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SUBMISSION ON THE ELECTRICITY COMMISSION'S MARKET DESIGN REVIEW ISSUES PAPER

Introduction and Approach

1. The Government undertook an Electricity Market Review in 2006 which concluded that the current market framework should be retained but that opportunities for improvements should be pursued. The current Market Design Review ("the review") explores the opportunities for improvement. The "Issues Paper – Survey of Market Performance" ("issues paper") is the first step in the Electricity Commission's ("the EC") review of the current market design which aims to examine the detail of the current design and identify the areas that are performing satisfactorily and those where improvements can be made.
2. Vector welcomes the opportunity to participate in a comprehensive review of Market Design issues. Vector believes there are a number of challenges facing the electricity market in New Zealand and it is important that any review of market design takes into account wider system development and co-ordination. In particular, Vector believes the review needs to align with the Government's wider strategic goals for increased renewable and distributed generation and demand side participation arising from clearer goals about how New Zealand will meet its climate change commitments. Further, these issues combined with an increasingly peak constrained system could potentially create challenges for system operation and investment.
3. Vector commends the EC for compiling a comprehensive dataset on the performance of the New Zealand electricity market. We consider that it clearly identifies some failings in the wholesale and retail markets, particularly when examined on a regional basis. But overall, Vector submits that the focus should be on identifying, using first principles analysis, what road-blocks there are to improving the performance of the market, and enhancing the electricity

system's capability to deal with future challenges. Ultimately the electricity market exists to serve and meet the realistic expectations of end-users for efficient prices that reflect an appropriately secure and reliable electricity system. As electricity provides the foundation for economic and social well-being, if the market is not meeting the realistic needs of end-users then the EC must recommend the necessary reforms to ensure those needs are met.

4. Vector acknowledges that the consultation on the issues paper represents the initial 'problem definition' phase of the review. Vector's approach to this initial submission is focused on setting out our views on:
 - The need for the review to develop a comprehensive and clear framework and scope in order to set review objectives;
 - The key issues that the review should focus on in relation to any reform of market design arrangements.

Summary of recommendations

5. At a high level, Vector believes the following key issues should be considered in more detail as part of the review:
 - A clear definition of the realistic expectations of market participants and end-users in terms of price, security of supply, and efficient system investment;
 - A wider scope that considers how interrelationships between generation, transmission, distribution and retail markets perform under the current market design and where potential improvements exist;
 - The importance of clear jurisdictional boundaries for regulatory accountability in relation to market design;
 - Alternative market design mechanisms for improving system security of supply;
 - The need for an overall pricing review (the structure of both distribution and retail pricing) to ensure that the electricity market is delivering on and not impeding the Government's objectives for increased electricity efficiency, distributed generation and demand management;
 - Identification of barriers to the development of an efficient market for demand-side participation and how it can be procured for real-time services;

- Development of a forward/hedge contract market given the importance of electricity to economic activity.

Review framework & scope

6. Vector believes the initial stage of the review should define a set of outcomes that an efficient market design would deliver - in particular from the standpoint of the realistic expectations of end-users. The performance of the current market design should then be compared against alternative options in delivering these outcomes. Vector believes this would be more relevant initially than a detailed focus on the data (which often has competing and not necessarily resolvable interpretations).
7. Vector acknowledges that there are a range of related, ongoing work-streams (e.g. locational pricing for transmission, review of security of supply policy, advanced metering) that are directly related to and impact on any consideration of market design. Vector believes the review should aim to highlight those areas of the market design where there are gaps or where improvements could be made and use this to assist in prioritising the work-streams yet to be completed.
8. The scope of the review includes the retail and wholesale segments (including the spot market, the reserves and ancillary services market, the market for forward contract (hedge) products, and the retail electricity market). In Vector's view, the complex interactions within the electricity market mean that certain elements cannot be considered in isolation. Vector is concerned that the EC has adopted a narrow focus on the retail and wholesale markets, without considering the broader and critical inter-relationships of those functional markets with the rest of the supply chain.
9. If there are failings (policy, regulatory or market related) in the manner in which the transmission and distribution functions are contributing, this can have spill-over effects on the performance of the retail and wholesale markets. For example, if there is concern that transmission investment is not likely to be timely or processes in place to make the right transmission choices, then less efficient decisions will be made about the location of new generation investment, or system security compromised.
10. Vector believes the review should consider whether there are ways of improving these inter-relationships within the market context. In particular, efficient system development and coordination should be central to any consideration or reform of market design - this includes efficient system

investment and security, reliability, least cost dispatch, flexibility and affordability.

Review should encompass impacts of governance arrangements

11. Vector believes the review must consider the importance of maintaining clear jurisdictional boundaries for regulatory accountability in relation to market design. Competitive market outcomes will be stifled by uncertainty and the risk associated with having multiple regulatory jurisdictions.
12. In particular, the review should consider the roles and responsibilities of the EC and Commerce Commission ("CC") and their impacts on market performance. Given the importance of tight coordination of electricity markets, and the role that the EC plays, Vector submits that the EC should solicit views on how the governance arrangements are impacting on market performance and what improvements can be made to ensure that Governance processes and arrangements can contribute to an improving market design.
13. In particular, the CC is currently reviewing the electricity generation and retail sectors. Vector believes the outcome of this review is an important consideration for the EC's market design review. The issues paper states that the EC is "concerned to ensure as far as possible that the market design arrangements inhibit adverse conduct, by maximising competitive forces and by ensuring that any adverse behaviour can be readily detected and remedied." Vector questions the EC's ability to remedy adverse behaviour and believes that the overlap (as identified in the paper) between the role of the EC and the CC needs further clarification and role definition.¹
14. Finally, Vector believes that the review should consider in detail the allocation of accountability between EECA and the EC in the area of electricity efficiency and demand side participation to ensure the efficient deployment of resources.

Retail market issues

15. Competitiveness in the retail market is fundamentally linked to wholesale market performance, which directly relates to the manner in which transmission costs are priced, locational risks managed, and the system expanded. The EC's dataset indicates that there are some regions where retailer incumbencies have been largely maintained and retail margins are

¹ Vector would refer the EC to our recent submission on the Memorandum of Understanding between the EC and the Commerce Commission.

higher. In addition, Vector points out that there appears to be few retail pricing innovations in New Zealand, compared to what has been observed in the UK, for example, which would be a further indicator of a more competitive market.

16. While aggregate electricity prices have been relatively constant (in real terms) over the past 25 years, Vector believes it is important to separate energy prices from distribution and transmission prices. Figure 15 of the issues paper shows that the network component of the charge has increasingly become a small proportion of the total charge for domestic customers and the remainder is therefore explained by increasing costs to serve, costs of electricity or retail margins.
17. Vector observes in Figure 26 that there is significant variation in estimated incumbent retailer margins and that they are significantly above average in some areas. Vector believes the EC should further explore the causes for larger margins in some network areas, why the non-incumbents are not more active in gaining customers in these areas, and why customers do not appear to be switching away from incumbents (even when there are significant price benefits associated with doing so).
18. A feature of the market to date has been relatively unsophisticated pricing structures and reliance on voluntary, largely uncompensated energy savings to manage through dry years. Vector submits that forming reliance on voluntary savings is a dangerous strategy, particularly when electricity (energy) prices have increased significantly, justified by retailer/generators as being required to build new plant. At some point, consumers may become resistant of voluntary energy restraints when paying significantly more for electricity than previously (and where retailers have justified higher prices to justify new generation investments).
19. In assessing the performance of the retail market Vector believes it would be worthwhile to gain an improved understanding of consumer expectations and experiences in relation to price and competition and how these align with the current level of service, price etc. The review should explore consumers' desire for enhanced price signals together with their ability to respond. Given greater societal awareness of climate change issues, the willingness of consumers to actively engage in using energy efficiently is likely to have increased significantly in recent times.
20. A better understanding of the consumer perspective is likely to be important as the market moves more towards smarter use of technology to manage energy use, including through deployment of smart meters. It will be important to ensure that the market is workably competitive so that innovative pricing designs can become a feature of the market and deliver benefits to end-consumers. Given a likelihood of greater deployment of distributed generation,

the retail market and the inter-linkages with distribution pricing will need to be able to deliver clear price signals about the value of consumption in different time periods and at different points in the year.

21. Overall, in relation to the performance of the retail market, Vector believes that the key issues that should be covered in the review are:

- Further analysis of the performance of regional markets, including gaining an understanding of performance in areas where incumbencies have been relatively maintained, and price differentials higher; and
- A review of retail pricing structures to identify whether there are barriers to more efficient tariff structures being implemented, including a review of profiling and metering arrangements.

Other comments relating to the retail market issues

22. Reliability is clearly important for consumers, but consideration of network reliability indices in Figure 4 is irrelevant in relation to a review of wholesale and retail market design. Such issues are already dealt with by the CC under thresholds regulations and should be omitted from the EC's review of retail and wholesale market design.

23. Figure 9 reports 'total complaints as a percentage of total customer base' but uses information from ombudsmen schemes that is not comparable across all jurisdictions. Vector believes this information is potentially misleading and should be treated with caution in forming any conclusions or making any recommendations.

24. Vector acknowledges that the EC has a range of current workstreams that are not explicitly included in the review – in particular in relation to price responsiveness, advanced metering, and settlement issues. Vector believes these workstreams are important and need to be factored into any comprehensive review of market design and assessed for prioritisation in dealing with any areas of poor market performance.

Wholesale market issues

Central role of the nodal market design

25. The New Zealand electricity market currently revolves around the nodal market for pricing and dispatch. Although a large proportion (as we understand it) of

electricity is traded through internal “contracts” in the generator-retailers and through external wholesale contracts between generator-retailers and larger customers, the nodal nature of the market plays a critical role in:

- establishing the risks that different locations are exposed to and therefore the relative contract prices around the country; and
- whether contracts are offered at all by some generators in some regions due to the potential for separation.

26. A competitive wholesale market relies on an unconstrained transmission system - where there are constraints which separate generation from load, this creates price premiums and hampers retail market competition because retailers do not want to be exposed from being separated from their loads. Vector believes that an efficient, competitive wholesale and retail market participants to be able to hedge transmission risk from their plants.

27. The original market design envisaged that nodal pricing would be accompanied with financial transmission rights (“FTRs”) so that market participants could hedge their locational risks. FTRs were a critical design component, but have not been introduced for various reasons relating to complexity and residual risk bearing in the event of transmission failure.

28. Vector appreciates that the EC is advancing work on better management of locational risk, but Vector considers that an important element of the market design review should be to look at whether the combination of a nodal market and the proposed use of loss and constraint rentals to mitigate basis risk, is the best approach, compared to other alternatives such as zonal based markets. It is not clear from the issues paper that consideration of nodal versus other market arrangements will be considered as part of the review. Vector submits that they must be.

Forward contract availability

29. Related to the nodal market design, Vector agrees with the EC’s observation that the provision of accurate and reasonably accessible information on market performance (current and future) is an important element in a well-functioning market. A clear issue from the consumer-side of the market is an inability to obtain reliable forward pricing information and a liquid market in which to trade electricity. This has been a concern of end-users almost since market inception, but has not been adequately resolved. This is potentially hampering New Zealand’s economic performance as investors in downstream markets have little ability to gain any degree of medium to long-term price certainty.

Vector submits that this core issue needs to have a central place in the review, and ongoing development of the market.

30. Vector believes it is important that the following issues are considered in further detail as part of any review of wholesale market design:

- Options for improving current arrangements in relation to bidding, contracting and ownership of load (e.g. ex ante pricing);
- If there are barriers to some participants bidding in, what options exist to improve the market design (i.e. is the nodal design appropriate?);
- If effective means of hedging basis risk cannot be made available in a nodal-based market are there possible alternatives for market clearing that can better manage basis risk, and thereby enhance competition in the retail market?;
- Whether the current pricing mechanism can be relied on to incentivise development of the right generation in the right place at the right time? (In particular, how to embed durable locational signals for generation).

Demand side participation

31. Demand side participation is recognised as an important Government objective (as outlined in the draft New Zealand Energy Strategy) for delivering improved efficiency of energy use. Currently, demand side signals for residential and commercial users are almost non-existent. Vector believes the review should seek to establish clear objectives in terms of demand side participation and seek to develop realistic and effective market rules for how this will be achieved.

32. Industry participants need to clearly understand the potential quantity, type, cost, and value of demand response available from all consumer types – this would provide for more efficient investment decisions. Currently, the mechanisms to attribute value to the demand side are rudimentary and non-transparent. Vector believes clear standards will be required going forward for incorporating and coordinating demand side participation. Vector believes it is important that there is transparency and equity in relation to the treatment of demand side services vis-à-vis generation.

33. In addition, Vector believes distribution companies could play a pivotal role in maximising the value of demand side participation due to physical proximity to the customer and a detailed understanding of local conditions and opportunities. As outlined in the 'Real time coordination' section below, this

value includes: deferred transmission investment, distribution investment, and deferred generation expansion. Vector believes that the review should further consider what role distributors could play in retail and generation (potentially subject to other regulatory supervision) to unlock the potential value of the demand side.

Advanced metering as an enabler of enhanced demand side participation

34. Vector believes that the development of advanced metering technology will greatly assist the ability to enable and monitor response to savings or dynamic price signals. Vector acknowledges the EC has recently published a discussion paper on advanced metering ("Advanced Metering Discussion Paper June 2007). Vector looks forward to engaging further with the EC on the development of advanced metering services. At a high level, Vector agrees with the EC's statement in 3.17 of this paper that advanced metering has the potential to:

- Reduce system losses at times of peak load;
- Reduce peak demand;
- Open the market to new players such as demand aggregators;
- Allow the consumer to participate in demand response through price signals;
- Reduce wholesale market prices.

Supply investment adequacy

35. Vector believes it is difficult to assess supply investment adequacy from the data contained in the issues paper. It is relatively easy to observe that the dry year margin is extremely volatile and Vector stresses its view that it is risky to consider non-committed plant in the analysis of future investment intentions and supply investment adequacy. In Vector's view, understanding the market design factors that may give rise to the risk of going down the wrong path in terms of plant type, location etc is more important than the analysis of forward supply investment adequacy (particularly given the potential increased role played by the demand side).

36. It seems relatively clear that all of the major generators are actively considering a number of projects to deliver additional capacity to the market.

As would be expected in a competitive market, the generators take different views (and accept the associated risks) with different types of generation. The key issues, from Vector's perspective, are:

- that the market design ensures that generators making decisions about the location of new investment face the full costs of those decisions, including the costs of transmission to get the new generation to market; and
- that opportunities that may not be within the vision of the dominant generator-retailers are not excluded because of inefficient barriers relating to the market design. This includes opportunities on the demand-side to more efficiently use energy and shift demand.

Real time coordination

37. Vector believes there are a number of issues which have the potential to impact on real-time security and co-ordination in coming years and we support the need for more analysis as part of the review.

38. Vector believes the demand side will increasingly be able to play a role in providing real-time services to assist system operation. However, until the procurement of real-time balancing services is undertaken on a commercial basis, and value is attributed to the demand side, this will create barriers for the development of commercial demand side participation.

39. Vector believes the review should further explore whether the System Operator compliance requirements for reserve acquisition are an efficient formulaic approach to system operation.

40. In Vector's view, there needs to be enhanced transparency on generator's operating capability to meet system operation conditions/requirements.

41. The issues paper shows an increasing trend in the number of Grid emergency notices/warning notices which could potentially signal a problem. Vector believes the review should explore whether improvements can be made to the System Operators' dispatch process when there is insufficient generation or transmission capacity to meet normal system security requirements. In particular, the issues paper notes in paragraph 193 that the System Operator "*...will instruct distributors, and if necessary Transpower to curtail demand.*" Vector believes that demand curtailment should be considered and valued as negative generation as there is a clear costs involved to distributors in curtailing demand.

42. Vector believes competitive cost pressures could be improved in relation to the procurement of ancillary services. Vector has previously submitted on a number of occasions that the demand side should be included as a competing provider of ancillary services such as voltage support and welcomes the EC's acknowledgement in page 162 of its recent consultation paper on the "System Operator's 2007 Draft Procurement Plan" that:

"any concept of demand side participation in the provision of voltage support would require an amendment to the Part A definition of voltage support. An investigation of the potential for demand side participation should be undertaken by interested industry participants, including the system operator."

43. Vector supports Transpower's development of a demand side participation trial in the upper south island and the formation of commercial grid support contracts.

Other issues relating to the wholesale market

Medium term coordination

44. In relation to spill, the EC have observed that there are potential problems and that issues such as discretionary spill do not appear to have increased under the "market" arrangements. Vector believes the review should seek to understand why the market design is not delivering improved outcomes. In Vector's view, a case study approach could be useful in examining spill efficiency. In particular, the EC could observe particular instances when hydro spill was occurring (at less than full hydro capacity), and assess the make-up of generation at that particular time.

Integration of Distributed Generation

45. Vector believes that an increase in distributed generation penetration will create increased challenges and that further investigation is required in relation to the barriers and opportunities. In relation to settlement it is not clear under the current market design how small generators will be able to participate in the market.

46. At a high level, Vector believes that the integration of increasing levels of intermittent generation (including wind) will increase the challenge of maintaining short term security. Vector acknowledges that the EC is currently undertaking a number of analyses to assess the potential impacts of the agreed

scenarios on the electricity system and the market. Vector looks forward to engaging in the options analysis and high level options consultation in October 2007.

47. Vector supports the EC's view that the growth in the proportion of wind generation on the system is likely to increase the variability and unpredictability in 'net demand'. Vector believes it is important that this review investigates:

- The system balancing costs associated with varying wind scenarios;
- The impact on plant margins and the incentives to invest in non-renewable plant, and;
- The opportunities for demand side participation.

Importance of system security

48. System security of supply is a critical performance outcome for an efficient market design. In Vector's view, the review needs to explicitly consider the importance of the energy supply chain in providing a level of security of supply required to support economic development - particularly in considering a move towards a significant renewables-based future.

49. The nature of New Zealand's electricity system (major generation in the south - major load centres in the north) exposes New Zealand to risks around conveying sufficient electricity to loads. Any significant failure of the transmission system creates high risks of customer outages and because of the erosion of transmission capacity; regions such as Auckland can also be exposed to voltage stability problems if local generation is unavailable.

50. Vector believes the review should consider the impact of the market design on system security of supply. In particular the review should consider:

- Defining what is meant by security of supply and what security standard is desirable;
- Defining the institutional arrangements and accountabilities for achieving a secure and reliable system, and;
- The development of efficient pricing mechanisms (including locational pricing for transmission) to ensure that the correct incentives are in place to enable the security standard to be met cost effectively

51. At present there is no clear "value" included in the pricing framework for transmission security or generation availability. Vector believes the review

should consider alternative mechanisms for placing obligations on generator-retailers to procure/demonstrate sufficient generation capacity/availability and fuel stocks to meet an appropriately defined security standard.

Closing comment

52. This submission has highlighted a range of issues that Vector believes should be considered in more detail as part of the development of the Market Design Review. In part, the review is somewhat premature, given that there are a number of work programmes that the EC has planned to deal with significant elements of market design. Vector submits that this review provides a good opportunity to take stock of issues arising from the current design and to determine new priorities for various work-streams to ensure that the market is well-positioned to meet future challenges, particularly those relating to climate change objectives.

53. Vector looks forward to engaging further with the EC as part of the Market Design Review.

Kind regards

A handwritten signature in black ink that reads "Ewan Gebbie". The signature is written in a cursive, flowing style.

Ewan Gebbie

Group Manager Regulatory Performance

