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23 October 2018

Miriam R Dean CNZM QC
Chair
Expert Advisory Panel
Electricity Price Review
Wellington

By email: energymarkets@mbie.govt.nz

Dear Miriam,

Electricity Price Review: Hikohiko Te Uira

We welcome the opportunity to submit on the Electricity Price Review's First Report dated 30 August 2018. We also appreciate the recent opportunities to engage directly with the Review Panel and secretariat.

The Review Panel is examining New Zealand's electricity sector at a critical time. The Government has committed to ambitious 2050 climate change goals. The pathway to 2050 will involve the electrification of transport and industry, and a potential doubling of electricity demand.

At the same time, issues of energy affordability and hardship are a pressing priority for the Government, and the sector. The Minister records in the First Report that "nearly a third of all households struggle to pay their power bills or spend a large part of their income on power". This is confronting and must change. Competition and regulation must operate to improve the lives of the more vulnerable New Zealanders.

The Government priorities of a pathway to our climate change goals, and addressing energy affordability and hardship, are tightly linked and need to be considered together. The pathway to 2050 requires significant changes in the sector and the economy at large, and establishing and maintaining a public consensus will be critical. As the First Report has highlighted, to maintain that consensus we need to ensure the sector is working for all New Zealanders. Electricity prices must be efficient, fair and affordable to maintain political consensus on the pathway to 2050, and to ensure the transition is just and supports New Zealanders in greatest need.

In this context, the electricity sector will need to meet several important challenges, including significant investment in new renewable generation and associated transmission connections, new transmission investment, changes to the roles of distribution networks (to enable new technologies and more complex trading relationships), and the increased importance of system reliability and security of supply. There is a good degree of convergence on what needs to be done, including the modelling presented in the Productivity Commission's report on the transition to a low-emissions

economy and Transpower's recently published *Te Mauri Hiko – Energy Futures* analysis. Both reports envisage a potential doubling of electricity demand by 2050.[1]

In this submission, we:

- Provide our view on the high-level priorities for achieving the Government's 2050 climate change goals; and

- Outline where, in our view, the Electricity Price Review can help to take the sector forward, in particular:

    - developing a government policy statement on electricity sector regulation;
    - addressing energy affordability and ensuring a just transition;
    - ensuring sufficient investment in new renewable generation capacity;
    - consolidating economic regulation with the Commerce Commission to improve alignment across regulatory controls; and
    - identifying the capabilities that distribution networks will need on the pathway to 2050.

Attachment 1 provides our responses to the Panel's specific consultation questions.

Priorities for achieving 2050 climate change objectives

The Government's objectives – both the pathway to the 2050 climate change goals and addressing energy affordability and hardship – necessarily inform our policy and regulatory priorities. At a high level, those priorities seem to Transpower to be:

- *Climate change policy settings*: certainty and consistency in climate change policy and institutions will be important for anchoring the transition across the economy. Transpower supports the political focus on long run consensus and a pathway to long term goals.

- *Investment and pricing*: meeting the 2050 objectives will require significant investment in generation, transmission, and new technology in distribution. There is a lot to do. Regulatory settings will need to support the investment implied by the pathway to 2050. Changes we can see being required are discussed further below. These include:

    - charging regulators with ensuring all of their decisions are consistent with the pathway to the 2050 objectives;
    - moving all economic regulation of networks to the Commerce Commission to ensure alignment of the various regulatory controls;
    - simplifying network pricing, both transmission and distribution; and
    - shifting the focus when testing transmission and generation investment from incremental to a more system view of where the pipeline of renewable generation investments will be located.

- *Delivery of investment*: the pathway to 2050 implies regular, significant infrastructure projects, particularly in generation and transmission. There is a need to assess whether this scale of infrastructure can be delivered on time, having regard to Resource Management Act

[1] *Te Mauri Hiko* reported a doubling of electricity demand, the Productivity Commission reported more than 1.5 times.

(RMA) approvals, land access issues, capacity and skills in the construction sector, and so on. If sufficient new renewable generation cannot be consented and built in a timely manner this will put New Zealand's energy future at risk.

- *Enabling sector participants*: in addition to doing a lot more investment, the electricity sector will have to adapt to changing roles. The mass roll out of new technologies, such as electric vehicles, batteries and solar, will change the role that consumers play and the use they make of the distribution networks: generating, storing and selling energy as well as consuming it. There will be knock on effects across the power system. Mass adoption of these technologies is not far away. Before that happens, we need to clarify what will be required from distributors by way of technology, investment, pricing, services and operation, and how that will be done nationally. A sector-wide coordinated approach is needed.

- *Enabling innovation:* A framework will also be needed to facilitate the access to consumption data that will stimulate new services and new providers in the market, and enable the transmission System Operator and distribution businesses to perform their roles. We will also need to have minimum market and safety standards and assurance for the new activities being undertaken by consumers, while continuing to manage system and cybersecurity risks and enhanced privacy expectations for participants.

- *Market settings*: regulatory and market settings must facilitate the development of platforms and services that enable new technology and enhanced consumer participation in the power system. The framework for network operators must evolve to provide visibility and enable them to manage increasingly complex and multi-directional power flows across the supply chain from generation to consumption and vice versa.

- *Other industries*: there are clear implications for transport, manufacturing and housing in particular. We do not have the sector expertise to identify the priorities in these sectors. We simply note, as did the Productivity Commission in its report, that the pathway to the 2050 objectives is an integrated package, and progress in one sector is dependent on progress in other sectors.

- *Public consensus*: as the Electricity Price Review has highlighted, we need to be aware of how these changes will impact on people. Climate change policy implies a much higher carbon price. Increased investment in generation, transmission and distribution will be reflected into prices. Policies will be needed to address fairness concerns in a way that supports the transition to the 2050 climate change objectives. The Review Panel expresses some optimism that falling costs of new technology will dampen any price effects, and while that would be welcome it is not known or guaranteed. Regulatory changes should be tested for their expected impact on vulnerable groups of New Zealanders. Where this impact is difficult to assess, incremental change should be preferred. Our view is that fairness concerns are likely to be best addressed through social transfers to avoid market distortions and unexpected consequences.

Electricity Price Review can take the sector forward

The Electricity Price Review is considering several of the priorities described above. In this section, we outline some key areas where, in our view, the Electricity Price Review can help the sector to move forward.

Developing a government policy statement on electricity sector regulation

The Electricity Price Review raised the role of a government policy statement (GPS) in clarifying the next stage of the transmission pricing methodology (TPM) review.[2] We agree that a GPS could be useful in resolving the current impasse that exists between policy makers, sector regulators and industry participants.

A GPS could also have potential wider benefits in providing overall coherence for all sector participants, including regulators.

We have given some thought to how a GPS could be developed. **Appendix 1** contains our draft thinking on the structure / scope of a GPS on electricity sector regulation, and is intended as a starting point for further discussion.

The draft GPS addresses the long-term vision for the sector, the areas of long-term priority for the government consistent with that vision, and specific priorities relevant to the near term. This structure is intended to help alignment in the sector, establish prioritisation of projects and regulatory efforts, and a common understanding of desirable outcomes. It is possible that a GPS would benefit from some primary legislative focus that could direct regulators rather than guide, as has been the case with previous electricity sector reviews, and pricing and access issues in the telecommunications sector.

Energy affordability and ensuring a just transition

The Review has highlighted the scale of energy hardship in New Zealand. We agree that sector participants, regulators and the Government must work together to improve the relative position of those New Zealanders in greatest need.

There is no silver bullet, but in our view to the general approach could be:

- ensuring material regulatory changes are tested for their expected impact on vulnerable groups of New Zealanders and vulnerable regions;
- where this is difficult to assess, incremental change should be preferred;
- identifying where welfare policies, rather than changes to otherwise efficient market regulation, can be used to support those at risk of energy hardship (as transfers are less distortionary); and
- continue to drive for energy efficiency for vulnerable consumers as these consumers use twice as much electricity to get poorer results because of damp, leaky homes with little insulation and inefficient appliances.

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2 First Report, p 50.

Ensuring sufficient investment in new renewable generation capacity

The Review Panel rightly identifies as a key challenge the need to build a lot of new generation. It suggests that, "*provided strong incentives to invest in generation are maintained*", current market and industry arrangements can meet the projected level of demand.[3]

We are less confident that existing arrangements will be sufficient to meet future demand for new generation. Our Te Mauri Hiko modelling suggests that, in order to meet projected future demand, over 60TWh of new generation will be needed by 2050. This will require a significant uplift in the rate of new generation investment.

There are some important barriers to investment that will need to be addressed. Amendments to the RMA framework will be needed to facilitate investment in new generation assets. In our view change is also required to the investment framework to allow proactive transmission network investment where appropriate, including to overcome first mover disadvantage and open up new areas to generation investment.

In this future of doubling electricity demand, and the sector working hard to deliver the flow of renewable generation projects needed, security of supply will also be a major challenge. If we are to achieve renewable-only generation, Transpower's *Te Mauri Hiko* modelling indicates a 12 TWh shortfall in a dry year by 2050, for which there is currently no solution. At a minimum this makes it even more important to be confident that regulatory settings facilitate sufficient investment in new renewable generation. And it is a reminder that the pathway to 2050 must be advanced in a way that maintains public support for the choices being made and anticipates and addresses impacts on vulnerable New Zealanders.

Consolidating economic regulation with the Commerce Commission

We see merit in a rationalisation of regulatory functions between the Commerce Commission and Electricity Authority – specifically the Commerce Commission taking responsibility for economic regulation of networks (including total revenue and pricing), and the Electricity Authority remaining responsible for market making regulation.

At present, the regulatory framework for the sector, and the respective roles of the regulators, is unclear and confusing to investors and consumers. In our view, while reallocation would create a new regulatory boundary between transmission pricing and wholesale market arrangements, it would provide a clearer delineation of roles than the status quo.

It would also clear up the areas of ambiguity identified by the Review Panel. The regulator charged with economic regulation of networks (the Commerce Commission) would address issues of access to distribution networks, and the scope of the regulated service.

There are co-ordination and coherence benefits in having one institution responsible for economic regulation of networks. Having multiple regulators inevitably involves at a minimum additional costs and delays as the various institutions and processes need to be co-ordinated. More seriously, it can result in mixed or confused signals to investors and consumers when the institutions, as they will do, form different views. We have seen this play out in the Electricity Price Review, where two regulators have provided competing submissions to the Review Panel on matters of network

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[3] First Report, p 34.

regulation. This sends a very poor signal about the level of regulatory coherence and stability in New Zealand.

The Commerce Commission is New Zealand's primary economic regulator of networks. It has the lead role in regulating networks in the electricity, gas, airport and telecommunications sectors. In that role it invests in understanding the economics of the network in each sector, the interests of consumers and investors, and the commercial and policy challenges facing the network on both a static short-term and dynamic long-term view. It has the expertise and experience to manage network pricing in the electricity sector.

Reallocation would then allow the Electricity Authority to focus on its important role in market facilitation, including priority areas identified by the Review Panel such as hedge markets and retail competition.

Distribution network capabilities to support pathway to 2050

The pathway to 2050 will require distribution businesses to deliver more by way of new technology, investment, services and operations, which will create new demands on governance, expertise and balance sheets.

The Review Panel has started an important conversation around the future capabilities of distributors. Distributors probably face the greatest changes to their role, and necessary capabilities, in the power system. This conversation will need to continue – we suggest the Commerce Commission could be charged with consulting on the future state of the distribution business model, and monitoring progress in the sector.

Conclusion

Thank you again for your work in preparing the Panel's first report. We would be happy to provide further information or discuss any of these matters with you.

Yours sincerely,

Alison Andrew
Chief Executive

ATTACHMENT 1 – SUBMISSION FORM

Part three: Consumers and prices

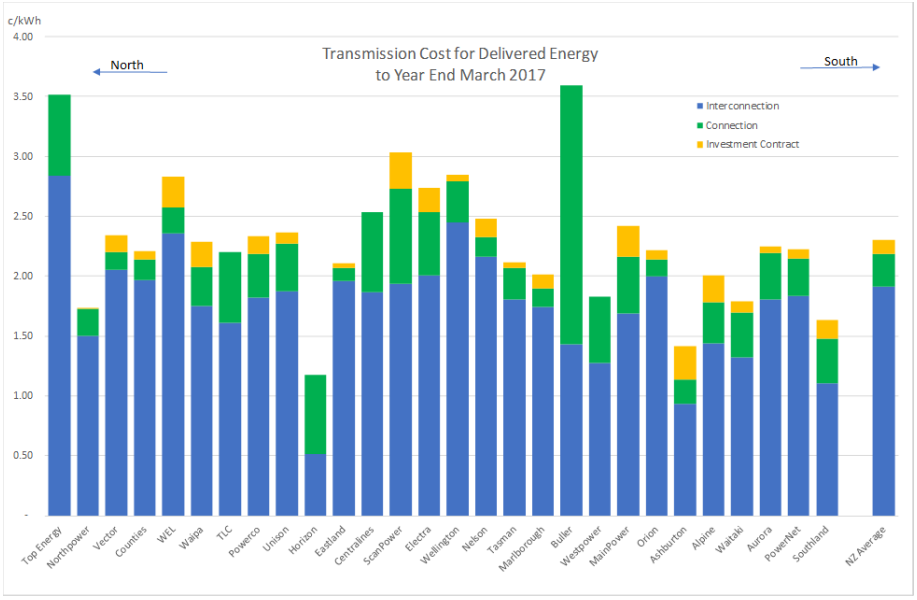
Consumer interests

1	*What are your views on the assessment of consumers' priorities?*	This is a fair assessment. Understanding the range of consumer perspectives will become increasingly important. It will be particularly important to understand the impact of changes in the electricity sector on more vulnerable consumer groups.
2	*What are your views on whether consumers have an effective voice in the electricity sector?*	There have been recent improvements in consumer engagement, but more can be done to ensure consumers have an effective voice in the electricity sector. Transpower recently established a Consumer Advisory Panel[4] to better understand the needs, issues and opportunities for New Zealanders as the country considers the implications of moving to a low carbon economy. The Consumer Advisory Panel will bring together a broad and diverse group of people who represent all sectors of society, including those on lower incomes.[5] A number of distribution businesses have also recently developed consumer engagement strategies, consumer panels and more robust consumer consultation processes. The Review Panel has highlighted the scale of energy hardship in New Zealand. We support efforts to provide further assistance and support to vulnerable consumers and low-income households, which may include – as the Review Panel suggests – extending Consumer NZ's advocacy and support role.
3	*What are your views on whether consumers trust the electricity sector to look after their interests?*	It is good to see that levels of trust in New Zealand retailers compare favourably from an international perspective. But we agree the sector cannot become complacent. Relationships between consumers, retailers, distributors and generators will evolve quickly, and trust could be easily eroded. Improving consumer engagement will help to maintain consumer trust in the electricity sector through this period of change.

[4] https://www.transpower.co.nz/news/transpower-consumer-advisory-panel-announced

[5] Panel members represent Community Networks Aotearoa, Rural Women NZ, Consumer NZ, Greypower, Generation Zero, iwi, Business NZ and Economic Development NZ.

Prices

4	*What are your views on the assessment of the make-up of recent price changes?*	We agree with the assessment of the transmission component of recent electricity price changes. We also agree with the analysis of transmission charges in Appendix B of the Panel's report. In particular, it is important to note that Transpower recovers transmission charges from distributors based on their metered offtake from the grid. Distributors then determine the allocation of transmission costs among their residential, commercial and industrial consumers. Figure 35 in the Panel's Report shows transmission charges to residential consumers by region, which reflect distributors' allocation decisions.[6] The figure below provides a comparative view of total transmission costs by distributor. 
5	*What are your views on the assessment of how electricity prices compare internationally?*	The Review Panel notes that New Zealand's overall electricity costs are below the OECD average. It is important that the sector continues to deliver globally competitive prices in order to support the Government's objectives around both affordability and climate change.
6	*What are your views on the outlook for electricity prices?*	The Review Panel suggests that the increase in electricity demand will not necessarily lead to major price rises. We agree that New Zealand's abundant renewable resources and the falling cost of new technologies are likely to lower generation costs if new generation can be developed (see Q14). But there is significant uncertainty in how wholesale prices will respond to lower generation costs. Prices will need to remain high enough to encourage investment. If new supply is not deployed quickly enough, electricity prices could increase and become more volatile. High prices could slow electrification. Temporarily higher prices might also encourage households and businesses to bypass transmission and distribution networks, which could lift network prices (transmission and distribution),

[6] For clarity we note: (i) our analysis from QSDEP data implies that nationally transmission costs increased 110%, from 1.80c/kWh to 3.79c/kWh between February 2008 and February 2018, yet Transpower's HVAC revenue increased by 65% over that period, and (ii) the Electricity Authority's note to the Review Panel cited New Plymouth as having experienced an increase in "grid charges" of 166% over the ten years from 2007 to 2017, whereas transmission charges to New Plymouth load (c/kWh basis) increased by 57%.

		creating the risk of a cycle whereby high prices cause bypass, which causes higher prices and so on.[7] The upshot is that the effect of increasing demand on electricity prices is not known or guaranteed. Pricing policies and signals will need to encourage renewable electricity supply growth, and manage the effect of any price increases on consumer behaviour, including the impact on vulnerable consumers and low-income households.

Affordability

7	*What are your views on the assessment of the size of the affordability problem?*	As noted above, the issues of energy affordability and hardship are a pressing priority for the Government, and the sector. We agree with the Panel's assessment of the size of the affordability problem. The scale of energy hardship in New Zealand is confronting and must change. While we have not had time to fully digest the findings of the Retailing Billing Analysis, released shortly before submissions were due, it appears to provide compelling evidence about the price disadvantages consumers in socially-deprived groups face. This analysis will help the Electricity Price Review determine the size of the affordability problem and the appropriate policy response.
8	*What are your views of the assessment of the causes of the affordability problem?*	Further to our response to Q7, we note that the Retail Billing Analysis the Review Panel has released also provides further detail on the causes of the affordability problem.
9	*What are your views of the assessment of the outlook for the affordability problem?*	We agree that sector participants, regulators and the Government must work together to improve energy affordability in New Zealand. We also generally agree with the Review Panel's assessment of the outlook for the affordability problem. As noted above, while there is no silver bullet, in our view a general approach could be: • ensuring material regulatory changes are tested for their expected impact on vulnerable groups of New Zealanders and vulnerable regions; • where this is difficult to assess, incremental change should be preferred; • identifying where welfare policies, rather than changes to otherwise efficient market regulation, can be used to support those at risk of energy hardship (as transfers are less distortionary). We pick up on these general propositions below, including in our comments relating to transmission pricing and a possible government policy statement.

Summary of feedback on Part three

10	• Energy affordability is a key issue for the sector and we must do more to support vulnerable consumer groups. We also need to support increased consumer engagement to ensure consumer voices are heard and to help maintain trust in the sector. • The effect of increasing demand on electricity prices is uncertain. Pricing policies and signals will need to encourage renewable electricity supply growth, and manage the effect of any price increases on consumer behaviour, including the impact on vulnerable consumers and low-income households.

[7] Refer Te Mauri Hiko, pp 53 – 54.

Solutions to issues and concerns raised in Part three

11	• We have suggested, as a general approach to addressing energy affordability: — ensuring material regulatory changes are tested for their expected impact on vulnerable groups of New Zealanders and vulnerable regions; — where this is difficult to assess, incremental change should be preferred; — identifying where welfare policies, rather than changes to otherwise efficient market regulation, can be used to support those at risk of energy hardship (as transfers are less distortionary). • We support efforts to provide further assistance and support to vulnerable consumers and low-income households, which may include – as the Panel suggests – extending Consumer NZ's advocacy and support role.

Part Four: Industry

Generation

12	*What are your views on the assessment of generation sector performance?*	No specific comment.
13	*What are your views of the assessment of barriers to competition in the generation sector?*	The Review Panel's assessment arguably understates the barriers to generation competition. While the situation is improving, the generation market remains highly concentrated. The Panel notes that the five biggest generators continue to account for around 90 per cent of electricity production capacity. A 2009 Commerce Commission investigation concluded the four main generators (Contact, Genesis, Mercury, and Meridian) had substantial market power.[8] While the 2010 reforms (virtual and physical asset swaps) have improved competition, the market share of the four main generators has not shifted materially. The Electricity Authority also found evidence of market power when it investigated the spot market trading conduct of the large generators, and its independent Market Development Advisory Group is considering whether changes are required to the high standard of trading conduct rules.[9] We discuss the depth of the contract market in the *Vertical Integration* section below.
14	*What are your views on whether current arrangements will ensure sufficient new generation to meet demand?*	The Review Panel rightly identifies as a key challenge the potential need to build a lot of new generation. It suggests that, "*provided strong incentives to invest in generation are maintained*", current market and industry arrangements can meet the projected level of demand.[10] As noted in our cover letter, we are less confident that existing arrangements will be sufficient to meet future demand. Our modelling suggests that, in order to meet projected future demand, over 60TWh of

[8] Hon Gerry Brownlee, Minister of Energy and Resources, Media Release, Report raises serious and legitimate concerns, 22 May 2009,

[9] https://www.ea.govt.nz/development/advisory-technical-groups/mdag/

[10] First Report, p 34.

		new generation will be needed by 2050. This will require a significant uplift in the rate of new generation investment. There are some important barriers to investment that will need to be addressed. Amendments to the RMA framework will be needed to facilitate investment in new generation assets and associated transmission connections. In particular, we support the Productivity Commission's recommendations to prioritise: • revising both the National Policy Statement on Renewable Electricity Generation (NPSREG) and the National Policy Statement on Electricity Transmission (NPSET), to ensure that local authorities give sufficient weight to the role that renewable generation, associated transmission connections and network upgrades will play in the transition to a low-emissions economy; and • developing a new National Environmental Standard for Renewable Electricity Generation to increase the speed, and lower the cost and uncertainty for obtaining and renewing resource consents. Other changes that could be considered include adding climate change as a consideration under s 6 of the RMA (which could be done as a part of the Zero Carbon Bill). Changes are also required to the National Environmental Standards for Electricity Transmission Activities (NESETA) to enable more efficient and effective consenting of maintenance and upgrade work on existing transmission assets. There is potential to use a streamlined national direction process under section 46A of the RMA to issue overarching Energy National Direction that achieves all of the following: • strengthens the NPSREG to allow a more balanced debate at the consenting stage; • strengthens the NPSET and NESETA; and • provides a new NES for Renewable Energy for both large-scale and smaller scale generation. In our view there should also be a focus on ensuring the investment framework allows proactive transmission network investment where appropriate. This would include overcoming the first mover disadvantage under the current pricing methodology whereby the initial connection customer pays for the full cost of a transmission extension, even where there is a wider benefit in opening up a new area to further generation investment. In this future of doubling electricity demand, and the sector working hard to deliver the flow of renewable generation projects needed, security of supply will also be a major challenge. If we are to achieve renewable-only generation, Transpower's *Te Mauri Hiko* modelling indicates a 12 TWh shortfall in a dry year by 2050, for which there is currently no definitely viable and affordable solution. At a minimum this makes it even more important to be confident that regulatory settings facilitate sufficient investment in new renewable generation. Finally, we believe the current energy-only market provides a strong foundation for the future. However, we also question whether other complementary and evolutionary market mechanisms designed to provide timely investment signals and efficient management of energy

		resources may be needed to deliver a low-emissions future for New Zealand. We consider the industry should enter into a discussion on the evolution of energy market design to ensure it will be fit for purpose to manage a just transition to a highly renewable, very low-emissions and affordable system.

Retailing

15	*What are your views on the assessment of retail sector performance?*	This is a fair assessment. As noted above in Q7 and Q8, the Retailing Billing Analysis appears to provide compelling evidence on the price disadvantages that vulnerable consumers are facing. It reinforces the need for the sector to focus on fairness and addressing energy hardship.
16	*What are your views on the assessment of barriers to competition in retailing?*	We agree with the Review Panel's assessment. The retail market remains highly concentrated and we have not seen the rate of change observed in other sectors where competition has been introduced, such as broadcasting and telecommunications. In addition to the barriers identified in the Review Panel's report, new technology will be increasingly important to the way competition develops. Data and information will become critical enabler for new technology. We need to ensure that access to data does not become an impediment to competition or consumer choice. This will require that consumers retain control over their own data.

Vertical integration

17	*What are your views on the assessment of vertical integration and the contract market?*	We agree with the Review Panel's assessment, including the importance of a well-functioning and liquid contract market to the successful operation of competition in the downstream retail market. Third parties should be able to negotiate for competitively priced hedges on equal terms to parties in common ownership (open access). Voluntary ASX market making has enabled a material improvement in the ability for entrants (retail and generation) to manage risk. But true liquidity (and therefore competition) requires traded volumes to increase by many multiples. We agree that improving the depth and resilience of the contract market is a high priority and support the Review Panel in considering how this can be achieved.
18	*What are your views on the assessment of generators' and retailers' profits?*	No specific comment.

Transmission

19	*What are your views on the process, timing and fairness aspects of the transmission pricing methodology?*	We agree that the TPM process has been slow and costly. We also agree with the Review Panel that a government policy statement (GPS) could be useful in clarifying the next stage of the TPM review. A GPS could also have potential wider benefits in providing overall coherence for all sector participants, including regulators. As noted above, we have given some thought to how a government policy statement could be developed – see **Appendix 1**. The draft GPS addresses the long-term vision for the sector, the areas of long-term

priority for the government consistent with that vision, and specific priorities relevant to the near term.

In relation to the TPM, the draft GPS sets out expectations on:

- the priorities and principles that should guide network pricing; and
- timely completion of the TPM reform process.

It suggests that the TPM should:

- *Be simple, understandable and implementable*: it is important that the TPM can be understood by a wide range of sector participants and can be implemented and operated with limited discretion;
- *Include a peak usage price:* A peak usage price promotes greater utilization of existing assets by flattening demand and deterring peak demand growth. The TPM already includes peak-usage charges, which in our view do require some fine-tuning. We are particularly mindful of the need to ensure the TPM fits with the reforms electricity distributors are thinking about making to their pricing, including the potential shift to peak-usage pricing.
- *Introduce change incrementally*: any major change to the TPM will bring with it unintended and likely unforeseen consequences, the costs of which could exceed the expected benefits. Conversely, significant improvements can be made to the current TPM through incremental change.

  The 2014/15 TPM Operational Review highlights that changes do not need to be major to deliver significant positive benefits, including lower prices, for consumers.[11] Scientia estimated that the change to the allocator for the HVDC charge has resulted in reduction in annual load purchase costs at spot prices of $87m, as well as other benefits, such as reduction in spot price volatility (7% and 9% in the NI and SI respectively). The Electricity Authority conservatively put the benefits in the tens of millions, on an annualised basis.[12]

  Incremental change also allows for impacts on more vulnerable areas or groups of consumers to be adequately addressed over time.
- *Introduce any change in a way that avoids price shocks*, and is sensitive to the potential impact on vulnerable regions or groups of consumers
- *Be aimed at securing wide-spread acceptance for any change*: including by reference to a clear and complete cost-benefit analysis. Wide-spread stakeholder acceptance is essential for the changed TPM to be durable.
- *Be focused on the future:* the TPM must reflect the pathway for generation and network investment implied by New Zealand's climate change objectives.

[11] Scientia, Market impact assessment from changes to HVDC cost allocation, May 2017.
[12] http://www.energynews.co.nz/featured-content/appointments/38170/exit-interview-carl-hansen

		It is possible that a GPS would benefit from some primary legislative focus that could direct regulators rather than guide, as has been the case with pricing and access issues in the telecommunications sector. We note that section 42 of the Electricity Industry Act was updated following the last electricity industry review to include priorities for the Electricity Authority's work programme. Finally, in relation to the proposal to defer TPM reform, our view is that we do need some relatively technical adjustments to, in particular, connection charges, and the sooner we get on and do them the better. These changes will make a significant difference to the cost of wind generation projects in particular. Technical changes of this nature do not require TPM Guideline changes but do need EA approval. In our view, these technical changes should be progressed as soon as possible.

Distribution

20	*What are your views on the assessment of distributors' profits?*	No specific comment.
21	*What are your views on the assessment of barriers to greater efficiency for distributors?*	We agree with the assessment. Our detailed thoughts are set out below in response to Q23.
22	*What are your views on the assessment of the allocation of distribution costs?*	No specific comment.
23	*What are your views on the assessment of challenges facing electricity distribution?*	The Review Panel has identified the challenges facing the distribution sector, and the barriers to achieving greater efficiency. We agree that it is important to focus on the capabilities distributors will need to adapt and take advantage of new technologies. Some of the key challenges, and potential solutions, as we see them are: *Regulatory oversight* All distributors will need to respond to major changes in the industry. In our view, the time has come to consider subjecting all distributors to price/quality regulation to ensure all consumers benefit from advances in new technology. *Governance and scale* The Review Panel notes that many of New Zealand's distribution businesses are small organisations, and some may be challenged by the specialist skills and financial requirements for change. We agree that scale is a challenge. Solutions are emerging through partnerships with technology providers, and some of the larger distributors may find ways to provide the technical and financial resources required by smaller distributors. Distributors will need boards and management teams skilled to lead in an environment of technology change, increased investment risk, changing service offerings, and changing consumer demands. Distributors will also need stronger balance sheets capable of supporting significant and more risky capital investment programmes.

Pricing

We agree that distribution pricing should more accurately reflect costs. This will become increasingly important as the economics of new technologies improve, including electric vehicles, solar PV and batteries. The Review Panel notes the potential for EVs, under current price structures, to magnify demand in evening peak hours and potentially require significant additional network investment.

There are also equity concerns, with higher-income households able to reduce their distribution charges (e.g., through solar PV) without reducing the cost of their connection to the distributor – potentially leaving lower-income consumers to pick up the bill.

As noted above, we would also like to see a more consistent approach to network pricing, both across distribution and transmission, and across network industries. Any pricing changes in distribution network usage will have direct flow on effects for transmission network usage and peaks.

But there are challenges and uncertainties that may impact on pricing reform at the distribution level:

- Potential price shocks and harmful impacts on consumers, including residential consumers, who may consume high amounts of electricity during system peaks.[13]
- Uncertainty around the TPM and whether it will continue to include peak-usage charges – as transmission charges are a cost input into distribution charges.[14]
- Uncertainty around the outcome of the Electricity Authority's review of distribution pricing principles.[15]
- The Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004, which we understand from both distributors and retailers are an impediment to the introduction of more innovative pricing arrangements.

As noted above in Q9, it will be important to assess the impact of major regulatory changes – including to distribution pricing – on more vulnerable areas and consumer groups.

Asset management and technical capability

All distributors will require asset management capability to robustly plan for significantly longer time frames than current 10-year plans, in a much more complex operating environment. This will require access to deep technical expertise. Plans will also need to be aligned across the system (we discuss the need for more active management of distribution networks below).

Power systems and service delivery

We will need robust and serviceable systems to enable distributed electricity resources (DER) that can connect across New Zealand. In our view,

[13] ENA, DPWG update on pricing options analysis, September 2018.

[14] We have discussed the interrelationship between distribution and pricing, and the need for a joined up and consistent approach, in various fora including in submission to ENA on distribution pricing. (https://www.ea.govt.nz/dmsdocument/21892-transpower-nz-appendix-e-ena-distribution-pricing-consultation-submission-24feb2017) and to the Commerce Commission on Auckland Airport's pricing (https://comcom.govt.nz/__data/assets/pdf_file/0022/89032/Transpower-Submission-on-draft-report-for-review-of-Auckland-International-Airports-pricing-decisions-and-expected-performance-July-2017-June-2022-29-May-2018.pdf).

[15] Letter from Graeme Peters (CEO, ENA) to Androula Dometakis (Acting CEO, Electricity Authority), RE: Update on status of distribution pricing work streams., 16 July 2018, section 7.

		distribution networks will need to operate as platform providers and have DER enabled on their network and accessible to New Zealanders. Critical services will need to be robustly and transparently procured. There will also need to be agreed standards for criticality with transmission. *Data and IT* Usage and generation data will be critical to managing the network. Distributors will need to be able to provide access to real-time data as a part of their system management, fault prevention and detection. They will also need robust cybersecurity practices. We agree with the Panel on the need for more active management of distribution networks. We have supported the development of distribution system operator (DSO) functions, independent of distribution network ownership.[16] DSO functions will be important to ensure competitive access to network infrastructure, coordinate more complex energy flows, meet preferences for security, quality and reliability, and ensure rewards and costs for load and generation are allocated efficiently and for the long-term benefit of consumers. This conversation will need to continue – we suggest the Commerce Commission could be charged with consulting on the future state of the distribution business model, and monitoring progress in the sector.

Summary of feedback on Part four

24	• Ensuring sufficient investment in new generation assets is a key challenge. There are some important barriers to investment that will need to be addressed. RMA reforms will be needed to remove barriers in the consenting process. Focus is also required to allow proactive investment in transmission where appropriate, including to overcome first-mover disadvantage and open up new areas to generation investment. We also need to consider evolution of the current energy-market design to ensure it will be fit for purpose to manage a just transition to a highly renewable, very low-emissions and affordable system. • The retail market remains highly concentrated. We agree with the Panel's assessment of barriers to retail competition. We also agree with the Panel on the importance of improving the depth and resilience of the contract market to facilitate competition in retailing. In addition, access to data and information will become a critical enabler for retail competition. • In relation to transmission pricing, we agree that a GPS could help to clarify the next stage of the TPM review and improve overall coherence in the sector (discussed further in the next section). • We need to have a clear understanding of the capabilities distributors will need in our future electricity system. We agree with the Panel's assessment and in Q23 above offer our perspective on the key challenges and potential solutions in the distribution sector.

Solutions to issues and concerns raised in Part four

25	• We have developed a draft GPS at **Appendix 1** as a starting point for further discussion. In relation to the TPM, a GPS could set expectations on the priorities and principles that should guide network pricing, and the timely completion of the TPM review (see Q19 above). The Review Panel should also consider whether a GPS would benefit from some primary legislative focus that could direct regulators rather than guide, as has been the case with previous electricity sector reviews, and pricing and access issues in the telecommunications sector.

[16] Refer Transpower's submission on the Productivity Commission's Low-emissions economy draft report, p 9.

	• Amendments to the RMA framework will be needed to facilitate investment in new generation assets, including amendments to the NPSREG, NPSET and NESET, as well as development of a new NES for renewable electricity generation (refer Q14 above). Changes will also be required to ensure the investment framework allows proactive transmission network investment where appropriate. • The conversation on distributor capabilities will need to continue. We suggest the Commerce Commission could be charged with consulting on the future state of the distribution business model, and monitoring progress in the sector.

Part five: Technology and regulation

Technology

26	*What are your views on the assessment of the impact of technology on consumers and the electricity industry?*	We agree with the Panel's assessment of the impact of technology on consumers and the industry more broadly. As our Te Mauri Hiko outlines we expect significant disruption with EVs, electrification of process heat and distributed solar and batteries. To take advantage of new technologies, we will need to ensure that: • we have the technical standards and assurance in place to facilitate mass participation; • participants have access to the data and information they need to more actively engage in the electricity system; and • distributors have the necessary capabilities to enable more complex relationships and flows through their networks.
27	*What are you views on the assessment of the impact of technology on pricing mechanisms and the fairness of prices?*	Our comments on the impact of new technology on pricing are canvassed above in Q23 (regarding distribution).
28	*What are your views on how emerging technology will affect security of supply, resilience and prices?*	*Te Mauri Hiko* sets out our current thinking on how emerging technology will affect the electricity system, including security of supply, resilience and prices. See also our response to Q23 above. Innovation and technology can be an enabler and complement to the grid. However, this will require a new paradigm around data sharing and a focus on standards.

Regulation

29	*What are your views on the assessment of the place of environmental sustainability and fairness in the regulatory system?*	Overall, we agree with the Panel's assessment of the place of environmental sustainability and fairness in the regulatory system. We agree with the Productivity Commission's recommendation against establishing specific emissions reductions objectives in the electricity sector, and in favour of an economy-wide approach. We also agree with the Commerce Commission that caution is required in considering changes to a regulator's purpose statement.[17] But it will be important to ensure that the decisions of one regulator do not run counter to the objectives of another agency, including the Climate Change Commission. The draft GPS at **Appendix 1** would require electricity sector regulators to have regard to the Government's long-term vision and priorities for the sector, which are driven by the 2050 climate change goals. This could help to establish overall coherence for all sector participants, including regulators.

[17] Commerce Commission, memorandum, Response to May 2018 questions from Expert Advisory Panel, 8 June 2018, paragraph 58.

		The draft GPS also incorporates the Government's objectives around ensuring a just transition, and improving the position of New Zealanders in greatest need. As the Panel notes, the regulatory framework already implicitly incorporates aspects of fairness (e.g., limiting the ability of regulated businesses to make excessive profits, sharing efficiency gains with consumers, considering the durability of regulation etc). But tackling energy hardship is clearly an issue the industry needs to focus on. We discuss above our views on a general approach to improving energy affordability (see Q9), which aligns with the Panel's assessment on: • taking a joined-up approach to regulation; • boosting competition and extending its benefits to vulnerable consumers; and • to the extent problems remain, using targeted measures to support those in need.
30	*What are your views on the assessment of low fixed charge tariff regulations?*	The consensus view appears to be that the low fixed charge tariff regulations have not worked as intended, and are generally inefficient and ineffective. The low fixed charge tariff is an example of what can go wrong in using a market-based response to address an issue more appropriately dealt with through welfare payments. As noted above, we support targeted welfare policies, like the winter energy payments, to support those at risk of energy hardship. Overall, we agree with the Review Panel's assessment of the regulations.
31	*What are your views on the assessment of gaps or overlaps between the regulators?*	As noted in the cover letter, we see merit in a rationalisation of regulatory functions, with the Commerce Commission taking responsibility for economic regulation of networks (including total revenue and pricing), and the Electricity Authority remaining responsible for market making regulation. At present, the regulatory framework for the sector, and the respective roles of the regulators, is unclear and confusing to investors and consumers. In addition to access to distribution networks, boundary issues have arisen on several occasions, including in respect of: • overlapping interests in emerging technologies;[18] • the effect of a revenue cap on distributors' incentives to adopt efficient distribution pricing structures;[19] • the implications of network pricing on the ability of regulated businesses to operate efficiently under incentive mechanisms established by the Commerce Commission;

[18] Refer Letter from the Electricity Authority (Carl Hansen) to the Commerce Commission (Sue Begg), Implications of regulatory treatment of cash flows for emerging technology, 1 June 2016.

[19] Refer Letter from the Electricity Authority (Carl Hansen, CEO) to the Commerce Commission (Sue Begg, Deputy Chair), Possible implications for efficient distribution pricing of a decision to change the form of control for electricity distribution businesses, 30 May 2016.

		• the ability of regulated businesses to recover costs under Part 4 of the Commerce Act for work they are directed to undertake by the Electricity Authority (Transpower was recently directed by the EA to evaluate whether distributed generation was needed to satisfy the Grid Reliability Standards, without provision for funding under Part 4); • promoting incentives for distribution businesses to improve efficiency; and • the treatment of loss and constraint excess.[20] In our view, while reallocation would create a new regulatory boundary between transmission pricing and wholesale market arrangements, it would provide a clearer delineation of roles than the status quo. It would also clear up the areas of ambiguity identified by the Review Panel. The regulator charged with economic regulation of networks (the Commerce Commission) would address issues of access to distribution networks, and the scope of the regulated service. There are co-ordination and coherence benefits in having one institution responsible for economic regulation of networks. Having multiple regulators inevitably involves at a minimum additional costs and delays as the various institutions and processes need to be co-ordinated. More seriously, it can result in mixed or confused signals to investors and consumers when the institutions, as they will do, form different views. We have seen this play out in the Review, where two regulators have provided competing submissions to the Review Panel on matters of network regulation. This sends a very poor signal about the level of regulatory coherence and stability in New Zealand. The Commerce Commission is New Zealand's primary economic regulator of networks. It has the lead role in regulating networks in the electricity, gas, airport and telecommunications sectors. In that role it invests in understanding the economics of the network in each sector, the interests of consumers and investors, and the commercial and policy challenges facing the network on both a static short-term and dynamic long-term view. It has the expertise and experience to manage network pricing in the electricity sector. Reallocation would then allow the Electricity Authority to focus on its role in market facilitation, including priority areas identified by the Review Panel such as hedge markets and retail competition.
32	*What are your views on the assessment of whether the regulatory framework and regulators' workplans enable new technologies and business models to emerge?*	We agree that the regulatory framework and regulators' workplans will need to evolve to enable new technologies and business models. A GPS could help to align regulatory priorities around these future challenges. The draft GPS at **Appendix 1** includes specific priorities around enabling innovation and the adoption of new technology

[20] According to the Electricity Authority both the Commerce Commission and Authority have jurisdiction over the treatment of LCE. This is something that could be resolved in a simple manner with minor adjustment to Part 4.

		and new activities, including technical standards and access to consumption and network data.
33	*What are your views on the assessment of other matters for the regulatory framework?*	We have addressed a number of these points above, including strengthening the consumer voice (Q2), price-quality regulation of distribution businesses (Q23), and the pace of change particularly as it relates to the TPM (Q19). Finally, we support the Panel's position not to relitigate input methodologies.

Summary of feedback on Part five

34	• New technologies will have a significant impact on consumers and the industry as a whole. As discussed in Q26, to take advantage of new technologies, we will need: — technical standards and assurance in place to facilitate interconnection; — access to data and information; and — to ensure distributors have the necessary capabilities to enable more complex relationships and flows through their networks. • We agree that caution is required in considering changes to regulators' purpose statements. But it will be important to ensure that the regulatory frameworks support the Government's long-term vision to achieve the 2050 climate change goals, and improving the position of those New Zealanders most in need. • We offer our general views on addressing energy affordability above (see Q9). We agree that the low fixed charge tariff regulations have not worked as intended. They are an example of where targeted welfare policies would have been a more appropriate response to the problem. We support the extension of targeted welfare payments, like the winter energy payments, to support vulnerable consumer groups. • In relation to overlap and gaps in regulation, there are a number of existing boundary issues between the Commerce Commission and the Electricity Authority, in addition to those identified by the Panel, which we set out in Q31 above.

Solutions to issues and concerns raised in Part five

35	• The draft GPS could support overall coherence for sector participants, including regulators, by setting the long-term vision and priorities for the sector. • We see merit in a rationalization of regulatory functions, with the Commerce Commission taking responsibility for economic regulation (revenue and pricing), and the Electricity Authority remaining responsible for market making regulation. In our view, while reallocation would create a new regulatory boundary, it would provide a clearer delineation of roles that currently exists. It would also clear up the areas of ambiguity (access to distribution networks) identified by the Review Panel.

Additional information

36	No further information to provide.

Appendix 1: Draft government policy statement on electricity regulation

[Separately attached]

Draft GPS on Electricity Sector regulation

Drafting note:

- this Draft GPS is intended to stimulate discussion and illustrate how key ideas fit together.

- Transpower does not intend that this draft would be picked up and used "as is". There are important central government policy processes to develop and issue a GPS.

- Because this draft is for discussion purposes we have focused on the structure and key ideas. More detail could be added if this was to be taken forward.

- In structure, we suggest starting at the highest level, with the long-term vision for the sector, then moving to areas of long-term priority for the government consistent with that vision, and then to specific priorities relevant to the near term.

- A GPS with this structure would help alignment in the sector, establish prioritisation of projects and regulatory efforts, and a common understanding of desirable outcomes.

Introduction

The electricity sector plays a significant role in the lives of New Zealanders. In 2018 a third of New Zealand households face energy hardship and that needs to change. In the decades ahead the sector will be materially impacted by new technology and play a key role in New Zealand's response to climate change.

The sector will need to adapt to meet these challenges, and take advantage of new opportunities. Investors will need the confidence to commit to a large amount of infrastructure investment over a sustained period. All sector participants will need to be comfortable that there is clarity as to the direction of change, and that regulatory settings and decision-making are aligned.

The Government describes in this Government Policy Statement its vision for the sector, its long-term priorities for the sector, and its specific regulatory priorities. This will assist the Commerce Commission and the Electricity Authority to align their regulatory priorities, work programmes and outcomes with the Government's long-term objectives on energy affordability and climate change. [It will also support alignment across the public sector, including the Ministry of Business, Innovation and Employment, the Energy Efficiency and Conservation Authority and local government.]

Vision for the electricity sector

The Government has committed to ambitious 2050 climate change goals. These are net zero greenhouse gas emissions by 2050.

While these 2050 goals are not supported by all political parties, there is cross-party support for long-term climate change commitments, and the institutional framework of the new Climate Change Commission.

It is common ground that these long-term climate change commitments will involve a transformation of economic activity in New Zealand.

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The Productivity Commission has reported that the pathway to the climate change goals involves the mass electrification of the economy, including transport and industrial processes.

Mass electrification implies some significant challenges for generation and network investment in the electricity sector, and the facilitation of new technology and new energy services to consumers.

The Government is also committed to this economic transformation being fair and equitable. In particular, that the position of New Zealand's most vulnerable citizens is improved.

Delivering this vision is the most pressing challenge of our time – environmentally, economically, and morally. The Government expects all decisions by regulators to be framed by this multi-decade challenge.

Priorities for the electricity sector

To assist with New Zealand's response to climate change, the electricity sector needs to meet a number of important challenges. A significant amount of investment in generation and transmission and distribution networks will be needed on a sustained basis, and new technology and new energy services will need to be adopted.

Starting with this climate challenge helps prioritise the work of regulators, and participants, in the sector.

Important priorities for the sector include:

Climate change policy

- The regulatory agenda and decision-making should be framed by New Zealand's climate change response.

- Regulatory settings must also be tested for their impact on a just transition to a low-emissions electrified economy.

Investment and pricing settings

- The response to climate change requires significant new investment in generation and network assets over several decades.

- The investment and price signals in the sector must be sufficient to encourage and facilitate this level of sustained investment.

Delivery of investment and services

- The regulatory settings must also facilitate the delivery of the new investment in generation and network assets. These infrastructure projects will need to be delivered at a faster and more sustained rate than has been the case to date.

- These issues will primarily be dealt with in environmental and planning regulatory frameworks, such as the Resource Management Act. However, electricity sector regulation must be developed in a way that is complementary and supports this priority.

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- Regulatory and market settings must facilitate the development of platforms and services that enable new technology and enhance consumer participation in the power system. The framework for system operators must evolve to enable them to manage increasingly complex and multi-directional power flows.

Enabling sector participants

- To respond to climate change and transition to an electrified economy, sector participants will need to play new roles and undertake new activities.

- A priority is ensuring the regulatory and market settings are enabling these new roles and activities.

Specific regulatory priorities

Having regard to the priority areas for the electricity sector, the Government has the following specific priorities for the near term:

Climate change policy

- Regulators should reflect the long-term pathway to New Zealand's climate change goals in their statements of strategy and work programmes.

- Material changes in regulatory settings should be tested for their expected impact on vulnerable groups of New Zealanders. Regulatory design should focus on a transition that improves the relative position of the more vulnerable. Where this is difficult to assess, incremental change should be preferred.

Investment and price settings

- Network pricing (both distribution and transmission) should:

    - be simple, understandable to a wide range of sector participants, implementable and operable with limited discretion in a way that avoids the sector being held back by disputes;

    - be cost-based and sensitive to the importance of signalling peak network usage, as this will promote greater utilisation of existing assets by flattening demand and deterring peak demand growth, delaying or avoiding the need for further network investment;

    - introduce change incrementally, in a way that avoids price shocks, is sensitive to the impact on vulnerable regions or groups of consumers, and limits the potential for unintended consequences;

    - be aimed at securing wide-spread support for any change, including by reference to a clear and complete cost-benefit analysis;

    - be focused on the future, and the pathway of generation and network investment implied by New Zealand's climate change objectives including enabling new technologies that will change the role and consumption patterns of consumers.

- Reform of distribution pricing that is sensitive to alignment with the Transmission Pricing Methodology (TPM), the importance of signalling peak network usage, and

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the way that new technology will change the role and consumption behaviour of consumers.

- Resolution of the TPM reform process within two years and in a way that clearly provides for the costs of the interconnected grid to be [socialised or personalised].

- Change to the investment framework to allow proactive transmission network investment where appropriate (for example, facilitating the pipeline of generation investment required by New Zealand's climate change response).

Delivery of investment and services

- A whole of government approach is needed to ensure we have the regulatory environment that will facilitate the scale of infrastructure investment required for the electricity sector to play its part in New Zealand's response to climate change. Review of local government planning, resource consent and land access frameworks will work together with energy sector regulation.

- Energy sector regulators can assist with a co-ordinated approach by:

    - investigating and publishing the long-term infrastructure pipeline in the sector;

    - understanding and publishing how decision-making under energy sector regulation frameworks for the infrastructure projects line up with likely timing and decision-making in the local government planning context;

    - periodically publishing a view on whether the rate of infrastructure project delivery in the sector is aligned with the government's long-term response to climate change.

- Energy sector regulators should develop a framework for distribution system operator (DSO) functions to ensure competitive access to network infrastructure, coordinate and provide visibility of more complex energy flows, meet preferences for security, quality and reliability, and ensure rewards and costs for load and generation are allocated efficiently.

Enabling sector participants

- To achieve New Zealand's climate change objectives, the electricity sector will need to see the proactive adoption of new technologies, and new roles for consumers, distribution networks and new service providers. Regulatory frameworks should be enabling of this technology adoption and new activities.

- A priority is new technical standards that enable innovation, adoption and competition while protecting power quality, safety and consumer choice.

- To encourage and facilitate investment in new technology and the development of new services, regulatory frameworks will need to facilitate access to consumption and network data in a way that respects privacy and investment incentives.

- The requirements on distribution networks to facilitate this adoption and use of new technologies will be significant. There is a role for the regulators to be articulating the capabilities and capacities likely to be required of distribution networks in the decades ahead (for example, governance, technical and financial), and monitoring progress of the distribution companies.

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