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Manager, Input Methodologies Review  
Regulation Branch  
Commerce Commission  
PO Box 2351  
Wellington  
(via email to [im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz))

25 August 2016

Dear Keston

**RE: Input methodologies –WACC Cross Submission**

1. This cross submission is on behalf of the Major Gas Users Group (MGUG) in response to the submissions received by the Commission on its consolidated draft decision papers of 16 June and Report on the IM review of 22 June 2016.
2. MGUG members are:
  - Ballance Agri-Nutrients Ltd
  - Oji Fibre Solutions (NZ) Ltd
  - Fonterra Co-operative Group
  - Goodman Fielder New Zealand Limited
  - New Zealand Steel Ltd
  - New Zealand Sugar Company Ltd
  - Refining NZ
3. MGUG members have been consulted in the preparation of this submission. Nothing in this submission is confidential. Some members may choose to make separate submissions.
4. The structure of this cross submission on WACC questions the evidence around determination of asset betas and leverage, and provides further evidence that the allowed regulatory return is too high.
5. We address this through examination of comparator firm selection, statistical inference, and further statements made by submitters on the ability to arbitrage Commission settings.
6. Our conclusions are:
  - a. Comparator firm selection is not shown to be sufficiently robust to allow reliable statistical analysis to be conducted on them.
  - b. Statistical tests fail to address whether there are differences in asset beta between gas and electricity.

- c. The WACC modelling used by the Commission is not achieving Part 4 purpose in its aim to mimic workably competitive markets.
7. We support Pat Duignan's suggestion that the Commission obtain a new expert opinion regarding analysis of the betas for gas pipelines.
8. We recommend that the Commission should seek to complement beta advice with advice from a suitably experienced statistical consultant on appropriate sampling methodology for selecting representative comparator firms and on adequate model selection that will robustly support the validity of the statistical analysis for determining asset beta and leverage.
9. We recommend that WACC modelling approach be revisited in the face of mounting evidence that its settings enable arbitrage profits to be earned by investors.

#### **Comparator Firm Sampling for determining asset beta**

10. The Commission has determined that its approach to determine cost of equity should follow the Brennan-Lally CAPM. The practical difficulties in estimating its parameters are well described, particularly for determining equity and asset betas and significant disagreement exists between suppliers, consumers, and the Commission as to the appropriate numbers.
11. We would note that a large part of the contrasting views on determination of asset beta is due to disagreement on sample selection. MGUG believes this to be a critical point undermining the confidence in establishing a statistically reliable estimate for leverage and asset beta.
12. Proper sampling techniques are critical to robust statistical inference. In particular it is important to avoid sampling bias in order to not undermine the external validity of the subsequent statistical tests. Our review of the evidence submitted by various parties in support of their submissions on asset beta shows neither an acknowledgement nor explanation on how sampling bias is avoided, or if it is not, how the statistical analysis is adjusted to account for inevitable distortions.
13. Scrutinising the data used for comparator firms it is surprising how much asset betas differ between firms even after accounting for the standard error of each point estimate. Given that asset beta is an estimate of systematic risk we would have expected considerable overlap between comparator firms. That this is not the case suggests that there is a problem with the comparator firm samples<sup>1</sup>.
14. The same problem of non-comparable firms exists with determining a suitable leverage when the range from comparator firms varies as widely as from 0% - 67%<sup>2</sup>.

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<sup>1</sup> For example Oxera's refined sample 2011-2016 and Commission list has 4-weekly asset betas ranging from 0.24-0.81 for list of gas companies and 0.04-0.43 for electricity selection with standard errors of approximately 0.04 suggesting little commonality between firms based on risk exposure.

<sup>2</sup> Input methodologies review – Leverage for energy and airports comparator – 10 August 2016

15. An ideal statistical model is one that has both good explanatory power and predictive power. Under the current modelling it is difficult to see that the Commission has achieved a suitable model that provides any reliability to estimates for WACC parameters.
16. The wide variation in comparator firm WACC parameters suggests that attempting to model the notional firm based on a simple mean has missed identifying the key characteristics of firms that explain this degree of variation. There are two possible solutions to this.
  - a. The list of comparator firms is narrowed so that their characteristics are more similar and closer to what is being modelled as the notional firm relevant to New Zealand, or;
  - b. more explanatory variables/ categorical factors are included for adequately modelling the response.
17. The sample narrowing approach has been taken by a number of submitters including TDB for Contact and Oxera for First Gas. The principal objection from the Commission appears to be that it considers the resulting sample sizes to be too small. It is not clear however what the basis is for this objection. The Commission uses 74 as a sample size but it hasn't explained why. Sample size is generally a function of population size (how many comparable firms exist), required confidence level and the required margin of error. Without insight into these basic parameters it is not clear why a sample size of 74 may be a necessary minimum.
18. Alternatively if a large sample size is considered necessary but this then includes firms that are not considered completely comparable then statistical model for beta determination may need more explanatory variables than just a mean value. These might include further explanatory variables such as jurisdiction, prevailing economic conditions, and specific industry mix for example.

### **Statistical inference.**

19. Notwithstanding our concerns that the selection of comparator firms may not withstand robust scrutiny on validity of sample selection, MGUG also has some difficulty with lack of full interpretation of results by various parties.
20. We refer by way of example to First Gas's submission in support of an asset beta of 0.45 for gas<sup>3</sup> based on advice from their commissioned experts Oxera<sup>4</sup>. We note though that Oxera isn't the only economic expert drawing conclusions about asset betas that do not address the question as to whether differences are statistically different.<sup>5</sup>

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<sup>3</sup> *First Gas Submission on IM review draft decision Cost of Capital 4 August 2016*

<sup>4</sup> *First Gas – Submission on IM review draft decision – Final Oxera report – 4 August 2016* with accompanying spread sheet titled *First Gas – Submission on IM review draft decision – Asset beta analysis – 4 August 2016*

<sup>5</sup> For example Houston Kemp for Powerco comments on Dr Lallys review of WACC issues May 2016 argues that income elasticities of gas vs electricity demand are different without conducting a statistical test on whether the difference between the two estimates are statistically significantly different from zero.

21. The parties arguing for different asset betas for gas vs electricity generally do not seem to test whether the difference in point estimates are real i.e. they show that the sample means are different numbers (and perhaps significant in themselves<sup>6</sup>) but they do not test whether, that with the associated confidence intervals around these sample means, there is statistical evidence to support a conclusion that they are actually different from each other.<sup>7</sup>
22. For example First Gas through Oxera derives two estimates for asset betas; one for gas (0.45), the other for electricity (0.29) with associated standard errors of 0.16 and 0.05 respectively. The 95% confidence intervals of those gas mean is  $2.145 \times 0.16 = +/-0.34$  and for electricity is  $2.160 \times 0.05 = +/- 0.108$ <sup>8</sup>. The two estimates of the mean overlap considerably suggesting that there is no statistical evidence to support rejecting the null hypothesis that the numbers (means) are different.
23. The wide range for each individual estimate also suggests that the actual beta could be any number between 0.12 – 0.79 for gas and 0.18-0.40 for electricity. This range represents a very large difference in value for consumers.
24. As a further comment it appears to MGUG that it would be inconsistent to argue for a supplier specific setting for asset beta but maintain service specific settings for other parameters including leverage and cost of debt. In other words if there is statistical evidence for asset betas to be different between electricity distribution and gas pipelines then these two businesses should be treated as different services altogether.
25. We've commented specifically on these examples because we believe that they are illustrative of a fundamental error in approach to determining some key WACC settings. This is aside from questioning the overall WACC modelling in itself. These errors seem to explain some of the observed outcomes and statements made by suppliers. We outline these in the next section. It also explains why the whole issue of comparator firm selection needs to be revisited to ensure a more robust outcome for WACC determination.
26. In light of concerns around the methodology for determining WACC settings, in particular asset beta, we support Mr Pat Duignan's suggestion that the Commission seeks further advice<sup>9</sup>.
27. MGUG proposes that this advice includes advice from a suitably experienced statistical consultant. This complementary advice would be on an appropriate sampling methodology for selecting representative comparator firms as well as adequate model selection that will robustly support the validity of the statistical analysis for determining asset beta and leverage.

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<sup>6</sup> The significance test in this case is against a null hypothesis that the estimate of the mean for the single parameter is different from zero. The fact that the number is significantly different from zero does not prove that two numbers are different from each other.

<sup>7</sup> The null hypothesis for such a test is that the sample means are the same. If the associated t-statistic supports a p-value less than the acceptance level (e.g. 0.05) there is evidence against the null hypothesis.

<sup>8</sup> T-statistic for 95% CI and 14 degrees of freedom and 13 degrees of freedom respectively multiplied by the standard error of the mean.

<sup>9</sup> Pat Duignan Submission on IM review draft decision 30 June 2016

## WACC modelling approach

28. Whilst acknowledging that determining suitable modelling of WACC parameters is difficult, MGUG nonetheless is concerned that the current approach is demonstrating some severe limitations in its application to New Zealand regulated industries to meet the purpose of Part 4 of the Act.
29. MGUG's submission on WACC issues pointed the Commission to evidence that observed behaviours appear to be inconsistent with what might be observed in workably competitive markets. In particular:
- a. Actual investments made by EDBs were considerably above historical investment despite the Commission also noting that some of these companies were also not able to recover their allowable WACC.
  - b. Colonial First State Global Asset Management's website noting anticipated returns for its acquisition of the transmission system exceeding the notional WACC settings.
  - c. The Commission's analysis on RAB multiples and conclusion that profits were "sufficient" rather than excessive was inconsistent with the Commission's framing and reasoning on the topic.
30. First State's submission<sup>10</sup> on this topic has since supported MGUG's point that WACC settings allow arbitrage. MGUG has already pointed to previous statements made by Colonial First State Global Asset Management of an expected IRR of 9-11% pa on their investment in the acquisition of the Vector transmission and distribution assets. The more recent submission from First State confirms the basis for their claim.
- FSI has accepted higher gearing in First Gas than the capital structure assumed by the Commerce Commission. It was able to secure competitive lending terms through its strong relationships with lenders.<sup>11</sup>*
31. We understand that the Commission's reasoning for capital structure advantages being a gain for company shareholders is based on an assumption that prices reflect the costs of the marginal entrant. In other words if a company has a lower WACC because for example it enjoys a better credit rating than its competitors then this is a gain for shareholders and not one shared with consumers.
32. This reasoning accepts and permits that NPV for firms with a lower cost of capital can be greater than zero (i.e. it can earn economic rents). This does not appear to be consistent with seeking competitive market outcomes for monopoly businesses under Part 4 of the Act. If a firm has a lower cost of capital then it has a structural advantage over its competitors. In a competitive environment it should be able to gain market share by lowering prices to a point where its NPV=0 and its competitors is less than zero. This forces competitors to either exit, or work to achieve the same cost of capital. In other words any cost of capital

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<sup>10</sup> First State Investments- Submission on IM review draft decision Cost of Capital – 4 August 2016

<sup>11</sup> Ibid – 1.1.4 bullet point 3

advantage is not sustainable in a competitive market and the competitive dynamic competes this away through lower prices to consumers.

33. In accepting that a regulated entity has the ability to earn economic rents through arbitraging the regulated settings with its own cost of capital, the regulated entity is also incentivised to invest increasing amounts of CAPEX to inflate its RAB. This is also not an efficient economic outcome.
34. This argument also offers an explanation as to why EDBs continue to invest heavily despite in some cases not achieving regulated returns<sup>12</sup>.
35. First State further addresses the issue of RAB multiple and why they paid a premium for the New Zealand transmission and distribution assets. These arguments generally revolve around that the premium is not a premium but reflects a market value for the asset. The perception of a premium is created because there is an arbitrage opportunity created by what the Commission thinks the regulated return should be and what the purchaser expects to achieve.
36. First State suggests that some of its higher return expectations are due to unregulated services but appears vague as to what those might be. It would seem remarkable to MGUG that a prudent investor would not heavily discount unproven concepts for unregulated services in any valuation process.
37. In summary, the most plausible reason for paying a multiple on RAB, is as the Commission noted, because the regulatory allowed rate of return is too high. First State has acknowledged that this is indeed the case.
38. The problem may be partially related to the first part of our submission in that the comparator firm selection and analysis is flawed. However even accepting that these settings could be adjusted through better sampling and analysis techniques it still does not resolve the issue that New Zealand based settings can be permanently arbitrated by overseas investors not subject to New Zealand conditions.
39. The fact that suppliers openly acknowledge the exploitation of this loophole suggests it is timely to revisit the basis of determining cost of equity and leverage settings for WACC. MGUG's earlier submission<sup>13</sup> had already highlighted this, which for clarity we repeat here:

*The advice here is that different models should be applied to the set of comparator firms to generate a range of estimates for the cost of equity and that weightings can be applied to adjust for prevailing economic conditions, industry specifics, and characteristics of the firm. There is no single or formulaic approach to estimating the cost of equity and best practice for ensuring robustness is to look at the totality of information*

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<sup>12</sup> Report – Profitability of electricity distributors following first adjustment to revenue limits – 8 June 2016 eg Top Energy -1.87% variance from expected real return but investment 103% above historical average.

<sup>13</sup> MGUG submission cost of capital update paper 5 February 2016 bullet points 24-38

40. The Commission acknowledges WACC determination is not a purely formulaic and that it has to exercise a degree of judgment in determining appropriate settings. The current restriction to a single imperfect method, appears to MGUG to be undermining of the Commission's flexibility to exercise appropriate judgement.

Yours sincerely

A handwritten signature in blue ink, consisting of several overlapping, sweeping strokes that form a stylized, abstract shape.

Len Houwers  
Aretê Consulting Ltd, Hale & Twomey Ltd  
Secretariat for the Major Gas Users Group