structurally 'too low' would incentivise inefficient investment decisions, and a base milk price that was structurally 'too high' would disincentivise efficient decisions.

The Efficiency Dimension

The Commission explains in Attachment B of the Manual Report that its practical approach to assessing the extent to which the base milk price incentivises Fonterra to operate efficiently is to assess:

- The extent to which the provisions in the Manual incentivise Fonterra to operate efficiently through the use of notional components.
- Where the provisions in the Manual require the use of actual values, to determine:
    a. whether notional data could reasonably have been used instead, and
    b. whether the use of actual data distorts or weakens incentives for Fonterra to improve efficiency.

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[1] Our comments in this section draw heavily on our submission dated 17 May 2013 on the Commission's *Process Paper – Review of base milk price calculation*, 3 May 2013 (the 'Process Paper').
[2] *The Dairy Industry Restructuring Act 2001 – Review of Fonterra's 2012/13 base milk price calculation* (the 'Calculation Report').
[3] *The Dairy Industry Restructuring Act 2001 – Review of Fonterra's 2014/15 Milk Price Manual*, 15 December 2014 (the 'Manual Report').
[4] The Manual Report, p.30.
[5] The Manual Report, p.31.
[6] The Manual Report, p.31.

The Commission also notes (paragraphs B23 – B24) that it considers it reasonable to use actual data where:

1. There is insufficient information to know what an appropriate notional value would be, or
2. Fonterra has very limited control over the actual costs used for the benchmark.

We address these points where relevant in our comments in this paper. In doing so, we interpret the term 'actual value' to refer to the actual value achieved by Fonterra for the relevant input in the 2014/15 year. In some cases, inputs are derived by reference to actual values achieved by Fonterra in prior years (adjusted for relevant factors such as inflation), or by reference to the actual values expected to be achieved by Fonterra in 2014/15 (e.g. budgeted amounts). We consider these inputs to be 'notional' since, consistent with the Commission's framework, the use of inputs derived in this manner still incentivises Fonterra to minimise (for costs) or maximise (for revenue) the corresponding actual amounts.

The Contestability Dimension

The Commission's approach to assessing the base milk price against the contestability dimension of section 150A is also set out in Attachment B to the Manual Report. In brief, the Commission explains that its practical approach to assessing the extent to which the base milk price is consistent with the contestability dimension is to ask the following questions:

1. Is each individual assumption or input practically feasible for Fonterra?
2. If the assumption or input is practically feasible for Fonterra, is this due to features unique to Fonterra which do not relate to Fonterra acting efficiently? (The Commission notes that if this were the case, the relevant assumption or input may not be practically feasible for another efficient processor and it has therefore included a cross-check to identify whether its assessment is being affected by features unique to Fonterra which are not subject to 'safe harbour' provisions.)
3. Is there overall consistency among the assumptions used to calculate the base milk price?

Fonterra broadly agrees with this approach and reiterates the comments it made in its section 150L(e) reasons dated 31 August 2012 (at 6) to the effect that:

- It is important to recognise that for each particular assumption or input used, there will be a range of practically feasible options.
- While the initial focus will be on individual inputs and assumptions, when it comes to the overall milk price calculated under the Manual it may be that there are a number of "unders" and "overs" that cancel each other out.

Our detailed comments in Part B focus mainly on addressing the Commission's question (1) with respect to each input and assumption used in the calculation of the base milk price. Where relevant, we also comment on whether we consider the relevant input or assumption to be practically feasible for other efficient processors, and on the internal consistency of the various assumptions and inputs.

Section 150T

Section 150T(b) refers to "the **proposed** base milk price" [emphasis added], whereas section 150T(a) simply refers to "the base milk price". Fonterra will not finalise its milk price for the current season until after 31 July 2015, the last day of Fonterra's financial year. Consequently, our certification and reasons, and the assumptions, inputs and processes separately provided to the Commission, are all in respect of the proposed, rather than final, base milk price for the 2014/15 season. We will provide the Commission with the inputs used in the calculation of the final base milk price for the season when the calculation has been completed, and will at that time advise the Commission of any amendments to the process or assumptions employed in the course of generating the final base milk price.

Consistent with our Reasons papers in respect of previous seasons' base milk prices, we have interpreted the key terms in the phrase "assumptions adopted, and the inputs and process used" as follows:[7]

- 'Inputs' as meaning the specific values used in calculating the base milk price for the 2014/15 year. Depending on context, these values could be expressed either as a quantum ('NZD 2.3 million'), in descriptive terms ('volume-weighted average price achieved for all NZ-sourced WMP sold on GlobalDairyTrade and shipped in the relevant month'), or both.
- 'Assumptions' as meaning the rationale underpinning the approach used to calculate each input, including the rationale for use of notional or actual values.
- 'Processes' as meaning both:
  - the approach used to (a) generate each input and (b) aggregate those inputs to produce the base milk price, and
  - the processes and controls implemented by Fonterra to ensure individual inputs and the overall milk price accurately reflect the underlying data and rules.

Definition of base milk price

The term 'base milk price' is defined in section 4 of DIRA as meaning "in relation to a season ... the price per kilogram of milksolids that is set by [Fonterra] for that season." We note:

- Fonterra does not pay a uniform price for each kilogram of milksolids supplied to it in a season. Among other things, the average net price per kilogram received by suppliers will vary with relative protein and milkfat content, with supply profile across the season, with water content and with milk quality.
- The output of the calculation methodology established by the Farmgate Milk Price Manual is the minimum aggregate amount that Fonterra will pay (other than in exceptional circumstances) for milk supplied to Fonterra in New Zealand, and the Manual is silent on the allocation of that minimum aggregate amount across individual supply.
- Simply as a matter of convenience, however, the Manual defines 'Milk Price' to mean the minimum aggregate amount calculated under the Manual, divided by total kilograms of milksolids supplied to Fonterra in the season.

In preparing this submission we have assumed the average Milk Price calculated under the Milk Price Manual is synonymous with the term 'base milk price.'

[7] Submission to the Commerce Commission 'Reasons' Paper in support of Fonterra's base milk price for the 2012/13 Season. Issued on 1 July 2013.

2 Governance & assurance mechanisms relevant to the base milk price

As noted above, we interpret the term 'process' in section 150T to cover both the processes used by Fonterra to generate and aggregate the various inputs into the base milk price, and the processes and controls implemented by Fonterra to ensure individual inputs and the overall milk price accurately reflect the underlying data and rules. In addition, Fonterra has put in place a number of mechanisms to provide assurance that the Milk Price is consistent with the Milk Price Principles set out in both the Milk Price Manual and in Fonterra's constitution.

We set out and comment in the section on (a) the governance and assurance processes used to ensure that the individual inputs and overall milk price accurately reflect the underlying data and rules and (b) the mechanisms used to obtain assurance that the Milk Price is consistent with the Milk Price Principles.

Governance and assurance mechanisms

Fonterra has in place an extensive number of governance and assurance mechanisms to satisfy itself and other stakeholders in the milk price with respect to:

- The integrity of the data extracted from Fonterra's systems and used in the calculation of the base milk price.
- The integrity of the calculation methodology (for example, that the financial models used to calculate the base milk price are arithmetically correct, and that they contain the correct inputs).
- The consistency of the calculation methodology with the rules set out in the Milk Price Manual.
- The consistency of changes to the Milk Price Manual, and of the application of the Manual, to the Milk Price Principles, as set out in Fonterra's constitution and in section 2 of Part A of the Milk Price Manual.

These mechanisms comprise:

1. The **Fonterra Board**, which is accountable for the overall setting of the base milk price.

2. The **Milk Price Panel**, which Fonterra has maintained since the introduction of the current milk price mechanism in 2008, and which it is now statutorily required to maintain under s 150D of DIRA. The Panel has five members, four of whom (including the chair) are independent, as that term is defined in DIRA. Two members of the Panel are Fonterra appointed directors (one of whom is the Chair), one a farmer-elected director and two are appropriately qualified nominees of the Fonterra Shareholders' Council. The current members of the Panel are John Waller (Chair) and David Jackson who are appointed Fonterra directors; Michael Spaans who is a farmer-elected Fonterra director; and Paddy Boyle and Bill Donaldson who are nominees of the Council.

   The Panel oversees the governance of the Farmgate Milk Price and the Manual, including changes to the Manual and verification by independent external experts of key parameters (such as resource usage rates, product yields and fixed manufacturing costs). The Panel is responsible for providing recommendations to the Board on the base milk price, changes to the Manual and assurance to the Board that the Farmgate Milk Price each year has been calculated in accordance with the Manual. The Panel has met on nine occasions in the course of the 2014/15 season and the corresponding financial year.

3. The **Milk Price Group**, which is responsible for:
   - Calculating the actual Farmgate Milk Price for a year, and for providing assurance to the Board with respect to forecasts of the Farmgate Milk Price.
   - Advising the Panel on the interpretation and administration of the Manual, including recommending to the Panel amendments to the Manual.
   - Appointing and overseeing the work of independent reviewers and other experts.
   - Determining the continued consistency of the Manual and its application with the Milk Price Principles.

The head of the Milk Price Group is appointed by the Board, must be independent of Fonterra, and reports directly to the Chair of the Milk Price Panel. The group is largely resourced by EY.

4. Fonterra's external auditor, **PwC**, which is responsible for auditing the Farmgate Milk Price each year and whose work includes providing assurance on the accuracy of the calculation and of data sourced from Fonterra's systems, and that the calculation is undertaken in accordance with the Milk Price Manual.

5. **Fonterra's Internal Audit function**, which provides assurance over the integrity of data sourced from Fonterra's systems, including with respect to the controls maintained to ensure ongoing data integrity.

6. An internal Fonterra unit, the **Milk Price Management Steering Committee**, which co-ordinates with the Milk Price Group to provide management input on Farmgate Milk Price matters, including on ensuring the Farmgate Milk Price calculation takes into account the full range of costs and matters impacting on the revenue of a manufacturer of commodity milkpowders and their by-products.

PART B

This part sets out the reasons for the view expressed in our certificate that the assumptions, inputs and processes used to calculate the Farmgate Milk Price for the 2014/15 season are in all material respects consistent with the purpose of subpart 5A of DIRA (s 150A). The part is organised as follows:

- In section 3, we provide an overview of the calculation methodology and its components, to provide an overall context to the submissions on individual inputs contained in the subsequent sections.
- In section 4, we consider the 'safe harbour' provisions contained in s 150B of DIRA, and set out the reasons in support of our certification that Fonterra has applied the safe harbour assumptions in calculating the base milk price.
- In section 5, we set out the inputs, assumptions and processes applied in the course of calculating the revenue component of the base milk price, and provide our views on the extent to which these are consistent with s 150A of DIRA.
- In section 6, we set out the inputs, assumptions and processes applied in the course of calculating the 'cash costs' component of the base milk price, and provide our views on the extent to which these are consistent with s 150A.
- In section 7, we set out the inputs, assumptions and processes applied in the course of calculating the 'capital costs' component of the base milk price, and provide our views on the extent to which these are consistent with s 150A.
- Finally, in section 8 we comment on the internal consistency of the various inputs, assumptions and processes considered in sections 4 – 7, and set out the reasons why, in our view, the overall application of these inputs, assumptions and processes are in aggregate consistent with s 150A.

We have separately provided the Commission with the various financial models and data used to calculate Fonterra's estimate of the Farmgate Milk Price for the 2014/15 season as at 31 May 2015 (Fonterra's most recent full forecast). We have also separately provided to the Commission a considerable amount of material that is confidential to Fonterra in support of various statements made in this document. This material, together with the files supporting the forecast Farmgate Milk Price as at 31 May 2015, is listed in Attachment 2. Attachment 3 contains some supplementary information on the characteristics of the manufacturing plants assumed in the fixed asset base of the NMPB. Attachment 4 comprises the independent report prepared by Associate Professor Alastair Marsden of the University of Auckland on the asset beta and specific risk premium. Attachment 5 comprises a working version of the financial model used to calculate the 2013/14 base milk price, publication of which is intended to provide an additional layer of transparency over the approach taken in practice to applying the various inputs, assumptions and processes used to generate the base milk price.

3 Overview of the calculation methodology

We provide in this section an overview of the methodology used to calculate the Farmgate Milk Price, and cross-references to the sections of this document that contain detailed information on each component.

As described in the Milk Price Manual, the Farmgate Milk Price is calculated, in broad terms, as the residual amount available to pay for milk supplied to Fonterra after calculating:

1. The **revenue** that a commodity manufacturer of milkpowders and their by-products would receive in respect of product manufactured from milk supplied to it in a season, under the following assumptions:
   - Total milk supply equalled Fonterra's actual supply for a season, including the actual composition (fat, protein etc.) of the milk supplied to Fonterra.
   - Milk was allocated to the manufacture of WMP and SMP, and cream to the manufacture of Butter and AMF, in proportion to Fonterra's actual allocation of milk and cream to those products, with residual buttermilk allocated to the manufacture of BMP.
   - Finished product was sold at the same time as Fonterra's sales of each product.
   - The product was sold at prices achieved by Fonterra on arm's length sales of commodity specification product.
   - The resulting USD revenue was converted to NZD at the same conversion rates as those achieved by Fonterra.

   The inputs, processes and assumptions applied in calculating the revenue assumed in the Farmgate Milk Price calculation, and our views on the consistency of each of these with section 150A of DIRA, are set out in section 5.

2. Less the **cash costs** that the commodity manufacturer described in (1) above could reasonably be expected to incur in respect of the relevant season. These costs include selling costs, collection costs, direct and indirect manufacturing costs, storage and other logistics costs, and various costs of an administrative or overhead nature.

   The inputs, processes and assumptions applied in calculating the cash costs assumed in the Farmgate Milk Price calculation, and our views on the consistency of each of these with section 150A of DIRA, are set out in section 6.

3. Less the **capital costs** that the commodity manufacturer described in (1) above could reasonably be expected to incur in respect of the relevant season. These costs including the costs associated with installing, financing and replacing the fixed assets required to manufacture the products (and volumes of those products) assumed in the revenue calculation, and the costs of financing the level of working capital implied by the timing of milk supply, production, sales and payment for milk (assuming the timing of payment for milk is aligned to Fonterra's).

   The inputs, processes and assumptions applied in calculating the capital costs assumed in the Farmgate Milk Price calculation, and our views on the consistency of each of these with s 150A of DIRA, are set out in section 7.

4 Section 150B Safe Harbour Assumptions

Section 150B sets out four assumptions which, if employed in the calculation of the base milk price, "[do] not detract from the achievement of the purpose set out in section 150A." We confirm that Fonterra has in fact made each of these four assumptions in calculating the Farmgate Milk Price, and comment briefly on these assumptions, and on matters relevant to the interpretation of the statutory provisions, in this section.

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

Section 150B(a) provides that the base milk price may reflect an assumption "that [Fonterra] operates a national network of facilities for the collection and processing of milk."

We assume in interpreting this provision that it is reasonable to substitute the NMPB for Fonterra, and note that the relevant assumptions in the milk price model materially reflect the relevant Fonterra data. In particular, the model assumes the same number (and location) of commodity manufacturing sites as is actually maintained by Fonterra, and that total processing capacity by site is materially aligned to Fonterra's. This assumption is reflected in the model's allowances for site overhead costs and site capital, and in various other aspects of the model, including the calculation of milk collection costs, inter-site diversion costs and inland freight costs. The model also assumes that annual volumes of milk processed on each site are materially aligned to the volumes actually processed.

Size of assumed units of processing capacity

Section 150B(b) provides that the base milk price may reflect an assumption "that the size of [Fonterra's] assumed units of processing capacity approximates to the average size of [Fonterra's] actual units of processing capacity." We have previously explained that we consider it necessary to interpret this provision in conjunction with the requirement in section 150C(1) that the base milk price be calculated by reference to returns on the subset of commodities likely to be most profitable over the period of 5 years from the time the portfolio of commodities is determined, from which it follows that the relevant processing capacity in this provision is Fonterra's capacity for the manufacture of the reference products.[8]

The relevant provision in the Milk Price Manual is contained in Rule 24 in Part B, which provides that "the overall weighted average daily processing capacity of all Standard Plants ... [should be] materially consistent with the overall weighted average daily processing capacity of the [relevant Fonterra] plants [at the end of the Review Period]." The end of the current review period is 2016. In contrast, section 150B(b) looks to whether the processing capacity assumed in the base milk price approximates Fonterra's average capacity for milk price products in 2014.

We can confirm, however, that despite the difference in timeframes take into account in the Milk Price Model and in section 150B(b), the average capacity assumed in the Farmgate Milk Price for the 2014/15 year is materially aligned to Fonterra's current weighted average: the model assumes average WMP and SMP processing capacity of 2.0 million litres per day, compared to Fonterra's average of 1.95 million litres per day for its WMP and SMP plants.[9]

[8] Fonterra's reasons paper in respect of the 2012/13 Milk Price Manual, 31 August 2012, p.2.

[9] Fonterra's current average WMP and SMP capacity would have been 2.0 million litres per day had it not acquired the NZDL Studholme plant in 2012.

Foreign exchange conversion rates

Section 150B(c) provides that the base milk price may reflect an assumption "that gains and losses experienced by [Fonterra] resulting from foreign currency fluctuations, including from [Fonterra's] risk-management strategies, are incorporated in the base milk price."

The relevant provision in the Milk Price Manual is contained in Rule 11 of Part B, which provides that:

> The process for converting USD revenue in respect of a Season to NZD shall reflect the following process:
>
> - Farmgate Milk Price USD Receipts for each month will be calculated by reference to Farmgate Milk Price US Dollar Commodity Revenue and Farmgate Milk Price Revenue Days
> - Farmgate Milk Price NZD Receipts for the month will be calculated by multiplying Farmgate Milk Price USD Receipts by the Benchmark FX Conversion Rate for the month.
>
> The Benchmark FX Conversion Rate for a month is the average rate at which Fonterra actually converts net receipts denominated in any currency other than NZD to NZD in the month, specified as a ratio of USD to NZD and calculated with regard to all costs and benefits of Fonterra's hedging activities in respect of amounts converted in that month.

We explain in section 6 below that this process will generally result in a difference between the quantum of foreign currency gains and losses assumed over the course of a year in the calculation of the Farmgate Milk Price, compared to Fonterra's actual gains and losses over the same period. Despite these differences, our view is that the approach used to calculate the Farmgate Milk Price foreign currency conversion rate is nonetheless consistent with section 150B(c). In particular, we note that this process results in the milk price being calculated 'as if' the NMPB had applied Fonterra's foreign currency risk-management policies, but in respect of the NMPB's, rather than Fonterra's, forecast monthly USD-equivalent foreign exchange exposure, and 'as if' any inaccuracies in the NMPB's forecasts were proportionately equivalent to any inaccuracies in Fonterra's actual forecasts.

Conversion of all milk collected by Fonterra at practically feasible yields

Section 150B(d) provides that the base milk price may reflect an assumption "that all milk collected by [Fonterra] is processed into commodities at yields that are practically feasible."

The relevant provisions in the Milk Price Manual are contained in:

- Rule 11 of Part B, which provides that the milk price calculation "will reflect all milk collected by Fonterra in New Zealand, including milk sold to third party processors in accordance with DIRA."
- Rule 7 of Part B, which provides that milk price production volumes "will be calculated to utilise all milk supply ... given the product yields established under Rule 8."
- Rule 8 of Part B, which provides (in conjunction with the relevant definitions in Part C) that the yield assumptions must be calculated by reference to supportable assumptions with respect to product specification, including the relevant Codex requirements, and manufacturing losses.

We confirm that the Farmgate Milk Price calculation has been calculated under the assumptions that:

- All milk collected by Fonterra in New Zealand is converted into RCPs.[10]
- The yields assumed in the conversion of milk into RCPs are practically feasible.

[10] Open Country Dairy has queried "Fonterra's approach to when and how winter milk is provided for in the Manual" (OCD Process Paper Submission, p.4). We confirm that winter milk (defined in the Raw Milk Regulations 2001 as raw milk supplied in June or July) is included in the Milk Price calculation, and that it is assumed to be converted into RCPs. In practice, most winter milk is sold to Fonterra Brands NZ and other local market participants as liquid milk.

We further note that:

- Assurance with respect to the accuracy of the relevant inputs into the Farmgate Milk Price calculation (e.g. confirmation that milk volumes and composition assumed in the calculation reconcile to the relevant actual Fonterra data) is obtained in the course of the assurance process outlined in section 3.
- We comment further on the 'practical feasibility' of the yield assumptions in section 5.

5 Revenue

Relevant DIRA and Milk Price Manual provisions

The Milk Price Manual rules governing the calculation of revenue inputs into the Farmgate Milk Price calculation are contained in Rules 7 – 11 of Part B, and in the various definitions included in section 1.2 of Part C of the Manual. The relevant provisions of subpart 5A of DIRA are contained in:

- Section 150C(2)(a), which provides that the portfolio of commodities used to determine the base milk price must comprise 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.
- Section 150C(1)(a), which provides that "revenue taken into account in calculating the base milk price [must be] determined from prices of a portfolio of commodities at the times that those commodities are contracted to be sold by [Fonterra]."
- Sub-sections 150B(c) and (d), which allow for the use of Fonterra's actual foreign exchange conversion rates and for the conversion of raw milk to finished product at yields that are "practically feasible".
- Section 150C(2)(b), which further provides that relative proportions of each commodity must be determined by reference to relative profitability, Fonterra's physical manufacturing capacity, and the need to utilise all components of available raw milk. (As noted in section 4 above, we have interpreted 'Fonterra's' capacity in this provision to in fact refer to the assumed capacity of the NMPB.)

Amendments to the Milk Price Manual and material changes in calculation methodology

We have not made any amendments to the Milk Price Manual or material changes to the calculation methodology for 2014/15 that impact on the inputs, processes or assumptions used to calculate revenue inputs into the base milk price calculation. (We discuss in the relevant sections, however, an update to a yield input that has resulted in an increase in assumed production volumes, and the use for the first time since the 2012/13 season of an alternative calculation methodology to accommodate an excess of peak milk supply over assumed processing capacity in the North Island.)

Portfolio of commodities included in the reference basket

As required under section 150C(2)(a) of DIRA, we have undertaken analysis to determine whether any commodities not currently included in the Reference Basket "are likely to be" more profitable than the commodities currently included over the five year period spanning 1 June 2014 – 31 May 2019.[11] If any such commodities were to be identified, it follows that the commodities currently included do not comprise those likely to be most profitable, and that this element of the Farmgate Milk Price calculation does not comply with section 150C(2)(a).

We have separately provided the detail and conclusions of our analysis to the Commission. In summary, we have not identified any commodities not currently included in the Reference Basket that are likely to be more profitable over the relevant period than those currently included, and have therefore not adjusted the composition of the Reference Basket used to determine the 2014/15 Farmgate Milk Price.

In addition, we have extended our analysis to include the period 1 June 2015 – 31 May 2020, and have also not identified any commodities not currently included in the Reference Basket that are likely to be more profitable over that period than those currently included, and will therefore not adjust the composition of the Reference Basket used to determine the 2015/16 Farmgate Milk Price.

[11] This period has been selected on the basis that it encompasses the 2014/15 season.

Overview of revenue calculation

The steps below provide an overview of the process used to determine total New Zealand dollar revenue in the milk price model:

Step 1: Given the volume and composition of milk supplied in each month, supportable assumptions with respect to 'yields', and Fonterra's actual allocation of milk into the four milk price product streams (WMP/Butter/BMP, WMP/AMF/BMP, SMP/Butter/BMP and SMP/AMF/BMP), determine milk price model production of each RCP in each month (Product mix and volumes).

Step 2: Map milk price model production onto assumed month of sale by reference to Fonterra's forecast sales plan. As the year progresses, 'lock down' the sales volumes for completed ('year to date') months (Sales phasings).

Step 3: Determine average selling prices for each RCP and for each month, reflecting prices actually achieved by Fonterra for commodity product shipped in the month and sold on current, arm's length terms (Average BCPs).

Step 4: Based on supportable assumptions with respect to sales terms, determine the quantum of notional USD cash receipted in each month, and use Fonterra's actual average USD : NZD conversion rates for the relevant month to convert the notional USD receipts to NZD. (Foreign exchange conversion).

The following sections provide further detail on the assumptions adopted, and inputs and processes used, in respect of each of these steps, and our comments on the consistency of these with section 150A.

Product mix and volumes

The table below sets out the inputs, assumptions and processes used to determine notional production volumes and product mix in the milk price model:

Inputs	Process	Assumptions
Milk supply: Fonterra's total milk supply by month (including 'winter milk' supplied in June and July) & 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 s 150B(d). Aggregation of data on monthly basis aligns to use of monthly averages throughout model.
Production mix: allocation of milk to SMP and WMP production, and of cream to AMF and Butter production, is aligned to Fonterra's actual allocation.	Calculated by reference to Fonterra's actual production for each month in the season. (Relevant calculation results in alignment of Fonterra's and the NMPB's ratios of WMP MT : (WMP MT + SMP MT), and of Butter MT : (Butter MT + AMF MT)for each month in the season.)	That Fonterra's product mix decisions are optimal, given information available at time decision is made. That use of Fonterra's actual product mix does not create any adverse incentives, and is therefore consistent with the efficiency criterion.
Production volumes (given product mix): 1. Fonterra's product specifications (principally minimum ratio of protein to solids excluding fat, minimum fat, maximum moisture content) for each RCP.	Extracted from relevant Fonterra system (PSLM or QPM).	The base calculations (for both yields and costs) assume all product manufactured is 'standard' or 'base' specification product (e.g. regular WMP and medium heat SMP). The model in fact includes prices achieved on the sale of a range of commodity products (differences may be as minor as customer-specific bags, or additional tests may be performed due to market-specific requirements, and the additional cost recovered from the customer). Any

Inputs	Process	Assumptions
		incremental costs for non-base specification product (including the cost of any incremental fat, protein or lactose, valued at a price consistent with the Farmgate Milk Price) relative to base specification costs are deducted as part of the revenue calculation.
2. 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). The loss provision covers: - Losses in milk reception, treatment & standardisation. - Effluent losses. - Stockfood losses. - Stack losses. - 'Overweight' losses in the course of packaging.	That these provisions adequately reflect the average losses that would be incurred by an efficient manufacturer of RCPs from all relevant sources over the course of a full season, having regard to assumed technology & efficient operating model.
3. Provision for actual usage of value components in excess of minimum allowed usage ('specification offsets').	Provisions for specification offsets established by independent expert (T Gandell) having regard to actual Fonterra performance for relevant plants and products.	That these provisions are appropriate, having regard to Fonterra data on the probability of failing relevant Codex tests & given the nature of assumed technology, including A&PC technology & capability.
4. Provision for manufacture of product that is not 'fully standardised' if milk supply in a region exceeds processing capacity.	Check on a daily basis that milk supply, given composition, does not exceed assumed processing capacity in NI or SI. If supply does exceed capacity, provision for reduction of added lactose to point where all milk can be processed, with some processed into 'non-standardised' milk powder.	That non-standardised milk powder (which has higher protein content) cannot be sold for a higher price than standard composition milk powder.

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

1. Milk supply: use of Fonterra's actual milk supply is a safe harbour assumption.

2. The production mix and volumes:

- The product mix reflects Fonterra's allocation of milk to the manufacture of specific products at the time the milk is supplied, so it follows that this input is not 'over optimised' (and that, subject to the cross-check on available capacity, that it is also practically feasible).
- This approach results in the consequences of any 'poor' decisions in respect of the allocation of milk to WMP and SMP, and cream to Butter and AMF, flowing to the Milk Price, and therefore it does not provide a strong incentive on Fonterra to operate efficiently with respect to its allocation of milk to the relevant product streams. The approach does not adversely affect Fonterra's incentives with respect to the allocation of milk to other, non-milk price, product streams. We have previously examined potential alternatives to using Fonterra's actual mix, and have concluded that if (say) the MPG were to establish an alternative 'benchmark' product mix rather than rely on Fonterra's allocation decisions, it would arguably be necessary for the MPG 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.

- We have separately provided the Commission with our supporting workings and data relating to the application of the cross-check on available capacity for the 2014/15 milk price, and the consequential adjustments to the assumed volume of finished product. In brief:[12]
    - Between September and November 2014, milk collected by Fonterra in the North Island exceeded assumed NMPB processing capacity by 7.9m kgMS in total.[13] The model had sufficient assumed capacity in place to process all milk collected by Fonterra in the South Island.
    - When lactose is added to the milk powder manufacturing process to standardise milk powders (i.e. to enable protein content to be targeted at around the minimum level allowed in the relevant standards), the lactose is mixed with water which is then dried together with raw milk. If lactose is not added, it follows that higher volumes of raw milk can be processed, but at the cost of effectively substituting higher value protein for lower value lactose. By solving for the volume of raw milk required to be processed into non-standardised powders (i.e. milk powder with no added lactose) to satisfy the assumed production constraints, we concluded that the NMPB would have had to divert 57.9m kgMS to the production of non-standardised milk powder. This resulted in a reduction in assumed production of standard composition WMP and SMP of 92,000 MT, partially offset by the production of 79,000 MT of unstandardised production.[14] We made the conservative assumption that the unstandardised WMP and SMP could not be sold at a premium to standard composition product, implying a reduction in notional revenue that was partially offset through lower variable production costs (where those costs are a function of finished product volumes) and lower lactose costs. At the relevant commodity prices there was a much lower difference between implied protein values and lactose prices than is normally observed, resulting in these adjustments having a relatively minor impact on the calculated milk price.

3. Production losses:

- The practical feasibility of the production losses assumed in the model is supported by the results obtained from Fonterra's detailed testing (the results of which have been separately provided to the Commission) and expert input. For the 2014/15 base milk price calculation, Fonterra has applied the following process to update the loss assumptions relative to the assumptions employed in the calculation of the 2013/14 base milk price:
    - In September and October 2013 Fonterra undertook loss audits at Te Awamutu (milk reception and treatment areas), Clandeboye WMP dryer 3 and Darfield WMP dryer 1. The MPG engaged Aurecon

[12] In the 2013/14 Base Milk Price Report the Commission expressed the view that the base "milk price calculation does not provide for a cost allowance to reflect the risk that 'super flush' peak milk flows at any time in a season might exceed the milk processing capacity of the notional producer" (paragraph 2.29, p.25) and suggested "that a cost allowance in the milk price model for 'super flush' peak milk flow costs could potentially factor in a combination of plant optimisation (additional ancillary plant fixed assets and additional plant labour) and network optimisation (additional collection costs and revised yields)" (paragraph 2.62, p.35). The adjustments outlined in this section demonstrate that the base milk price calculation does in fact appropriately provide for super flush-related costs. (Under our 'partial standardisation' approach no further adjustments are required for additional ancillary assets, any additional collection costs actually incurred by Fonterra are separately provided for, and we also separately calculate and provide for any additional labour and storage-related costs.)

[13] Our assumed level of processing capacity is calculated assuming output of finished product equal to manufacturers' specified capacity, and that manufacturing plants are 'on product' on average [ ]% of the time over the peak processing period. Peter Walker, in his report on the energy usage assumptions employed in the 2013/14 base milk price calculation, noted that actual output from Fonterra's Darfield dryer 1 plant, which has identical technology to the current generation of WMP plants assumed in the Milk Price model, exceeded stated capacity by 5 %. This level of performance is consistent with Fonterra's experience on other modern plants. It follows that our assumption of manufacturing output equal to manufacturer specifications is therefore conservative.

[14] There were also some minor variances in assumed production of butter, AMF and BMP relative to a 'sufficient processing capacity' counterfactual.

to undertake independent oversight of the loss audits and to provide a report on the audit process, completeness and results.

- Results from these audits, together with Fonterra data on emissions (stack losses), stockfood and overweight losses, were used to test and make minor refinements to the loss assumptions employed in the calculation of the 2013/14 base milk price. These adjustments, and recommended loss assumptions for the 2014/15 base milk price, were made by an independent expert, Tina Gandell, engaged by the MPG, after review and input from Fonterra management. In Ms Gandell's view, the loss allowances represent "achievable but challenging targets for the notional Milk Price business, given the size, technology and operating parameters assumed for this business."[15] Ms Gandell explicitly considered and where appropriate adjusted the loss audit results for the impact of plant operation at partial capacity and for the identifiable impact of differences between the technology, operation and products of Fonterra plants and the NMPB.
- The loss assumptions used in the calculation of the 2014/15 base milk price imply an overall loss of [ ]% of milk collected. This compares to an implied loss assumption of [ ]% in the 2013/14 base milk price calculation.
- Fonterra has subsequently undertaken a further detailed loss audit exercise at the Edendale site, the results from which will be used to inform any adjustments to the loss assumptions employed in the calculation of the 2015/16 base milk price. The results from this audit are consistent with those obtained from previous audits.

- Because Fonterra's actual performance with respect to yields does not directly flow through into the Farmgate Milk Price calculation, Fonterra is appropriately incentivised to minimise yield losses.

4. Specification offsets:

- The practical feasibility of the specification offsets assumed in the Farmgate Milk Price calculation is supported by detailed analysis of Fonterra's actual performance, details of which have been provided to the Commission. We note that this is an area where Fonterra has over time invested considerable capital (which is appropriately provided for in the milk price) and built up considerable expertise, so we accept it is possible that Fonterra achieves tighter offsets than those achieved by other processors in New Zealand. However, any advantage achieved by Fonterra does not involve the application of proprietary intellectual property, and is therefore potentially replicable by other processors.
- For the 2014/15 base milk price calculation, Fonterra has applied the following process to update the specification offset assumptions relative to the assumptions employed in the calculation of the 2013/14 base milk price:
  - The MPG engaged Tina Gandell as an independent expert to review the specification offsets employed in the calculation of the 2013/14 base milk price and to recommend any changes.
  - In undertaking her analysis Ms Gandell undertook detailed analysis of the actual composition of base specification milk price products manufactured by Fonterra over a four year period, including data showing the variability of performance at the plant level. Given this data Ms Gandell derived values for composition offsets that would be consistent with the composition of the product manufactured by the NMPB comfortably exceeding the relevant CODEX standard.
  - Based on her analysis Ms Gandell recommended the allowances assumed for the 2013/14 base milk price be retained, other than the assumption relating to the target level of moisture content in WMP. Because the minimum protein level in WMP (and SMP) is specified as a minimum ratio of protein to solids excluding fat, the amendment to the target moisture content resulted in a reduction in the target protein content. The amended WMP moisture content target is materially below the maximum content specified in the relevant CODEX standard, and is consistent with our understanding of the moisture content targeted by other New Zealand processors.

[15] Tina Gandell, Proposed F15 Milk Price Manufacturing Loss Allowances, 3 June 2014.

- The specification offset assumptions used in the calculation of the 2014/15 base milk price imply an overall reduction of [ ]% in volume of finished product relative to a 'nil offset' counterfactual. This compares to an implied overall reduction of [ ]% in the calculation of the 2013/14 base milk price.[16]

- The specification offsets assumed are independent of Fonterra's actual current year performance, and therefore appropriately incentivise Fonterra to minimise the extent to which valued component usage exceeds stated minimum levels for the relevant products.

In the 2014/15 Process Paper, the Commerce Commission explain that "[we] will review whether or not the assumed losses for the notional producer are practically feasible for a full season. We will take into consideration the assumed mix of old and new plants in the milk price model and the commercial realities of operating plants." We advise that:

- As noted above, the approach taken to establishing the loss allowances includes explicit adjustments that provide for the impact of additional plant start-up and shutdown, due both to partial operation on the 'shoulders' of a season and unscheduled events.
- The primary category of additional losses arising from unscheduled stoppages is stockfood losses. The provision for stockfood losses has been established by reference to average annual stockfood losses over a three year period at a representative Fonterra plant, and is therefore practically achievable.

Sales phasings

The table below sets out the inputs, assumptions and processes used to determine the volume (in metric tonnes) of each RCP assumed to be sold in each month.

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.

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing the sales phasings inputs:

- The sales phasings reflect Fonterra's actual phasing of sales, and are therefore practically feasible. We note, however, that Fonterra's ability to sell its production is constrained at certain periods (particularly around the peak supply months of October and November) due to logistical constraints on shipping the volume of product manufactured by Fonterra at those times. This effective diseconomy of scale means Fonterra necessarily faces material additional storage and working capital costs that a smaller processor could choose not to be exposed to, and means Fonterra has a more restricted ability to take advantage of short-term favourable commodity prices than smaller processors. Use of Fonterra's sales phasings means these scale diseconomies are reflected in the Farmgate Milk Price calculation.
- The use of Fonterra's actual sales phasings potentially means Fonterra faces a reduced incentive to optimally phase its sales, at least of the RCPs, relative to using an independent set of phasings. In the 2013/14 base milk price report, the Commission accepted that it is appropriate for Fonterra to use actual data for sales phasing because (a) there is insufficient data to develop a reasonable notional figure, and (b) Fonterra only

[16] In combination our loss assumptions and specification offset assumptions imply an overall reduction in volume of finished product manufactured, relative to a 'nil loss or offset' counterfactual, of 1.1%. This compares to an implied reduction of 1.2% in the 2013/14 base milk price calculation.

has limited discretion over its sales phasing.[17] The fact situation and reasoning underpinning this conclusion remains unchanged in the 2014/15 season.

[17] 2013/14 Base Milk Price Report, paragraph E17, p.84.

Average Base Commodity Prices

The table below sets out the inputs, assumptions and processes used to determine the monthly average USD selling prices assumed in the milk price model:

Inputs	Process	Assumptions
Prices 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. Weighted average prices across all Fonterra's GDT sales of NZ product for WMP, SMP & AMF. 2. For Butter & BMP, all prices achieved on GDT, plus all prices achieved for sales which are transacted on arm's length terms to parties independent of Fonterra, and at prices that reflect prevailing market prices at the time the contract for sale is entered into. 3. Prices for 'include' products that are not the standard specification products are adjusted for any incremental costs (relative to standard specification product) of manufacturing the product.	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 month' average prices).	That the prices used (primarily GDT prices) represent an unbiased estimate of the prices achievable for standard specification commodity product. That using a subset of Fonterra's actual sales (again, primarily on GDT) appropriately incentivises Fonterra management to maximise prices achieved on other sales. That the governance arrangements in place to ensure credibility of GDT to its customers are sufficient to address concerns raised by others that Fonterra might manipulate volumes offered on GDT for the purpose of altering the milk price.
Contract month weightings 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 the percentage of sales recognised in the month that satisfy the Volume Criteria (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 prices to be applied to Milk Price sales of each RCP in that month.	That Fonterra's overall contract profile for arm's length commodity sales, rather than just the GDT contract profile, is appropriate.
Downgrade 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.

Inputs	Process	Assumptions
Ocean freight recoveries 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.

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

1. Prices:

- The prices incorporated in the calculation of the weighted average monthly BCPs used in the Farmgate Milk Price calculation predominantly reflect prices achieved by Fonterra on the sale of product on GDT. In the forecast Farmgate Milk Price as at 31 May 2015, 93% of assumed NMPB revenue was derived directly from prices achieved on GDT. The remaining 7% of assumed NMPB revenue was derived from prices achieved by Fonterra in off- GDT sales of Butter and BMP.
- Because these prices are derived from prices actually achieved by Fonterra, they are practically feasible for Fonterra. We have separately provided the Commission with considerable data and analysis that demonstrates that the prices achieved by Fonterra on GDT are not systematically higher than the prices achieved by Fonterra on off-GDT sales, and that they are also not systematically higher than prices achieved by other NZ producers.
- Placing primary reliance on prices achieved on GDT appropriately incentivises Fonterra to (a) seek to maximise prices achieved off-GDT, and (b) make efficient choices between sales channels.

2. Contract month weightings:

- The contract month weightings draw on Fonterra's actual contract profile, and are therefore practically feasible.
- Use of Fonterra's overall contract profile for sales of the RCPs contracted on an arm's length basis at current prices means that Fonterra's choices between sales channels are driven solely by an assessment of which channel will deliver the highest net price, and are therefore consistent with the efficiency criterion. (The most obvious alternative approaches would likely drive inefficient decisions: use of an independently-determined set of contract month weights may incentivise Fonterra to 'manage to the model' so as to avoid earnings volatility, while use of just the GDT contract month weightings could result in inefficient decisions regarding the choice of sales channel (e.g. Fonterra might choose to sell product on GDT even where this would not maximise revenue, so as to better align GDT contract month weightings with off-GDT contract month weightings).

3. Downgrade:

- The assumptions in respect of both the percentage of product falling into each downgrade category and the associated costs are derived from an assessment of Fonterra's recent historic performance, and are therefore practically feasible.
- The assumptions do not result in the pass-through to the Farmgate Milk Price of Fonterra's actual current-year performance, and are therefore consistent with the efficiency criterion.

4. Ocean freight recovery:

- As noted above, any differences between Fonterra's actual ocean freight costs per MT and the amounts charged to Fonterra's customers are included in the Farmgate Milk Price. The rationale is that in the course of comparing the price of Fonterra product to prices available from alternative sources of supply, customers will factor in differences in ocean freight rates (along with charges for any other 'add ons' in addition to the

FAS price). It is therefore reasonable to assume that on average, any margins over the cost of ocean freight will be impounded in lower FAS prices. The relevant margin reflects actual Fonterra recoveries, and is therefore practically feasible for Fonterra.

- Ocean freight recoveries are calculated with respect to Fonterra's average current year margins, and it might at first sight appear that this approach leaves Fonterra with a weakened incentive to minimise its negotiated rates for ocean freight. However, if Fonterra were to pay 'too much' for ocean freight, it would receive lower net prices for its non-milk price products, which would in turn result in lower earnings. We therefore do not consider the use of current year actual average margins to be inconsistent with the efficiency criterion.

Foreign exchange conversion

The table below sets out the inputs, assumptions and processes used to determine the monthly USD : NZD foreign exchange conversion rates used in the milk price model:

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 and (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 milk price WACC) for the period between acquisition and exercise or expiry of options.	That application of Fonterra's average FACR for the month to the calculated Milk Price USD cash receipts in the month (which will differ from Fonterra's) is consistent with s150B(d).

The 'benchmark FX conversion rate', the average USD : NZD conversion rate applied to convert notional milk price receipts for a month, is calculated through the following steps:

1. Converting all Fonterra's USD-equivalent receipts to NZD at the daily average spot exchange rate for the month.
2. Adding (subtracting) to the NZD receipts the gains (losses) on foreign exchange contracts exercised by Fonterra in the month.
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.
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.
5. Dividing the USD receipts by the adjusted NZD receipts obtained through steps 1 – 4, to derive Fonterra's 'benchmark FX conversion rate.' The resulting series of monthly benchmark rates is then used to convert the notional net USD cash receipts of the NMPB to NZD.

This approach effectively assumes the NMPB applies Fonterra's foreign exchange hedging policy in exactly the same manner as Fonterra does, from which it follows that the assumed conversion rates are practically feasible. While use of Fonterra's average conversion rates is a safe harbour assumption, we also note that Fonterra on average converts a higher quantum of USD-equivalent receipts to NZD (in respect, for example, of Fonterra's offshore subsidiary operations) and is therefore appropriately incentivised to efficiently manage its foreign exchange risk management activities.

6 Cash costs

Relevant DIRA and Milk Price Manual provisions

The Milk Price Manual rules governing the calculation of the various cash costs assumed in the Farmgate Milk Price calculation are contained in Rules 12 - 23 of Part B, and in the various definitions included in section 1.3 of Part C of the Manual. The relevant provisions of subpart 5A of DIRA are contained in section 150C(1)(b), which provides that the costs taken into account in calculating the Farmgate Milk Price must include the cost of collecting milk, processing that milk into the RCPs and of selling the RCPs.

Amendments to the Milk Price Manual for 2014/15 and material changes in calculation methodology

The following amendments to the Milk Price Manual for 2014/15 and material changes to the calculation methodology either resulted in or had the potential to result in changes to the inputs, processes and assumptions used to calculate cash cost inputs into the base milk price calculation:

1. Repairs and maintenance costs: Rule 15 relating to R&M costs was revised to provide for a separate calculation for fixed costs, subject to the availability of sufficiently accurate data, and to make explicit that the remaining provision, calculated by reference to Fonterra's historic average R&M spend as a percentage of asset replacement costs, was to be calculated using the subset of Fonterra's manufacturing sites that were most comparable to the NMPB's sites. We have not been able to obtain for 2014/15 data that is sufficiently consistent and comparable across sites to undertaken the envisaged separate calculation for fixed costs, and have therefore retained the approach used in 2013/14. We will further review our approach for 2015/16.
2. Calculation of certain variable manufacturing costs under Rule 13: in contrast to the approach previously employed where costs relating to water, cleaning and CIP, consumables, effluent and laboratory testing were calculated using data extracted from Fonterra's product costing system, we have for 2014/15 separately modelled the fixed costs and variable costs associated with the relevant activities, using the relevant Fonterra budgeted rates and equipment manufacturers' specifications with respect to usages. The net impact of this change, as disclosed in the F14 Farmgate Milk Statement, was a reduction in calculated costs of approximately 0.7 cents per kgMS.
3. Calculation of energy usages under Rule 13: We have separately provided to the Commission information on our revised calculation of energy usages, which draws on data from energy audits undertaken at Darfield in 2014 and Edendale in 2015. The revised calculation has resulted in an increase in calculated energy costs of approximately 0.7 cents per kgMS.

Overview of calculation of cash costs

The Farmgate Milk Price reflects appropriate provisions for the full range of manufacturing and other costs that could reasonably be expected to be incurred by a manufacturer of the RCPs. These costs are categorised in this section under the following headings:

- Selling
- Lactose
- Collection
- Packaging
- Energy
- Cost of water, cleaning and CIP, consumables, effluent and laboratory testing
- Plant labour
- Repairs and maintenance
- Site overheads
- Inland freight

- Storage
- Other supply chain costs
- Administration and other overheads
- One-off costs.

Selling costs

The table below sets out the inputs, assumptions and processes used to determine the selling costs assumed in the calculation of the Farmgate Milk Price:

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

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- We have separately provided the Commission with the detail of the approach taken to establishing the quantum of the various items listed under the 'inputs' heading above, and consider that they include appropriate provisions for all relevant costs and that they are practically feasible.
- The assumption that the NMPB is a third party participant on GDT means that this component of the assumed selling costs is also practically feasible for a processor other than Fonterra (and also results in a higher assumed cost than the alternative approach of assuming the actual cost of operating GDT).
- The assumption that 10% of sales are to government procurement customers, and that these customers will on average pay a net price equivalent to the GDT price (meaning that the additional sales costs are assumed not to be recovered) is conservative, and we have separately provided detailed information to the Commission in support of this view.
- While various elements of the selling costs provision are derived from actual Fonterra costs, the approach does not result in Fonterra's actual current year costs flowing directly to the milk price, and is therefore consistent with the efficiency criterion.
- In the 2013/14 Base Milk Price Report the Commission concluded that "[o]verall we accept that selling costs are practically feasible but would ask for further justification for the number of hubs in the 2014/15 calculation review."[18] We have separately provided the Commission with additional information supporting the rationale for the number of sales hubs assumed in the base milk price calculation.

Lactose costs

The table below sets out the inputs, assumptions and processes used to determine the cost of added lactose assumed in the calculation of the Farmgate Milk Price:

[18] 2013/14 Base Milk Price Report, paragraph H16, p.98.

Inputs	Process	Assumptions
1. Price: lower of Fonterra's & other NZ processors' average landed monthly price, ex NZ Customs. 2. Quantity: - yield calculations - see above - 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 - payable days per analysis of typical contract terms, shipping days & holding days (revised for F15). 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 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. Step 3: Calculate the monthly CIF costs (ocean freight, insurance) as a weighted average of the supplying markets for both Fonterra and competitor imports using for each market a Fonterra freight where applicable and the competitor rate only where there is no matching Fonterra rate. Step 4 :Apply to the milk price calculation whichever of the series calculated under Step 1 generates the lower average price for the season under Step 2 and the corresponding CIF cost series	That the approach appropriately incentivises efficient lactose procurement by Fonterra, since any adverse difference between Fonterra's costs & the average cost reported by other New Zealand processors would fall to earnings. That the approach captures all lactose-related costs.

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- The use of actual costs for lactose landed in New Zealand necessarily implies the assumptions are practically feasible.
- Averaging over 12 month period is in our view sufficient to capture the impact of any differences in, for example, the average lag between contracting lactose and it landing in New Zealand for Fonterra relative to other processors.
- Volume assumptions are an output of the yields calculations, and will be practically feasible so long as the yields are calculated correctly, and so long as the assumption for losses is supportable, which we consider to be the case.
- In the 2013/14 Base Milk Price Report the Commerce Commission explained why in its view the approach taken to establishing the lactose price created an incentive for Fonterra to act efficiently in procuring lactose.[19] We agree with the Commission's reasoning.

Collection costs

The table below sets out the inputs, assumptions and processes used to determine the collection costs assumed in the calculation of the Farmgate Milk Price:

[19] 2013/14 Base Milk Price Report, paragraphs I20 – I24 and I26, pp.102-103.

Inputs	Process	Assumptions
Fonterra's actual cash collection costs, excluding Fonterra's actual inter-factory diversion costs and inter-island milk transport costs. Modelled inter-factory diversion costs, based on calculated volumes of cream & buttermilk to be transported between sites, given asset footprint & product mix. These collection costs include Fonterra's actual diesel hedging and ETS credits costs / gains.	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 the NMPB assumes sufficient processing capacity in both the North Island and South Island, and would therefore not have had to transport milk between islands in 2014/15. 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 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.

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- Use of actual costs, which are incurred by Fonterra in respect of the same total volume of milk assumed to be collected by the NMPB, means the assumed costs are practically feasible for Fonterra. (As noted below, we do not consider the potential for 'over optimisation' previously raised by the Commission impacts on the practical feasibility of the collection cost assumption.)
- Use of actual costs also means that the approach does not provide a strong incentive for Fonterra to minimise collection costs. However, as we have previously advised, we do not consider it to be practicable to independently model the collection costs of the NMPB at a sufficiently detailed level to be able to generate a materially reasonable estimate of costs.
- We model inter-site product diversion costs on a basis that is independent of Fonterra's actual costs, which are significant, and this approach therefore appropriately incentivise Fonterra to operate efficiently in this respect.

Packaging costs

The table below sets out the inputs, assumptions and processes used to determine the packaging costs assumed in the calculation of the Farmgate Milk Price:

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.

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- Both the unit cost and unit usage (including wastage) assumptions are derived from Fonterra actuals, and are therefore practically feasible for Fonterra. We do not consider Fonterra has any procurement or

technological advantages not available to other processors of similar scale, and therefore believe these assumptions to be practically feasible for other processors.

- Use of Fonterra's actual unit costs for packaging inputs arguably weakens the incentives on Fonterra to minimise the relevant costs, but we note that:
  a) the packaging inputs used to establish the costs assumed in the Farmgate 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 Farmgate Milk Price calculation, and
  b) suppliers of packaging inputs referenced in the Farmgate Milk Price calculation generally also supply packaging inputs not used in the calculation, and we have not observed any systematic increase in the price of milk price-related inputs relative to other packaging inputs over time (as would have been observed had Fonterra not been as pro-active in minimising the cost of milk price-related inputs).

Energy costs

The table below sets out the inputs, assumptions and processes used to determine the energy costs assumed in the calculation of the Farmgate Milk Price. We note that we have adopted a revised approach to calculating energy usages for milk powder manufacture, compared to prior years where we placed primary reliance on manufacturers' specified energy usages.

Inputs	Process	Assumptions
Fonterra's budgeted average unit energy costs for: - electricity - gas - coal - steam Calculated energy usage per MT of finished product drawing on: - manufacturer's specifications - results from 'energy audits' of relevant Fonterra plants - other relevant Fonterra data - expert input. 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 energy usage per MT of finished product derived from energy audits of relevant Fonterra plants. The energy audit results reflect energy use when the plant is operating at full capacity. Appropriate adjustments are made to take into account partially utilized plants in the shoulders of the season and non-production plant downtime. 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.	That 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. That manufacturer's specified energy usages are practically feasible for plants operating under milk price model conditions.
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.	That gas and electricity transmission costs are the only material fixed energy costs. That Fonterra's budget peak energy cost rate is representative of actual costs and rates an efficient processor would pay.

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- 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 actual performance of relevant Fonterra plants, 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, or that the plants assumed in the milk price calculation incorporate any

technology relevant to energy consumption that is not available to other processors, and therefore also believe these assumptions are practically feasible for other processors.

- The approach taken to establishing unit energy cost assumptions does not result in Fonterra's actual current year prices being passed through into the Farmgate 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 current year actual usage. Fonterra is therefore appropriately incentivised to minimise both its energy usage and its unit energy costs.
- We have separately provided the Commission with analysis drawing on the results of energy audits at the Darfield site in February 2014 and Edendale site in February 2015, which we consider supports a conclusion that our assumed energy usages are practically feasible.
- In response to the Government's decision in December 2013 to restrict the use of some types of Kyoto Protocol emission units within the NZ emissions trading scheme from 2015 onwards, we have assumed that only New Zealand Units and New Zealand Assigned Amount Units can be surrendered to satisfy the NMPB's carbon credit obligations, and have used the relevant Westpac index as a measure of the spot price. Previously, given access to a wider range of credits, we used the lower of the Westpac NZ price and the ERU and CER prices as reported by Bloomberg. We consider this approach supports the practical feasibility of our assumed ETS prices.

Costs of water, cleaning and CIP, consumables, effluent and laboratory testing

The table below sets out the inputs, assumptions and processes used to determine allowances in respect of the cost of water, cleaning and CIP, consumables, effluent and laboratory testing assumed in the calculation of the Farmgate Milk Price. We note that we have amended for the 2014/15 season the approach taken in prior years, under which we drew on allocated costs per MT from Fonterra's product costing system.

Inputs	Process	Assumptions
Fonterra's budget Fixed costs and variable unit cost of utility item sourced from Fonterra's budgeting system for: - Water - Lab testing - Cleaning - Effluent - Consumables Calculated utility usage per MT of finished product drawing on: - manufacturer's specifications - actual plant acceptance testing information of relevant Fonterra plants - other relevant Fonterra data - expert input.	Source Fonterra's budgeted fixed costs and variable unit cost for each utility item. Apply the variable unit rates to the manufacturer's specifications or actual plant acceptance testing information where available. Multiply allocated variable cost per MT by total MT of each RCP.	That the relevant variable costs materially vary with production volumes. That Fonterra's budgeted fixed utility cost is representative of actual costs and the rates an efficient processor would pay.

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- Because the modelled costs are not updated in the Farmgate Milk Price calculation for Fonterra's actual current year costs, this approach is consistent with the efficiency criterion.
- We have separately provided the Commission with the calculations and analysis underpinning the development of the approach to calculating these inputs. This analysis supports our view that the allowances are practically feasible.

Direct manufacturing wages and employee-related expenses

The table below sets out the inputs, assumptions and processes used to determine allowances in respect of the cost (including on-costs) of plant labour in the calculation of the Farmgate Milk Price:

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

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- The unit cost assumption reflects Fonterra's actual average cost (given staffing levels) for plant labour. Plant labour requirements were established through a process of independent review, and we have separately provided data to the Commission that demonstrates that the assumed staffing numbers materially align to the numbers actually utilised by Fonterra in plants comparable to those assumed in the Farmgate Milk Price calculation. These assumptions are therefore practically feasible for both Fonterra and for any other processor using similar manufacturing plant.
- Staffing levels are established by reference to, but independently of, Fonterra's actual staffing levels, and therefore satisfy the efficiency criterion. Unit staff costs reflect actual Fonterra costs, but the Farmgate Milk Price calculation assumes materially fewer plant labour FTEs than are actually engaged by Fonterra. Consequently, any savings in unit costs by Fonterra will result in higher earnings, and Fonterra is therefore appropriately incentivised to minimise unit plant labour costs.
- We have not modified the approach or assumptions used to establish the provisions for direct manufacturing wages and employee related expenses in the calculation of the 2013/14 base milk price.

Repairs and maintenance costs

The table below sets out the inputs, assumptions and processes used to determine allowances in respect of costs associated with the repair and maintenance of the fixed assets assumed in the calculation of the Farmgate Milk Price:

Inputs	Process	Assumptions
Fonterra's average R&M spend as % of total replacement cost of Fonterra's fixed assets for seven manufacturing sites most similar to Milk Price model sites over the period F11 – F14. Total replacement cost of Milk Price asset base. (In both cases excluding collection assets & R&M costs & dry store assets & R&M costs.)	Calculate Fonterra's average R&M spend as % of asset replacement cost to replacement cost of equivalent Milk Price assets over the period F11 – F14 for seven sites most similar to Milk Price model sites. Apply the average ratio to the replacement cost of the relevant NMPB assets, to derive the Milk Price R&M provision.	That there are not material differences in average R&M spend, as a percentage of replacement cost, across (a) milk price vs non-milk price assets on the relevant sites, & (b) across assets older than those included in the Milk Price asset base vs assets with lives equivalent to those included in the Milk Price asset base.

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- The provision for repairs and maintenance costs has been established by reference to Fonterra's actual historic costs. While Fonterra's actual costs are in respect of a different profile of assets, we have undertaken considerable analysis to determine whether there are any systematic differences in average maintenance costs, as a percentage of replacement cost, for milk price vs non-milk price assets, and have concluded that, given Fonterra's asset maintenance policies, there is not. We therefore consider the assumed quantum of repairs and maintenance costs to be practically feasible.
- The provision for R&M is established independently of both Fonterra's actual current year R&M cost, and of Fonterra's actual current year R&M spend as a percentage of the replacement cost of Fonterra's manufacturing assets, and is therefore consistent with the efficiency criterion.

Site overhead costs

The table below sets out the inputs, assumptions and processes used to determine allowances in respect of site overhead costs assumed in the calculation of the Farmgate Milk Price:

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

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- The provision in respect of site overhead-related costs was established through a process of expert review, with Fonterra management input to ensure that all relevant costs were identified. The provision is in our view practically feasible, both for Fonterra and for other processors.
- Because the provision is set independently of the relevant Fonterra current year actual costs, it is consistent with the efficiency criterion.

Inland freight costs

The table below sets out the inputs, assumptions and processes used to determine allowances in respect of inland freight costs assumed in the calculation of the Farmgate Milk Price:

Inputs	Process	Assumptions
Modelled production volumes of each RCP at each site, established by reference to Fonterra's actual allocation of milk to sites. Fonterra's average contracted freight rate per MT of product from relevant site to relevant port.	Use calculated production of (a) dry product and (b) butter at each site to determine weighted average inland freight costs per MT for dry product and butter, respectively. Multiply total volumes of dry product and butter by weighted average freight rates to derive total inland freight cost for NMPB production. Multiply total volume of NMPB lactose NMPB by average inland freight rate per MT for dry product to	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.

Inputs	Process	Assumptions
	derive inland freight cost for added lactose.	

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- The average freight costs assumed in the model reflect Fonterra's actual unit costs, and are therefore practically feasible for Fonterra. Fonterra outsources its inland freight requirements to independent contractors. Since we have no cause to believe Fonterra has any procurement advantages not available to other processors, we consider these costs are also practically feasible for other processors.
- Use of Fonterra's actual inland freight rates reduces the incentive on Fonterra to minimise the relevant costs. We note, however, that the rates are independently negotiated by DTL, 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.

Storage costs

The table below sets out the inputs, assumptions and processes used to determine allowances in respect of storage costs assumed in the calculation of the Farmgate Milk Price:

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. 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.	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 Annual assessment to check that model incorporates sufficient dry store capacity given actual implied inventory volumes for the year, with cost of any excess of stock over space assumed to be stored with third parties at Fonterra contract rates. Fonterra assets. Operating costs all modelled as being fully variable with respect to finished product MT. Labour costs per MT calculated as product of FTE cost, FTE requirement per MT, & total MT of dry product 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.	That all relevant costs materially vary with MTs stored / handled. That the sample of Fonterra data used is representative of the costs an efficient processor would incur.

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- Dry store capital costs are based on inputs provided by independent experts, and are comparable with costs recently incurred by Fonterra in installing the new dry stores at Darfield. Operating costs, including any costs of third party storage if required, are also established by reference to actual Fonterra costs using appropriate expert input, and are therefore in our view practically feasible for Fonterra.

- The provision for cool store storage costs reflects actual arm's length costs incurred by Fonterra, and is therefore practically feasible, both for Fonterra and for other processors.
- Because the various storage-related provisions (other than the cool storage provision and any required third party storage of dry product) is set independently of the relevant Fonterra current year actual costs, they are consistent with the efficiency criterion.

Other supply chain costs

The table below sets out the inputs, assumptions and processes used to determine allowances in respect of other supply chain costs assumed in the calculation of the Farmgate Milk Price:

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.

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- These provisions were all established through a process of expert review, with Fonterra management input to ensure that all relevant costs were identified. The provisions are in our view practically feasible, both for Fonterra and for other processors.
- Because the provisions are set independently of the relevant Fonterra current year actual costs, they are consistent with the efficiency criterion.

Administration and other overhead costs

The Farmgate Milk Price calculation contains provisions for the costs of the wide range of activities of an administrative or overhead nature that would be undertaken by a commodity milkpowder manufacturer with the scale of the NMPB.

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.	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.

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- As noted in Attachment 1, provisions have been included in this category for costs that are actually incurred by Fonterra, and which may be incurred by a commodity-only processor of Fonterra's scale, but which we anticipate would not be incurred by smaller processors. (Costs falling into this category, include expenditure by Fonterra of an industry good nature, such as providing policy input into the formulation of environmental and trade policy.)

- These provisions were all established through a process of expert review, with extensive Fonterra management input to ensure that all relevant costs were identified. The provisions are in our view practically feasible, both for Fonterra and for other processors.
- Because the provisions are set independently of the relevant Fonterra current year actual costs, they are consistent with the efficiency criterion.

One-off costs

While the Manual does not include an explicit provision covering 'one off' costs that could reasonably be expected to be incurred by the NMPB, but which are not provided for under a specific rule, we nonetheless calculate provisions on the following basis in respect of certain costs or circumstances actually faced by Fonterra:

- Costs that arise where Fonterra has a contractual obligation to pay for milk but is unable to collect it due, for example, to a significant snow storm. These costs are covered by excluding this milk from our calculation of milk price model revenue and variable costs, but including it when calculating the average milk price. This approach results in the 'cost' of an uncollectable kilogram of milksolids being calculated as the foregone earnings of the NMPB, rather than Fonterra's actual foregone earnings from not being able to process the milk.
- Costs incurred by Fonterra due to one-off events that cannot be forecast, such as the Christchurch earthquake or the Maui gas pipeline failure, and which are not covered, whether in part or in full, by Fonterra's (or the NMPB's) insurance policies. Our approach to these costs is to assess the nature and extent of the costs the NMPB would have faced as a consequence of the particular event, and to deduct this amount when calculating the base milk price. Depending on the circumstances, the cost provided for in the base milk price may be less than, the same as, or more than the actual cost incurred by Fonterra.

The 2014/15 base milk price calculation contains provisions for 'one-off' costs that could reasonably have been expected to have been incurred by the NMPB in 2014/15 and which are not explicitly provided for under the headings set out above as follows:

- Costs arising from an excess of peak milk supply over assumed processing capacity in the North Island. Our adjustments in respect of this item are explained in section 5.
- Additional milk testing costs arising from the threat to poison infant formula products with 1080. While the NMPB does not manufacture infant formula, Fonterra's response to this threat has been to increase testing of all raw milk and certain other products, and we understand other New Zealand processors have responded in a similar manner. We have therefore included a provision for the additional testing costs that a manufacturer of commodity milk powders could reasonably have been expected to have incurred, based on analysis of the relevant Fonterra costs.

The inputs, processes and assumptions relevant to the 1080-related adjustment are as follows.

Inputs	Process	Assumptions
Data on costs incurred by Fonterra, and at which point in the manufacturing process they relate to.	Determine which of the costs incurred by Fonterra would still have been incurred if Fonterra only manufactured commodity milk powder (under the assumption the 1080 threat had been made in respect of another NZ based infant formula manufacturer).	That the process used to identify relevant 'one-off' costs does in fact identify all relevant costs. That the approach used to calculate the impact of the relevant circumstances on the NMPB is reasonable.

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- The 1080-related provision reflects the relevant actual costs incurred by Fonterra, and is therefore practically feasible.

- Because the provision is in respect of a unique set of circumstances it would not be feasible to develop an alternative provision that is independent of the costs actually incurred by Fonterra. We note, however, that (a) Fonterra's response to the 1080 threat was predicated mainly on factors other than the cost of feasible responses, and (b) the assessment of which costs should be deducted in calculating the base milk price was undertaken subsequent to the decision to incur those costs. It is therefore unlikely that use of a provision based on Fonterra's actual costs will have had much, if any, impact on Fonterra's incentives to act efficiently.

8 Capital costs

Relevant DIRA and Milk Price Manual provisions

The Milk Price Manual rules governing the calculation of the various cash costs assumed in the Farmgate Milk Price calculation are contained in Rules 24 - 39 of Part B, and in the various definitions included in section 1.4 of Part C of the Manual. The relevant provisions of subpart 5A of DIRA are contained in:

- Section 150C(1)(b), which provides that the costs taken into account in calculating the base milk price must include the capital costs, including a return on capital, of collecting milk, processing that milk into the RCPs and of selling the RCPs.
- Sub-sections 150B(a) and (b), which provide for the assumptions that the NMPB may reflect Fonterra's national site footprint and the average processing capacity of Fonterra's plants for the manufacture of the RCPs.

Amendments to the Milk Price Manual for 2014/15 and material changes in calculation methodology

The following amendments to the Milk Price Manual for 2014/15 and material changes to the calculation methodology either resulted or had the potential to result in changes to the inputs, processes and assumptions used to calculate capital cost inputs into the base milk price calculation:

1. Asset beta and specific risk premium: Under the revised Rule 40 (asset beta) and new Rule 41 (specific risk premium) we obtained an independent expert report which resulted in a reduction in the asset beta from 0.45 to 0.38, partially offset through the incorporation of a specific risk premium in the cost of equity of 0.15 and a consequential change in the assumption relating to the ratio of tax depreciation to tilted annuity depreciation from 140% to 130%. The net impact of these changes was an increase in the calculated base milk price of approximately 2.0 cents per kgMS.
2. In the amendments to the Milk Price Manual for 2014/15 we also amended Rule 30, relating to the treatment of stranded asset risk in the event of changes to the RCP basket, and added a new Rule 33, relating to the site footprint. These changes did not result in any changes to the inputs, processes or assumptions employed in the calculation of the 2014/15 base milk price.

Overview of calculation of capital costs

The steps below provide an overview of the process used to determine the cash costs assumed in the calculation of the Farmgate Milk Price:

Step 1: Determine the fixed assets required to collect the milk supplied to the NMPB, and to manufacture and store the RCPs manufactured by the NMPB.
Step 2: Determine an appropriate value for the cost of capital.
Step3: Determine an appropriate approach for spreading capital recoveries in respect of the fixed assets of the NMPB over time, and for otherwise fully recovering relevant capital costs.
Step 4: Determine an appropriate allowance for the company tax that would be paid by the NMPB.
Step 5: Determine an appropriate allowance for financing costs in respect of the net working capital balances implied by the NMPB's collection and sales profiles, and by other assumptions relevant to an assessment of the NPMB's net working capital requirements.

The following sections provide further detail on the assumptions adopted, and inputs and processes used, in respect of each of these steps, and our comments on the consistency of these with section 150A.

Fixed assets

We have separately provided in Attachment 3 additional information on the fixed assets assumed in the calculation of the base milk price.

The table below sets out the inputs, assumptions and processes used to determine the fixed assets required by the NMPB, and assumed in the calculation of the Farmgate Milk Price:

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, capitalised interest etc) - Jones Lang LaSalle (JLL) assessment of inflation in replacement costs subsequent to 2008. JLL analysis of current dry store construction costs across NZ in 2014. Book values at 1 August 2012 of Fonterra's milk collection fixed assets.	Determine incremental plant requirements on a forward-looking basis, having regard to forecast changes in milk supply in the North Island & South Island, respectively. Assessment is aligned to Fonterra's formal annual refresh of its long run milk supply forecasts, with decisions re addition of plants made irrevocably approximately 18 months prior to commencement of season in which plant is assumed to be first available for use. 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. Annual assessment of incremental dry storage requirements, given forecast inventory volumes for following year.	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 there is no material difference between the Fonterra's actual milk collection assets & the assets required by the NMPB.
MWH scaling of DTZ valuations of ancillary assets to requirements of NMPB.		

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- The various assumptions employed in constructing the NMPB's fixed asset base have been subject to considerable independent expert input and review, and we have obtained independent confirmation that the notional asset base is appropriately configured and is consistent with the manufacture of the reference commodity products. It is therefore in our view practically feasible.
- Because the asset base is established independently of Fonterra's actual fixed asset costs, it is consistent with the efficiency criterion.

In the 2013/14 Base Milk Price Report the Commission reported that it was unable to conclude on the practical feasibility of the fixed asset costs. This conclusion was in part predicated on the Commission's view that the base milk price calculation did not include appropriate provision for peak milk-related costs, which we have addressed elsewhere in this submission. We have separately provided the Commission with a range of information on various

aspects of the fixed asset base which in our view provides further and sufficient support for our contention that the fixed asset costs are practically feasible.[20]

Weighted average cost of capital

The table below sets out the inputs, assumptions and processes used to determine the weighted average cost of capital assumed in the calculation of the Farmgate Milk Price:

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 0.38, as recommended by independent expert. Specific risk premium of 0.15. 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 modified for 2014/15 to incorporate a specific risk premium (6.1% for 2014/15 base 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.

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- The use in the Farmgate Milk Price calculation of five year rolling average inputs in respect of the risk-free rate and debt premium results in the Farmgate Milk Price reasonably reflecting the capital costs faced by a processor which followed a prudent process of rolling over a constant proportion of its capital requirements each year, and is materially consistent with Fonterra's actual risk management policies. More generally, the approach reasonably reflects the actual costs that would be faced by a processor with a similar credit rating to Fonterra's, and which had a debt profile with similar maturity and refinancing profile to that assumed in the Farmgate Milk Price calculation, and is therefore practically feasible.
- Relevant inputs are set independently of the corresponding Fonterra values, and are therefore consistent with the efficiency criterion.
- The asset beta and specific risk premium reflect Fonterra's independent expert's recommendations with respect to practically feasible values.

In the 2013/14 Base Milk Price Report the Commission noted that when it reviewed our independent expert's report it "would consider Synlait's request to consider that the independent processors (and by implication the notional processor) face higher risks that Fonterra as a result of materially more volatile commodity processing earnings."[21]

[20] Among other things, we consider the analysis provided to the Commission comparing the installation costs of Dryer 2 at the Darfield site to the budgeted costs of the proposed new dryer at the Lichfield site lends support to the view that we are at present over-providing for the installation costs of new and replacement powder dryers, since our current reference point reflects the 'greenfields' costs associated with the installation of the initial Dryer 1 at Darfield.

[21] Paragraph V20, p.161.

We accept that a commodity milkpowder manufacturer that is unable to perfectly replicate Fonterra's (or the NMPB's) sale phasings, contract phasings or FX hedging profile will be exposed to higher earnings volatility than Fonterra or the NMPB. We note, however, that this risk is not systematic (since it could be fully diversified) and should therefore not be reflected in a higher asset beta.

Tilted annuity methodology

The table below sets out the inputs, assumptions and processes used to determine the weighted average cost of capital assumed in the calculation of the Farmgate Milk Price:

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.

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- The tilted annuity approach results in total annual capital costs (comprising depreciation, the 'WACC charge', or return on capital, and taxation) increasing over time at approximately the same rate as the rate of increase in capital costs, when calculated at a constant WACC. Consequently, annual capital costs assumed in the model are largely independent of the assumed timing of investment in plants. Under the obvious alternative approaches, however, assumed annual capital costs would have varied considerably depending on the specific assumptions made regarding the timing of investment decisions, and it would be difficult to make the case that any particular set of assumptions was 'correct'.
- The tilted annuity approach provides for full recovery of capital costs and a return on capital. Consequently, so long as the WACC and asset base assumptions are practically feasible, the aggregate of the WACC charge and depreciation recovery resulting from the application of the approach are necessarily also practically feasible.
- The tilted annuity methodology, given the approach taken to determining its inputs, results in a WACC charge and depreciation recovery that are independent of Fonterra's actual cost of capital and its actual depreciation expense, and are therefore consistent with the efficiency criterion.

Company tax

The table below sets out the inputs, assumptions and processes used to determine the quantum and timing of the company tax assumed in the calculation of the Farmgate Milk Price:

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	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.

Inputs	Process	Assumptions
	tax payable. Spread calculated tax in three equal instalments over the course of the relevant season.	

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing this input:

- The 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 NMPB asset base, and is therefore practically feasible. (We note that the tax depreciation calculation is consistent with the assumption that the asset base of the NMPB has been installed in approximately equal instalments over, on average, the past 30 years or so. This is essentially a 'steady state' assumption, and means that the Farmgate Milk Price calculation does not capture the tax advantages available to a processor with predominantly recently-installed assets, and which arise from the often significant differences between average tax and economic asset lives.)
- Because the provision is notional, it follows that it is consistent with the efficiency criterion.

Net working capital

The table below sets out the inputs, assumptions and processes used to determine the quantum and associated financing costs of net working capital assumed in the calculation of the Farmgate Milk Price:

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 sales on terms used to determine the prices for sales of RCPs used in the milk price (i.e. primarily sales on GDT) for the most recently completed calendar year (i.e. the year to 31 December 2014). Fonterra's weighted average creditor days for costs relevant to the Milk Price. Fonterra's 'advance rate schedule', specifying timing & quantum of payments for milk supplied in the season. Assumptions with respect to inventories of inputs, such as lactose and packaging materials. The monthly compound WACC implied by the annual WACC.	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.

We offer the following comments in support of the assumptions set out above, and with respect to (a) the practical feasibility and (b) the efficiency implications of the approach taken to establishing each input:

- Because the key determinants of the monthly working capital balances assumed in the Farmgate Milk Price (milk supply profile, sales phasings, cost phasings, credit and debtor days, advance rate schedule) are all aligned to the relevant Fonterra actuals, it follows that the derived balances are practically feasible.

- While the various inputs are all derived from Fonterra data, the Farmgate Milk Price calculation does not result in Fonterra's actual current year working capital balances (or components thereof) being included in the Farmgate Milk Price, so the methodology is therefore consistent with the efficiency criterion.

We further note that the copy of the 2013/14 Milk Price Model annexed as Attachment 6 provides third parties with visibility over the mechanics of the net working capital calculations, and should therefore address various misconceptions that have been apparent in third party submissions on the internal consistency of the net working capital mechanism.

8 Overall consistency of inputs, processes and assumptions used to calculate the Farmgate Milk Price

We comment in this section on:

- The overall internal consistency of the various inputs, assumptions and processes described in sections 4 – 7 above, and summarise the reasons why, in our view, the Farmgate Milk Price resulting from the application of these inputs, assumptions and processes is consistent with section 150A. In particular, we have set out above the reasons why we consider each of the inputs used in calculating the Farmgate Milk Price is individually consistent with section 150A. The Commission has also noted, however, that section 150A effectively requires that there also be overall consistency among the assumptions and inputs used to calculate the base milk price.
- The overall consistency of the projected Farmgate Milk Price with the contestability dimension of section 150A.
- The overall consistency of the projected Farmgate Milk Price with the efficiency dimension of section 150A.

Internal consistency

We provide comments in the table below on matters relevant to considering the internal consistency of the various inputs and assumptions used in the Farmgate Milk Price (these largely repeat and consolidate arguments presented in sections 4 – 7 above).

Input	Interdependencies	Comments on Consistency
Production mix and volumes	Milk supply and composition	Calculation process ensures assumed product mix is consistent with Fonterra's allocation of milk to relevant streams, and with Fonterra's actual milk supply.
	Yields	Assumed yields are a function of composition, loss assumptions and specification assumptions, all of which are consistent with values actually achieved / achievable by Fonterra for manufacture of RCPs. Yields have been appropriately adjusted to reflect the excess of peak milk supply in the North Island over assumed processing capacity.
	Automation & process control capital & opex	Fonterra's achieved yields reflect Fonterra's investment in automation process and control systems, and in dedicated staff who ensure the systems are used to tightly control yields. NPMB appropriately provides for these costs.
	Direct manufacturing costs	Calculated to be consistent with the assumed product mix, drawing on mix of independent expert input and relevant data on Fonterra's actual costs.
	Manufacturing capital	Established on a forward looking basis to be consistent with (a) forecast milk supply and (b) manufacture of RCP portfolio. Assumed costs reconcile to manufacturer quotations and costs actually incurred by Fonterra.
	Fixed asset capital costs	Calculated to result in the recovery of capital cost of manufacturing and collection assets, and of WACC return on undepreciated cost.
Prices	Product composition	Composition of RCPs consistent with composition of product actually sold by Fonterra through the channels reflected in the milk price (primarily GDT).
	Selling costs	Selling costs calculated to be consistent with assumption that product is primarily sold on GDT, including material provision for customer support.
	Ocean freight recoveries	Consistent with Fonterra's actual recoveries, which will on average be factored into GDT selling prices.
	Sales phasings	Use of Fonterra's phasings means any pricing impact of variations in

Input	Interdependencies	Comments on Consistency
		Fonterra's actual sales of RCPs will also be reflected in milk price.
Collection costs	Milk supply	Use of Fonterra's actual milk supply is consistent with use of Fonterra's actual collection costs.
	Site footprint	Alignment of assumed NMPB site footprint to Fonterra's is consistent with use of Fonterra's actual collection costs.
Lactose cost	Yields	Lactose usage requirements are consistent with milk composition and product composition assumptions.
	Lactose price	Lactose price is consistent with prices paid by importers of lactose for powder standardisation.
Site overhead costs	Site and asset footprint	Site-level overhead costs are consistent with assumed site footprint and product mix.
Logistics costs	Production volumes	Inland freight and storage costs are consistent with production volumes and product mix.
	Site footprint	Calculation of logistics costs is consistent with assumed site locations and assumed throughput of milk through each site.
Overhead costs	Scope of NMPB business	Assumed overhead costs are consistent with activities of NMPB, including manufacture of RCPs and primary activities all being located in New Zealand.
Net working capital costs	Sales phasings & production phasings	Net working capital balances are consistent with inventory volumes implied by the sales phasings, product mix and phasing of milk supply.
	Average receivables days for sales incorporated in calculation of average selling prices	Use of Fonterra's weighted average receivables days for the sales used to calculate Milk Price revenue is consistent with use of prices from those sales (on basis that prices paid will reflect the relevant terms of supply).
	Fonterra's average payable days (including for milk)	Use of Fonterra's average payable days (where relevant) is consistent with use of cost inputs derived from Fonterra actual data.
	WACC	Use of WACC to calculate capital charge on monthly net working capital balances is consistent with the assumption that the leverage assumed in the WACC calculation reasonably reflects average debt to debt plus equity through the course of a season for a commodity manufacturer of the NMPB's scale.
Fixed asset capital costs	Production volumes	The fixed asset base is consistent with production of the RCPs, and is of sufficient scale to manufacture the volume of RCPs assumed in the Milk Price (including where relevant the manufacture of unstandardised milk powders).
	Site footprint	The fixed asset base includes appropriate provision for site-level assets given the configuration of the site footprint, and assumed peak milk supply to each site.
	WACC	Inputs into the WACC reasonably reflect the average cost of capital for a manufacturer of the NMPB's scale, and which uses the Farmgate Milk Price methodology to determine its cost of milk.

Overall consistency with contestability dimension of section 150A

Sections 150B and 150C respectively permit (section 150B) and require (section150C) that the Farmgate Milk Price calculation incorporates the following assumptions:

- Fonterra's scale, including Fonterra's milk supply and site footprint.
- Fonterra's average plant size for the manufacture of the RCPs.
- Fonterra's average foreign currency conversion rate.
- That all milk is assumed to be manufactured into the RCPs that are expected to be the most profitable
- The conversion of milk into RCPs at yields that are practically feasible.

- The use of prices actually achieved by Fonterra on the sale of RCPs.
- That the full range of costs that would be incurred by a manufacturer of Fonterra's scale in manufacturing the RCPs is taken into account.

Various submissions to the Commission, including on the Commission's Dry Run report, the Commission's subsequent process and issues papers, and the Commission's reports on the F13 – F15 Manual reviews and F13 – F14 base milk price reviews, have in essence argued that incorporation of these assumptions necessarily results in a Farmgate Milk Price that is not practically feasible for any New Zealand processor. We do not share this view, and note in particular the following aspects of the Farmgate Milk Price that are not 'fully optimised':

- The near-sole reliance in the Farmgate Milk Price on prices achieved by Fonterra on GDT: we have separately provided to the Commission evidence that both Fonterra and other New Zealand processors routinely achieve prices materially in excess of GDT for commodity product sold through other sales channels. (Indeed, we note that Synlait in its prospectus released on 24 June 2013 has forecast average selling prices in its 2014 financial year on ingredients products of more than NZD 200 per MT in excess of prices achieved on GDT.)
- The assumption of Fonterra's actual site footprint (a safe harbour rather than mandatory assumption): Fonterra's actual site footprint primarily reflects historic investment decisions made by Fonterra's predecessor companies, and implies the incorporation in the milk price of capital and overhead costs that are materially higher than the costs that would have arisen had a 'greenfields' approach been taken to establishing the NMPB's site and asset footprint.
- The assumption of Fonterra's actual milk supply (also a safe harbour rather than mandatory assumption): Fonterra has very limited ability under DIRA to decline supply, and consequently incurs materially higher collection costs per kgMS than other processors. While there are some offsetting scale economies, the Farmgate Milk Price would nonetheless be materially higher if it was calculated under the assumption that the NMPB only collected the milk supplied to Fonterra that would be collected by a profit-maximising processor that was not subject to DIRA.
- The assumption that the NMPB participates on GDT on an arm's length basis, with the difference between the calculated arm's length fee and Fonterra's lower actual costs therefore being excluded from the Farmgate Milk Price.
- The assumption that the NMPB purchases ocean freight and inland freight on an arm's length basis from Kotahi and DTL, respectively, with Fonterra's share of earnings from its part ownership of these businesses excluded from the Farmgate Milk Price.
- The assumption that the NMPB, like Fonterra, faces logistical constraints which mean (a) it must carry materially more inventory (and therefore incur materially higher working capital costs) over the peak production months and (b) has less ability to take advantage of favourable short term movements in prices over the same period, relative to smaller processors.
- The assumption that the NMPB, like Fonterra, is not able to take advantage of regulated raw milk under DIRA to increase (and obtain increased certainty over) capacity utilisation.
- The 'bottom up' approach described in section 7 and Attachment 1 to calculating overhead and administrative costs by reference to Fonterra's actual costs, which has the effect, for example, of impounding in the Farmgate Milk Price the higher costs associated with some of Fonterra's legacy IT systems, relative to the alternative of taking a 'greenfields' approach to establishing the NMPB's IS requirements and costs.
- The assumption that the NMPB, like Fonterra, incurs various costs of an 'industry good' nature that would not be incurred by a smaller processor.

Overall consistency with efficiency dimension of section 150A

We noted in our comments on the individual inputs into the Farmgate Milk Price certain instances where inputs are based on current year Fonterra actual data, and in respect of which there is therefore a weakened incentive (relative to the use of a notional input) for Fonterra to operate efficiently in respect of the relevant factor.

We consider, however, that when considered in aggregate the inputs, processes and assumptions used to calculate the proposed Farmgate Milk Price are consistent with the efficiency dimension of section 150A. In particular, we note that:

- Most of the cost inputs into the projected Farmgate Milk Price are calculated independently of current year actual Fonterra data (70 percent of the cost inputs into the 2013/14 Farmgate Milk Price were fully independent and a further 22 percent were partially independent of actual Fonterra data, and we have no cause to believe similar proportions do not apply for the 2014/15 financial year).
- Total production volumes and approximately 93 percent of the prices used to determine the revenue of the NMPB reflect factors beyond Fonterra's ability to directly influence (i.e. actual milk supply and composition, independently established provisions for yields, and GDT prices.
- Putting to one side considerations as to whether Fonterra is fully incentivised to optimise its performance with respect to individual cost and revenue inputs into the Farmgate Milk Price, Fonterra is appropriately incentivised to ensure that the overall Farmgate Milk Price is consistent with maintaining and growing milk supply (i.e. to ensure the Farmgate Milk Price is perceived to be 'competitive'), but that the Farmgate Milk Price is not so high as to render Fonterra's incremental investment decisions uneconomic.

Attachment 1: Activities provided for in provision for overhead & administrative costs

We list below the full range of Fonterra's activities provided for in the overall provision for overhead and administrative costs, and comment briefly on the approach taken with respect to each item. (The comments below in many instances note that Fonterra's 'actual' costs, or portions thereof, are included in the Farmgate Milk Price calculation. The 'actual' costs referenced relate to Fonterra's F12 budget, with the relevant provisions subsequently carried forward and adjusted for inflation. This approach leaves Fonterra appropriately incentivised to minimise its actual costs.)

Category	Comment
Supplier & External Relations, comprising costs associated with:	
Milk supply	100% of Fonterra's budgeted F12 costs associated with monitoring & surveillance, area managers & supplier-related IS costs included in milk price costs.
Sustainability	Fonterra incurs considerable cost (much of which would not be incurred by other processors, and which can therefore be considered a 'diseconomy' of scale) on issues such as effluence management, reducing waste & energy consumption, developing water strategies, & providing input local & central government policy formation. Most of these costs have been included in the milk price calculation.
External relations	Again, Fonterra incurs costs that would not necessarily be incurred by other processors, but which it can be argued are necessary for a manufacturer of the NMPB's scale to maintain milk supply. These costs are largely included in the milk price calculation.
Trade strategy	Similarly, Fonterra incurs costs in ensuring its (and the wider industry's) interests are considered in trade negotiations and the like that are unlikely to be incurred by other processors, but which it can be argued are necessary for a manufacturer of the NMPB's scale to maintain milk supply. These costs are fully included in the milk price calculation.
Corporate marketing	Fonterra incurs marketing costs in relating, for example, to positioning dairy as a nutritional and healthy option, to funding initiatives in local communities, & in respect of environmental sustainability. These costs are largely included in the milk price calculation though, again, it is likely that at least a portion would not be incurred by a smaller-scale processor.
Governance costs, comprising costs associated with:	
Board of Directors	Fonterra's actual costs, with a modest reduction to provide for the difference in scope of activities between Fonterra and the NMPB, are included in the Farmgate Milk Price calculation.
Milk Price Group	The milk price calculation includes a provision for the various costs associated with the operation and maintenance of the Farmgate Milk Price methodology, though we again note that equivalent costs would generally not be incurred by other processors.
Fonterra's Fair Value Share process	While now discontinued, the process was relevant at the time the 'review year' provision was established, and a provision included on the basis that a portion of this cost would still be incurred if Fonterra undertook the same activities as the NMPB. With the introduction of TAF, this provision can now be viewed as providing for the costs associated with maintaining a market listing. Under either approach, however, it does not necessarily follow that equivalent costs would be incurred by other processors.

Shareholders' Council	While again not necessarily relevant to most processors, the milk price calculation reflects most of the costs associated with maintaining Fonterra's Shareholders' Council.
Human Resources	Milk price provision based on Fonterra's actual costs, scaled for difference in head-count.
Costs associated with finance function:	
Transactional support (AP & AR etc), administration of capex, periodic reporting etc	Based on Fonterra's actual costs, adjusted to exclude costs incurred by Fonterra that would not be incurred by the NMPB, including costs relating to Fonterra's offshore operations, such as a portion of Fonterra's external audit fee & portions of its legal & tax function costs. Where costs relate to activities that would be materially identical for the NMPB, Fonterra's actual costs have been included in their entirety. In some instances Fonterra's actual costs are further adjusted to reflect differences in the complexity of Fonterra's business. 80% of the actual cost of Fonterra's Treasury operation is included, for example, with the excluded portion primarily reflecting Treasury-related costs attributable to Fonterra's extensive network of offshore subsidiaries and businesses.
Financial reporting, budgeting & forecasting	
Communications	
Treasury	
Legal Administration	
Internal Audit	
Share Registry and Payments	
Strategy and Corporate Finance	
Group Tax	
Policy and Risk	
Regulatory	
Customs	
Property	
IS costs	Based on Fonterra's actual costs (which incur costs associated with legacy systems and historic IS investments, not all of which would have been incurred by the NMPB) scaled to reflect differences in characteristics and activities of the NMPB relative to Fonterra.
Senior management team	Based on the senior management team for Fonterra's NZ manufacturing operations, adjusted where appropriate to include functions captured elsewhere.
Manufacturing overhead costs, including costs associated with:	
Quality assurance and technical management	Based on Fonterra's actual costs, adjusted to exclude costs incurred by Fonterra that would not be incurred by the NMPB, including costs relating to Fonterra's offshore operations.
Automation, process control and calibration	
Quality & complaints	
Environmental	
Grading	
Capital maintenance and assets	
Innovation	
Optimisation & strategy (including production planning)	
Procurement	

Attachment 2: Additional material provided to the Commission in support of Fonterra's reasons

The table below summarises additional material, the content of which is commercially confidential to Fonterra, that has been provided to the Commission in support of certain statements made in this document, and which should therefore be considered in conjunction with this document.

Category	Sub Category	File Name
Capital	Asset Beta	Final Fonterra Report 2 Dec 2014.pdf
Capital	Asset Beta	Supplementary compco data.pdf
Capital		Adequacy of replacement capex 1 July 2015.docx
Capital		Darfield Lichfield Capital Cost Comparison Paper.docx
Darfield		Darfield Fact Sheet 2014.pdf
Darfield		Darfield presentation Commerce Commi...
Darfield		FONTERRA - Darfield Key Facts.pdf
Energy	Audit	150115_F15 Energy review SP Edit.docx
Energy	Audit	Darfield dryer one audit 2014 energy V2.docx
Energy	Audit	Energy Cost Approach in milk price model.docx
Energy	Audit	Milk Price Audit - Edendale D03 -2015 - Energy.docx
Energy	Boilers	Boiler cost analysis 19 March 2015.xlsx
Energy	Boilers	Boiler replacement costs 23 March 2015.docx
Energy	Confidential	Management Report Edendale D3 Energy Use per tonne WMP Final 20150612.docx
Energy	Previous Files	100511 M Independent reviewer analysis.docx
Energy	Previous Files	121221 M Energy cost review Final.pdf
Energy	Previous Files	130523 Draft Energy methodology review.docx
Energy	Previous Files	Attachment 3 - Energy Rates F13.xlsx
Energy	Previous Files	Attachment 8 - GEA Yield and Energy Figures for IMP Model.xls
Energy	Previous Files	ComComQ15May30th2013.xlsx
Energy	Previous Files	Milk Price Reset F13 Resource usage summary.docx
Energy	Previous Files	140130 F14 Energy review.pdf
Energy	Previous Files	1774530_Energy use queries with Fonterra Comments.docx
Energy	Previous Files	Aurecon le01_213156-MPM Energy Consumption.pdf
Energy	Previous Files	Aurecon le02_213156-MPM Energy Consumption Clarification.pdf
Energy	Previous Files	Darfield Energy Audit .docx
Energy	Previous Files	Historical OPT Peak and Full Season.xlsx
Energy	Previous Files	On Product Time Review (V4 2014-03-03).pdf
Energy	Previous Files	Peter W Energy.xlsx
Energy	Previous Files	Response to Peter Walkers Draft Report.docx
Energy	Strata	121221 M Energy cost review Final.pdf
Energy	Strata	130814 Energy methodology review.pdf
Energy	Strata	140130 F14 Energy review.pdf
Energy	Strata	F15DrftBdgtNRGRatesV27.xlsm
Energy	Strata	Management Report Darfield D1 Energy Use per tonne WMP draft v0.1.docx
Energy	Strata	Milk Price Modeling Report Rev3 - Part 1 of 2 Report and Tables.pdf
Energy	Strata	Milk Price Modeling Report Rev3 - Part 2 of 2 Appendices.pdf
Energy	Strata	Strata Energy Historical Boiler Efficiency Details.xlsx
Energy	Strata	Email Fonterra to Strata 2015.03.30 Energy Audit.pdf

Category	Sub Category	File Name
Energy	Strata	Milk price 2015 audit ED3 Report V2 (reviewed CW).doc
Energy	Strata	MPA Data V3 (RWK).xlsb
Energy	Strata	M Energy cost review Final.docx
Energy	Strata	Management Report Edendale D3 Energy Use per tonne WMP Draft v0.1.docx
Energy	Strata	Email Marcus Dixon Information for Strata.pdf
Manual		Milk Price Manual F15.pdf
Models	Jan-31	1.0 F15 Jan 15_Milk Price Reporting Models.xlsb
Models	Jan-31	1.1 F15 Jan 15 Carbon Credit.xlsm
Models	Jan-31	1.2 FACR Scenarios 2015-01.xlsx
Models	Jan-31	10.0 Capital Costs - old assets to F12 - F15 model.xlsm
Models	Jan-31	10.1 Capital Costs - new assets from F12 - F15 model.xlsm
Models	Jan-31	2.0 F15 Jan 15 Shipment Month BCP Model.xlsm
Models	Jan-31	2.1 F15 Jan 15 Shipment Raw Data.xlsx
Models	Jan-31	3.0 F15 Jan 15 Implied Shipment BCP model.xlsm
Models	Jan-31	3.1 F15 Jan 15 Contact month Data Adjusted.xlsb
Models	Jan-31	4.0 F15 Jan 15 Contract Model.xlsm
Models	Jan-31	4.1 F15 Jan 15 Contract month Data.xlsx
Models	Jan-31	5.0 F15 Jan 15 BCP Model.xlsm
Models	Jan-31	5.1 Uncontracted Price Forecast.xlsx
Models	Jan-31	6.0 F15 Jan 15 Lactose Price Model.xlsb
Models	Jan-31	6.1 Lactose Import Statistics.xls
Models	Jan-31	7.0 F15 Jan 15 Sales Phasings model.xlsb
Models	Jan-31	7.1 F15 Closing MP Stock Forecast Jan 15.xlsx
Models	Jan-31	7.2 F15 Jan 15 Production Plan.xlsb
Models	Jan-31	8.0 F15 Jan 15 IMP Make Allowance Model.xlsb
Models	Jan-31	8.1 Jan 15 Milk Collection Costs.xlsb
Models	Jan-31	9.0 F15 Jan 15 Diversion Costs.xlsm
Models	Jan-31	9.1 F15 Dec 14 YTD.xlsx
Models	Jan-31	9.2 Mid Jan Forecast YTG Solids.xlsx
Models	Jan-31	9.3 YTD Composition.xlsx
Models	Jan-31	9.4 F15 Jan 15 StandardisedProcessingCap.xslm
Models	May-31	1.0 F15 May 15_Milk Price Reporting Model.xlsb
Models	May-31	1.1 F15 May 15 Carbon Credit.xlsm
Models	May-31	1.2 FACR Scenarios 2015-04 for Milk Price.xlsx
Models	May-31	2.0 F15 May 15 Shipment Month BCP Model.xlsb
Models	May-31	2.1 F15 May 15 Compiled Shipments Raw data.xlsx
Models	May-31	3.0 F15 May 15 Implied Shipment BCP Model.xlsb
Models	May-31	3.1 F15 May 15 Contract Month Data Adjusted.xlsb
Models	May-31	4.0 F15 May 15 Contract Model.xlsm
Models	May-31	4.1 F15 May 15 Contract Month Data.xlsx
Models	May-31	5.0 F15 May 15 BCP Model.xlsm
Models	May-31	5.1 F15 Uncontracted Price Forecast.xlsx
Models	May-31	6.0 F15 May 15 Lactose Price Model.xlsb
Models	May-31	6.1 Lactose Import Statistics.XLS
Models	May-31	7.0 F15 May 15 Sales Phasings Model.xlsb
Models	May-31	7.1 F15 May 15 Closing MP Stock Forecast.xlsx
Models	May-31	7.2 F15 May 15 Production Plan.xlsb

Category	Sub Category	File Name
Models	May-31	8.0 F15 May 15 IMP Make Allowance Model.xlsb
Models	May-31	8.1 Milk Collection Costs.xlsx
Models	May-31	9.0 F15 May 15 Diversion Costs.xlsm
Models	May-31	9.1 F15 May 15 Aspire v ODW Reconciliation.xlsx
Models	May-31	9.2 Season Forecast Charts End April Forecast Review.xlsx
Models	May-31	9.3 YTD Composition.xlsx
Models	May-31	10.0 Capital Costs - old assets to F12 - F15 model at 18 August 2014 6.1 WACC.xlsm
Models	May-31	10.1 Capital Costs - new assets from F12 - F15 model at 18 August 2014 6.1 WACC.xlsm
Models	May-31	10.2 10 Year WACC Forecast F15 Milk Price May 15.xlsm
Overheads		20150701 Fonterra Overheads Summary Draft.docx
Overheads		20150701 Milk Price Corporate Costs FY15 Draft.xlsm
Peak Processing		MPG_PeakMilkProcessing FINAL_250215.docx
Peak Processing		Email from Fonterra 2015.03.20 Processing Capacity in the Milk Price.pdf
Peak Processing		Item 4.4 MP Buffer Capacity.pdf (Milk Price Panel Paper)
Peak Processing		Email from Fonterra 2015.03.26 Answers re Processing Capacity.pdf
Peak Processing		DD1 TAC Report Rev 3 20130131.pdf
Peak Processing		Email Sri Pathmanathan 11 May 2015 Processing Rates.pdf
Peak Processing		Process Documentation - Milk Supply Budget.docx
Peak Processing		F15 Mar 15 StandardisedProcessingCap.xlsm
Peak Processing		Management Report On Product Time Review Draft 20150630.docx
Peak Processing		Email MPG Response on OPT Memo.pdf
Pricing	GDT vs Non GDT	F15 May 15 SMP Dot plot_V3.xlsb
Pricing	GDT vs Non GDT	F15 May 15 WMP Dot plotv3 (V2).xlsb
Pricing	GDT vs Non GDT	F15 MPG Monthly Report at 31 May 2015 (DRAFT v2).pptx
Pricing	GDT vs Non GDT	F15 May 15 GDT vs Non GDT Contract Prices V5 (V2).xlsb
RCP		RCP Review 30 June 2015.docx
Selling Costs		2015 Selling Commission.xlsx
Selling Costs		China Sales Cost.xlsx
Selling Costs		Email Selling Costs 1 July 2015.pdf
Sundry	Aggregate Amount	Efficient Processor Model - 7 July 2013.xlsm
Sundry	Control	Model review programme v3.xlsm
Sundry	Control	2015.03.20_Model review programme.pdf
Sundry	Regionality	Regional Cost Allowances in the milk price Model.docx
Yields	Composition	Product Composition Review F15 (2014-04-23).pdf
Yields	Losses	F15 Milk Price Losses 2013-06-03.pdf
Yields	Permeate	Email from Fonterra - Permeate not used in notional business 2015.03.12.PDF
Yields		F15 Yield's Logic Loss Update.xlsm

Attachment 3: Milk price fixed assets – supplementary information

We provide summary information below about various aspects of the manufacturing plant assumed in the base milk price calculation.

Number of manufacturing plants by vintage	Pre 2012	New Plants Post 2012
Powder (including BMP)	46 (original 49 plants less 3 plants retired)	5 (3 replacement plants + 2 new plants for milk growth)
Cream (butter/AMF)	10	

Number of plants by region	North Island	South Island
Powder (including BMP)	31	20
Cream (butter/AMF)	7	3

Number of plants by type	Number
WMP	27
SMP	20
BMP	4
Butter	6
AMF	4

In brief, the NMPB process plants are specified as follows:

- Minimum solution costs with proven modern technology.
- Plants designed and priced to the quality requirements and engineering standards that the Contractor normally provides to meet international dairy factory standards.
- The process plant in the NMPB includes the advanced automation and process control (A&PC) capability used by Fonterra to deliver operational efficiencies (e.g., composition control, drier throughput / stability etc).
- The design of the process plant must meet typical raw milk characteristics similar to that of Fonterra requirements/specifications and finished product specifications typical to product sold on GDT.
- The scope of the milk powder process plant covers milk reception, milk treatment, evaporation, a drier inclusive of fluid beds, lactose reconstitution, powder storage and handling, powder packing and palletising and a building to house the process plant.

The Milk Powder process plant capital allowance includes provision for 20 x 24 hours dedicated SMP driers and 27 x 24 hours dedicated WMP driers capable of processing 2,000m3/day of wholemilk (average of new and old plants), with plant reliability of greater than 95% On Product Time (i.e.: multiple evaporators to enable continuous running of the drier).

The buttermilk processing capital allowance includes provision for 4 x 21 hour per day dedicated BMP plants processing a nominal 800 m3/day of buttermilk (BM).

The scope of the BMP plant covers buttermilk storage, buttermilk treatment, evaporation, drying, lactose reconstitution, powder handling and storage, packing and palletising and a building to house the process plant.

The cream processing capital allowance includes provision for 4 x 20 hour per day AMF plants processing a nominal 500 m3/day of cream and 6 x 20 hour per day Butter plants processing a nominal 500 m3/day of cream.

The AMF plant scope covers cream storage, separators, AMF processing, deodorisation and dehydration, AMF storage with nitrogen blanketing, drumming, fat recovery tanks, buttermilk storage and buildings to house the process plant.

The Butter plant scope covers cream silos, cream treatment, crystallising silos, Fritz butter making, butter silos, packing into 25 kg film wrapped blocks in wrap around cartons, a rapid cool system for cartons, palletisation and buildings to house the process plant

The scope of the site infrastructure includes the supply of services to the process plant, wastewater handling and treatment, the dry store and all civil and building works outside the process plant building inclusive of amenities, laboratory(where applicable), milk collection depot (where applicable), administration offices, a meeting room and a plant workshop. Services and effluent treatment infrastructure on sites in the NMPB to match that of Fonterra to be consistent with energy and waste treatment costs allocated in the operating costs in the NMPB.

Attachment 4: Independent expert report on asset beta & specific risk premium

This attachment comprises the independent report on the Milk Price asset beta and specific risk premium prepared by Associate Professor Alastair Marsden of the University of Auckland Business School.
At the Commission's request we have replicated some of the comparable company calculations reported by Dr Marsden as at different dates, and as summarised below. (Asset betas in this table are calculated using 24 months of weekly data.) For most categories, the calculated results are relatively invariant to changes in estimation dates.

		BASE Asset Beta As at 30-06-2014		PLUS 6 MONTHS Asset Beta As at 31-12-2014		MINUS 6 MONTHS Asset As at 31-12-2013	
		With Tax	Without Tax	With Tax	Without Tax	With Tax	Without Tax
Commoditised							
	Average	0.48	0.46	0.56	0.57	0.46	0.44
	Median	0.40	0.39	0.66	0.64	0.42	0.42
Food / Ingredient Manufacturing							
	Average	0.63	0.58	0.75	0.71	0.60	0.55
	Median	0.76	0.69	0.79	0.74	0.70	0.63
Branded							
	Average	0.56	0.54	0.61	0.59	0.57	0.55
	Median	0.54	0.53	0.64	0.63	0.55	0.54
Core Peers							
	Average	0.58	0.56	0.54	0.55	0.54	0.53
	Median	0.58	0.57	0.64	0.62	0.50	0.48
Market Leader							
	Average	0.51	0.51	0.57	0.56	0.50	0.50
	Median	0.47	0.47	0.57	0.56	0.53	0.53
Other							
	Average	0.51	0.49	0.52	0.50	0.55	0.52
	Median	0.48	0.45	0.51	0.49	0.50	0.45

Attachment 5: 2013/14 base milk price calculation model

We have separately provided as Attachment 5 a version of the base milk price model used to calculate the 2013/14 Farmgate Milk Price (i.e., the Manual-based milk price calculated by Fonterra prior to the 'milk price adjustment' made to the final 2013/14 milk price). We note:

- Inputs have been aggregated in this model to a similar level of aggregation as reported by Fonterra in the 2013/14 Farmgate Milk Price Statement. We have, however, disclosed some information in this model that has not previously been disclosed.
- This model is used to aggregate the various final inputs into the calculated milk price. Many of these inputs are in turn calculated in other sub models. Consequently, users of the model will be able to determine how inputs are combined and otherwise used to determine the final milk price, but will not be able to trace their way back to the base inputs in all instances.
- While many inputs have been aggregated we have left intact the full calculation logic employed in the model, enabling users to experiment with inputting different data and assumptions, and to determine the sensitivity of the calculated milk price to the same.