Fonterra Co-operative Group

July 2014

Submission to the Ministry of Business, Innovation and Employment regarding the "Gas Disruption Study: Report on the potential impacts on the NZ gas market".

Dairy for life

Overview of Fonterra

1. Fonterra Co-operative Group ("Fonterra") thanks the Ministry of Business, Innovation and Employment ("MBIE") for the opportunity to make a submission in response to paper entitled "Gas Disruption Study: Report on the potential impacts on the NZ gas market" ("Gas Disruption Study").

2. Fonterra is the world's largest global milk processor and exporter of dairy products and is at the heart of the New Zealand dairy industry, and the dairy industry is at the heart of the New Zealand economy. Through our integrated "grass to glass" supply chain we deliver high quality dairy ingredients and a portfolio of respected consumer brands to customers and consumers in over 140 countries around the world.

3. Fonterra is owned by approximately 10,600 farmer shareholders who supply Fonterra with greater than 17 billion litres of milk each year that is processed across 28 processing sites in New Zealand. Natural gas is Fonterra's preferred thermal energy choice where it is economically available and Fonterra has 21 processing sites (including Brands sites) dependent on gas supply, collectively requiring around 4.5PJ of natural gas a year. Four sites are also supplied via co-generation facilities that use natural gas to generate steam and electricity for the sites. Therefore, Fonterra's processing sites are reliant on an efficient, reliable, and secure natural gas supply to meet its thermal energy requirements in order to process the large volumes of milk that are collected each year.

4. In the 2013 annual report, Fonterra recorded a net profit after tax of $736 million, on revenue of $18.6 billion, and a cash payout of $6.16 for the 2013 year for a 100 percent share-backed farmer – comprising a Farmgate Milk Price of $5.84 per kgMS and a dividend of 32 cents per share.

Executive Summary

5. MBIE is seeking feedback on the conclusions and recommendations made in the Gas Disruption Study. The Gas Disruption Study provides two gas disruption scenarios:

    5.1. A four week outage affecting the entire upper North Island from a complete gas transmission failure event where both the Maui and Vector pipelines are impacted and the repair needs to occur in logistically challenging terrain (essentially an extension of the October 2011 outage event), and the Vector line is fixed first to restore some supply initially (the "Transmission Scenario");

    5.2. An extended supply disruption at Pohokura from either a loss of gas processing facility or gas field interruption where 60% of gas supply is restored within two months and 100% restored within three months (the "Pohokura Scenario").

6. If either scenario occurred during the peak of the dairy season (August to December) it would have a significant impact on the dairy industry, environment, and economy – especially if it required dairy herds to be dried off. If this occurred, the effects would not be transient and would remain long after gas supply is restored. The Gas Disruption Study does not adequately capture these impacts.

7. Fonterra recommends that the current gas curtailment band 3 is changed to provide some mitigation against the environmental and economic impacts from a sustained gas outage. Fonterra's suggested solution is to split the band 3 users so that if gas supply is available to be restored, then during the peak dairy season (August to December), restoration priority should be given to the dairy industry to minimise the environmental and economic impacts.

8. Fonterra believes that the Gas Disruption Study has understated both the environmental and economic impact on the dairy industry from a sustained gas outage. Fonterra suggests that MBIE, in conjunction with other

regulatory departments such as the Ministry of Primary Industries ("MPI"), undertake analysis on both the financial impact and environmental impacts from the dairy industry being impacted by a significant gas outage.

9. Fonterra's analysis shows that if the Transmission Scenario occurred in August, which resulted in dairy herds being forcibly dried off at the start of the season in order to mitigate the environmental damage of disposing of raw milk, that it would have a financial impact to NZ in the billions. This assumes that the lower North Island gas supply is uninterrupted, and that Fonterra is able to transport some milk to the South Island. The impact from a total gas outage that impacted the entire North Island, as envisaged by the Pohokura Scenario, would be greater than this. For example, DairyNZ's Economic Survey showed that the NZ North Island regions earned an estimated $8.2 billion from dairy farms in 2013-14, and this would be put at risk in the Pohokura Scenario.

10. Fonterra suggests that MBIE should undertake further analysis into New Zealand's diesel infrastructure and the volumes required if there was a sustained gas outage and considerable installation of dual fuel capability by industry. Fonterra's analysis shows that current diesel infrastructure would be able to support its proposed dual fuelled sites for approximately 7 to 10 days. After this point, if there was no gas and no diesel available and this occurred during the peak of the dairy season, then forcibly drying off dairy herds would be required to avoid the environmental damage from disposing of raw milk. This would result in similar aforementioned economic impacts.

11. This submission articulates many of the constraints and limited options available for raw milk disposal. Fonterra recommends MBIE consult with Local Government New Zealand and/or Regional Councils to discuss options for the management of the environmental risk of disposing of raw milk.

12. Fonterra believes that the Gas Disruption Study has incorrectly assumed that the CCM Regulations would no longer apply in the Pohokura Scenario and disagrees with the suggestion that secondary trading would occur in this scenario.

13. Fonterra supports the suggestion to clarify roles and responsibilities if a national civil defence response is activated under Civil Defence and Emergency Management Act 2002, and how that overrides the CCM regulations. Fonterra encourages that this is tested in theory before it occurs in practice.

14. The Gas Disruption Study notes that both MDL and Vector are considering relocating their pipelines in the Whitecliffs area to avoid coastal erosion. Vector has "suggested an alternative of isolating and abandoning the affected section because of its lower forecast expenditure". Fonterra views this suggestion to be unacceptable as it will reduce the security of the pipeline north of this point, essentially reducing gas security of supply to all those upstream users from N-1 to N (no redundancy).

15. Fonterra suggests that MBIE review and consider options to improve the transparency and communication of pipeline risks and mitigation plans to reduce identified risks.

16. Fonterra supports the recommendation to extend the geotechnical assessment that was done on the Maui pipeline route to be conducted on the Vector transmission system.

17. This submission provides feedback to MBIE from Fonterra's perspective, focusing on the following key areas:

    17.1. The impact of the two gas disruption scenarios on the dairy industry;

    17.2. The potential financial impact on the dairy industry;

    17.3. Limitations on contingency fuel options;

17.4. The Pohokura Scenario and the Transmission Scenario;

17.5. General comments on the Gas Disruption Study.

The impact of the two gas disruption scenarios on the dairy industry

18. The Gas Disruption Study concludes (page vi, conclusions #3, #5, #7) that:

    18.1. "The economic impact on other industries is likely to be through increased input costs rather than loss in output";

    18.2. "The effects are likely to be short term and wash through quite quickly without permanent long term effects";

    18.3. "Under a worst case credible scenario the short term impact is expected to amount to less than 1% of GDP".

19. It also states that "at the national economy level losses of the magnitudes considered are likely to only have a transient effect and are well within the bounds of normal business interruption scenarios" (page vi).

20. However, later in the study it does acknowledge the impact to the dairy industry "an extended outage beyond about a week is likely to lead to lost dairy production as milking frequency is reduced and herds dried off early" (page 51).

21. The Gas Disruption Study has not adequately captured the impact on the dairy industry from a sustained gas outage that could occur in either of their scenarios.

22. Below is an extract[1] from Fonterra's submission to the Gas Industry Company Ltd regarding the "Statement of Proposal – amendments to the Gas Governance (Critical Contingency Management) Regulations 2008" ("Fonterra GIC SOP submission"). These paragraphs highlight the constraints that the dairy industry have and the impact on the dairy industry, environment, and economy from a sustained gas outage:

    22.1. *Milk is an <u>uncontrollable</u> raw material;*

        22.1.1. *Once a cow has calved, milk production is initiated. Calving typically occurs in June – August, and the majority of farms will have a lactation period of 300 days. Some farms will produce milk for 365 days and are referred to as "winter milkers". A lactating cow must be milked at least daily to prevent significant animal health and welfare issues occurring.*

        22.1.2. *The peak of the season (the time when the most amount of milk is collected from the farms), varies from year to year and is difficult to predict when this will occur, and the volume of milk that will be at the peak.*

        22.1.3. *Once a cow has been milked, the milk must be collected and processed within 72 hours (see section 18.2 of this submission for further details).*

[1] Submission lodged December 2012, public copy located on the GIC website. Pages 3-5, paragraphs 18.1-18.3.4.

22.1.4. *The 2010/2011 was a record year for dairy in New Zealand[2] and highlights the variability and unpredictable nature of the volume of milk that is required to be processed (also could refer to this as showing how uncontrollable milk is as a raw material for dairy processing):*

22.1.4.1. *Total number of New Zealand dairy cows: Increased by 132,000 to just over 4.5 million cows (4,528,736) – an increase of 3 percent over the 2009/2010 season.*

22.1.4.2. *Average production per cow: Increased 5 per cent – to an average of 334 kilograms milksolids (comprising 190 kilograms milkfat and 144 kilograms protein).*

22.1.4.3. *Milk processed by New Zealand dairy companies: 17.3 billion litres, with the total milksolids processed increasing from 1.44 billion kilograms in 2009/2010 to 1.51 billion kilograms.*

22.1.5. *Other industries can control when and how much of their raw material they will process – e.g. the Meat industry can put animals back on the farm and delay processing until gas supply resumes; the Wood industry can cease cutting down trees and the trees that have been cut, can be stored and processed at a later date.*

22.2. *Milk is a <u>perishable</u> raw material;*

22.2.1. *There are strict quality controls for the manufacture of dairy products to ensure that it is a safe food product. Various dairy products are manufactured and can be consumed by all ages around the world. One of these quality controls is the timeframe for milk to be collected from farms and stored prior to being processed.*

22.2.2. *Legislative requirements under the Animal Products Act 1999 state that milk should be stored on farm for no longer than 48 hours. Storage time may extend to a maximum of 72 hours as a one off exception after risks have been assessed and wholesomeness demonstrated.*

22.2.3. *If milk is not collected and processed within this timeframe, the milk will degrade and microbiological growth will occur, which will make it unsuitable for processing into products for human consumption.*

22.2.4. *Therefore installing larger vats to store milk on-farm is not a viable option in the event of a sustained gas outage.*

22.3. *If milk is not processed into dairy products and has to be disposed of on-farms, then this can have <u>major environmental impacts</u>[3];*

22.3.1. *Farms ability to store and then dispose of milk at an appropriate dilution rate is limited. It will depend on available storage volume, soil type, climatic conditions, availability of water for dilution and the conditions of their resource consent or regional council rules. Milk is not identified to be farm dairy effluent and therefore would not be considered in council conditions for effluent disposal.*

22.3.2. *There are several environmental impacts of milk disposal, including:*

[2] Reference: New Zealand Dairy Statistics 2010-11.

[3] GIC commissioned the "Lowe Environmental Impact – Review of methods for and impacts of raw milk disposal" report ("the Lowe report").

22.3.2.1. *Waterway damage: Direct discharge of milk to waterways will potentially be ecologically catastrophic. Due to a very high Biological Oxygen Demand ("BOD") milk will strip dissolved oxygen from water resulting in devastating effects on oxygen requiring aquatic plants and animals. It will also have a significant effect on the colour and turbidity and therefore aesthetic value of the water body.*

22.3.2.2. *Soil damage: Milk must be applied to soil at a dilution rate that matches the soil microbial activity and plant uptake ability to break it down. Applying milk at a rate in excess of the soils capacity to do this could result in undesirable odour, reduction in soil infiltration rates, overland flow to water, clogging of soil pores and surface.*

22.3.2.3. *Odours: Continuous and lengthy disposal of milk into farm effluent storage systems will also result in undesirable odours. The length of severity of these odours will be dependent on the volume and timeframe of milk disposed along with the size of the effluent storage system.*

22.3.3. *Milk disposal on-farms could also result in a breach of the Resource Management Act 1991 ("RMA"). Section 15 of the RMA requires all contaminants that are discharged to land or water to done so under the banner of an environmental standard, expressly stated rule in a plan or resource consent. Disposing of milk outside of these provisions would mean a breach of the RMA. Resource consent for such a discharge is unlikely to be granted. We are reliant on individual regional councils deciding at the time of the incident how they will manage this non-compliance.*

22.3.4. *The Lowe report proposes that one mitigation approach for on-farm milk disposal is to enlarge the farm's effluent ponds. This is not a viable option as it would be encouraging our farmers to plan for undertaking an illegal activity.*

23. The above shows the impact to the dairy industry, environment, and economy from a sustained gas outage which is not adequately captured in the Gas Disruption Study.

24. This would also have an impact on the New Zealand dairy industry reputation from such a large scale milk disposal event and the associated environmental impacts.

25. These effects are not transient and will be felt by many (including customers, consumers, farmers, shareholders, NZ communities) long after the gas supply has been restored.

26. Fonterra recommends MBIE consult with Local Government New Zealand and/or regional councils to discuss options for the management of this environmental risk.

The potential financial impact on the dairy industry

27. Fonterra acknowledges that the team who created the report relied upon the New Zealand Institute for Economic Research ("NZIER") estimates provided to Gas Industry Company ("GIC")[4] for an estimate of the contribution of gas consumption industries that use gas and the value that could be lost if a firm ceases production.

28. Fonterra previously commented on this analysis in the Fonterra GIC SOP submission where we stated (paragraph 16):

[4] "Value-added associated with gas demand", NZIER report to Gas Industry Company, 11 October 2011.

28.1. *"The analysis performed by NZIER shows that the dairy industry adds value of ~$100/GJ. Fonterra's analysis shows that the cost of un-served energy to the dairy industry is approximately $580/GJ."*

29. Note that there is a difference between the value a party gets from using gas, and the value that a party is willing to pay to use gas.

30. The Gas Disruption Study notes that "economic impact is mainly felt through temporary higher input prices rather than lost output. Once supply is restored the effects are likely to wash through quite quickly so no permanent or long term loss is suffered" (page 65).

31. Fonterra disagrees with this assessment and believes that the potential economic and long term impacts from an outage outlined in the Pohokura scenario is understated in the Gas Disruption Study.

32. As stated in the Fonterra GIC SOP submission, significant economic impacts could occur if a gas outage resulted in herds of cows needing to be dried off, as once milking ceases then milk production cannot be switched back on and the impact of this remains for the remainder of the dairy season until calving occurs again (paragraphs 18.4.1-18.4.3):

32.1. *"There is no tap to stop milk production coming off the farms, nor is there a tap to turn it back on if milking of cows ceases prematurely in a season. This means milk processing sites are absolutely dependent on an uninterrupted energy supply.*

32.2. *For every herd forcibly dried off due to a sustained gas outage which occurred 35% of the way through the season (i.e. the October 2011 scenario), it would result in an approximate $0.7 million loss per herd*[5]*.*

32.3. *If the gas outage results in dairy herds or regions of dairy herds having to be dried off, then this impact remains well after the gas has been restored, with a significant financial impact to the NZ economy that is potentially in the billions."*

33. DairyNZ's Economic Survey[6] showed that the NZ regions earned an estimated $14.3 billion from dairy farms in 2013-14, and estimates that the NZ economy earned $17.6 billion from dairy exports that year.

34. This survey showed that the economic contribution from dairying in the following regions to be:

34.1. Northland: $790.7 million

34.2. Waikato: $3.8 billion,

34.3. Bay of Plenty: $991 million

34.4. Taranaki: $1.44 billion

34.5. Hawkes Bay: $123.9 million

34.6. Manawatu: $643.3 million

34.7. Wairarapa: $473.7 million

[5] Assumes 410 cows in the average herd, 350kg MS/cow/annum and the lost income from each kg MS lost is $7. Calculation: 410*350*7*65% = $0.7M per herd.
[6] http://www.dairynz.co.nz/news/latest-news/dairy-cash-cow-for-regional-economies/ and http://www.dairynz.co.nz/media/840437/dairy-regional-contribution-2013-14.pdf

35. These regions in the North Island would all be impacted by the Pohokura Scenario and the estimated earnings of $8.2 billion would be at risk from a sustained gas outage that resulted in dairy herds being dried off at the start of the dairy season.

36. Fonterra has analysed the impact of a Transmission Scenario outage that occurred during August. In this scenario[7], some milk could be diverted for processing in the South Island or at the lower North Island Sites and the remainder of this milk would need to be disposed of on-farm. The estimated financial impact[8] of this is in the billions.

37. Therefore, the Gas Disruption Study has understated this impact in its assessment and there could be long term impacts, depending upon the timing of the outage and the resulting impact on the dairy industry if herds are dried off to avoid the serious environmental damage that would occur from disposing of the milk that could not be processed at the Sites due to the gas outage.

38. Fonterra suggests that MBIE, in conjunction with other regulatory departments such as the Ministry of Primary Industries ("MPI"), undertake analysis on both the financial impact and environmental impacts from the dairy industry being impacted by a significant gas outage.

Limitations on contingency fuel options

39. The Gas Disruption Study acknowledges (page 51) there are some fundamental differences between NZ and the Australian case study, including the limitations on fuel switching. In each Gas Disruption Study scenario, it envisages that users would use alternative fuel sources, such as diesel, to continue operating.

40. The Gas Disruption Study briefly notes some of the constraints regarding the use of alternative fuels – "impact of draw on liquid fuels system unclear" (page 61).

41. Fonterra would like to highlight several constraints that users, such as the dairy industry, face with the ability to install dual fuel (gas and diesel) capability at its processing sites:

    41.1. If all of Fonterra's North Island Sites that use gas were converted to use diesel, and all of them then had to switch to using diesel, there would be an additional diesel demand of 1.1 million litres per day. Within about a week, the diesel reserves in New Zealand would be depleted due to this increased demand.

    41.2. This would increase the number of tankers and drivers required to transport this additional diesel to the Sites, and require an additional 44[9] tanker movements per day (this is on top of the current diesel tanker movements to meet national diesel demand). Fonterra has made some inquiries with tanker operators and there are insufficient tankers and drivers available to meet this increased demand for all Sites for an outage of a duration envisaged in either the Transmission Scenario or the Pohokura Scenario. Therefore, it is not a credible alternative to dual fuel all Sites as the diesel infrastructure is not there to support it.

    41.3. It would cost tens of millions of dollars to install this dual fuel capability and would require capital expenditure upstream into diesel infrastructure such as reserve storage, stored diesel, and standby tankers.

42. There will also be a constraint on the Refinery production levels if they cannot use gas for their processing.

[7] This scenario assumes that Waitoa will continue processing, Te Awamutu will be able to process some milk, the lower North Island Sites are all able to continue processing milk, and that some milk can be sent across the Cook Straight to the South Island for processing. This analysis also uses FY14 actual milkflows and FY14 payout of $8.40/kg M.S. It also is based upon current plant configurations and processing capacity.
[8] This is based upon the costs of diverting milk to other regions and the indirect costs based upon the DairyNZ Economic Survey dairy economic contribution.
[9] Assumes 25,000L of diesel per tanker.

43. Fonterra suggests that MBIE should undertake further analysis into New Zealand's diesel infrastructure and the volumes required if there was a sustained gas outage and considerable installation of dual fuel capability by industry.

The Pohokura Scenario and the Transmission Scenario

44. The Gas Disruption Study concludes that "the scenarios can be managed through current market arrangements rather than Government intervention" (page vi, conclusion #6) and that "a market based approach to reallocation of supply together with the CCM regulations should be feasible without further government intervention via emergency powers" (page vii).

45. In the Pohokura Scenario (described in pages 57-59), it envisages that within 24 hours:

    45.1. The CCO declares a critical contingency event and bands 1-4 are all curtailed;

    45.2. Parties that sell Pohokura gas declare a force majeure event and initiate curtailment procedures through their contractual provisions;

    45.3. Pohokura joint venture parties will seek to obtain gas supply from other fields;

    45.4. Gas wholesale parties "would deal with larger ToU metered customers to initiate full or partial curtailments". "The impact on wholesalers and their customers is therefore partial, rather than full loss of supply. Rationing procedures will be peculiar to each wholesaler".

46. Fonterra queries the rationale behind these scenario assumptions that despite a critical contingency event being declared, that parties contractual provisions will override the regulated response to manage limited gas supplies.

47. The Gas Disruption Study acknowledges that "in a critical contingency event the CCO has the option to cancel a curtailment where the CCO is satisfied that the supply/demand balance has been re-established" (page 68).

48. Clause 60 of the CCM Regulations outlines the termination of a critical contingency event and states:

> "(1) The critical contingency operator must make a determination to terminate a critical contingency when the transmission system is capable of supplying gas to all consumers at the level at which gas was supplied immediately before the event that gave rise to the critical contingency.
>
> (2) To avoid doubt, the critical contingency operator may make a determination to terminate a critical contingency under subclause (1) before gas supply has been restored to all consumers.
>
> (3) The critical contingency operator may make a determination to terminate the critical contingency if it is satisfied that –
>
> (a) the supply of gas into the transmission system is sufficient to meet or exceed the reasonably expected consumption of gas following the determination; and
>
> (b) the determination would better achieve the purpose of the regulations."

49. Therefore, Fonterra believes that the Gas Disruption Study has incorrectly assumed that the CCM Regulations would no longer apply in the Pohokura Scenario and the CCO would not be able to terminate the critical contingency event, as this would be inconsistent with the CCM Regulations. In the Pohokura Scenario, a critical

contingency event would remain active until the transmission system can supply gas to all consumers at the level it was supplied before the outage event occurred, which is 100% after three months.

50. The Pohokura Scenario also provides, that after 24 hours:

    50.1. "CCO assessment on line pack stability enables restoration of curtailment bands leaving opportunity within those bands for trading of available gas";

    50.2. "Fonterra makes an assessment on which Dairy North Island Processing Plants to shutdown (NB Whareroa site expected to continue as supply is through Todd-Fonterra joint venture from Kapuni gas field). Contact is assumed to have insufficient gas to run Te Rapa (4.2PJ pa) and Todd may not be able to supply Edgecumbe (1.2PJ pa). Total gas loss to Fonterra dairy process could amount to as much as 6PJ pa equivalent."

    50.3. "Secondary market spot trading and/or short term supply contracts are negotiated between wholesalers and suppliers".

51. The Gas Disruption study understates Fonterra's gas consumption. As stated in paragraph 3 of this submission, Fonterra directly uses approximately 4.5PJ of natural gas per annum, which excludes the gas used at the co-generation sites. This also does not include the increase in natural gas demand from the expansions that are planned at Fonterra's Pahiatua and Lichfield Sites.

52. As noted in paragraph 49, we query the assumption that the CCO would terminate the critical contingency event. This assumption is contradictory to the Transmission Scenario where it assumes that the critical contingency event "remains activated until full supply restored". This is consistent with the CCM Regulations, clause 60.

53. The Transmission Scenario also suggests that the Civil Defence Emergency Management ("CDEM") would be activated (page 61). It is unclear why CDEM would not be enacted in the Pohokura Scenario.

54. The Pohokura Scenario states that Fonterra would have discretion to make an assessment of which North Island Sites to shutdown due to limited gas supply. If this type of decision was required, it would suggest that there is still an event occurring that is limiting gas supply and thus is still a critical contingency event managed by the CCM Regulations, or the CDEM would apply.

55. The Gas Disruption Study also suggests that "a gradual evolution towards a more liquid secondary market will help mitigate the economic impacts of gas supply interruptions by enabling limited supply to be allocated to parties who value it the most during a period of gas supply curtailment" (page 11 and 71) and that "gas entitlements can be on-sold to higher value uses" (page 66). It also suggests that in the Pohokura scenario, secondary trading would occur for gas supply.

56. Fonterra fundamentally disagrees with the suggestion that secondary market trading would occur on the basis that the Gas Governance (Critical Contingency Management) Regulations 2008 ("CCM Regulations") would continue to apply in such a scenario and there is no ability for market mechanisms to operate. If parties have access to gas and are willing to trade it, it signals that the curtailment bands have not been classified correctly. Also, the opportunity for parties to profit off others curtailment due to the gas regulations does not seem right.

57. If secondary trading was able to occur, it would suggest that there is not a critical contingency and suppliers would not be able to invoke the force majeure clauses in their contracts, therefore the opportunity for gas to be traded amongst users would not eventuate. It would be unusual for contracts to permit the on-selling of unused gas by users.

58. The Pohokura Scenario and Transmission Scenario do not take into account the impact to the dairy industry, environment, and economy as outlined earlier in this submission. The Pohokura Scenario understates the impact by stating it only as an estimated amount of gas that would not be used.

59. The Gas Disruption Study also outlines that the feasible worst case scenario as being the following (page 59):

    59.1. "Is a complete gas outage for at least six months affecting one methanol train at Motunui (35PJ pa) and three months for half of North Island dairy processing (6PJ pa), Refining NZ (2.5PJ pa), gas generation (CCGT 25PJ pa)."

    59.2. "Dairy processing is unlikely to be interrupted provided suitable gas trading is enabled, either through an open trading platform, or bilaterally through gas retailers".

    59.3. "Dairy processing would either switch to diesel where sites are configured for dual fuel capability, or negotiate gas at diesel price equivalent (about $29/GJ) which is assumed to be equivalent to Methanex's point of indifference".

    59.4. "The direct cost impact are assumed to be the difference between diesel price equivalent and current gas price – or approximately $20/GJ."

    59.5. Calculates the estimated value lost for the Dairy industry from a 3 month outage to be $40million.

60. Fonterra does not believe this to be an accurate portrayal of what would eventuate in the worst case scenario.

61. As noted earlier in this submission, this worst case scenario makes several assumptions that Fonterra disagrees with, in particular around the assumption that the critical contingency event would be terminated, and that secondary trading would occur.

62. Again, we also note that the worst case scenario understates the impact to the dairy industry, environment, and economy. If this worst case scenario occurred at the start of the dairy season or during the peak of the dairy season, it would have significant impacts as stated earlier in this submission.

63. The worst case scenario also assumes that users could switch from gas to diesel to provide an alternative fuel source during this outage. This is not a realistic long term option, as to reiterate an earlier point, the volume of diesel available and the diesel infrastructure is insufficient to meet user demands in a prolonged gas outage.

General comments on the Gas Disruption Study

Clarification of the Civil Defence and Emergency Management Act 2002

64. The Gas Disruption Study suggests that further clarification of roles and responsibilities is required if a national civil defence response is activated under Civil Defence and Emergency Management Act 2002, and how that overrides the CCM regulations (pages 14-15, 69-70).

65. Fonterra supports this suggestion and would encourage that this is tested in theory before it occurs in practice.

Increased transparency and communication of pipeline risks and mitigations

66. The Gas Disruption Study states that "threats to the supply chain are well known with the main hazards in respect of pipeline routing and facilities operation subject to statutory oversight/certification, regular monitoring, maintenance, and/or mitigation works" (pages vii, 71) and identifies the "risk of poor transparency" (page 69).

67. Fonterra believes that transparency in this area could be improved and there is an opportunity for pipeline owners to increase communication of risks, reliability programs, and mitigation plans to gas consumers.

68. After the October 2011 gas outage event, MBIE requested that Maui Development Limited ("MDL") presented the updated plans for identifying and managing landslide and erosion risks to pipeline customers and end users by 30 June 2013[10]. This type of communication and transparency should be repeated more frequently to assist the gas industry with understanding potential risks to gas supply as well as what mitigation actions are planned and the potential impact on end users.

69. The Gas Disruption Study also notes that both MDL and Vector are considering relocating their pipelines in the Whitecliffs area to avoid coastal erosion. Vector has "suggested an alternative of isolating and abandoning the affected section because of its lower forecast expenditure" (page 67). This is unacceptable as it will reduce the security of the pipeline north of this point, essentially reducing gas security of supply to all those upstream users from N-1 to N (no redundancy).

70. Fonterra suggests that MBIE review and consider options to improve the transparency and communication of pipeline risks and mitigation plans to reduce identified risks.

71. The Gas Disruption Study recommends extending the geotechnical assessment that was done on the Maui pipeline route to be conducted on the Vector transmission system (page 73-74). Fonterra supports this recommendation.

Gas restoration process after curtailment

72. The Gas Disruption Study also notes that there is some discretion available to the Critical Contingency Operator ("CCO") in restoration depending upon the circumstances of the event, and that the CCO could partially restore a subset of a band or restore the whole band usage by a given amount (page 15). This discretion is embodied in CCM Regulation 53(2) where the CCO can "direct curtailment of a subset of load within a curtailment band". The CCO is likely to face challenges regarding which users to restore gas to and this process is open to inefficiencies in the decision making. This is especially a challenge with the band 3 users, which Fonterra Sites are now classified as, as this band size has increased under the revised CCM Regulations.

73. Fonterra previously highlighted this concern in the Fonterra GIC SOP submission (paragraphs 25-31.4) and suggested a solution to this by proposing to differentiate the band 3 users into two groups, where restoration would occur earlier to users that need to process an uncontrollable perishable raw material that if not processed would cause major environmental impacts and significant economic loss.

74. This concern remains unaddressed under the current CCM Regulations. As outlined earlier in this submission, there are significant constraints on the dairy industry to dispose of large volumes of raw milk if processing sites are impacted due to a gas outage. This problem occurs primarily at the peak of the dairy season (August – December) when there are limited contingency options available.

    74.1. As highlighted earlier in this submission, there are limited options for dairy farmers to manage the uncollected milk if the Sites are not operating.

    74.2. Fonterra has some ability to transfer milk collected in the North Island to its Sites in the South Island as these would not be impacted by a gas outage. However, during the peak of the dairy season, the capacity to transfer is limited.

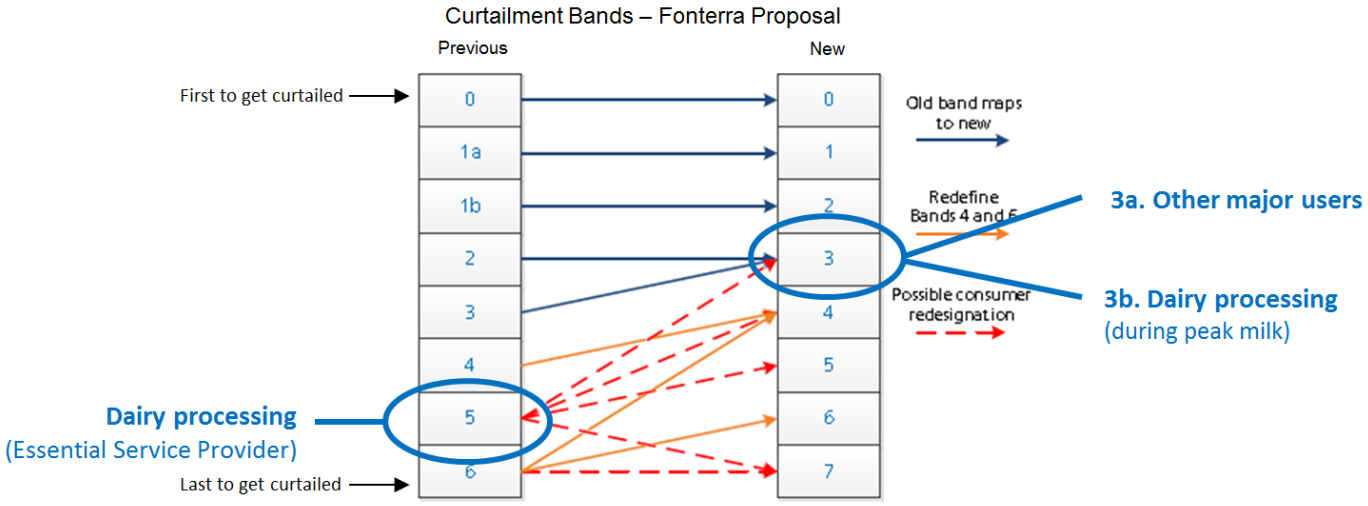
[10] MBIE "Review of the Maui pipeline outage of October 2011", published October 2012, http://www.med.govt.nz/sectors-industries/energy/pdf-docs-library/gas-market/review-of-the-maui-pipeline-outage/outage-review.pdf

74.3. Fonterra also has some processing capacity in the North Island due to the Sites that operate on coal.

74.4. Fonterra is currently going through the process to obtain a critical processing designation under the CCM Regulations.

75. If gas supply is available to be restored in either scenario, then during the peak dairy season (August to December), restoration priority should be given to the dairy industry to minimise the environmental and economic impacts outlined earlier in this submission.

76. Below is a diagram to assist with demonstrating Fonterra's proposal:



77. Fonterra recommends that MBIE, MPI, and GIC consider this proposal to alleviate the environmental and economic impacts that could occur in a sustained gas outage scenario.

Please direct any queries regarding this submission to Fonterra's Energy Manager:	Linda.Mulvihill@fonterra.com