# Submission on *Measures for Transition to an Expanded and Highly Renewable Electricity System*

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## Release of information

Please let us know if you would like any part of your submission to be kept confidential.

☒ I would like to be contacted before the release or use of my submission in the summary of submissions that will be published by MBIE after the consultation.

☐ I would like my submission (or identified parts of my submission) to be kept confidential, and **have stated below** my reasons and grounds under the Official Information Act that I believe apply, for consideration by MBIE.

## Responses to questions

**Part 1: Growing Renewable Generation**

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| 1. | Are any extra measures needed to support new renewable generation during the transition?<br><br>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. |
| | Wind Quarry Zealandia (WQZ) suggests extra measures will be required to support new renewable generation. It is WQZ's view that the current structure of the industry and the operating environment is not fit for purpose as it leads to constrained generation, high electricity prices and small-scale incremental growth in electricity supply. It does not encourage the rapid and large-scale growth in renewable energy that will be required. |
| 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? |
| | WQZ suggests that key measures mentioned in the consultation document that the New Zealand Government should take to encourage new renewable generation include the implementation of a Contracts for Difference (CfD) programme and coordinating Power Purchase Agreement for electricity demand from Government organisations and agencies.<br><br>CfD's, in particular, provide opportunity for a low-risk incentive that will provide the certainty of revenue that investors in new renewable projects require.<br><br>WQZ suggests that the New Zealand Government should also be exploring the support it can provide directly to ensure supporting infrastructure is developed on time. An example that WQZ, as an offshore wind development company, is particularly conscious of is the provision of support for development of an offshore wind construction port. This will likely require greater funding than can be sourced from port shareholders (such as local government). New Zealand Government support will be very helpful and be consistent with Government support for infrastructure used by onshore renewables, such as roads.<br><br>Similarly, the provision of transmission infrastructure may require further direct Government support and fast-tracking of consenting. Transpower's operating and funding model has worked well during a period of relatively static demand over the past 30 years. The model is at risk of failing to deliver the infrastructure that will be required over the next 30 years. We comment further on the opportunity for Transpower to provide "anticipatory capacity" later in this submission.<br><br>A key additional measure the New Zealand Government and its agencies should take (that will assist Transpower) is to prepare more accurate and feasible forecasts of the level of likely electricity demand. Official forecasts have persistently underestimated the likely demand – principally by ignoring the demand for electricity to produce fuels for aviation and shipping and underestimating the demand for electricity from industry for producing Power to X products such as ammonia, urea and methanol. The potential for energy exports has also been persistently ignored.<br><br>We note there is reference in the consultation document to the Interim Hydrogen Roadmap and the potential for green hydrogen production to "as least double the additional generation already forecast to be required by 2050". While it is good to see this potential being |

mentioned this level of demand should have been recognised and included in forecasts years earlier.

More accurate and feasible forecasts is a key step that will encourage greater investment confidence in renewable generation and more urgent planning for the large-scale supporting infrastructure that will be required including transmission.

There are risks with all these initiatives – it is possible that higher cost renewable projects and infrastructure of the wrong type or in the wrong location could be incentivised. The fear of such outcomes has driven investment decisions in the New Zealand electricity sector for the past 30 years and had led to constrained supply, high electricity costs and the stubborn retention of fossil fuel generation. These risks need to be better balanced against the downsides for New Zealand of not building sufficient renewable generation to support its economy and achieve its net zero targets.

More risk-taking needs to be incentivised into the electricity industry to enable the growth that will be required.

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?

N/A

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?

WQZ views support for development and independent operation of firming/dispatchable capacity as essential. Onshore wind, offshore wind and solar will likely be the key forms of new renewable generation. As variable forms of renewable generation they will require complementary firming. A variety of renewable firming mechanisms will likely be implemented including batteries, hydrogen-based storage, bioenergy and greater use of hydro-electricity (including pumped hydro).

The increasing use of hydroelectricity for firming is likely to be of key importance considering the scale of the country's hydroelectricity resources. As discussed in the Consultation Document (paragraph 120) WQZ notes that 832 GWh of hydro storage currently acts as contingent storage and that the suggestion is made that it could "make sense to have a greater volume of storage held in reserve as contingent storage as the level of intermittent renewables increase."

WQZ's view is that this suggestion does make sense and the New Zealand Government should carry out a detailed whole-of-market analysis of the opportunity for how a higher portion of hydroelectricity generation can be best utilised primarily for firming. All measures to enable this should be addressed including the potential for divestment of some hydro-electricity resources (or at least their capacity) from existing generators to a new dedicated market-neutral firming generator.

The opportunity for a hydrogen-based energy ecosystem, most likely in Taranaki, should also be explored. There is potential for hydrogen to be generated in the region when there is excess and cheap renewable generation available, stored underground in depleted natural gas fields, then utilised in hydrogen fuelled peaker plants. While ruled out for now by the Government's NZ Battery Project we note that the South Australian Government has just

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| | announced support for development of such an ecosystem including hydrogen peaker generation and a similar project is under development in the USA. The New Zealand Government should be supporting a more detailed investigation of this opportunity in the context of the full hydrogen ecosystem, not just the storage component in isolation. |
| 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? |
| | There needs to be a mixture of storage types suitable for short-term (day to day), medium term (week to week) and longer term (season to season/year to year) storage. It is WQZ's view that measures are more likely required for the larger and longer forms of storage rather than short-term storage such as BESS. The New Zealand Government has recognised the importance of longer term storage through its NZ Battery Project.<br><br>WQZ has made two specific suggestions in our response to the previous question: for the Government to investigate the opportunities for repurposing a portion of hydroelectricity generation for firming of renewables, and the opportunity for a hydrogen production, storage and peaker generation ecosystem to be developed. |
| 6. | If you answered yes to question 4 or 5 above, should the support be limited to renewable generation and renewable storage technologies only or made available across a range of other technologies?<br><br>Keep in mind that fossil fuels are generally the cheapest option for firming, though this may change over time as renewable options (particularly batteries) become more efficient and affordable. |
| | Support should be limited to renewables. To achieve net zero targets fossil fuel generation needs to be replaced. |
| 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? |
| | The risks are that renewable-based storage systems will not be developed before fossil-fuel based systems either run out of sufficient fuel or parts of the fossil fuel infrastructure reaches the end of its life with no business case for re-development.<br><br>The development of renewable storage systems needs to be incentivised to ensure it is developed and can operate profitably. |
| 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? |
| | No. The opposite needs to occur. The cost of fossil fuel generation needs to increase (via carbon pricing under the Emissions Trading Scheme) to incentivise the development of renewable alternatives. |
| 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? |
| | N/A |
| 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? |

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| | N/A |
| 11. | Are there any issues or potential issues relating to gas supply availability during electricity system transition that you would like to comment on?<br>No comments. |
| 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?<br>Measures could be needed. This will depend on the rate of development of renewable alternatives. |
| 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?<br>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?<br>No comments. |
| 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?<br>No comments. |
| 15. | What types of commercial arrangements for demand response are you aware of that are working well to support industrial demand response?<br>No comments. |
| 16. | What new measures could be developed to encourage large industrial users, distributors and/or retailers to support large-scale flexibility?<br>WQZ expects that this will be up to individual businesses and their electricity suppliers to determine. As noted in the consultation document there is increasing opportunity for flexibility in electricity usage.<br><br>We note that the development of large-scale hydrogen production has particular potential to provide considerable demand response flexibility. If there is over-production of renewable electricity and development of energy intensive green industries and Power to X based energy export markets there will be potential for considerable flexibility within New Zealand.<br><br>As noted later in this submission WQZ encourages the New Zealand Government to support the development of energy intensive green industries and energy export opportunities. |
| 17. | Do you have any views on additional mechanisms that could be developed to provide more information and certainty to industry participants?<br>No comment |
| **Part 2: Competitive 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? |

Increasing market concentration of flexible generation, particularly hydro, is one of two key competition issues. It risks restricting the options available to new, independent and large-scale developers of renewable energy such as WQZ.

19. Aside from increased market concentration of flexible generation, what other competition issues should be considered and why?

The second key issue is that the current market structure rewards the major existing generators for constraining supply of electricity. This structure has operated with few questions asked during the last 30 years of relatively static demand for electricity but will not suit the next 30 years when significant growth is needed. The current structure does not incentivise the development of new renewables and storage systems at the rate required nor the development of transmission infrastructure in a manner that supports investment decisions on new renewable generation and storage systems.

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?

WQZ suggests that currently available information on wholesale electricity prices over the past five years makes it quite clear that there are competition issues in New Zealand. While higher prices should incentivise new generation and there is certainly an increase in new generation enquiries implementation of many of these opportunities will depend on arrangements being made with the existing companies that dominate the New Zealand electricity industry.

21. Should structural changes be looked at now to address competition issues, in case they are needed with urgency if conduct measures prove inadequate?

Yes

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?

WQZ is of the view that there is a case for separation of generation from retail. As noted in our response to Q20 new generators are often dependent on arrangements being made with the gentailers that dominate both generation and retailing in New Zealand.

As also noted earlier, WQZ suggests there is a case for separating control of some flexible hydroelectric resources from existing generators and placing these resources into an independent firming business.

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?

As noted in our response to the previous question, WQZ is of the view that there is a case for separation of generation from retail. This would limit generator power in retail markets.

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)?

No comments.

25. What extra measures around electricity market competition, if any, do you think the government should explore or develop?

No comments.

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| 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? |
| | As noted earlier, WQZ suggests the current electricity market structure is not fit for purpose. It may be possible to amend the current structure but a more radical structure such as the single buyer model is worth further consideration as it would break up the market power of the major incumbents and enable better planning of infrastructure. However, an investigation of the single buyer model must not drag on as the process will create investment uncertainty. |
| **Part 3: Networks for the Future** | |
| 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? |
| | WQZ considers that the balance of risks between investing too early and too late has changed and will change further. During the coming period of high growth in electricity demand and supply transmission infrastructure needs to be planned and committed ahead of when it is needed. Investors in renewable energy projects need to know that the electricity generated can be transmitted to customers. It is currently not clear to investors in many renewable energy projects that the transmission capacity will be available. Unless this uncertainty is reduced there is a significant risk that required projects will not be developed and the country will miss its emissions reduction targets.<br><br>WQZ suggests that the current planning and funding model for Transpower needs to change. The Government needs to invest in transmission infrastructure ahead of when it is needed – just as it did with the rollout of ultrafast broadband. This may result in a gap between when transmission infrastructure is built and when it is fully utilised and funded by the electricity sector. But this risk is less than the cost of generation infrastructure not being built because the transmission capacity is not ready.<br><br>We note that the idea of "anticipatory capacity" being funded by the Government was discussed in the Consultation Document with regard to distribution networks (paragraph 254). The idea of anticipatory capacity should also be developed for Transpower. |
| 28. | Are there any additional actions needed to ensure enough focus and investment on maintaining a resilient national grid? |
| | WQZ has a particular interest in the resiliency of the grid in and from the Taranaki region. We believe it likely that Taranaki will become an increasingly important region for electricity generation with its combination of huge offshore wind and significant solar and onshore wind resources providing opportunity for hydrogen production, storage and peaker electricity production.<br><br>The resilience of infrastructure in Taranaki and neighbouring regions underpins Taranaki's future contribution to national resilience yet does not seem to be given appropriate significance in transmission planning. |
| 29. | Do you agree we have identified the biggest issues with existing regulation of electricity distribution networks? |
| | No comments. |

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| 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? |
| | No comments. |
| 31. | Are the issues raised by electricity distributors in terms of how they are regulated real barriers to efficient network investment?<br><br>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? |
| | No comments. |
| 32. | Are there other regulatory or practical barriers to efficient network investment by electricity distributors that should be thought about for the future? |
| | No comments. |
| 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? |
| | No comments. |
| 34. | If you think there are issues with the cost of connecting to distribution networks, how can government deliver solutions to these issues? |
| | No comments. |
| 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? |
| | No comments. |
| 36. | Are there any challenges with connecting distributed generation (rather than load customers) to distribution networks? |
| | No comments. |
| 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? |
| | First mover disadvantage is an issue that should be further considered by the Electricity Authority, potentially in conjunction with the Commerce Commission.<br><br>As noted earlier, WQZ suggests the Government should provide funding for "anticipatory capacity" for Transpower to enable planning and development of transmission infrastructure ahead of when it is needed. The same opportunity for funding anticipatory capacity should be provided for relevant distribution infrastructure and could reduce the issues from first mover disadvantage. |
| 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 comments. |

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| 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? |
| | No comments. |
| 40. | Will the existing statutory objectives of the Electricity Authority and Commerce Commission adequately support key objectives for the energy transition? |
| | No they will not. The vital importance of decarbonising the energy system needs to be recognised and the accompanying benefits to economic development need to be recognised in these statutory objectives. If not, decisions will likely be made that are not in the country's overall interest. |
| 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,<br>• should those objectives be required to have equal weight to their existing objectives set in law?<br>Why and how might those objectives affect the regulators' activities? |
| | The Electricity Authority and the Commerce Commission should have explicit objectives related to emissions reduction targets and plans.<br><br>These organisations should consider the whole system when making decisions. |
| 42. | Should the Electricity Authority and/or the Commerce Commission have other new objectives set out in law and, if so, which and why? |
| | Our recommendation that the whole system should be considered includes the economic and social transition required to emissions reduction targets. These should also be included in objectives. |
| 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)? |
| | Yes, there is a case to do this. |
| 44. | If you answered yes to question 43, please explain why and indicate:<br>• What measures should be used to provide direction to the Commerce Commission and what specific issues should be addressed?<br>How would investment in electricity networks be impacted by a direction requiring more explicit consideration of climate change objectives? Please provide evidence. |
| | The energy system is a significant emitter of greenhouse gases. Reducing these emissions is a national priority and all future public and monopoly energy sector investment decisions should be considering the country's climate change objectives. |
| **Part 4: Responsive Demand and Smarter Systems** | |
| 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? |
| | No comments. |

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| 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? |
| | No comments. |
| 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? |
| | No comments. |
| 48. | Could co-funding for procurement of non-network services help address barriers to uptake of non-network solutions (NNS) by electricity distributors? |
| | No comments |
| 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? |
| | No comments. |
| 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? |
| | No comments. |
| 51. | Do you think government should provide innovation funding for automated device registration? If not, what would best ensure smart devices are made visible? |
| | No comments. |
| 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? |
| | No comments. |
| 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 comments. |
| 54. | Should further thought be given to making upfront money accessible to all household types, at all income levels, for household battery storage or other types of CER? |
| | No comments. |
| 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? |
| | No comments. |
| 56. | Is a regulatory review of critical data availability needed? If so, what issues should be looked at in the review? |
| | No comments. |

**Part 5: Whole-of-system considerations**

57. What measures do you consider the government should prioritise to support the transition?

WQZ suggests five key measures:

1/ The first step has to be resetting the forecasts for future electricity demand to reflect the true scale and urgency for development of the renewable electricity supply that will be required. For several years the electricity demand forecasts of the Government and its agencies have seemingly ignored the future electricity requirements of the hard-to-abate sectors (such as aviation, shipping and chemical production). There are hints that the requirements of these sectors are finally being recognised by the Government but hints are insufficient. These sectors are planning their transition to using green hydrogen and related Power to X fuels and industry forecasts of demand are available. The demand from these sectors needs to be included and planned for in all Government forecasts and plans. The opportunity for energy exports also needs to be included as a potential scenario in planning documents such as the Electricity Demand and Generation Scenarios.

Once the Government recognises this higher level of demand it will be taken into account in infrastructure planning (such as transmission), incentives can be crafted to encourage the rapid development of renewable generation and industries can plan for their transition to a net carbon zero future.

2/ The Government should also be implementing a programme for introducing anticipatory capacity into the transmission system. The long lead-in times for the development of transmission capacity means that it should lead the development of renewable generation and not be dependent on it already being committed.

3/ Key incentives for renewable generation should be developed and implemented by the Government including a Contracts for Difference programme and Power Purchase Agreements to supply Government organisations and agencies.

4/ A programme for better managing the firming capacity of hydro-electricity should be developed by the Government – ideally operated by a neutral independent company that specialises in providing firming.

5/ The Government should also recognise the economic development opportunities for New Zealand from developing energy intensive green industries and energy export opportunities.

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 noted in our response to the previous question there is a major gap in the forecasting of Government agencies regarding future electricity demand. The scale of the future electricity demand from hard-to-abate sectors has not been clearly recognised by the New Zealand Government. This is despite the pathways for decarbonising these sectors becoming increasingly clear e.g. the aviation sector's work on developing green hydrogen as a fuel for most internal flights and utilising sustainable aviation fuel for longer flights (with most SAF likely produced from green hydrogen).

There is another gap related to recognition of the potential scale of energy exports. While energy exports may not directly help New Zealand reach its emissions goals it has the potential for such impact on the electricity industry that it should not be ignored in Government forecasting. The Australian Energy Market Operator (AEMO) has planning scenarios that

include energy exporting. New Zealand should not be lagging behind Australia in planning for this opportunity.

There are also too many agencies producing forecasts. There is a lack of consistency in Government forecasts and a lack of clarity over the assumptions underpinning the forecasts. Over the last five years forecasts of future electricity demand have been produced by MBIE, Transpower, the Productivity Commission and the Climate Change Commission. These forecasts should be coordinated and the information underpinning them made completely transparent.

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 Renewable Energy Zone model is worth exploring further. It is of particular importance to Taranaki where large-scale offshore wind is being explored by multiple companies. A REZ model could facilitate the development of the needed anticipatory capacity in and around Taranaki and enable the development of large-scale generation in the region.

The model could be extended to also plan for storage investment in New Zealand. As noted earlier in this submission there is opportunity for development of a green hydrogen based storage ecosystem in Taranaki. This would involve renewable generation, hydrogen production, hydrogen storage, hydrogen distribution and production of electricity using hydrogen as a fuel. Such an ecosystem would involve multiple parties and cross current boundaries between the electricity and gas sectors. There are a range of steps the Government could take to facilitate development of such an ecosystem.

60. Should MBIE regularly publish opportunities for generation investment to enable informed market decision-making?

At the moment there is no evidence of a shortage of interest in development of opportunities in New Zealand. The level of enquiries to Transpower is at a historically high level. However, clear Government recognition of opportunities will help with sourcing international investment to development those opportunities.

61. How should the government balance the aims of sustainability, reliability and affordability as we transition to a renewable electricity system?

There are several key gaps either already evident or likely to occur in the near future. The Government should be focusing on these to provide more balance to the energy system.

The development of medium to longer term storage of energy is a key factor required to ensure reliability of the renewable electricity system. The development of large-scale storage will also remove some or all of the need for high cost peaking. It will support a more consistently affordable energy system by removing price spikes at times of very high demand.

Storage will also enable overproduction of electricity for parts of the year with the oversupply used for balance at times of short supply. Overproduction will also support reliability by providing more generation sites.

The implementation of a Contracts for Difference programme will also assist with smoothing electricity prices.

Sustainability will be improved by moving to a completely renewable electricity system. Generation sources that minimise environmental impact and reduction of productive land, such as offshore wind, should also be encouraged by the Government.

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 country's net zero target is paramount. This sustainability related objective is a vital influence that cannot be compromised. The good news is that renewable energy is now cheap to produce so a sustainable system should also be affordable.

There are also other influences that should be taken into account. As a renewables rich country with relatively low internal energy demands, New Zealand has massive economic development opportunities for green industry and energy exports. The New Zealand Government should implement a strategy to take advantage of these opportunities.

The Just Transition opportunities for regions most affected by the closure of fossil fuel based industries should also be considered. The good news is that these regions, such as Taranaki, are also well placed for investment in renewables.

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?

A pure focus on economic efficiency (or costs) insufficient for the country's transition as this encourages decisions to be made in isolation from other impacts and from other related decisions. There should be more whole-of-system thinking.

As noted in our response to the previous question net zero is paramount. In New Zealand this should be able to be achieved at low cost. We have noted a number of initiatives the Government can carry out to help achieve this outcome.

As also noted in our response to the previous question the transition to a net zero energy system also provides huge economic development opportunities for New Zealand. Decisions around the energy system need to be made that will unleash these economic development opportunities. Sometimes these decisions will not be lowest cost, at least not in the short-term. For example, anticipatory capacity should be built into investment decision-making for the transmission system or storage systems either need to be large enough for the future or easily scalable. The development of anticipatory capacity or storage flexibility may increase initial costs but will provide long-term benefits.

**General Comments:**

The energy market settings that have been in place over the last 30 years of relatively static demand for electricity are no longer fit for purpose for a future of rapid growth in demand. WQZ suggests there are five key steps that the Government can take:

1/ Improve its forecasts of the demand for electricity
2/ Provide anticipatory capacity in the transmission system
3/ Incentivise renewable generation with Contracts for Difference and Government Power Purchase Agreements
4/ Introduce a new entity focused on providing firming services for variable renewable generation.

5/ Develop an underpinning strategy of developing New Zealand as an economic powerhouse based on its renewable resources.