Appendix D - The Authority's response to submissions on the CBA, where it is appropriate for the Authority, rather than Oakley Greenwood, to respond

Submitter comment	Authority response
Assumptions	
The cost benefit analysis (CBA) is based on assumptions that have been provided to Oakley Greenwood (OGW) by the Authority, creating outputs that support the proposals. (Authority summary of submitter comments in regard to assumptions)	The Authority responded to specific submitter points on its assumptions below.
Rely on capex information provided by the Authority (Pioneer). It is not independent	The Authority does not consider it reasonable to expect an independent party to source its own data, particularly where that party is not based in New Zealand. The Authority used Transpower data to the extent it was available. At the time the CBA was prepared, there was a high level of uncertainty around future capital expenditure requirements, exacerbated by the recent thermal closures in Auckland–evidence that capital expenditure requirements can change quickly and with little warning. The Authority examined a number of methods for forecasting capital expenditure and determined that the most robust method was to base forecasts on historical data. Given the uncertainty, the Authority requested OGW conduct a sensitivity analysis. The sensitivity analysis demonstrated that the proposal delivers net benefits even where the cost of major capital expenditure is half the cost applied in the base case scenario.
The forecasted data was assumed to be static year-on-year	The capital expenditure forecast was static year-on-year so as to be conservative. That is, adopting static year-on-year data is likely to mean that net benefits are

(Pioneer)	underestimated.
Historical generation data (MWh) inaccurate as SI generation has been deemed to be the major beneficiary of historic trans-mission investment – so this is assumed to continue (Pioneer) The result is high LRMCs in the LNI and LSI regions which contrasts anecdotal evidence (Pioneer). The DGPP consultation paper concludes that distributed generation is of least value in these regions (Pioneer)	Historical data was considered to be the best available source of information for future capex forecasts, given the 20 to 30-year analysis timeframe. The Authority requested sensitivity analysis on the allocations of capital expenditure by region (which altered the LRMCs). The sensitivity analysis continued to indicate that the proposal has net benefits. If the LRMCs were changed, this would alter the estimated benefits. In the extreme, if all the LRMCs were zero, this would reduce some of the modelled benefits to zero, but the CBA would still yield positive benefits overall. Under any realistic scenario, it is likely that the benefits would continue to be large and positive.
The CBA assumed a 60:40 load to generation split which is inconsistent with the modelling of benefits in the charges' calculations (Trustpower)	The 60:40 split between load and generation was considered reasonable as a proxy, given that both generation and load benefit from transmission investment, but that, in general, load benefits more from reliability investments. A more robust assessment was not available.
OGW used $100 million pa for their annual capital expenditure forecast, which is primarily demand driven. The 60:40 split is arbitrary. (Pioneer)	See above. Assumptions were necessary because more specific/accurate information was not available. However, sensitivity analysis showed that the Authority's proposal returned positive net benefits under a range of assumptions.
Re-aligning to 80% load and 20% generation would result in benefits reducing from $213m to $67m (Pioneer)	This is an overly simplistic view. The realignment discussed may lead to a reduction in some specific benefits but can readily lead to increases in other benefits.
OGW incorrectly	The Authority used historical transmission investment

allocated peak demand between USI and LSI regions (Pioneer)	information to develop the regional split for load and historical MWh information for the split for generation. This was the most robust information available to the Authority.
A 60:40 split - gives generators less of a drive than loads to minimise new transmission capital expenditure. (Energy Trusts of New Zealand)	The split is appropriate since the consequence is that load, which, in the Authority's view, generally gets more of the benefit from reliability investments, bears more of the cost and so has an enhanced incentive to minimise transmission expenditure.
A 2% increase in electricity consumption for its modelled life-time benefits which has not been achieved regionally or nationally in recent history (Vector)	The Authority provided OGW with Transpower demand forecast data available at the time.
Assumption that the proposal is LRMC (MRP, Transpower, Axion)	The Authority considers it is reasonable to model the Authority's proposal as an LRMC charge because that is a reasonable proxy for the AoB charge that a forward-looking consumer would face if transmission investment was in fact imminent.
Approach	
Hard to support proposal while the eventual outcome remains unclear (BusinessNZ), ie, the CBA is based on guidelines rather than a methodology	The Authority considered submissions in relation to the level of prescription in the proposed TPM guidelines and there has been some redrafting of the proposed TPM guidelines to provide guidance in some areas. The Authority recognises that having less prescriptive guidelines increases the level of uncertainty in the CBA. The Authority balanced uncertainty against the advantages of providing flexibility to Transpower, who is best placed to propose a detailed methodology, due to its operational expertise.
AoB and deeper connection CBAs are almost identical (Trustpower)	The Authority is of the view that OGW adopts a reasonable approach to modelling the costs and benefits of the area-of-benefit option (the proposal) and the deeper connection option. OGW quantified only a limited number of differences between the two approaches. The major differences between the two approaches are set out in the qualitative analysis contained on pages 74 and 75 of the OGW report. The Authority considers that the results of the qualitative analysis support the Authority's preference for the area-of-benefit option.
CBA has focused on the impacts to grid	The CBA's focus is consistent with the Authority's

costs with limited consideration of the wider impacts to outside grid pricing and the sector in general (KCE)	overarching economic objective for transmission pricing as described in the Authority's decision making and economic framework for transmission pricing (framework), namely that the TPM should focus on: overall efficiency of the electricity industry for the long-term benefit of electricity consumers. Overall efficiency refers to both efficient use of the grid and efficient investment in the electricity industry – the grid, generation and demand-side management. The Authority consulted on the framework in January 2012, published a summary of submissions and confirmed the framework in May 2012. Section 11 of the CBA provides a qualitative analysis on the impact that the transmission pricing options could have on other parts of the electricity value chain, including the distribution and retail markets. OGW's assessment of the Authority's proposal is supported by section 10 of the TPM second issues paper (developed by the Authority), whereby the proposal is qualitatively assessed against the three limbs of the Authority's statutory objective; competition, efficiency, and reliability.
Not conducted sufficient sensitivity analysis. (Trustpower)	OGW undertook a number of sensitivities in the CBA. Sensitivities were applied in relation to the cost of a given quantity of major capital expenditure. This was seen as relevant given the uncertainty around future major capital expenditure over the 20 to 30-year timeframe of the analysis. There were also a number of sensitivities on allocation of major capex between regions for load and generation. Other sensitivities that were applied (as described in the section titled "Model results and sensitivity analysis") were: • sensitivity of the results to changes in the discount rate • sensitivity of the results to changes in the proportion of future transmission investment that can be offset by the adoption of more economic alternatives such as embedded diesel generation • sensitivity of results if the price signal increases the scrutiny of transmission projects, leading Transpower to adopt more efficient transmission projects • sensitivity of the results to changes in the length of the evaluation period • sensitivity of the results to changes in the cost

	assumptions. Following consideration of submissions, the Authority requested OGW develop further sensitivities, including commentary on the impact of reducing interest rates and an analysis of the impact of changing the diesel capital cost assumptions. The Authority's view after considering submissions is that the number, and nature, of sensitivities undertaken was reasonable. This is supported by the observation the CBA made that even under the most extreme and unrealistic assumptions, the net benefits modelled will not turn negative, and therefore the overall benefit of the proposal would remain positive. This suggests to the Authority that further sensitivities will not call into question the case for proceeding with its proposal.
OGW's problem definition is different from the Authority's (MEUG)	In relation to the problem definition, the CBA document (p.7) is clear that it is evaluating the proposed TPM in terms of the Authority's statutory objective. Specifically it noted that "*the Authority has expressed the overarching economic objective of any transmission pricing arrangement as maximising:* *the overall efficiency of the electricity industry for the long-term benefit of electricity consumers. Overall efficiency refers to both efficient use of the grid and efficient investment in the electricity industry – the grid, generation and demand-side management.* *A CBA should therefore give explicit consideration to how a price signal for transmission services will lead to efficient investment and operation across the supply chain. In particular, it is important to clearly identify:* ▪ *Which transmission services will be subject to the new pricing arrangements; and* ▪ *Which transmission services would, if priced, facilitate the achievement of the overarching economic objective*." At a high level the Authority identified the following problems with the current TPM: • "Poor price signals are incentivising inefficient use of the interconnected grid, inefficient levels of grid investment, and inefficient investment by grid users". (p.xiii, TPM 2nd issues paper). The Authority considers

	this is consistent with OGW's description above. • "Poor price signals are causing inefficient participation in decision-making in regard to the interconnected grid, which leads to inefficient grid investment decisions". OGW were not in agreement with the Authority in relation to this problem and therefore this problem is not reflected in their base case. OGW's view is that more efficient participation will not necessarily improve investment decisions because a problem with the Commerce Commission regime, which is responsible for approving investment decisions, has not been identified. (p.xvi, TPM 2nd issues paper). • "The current TPM is not durable". (p.xvii, TPM 2nd issues paper). OGW's CBA is consistent a durability problem evidenced by the 'reduction in disputes' benefit identified in relation to the Authority's proposal. The Authority considers that the OGW's approach for calculating the benefits of increased durability are highly conservative. It is clear from the CBA that it is evaluating the benefits of addressing these problems. The Authority recognises that OGW did not agree with all aspects of the Authority's problem definition. However, the Authority does not consider this to be unexpected given that it decided to commission an independent CBA. In particular, the Authority considers the CBA to be conservative. The Authority does not consider that OGW need to agree with all of the Authority's identified problems in order for the CBA to be robust.
Regional economies and the quality of life for energy users in those regions should be considered within the CBA (Top Energy)	The Authority must promote its statutory objective. The Authority considers that redistributions between regions amount to wealth transfers. The Authority's position as outlined in its interpretation of its statutory objective document (published on the Authority's website), is that wealth transfers are excluded from the Authority's decision making, except to the extent that efficiency effects arise from wealth transfers. The Authority considers that regional redistribution can be inefficient to the extent that the revised charges in regions are not cost-reflective and service-based. The Authority considers that its proposal provides for more cost-reflective and service-based charges which is efficient.
Selection of a 30-year timeframe – when all other benefits are over 20	The Authority's intention was for a 20 year CBA analysis, with sensitivities of 10 and 30 years. However, given the long term outlook there was an issue accessing robust data. OGW advised the Authority that due to data

years (Trustpower)	problems the analysis was only viable to 30 years for some of the efficiency benefits identified. Thus the CBA was subject to a twenty-year cap for many of the calculations.
The CBA appears to compare the proposed change with the current status quo (MEUG NZIER)	The status quo scenario for the CBA relates to the current TPM, revised to take into account changes relating to Transpower's operational review.
An inappropriate definition of the 'counterfactual'. The CBA assumes that the only way to obtain the estimated benefits is through the options it models (Transpower, Axion)	The Authority is not required to undertake a cost benefit analysis of all conceivable TPM options. However, to be thorough the Authority assessed a number of alternatives qualitatively in paragraph 10.71 of the TPM second issues paper. This built on previous assessments of alternatives during the working paper process, ie, the LRMC working paper, the beneficiaries'-pay working paper, and the options working paper. The Authority applied judgement to select what it considered to be the most efficient of a range of options, following its consideration of submissions.
The Authority has provided very little information regarding the long-term effects of retaining the current TPM (Trustpower)	OGW assessed the proposal against the status quo TPM over a 20 to 30-year period.
The CBA should be conducted at a more granular level (EDB or GXP) to identify possible outcomes. (Transpower)	OGW chose to model four regions. Any CBA models a simplification of reality, so professional judgement has to be exercised to determine the degree of simplification. The Authority is satisfied that OGW's selection provides a reasonable trade-off between complexity and cost, on one hand, and the benefits of simplicity and transparency on the other.
The legal requirements for consultation are that the proposal should be supported by expert opinion and empirical evidence. The Authority cannot circumvent an efficiency analysis by relying on economic doctrine. There is also need for a sensitivity	The CBA is independent and is an expert opinion. The CBA is bottom-up and uses available information as inputs. A number of sensitivities were undertaken. It is the Authority's view that if further realistic sensitivities had been undertaken, the CBA would have continued to demonstrate positive net benefits.

analysis. See Telecom Corporation of New Zealand v Commerce Commission, Godfrey Hirst v Commerce Commission, and Wellington International Airport Limited v Commerce Commission. (Trustpower)	
The CBA assumes that third parties will truthfully engage with the Commerce Commission, which is not the case. (Trustpower)	It is not clear why the submitter considers this to be the case. The CBA suggests that those who benefit from an investment have a greater incentive to engage with the Commerce Commission and to reveal their willingness to pay under the proposal, which seems reasonable. However, given the uncertainty about the extent of these benefits, OGW did not include such benefits in their CBA assessment. Instead it quantified them through sensitivity analysis.
A quantified cost benefit analysis should be used where possible. / A stronger quantitative CBA will be needed at some stage (see for example Telecom v Commerce Commission [1992] 3 NZLR 429 at 447). A quantitative CBA should consider issues such as the wholesale market efficiency impacts of the AoB charge in terms of the location of new generation, and the quantification of efficiency losses in benefits. (Trustpower)	The CBA is quantitative to the extent practicable. In response to submissions on the Authority's October 2012 issues paper TPM proposal, which was supported by a top-down CBA, the Authority decided to develop a bottom-up CBA to support its second issues paper proposal. The CBA considered both the efficiency impact of the AoB charge on the location of new generation and the loss of efficiency benefits arising from disputes and transactions costs.
Oakley Greenwood's CBA is	Concept's modelling relates to projecting (modelling) the potential impact on customers of charges under a new

separate from Concept's AoB forecasting, which makes it difficult to evaluate the impact of the proposed TPM. (Pioneer)	TPM. The timeframe for this modelling is necessarily relatively short: it is not possible to project potential specific charges some years in the future with certainty. For example, over time, any individual customer's charges may be affected by the customer's own response to transmission charges, as well as general market developments. The CBA is a 20- to 30-year assessment of the overall net benefits of the package of proposed charges. The Authority does not consider that it is necessary for the two assessments to be aligned in order for interested parties to provide informed submissions.
Other	
HVDC benefits of only $10m, do not equate to the size of the problem as identified in the problem definition (MEUG NZIER, Transpower)	The Authority considers this estimate to be conservative. Previous estimates by TPAG put this benefit at $30m. Further, the Authority considers there to be significant durability benefits in moving to more cost-reflective and service-based charges for HVDC. These durability benefits have not been quantified by OGW in their CBA and would be in addition to the benefits quantified by OGW.
HVDC $10m benefits for wealth transfers of nearly $200m per year (Top Energy).	The Authority requested OGW consider whether there would likely be any efficiency effects from the wealth transfers it has indicatively modelled. OGW responded that they did not consider there would be any negative efficiency effects. The Authority notes that, for assessing wealth transfers, the current charges are not a particularly relevant counterfactual because the current HVDC charge is not considered to be service-based and cost-reflective. Because of this, some wealth transfers from moving to a more service-based and cost-reflective approach were almost inevitable. The Authority considers there to be significant durability benefits in moving to more cost-reflective and service-based charges for HVDC.
The CBA identifies a $106.5M benefit from sending efficient price signals to new generation. The Electricity Commission's estimate in 2010 was $14M. The extent of the discrepancy indicates that the CBA is not robust. (Trustpower)	The recent thermal closures have altered the benefits assessment. The Authority notes that both assessments, which use different methodologies, have returned positive net benefits from moving to a more cost-reflective methodology.

Authority response to OGW comments in their report "Response to issues raised on CBA"	
In respect of the comment that the Authority has "relied solely on 'judgement' in support of the view of dynamic efficiency of the proposal" we understand the Authority has also had regard for the results of the CBA, and within that analysis, we sought to place a value on these dynamic efficiency benefits. That said, possibly the Authority has made other broader statements that we are not aware of that may give rise to this perception.	The Authority is of the view that the dynamic efficiency benefits of the proposal are higher than that estimated by OGW, partly because the Authority considers its proposal is more acceptable than the status quo, and because the Authority considers the proposal will incentivise more efficient participation in transmission investment decisions. However, the Authority has not quantified this benefit and accepts OGW's assessment of total positive net benefits in excess of $200m.
We have not been informed by the EA of any "consented DG site in its energy database", therefore, we are unable to comment as to whether this is of relevance or not.	The Authority considers that OGW's approach, which is to base its RCPD charge benefit on building (or not building) diesel generators behind the meter, is sufficient to model the benefits from moving away from a postage stamp charge, to a charge that is more service-based and cost-reflective.
The Authority was aware that we were relying on the MBIE data, and to this end, did not raise any concerns or issues relating to this data source.	Although the MBIE information has not been updated for some time, it was the most robust information available at the time the analysis was undertaken.
The probability of Huntly shutting down was provided by the Authority.	The Authority provided OGW with an assumption around the continuance of the Huntly Power Station Rankine units–a 50% chance of the remaining units closing. Given existing uncertainty the Authority continues to consider that this assumption is reasonable.
It is not clear to us why it is "inherent to this analysis that DG	The Authority recognises that OGW's model does not distinguish between the different types of generation and their relative strengths and weaknesses. The Authority

is more efficient than grid connected". It is not an assumption that we made consciously and do not see that it is implied in the calculations, therefore, we are not in a position to respond to this comment (p.20, OGW report).	considers that doing so would create significant additional complexity for an already highly complex CBA, and for minimal added benefit.
Inconsistency of results with previous work by Electricity Commission. OGW noted that it is not in a position to comment as it was not involved in that previous work.	The Authority did not request OGW to assess the Electricity Commission's previous work. The current TPM is different from the TPM in force at the time of that previous analysis.
OGW noted in their report that investment risk would be compounded if: The arrangements are overly flexible, thus creating uncertainty around the actual decisions that will manifest as a result of the implementation of the arrangements; Industry participants might reasonably believe that the arrangements will be subject to either regular or ad hoc re-opening (i.e., changes); or The proposed arrangements are manifestly inconsistent with economic theory, or manifestly unfair or unreasonable, which	The Authority has considered this statement by OGW. In the Authority's view, its TPM proposal is adequate for the development and implementation of service-based, cost-reflective charges and more durable TPM. While the guidelines provide some flexibility to Transpower, this has been afforded where it is efficient to do so. Given Transpower's operational expertise, they are best placed to develop the detail in some circumstances. The Authority further considers its proposal is sufficiently stable so to avoid regular ad hoc re-openings and that it is durable to the extent that service-based, cost-reflective charges are more acceptable than the current charging arrangements.

in turn is likely to drive more disputes and increased risk of re-opening. OGW further stated that: At the time of developing the CBA, we did not consider any of the aforementioned conditions to be met, therefore, we had no reason to believe that the proposed TPM arrangements themselves would increase the risk premium associated with investing in the New Zealand electricity industry in the future.	
On face value, there is no particular feature of the AoB that makes it so different as to materially change the resourcing required to deal with the charging mechanism on a day-to-day basis (e.g., billing systems, calculating transmission charges, explaining transmission charges to internal and external stakeholders), hence it seemed reasonable to us to assume that this engagement (and therefore level of resources) will not be materially different under the new TPM as compared to the old TPM.	The Authority agrees. The Authority recognises that some parties have submitted that the proposed charges are complex and will require significant resources to maintain. The Authority considers that the existing regime is more complex and requires additional resources. For example, the Authority is aware that parties allocate considerable resources to predicting and avoiding the current RCPD charge.