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Advancing New Zealand's Energy Transition

Mercury welcomes the opportunity to submit on the Ministry of Business, Innovation & Employment's (MBIE's) consultation package *Advancing New Zealand's Energy Transition,* August 2023.

The consultation package consists of 6 reports spanning a wide range of topics on the decarbonization of the electricity system and the electrification of the economy, seeking to identify gaps in present policy work underway and how these gaps might be addressed. Mercury's submission, in response, focuses on the following priorities:[1]

- **Greater collaboration and collective action is crucial for success:** The Energy Sector and Government Decarbonisation Framework (the Framework) will enable greater collaboration and collective action between the Government and the energy sector to enable an energy transition at the pace and scale required to maintain security and affordability.
- **We need planning rules and policy that promotes investment in new renewables:** The acceleration in investment in renewable generation and firming requires an effective consenting framework and efficient market mechanisms.
- **Thermal generation has a role to play in maintaining security of supply during the transition:** Gas can firm intermittent generation across all time periods at least cost enabling accelerated deployment of renewables across the economy.
- **We need to consider market mechanisms that support capacity for peak demand and long duration storage:** Work is required on problem definition and solutions that do not distort a market-led renewables transition.
- **Offshore wind and green hydrogen have a role over the long run:** Development of consenting frameworks now to enable efficient investment in offshore wind and green hydrogen production in the future would enable further electrification and decarbonization over the long run.
- **Support work underway to promote workably competitive wholesale market:** If competition issues should arise in the future as a result of the energy transition, we consider the Electricity Authority (the Authority) and the Commerce Commission currently have the legislated powers to address it. We support

[1] Mercury's submission focuses on the 3 consultation reports (i) Measures for Transition to an Expanded and Highly Renewable Electricity System (Electricity Market Measures Paper); (ii) Gas Transition Plan Issues Paper; and (iii) Advancing New Zealand's Energy Transition. There are also some more general comments on the Developing a Regulatory Framework for Offshore Renewable Energy discussion document and the Interim Hydrogen Roadmap.

measures proposed by Market Development Advisory Group (MDAG) that would help inform the Authority and Commerce Commission's views regarding the state of competition.[2]

- **We need an open conversation about how retail prices may change through the transition:** Transparency around forecast changes in retail electricity prices during the transition in response to investment in generation, transmission and distribution as well as the emissions trading scheme is needed to manage affordability and maintain consumer support for decarbonization goals.

The following submission expands on each of these priorities, with more detailed comments provided in response to specific questions set out in the annexes.

Greater collaboration and collective action is crucial for success

The electricity sector is critical for Aotearoa New Zealand's energy transition. To deliver a decarbonised energy system the electricity sector will have to undergo transformational investment and sector change of unprecedented pace and scale.

The way that Aotearoa navigates the global energy transition will be critical to our country's prosperity. To date, Aotearoa's energy system has been ranked one of the best in the world for its combined equity, security and sustainability. To continue this over the coming decades will require good 'whole of system' decision making. A joint Government and sector approach is crucial to enable collective action at the pace and scale now required.

The electricity sector will need to make significant investments in the coming decades, starting with an estimated $42bn through to 2030.[3] The Government can create the conditions that best leverage this investment by removing the barriers to supply side investment in new renewable generation, transmission and distribution, and ensure that policy actively supports demand side changes.

Collective action is crucial for the success of the transition, and the Framework's current priority themes get us started on the items that are 'no-regrets' to set up for the transition. Once up and running, the Framework can help work through other key priorities and create options for the longer term elements of the transition.

The Framework proposes the following priority themes for collective action that get us started:

Support accelerated renewables development

- *Effective consenting frameworks*: Ensuring consenting frameworks encourage rapid deployment of renewables and enabling infrastructure (high priority), both through optimising existing assets and new developments, while maintaining competitive neutrality.

- *Efficient market mechanisms*: Ensuring wholesale electricity market arrangements to enable electricity to play its role, fully and efficiently, in decarbonising New Zealand. In particular, developing market mechanisms to improve security of supply (particularly during winter peak periods).

Scale up transmission and distribution investment

- *Investment incentives for networks*: Enabling investment incentives and funding to networks to support the transition via network enhancement, expansion, and non-network alternatives.

[2] For more detail, here is a link to Mercury's submission in response to MDAG's consultation *Price discovery in a renewables-based electricity system* 2 December 2022: https://www.ea.govt.nz/documents/2523/Mercury_submission_on_MDAG_price_discovery_consultation.pdf

[3] BCG report The Future is Electric: A Decarbonisation Roadmap for New Zealand's Electricity Sector, page 2.

Support people and the workforce

- *Workforce strategy*: Ensuring sector workforce development so that there is improved diversity and capacity to deliver on the transition to a decarbonised energy system.

- *People experiencing hardship*: Ensuring meaningful and enduring support for consumers experiencing hardship.

Drive electrification at pace

- *Electrification*: Drive decarbonisation through electrification by ensuring EV charging infrastructure can be successfully rolled out and electrification projects for households, businesses and large-scale initiatives can be implemented, encouraging load flexibility where possible.

Enable a smart electricity system

- *Smart system*: Enable the 'smart system' to maximise the use of existing infrastructure, to minimise future infrastructure investment, reducing whole-of-system costs and delivering better consumer outcomes.

- *Network resilience*: Improve the ability of networks to adapt to the effects of climate change and build greater network resilience.

Encourage the right energy and capacity mix

- *Resilient transition*: Recognising the role of appropriate transition fuels (for example, natural gas) and supporting the interconnection between gas, electricity and other fuels in achieving a resilient transition.

Mercury supports the Energy Strategy taking a whole of system view of the energy transition out to 2050. You have indicated that submissions on the present consultation will be key inputs to the development of the Energy Strategy. The priority themes, as noted above, get us started on the 'no-regrets' actions that should be taken now. As such, these items are a crucial first step for any Energy Strategy that looks further ahead.

In addition to submissions, Mercury anticipates that MBIE will source currently available information more widely, including Boston Consulting Group's (BCG's) *The Future is Electric* report, and focus on the electricity sector given its pivotal role in the decarbonization of Aotearoa.

Mercury also considers that it is crucial that the Energy Strategy focuses on preserving the optionality of generation and storage solutions by not biasing investment incentives towards a particular outcome or technical solution – i.e. it should not pick winners. There are many exciting potential opportunities, measures, solutions, and technologies on the demand and supply side for enabling the decarbonization and electrification of the economy. At this point in time, there is uncertainty as to whether these opportunities will be exercised and implemented because there is uncertainty regarding whether technical solutions still under development will eventuate, the relative economics of different options, as well as the future government policies and regulations.

Planning rules and policy that promotes investment in new renewables

MBIE proposes in the report *Measures for Transition to an Expanded and Highly Renewable Electricity System* (Electricity Market Measures report) that there is a risk *that signaled investment [in new renewable generation] may not come forward in sufficient time or quantity to enable electrification, while maintaining security and affordability* … to achieve Aotearoa's decarbonization and electrification objectives by 2050.[4]

[4] MBIE report, *Measures for Transition to an Expanded and Highly Renewable Electricity System*, paragraph 46

The Electricity Market Measures report cites studies that indicate the signaled investment presently is more than the Infrastructure Commission's estimate of required growth rate in new generation capacity or demand response of round 400 – 500 MW every year by 2050.[5]

Studies cited include a survey by Concept Consulting which indicates that gross new generation additions are likely to average around 780 GWh per year between 2021 and 2025, which is likely to be sufficient to meet electrification-related demand growth to 2025. It also cited BCG's report, which finds that there is more than enough renewable energy generation in the project pipeline to achieve 98 per cent renewable generation by 2030. BCG identified 10.9 GW of new utility-scale renewables intended to be built against a need of 4.8 GW by 2030.[6]

Mercury agrees that the current planned investment is expected to be sufficient to meet energy targets in the near term. However, as the Authority identified, a *divergence between available and installed generation capacity relates to the increased role of intermittent generation (notably wind) and the growing cost of gas, coal and carbon emissions.*[7] The impact of this divergence on the security and reliability of supply is expanded on below in relation to the increasing need for firming capacity and in particular the key role thermal generation plays.

Mercury also agrees that looking further ahead, risks may emerge that slow investment in new intermittent generation, and in firming capacity.

Regulatory and market uncertainties

The Electricity Market Measures report identifies the following range of regulatory and market uncertainties that may impact on investment in generation – i.e. [8]:

- *future fossil gas supply and flexibility (including storage) to support dispatchable fossil gas-fired generation in a firming role*
- *whether or how the government will progress with Lake Onslow or other options currently under investigation in the NZ Battery Project*
- *direction and pace of broader policy development in the Energy Strategy, Emissions Reduction Plan, ETS and RMA reform*
- *future electricity demand, including from existing large consumers (particularly New Zealand Aluminum Smelter) and from potential new demand sources (such as data centers and green hydrogen production), industrial process heat electrification, and transport electrification*

These points have been consulted on before. We are happy to provide links to our submissions if requested. The present submission focuses on the regulatory and market uncertainties related to consenting frameworks, demand response, wholesale contracts, and thermal generation for firming.

A common theme of Mercury's submissions is that Government policy and regulatory interventions should enable electricity to play its role, fully and efficiently, in decarbonizing Aotearoa, by developing mechanisms to improve energy and capacity assurance. These interventions should promote market-based outcomes and competition. They should not displace investment in renewable generation and demand response by limiting choice, as over the long term this is likely to increase the risk of unintended detrimental outcomes and reduce efficiency.

[5] Ibid. paragraph 46
[6] Ibid. paragraph 45
[7] Electricity Authority's decision *Driving efficient solutions to promote consumer interests through Winter 2023*, paragraphs 2.13 to 2.16.
[8] Ibid. paragraph 49

Consenting frameworks

A high priority for Mercury with respect to the *direction and pace of broader policy development* point above, are the consenting frameworks. BCG's roadmap of priority recommendations included in its report, highlights that consenting frameworks should enable rapid development of renewable generation and scaling up of transmission and distribution network investment.[9]

The BCG report goes onto highlight the limitations that could inhibit developments include an overly restrictive consenting framework for generation and network infrastructure and lack of clear consenting and development pathway for offshore wind.[10] That is, changes to the consenting regime may impact the speed and cost of new renewable developments by:

- Blocking projects that would otherwise have been consented, resulting in more expensive projects filling the 'gap'.
- Increasing the overall cost per unit of projects through more arduous requirements (for example, the need to reduce the number of wind turbines on a wind farm to gain consent).
- Reducing the size of wind turbines and associated infrastructure, resulting in smaller renewable power plants.
- Making repowering of existing wind farms more difficult where it is proposed that newer, better wind turbine technology is used.

Mercury considers addressing these issues should be a priority. We have submitted on these points previously ourselves and as part of the Electricity Sector Environment Group.[11]

Demand side policy and response

A priority for Mercury with respect to the *future electricity demand* point above is for a regulatory environment that enables the development of demand side response and demand policy to drive the energy transition through electrification. Examples include ensuring electric vehicle (EV) charging infrastructure can be successfully rolled out and electrification projects for households, businesses and large scale initiatives can be implemented, encouraging load flexibility where possible.

Mercury supports a smart whole-of-system transition where a range of technologies are deployed including batteries, distributed energy, and demand response. Mercury is actively involved in the work of the FlexForum and supports the Authority's real-time pricing initiative.

BCG's analysis concludes that a smarter, more flexible electricity system could save around $10 billion on an NPV basis to 2050, incorporating demand response, smart EV charging, and distributed energy resources. Investment in new technologies like distribution network visibility and coordination will unlock many of these measures, enabling at least 2 GW of demand-side flexibility by 2030 and 5.8 GW of demand-side flexibility by 2050.[12]

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[9] BCG report *The Future is Electric: A Decarbonisation Roadmap for New Zealand's Electricity Sector*, page 18
[10] Ibid. page 122.
[11] Mercury submission on NBE bill - https://www.parliament.nz/resource/en-NZ/53SCEN_EVI_129831_EN15447/754a69bc81476cd1a8807ae3d78227ab29683eac and
ESEG submission on NBE bill - https://www.parliament.nz/resource/en-NZ/53SCEN_EVI_129831_EN15438/0a65aa7fbdb5787a68c84c6c6f39bd17813ae6ad

Mercury submission on SP bill - https://www.parliament.nz/resource/en-NZ/53SCEN_EVI_129832_EN15446/c46715983a3733d73c1dbfb143548ed68eea1925 and
ESEG submission on NBE bill - https://www.parliament.nz/resource/en-NZ/53SCEN_EVI_129832_EN15437/d3c23e26b7c9a7b60ad40f65893979a0268f66c2

[12] Ibid. page 11

However, while batteries and demand response have significant potential to contribute to flexible capacity, the high capital costs of batteries and lack of smart system enablers for dynamic demand response are viewed as limiting the potential of these technologies to meaningfully contribute in the period to 2030. For example, demand-side flexibility service provided by ripple control currently does not deliver the same level of security and reliability as fast-start thermal generation. Mercury supports enhancing the capability of hot water control but also notes that there is uncertainty regarding the level and timing of this capability.

Price risk for investors in intermittent generation

One market related uncertainty that is not incorporated in the above list, but is noted elsewhere in the Electricity Market Measures report is the suggestion that an increasing volatility in wholesale spot market prices may have a detrimental effect on investment in generation if intermittent renewable developers are *solely reliant on the spot market*.[13] It is also suggested that:

> … *electricity users are also typically averse to spot price risk and may be reluctant to buy generation from new intermittent renewables at a fixed price if they remain exposed to the spot price for their residual electricity needs. Users generally prefer to have arrangements for access to firm supply when they need it and have varying levels of comfort in managing price risk. New generation investors may therefore be challenged to find buyers for their output without suitable risk management products being available at a reasonable price.*[14]

Investors in generation and buyers can and do negotiate and agree suitable risk management products and price. If a generator and a buyer do not reach an agreement, though, then this may be because mutually beneficial contract terms and price cannot be identified. Being able to freely negotiate and accept contract terms and price in a competitive market promotes efficiency because the benefits from the transaction are expected to be mutually beneficial. However, forcing one party to accept terms and/or price that they would not otherwise accept raises the risk of imposing costs on that party which would be detrimental to efficiency.

The Electricity Market Measures report cites a paper by the International Renewable Energy Agency (IRENA) that calls for a system based more on long-term procurement products, such as corporate or auctioned power purchase agreements (PPAs), feed-in tariffs (FITs), Contracts for Difference (CfDs) or other similar tools.

Contracts such as these are already available in New Zealand which indicates that suitable risk management products are available at a reasonable price, which promotes efficient outcomes. Mercury expects that the form of these contracts will evolve, along with other mechanisms, and develop in response to changing supply and demand conditions. Mercury, therefore, supports the Authority's ongoing monitoring of wholesale contracts, and initiatives such as the Over-the-Counter Code of Conduct will facilitate this evolution and development.

In summary, Mercury supports ensuring wholesale electricity market arrangements that enable electricity to play its role, fully and efficiently, in decarbonizing Aotearoa. In particular, developing market mechanisms to improve security of supply, especially during winter peak periods.

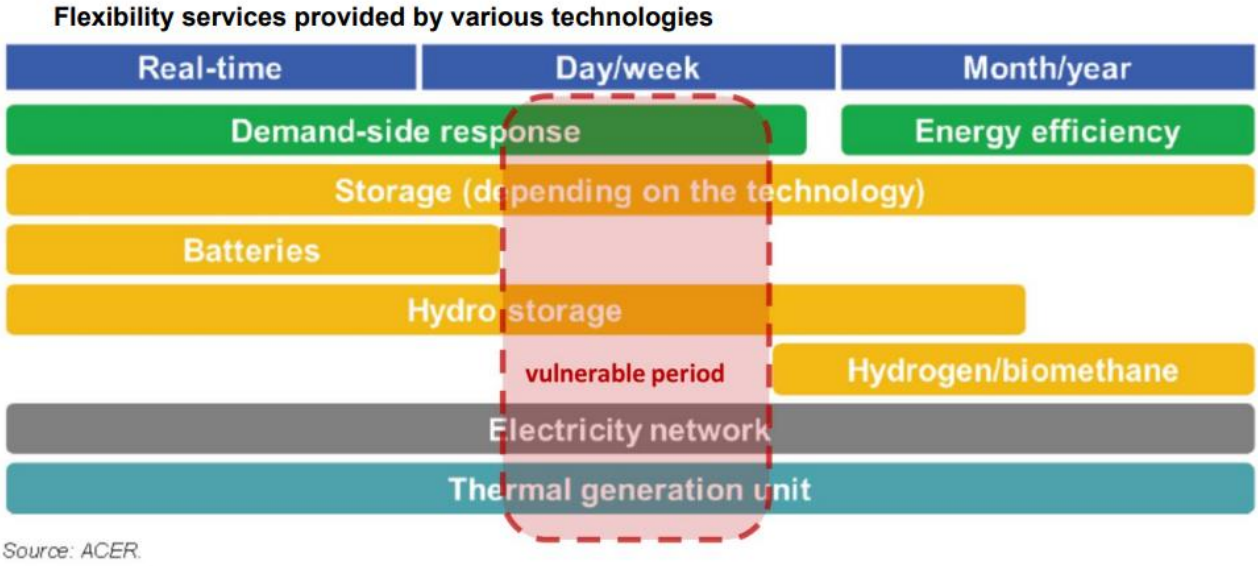
Thermal generation has a role to play in maintaining security of supply during the energy transition

Mercury supports the Government's continued work to enable the availability of thermal generation in a firming role for maintaining security and reliability of supply during the transition.

Mercury considers that regulatory certainty should start with the Government recognizing the importance of thermal generation and gas for maintaining security of supply for the foreseeable future by removing the aspirational target of 100% renewable generation by 2030.

[13] Electricity Market Measures report, paragraph 51
[14] Ibid. paragraph 52

Capacity needs to be considered systematically across fuels, technology, and time to ensure we have sufficient generation when and where we need it. The diagram below highlights Mercury's view that thermal generation is the only firm and reliable technology currently able to provide flexibility across all relevant time periods.[15] Over time the reliability, operational and cost characteristics of new technologies will become known with greater certainty. The red box highlights how vulnerable the system is to outages or intermittency of renewable generation supply that may last longer than a day.



The system currently faces the dual challenges of having to compensate for a sustained reduction in intermittent wind and solar generation. Mercury is seeing swings of around 500MW during periods where intermittent generation falls away and expects this figure to increase through the transition. Prolonged periods of cold, windless, and cloudy periods will significantly reduce the ability of battery storage to provide capacity and energy into the system. The key takeout is that batteries and gas peaking capacity are not directly interchangeable across all time periods in terms of the flexibility services they provide. Currently thermal generation is the only known and firm technology able to provide security in the period to 2030.[16]

The ability to rely on existing hydro generation as a firm source of flexibility is an assumption that Mercury continues to be raised in various forums. However, the amount of hydro generation available for firming intermittent renewables is finite in the sense that it cannot be increased as investment in intermittent renewables increases, which is why Aotearoa needs to retain some thermal capacity during the transition.

Economic incentives for gas peakers and retaining existing fossil fueled generation

The Electricity Market Measures report acknowledges that gas peaking plant has a role supporting intermittent renewables and affordability while Aotearoa expands the use of its electricity system to decarbonize other areas of the economy. BCG in its report see gas peakers and retaining existing fossil fueled generation for a period during the transition as the least cost, lowest emissions way to maintain reliability and affordability and note such investment might not be forthcoming if investors judge it to be too risky.

[15] European Union Agency for the Cooperation of Energy Regulators, ACER's Final Assessment of the EU Wholesale Electricity Market Design, April 2022, page 31, Figure 18.
[16] Ensuring an Orderly Thermal Transition, Mercury submission on Electricity Authority Consultation paper, July 2023.

'if such generation is critical for security of supply in the short term but the economics of the investment are uncertain and there are no other alternatives, then a mechanism to incentivise this investment might be warranted. Such a mechanism would need careful design, with emission targets in mind, especially if the plant does not utilise CCUS'.[17]

The Electricity Market Measures report highlights other countries have put in place incentive regimes for supporting the delivery of firm capacity, including capacity markets in the UK, Australian capacity investment schemes, Alberta's reviewable electricity program, Victorian government renewable auction scheme, New South Wales long term energy services agreements. However, New Zealand differs from these jurisdictions, as our generation fleet is predominantly renewable, we can't import electricity and attracting capital investment is challenging due to sovereign risk, our size and remote location.

The Electricity Market Measures report also draws attention to several measures involving government interventions in the financing of investment such as providing Government funding, underwriting, or regulating levies including:

- Direct government funding or regulation used in other countries for providing support for new renewable generation (paragraph 62).
- Government supporting investment in distribution network capacity ahead of demand by meeting costs until future customers connect. (paragraph 254)
- Government underwriting gas supply in 2004 to enable the construction of a fossil fueled generator. (paragraph 102)
- Capacity mechanism supporting generation projects in Australia by awarding long-term revenue underwriting agreements. (Box 3.)
- 'Central procurement of flexible resources' to increase new entry and reduce market concentration in flexible generation resources, which could be procured or underwritten via central support mechanism such as long-term contracts with costs recovered via levy. (paragraph 176)
- The NSW Government's initiatives for renewable energy zones (REZs) paid for by a consumer levy. (paragraph 370)

As MBIE, the Authority and sector participants are all keenly aware there is a risk these types of measures could create market distortions that adversely impact incentives to invest in electrification and may also impose additional costs that impact affordability.

We need to consider the market mechanisms that support capacity for peak demand and long duration storage

Market mechanisms that support capacity within the energy transition period needs to be considered systematically across fuels, technology, and time to ensure we have sufficient generation and storage when and where we need it. This work needs to start now as it will take time to implement and we are seeing the need for it today in relation to providing winter security.

Addressing security of supply may entail the development of incentives for thermal generation as well as other assets and fuel sources for maintaining security of supply during the transition, particularly as the presence of intermittent generation grows. However, the problem that needs to be solved requires clearer definition before the potential ways an incentive could form part of a solution is assessed.

[17] *Measures for Transition to an Expanded and Highly Renewable Electricity System*, MBIE, August 2023 page 41.

Mercury proposes the following principles for guiding consideration of what more needs to be done:

- The specific parameters of a problem regarding security of supply needs to be defined.
- A full range of proposed options for addressing this problem should be developed including do nothing; no-regrets; and incremental steps that can be tested and reversed if needed; amongst others.
- Criteria for assessing the relative merits of each option should focus on identifying the option that has the lowest cost impact on the wider electricity system, consistent with the goal of decarbonizing the electricity system while maintaining security and reliability of supply.
- The incentive may need to be time bound, with an end date that falls within the transition period.
- The incentive should not undermine incentives to invest in renewable generation and storage that is ultimately expected to replace thermal generation.

Mercury supports industry collaborating with Government, particularly through the Framework, as the fastest way to understand the problem regarding security of supply and identify options with the lowest risk of detrimental impact on incentives, particularly the incentives to invest in renewable generation and storage.

Regulatory frameworks to enable efficient investment in offshore wind and green hydrogen

The consultation package highlights the work underway to develop a hydrogen roadmap and a regulatory regime for offshore wind. Mercury supports Government preparing for the potential development of offshore wind and green hydrogen by ensuring appropriate regulatory regimes are in place. Offshore wind and hydrogen have the potential to contribute to the market from 2035-40.

We note that in most jurisdictions government is playing a role beyond merely developing a regulatory regime by intervening to provide PPAs. It is important to ensure there is consistency in the role government plays across fuels to avoid an unintended consequence of adversely impacting investment in other forms of generation.

Furthermore, there is likely to be additional value in enabling the co-location of offshore wind generation and the production of hydrogen. For instance, if hydrogen production facilities were located near to offshore wind generation to minimize transmission costs, then the resulting green hydrogen produced may fuel industrial uses that may be converting as part of the overall gas transition.

Workably competitive electricity market

Promoting competition along the electricity supply chain is the key means for promoting efficiency and the decarbonization of Aotearoa.

In its consultation paper[18] *Promoting competition in the wholesale electricity market in the transition toward 100% renewable electricity*, October 2022, the Authority concluded that current changes in spot prices appear to be explained mostly by underlying demand and supply factors. This outcome is consistent with a real-world process of a workably competitive market that is effective and that enhances economic efficiency.

MBIE states in the Electricity Market Measures report, paragraph 158:

> *[MBIE] agree[s] with the Authority's and MDAG's view that our evolving generation mix might increase market concentration in flexible generation resources, which might lessen competition in related products or services over time. However, like the Authority and MDAG, we do not have a definitive view that competition is or will be inadequate, but rather that the potential for weakened competition is a risk that warrants further consideration and monitoring.*

[18] *Promoting competition in the wholesale electricity market in the transition toward 100% renewable electricity*, October 2022

Competition issues may or may not arise in the wholesale market in the future as a result of the energy transition, but as noted above current market outcomes are consistent with a competitive market. Mercury considers that if competition issues do arise then the Authority and the Commerce Commission currently have the legislated powers to address it. Furthermore, Mercury considers that measures[19] D1 to D5 proposed by MDAG, if appropriately designed and implemented, should help inform the Authority and Commerce Commission's views regarding the state of competition and inform the development of remedies if required.

Mercury's concern however is that speculating about potential for weakened competition, and suggesting specific solutions before a competition issue is clearly identified raises the risk, firstly, that resources are diverted to speculative high-level solutions and/or, secondly, that a high-level solution is prepared that results in unintended outcomes that harm rather than promote competition in the long run.

Detrimental impact of prematurely intervening in the market

Mercury considers that a regulatory solution implemented in anticipation of an unknown competition issue emerging in the supply of flexible energy could have a detrimental effect on two aspects of economic efficiency.

First, Mercury is concerned that the specification of even a high-level solution, if premature, risks creating a solution that may be overtaken by market developments and become irrelevant. This would result in a one-off reduction in economic efficiency attributable to the cost of specifying a high-level solution. If market developments mean that the high-level solution is no longer relevant, then any anticipated regulatory benefits would not eventuate and off-set these regulatory costs.

Secondly, if a proposed solution distorts incentives and reduces the level of investment in innovative flexible energy storage, generation and demand-side flexibility going forward, in the absence of any problem to solve, then this could have a much more detrimental impact on economic efficiency. This could reduce the range of options and solutions for firming, such as the level of investment in innovative flexible energy storage, generation, and demand response, going forward.

As such, any issue with competition should be clearly identified based on actual market conduct and empirical evidence, not based on speculating on what might or might not happen in the future before any regulatory proposals are proposed. Only then can the costs and benefits of a potential regulatory solution be considered and weighed against risks of unintended adverse outcomes.

We need an open conversation about how retail prices may change through the energy transition

Mercury considers that it is crucial for Government to form an ongoing, forward-looking view of the potential effect of changes in the price of input factors on electricity retail prices. Changes in the price of a range of input factors include:

- Distribution and transmission network prices may change during the transition between regulatory control periods, as network is built ahead of uncertain growth in demand, and network build is designed to improve network resilience.
- Growth in intermittent generation resulting in increased spot market volatility.
- NZ ETS and the price of a tradable emissions unit; and
- Near term inflation, skilled worker shortages and supply chain issues.

[19] The coding of measures reported here follows the coding used by MDAG in the *Price discovery in a renewables-based electricity system Options Paper,* 2 December 2022. See the Options Paper Table 6 for a comprehensive list of the codes and measures. With respect to the coding of the measures noted here: D1 is Develop dashboard of competition indicators for flexibility segment of wholesale market; D2 is Greater transparency of hedge info (esp non-base load) covering offers, bids+agreed prices; D3 is Develop flexibility access code (non-price elements); D4 is Extend trading conduct rules to hedge market; and D5 is Market-making for shaped contract products.

These factors are the result of decisions spanning the Commerce Commission, the Authority, Ministry for the Environment, which impact on the decisions of the distributors, Transpower, retailers and generators.

Even though these changes may be being considered individually, it is also important to consider both the cumulative impact of these changes on electricity prices and the fact the impact may be front loaded in the early stage of the energy transition. The cumulative effect of price changes has the potential to impact affordability of electricity, the rate of electrification, and ultimately support for the decarbonization of the economy.

Mercury's concern is that there is no single view of how the decisions of these sector participants come together and impact in total on retail prices.

Mercury looks forward to engaging with the MBIE and stakeholders.

Yours sincerely,

Head of Wholesale Markets

Annex A: Measures for Transition to an Expanded and Highly Renewable Electricity System – consultation questions

Consultation Questions	Mercury Response
PART 1: GROWING RENEWABLE GENERATION	
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?	Government should carefully consider planning rules to ensure they are not a barrier to getting new renewable generation, transmission and distribution infrastructure built in a timely manner. Electricity market settings should be monitored, and incremental changes made as required particularly to enable demand side management and greater transparency around contracting to ensure the wholesale market remains competitive, for example the recent introduction of trading conduct rules for the forward market, these rules were developed by an industry working group and implemented by the Authority. Most issues and risks can be managed by identifying problems early and working with the sector collaboratively to design solutions and to apply robust cost and benefit analysis. In addition, development of demand side response and demand policy to drive the energy transition through electrification- is important. Examples include ensuring electric vehicle (EV) charging infrastructure can be successfully rolled out and electrification projects for households, businesses and large scale initiatives can be implemented, encouraging load flexibility where possible.
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?	Yes. Globally, as countries move towards renewable electricity systems achieving/maintaining sufficient capacity to cover intermittent renewable generation and increases in peak demand pose challenges. New Zealand is different in that we already have a largely renewable electricity system, and we cannot rely on imported electricity. We need a small amount of thermal to continue to be utilised to cover peaks and potentially a fast start gas peaker likely through until 2050. Research and analysis undertaken by a range of independent advisors including BCG, Concept Consulting and the Climate Change Commission all agree that a small amount of thermal generation will enable New Zealand to decarbonise at pace in the most affordable way. This is important for ensuring there is widespread consumer support for both the Government's climate change commitments and the electricity market. Measures exist on a spectrum from light handed interventions such as clarifying Government will abandon the 100% renewable electricity by 2030 in favour of a focus on decarbonising the economy, through to consideration of capacity type mechanisms

Consultation Questions	Mercury Response
	after careful problem definition, option design (including criteria options must meet) and analysis. More heavy-handed interventions like a capacity market or strategic reserves like those introduced overseas and referred to in the consultation documents, are unlikely to suit our unique situation. See the discussion in our main submission in relation to capacity.
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?	Mercury believes existing and new gas fired peaking is likely to be needed as a transitional measure to ensure New Zealand has sufficient capacity during the renewable transition. We see gas as the least cost, most emissions friendly (in total across the whole economy) way to ensure we transition. The main support required is regulatory certainty about the role of gas as this will help reduce perceived investment risk. Gas generation will only be required until the cost of other flexible storage options (batteries) reduce, and its technical capability and deployment increases through innovation to assist with demand side management (time of use pricing, load shedding), and more renewable generation comes on stream.
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?	No. Competition issues may or may not arise in the wholesale market in the future a result of the energy transition, but current market outcomes are consistent with a competitive market. If competition issues do arise in the future, then the Authority and the Commerce Commission currently have legislative powers to address it. Furthermore, Mercury considers that measures D1 to D5 proposed by MDAG, if appropriately designed and implemented, should help inform the Authority and Commerce Commission's views regarding the state of competition and the development of remedies if required.
21. Should structural changes be looked at now to address competition issues, in case they are needed with urgency if conduct measures prove inadequate?	No. Mercury considers that a regulatory solution based on speculating about an unknown competition issue in the supply of flexible energy could have a detrimental effect on two aspects of economic efficiency. It risks creating a solution that may be overtaken by market developments and become irrelevant. Secondly, it could reduce the range of options and solutions for firming, such as the level of investment in innovative flexible energy storage, generation and demand response, going forward. Both these aspects are expanded on in the body of the submission.
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, as the market is workably competitive. As such any regulatory intervention is likely to be detrimental to economic efficiency of the market as the competition issues are unknown.
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?	No. See answer to question 22 above.

Consultation Questions	Mercury Response
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. See answer to question 22 above.
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, as the market is workably competitive. As such any regulatory intervention is likely to be detrimental to economic efficiency of the market.
PART 5: WHOLE-OF-SYSTEM CONSIDERATIONS	
57. What measures do you consider the government should prioritise to support the transition?	See the key themes in our main submission – particularly those outlined in the Government and sector transition framework.
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.	Collective action is crucial for the success of the transition, and the following current priority themes of the Framework get us started on the items that are 'no-regrets' to set up for the transition. Once up and running, the Framework can help with working through other key priorities that will help create options for the longer term elements of the energy transition.

Annex B: Gas Transition Plan Issues Paper – consultation questions

Consultation Questions	Mercury Response
Chapter Two: Transitioning our gas sector	
1. How can New Zealand transition to a smaller gas market over time?	Mercury considers gas is needed over the transition. It is likely to deliver security and reliability at least cost while driving the fastest emission reductions.
2. What is needed to ensure fossil gas availability over the transition period?	Regulatory certainty around government commitment to the role of gas during the transition. This includes ensuring incentives for investment in the supply of gas and biogas necessary for the transition are maintained and wholesale electricity arrangements continue to support and enable effective participation by gas fired peaking and firming generators in the competitive wholesale market.
4. Does the Government have a role in enabling continued investment in the gas sector to meet energy security needs? • If yes, what do you see this role being?	Yes as outlined in response to Q1 we see the primary role for Government being to provide regulatory certainty by at a minimum removing the 100% renewable electricity by 2030 target. Addressing security of supply may entail the development of incentives for thermal generation to remain economic during the transition, particularly as the presence of intermittent generation grows. However, the problem that needs to be solved requires clearer definition before the potential ways an incentive could form part of a solution is assessed. Mercury proposes the following principles for guiding consideration of what more needs to be done: • The specific parameters of a problem regarding security of supply needs to be clearly defined. • A full range of proposed options for addressing this problem should be developed including: do nothing; no-regrets; incremental steps that can be tested and reversed if needed; amongst others. • Criteria for assessing the relative merits of each option should focus on identifying the option that the lowest cost impact on the wider electricity system, consistent with the goal of decarbonizing the electricity system while maintaining security and reliability of supply. • The incentive should be time bound, with an end date that falls within the transition period. • The incentive should not undermine incentives to invest in renewable generation and storage that is ultimately expected to replace thermal generation. Mercury supports industry collaborating with Government, particularly through the Framework, as the fastest way to understand the problem regarding security of supply and identify options with the lowest risk of detrimental impact on incentives, particularly the incentives to invest in renewable generation and storage.

Annex C: Developing a Regulatory Framework for Offshore Wind – consultation questions

Consultation Questions	Mercury Response
Chapter 6: Economics of the Regime	
11. Is there a risk in offering support mechanisms for offshore renewables without offering equivalent support to onshore renewables? Are there any characteristics of offshore renewables which mean they require support that onshore renewables do not?	Yes. The consultation package highlights the work underway to develop a hydrogen roadmap and a regulatory regime for offshore wind. Mercury supports Government preparing for the inevitable development of offshore wind and green hydrogen by ensuring appropriate regulatory regimes are in place. Offshore wind and hydrogen have the potential to contribute to the market from 2035-40. We note that in most jurisdictions government is playing a role beyond merely developing a regulatory regime by intervening to provide a PPA. It is important to ensure there is consistency in the role government plays across fuels to avoid an unintended consequence of adversely impacting investment in other forms of generation. It makes sense to prepare for utilisation of offshore wind and green hydrogen by developing regulatory frameworks to enable development. In terms of Government direct investment or other support there are likely to be other infrastructure priorities such as roads.