

**TO CANTERBURY REGIONAL COUNCIL, WAIMATE DISTRICT
COUNCIL**

**IN THE MATTER OF RESOURCE CONSENTS: CRC160871,
CRC160872, CRC160873, CRC160874, CRC160875,
CRC160876, CRC160940, and RMA150031 related to the
expansion of Fonterra's milk processing plant at Studholme**

Submission by Coal Action Network Aotearoa

Summary of oral evidence of Peter Fraser

Provided at Waimate - 13 April 2016

Principal and Director

Rōpere Consulting Limited

Updated 20 April 2016

Biographical Details

1. full name is Peter James Fraser. I am an economist operating as Rōpere Consulting Limited.
2. I wish to draw the Commissioners' attention to three area of previous experience that are of particular relevance to today's hearings, namely:
 - a. *Dairy industry experience*: I have experience in both the public sector (MAF Policy) and private sector (advising Open Country, Synlait Milk, and Miraka) that included:
 - i. a highly privileged and penetrating insight into a number of New Zealand's major dairy companies, including Fonterra Cooperative Group Limited ('Fonterra')
 - ii. extensive exposure to the *Dairy Industry Restructuring Act* (DIRA) and its associated Regulations
 - iii. extensive exposure to issues of competition policy, milk pricing mechanisms, processor entry, and the commissioning of - and expansion pathways for - new powder driers.
 - b. *Farm modelling experience*: In collaboration with Barrie Ridler of *Grazing Systems Limited*, I have significant insight into on-farm profit maximisation and the effects of intensive and extensive dairy growth on farm profitability. This includes the economics of irrigated dairying.
 - c. *Economic and regional development experience*: I have led departmental projects investigating New Zealand's historical and prospective productivity record and written/consulted on the economic growth effects of both small and large scale water storage projects.

Summary of key points from the written submission

3. My initial focus was the report¹ produced by Mr Copeland on behalf of Fonterra. While the figures provided by Mr Copeland are uncontested, the economic analysis conducted is quite limited: it is essentially a regional economic impact report when a comprehensive cost-benefit analysis that considers the project in its entirety is much more preferable approach.
4. I noted the proposed plant expansion is premised on South Island milk production continuing to grow at 4-5 percent per annum for the foreseeable future. This implies the plant will predominantly process 'new milk' rather than 'existing milk'. Whilst I am highly sceptical of the 4-5 percent milk growth forecast (I comment on this below), the simple fact

¹ Copeland, M, *Application for Resource Consent to Enable Expansion of Operations at Fonterra's Studholme Dairy Manufacturing Site: Assessment of Economic Benefits Brown*, Copeland and Co Limited, April 2015

is a factory processing 'new milk' implies substantial land use change in favour of intensive, extensive and irrigated dairy farms. Land use change of this magnitude imposes substantial environmental externalities on society (such as increased nitrogen leaching into waterways).

5. I therefore argued that from a project evaluation perspective the consideration of the consent to extend the plant cannot be considered independently of the farm gate effects of the forecast milk supply growth as both are mutually dependent. I therefore respectively contend that the Commissioners need to take account of the on-farm effects of land use change when considering the consent application for the Studholme plant expansion.
6. To ascertain the magnitude of effects of land use change I undertook some elementary scenario planning to see whether they were regionally material. As a result I estimate the plant will require 550,000 to almost a million additional cows, which has an equivalent environmental impact in terms of water use of between eight million people.
7. Finally, I conducted a 'reality check' of the predicted annual growth in South Island milk supply in light of the likely future milk price during the construction phase of this project (which is up to 12 years). I found that at an expected long run milk price of \$5 +/- \$1 kgMS it is simply not economic to convert drystock land into intensive dairy units; whereas irrigated dairy is simply not viable a price less than \$6.50 kgMS (and in many cases, significantly higher price than \$6.50 is required).

Additional evidence

8. This afternoon I want to focus on the following three issues:
 - a. The argument made by Mr Copeland that the on-farm effects are an irrelevant consideration in terms of the consent application for the proposed plant expansion as the on-farm effects are not *caused* by the plant expansion
 - b. Whether the claims that Fonterra is largely a passive actor in the face of DIRA's statutory obligations for it to remain an open cooperative have any merit
 - c. Whether the forecast 4-5% compounding annual growth in South Island milk supply is feasible.
9. I address each in turn.

The causality v. mutual dependence argument

10. I understand at last week's hearings Mr Copeland, on behalf of Fonterra, disagreed with my argument that the consent process should take account of on-farm effects of land use change; stating milk production will increase independently of whether the plant expansion takes place or not - and also noting Fonterra pays a universal price for milk irrespective of location.

11. I agree with Mr Copeland that in its initial stages, the plant expansion will not have a causative effect on milk supply growth - as factors such as relative returns from different land uses will be the major driver of land use and land use change. However, I have two responses:
 - a. I do not think causality is necessarily to only or even correct way to conceptualise the issues at hand; and
 - b. I am not convinced the plant will never exert a causative influence on land use change and can see credible circumstances where it can.
12. For purposes of clarification, I have not argued the expansion will cause land use change. However, I do not consider causality is a necessary consideration given the very high degree of mutual dependence that exists between the proposed expansion and forecast land use change.
13. Two examples illustrate the mutual dependency principle. For example, consider a water storage scheme that enables dry land to be irrigated. In this situation, while there is no doubt that the irrigation 'causes' the land use change one nevertheless considers the project as a whole - as one does not make any sense to consider the storage independently of the land use change. Alternatively, consider a coal bagging plant. This also makes no sense unless there is a source of coal nearby - and the building of the bagging plant did not create the coal. Again, from an economic perspective a project evaluation needs to covers both.
14. In both examples the common factor in terms of economic analysis is taking a holistic perspective and recognising the mutual dependency that between the project components; rather than imposing artificial divisions by seeking to identify causal relationships that may or may not exist.
15. Put differently, ignoring the mutual dependency argument implies a plant expansion that is premised on the existence 550,000 additional cows (which is equivalent to over 8 million people and imposes significant environmental effects) can nevertheless ignore the effects of the very same cows when deciding whether to grant a consent to expand the plant (or not).
16. Given the weight that Mr Copeland appears to place on causality it is useful to consider whether there are circumstances where a completed plant can exert a causative effect on land use change - and there are. As outlined in the scenario planning, at the milk processing volumes outlined by Fonterra the two proposed Studholme driers will be operating at a little over half capacity - implying they have substantial potential to process additional milk.
17. Given the opportunity to process additional milk, the question becomes whether Fonterra has the motive to do so. This really comes down to the economics of running two plants at a such a low throughput capacity given the high fixed costs of operating a spray drier and the incentive to run the capacity 'as hard as possible' in terms of improving capital utilisation. With this in mind, there are two ways Fonterra can encourage additional milk supply, namely:

- a. Continuing to socialise transport costs, as this provides an implicit cross subsidy between farmers close to and far from the factory thereby improving the profitability of the more distance and marginal farms; and
 - b. Offering entry into the coop without insisting farmers be fully shared up or permitting them to share up over a period of time. This is not just a theoretical curiosity as Fonterra offers precisely such an opportunity to new farmers via its 'MyMilk' scheme.
18. The implication is at the margins, Fonterra may have both the motive and the opportunity to encourage land use change if this plant, as currently configured, is built as it may want additional supply.

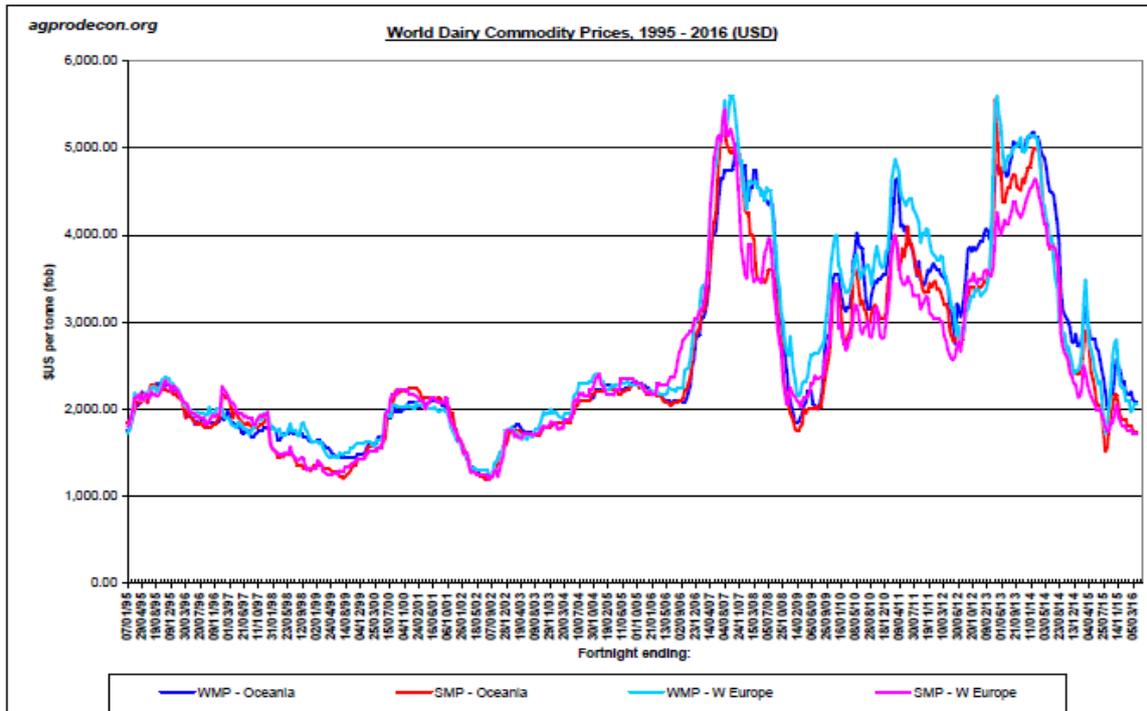
Does DIRA imply Fonterra is a passive actor in terms of accepting milk growth?

19. Fonterra is quite correct in stating that under DIRA, it is forced to remain an open cooperative. However, the situation is considerably more nuanced than outlined by Fonterra.
20. Firstly, DIRA only imposes the obligation to accept milk in cases where a farmer holds equivalent numbers of shares to 'back' the milk supply growth. The logic behind this is simple - additional milk often implies investment in additional processing capacity; so imposing the obligation farmers buy shares is akin to levying development contributions for a new subdivision and implies a substantial cost to farmers (for example, a farm producing 200,000 kgMS would need to own more than a million dollars worth of shares - a factor that makes supplying an independent attractive as milk is simply bought on contract).
21. Secondly, Fonterra has the ability to charge differential transport costs based on factors such as distance. However, Fonterra continues to socialise its transport costs thereby eliminating a policy lever that could be highly effective in slowing down milk supply growth (i.e. by discouraging conversions in marginal areas).
22. Finally, as noted above regarding the MyMilk initiative, Fonterra is hardly a reluctant purchaser of milk; and DIRA obligations notwithstanding, has publically declared it will aggressively fight any reduction in either milk volumes or its share of the farm gate market.
23. In short, to suggest that DIRA forces Fonterra to take milk it does not want and is therefore forced to build plants it does not want either is simply not credible.

4-5 percent compounding annual milk growth

24. Mr Copeland, in his evidence, states that South Island milk production has been growing at 4-5 percent per annum and this is expected to continue. However, no evidence is provided to support either claim. Whilst I accept the historical figures, I do not agree recent history provides a solid basis for future prediction.

25. I note that there has been a real increase in extensive and intensive dairy in the South Island since the since about 2007 - as it is at this point there was a fundamental change in international dairy prices. This is represented in the graphic below.



Source: Colin Riden, FourCubed - from USDA data

26. Between 1995 and 2007 the international price for whole milk powder was between \$US1,000 and \$US2,000 per tonne. In New Zealand, this resulted in a farm gate milk price with a midpoint of \$4.40 kgMS and a variance of 90 cents either side. However, between 2007 and 2014 WMP traded at times well over \$US5,000 per tonne, which resulted in a farm gate milk price with a midpoint of \$6.60 kgMS (so midpoint increased by 50%) whereas variance doubles to \$1.80 either side.

27. At the risk of oversimplification the seven year 'blip' between 2007 and 2014 can be accounted by:

- a. A demand side shock led by China
- b. A muted supply side response led primarily by New Zealand (and to a lesser extent the USA in terms of skim milk powder)
- c. Other exporters (notably Australia and the EU) being largely unresponsive.

28. An expected milk price of \$6.50 or more is critical for South Island dairy expansion as prices at that level are needed to make farm conversions and irrigated dairy viable.

29. The graphic shows that the current international prices for WMP have basically returned to pre-2007 levels. The corollary is if we are seeing pre-2007 commodity prices, it naturally

follows that farmers will be receiving a pre-2007 level farm gate milk price. It is my best professional guess that the likely price range will be \$5 +/- \$1.

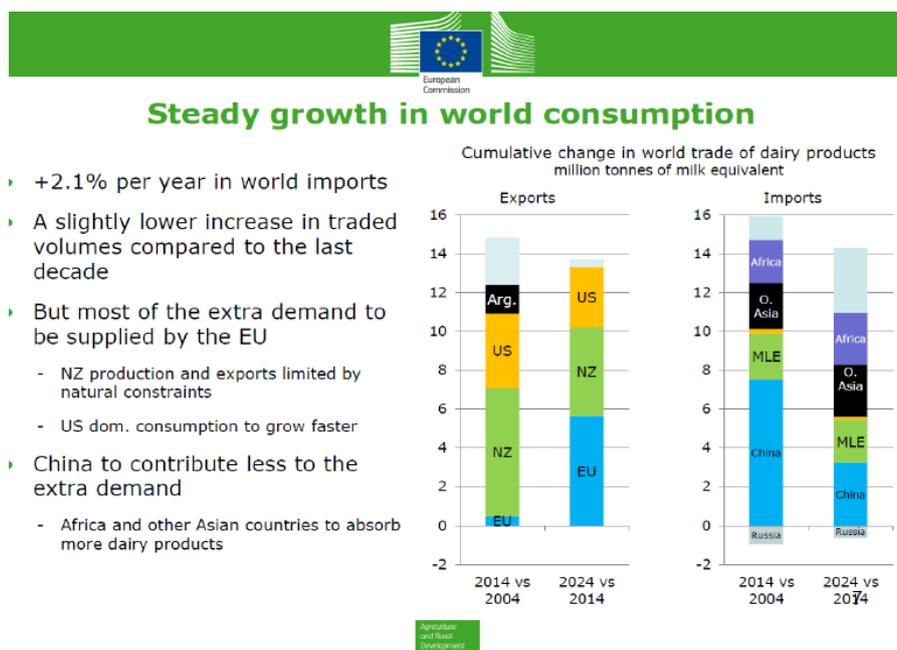
30. My rationale for this range is as follows:

- a. At less than \$4 kgMS even efficient NZ farmers are struggling - so I consider a price below this level unsustainable
- b. At more than \$6 kgMS, it becomes profitable for the large scale US feedlots to enter the international market, thereby 'killing' international prices by stopping any spikes developing.

31. In the short to medium term the major factor is EU production, as they have had quota restrictions lifted and are now highly competitive on international markets. Like Fonterra, the EU expects world demand for traceable dairy products will grow. However, EU forecasts this growth to about 2% per annum whereas Fonterra appears to expect it to growth at 3% or more per annum, which is a substantial different given the timing of the construction period and the life of the project.

32. The slide inserted below is from a EU Commission presentation from April 2015, and outlines the opportunities the EU sees in terms of international dairy markets. The salient points are:

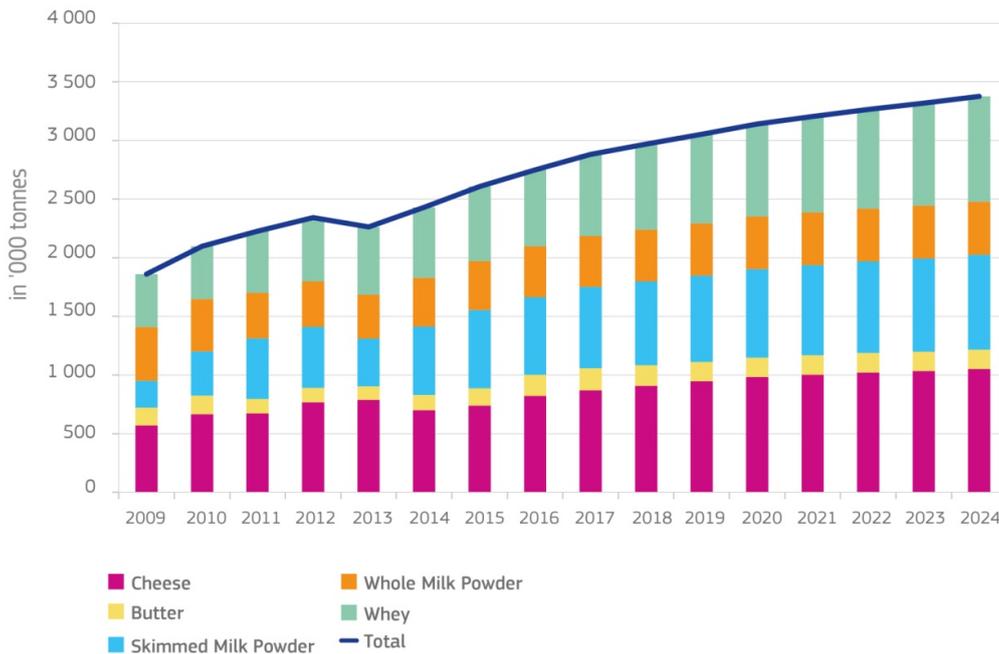
- a. Not only is the EU growth forecast substantially lower than Fonterra's, but the EU expects to supply all that growth from Europe
- b. New Zealand is seen to be capacity constrained with a relatively static milk supply
- c. China is expected to become less important internationally (basically as they develop their own domestic industry).



Source: EU Commission, *Milk Quota Expiry and Market Prospects for the Dairy Sector*, DG Agricultural and Rural Development Brussels, 26 March 2015



Projected evolution of EU dairy exports until 2024



Source: http://ec.europa.eu/agriculture/milk-quota-end/infographics/infographic05_en.jpg from *Predicted Evolution of EU Dairy Products* located at: http://ec.europa.eu/agriculture/milk-quota-end/index_en.htm

33. The simple point is that given the EU intention to grow its milk supply in line with projected increases in export demand there will be no return to the halcyon 2007-2014 period. The result is a New Zealand domestic farm gate milk price that is simply too low to make the type of South Island land use change that Fonterra is expecting will occur viable. Indeed, given high and sticky cost structures associated with many irrigated dairy farms, it is quite likely South Island milk supply will decrease.

Conclusion

34. The result is a dilemma - for Fonterra to achieve the economic benefits claimed it implies living with the effects of building a city the size of Jakarta in South Canterbury. However, given structural changes in the international dairy market, I do not think the Jakarta-sized city will get built, which means the economic benefits of the expansion are illusory as they will never eventuate. Either way, the consent application is without merit and should be rejected.