Commerce Commission
P O Box 2351
Wellington 6140

For the Attention of: Dr Simon Todd

31 October 2016

Dear Simon

# Report on Vector Gas Distribution BAU check and AMP evidence assessment

1. I am pleased to provide this report setting out Strata Energy Consulting Limited's (Strata) BAU variance checks, materiality check and AMP evidence assessment of Vector Limited's (Vector) 2016 Asset Management Plan (AMP) expenditure forecast.

## Background and approach

2. Strata has been retained by the Commerce Commission to assist in developing the Commerce Commission's framework and approach for re-setting regulated gas pipelines businesses' (GPBs) default price and quality paths (DPP) for the period effective 1 October 2017.

3. In accordance with the Commerce Commission's consultation paper - policy for setting price paths and quality standards for gas pipeline services from 1 October 2017[1], Strata has built an assessment framework and completed a business as usual (BAU) variance checks at aggregate and ID category levels and asset management plan (AMP) evidence assessment of Vector's operating (opex) and capital (capex) expenditure performance (actual and forecast).

4. Strata has conducted its initial independent assessment against the following expenditure objective:

   *capital and operating expenditure should reflect the efficient costs that a prudent non-exempt business would require to meet demand in a regulatory period and over the longer term and comply with applicable regulatory obligations.*

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[1] Commerce Commission (August 2016); *Default price-quality paths for gas pipeline services from 1 October 2017. Policy for setting price paths and quality standards*. http://www.comcom.govt.nz/dmsdocument/14656

5. Through the application of the BAU checks and AMP evidence assessment we have identified expenditure components that should be subjected to supplier evidence assessment. Our recommendations have been developed through our review in which:

    1. we confirmed and agreed with the Commission the applicable materiality variance and materiality settings for BAU checks of forecasts compared to baseline BAU expenditure;
    2. we conducted the BAU checks of forecasts compared to the materiality boundaries, taking into account the contextual metrics; and
    3. have carefully, qualitatively assessed Vector's AMP to ascertain whether variances to BAU are reasonably explained and justified.

6. For expenditure components that have been identified as requiring supplier evidence assessments, we have provided guidance on the additional information that we consider the Commission would need to be provided with to support the identified expenditure components. We recommend that our guidance on the additional information is made available to Vector if it is requested. Our intention in making this recommendation is that the guidance may assist Vector to meet the additional information needs with minimum burden to its business.

## Variance settings for opex and capex

7. The base year for Vector gas distribution has been set at the 3-year straight line average of the 'backcast' historical expenditure data provided by the Commission. This was applied for opex and network capex. The Commission did not provide backcast values for non-network capex. For non-network capex we used 2016 as the base year because this was the only year for which we had post asset separation values.
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8. For total opex, a BAU variance margin of +/-5% was used for the five-year period 2018-2022. BAU opex for gas pipeline businesses is expected to be reasonably consistent and the margin setting used was considered to provide for some year-to-year variation in opex. The setting aligns approximately with the average of the step and trend model, should this be applied. The 5-year period is chosen to coincide with the next regulatory period, to take effect 1 October 2017.

9. For total capex, a variance margin of +/-10% was used because capex for gas pipeline businesses is expected to have some year-to-year variation. The 20% range was considered[2] to provide a reasonable allowance for variation outside of which, an AMP explanation would be required.

### The results of applying BAU variance checks and AMP evidence assessment

10. The results of the BAU variance checks are set out in the Vector Dashboard provided separately to the Commission.

### a) Opex

11. In summary, total opex exceeds the BAU variance boundary from 2017 onwards.

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[2] For example, we took into consideration Covec's high, medium and low forecasts from Vector's 2016 AMP (section 5.5.1 Customer Connections) which indicate a spread of approximately 20% between low and high.

12. The BAU variance check at the total opex level identified aspects of the forecast that could not be explained by viewing the AMP and ID data and therefore required AMP evidence assessment. Opex areas identified for and considered under AMP evidence assessment were:

1. the marked decrease in opex from 2015 to 2016 (owing to asset divestment) requires clear explanation in the AMP variances and will include the detailed impact on opex of the asset divestment;

2. the forecast stepped change in non-network opex for 2017 onwards requires AMP scrutiny to provide an explanation;

3. an explanation for the potential bias towards over-forecasting opex.

13. Whilst item 1 was not fully explained in the 2016 AMP, analysis we have undertaken of the pre and post asset sale indicates that the forecast 2016 opex for both Vector and First Gas is consistent with the pre-sale level of opex. The difference between the 2015 and 2016 opex does not require further scrutiny.

The materiality check for opex is provided below:

| Opex materiality assessment | Forecast ($000) | Amount above back cast 2013-2015 averaged BAU base materiality ($000) | % of total opex |
|---|---|---|---|
| Service interruptions, incidents and emergencies | $9,785 | $533 | 0.9% |
| Routine and corrective maintenance and inspection | $12,292 | -$1,038 | -1.8% |
| Asset replacement and renewal | $0 | $0 | 0.0% |
| Total non Network opex | $36,785 | $5,262 | 8.9% |
| **Total** | | **$4,757** | **8.1%** |
| | | | |
| System operations and network support | $15,105 | $2,007 | 3.4% |
| Business support | $21,680 | $3,255 | 5.5% |

14. We considered if service interruptions, incidents and emergencies opex should be considered in AMP evidence assessment because the forecast expenditure remains above the 2016 base year from 2017-to-2020. As the exceedance of the base year for this opex ID category at $533k for 2017-to-2020 represents only 0.9% of total opex for the period, we recommend that the opex forecast for this category is accepted without being subjected to further assessment.

The two key unresolved issues of over-forecasting bias and increased non-network opex are key areas that were subjected to AMP evidence assessment.

15. Through AMP evidence we found that the $1.63m increase in 2017 and the annual subsequent increases in non-network expenditure were not explained in the AMP. We found that the discussions in sections 7and 8 of the 2016 AMP on non-network assets and risk management did not provide an explanation of the 2017 year-on-year increases in non-network opex.

Supplier evidence assessment is required to:

- explain the increase in non-network opex year-on-year from 2017 and how the forecast increase meets the expenditure objective.

16. **T**hrough AMP assessment, we found that the 2016 AMP has not addressed nor explained the opex over-forecast variances in 2013, 2014 and 2015. AMP evidence assessment did not find any reason to displace the concern that over-forecasting is occurring.

    Supplier evidence assessment is required to:

    - explain why there is a substantial variance in 2013, 2014 and 2015 between opex forecasts and opex actuals; and
    - remove concerns that there is systemic over-forecasting in opex that will also be present in the forecast opex in the 2016 AMP.

17. We also identified a question concerning the absence of any expenditure in opex R&R category. There is no explanation for this in Vector's 2016 AMP. Whilst this is likely to be an expenditure categorisation issue, an explanation from Vector would be useful.

## b) Capex

18. Total capex falls within the materiality boundary for all forecast years. However, the BAU variance check of the ID categories of capex identified a number of issues that require addressing through AMP evidence assessment.

19. The capex materiality check is provided below:

| Capex materiality assessment | Forecast ($000) | Amount above back cast average of 2013-2015 BAU base materiality ($000) | % of total Capex |
|---|---|---|---|
| Consumer connections planning | $65,354 | $1,742 | 2.5% |
| System Growth Planning | $6,357 | $3,436 | 5.0% |
| Asset replacement and renewal | $7,491 | -$9,452 | -13.7% |
| Asset Relocation Planning | $690 | -$6,460 | -9.4% |
| Reliability, Safety and Environment - Planning | $2,395 | $631 | 0.9% |
| Non-Network Asset Planning | $7,373 | $7,373 | 10.7% |
| **Total** | | **-$4,473** | **-6.5%** |

nb: The expenditure for non-network assets is based on 2016 and not the 2013-2015 average.

20. Capex components that we identified through the BAU and materiality checks for AMP evidence assessment were:

    1. the principle drivers for system growth capex and how forecasting takes into account forecasts new ICP connections;

    2. justification to support the year-on-year increases in forecast non-network capex and why the average non-network capex after 2018 exceeds pre-non-Auckland network sale levels.

    3. an explanation to address the concerns regarding an apparent bias towards over-forecasting in capex;

21. System growth capex is lumpy and exceeds the variance on a number of occasions during the assessment period. However, the forecast increase is at 3.3% of total capex and is therefore not passed for AMP evidence assessment.

22. Asset replacement and renewal expenditure is materially below the historical average. The reason for this is the big reduction from 2013 and 2014 expenditure levels (2013 = $$4,297 and 2017 = $1,644). On reviewing the metrics for asset age and condition we found that only a small percentage of assets were at Grade 2 condition and none were at Grade 1.  This metric supports the view that Vector has no significant replacement issues over the forecast period. Accordingly, we did not apply AMP evidence assessment to this ID category.

23. Forecast asset relocations have some lumpy year-on-year increases 2017-2020. Increased forecast reliability, safety and environment capex contributes only 0.3% of total capex and is therefore accepted as BAU.

24. Non-network capex steps up $1.2m from 2016 to 2017 and sits well above the materiality boundary from 2017 onwards. The year-on-year increases for forecast non-network capex exceed the boundaries in every year of the assessment period. Non-network capex from 2018 onwards, despite the sale of non-Auckland gas distribution, is forecast to be at higher levels than pre-sale (2014, 2015).

25. On capex forecasting accuracy, the BAU Dashboard highlights that Vector's forecasts year-on-year are tracking above actual expenditure from 2013-to-2015 (pre-sale). In 2015, the AMP forecast was $12.4m (73%) higher than the actual capex spent in that year. This suggests that there is a bias to over-forecast capex year-on-year and that the capex forecasts in the 2016 AMP are also likely to include this over-forecasting bias.


## Concluding comments

26. The separation of the Auckland and non-Auckland networks presents challenges for assessing Vector's expenditure forecasts. Through the use of the dashboard, we have been able to identify that much of Vector's expenditure forecasts can be considered to be consistent with a BAU position. However, the reason for the significant reduction in asset replacement and renewal remains unexplained.

27. A key concern that we have been unable to resolve in the BAU checks and AMP evidence assessment is the potential over-forecasting observed in previous AMPs. Obtaining comfort that there is no over-forecasting bias in the 2016 AMP will be critical to determining the extent that Vector's expenditure forecasts can be relied upon as meeting the expenditure objective.

28. Thank you for the opportunity to undertake this assessment of Vector's forecast expenditure. Please contact me if you require any additional information.

Regards

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Bill Heaps
Managing Director
Strata Energy Consulting Limited

## Supplier evidence assessment worksheet – Vector distribution

### Opex

| Item requiring assessment | Resolution required | Guidance | Background information |
|---|---|---|---|
| Opex forecasting accuracy | Assess the opex forecast for potential over-forecasting bias | Supplier evidence is required to assess if it is likely that there is systemic over-forecasting of opex and if the 2016 opex forecast is likely to have similar bias to over-forecasting.<br><br>It would be helpful if Vector could provide a detailed explanation of why there is a substantial variance in 2014 and 2015 between opex forecasts and actuals and why confidence can be placed in the accuracy of its 2016 AMP opex forecasts. | Vector's 2014 and 2015 AMPs provide strong indications that opex forecasting contains a bias towards over-forecasting. The 2016 AMP was assessed to identify if Vector had recognised this issue and had addressed it sufficiently to allay concerns regarding over-forecasting bias in its 2016 opex forecast. AMP assessment found that Vector provides insufficient discussion in its AMP to explain the historical variances between actuals and forecasts, and to provide confidence in the reasonableness of its 2016 AMP opex forecasts. |
| Non-network opex forecast | A reasonable explanation for the increase in non-network opex year-on-year from 2017 | The post-2015 trend is for non-network opex to move towards pre-divestment levels. A justification is required for the increasing opex for a reduced asset base.<br><br>A reasonable explanation is needed for the significant increase in non-network opex year-on-year from 2017 to gain confidence that the forecast increase meets the expenditure objective. | As provided in the preceding section, Vector lists its reasons why opex has fallen post the asset divestment. Yet from 2017, non-network opex is forecast to increase again by $1.63m p.a. with no explanation provided in the 2016 AMP for why the initial reductions seen in 2016 will not be sustained in later years. We found that these increases are attributable to non-network expenditure, which would be expected to be the focus of efficiency and productivity gains and not ongoing real increases.<br><br>On examining non-network opex actuals and forecasts and the 2016 AMP explanations, we found minimal evidence of sustained short or medium-term non-network opex savings and no long-term savings. In fact, the reverse is apparent as opex levels lift above 2016 levels in 2017 onwards.<br><br>In the period 2015-to-2017, the annual changes in non-network opex are: |

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| Item requiring assessment | Resolution required | Guidance | Background information |
|---|---|---|---|
| | | | <ul><li>system operations and network support (000s) 2015: $3,095 (actual). 2016: $1,974 (forecast). 2017: $3,021 (forecast);</li><li>business support (000s) 2015: $5,549 (actual). 2016: 3,755 (forecast). 2017: $4,336 (forecast).</li></ul> |

## Capex

| Item requiring Assessment | Resolution required | Guidance | Background information |
|---|---|---|---|
| Capex forecasting | Supplier evidence is required to assess if it is likely that there is systemic over-forecasting of capex and if the 2016 capex forecast is likely to have similar bias toward over-forecasting. | A detailed explanation is needed of why there is a substantial variance in 2014 and 2015 capex forecasts and actuals and why confidence can be placed in its 2016 AMP capex forecasts. | Vector's 2014 and 2015 AMPs provide strong indications that capex forecasting contains a bias towards over-forecasting. As for opex, we reviewed Vector's 2016 AMP to identify if this issue had been recognised and addressed for capex. Our review found insufficient discussion in the 2016 AMP to explain the historical variances between actuals and forecasts, and to provide confidence in the reasonableness of its 2016 AMP capex forecasts.<br><br>The over-forecasts of 48% (2013/14) and 40% (2014/15) suggest that a contingency sum may have been included in the forecasts that was not required to be used. The over-forecast of 73% (2015/16) may be due to uncertainty of the asset separation on divestment but as this number is significant, detailed explanation is required to understand how the forecast has been applied and the assumptions used in forecasting future years' capex. |
| Non-network planning | Identification of reasons why non-network planning raises above 2016 levels. | Assessment is needed to consider any additional information that provides explanation and supporting justification for why non-network planning is forecast above the 2016 base year and why the ongoing forecast exceeds pre-sale levels of capex. | Section 7 of Vector's 2016 AMP covers non-network asset planning which includes: IT core network systems; supporting network systems; and IT infrastructure systems. Every subsection in section 7 of the 2016 AMP describes a roadmap that may or may not trigger capital investment. However, we found insufficient linkage between each roadmap and the forecasts. In addition, we could find no description relating to any of these projects or programmes in the IDs or the 2016 AMP commentary.<br><br>Under the explanation of major variances, non-network capital is stated to increase by $0.2m per annum due largely to the: "proportionately greater resources necessary to support the business given the lost economies of scale from the sale of Vector's gas transmission and non-Auckland gas distribution networks." (2016 AMP, Section 9.1.1, pp.6). |

| Item requiring Assessment | Resolution required | Guidance | Background information |
|---|---|---|---|
| | | | We have been unable to find justification for Vector's proposed ramp-up of non-network asset planning in 2016, 2017 and 2018. In addition, we found no explanation or justification to support forecast expenditure in this category being at or well above the pre-asset divestment levels seen in 2014 and 2015. |