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nova energy

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Submissions
Energy Markets
Ministry of Business, Innovation and Employment

By email: electricitymarkets@mbie.govt.nz

Re: Measures for Transition to an Expanded and Highly Renewable Electricity System

This submission by Nova Energy Limited (Nova) is complementary to Todd Energy Limited and Nova's submission on the Gas Transition Plan Issues Paper. A key message from that submission is that providing cover for New Zealand's peak electricity demand and potential low hydro reserves is becoming increasingly challenging. Nova fears a deteriorating level of energy security if proactive measures are not taken on both the demand and supply side.

To meet New Zealand's renewable energy targets while maintaining energy security, there is an urgent need to materially increase electricity generation of all kinds – geothermal, wind, solar and gas fired peaker plants to support them.

The Government target of 100 per cent renewable electricity by 2030 has created uncertainty and volatility within the energy sector, with implications that flow on to investors and funders, including banks and insurers.

To decarbonise, New Zealand needs a supportive, clear, stable, and realistic policy framework that prevails across election cycles, supported by science-based targets that align with international frameworks and practices. It also needs a supportive regulatory framework to enable the delivery of electricity generating plant at pace, gas storage facilities, and other emissions reduction technologies like carbon capture, use and storage.

In Nova's view, the Government should resist calls for transformative change at this time given the significant levels of investment required to increase the share of renewable electricity generation from 85% to an achievable 95% at the same time as reducing emissions in the transport and process heat sectors of the economy. Instead, the regulatory framework and market settings should be incrementally modified to reduce barriers to investment and functioning of markets where necessary.

As part of a stable regulatory framework we support the development and adoption of a national energy strategy and, within that, a Gas Transition Plan.

Nova's specific responses to MBIE's questions are appended to this letter.

Yours sincerely

Nova submission: Measures for Transition to an Expanded and Highly Renewable Electricity System

Part 1: Growing Renewable Generation		
	Chapter 2 – Accelerating supply of renewables	
1.	Are any extra measures needed to support new renewable generation during the transition? Please keep in mind existing investment incentives through the energy-only market and the ETS, and also available risk management products. Any new measures should add to (and not undermine or distort) investment that could occur without the measures.	New Zealand should focus on pursuing a policy/regulatory framework that: • supports a net zero target and recognises the role of carbon offsets, • is technology agnostic, • supports competitive markets, and • is developed in a consultative and well signalled manner. As part of this it is also important that regulatory barriers to building new generation and transmission/ distribution lines are minimised. It is Nova's view that the ETS scheme is having the effect of incentivising renewable development (and is a disincentive for new thermal generation) and should be the primary regulatory tool for driving the transition to a net zero carbon emissions target by 2050. The measures outlined in para 61 of the paper such as Government CfD or PPA schemes, feed in tariffs, or renewable certificate obligations distort market outcomes and, in most cases, simply lead to higher costs for consumers who are least able to mitigate or manage the increase in costs. The use of feed in tariffs in Germany to stimulate the solar industry in that country and the impact of the higher electricity prices that result have on poorer households are well documented. Similarly, the effects of CfD and PPA underwrite schemes in the UK and Australia on consumers are also recognised. a) The electricity derivatives market needs to be moved to a legal entity within New Zealand and integrated with the NZX Clearing Manager. The ASX futures market as it currently stands, with its lack of integration with the wholesale spot market is holding back the development of innovative risk products in the electricity market and as a result, investment in renewable generation by parties other than the gentailers. The ASX futures market serves a useful purpose for establishing a forward price curve, but because market participants cannot offset their exposure on the ASX futures market with the

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		NZX based electricity market Clearing Manager, it is expensive to hedge spot price exposure using ASX listed products. b) Once the derivatives market is integrated with the Clearing Manager then further derivatives can be developed. For example, the price cap products that have long been sought by independent retailers and industrial consumers. c) Consideration also needs to be given to requiring the parties that have control over dispatchable generation to offer at least part their dispatchable flexibility to third parties through derivative contracts such as price caps.
2.	If you think extra measures are needed to support renewable generation, which ones should the government prioritise developing and where and when should they be used? What are the issues and risks that should be considered in relation to such measures?	To support renewable generation, New Zealand needs (and should prioritise) a supportive, clear, stable, and realistic policy framework, with a broad and flexible regulatory regime that is aligned to the transition. The government should avoid direct market intervention unless there is unambiguous evidence of market failure. The same policies that encourage a strong competitive economy will also lead to the growth in renewable electricity generation, i.e.: • A motivated workforce with appropriate skills, • Infrastructure that enables large items of equipment to be imported to sites around the country economically and safely, e.g. ports and roads able to accommodate large wind turbine blades, • Responsive resource consenting and timely decisions for both generation and transmission projects, • Reasonable site remediation obligations at the end of the economic life of generation assets, • Access to competitively priced construction materials, including local access to aggregate for making concrete, and • A stable NZ dollar and sound financial markets The proposal above to bring electricity derivatives trading to an NZ domiciled legal entity should be given priority. It may have a significant financial cost to set up, but there are also few risks in terms of unintended consequences.

Part 1: Growing Renewable Generation		
3.	If you don't think further measures are needed now to support new renewable generation, are there any situations which might change your mind? When and why might this be?	Without continued evolution of market arrangements Nova is concerned that the new generation development will largely be the domain of the existing incumbent large generators that have access to renewable based dispatchable generation and in particular those participants that own and operate hydro generation with storage. As the ability of thermal generators to compete in providing firming services in the wholesale market declines, the concentration of market power will only increase and act as a potential barrier to competition. The paper prepared by the MDAG with respect to 100% renewables raises this as an important issue that will need to be addressed. Requiring market making by gentailers to provide peak demand and price cap products is one mechanism that could be used to address this issue. Another issue that will likely be needed to be addressed is the high probability that new renewable generation projects will be consented and can be built before there is sufficient transmission capacity available to service 100% of the generation output. In such circumstances it may be appropriate for the Government to step in and support the de-bottlenecking of the transmission grid, particularly if that also opens up an opportunity for additional renewable projects.
	Chapter 3 – Ensuring sufficient firm capacity during transition	
4.	Do you think measures could be needed to support new firming/dispatchable capacity (resources reliably available when called on to generate)? If yes, which kind of measures? What needs do you think those measures could meet and why?	The primary requirement is stable and consistent government policies that give confidence to market participants. 1. Given the political uncertainty created by the ban on offshore gas exploration and the arbitrary acceleration of the renewable generation target from 2035 to 2030, it would be appropriate for the government to issue gas producers and thermal generators with a 'Licence to operate'. In essence this would be a government guarantee that under specified conditions, the operator has the right to operate in the competitive market for a specific number of years, and receive recompense if government policies change that make the investment uneconomic. This would at least provide the operator with an assurance that if they need to undergo a major refurbishment of their plant, that the plant will be allowed to operate (on a competitive basis) for a sufficient period to cover the cost of the work.

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		2. The requirements for dispatchable generation to support increased renewables are relatively well understood noting that renewables firming takes two forms: a) short term firming regarding wind and solar generation that is relatively stable over periods – e.g. annually but highly variable over the short term (daily/weekly). b) seasonal (solar) or annual variability (hydro). Dry year risk is recognised as a significant issue with few alternatives to the current solution of coal (or potentially wood pellets) and natural gas based thermal generation. At some point, a form of capacity contract may be required to support the ongoing maintenance and operation of thermal plant to avoid the risks of supply shortfall, but only if other measure fail. Various studies have indicated that moving the electricity sector from ~85% renewable to ~95% will be achievable, but going beyond that will likely become increasingly expensive and risks a "disorderly exit" of thermal firming generation. An unregulated and voluntary capacity market already exists to some extent, evidenced by the various dry year risk transactions that Meridian (and others) have transacted historically with Genesis Energy and more recently with Nova.
5.	Are any measures needed to support storage (such as battery energy storage systems or BESS) during the transition? If yes, what types of measures do you think should be considered and why?	The types of background support useful to renewable generation (refer Q.2 above), also applies to BESS. BESS also needs provision in the Code to both offer to supply electricity to the spot market and draw from the market, i.e. they can help stabilise volatile spot prices if they can actively arbitrage between high and low prices. BESS should also be rewarded for providing ancillary services where these have value. The government should not provide direct financial support for any form of battery, either EV or stationary. Both battery technology and pricing of battery components is so volatile that by the time the Crown decides to support a particular technology or project, that technology may be inferior to newer technologies.
6.	If you answered yes to question 4 or 5 above, should the support be limited to renewable generation and renewable storage technologies	The government should only countenance direct market intervention where there is clear evidence of market failure and the projects to be supported are required to meet market demand.

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	only or made available across a range of other technologies?	This can apply equally to thermal generation as renewable generation. The government can make an assessment on the overall impact of such support on the transition to net zero emissions. In the transition it is critical that New Zealand maintains security of electricity supply and pressure on keeping average wholesale market prices down. Otherwise industry and commercial operators are less likely to transition from thermal fuels to electricity. In effect, maintaining thermal capacity for peaking and hydro-firming effectively leverages the benefit of increased renewable generation. The risks associated with Government providing direct support mechanisms are that: a) support for one technology may merely result in deferral of investment in alternative technologies. For instance, financial support for batteries will accelerate the withdrawal of flexible gas supplies and thermal peakers, but that will also reduce the market's ability to cope with dry hydro sequences. b) investors that would otherwise pursue a development project will have an economic incentive to defer and hold off investing until they receive the support through the particular mechanism. This can happen even if there are "additionality" requirements in order to receive support. An exception to the general rule is a situation where a highly promising technology is unlikely to proceed just because of the commercial risks of failure. The government may be the only party that can afford to underwrite that risk of failure. Or in the example of Lake Onslow, the scale of the project is beyond any commercial operator's capacity to develop.
7.	If you answered yes to question 6 above, what are the issues and risks with this approach? How could these risks and issues be addressed?	
8.	Are any measure(s) needed to support existing or new fossil gas fired peaking generation, so as to help keep consumer prices affordable and support new renewable investment?	Investment in thermal peaking plant at this time faces a number of risks that must be overcome before investment in new thermal peakers can proceed: a) Government decisions may cause the plant to be shut-in or materially reduce operational hours before the plant has recovered its capital cost. Possibilities include:

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		○ enforcement of a ban on thermal generation (as per the Labour Government's target of no thermal by 2030), ○ building Lake Onslow, which would make thermal peakers, as well as other forms of dispatchable generation including batteries and demand response technologies, uncompetitive, and ○ possible subsidies for batteries. b) The government's ban on oil & gas exploration and unclear and inconsistent policies have damaged the market's confidence in investing further in gas production. There is a need for ongoing investment in natural gas fields to ensure New Zealand has sufficient energy during the transition, including to meet the needs of thermal peakers, but the economics are becoming difficult and unattractive. c) The actions of activists in opposition to any form of new thermal generation will likely lead to unnecessary delays and costs to projects and increase the risk profile of the projects.
9.	If you answered yes to question 8 above, what measures should be considered and why? What are the possible risks and issues with these measures?	The government could provide potential investors with security to protect against the events described in point (a) above by potentially supporting investment in energy assets and also underwriting the risk of future government policy or regulatory changes materially negatively impacting the economics and overall viability of such investments. To be clear, Nova is not proposing subsidies or a direct underwrite of commercial risks, but just protection from the potential impact of government decisions that create costs, obligations or policies that might cause an investor's developed project to become uneconomic. In terms of gas supply, it may become important for the government to support the development of increased gas storage capability. Gas storage may also require direct investment in 'pad' gas for storage. The 'pad' gas itself represents a significant investment. The Government could reasonably provide some relief by deferring royalties on that gas until such time as it is extracted, or could even take ownership of the pad gas. The alternatives to these sorts of support mechanisms are even more unpalatable as they will potentially lead to importing coal, wood pellets and or LNG to satisfy the country's energy needs if New Zealand is to avoid

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		de-industrialising its economy, noting that such an outcome will also likely result in carbon leakage.
10.	If you answered yes to question 8 above, what rules would be needed so that fossil gas generation remains in the electricity market only as long as needed for the transition, as part of phase down of fossil gas?	Thermal peakers can expect to remain viable so long as there is a need to augment wind, solar and geothermal generation with peaking capability. Supporting thermal peaking as an interim measure does not preclude the government from adopting alternative policies, so long as it underwrites the risk of future government policy or regulatory changes materially negatively impacting the economics and overall viability of such investments.
11.	Are there any issues or potential issues relating to gas supply availability during electricity system transition that you would like to comment on?	As commented above, the ability of the gas producers to meet the needs of a variable demand for gas is progressively becoming more difficult as supply and demand declines. As the quantity of gas declines, the cost of extracting it increases. There is still a need for ongoing investment in natural gas fields to ensure New Zealand has sufficient energy during the transition, but the economics are becoming difficult and unattractive. For gas field development to occur, demand needs to be established with pre-contracted demand for the gas, or with government support as outlined above. New Zealand's producing gas fields can be described as mature or late life with reducing levels of supply flexibility relative to what has been historically available for electricity generators. In recent years the market has seen gas storage at Ahuroa added, however that has recently shown to have significantly less capacity than originally thought. While natural gas can still play a key role in fuelling thermal generation to cover intra-day and seasonal variability in renewables generation, as well as dry year hydro risk, other sources of flexible fuel (or demand) will also be required to ensure a reliable supply system. Separately, the decision of the Commerce Commission to allow the gas transmission owner (First Gas) to accelerate its depreciation allowance exacerbates the situation by allowing First Gas to dramatically increase its gas transmission charges at a time when energy supplies are under stress in any case. The major gas users are challenging the basis of this decision in court. We note the issues paper commentary that if support mechanisms are required for thermal generation (and fuel) that they should be designed with emissions targets in mind. We note that climate change objectives are for a net zero target by 2050 and

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		that analysis of the Climate Change Commission supports some emissions with offsets (forestry or possibly CCUS) associated with thermal generation for security of supply purposes may be necessary to ensure that other sectors of the economy (transport and process heat) can decarbonise.
	Chapter 4 – Managing slow-start fossil fuel capacity during the transition	
12.	Do you agree that specific measures could be needed to support the managed phasedown of existing fossil fuel plants, for security of supply during the transition?	Yes, but the trade-offs involved are complex. It is becoming apparent that there are conflicting objectives with respect to thermal plant. On the one hand there is an expressed requirement to "phase down" existing thermal plants, and on the other hand considering measures to retain thermal plants so as not to put at risk security of supply. The power outages of 9 August 2021 showed that: a) The public and Government have a low tolerance for supply disruptions even when extraordinary circumstances arise, b) There is a low tolerance for very high prices during supply disruptions, as evidenced by the fact that despite the Electricity Authority supporting the application of scarcity pricing for a small number of affected trading periods, generators have not yet been paid due to an unresolved legal dispute. While economic theory may support participants managing their own risk appetite through voluntary contracting arrangements, the reality is that low tolerances for supply disruptions and extremely high prices, even if they only occur very rarely, will stand in the way of voluntary security of supply contracting processes emerging, as parties expected to pay for capacity instead seek to free ride. This then leads to the risk of disorderly exit of thermal generators. It is notable that currently there are several parties, including Transpower, Mercury Energy and Meridian Energy, that state that additional fast start peaking capacity is required to support the transition to a more highly renewable electricity market yet there are no current plans from any party to build such plant – only plans to decommission plants (Contact Energy closed the Te Rapa cogeneration plant in 2023 and expects to decommission the Taranaki Combined Cycle power station at the end of 2024, and Genesis' plans for the existing Huntly plant capacity are far from certain).

13.	If you answered yes to question 12 above, what measures do you think could be appropriate and why? What conditions do think you should be placed on plant operation? For example, do you have any views on whether there should be a minimum notice period for reductions in plant capacity, and/or for placing older fossil fuel plant in a strategic reserve?	The terms of any agreement to support the managed phase out of thermal plants should be discussed on the basis of the market conditions at the time, and the government's intent as far as the value of energy storage held in the form of hydro lake levels, gas storage, or coal/wood pellet stockpile. Mothballing a thermal generation plant for future recommissioning is less complex and challenging than maintaining the required skilled and capable workforce qualified to run operate and maintain the plant in a safe and efficient manner through a period when the staff know that the plant is due for closure.
14.	If you answered yes to question 12 above, what are the issues and risks with these measures and how do you think these could be addressed?	Imposing a fixed notice period would have a direct value implication for market participants impacted. It would also raise issues such as what maintenance expenditure is appropriate during the notice period and how a firm would retain necessary staff or service providers to operate and maintain plant when long notice periods are required. A major plant failure during the notice period, could for instance be uneconomic to repair at all, which leads to the debate of what level of maintenance is deemed to be economic, or otherwise, during the notice period.

Chapter 5 – The role of large-scale flexibility

15.	What types of commercial arrangements for demand response are you aware of that are working well to support industrial demand response?	
16.	What new measures could be developed to encourage large industrial users, distributors and/or retailers to support large-scale flexibility?	The strongest incentive to implement contracts and systems to provide large-scale flexibility is price. The Electricity Authority has not reviewed the cost of non-supply since it was originally determined, and the price spike on 9 August 2021 has still not been settled. If the cost of demand response is reflected in price, then retailers, major users, and intermediaries will be incentivised to reach terms and finds ways to respond to high price periods.

17.	Do you have any views on additional mechanisms that could be developed to provide more information and certainty to industry participants?	It is Nova's view that the challenge of dealing with the intermittent supply nature of renewable generation is common around the world. New Zealand is already in a leading position in terms of renewable generation. It is likely that as other nations increase the share of intermittent renewable generation as a proportion of their electricity systems, developments of new means of renewables firming including demand response will be necessary. New Zealand will be able to adopt those new methods and technologies through time and will be able to choose the best, most efficient and the least disruptive given its already highly renewable system. Remaining technology agnostic and in step with the rest of the world offers the best chance of decarbonising at least cost to the economy and households. One of the most significant challenges that NZ faces is less about the short term intermittency of wind and solar generation and more about the longer term seasonality and annual variability of hydro generation. Batteries and demand response should be relatively effective tools to manage short term supply variability, but the longer term nature of dry hydro sequences is much more difficult. This is not new and is the motiving factor behind the dry year battery project.
Part 2: Competitive Markets		
	Chapter 6 – Workably competitive electricity markets	
18.	Do you agree that the key competition issue in the electricity market is the prospect of increased market concentration in flexible generation, as the role of fossil fuel generation reduces over time?	Yes, it seems clear that we can expect an increased concentration in the control of flexible generation resources. It also becomes more difficult to estimate if those resources are being priced reasonably when they cannot be benchmarked against the competitive sources of firming such as thermal generation. The only other benchmarks are the expected long-run cost of new generation, and in the short term, the prices at which demand response might be triggered. Thermal fuelled generation has been a significant and important source of flexible and dispatchable generation that ensures that electricity systems are secure, reliable and affordable, and replacing it will be a significant long term challenge. Historically the electricity market in NZ has benefitted from the competitive tension between multiple generators with a mix of fuels available to them as well as the threat of new entrants. Hydro generation with storage is a finite opportunity set that was complementary to and competed with thermal generation sources. The phase out of thermal generation over time provides the owners of hydro generators with storage a much stronger competitive position and likely windfall gains.

19.	Aside from increased market concentration of flexible generation, what other competition issues should be considered and why?	As per our responses to question 1., the failure of the ASX future market to be sufficiently integrated with the wholesale market, and the subsequent lack of suitable risk management products, makes it difficult for new entrants with renewable energy projects to compete on an even playing field with the large gentailers in the wholesale and retail markets. Flexible generation provides the back-up to intermittent generation and as such any party signing a PPA for intermittent generation needs to be cognisant of the spot price for electricity when the output from the intermittent generators is low. In contrast, the gentailers with flexible generation have a significant advantage in financing the build of new intermittent generation as they can back the variable revenues with the sale of baseload or profiled supply contracts. Not only do they have an advantage in terms of financing new intermittent generation, but they can apply that maintaining and growing their share of the retail market.
20.	What extra measures should or could be used to know whether the wholesale electricity market reflects workable competition, and if necessary, to identify solutions?	The objective should be to ensure that sufficient competitive tension exists to result in least cost energy prices for consumers over the long term. Ideally, the competitive environment should have: a) no participants with a market share of more than 20-25%, and b) minimal barriers for new entrants to enter or exit the market. The tightly held nature of dispatchable renewable generation (that extends to geothermal resource as well as hydro) may constrain the level of competition in the electricity market, leading to issues associated with market power and concerns that market prices are not determined on a competitive basis. Whether the concentration of ownership of flexible hydro generation becomes a problem depends on how that market power is exercised. Nova contends that the electricity market can still operate efficiently and in the best interests of consumers if the hydro storage reservoirs are operated in a manner consistent with modelled water values, i.e. all generation offers utilising hydro storage are made on the basis of optimising the value of expected inflows and storage through time. The alternative to optimising the value of water over time is to use flexible hydro generation to match generation against the gentailer's net load and contractual commitments through time. This practise of 'load following' is intended to maximise the gentailer's revenues while minimising their exposure to high spot prices. This strategy, accompanied by setting high offer prices for tranches of generation above the generator's own retail commitments, increases price volatility and makes risk

		management very difficult for other market participants. The use of hydro flexibility to load-follow in this way does not optimise New Zealand's use of hydro reserves. The practise of load-following is also contributing to the situation highlighted in paragraph 170. and Figure 5 of the Report: "Contract prices and estimated costs for new baseload supply". The vertically integrated gentailers with flexible hydro insulate themselves from spot prices by load following. This leaves the balance of the market effectively operating in a smaller, more volatile market. Nova suggests that the problem of concentration of ownership of flexible hydro resources can be managed by placing a legal obligation on the parties controlling those resources to manage them in such a way that they are optimising the use of water given all information available to them. The optimal price setting and offer quantities cannot be determined precisely, but patterns of behaviour can be monitored and there will still be a competitive tension between the owners of different hydro resources to maximise the returns from their available inflows over time. Their offer behaviours can be monitored because water values do not change quickly, and then only in response to significant changes in market conditions, e.g. rapid increases in hydro inflows. As such, generation offers should also remain static intra-day and even from day-to-day when hydro storage is static. The Electricity Authority also has the power to audit generators' trading teams if they believe they are not operating in the expected manner. They can therefore ensure that the generators are operating within the guidelines.
21.	Should structural changes be looked at now to address competition issues, in case they are needed with urgency if conduct measures prove inadequate?	One of the issues that regulators will need to consider before commencing consideration of a structural change to the electricity market (whether that be vertical separation, imposition of a single buyer model, etc) will be the flow on effects for investment. It should be expected that any such proposal involving significant restructuring of the sector will cause capital investment in new projects whether by existing participants or new entrants to go on hold at a time when Government is wanting an acceleration of investment – particularly in renewables. Parties putting projects on hold will simply be a function of uncertainty and the preference for investors to have confidence in the structure of the market that their investments will be operating in. That is not to say that restructuring should not happen if there was evidence that incumbent parties were not investing and were exerting market power, but as the paper says – there is not definitive evidence of this currently – in fact the reverse – that most (but not all) of the investment actually occurring currently is coming from existing market participants. For example

		Meridian's investment in Harapaki wind, Contact Energy's investments in Tauhara and Te Huka investments and Mercury's wind investments and recently announced geothermal expansion at Nga Tamariki. Nova believes the conduct measures proposed above should be adequate. Structural changes would not necessarily ensure that hydro resources are optimally managed in any case. Of greater value would be to impose regulation on operating to water values and strengthening and maintaining an authoritative capability within the Electricity Authority to monitor compliance against such a Code requirement.
22.	Is there a case for either vertical separation measures (generation from retail) or horizontal market separation measures (amending the geographic footprint of any gentailer) and, if so, what is this?	No. The gentailers have spent over twenty years developing their generation and retail portfolios since the creation of the market, which included separation of the competitive generation and retail markets from the monopoly distribution businesses. Any further forced structural change will have major costs in terms of rebalancing portfolios and risk management, with little certainty that it will have a beneficial impact in any case. Any move to force vertical separation will also, as outlined in the question above, create significant uncertainty for all investors such that new investment in generation could be deferred until greater clarity, certainty and confidence in the new sector makeup were established. This would inevitably hold up the electrification strategy to reduce carbon emissions.
23.	Are measures needed to improve liquidity in contract markets and/or to limit generator market power being used in retail markets? If yes, what measures do you have in mind, and what would be the costs and benefits?	If the gentailers are prevented from using their flexible hydro generation for load following, then the volatility of the spot market will reduce. As a result the risks inherent in writing hedge contracts will also reduce. This in itself will have a beneficial impact on the contracts market. As per our responses questions 1 and 2, better integration of the futures market with the wholesale market and a price cap futures product such as provided for in the Australian energy futures market will assist retail competition and new entrant investment in renewable energy sources.
24.	Should an access pricing regime be looked at more closely to improve retail competition (beyond the flexibility access code proposed by the Market Development Advisory Group or MDAG)?	The market could operate more effectively if OTC contracts could be posted to a 'bulletin board' and directed through just a small number of brokerages. Those brokerages could be charged to maintain a listing of bids and offers on the bulletin board that all market participants had access to.

		The Electricity Authority could facilitate this by requiring brokers to register and provide specified services, including providing prompt updates to the hedge disclosure website. The structure of contracts available could be listed, including a confidential schedule of the counterparties each contract was open to.
25.	What extra measures around electricity market competition, if any, do you think the government should explore or develop?	
26.	Do you think a single buyer model for the wholesale electricity market should be looked at further? If so, why? If not, why not?	No. The single buyer model was considered in 2013-2014 when the Labour and Green Parties promoted the NZ Power policy in 2013 in the run up to the 2014 election. The proposal was thoroughly examined, and several reports were written by economics firms (Sapere, Fronter Economics, NERA, Infometrics, etc) with none providing any evidence that such a policy would improve outcomes for consumers. The policy was dropped from both parties' policy manifestos following the 2014 election. The analysis and the findings in the various economics reports are still relevant and applicable in today's environment. Prior to the mid-1990s, the New Zealand electricity market under a single operator had a long history of under and over investment depending on the political imperatives at the time. Examples include: • the pricing of the original contract to supply electricity from Manapouri to the Tiwai aluminium smelter that the government eventually rescinded, • the history of decision making around the building of the HVDC link, • the high cost of the Tongariro Power Development, and subsequent amendments to resource consents for water diversions, • the 1992 electricity conservation campaign, • the decision making and eventual cost of the Clyde High Dam. A more recent example of political decision making was the commissioning of the Whirinaki Peakers, reliant on diesel fuel. Subsequently the plant was sold to Contact Energy for considerably less than what the taxpayer had paid to build it. The complexities and problems with the single buyer model become apparent as soon as an attempt is made at defining the single buyer's objectives. If it is to minimise the overall cost of electricity to NZ consumers then it will need to retain locational marginal pricing (LMP), otherwise new generation and demand will be

		built in less than optimal locations, or demand will exceed supply if the marginal cost of supply is not reflected in price. Inevitably a single buyer becomes captured by political imperatives, and while systems may appear to perform well in the short (3-year political) term, inevitably cracks will appear due to under or over investment depending on the signals being provided or contracts on offer. Security of electricity supply is more critical to the New Zealand economy now than ever before, and this will only increase. Ensuring a competitive generation market with a diversity of supply options will meet the market requirements, so long as the market is not hamstrung by government policies that increase investment risk for market participants (100% renewable generation by 2030, offshore gas exploration ban, Onslow pumped-hydro) and onerous consenting processes.
Part 3: Networks for the Future		
	Chapter 7 – A transmission system for growth	
27.	Do you consider that the balance of risks between investing too late and too early in electricity transmission may have changed, compared to historically? If so, why?	Yes. For four reasons: 1) The time required to obtain planning approvals, design, and completion have all become longer over time despite the availability of new technologies. Furthermore, the expansion of electricity transmission networks is becoming more difficult as transmission networks are expanding around the world. As a result there is increasing pressure for access to time critical materials and components, such as transformers. At the same time as the planning for new transmission, or significant transmission capacity upgrades has become extended, the time to build and commission solar PV projects has diminished (once consents have been obtained) in comparison with the hydro or large thermal projects which were built in past decades. The financial risks for generation project developers are too great for them to commit to paying for transmission substations many months advance of the final investment decision for new renewable projects. 2) Demand has been relatively consistent at an aggregate level of 39-40TWh since 2006 and as such has not required much investment other than to facilitate changing of use of the network as regional change has occurred regarding demand and supply. The challenge going forward with the objective of meeting

		decarbonisation objectives through electrification of transport and process heat will be seeing demand and supply of electricity grow significantly in the coming 10-15 years. Forecasting of Transpower itself sees potentially demand and supply requiring transmission to enable and support it growing to 70TWh by 2050 and increase of 68%[1] 3) The changing mix of generation in the future and location of demand will likely also mean that Transpower will need to both strengthen the core grid and also add capacity to regions of NZ that have not traditionally been seen as locations for increases in demand or sources of new generation. 4) The nature of generation investment will likely be increasingly weighted to intermittent generation sources such as wind and solar. Such investment is required not only to meet the significant long term increases in demand but also the more immediate objectives of displacing thermal generation which today makes up 15-20% of all generation. Transmission requirements to support intermittent generation sources may well be different to what has been required historically but it is important that transmission does not become a barrier or impediment to investment in renewable generation.
28.	Are there any additional actions needed to ensure enough focus and investment on maintaining a resilient national grid?	Transpower's queuing protocols have been a positive enhancement to enabling the timely connection of generation projects to the Grid. While many of the projects in the queue for connection may not ultimately result in a firm contract and assets being built, the schedule of projects should help inform the parts of the grid that are likely to come under the most pressure from new generation and increased power flows across parts of the Grid. It would be useful if Transpower could use these insights to gain approval to upgrade parts of the grid based on the probability that at least some of the nominated projects will proceed within a region over time, i.e. without necessarily waiting for firm connection agreements. In a market where there is a strong trend to electrification of energy demand the risk of overinvestment in the short term is likely, on balance, to be lower than the cost of underinvestment. That said, an early investment to upgrade a line to 'x' capacity can equally be costly if the actual requirement turns out to be double 'x'. There is a concern that Transpower is the sole arbiter of what level of robustness needs to be included when building new connections to the grid. When new connections to the grid are going to cost $50m or more, generators should be able to call upon qualified third parties to provide a second opinion on design and costings, with the Commerce Commission acting as arbiter on the final design and pricing.

	Chapter 8 – Distribution networks for growth	
29.	Do you agree we have identified the biggest issues with existing regulation of electricity distribution networks?	No Nova also suggests that as electricity demand grows, and that is supported in part by distributed solar generation and batteries, the nature of power flows across a distributor's network can be expected to become increasingly complex. For instance, a high concentration of embedded generation in one part of the network might be exporting electricity on a net basis during peak sunshine hours, and that may be supplying another part of the network without being visible to the network operator. As a result, network outages, planned or unplanned are likely to have unanticipated impacts on networks unless their operators have very good monitoring and management systems in place. The conclusion from this is that the smaller electricity distribution businesses (EDBs) are going to be increasingly challenged to meet the levels of reliability that are going to be expected of them. Furthermore, their costs of operation may be increasingly stretched by the lack of economies of scale.
30.	Are there pressing issues related to the electricity distribution system where you think new measures should be looked at, aside from those highlighted in this document? How would you prioritise resolving these issues to best enable the energy transition?	Yes. The Commerce Commission must be allowed to use comparative performance measures of the EDBs to determine if consumers are getting value for money from their regional network operator and in setting their revenue caps. The current Part 4 regulations are still not much better than a cost-plus model with a few add-ons in terms of performance measures. In a truly commercial environment if an enterprise cannot provide an adequate service to its customers for a reasonable cost, then it will be taken over or forced out of the market. Under the Part 4 model it applies for greater revenues to upgrade its assets and carries on, charging connected customers a higher rate to recover the increased investment. If NZ requires anything like $22 billion in distribution sector investment across the 2020s as noted by the Boston Consulting Group's "Future is Electric" report, it is critical that this is acquired at lowest cost and invested very efficiently. The current model with 29, mostly small, distributors does not support that.

31.	Are the issues raised by electricity distributors in terms of how they are regulated real barriers to efficient network investment? Please give reasons for your answer. Is there enough scope to address these issues with the current ways distributors are regulated? If not, what steps would you suggest to address these issues?	Yes. Given the Commerce Commission cannot use comparative performance measures in regulating revenues then the efficient EDBs are being constrained by the processes and controls required to limit the inefficiencies of some of the smaller EDBs. For example, the more efficient EDBs should be able to use their greater purchasing power and economies of scale to further develop and improve their operations. Section 53P(10) should therefore be removed from Part 4 of the Commerce Act 1986.
32.	Are there other regulatory or practical barriers to efficient network investment by electricity distributors that should be thought about for the future?	
33.	What are your views on the connection costs electricity distributors charge for accessing their networks? Are connection costs unnecessarily high and not reflective of underlying costs, or not? If they are, why do you think this is occurring?	These issues of connection costs etc stem directly from the EDB ownership model and Part 4 regulation. Many of the EDB's are potentially cash flow or capital constrained because of their ownership, and do not have an incentive to grow their customer base through encouraging new connections with a view to higher future revenues. Instead, the complexities associated with growing network capacity and recovering the costs through increasing revenues leads to a practice of deferring new investment until it is absolutely necessary. For networks with spare capacity and minimal demand growth this works well, but in higher growth areas there are increasing challenges to responding to demand.
34.	If you think there are issues with the cost of connecting to distribution networks, how can government deliver solutions to these issues?	The incentives on EDBs needs to be addressed at a legislative and structural level, as discussed above. Codifying rules around new connections may give the appearance of progress, but it will be difficult to know if that results in efficient future investment.
35.	Would applying the pricing principles in Part 6 of the Code to new load connections help with any connection challenges faced by public EV chargers and process heat customers? Are there other approaches that could be better?	As discussed in Q.34 above.

36.	Are there any challenges with connecting distributed generation (rather than load customers) to distribution networks?	-
37.	Are there different cost allocation models addressing first mover disadvantage (when connecting to distribution networks) which the Electricity Authority should explore, potentially in conjunction with the Commerce Commission?	Nova believes that a radically different approach to regulating distribution networks should be considered. The primary change is that networks should be benchmarked on comparative performance based measures and caps on charges applied to those EDBs that fail to measure up against the benchmarks.
38.	Should the Electricity Authority look at more prescriptive regulation of electricity distributors' pricing? What key things would need to be looked at and included in more prescriptive pricing regulation?	No. More detail at the prescriptive level merely leads to greater cost for both the regulator and the EDBs. It also fails to adequately incentivise or reward innovation.
39.	Do current arrangements support enough co-ordination between the Electricity Authority and the Commerce Commission when regulating electricity distributors? If not, what actions do you think should be taken to provide appropriate co-ordination?	If the Commerce Commission could apply benchmarking to determine revenue or pricing caps, then the Electricity Authority could be proactive in supporting it in ensuring that the appropriate comparators are applied and in the compilation of useful performance measures. Section 52A of the Commerce Act 1986 states the purpose of Part 4 as including promoting outcomes consistent with those in competitive markets such that EDBs "have incentives to improve efficiency and provide services at a quality that reflects consumer demands". The Commerce Commission's quality focus has been largely around quantitative measures supplied by the EDBs in terms of management of outages, which while important, is only part of the customer's experience. The EDBs direct customers, apart from some larger industrial consumers, are the electricity retailers. Gentailers are reliant on the performance of the EDBs for new connections arrangements, outage notifications, billing and reconciliation, pricing consultations, pricing structures, provisions for load control, and access to space on consumers' meter boards. Apart from compliance with the Code, the EDBs are not accountable for their performance in these areas, and the contractual obligations through the Default Distribution Agreements are not particularly helpful for anything except perhaps major disputes should they arise.

		Some EDBs survey the consumers within their region, but these focus on areas of interest to the EDB and the are not accountable for the result, apart from their own Boards or Trustees if any. Most EDBs are good at maintaining a productive working relationship with retailers, but there is insufficient accountability for those that do not. The Electricity Authority has also not had the incentive or resources to be more actively involved in measuring the performance of the EDBs in delivering services to their primary customers, i.e. electricity retailers.
	Chapter 9 – Is the government's sustainability objective adequately reflected for market regulators?	
40.	Will the existing statutory objectives of the Electricity Authority and Commerce Commission adequately support key objectives for the energy transition?	Yes, except that Section 52A (1) (b) of the Commerce Act 1986 should correctly reference providing "services at a quality that reflects the needs of the market to the benefit of consumers" rather than consumer demands.
41.	Should the Electricity Authority and/or the Commerce Commission have explicit objectives relating to emissions reduction targets and plans set out in law? If so, • should those objectives be required to have equal weight to their existing objectives set in law? • Why and how might those objectives affect the regulators' activities?	No. The Electricity Authority and the Commerce Commission need to make decisions within the context of the energy trilemma. The long term needs of the energy market will reflect the market price assigned to CO_2-e emissions. By giving additional weight to emissions, the regulator's decisions must, by definition, negatively impact security of supply or prices. As such, it is likely that distorting the market in that way will increase costs to the energy sector over the long term. If the market pricing of CO_2-e emissions fails to reflect the climate change imperative, or the market is not responding rationally to the expected growth in the cost of emissions, then that should be resolved through the ETS scheme and supporting investments rather than energy sector regulations.
42.	Should the Electricity Authority and/or the Commerce Commission have other new objectives set out in law and, if so, which and why?	Both the Electricity Authority and the Commerce Commission should be encouraged to make representations to the Environment Court when investment decisions that they approve of and support, e.g. by generators, Transpower or EDBs, are challenged in the Courts. This will enable the Courts to obtain a balanced perspective of the importance of some projects and reduces the regulatory barrier to

		smaller market participants to overcome what can become lengthy and costly legal processes. For example, direct evidence from the Electricity Authority would have been useful in addressing the legal challenge to Nova Energy's proposed Rangitaiki Solar Farm.
43.	Is there a case for central government to direct the Commerce Commission, when dealing with Electricity Distributors and Transpower, to take account of climate change objectives by amending the Commerce Act and/or through a Government Policy Statement (GPS)?	-
44.	If you answered yes to question 43, please explain why and indicate: • What measures should be used to provide direction to the Commerce Commission and what specific issues should be addressed? How would investment in electricity networks be impacted by a direction requiring more explicit consideration of climate change objectives? Please provide evidence.	-
Part 4: Responsive Demand and Smarter Systems		
	Chapter 10 – Increasing distributed flexibility	
45.	Would government setting out the future structure of a common digital energy infrastructure (to allow trading of distributed flexibility) support co-ordinated action to increase use of distributed flexibility?	Yes, there is a role for government organisations to facilitate cross-sector cooperation to develop a common digital energy infrastructure. The technical issues are such that individual organisations do not necessarily have the resources to complete the required work on their own, and the benefits are expected to fall much wider than any particular sector.

46.	Should central government see how demonstrations and innovation to help inform how trade of flexibility evolves in the New Zealand context, before providing direction to support trade of distributed flexibility? If yes, how else could government support the sector to collaborate and invest in digitalisation now?	Central government should ensure there is no exclusive capture of emerging technologies in the interim while it is supporting early stage trials of different proposals.
47.	Aside from work already underway, are there other areas where government should support collaboration to help grow and develop flexibility markets and improve outcomes? If yes, what areas and actions are a priority?	-
48.	Could co-funding for procurement of non-network services help address barriers to uptake of non-network solutions (NNS) by electricity distributors?	-
49.	Would measures to maximise existing distribution network use and provide system reliability (such as dynamic operating envelopes) help in New Zealand? If yes, what actions should be taken to support this?	-
50.	What do you think of the approaches to smart device standards and cyber security outlined in this document? Are there other issues or options that should be looked at?	Given that commercial equipment, household whiteware, EV chargers, electricity meters and load control devices all have an expected life of five years or more, Nova agrees that the government should facilitate minimum standards and protocols for such electrical equipment. Consumers cannot be expected to determine the financial benefits they can receive from timers or remote switching equipment when making purchasing decisions. As such, their inclination is purchase at lowest cost subject to meeting their preferred specifications.
51.	Do you think government should provide innovation funding for automated device registration? If not, what would best ensure smart devices are made visible?	Yes. If devices are to be controlled through the IOT or Wi-Fi technology, then they need to be associated with the ICP number for billing purposes. Ideally this should be an automatic link that is established when the device is connected to the consumers electricity supply.

52.	Are extra measures needed to grow use of retail tariffs that reward flexibility, so as to support investment in CER and improved consumer choice and affordability?	Retail pricing is complex. There is a push to move prices to 'time of use' (TOU) profiles to better reflect the peak loads on EDB's networks and peak electricity prices. It is already difficult for consumers to compare the cost of a TOU pricing plan versus less complex day/night pricing. The only way to thoroughly compare costs of different plans is to overlay the consumer's (expected) consumption data. The retailer does not have any data to work with other than the consumer's past electricity consumption, and only then if the consumer has been a customer for the full past 12 months. Overlaying the consumers historical data against the retailer's current retail plans may be of value to the consumer, but then the results may not reflect the benefits of a bundled offer. Some plans may also be the lowest cost at the time of determination, but be due for an upward price revision, while an alternative plan, which may be slightly more expensive, includes a 12 month (or longer) price guarantee. TOU retail plans are still 'fixed price, variable volume' (FPVV). Adding reward flexibility to pricing plans adds another level of complexity altogether. In summary on this point, we do need to prepare for the time when AI driven systems can provide consumers with the best electricity pricing plans suited to their needs, but until then, demand side flexibility should focus on commercial and industrial customers with the capability of managing load and the resources to determine the financial benefits of alternative plans. An issue that will need to be resolved in order to move forward is the apparent conflict between the sector's preference for TOU pricing structures and more cost reflective pricing and consumer advocate groups who call for less complexity and simpler retail pricing structures.
53.	Should the government consider ways to create more investment certainty for local battery storage? If so, what technology should be looked at for this?	No, not yet. Battery technology is still rapidly evolving, and prices reflect the tight supply for batteries. Government intervention at this stage is only likely to result in uneconomic solutions for high-net worth consumers paid for by taxpayers or consumers who cannot afford batteries.
54.	Should further thought be given to making upfront money accessible to all household types, at all	No.

	income levels, for household battery storage or other types of CER?	A characteristic of battery storage is that it benefits all consumers, with or without a battery. That is because they help reduce peak demand on the distribution network and can also help keep peak electricity spot prices down. If high net worth individuals choose to install a battery, then their neighbours will also benefit to some extent. Furthermore, such a programme will likely be very wasteful. Many properties will have no suitable location for a battery, while others, because of demand patterns will gain little benefit from a battery.
55.	Should government think about ways to reduce 'soft costs' (like the cost of regulations, sourcing products, and upskilling supplier staff) for installing local battery storage with solar and other forms of CER/DER storage? If so, what technology should be looked at?	Yes. There is an emerging need for improved battery disposal solutions in NZ, and this will only become more significant as the batteries in electric bikes and EVs reach the end of their useful life in vehicles. Many of these batteries will still have a useful potential in stationary applications if the necessary infrastructure to repurpose them is in place. While recycling should be remain a commercial activity, the government has a role in ensuring it is viable and does not become stymied by inappropriate regulatory constraints or NIMBYism.
56.	Is a regulatory review of critical data availability needed? If so, what issues should be looked at in the review?	The greatest barriers to retailers sharing of consumers half-hour electricity consumption data has been: • The Privacy Act 2020 and electricity retailers' obligations and potential liabilities under that Act, and • The potential for the EDBs to use the data in competition with retailers. These issues are now being overcome and enabling retailers to authorise the MEPs to release consumption data directly will help reduce the number of parties involved in recording and distributing the data. MEPs also have access to power quality data from AMI meters that could be used by the EDBs more effectively.

Part 5: Whole-of-system considerations		
	Chapter 11 – Setting priorities and improving coordination	
57.	What measures do you consider the government should prioritise to support the transition?	New Zealand needs a regulatory regime through the transition that ensures the gas and electricity sectors can meet the electrification of energy demand. To support the transition, New Zealand needs a supportive, clear, stable, and realistic policy framework, which needs to be able to prevail across election cycles and be supported by realistic science-based targets that align with international frameworks and practices. The regime needs to be broad and flexible, enabling necessary infrastructure to be consented within significantly shortened timeframes, with limited appeal rights. The regime needs to be technology agnostic, letting the market find the best and least cost most efficient solution, enabled by Government policy and regulation. New Zealand is an exporting nation and as such it is vital the country remains competitive in international markets to ensure the transition does not jeopardise foreign direct investment, and the economic wellbeing of our communities. We need a transition framework that does not put New Zealand at a competitive disadvantage that results in de-industrialisation, and that recognises that keeping New Zealand's major industries onshore is more beneficial to global CO_2-e emissions than seeing those businesses move to lower cost countries reliant on coal fired generation and where coal would be used as fuel/feedstock. Gas supplies will diminish as the existing gas fields reach end-of-life and gas prices will increase, reflecting both increasing production costs and cost of emissions. Recent policies have held back the production of gas and new hydro-firming electricity generation while subsidizing the switch from coal and gas to electricity. This has led to an increased risk of winter energy shortages, both in capacity and storage. A Gas Transition Plan that positively acknowledges the long-term role of natural gas as a transition fuel in a manner that will prevail across election cycles is an important step in starting to rebuild this confidence. Electricity generation and transmission/distribution projects must be given priority through the Environment Court. Having projects waiting for a year and more for hearings that should be a formality is untenable in today's situation. There has to be

		some accountability within the justice system to deliver commercial decisions within reasonable timeframes.
58.	Are there gaps in terms of information co-ordination or direction for decision-making as we transition towards an expanded and more highly renewable electricity system and meeting our emissions goals? Please provide examples of what you'd like to see in this area.	As the demand for electricity is expected to increase in response to decarbonisation of the economy, the risks associated with over-investment in the short term are low. As such there is no need for government coordination of investments in generation. Short term over-investment in electricity generation and transmission will only lead to lower prices and accelerated switching to electricity. As such we can expect any excess capacity created to be absorbed within a reasonable timeframe. The current programme of new generation projects underway, despite the potential overhang of the possible closure of the Tiwai aluminium smelter, reflects that. If there is a need for central co-ordination, that should focus on removing areas of government legislation and regulation that create barriers to the production and delivery of electricity to consumers. The long delay in introducing new regulations for trees and vegetation around transmission lines is an example of failure of process.
59.	Are there significant advantages in adopting a REZ model, or a central planning model (like the NSW EnergyCo), to coordinate electricity transmission investment in New Zealand? Would a REZ model for local electricity distribution be an effective means of addressing first mover disadvantage with connecting to electricity distribution networks?	The transition to a lower emission energy system for Australia is quite different to that of New Zealand and as such solutions will also likely be quite different. Therefore, care should be taken when considering measures such as REZ in the NZ context. Australia's fossil fuel proportion of its electricity and broader energy supply is much higher than in New Zealand and as such in some cases it has an easier path to decarbonisation through wind and solar and moving from coal to gas – similar to what is occurring in many other developed countries. NZ already has an 85% renewable electricity and it most likely can move to 95% or more relatively easily before 2030. NZ's challenges are in moving to decarbonise transport and process heat not to mention agriculture which makes up ~50% of total GHG emissions. One of NZ's most significant challenges in the electricity sector is dealing with dry year risk, in which the only proven and practical solution in the short to medium term is through fossil fuels, for not just reliability reasons, but also affordability. Providing a secure, reliable and affordable least cost electricity system that supports the decarbonisation of transport and process heat through electrification is going to be more valuable to New Zealand than achieving 100% renewable electricity generation. Even with fossil fuels providing back-up to hydro generation shortfalls it should be feasible to maintain a long run average of more than 95% of electricity being generated from renewable sources.

		There should be room for considering longer term transmission capacity requirements when the time comes for expanding capacity within a particular region. Whether this needs to be characterised as a REZ is less certain. The NZ electricity market is better off if intermittent generation is geographically diverse rather than concentrated as that will reduce the need for thermal capacity (in the transition) or hydro in the longer term to cover periods of low wind generation. Given the importance of the SI hydro generation capacity, and potential for further renewables in the SI, the transmission focus should still be on maintaining the resilience on the core back-bone of the grid.
60.	Should MBIE regularly publish opportunities for generation investment to enable informed market decision-making?	There are areas of electricity modelling and analysis that, in the context of the small New Zealand market, are beyond the resources of most market participants, e.g. resource surveys, updating the estimated costs of renewable generation technologies, estimating costs of major transmission lines. Also, by producing materials for public use there is less duplication of effort, and the market is better informed when making key decisions. Commissioning work to provide estimates of new generation build costs also helps market participants in their decision making when considering signing up to long term hedges or PPAs.
61.	How should the government balance the aims of sustainability, reliability and affordability as we transition to a renewable electricity system?	The focus on each of these aims can be expected to shift over time as the market transitions to 100% renewables. The World Energy Councils (WEC) Trilemma index is an extremely useful tool for policy makers to take into consideration in evaluating aspects of the NZ energy system. It is an independent assessment of the system that also provides insight as to where the country has strengths that can be built upon and weaknesses that need addressing. The (WEC) last report rated New Zealand 8th overall against its international comparisons on the Trilemma index, with energy security being its weakest component. In recent years the focus on sustainability has been important in the context of the increased importance of climate change initiatives, but this has come at the risk of reducing reliability and affordability. As a result, the immediate focus must be on reliability, i.e. keeping the lights on through the next 2-3 winters at least.

62.	To what extent should wholesale, transmission, distribution or retail electricity pricing be influenced by objectives beyond the (affordability-related) efficiencies achieved by cost-reflective pricing, such as sustainability, or equity?	The electricity sector impacts on every aspect of the New Zealand economy. It is characterised by major capital investments that are generally expected to provide economic returns over decades. As such, any misallocation of capital can have a significant cost impact on all New Zealanders over many years. Aspects of equity and affordability for disadvantaged consumers must therefore be addressed as a separate issue to the design and operation of the electricity market.
63.	Are the current objectives for the system's regulators set in law (generally focusing on economic efficiency) appropriate, or should these also include more focussed objectives of equity and/or affordability?	Adding equity and/or affordability objectives for the system's regulators may give the impression of having societal benefits, but in reality, they are likely to result in a net cost to society. The complexities of the market mean that it is extremely difficult to achieve mixed objectives without creating hidden costs or inefficiencies that ultimately have a more negative impact than anticipated. For example, the social costs of the low fixed charge residential pricing were not readily apparent until a comprehensive analysis was undertaken to determine which consumers were benefitting from the policy versus those that were being disadvantaged. It became apparent that low income families with children were incurring higher energy costs due to the policy, while working couples with a gas connection were benefiting most. There can be a significant political reticence to removing such policies once they are in place. The rural obligation on EDBs to keep remote rural properties supplied with electricity is another hidden subsidy that persists because of the political implications for its removal or replacement. Affordability for the lower-socioeconomic groups needs to be addressed through social policy rather than by risking creating inefficiencies in the energy sector.
General Comments		

[1] Transpower *Whakamana i Te Mauri Hiko* 2020.