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Meridian submission

Promoting competition in the wholesale electricity market in the transition toward 100% renewable electricity

14 December 2022

This submission by Meridian Energy Limited (**Meridian**) responds to four papers published by the Electricity Authority (**Authority**) under its review of competition in the wholesale market from January 2019 to June 2021:

- *Issues paper: Promoting competition in the wholesale electricity market in the transition to 100% renewable electricity* (**the issues paper**);
- *Information paper: The Authority's response to submissions on the 2021 market monitoring review of structure conduct and performance in the wholesale electricity market* (**the response to submissions**);
- *Information paper: Post implementation review of the trading conduct provisions*; and
- *Information paper: Investment Survey 2022, Concept Consulting report for the Electricity Authority.*

Appendix A of this submission is a table responding to the Authority's specific consultation questions. Appendix B is a letter from Axiom Economics.

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Nothing in this submission is confidential.

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Executive Summary

Meridian broadly agrees with the approach taken by the Authority in its latest issues paper for the review of competition in the wholesale market. In particular, we support the focus on promoting competition in the wholesale market via conduct rules and the promotion of efficient entry and investment for the long-term benefit of consumers. Meridian considers such an approach to be uncontroversial and orthodox as a matter of economics. The approach is also consistent with the Authority's statutory objective under section 15 of the Electricity Industry Act 2010 to promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers.

According to the Authority's interpretation of its statutory objective,[1] the Authority should exercise its functions in promoting competition in ways that:

> "facilitate or encourage increased competition in the markets for electricity and electricity-related services, taking into account long-term opportunities and incentives for efficient entry, exit, investment and innovation in those markets".

The Authority goes on to note, amongst other matters, that:

- competition means workable or effective competition (as opposed to perfect competition);
- efficient entry and exit in markets are not necessarily orderly; and
- workably competitive markets can bring very large benefits to consumers over the long term if they are conducive to entry by innovative suppliers and conducive to efficient investment.

Meridian agrees that:[2]

> "The (threat of) entry or expansion by competitors is one of the most powerful forces to mitigate the exercise of market power. It is a crucial complement to conduct-based regulation of market power, and the Authority's approach to promoting competition for the long-term benefit of consumers."

We are pleased to see the recognition that the generation investment pipeline is not thin and that there has been considerable competitive response to higher wholesale prices.

[1] https://www.ea.govt.nz/assets/dms-assets/9/9494statutoryobjective.pdf
[2] Issues paper, page iii.

According to the work commissioned by the Authority, committed investment is now ~2.5 times the average rate achieved in the last decade. And there is a substantial ~8,000 GWh/year of actively pursued renewable generation that could be in service by 2025. This broadly aligns with Meridian's own perspective on the level of investment activity. Meridian's own investment plans are ambitious – we have announced a target of bringing seven new large-scale renewable generation projects into operation around Aotearoa in the next seven years. The first of our seven projects, Harapaki wind farm in Hawke's Bay, will become operational next year and the next project planned is a grid-scale battery and solar farm at Ruakaka in Northland.

Meridian agrees there are several impediments that have slowed investment in renewable generation and kept wholesale prices at elevated levels. The practical realities of grid-scale infrastructure projects mean that construction alone can take years. Recently, further delays could be expected given supply chain and staffing constraints associated with the pandemic and the war in Ukraine. In addition, before even getting to construction, there are several other factors which have likely delayed investment decisions, including:

- the sudden and unforeseen nature of the gas market issues that first gave rise to higher wholesale prices;
- the lack of demand growth preceding the review period, during which consents lapsed and human resources were redirected elsewhere;
- uncertainty regarding whether gas market issues would persist and the speed of demand growth (including the impact of large industrial consumers like the smelter on total demand and the potential impact of changes in emissions policy); and
- policy and regulatory uncertainty, in particular:
    - whether the Government will invest in large-scale pumped hydro generation (or other storage options) directly, which would significantly impact the business case for some private investments;
    - whether the Government would direct the timing of the retirement of fossil-fuel generation in order to achieve its 100 percent renewable electricity aspiration;
    - whether the reform of the Resource Management Act (RMA) and the ongoing weakness of national direction to enable renewable generation development and associated network infrastructure will make consenting more challenging or impossible in some circumstances; and
    - changes to transmission pricing and the associated uncertainty regarding the transmission costs likely to be incurred by new generation developments.

Meridian broadly supports the identified suite of proposals to reduce barriers to investment in generation. In this submission we provide further background on the reforms of the RMA. The risk of these reforms to generation investment is far greater than the current analysis appears to realise and goes beyond the need for stronger national direction for consenting of renewable generation. There are also considerable transition risks, risks associated with a regime based on strict environmental limits, and risks to competition associated with spatial planning.

We also provide further information on the impact of direct Government investment, or the threat thereof. This is a clear disincentive to invest private capital in peak or dry year support products (on both the supply and demand side). Meridian would welcome the Authority working closely with other government agencies and Ministers to help better inform and guide future policy decisions.

Meridian agrees that the implementation of the trading conduct rules has been effective and the changes in offer prices observed by the Authority are consistent with Meridian's own observations of the market since the implementation of the new rules. We support the Authority continuing to closely monitor and enforce the trading conduct provisions in the Code.

While we are broadly supportive of the direction and proposals in the issues paper, we are disappointed that the issues paper continues to assert that there is "some evidence" that generators "may" have exercised market power during the review period. When an expert regulator uses the word "evidence" and claims it has evidence for a particular proposition, such statements are taken at face value. The public and media reasonably assume that such evidence will be real, that it will be substantial and that it will outweigh any evidence to the contrary that the Authority holds. Otherwise, it would not be fair or reasonable to make such a claim.

Unfortunately, in this case the issues paper and associated material that has come before it have been entirely unclear about what is considered to be the supposed "evidence". The Authority has raised, and then seemingly dismissed a range of data points – set out below – the sum of which seem to indicate that there is in fact *no* evidence that market power was exercised during the review period.

- The regression analysis published in the first consultation identified an uplift in average wholesale prices not explained by the Authority's model. The analysis identified gas supply uncertainty and risk aversion as the likely cause but could not

rule out the exercise of market power or any other number of unidentified drivers. However, an inability to rule something out is not "evidence" of something occurring and both the Authority and its independent peer reviewers confirmed in no uncertain terms that "definitive evidence of the exercise of market power was not found."[3]

- The rest of the structure conduct and performance review published in the first issues paper identified that there may have been increased *incentives* to economically withhold generation and *ability* for generators to do so (unsurprising in a period of tighter supply and demand where thermal fuel was constrained). However, the analysis did not find any evidence any generator actually did exercise market power.
- The Authority has also vaguely referred to previous transient periods where the Authority investigated undesirable trading situations or trading conduct allegations. However, all but one of these periods predated the review period and is therefore irrelevant to the question at hand and the late 2019 UTS was an unprecedented confluence of factors that in no way indicates a sustained exercise of market power and has already been corrected by the Authority, meaning market outcomes ultimately reflected the Authority's retrospectively assessed ideal outcome.
- The issues paper now seems to subtly suggest the only "evidence" market power may have been exercised is the NZAS contract signed in January 2021. However, as noted in this submission the Authority has also stated that it has not in fact made any determination in respect of the NZAS contract.

Given these circumstances it is disappointing that the issues paper continues to assert that there is "some evidence" that market power "may" have been exercised. The use of the word "may" means the assertion is equivocal. However, it does not mitigate the harm potentially caused by such assertions, which are taken at face value and repeated out of context, without equivocation and as absolute and definitive findings of fact by some readers, and thereby used to undermine confidence in the wholesale market.

Regardless of whether statements about the exercise of market power are supported by evidence, Meridian strongly agrees with the Authority's assessment that:

> "Noting the effectiveness of the new trading conduct rule and the scale of actively pursued new investment by independent developers, the Authority considers that

[3] https://www.ea.govt.nz/assets/dms-assets/29/Munro-Duignan-Review-Letter-for-InformationPaper-v2.pdf

> reliance on the current conduct-based measures remains broadly appropriate for the transition toward 100% renewable electricity."
>
> …
>
> "…more fundamental structural options are currently not justified by the available evidence. Further, they would: take considerable time and cost to implement and may not be available during the transition, may or may not be effective in fundamentally improving competitive conditions, and would add uncertainty that would stymie investment."

Finally, in Meridian's opinion, it is futile to speculate on whether market power is likely to increase in the transition to a more renewable power system. It will be difficult to undertake any meaningful analysis of competition in a hypothetical future market. We do not know how the market will evolve over the coming years. If seasonal flexibility or peaking services become highly concentrated, then the issue should be considered as and when it arises. The regulator should remain mindful of this as the market evolves but it would not make sense now to attempt to solve an unspecified problem that may or may not arise in future. It seems more likely to Meridian that the future of the market will involve a range of diverse flexibility sources competing with hydro operators for seasonal and peaking needs.

Meridian supports the focus on promoting investment

The issues paper appears to have moved away from the previously static analysis of the market that sought to test generators' offers against the Authority's estimates of their short run costs. The focus of the issues paper is now rightly on assessing the extent of generation investment in a dynamic market and on promoting generation investment to encourage efficiency over time.

The report from Axiom Economics appended to Meridian's first submission on the review of wholesale market competition noted that analysis of generators' offers against estimates of short run costs is a fraught exercise and unlikely to deliver meaningful insights into the state of competition. That is because it is impossible to produce objectively robust estimates of short run costs, given the complexities involved in measuring opportunity costs in New Zealand's hydro-centric system. As Axiom explained, those assessments are of little or no probative value and a better way to gauge the state of competition in the wholesale market is to consider long-term dynamics through a lens of workable competition.

Meridian considers the strongest indicator of a healthy and competitive wholesale market to be investment in new generation. New entry should ensure that over time spot prices do not for long exceed the cost of new entrant generation.

It is extremely positive that the Authority is turning its attention to the investment environment. Investment in new generation is the clear solution to correct any supply and demand imbalance. New entry, or the threat thereof, also mitigates any ability of participants in a market to exercise market power on a sustained basis. The consideration of whether investment barriers can be removed or there are other means of unleashing investment, will almost always be a low-cost and low-risk approach to promote competition for the long term benefit of consumers.

The immediate investment pipeline appears to be more than adequate

The Authority has gone from saying the pipeline of new investments is thin to acknowledging that there is an awful lot going on. There were signs of this a year ago at the time of the first report in this review, but it is reassuring that the Authority has now looked at the matter in greater detail and observed the increased activity.

From Meridian's perspective, the New Zealand electricity market went through a period of massive system overbuild from 2007 to 2013. This created persistently low wholesale market prices for around eight years and the capital risks involved in generation investment became apparent with a series of asset valuation losses and write-downs. In total approximately 10,000GWh of new generation was added to the system over this time, while total electricity demand grew only 300GWh. Consequently, from 2014 to 2019 there was limited new generation investment, as investors took a more cautious approach. However, since 2020, the dynamic has shifted completely. The market has now committed around $3 billion in new generation, and we can see another $2 billion that is likely to be committed over the next few years. The new generation built, committed, or highly likely since 2020 will add 7TWh of new generation to the power system (approximately a 16 percent increase on all current supply).

It is encouraging that the Authority is seeing even more investment on the horizon. According to the Authority:[4]

> Committed investment is now ~2.5 times the average rate achieved in the last decade. And there is a substantial ~8,000 GWh/year of actively pursued renewable generation that could be in service by 2025.

For context, the Climate Change Commission's demonstration pathway for actions identified as being critical for meeting the 2050 targets, assumes 3.8TWh of currently committed generation projects being built between 2020 and 2024, followed by 1TWh per year of additional wind, solar and geothermal generation from the late 2020s. The market seems well on track to exceed this target. The Commission's advice models a hiatus in new generation demand from 2025 to 2030 on the assumption that electricity supplied to the Tiwai Point aluminium smelter will become available to the grid upon an assumed closure in 2024. However, given recent announcements[5] there is a possibility that significant additional renewable generation will be required before 2030 and the level of investment activity seems to reflect that possibility.

The Authority should be further encouraged by the fact that 78% of the 'actively pursued' projects it has identified are those pursued by non-incumbent investors.

[4] Issues paper, page iii.
[5] www.nzas.co.nz/files/3841_2022072875725-1658951845.pdf.

Meridian agrees that several impediments and uncertainties have been slowing down generation development and price relief

Meridian agrees that impediments to entry can delay the convergence of electricity prices to the long run cost of new supply. The Authority seems to ponder the question of what would constitute efficient entry noting that "by standard competition benchmarks, entry or expansion should be within two years following a price increase to be regarded as sufficiently timely to constrain the exercise of market power."[6] To its credit the Authority also notes that this benchmark will be difficult to meet in the electricity sector, due to the nature of investments and the current regulatory requirements that impede speed.

Generation investments are large infrastructure projects that require various arrangements to be in place prior to making any investment decision, including:

- rights to land;
- supply agreements for components (which are currently under pressure from international supply chain constraints);
- resource consents
- transmission works agreements; and
- capital arrangements.

The scale and complexity of these projects means that delays are not unusual. Furthermore, even once an investment decision is made, it can take up to three years to complete construction and commissioning. These timeframes mean some lag may be inevitable in multi-year infrastructure construction projects. It will also always be a challenge for developers to try to pre-empt favourable market conditions for investment or chose to take on greater risk. The alternative is to wait until market conditions are more likely to deliver a return on investment. This is not an exercise of market power but a question of the risk appetite of investors.

Meridian agrees with the Authority's assessment that:

> "The acceleration of investments in the pipeline, particularly by new parties, suggests that the investment response is consistent with competitive entry under uncertainty and a sequence of events:
>
> - investors could initially not be sure whether price rises in 2018 and 2019 linked to unexpected gas field outages would persist

[6] Issues paper, para 4.45.

- there was also uncertainty about the future of the smelter, so that investment could mean a period of oversupply in case of the smelter exiting, until demand recovered
- the economic case to invest in renewable generation was boosted more recently by material increases changes in fossil fuel costs and carbon prices (see Box 2)
- there remains considerable uncertainty and this increases option value – that is, investors have an incentive to wait-and see:
  - NZ Battery decisions could reduce future wholesale electricity prices, which would destroy the business case for certain investments
  - the timing of exit of fossil-fuel generation and the firmness of the government's aspiration on 100% renewable electricity, the answers to which will affect future wholesale prices
  - the ongoing supply-chain issues and elevated input costs, which delay completion and may cause projects to be shelved until economics improve
  - how quickly demand will in fact rise in response to climate policies, after an extended period of flat demand."

This view mirrors that of Axiom Economics that "there are many good reasons for investors to have been reluctant to invest over the last few years, despite the returns ostensibly on offer. These can be expected to have contributed to the 'lag' that we are now observing."[7] As examples, Axiom referred to Tiwai uncertainty, uncertainty over thermal fuels and decarbonisation policies such as the offshore exploration ban, 100 percent renewable electricity target, Gas Transition Plan, Transmission Pricing Methodology, the NZ Battery Project, and the threat of structural intervention in the market (especially for large generators where the suggestion seems to be that they shrink market share rather than invest in more generation).

Meridian would add to this narrative that the Pohokura gas field outages at the start of the review period occurred suddenly and were unforeseen. They occurred after a sustained period of almost no demand growth where generators may have efficiently scaled back their generation development teams, and new generation options may have lapsed. While such cost savings in a time of generation surplus would have been good for consumers at the time, it also means that generation development in the face of a sudden change in the investment environment was beginning from a standing start. Older generation options would have needed to be refreshed at pace.[8]

[7] Axiom report, page 45.
[8] It is worth noting here that the RMA by default requires a consent to be exercised within five years or the consent lapses.

Many of the impediments identified by the Authority have been overcome, or investments have been made in spite of the impediments. While we cannot speak for others, Meridian's development team has been through a period of rapid growth and is now at strength and actively pursuing a diverse portfolio of options. From what we can observe, other generators are also in growth mode and have the expertise and resourcing in place to ensure a strong pipeline is maintained and new generation is delivered in a timely fashion.

The Authority also notes that forward prices remain above the cost of entry despite the emergence of a strong investment pipeline and speculates that the cause may be a perception amongst those trading futures that the pipeline may not yet be a credible substitute for flexible fossil fuelled generation (e.g., during extended periods of low wind and sun). That may well be the case and could be exacerbated by the inability of new thermal peakers to make a business case in the current environment where the Government may intervene to directly fund peaking and dry year generation (Onslow) or curb the use of certain fuels (rather than rely on carbon pricing). This could mean existing baseload thermal generation remains in the mix for longer rather than thermal generation transitioning to only being used for peaking and dry year support.

It is also worth noting that forward prices above the cost of new entry is not necessarily how investors would consider the equation. Generation investments need a long-term expectation of return looking beyond immediate market conditions and beyond the ASX forward curve. This means that elevated prices in the short term might be offset by an expectation of lower prices on average in the more distant future (in say years 5 to 20). Expectations of price participation for intermittent generation must also be factored in and if a decline is expected then prices would need to be higher in the short term to make a business case.

The wide range of impediments causing investment delays noted by the Authority and by submitters would have occurred regardless of the state of competition in the wholesale market. Some delays are inherent in the scale of investments and infrastructure construction. Some delays are the product of imperfect information about the market, which will always be the case to some extent. There will always be investment risk and it is normal for any market to go through times of scarcity and times of abundance. Other delays are associated with regulation and Government policy. As the Authority rightly points out, if regulatory impediments are working as intended, then any higher electricity prices linked to slower entry may be regarded as a legitimate cost of the objectives of those regulations.

In Meridian's experience there is no truth to the suggestion that the behaviour of incumbent generators is slowing investment

The only suggestion that entry may not be an effective constraint on wholesale prices and the sustained exercise of market power was a question in the issues paper that queried whether incumbents were acting on an incentive to slow down investment, as "new supply reduces prices and cannibalises revenues from existing assets."[9]

Meridian agrees with the Authority that there is "currently no evidence that is suggestive of anti-competitive behaviour by incumbents aimed at discouraging entry"[10] and that:[11]

> "Neither the scale of new investment being actively pursued as indicated by the new data discussed above, nor the majority of qualitative comments from interviews, are suggestive of anti-competitive behaviour to discourage entry – if such behaviour does occur, it does not seem particularly effective."

Any developer can enter the market for new generation if they see an investment opportunity that others do not (or are more open to risks or have a different view in respect of the timing or speed of demand growth).

In Meridian's experience it would be a poor business strategy to forego a growth opportunity and market share. There is more than enough competition from other incumbent generators and new entrants such that if Meridian does not invest then others will grasp the opportunities. A strategy to delay investment would be ineffectual and would result in a loss of market share and potential revenue growth. Meridian's board and shareholders would have serious concerns if that were to occur.

[9] Issues paper, para 4.40.
[10] Issues paper, page iv.
[11] Issues paper, para 4.41.

Meridian is broadly supportive of the Authority's proposed actions

Options proposed in the issues paper to constrain the exercise of market power

Authority proposal	Meridian comments
Continue proactive monitoring and enforcement of trading conduct in the spot market, and investigate the application of trading conduct rules to the forward market.	Meridian supports the Authority's proposal to continue proactive monitoring and enforcement of trading conduct in the spot market. This is entirely sensible and critical if the apparent success of the trading conduct rules (evident from the post-implementation review) is to be bedded in and continue over time. Meridian would also like to see the Authority prioritise enforcement action so that the Rulings Panel has opportunities to apply the trading conduct rules and both the Authority and participants become more familiar with what is required. The suggestion that the Authority also investigate the application of trading conduct rules to the forward market raises some questions. We expect that upon closer investigation, the Authority may realise there is limited case for trading conduct rules in the forward markets. There is extensive market making in the forward markets which means generators are required to offer to buy and sell at the same time with a tight 3% price spread. A generator cannot price up its bids without also pricing up its offers. This makes it effectively impossible to exercise market power (if such power existed). Meridian considers it unlikely that any generator holds significant market power in the forward markets. Participants in forward markets include large international banks with far greater resources than New Zealand-based participants and those financial participants are not restricted by market making requirements. It is also impossible for the Authority to impose trading conduct rules on non-participants in the electricity market, i.e. financial participants and speculators on the futures market.

	The Commerce Act and reforms to section 36 also apply generally to prohibit conduct that has the purpose, effect, or is likely to have the effect, of substantially lessening competition in a market. This is an effective constraint on conduct in the forward markets and does not require duplication through conduct rules in the Code, which by necessity would be more generic than the specific trading conduct rules for the spot market and ancillary services.
Investigate mechanisms to accelerate the development of the demand response market (in addition to its current work programme directed at this, eg, real time pricing and empowering consumers to participate in the electricity system in new ways).	Meridian supports this proposal.
Conclude the current consultation on the proposal to prohibit inefficient price discrimination in very large contracts and, following the consultation process, determine whether to implement a disclosure, monitoring, and voluntary clearance regime.	Meridian has provided a submission in response to this consultation. In summary, while Meridian does not consider there to be a real problem to address, the proposal may be workable subject to several clarifications and improvements to the drafting of the Code.

Clarify disclosure requirements (and consider amending the Code to provide certainty about such requirements) about current or expected constraints that could impact generation capacity, and arrange a centralised location for disclosure.	Meridian strongly supports this proposal, particularly in respect of thermal fuel information disclosure. Meridian has long advocated for improved thermal fuel information disclosure. We were disappointed that the last time the Authority considered improvements the result was not to increase disclosure but instead to increase the burden on all major participants (as defined in the Code) to carry out quarterly reporting to the Authority. It is not clear to us whether quarterly reporting serves any purpose or is helping the Authority to make the case for amendments to the exceptions in the Code that allow thermal fuel information to not be published. We would welcome further consideration of this.
Explore better information sharing processes and obligations with the Commerce Commission on any information the Authority collects that may raise concerns about restrictive trade practices, collusion, or misuse of market power.	Meridian supports this proposal and notes the synergies with section 36 of the Commerce Act and the point above that conduct rules outside of the spot and ancillary services markets would likely just duplicate the Commerce Act requirements.

Options proposed to facilitate investment in new renewable generation

Authority proposal	**Meridian comments**
Undertake regular monitoring of progress on generation investments, and an annual update of the investment pipeline and impediments.	Meridian supports this proposal as it is low cost and low risk. We note that the Authority could go further to act as an advocate for the sector in seeking to reduce across government the regulatory and policy impediments to investment in new generation.

Regularly collect information on offtake and 'firming' agreements (and if feasible declined requests) to understand and build the evidence base about the nature and scale of current and emerging access issues reported by developers of new generation.	Meridian supports this proposal but encourages the Authority to think about the aggregate costs of the information disclosure burden it is increasingly placing on the industry. That in itself could become an impediment if not carefully managed and assessed to ensure the benefits of information collection outweigh the costs. We note that access to offtake and firming agreements is not an impediment to investment by Meridian and that Meridian makes investment decisions as though it is a merchant generator with no offtake or firming agreements (or retail book) in place. It is not clear to us there is any problem here to be overcome – access to capital is an inevitable commercial hurdle, not one that needs to be addressed by regulators. Retailers have a natural commercial incentive to contract for offtake from independent generators if the price is right and there are examples of this in the market. It is not clear to Meridian whether there are any barriers, and we query whether there would be benefits to consumers if there is a broader expectation or requirement that parties with access to firm energy de-risk the investments of independent intermittent generators. Meridian does not know how this aspect of the market will evolve and monitoring seems like the right approach for the regulator at this time. It is worth noting that firming services are challenging to value and will likely be increasingly valuable to the market as a whole – for example, from a system perspective, firming undertaken in the spot market or ancillary services markets ensures that firming is efficiently allocated to the residual of all variable plant movement, rather than to the response of just one plant (i.e. the net movement of aggregated intermittent plant is likely to be less than the movement of one plant).
Improve the Electricity Hedge Disclosure System to improve its functionality and make contract details more transparent.	The substance of this proposal is not entirely clear, but Meridian supports improvements to the functionality of the site, which is relatively basic and due for a refresh.

Investigate and test the case for providing or requiring longer-dated futures (for instance products traded on the ASX).	Meridian is open to such an investigation and has noticed increased interest in long dated bilateral hedges. It would be relatively simple for the ASX to list new products on the exchange. However, it is not clear whether the Authority has any ability to ask the ASX to do so. There has been a suggestion for some time that the ASX should list cap products, yet that has not eventuated to date. We note that there is a significant difference between listing products on an exchange for transactions between willing buyers and sellers compared to a requirement to provide market making for additional products. As the Authority will be well aware (given the funding of the new commercial market maker) the costs to market make additional products could be significant and could outweigh the benefits which are far harder to quantify given the ability for products to be transacted bilaterally or voluntarily on an exchange (if they were listed). We note that quarterly peak load futures, average rate baseload quarterly options, and calendar year baseload strips are currently listed on the exchange without any market making.
Analyse thermal generation transition risks in the context of demand to 2030, its role in hydro firming and more prevalent solar and wind generation, and options to mitigate transition risks.	Meridian supports this proposal and notes the overlaps with other workstreams including the NZ Battery Project and MDAG's work on price discovery in a 100 percent renewable electricity market.

We respond to the options that the Authority has invited other government entities to consider in the following section of this submission.

Policy settings are a potential impediment to investment

In Meridian's opinion, the two main impediments to generation investment are:

- resource consenting requirements and uncertainty regarding the resource management reforms; and
- uncertainty regarding the Government's intentions to intervene directly in the market to supply electricity generation.

This section of Meridian's submission focuses on those two policy impediments before touching briefly on the others identified in the issues paper.

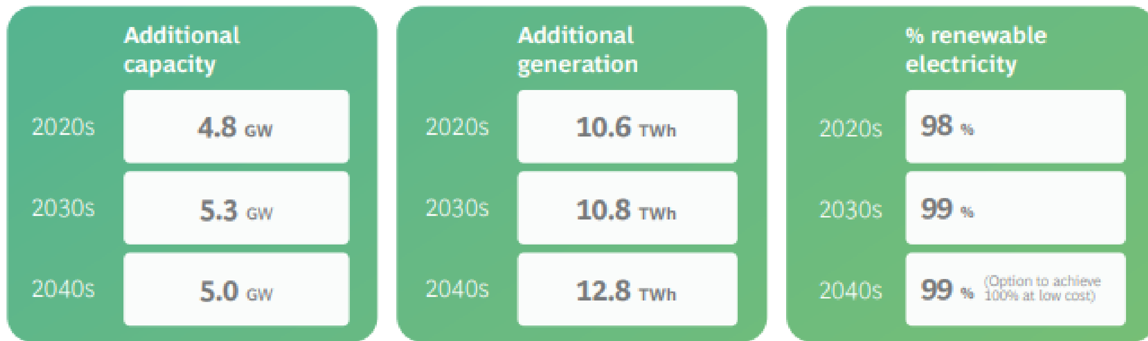
Resource management reforms are critical

The Authority has invited:[12]

> "MBIE and the Ministry for Environment to bring forward their work to strengthen national direction for renewable electricity to inform local planning and resource management consenting. This should reflect the government's 100% renewable electricity aspiration, electrification and renewable energy goals, and the implications for the amount of investment in renewable generation that needs to occur."

Meridian agrees that there is a need for stronger national direction. This has been the case for some time. The need is even greater now that the sector has a better appreciation of the scale and pace of generation (and network) investment required to achieve emissions reduction targets across the wider economy. Furthermore, the establishment of a National Planning Framework (NPF) pursuant to the Natural and Built Environment Act (NBEA) increases the imperative. This national direction will apply to both new renewable development and to reconsenting processes for existing renewable infrastructure. The figures below from the recent Boston Consulting Group report *The Future is Electric* provide a sense of the scale of investment required over the next few decades:[13]

[12] Issues paper, page vi.
[13] https://web-assets.bcg.com/18/8c/583cf435404491fdcf5614ddd415/the-future-is-electric-full-report-october-2022-new-zealand.pdf



The issues in the consenting space are considerably broader than just national direction. Meridian is concerned that the transition to a new legislative framework could make it slower, more costly, and more challenging to consent renewable generation rather than improve the situation. Implementing the protectionist "System Outcomes" in the NBEA from commencement but relying on later NPF direction to allow for infrastructure and decarbonisation investment as well as reconsenting processes is highly fraught. No one wants to see a 'lost decade' of renewable generation consenting, yet that is a real risk and one that Aotearoa cannot afford if we are serious about emissions reductions.

The need for stronger national direction

The current National Policy Statement for Renewable Electricity Generation[14] (NPS REG) took effect in May 2011 and reflects a relative lack of urgency and priority regarding the enabling of renewable generation. The NPS REG refers to a clearly outdated "strategic target that 90 per cent of electricity generated in New Zealand should be derived from renewable energy sources by 2025 (based on delivered electricity in an average hydrological year) providing this does not affect security of supply."

The sector has long called for stronger national direction. For example, Meridian's June 2018 submission on the Productivity Commission's Low-emissions Economy inquiry[15] noted the potential barriers to renewable generation investment and the pressing need for decision-makers under the Resource Management Act (RMA) framework to be provided with clear policy direction regarding how New Zealand should provide for and manage

[14] https://environment.govt.nz/assets/Publications/Files/nps-reg-2011.pdf
[15] https://www.productivity.govt.nz/assets/Documents/lowemissions/4e01d69a83/Productivity-Commission_Low-emissions-economy_Final-Report_FINAL_2.pdf

renewable electricity generation. Meridian went so far as to provide a suggested redraft of the NPS REG. The Productivity Commission went on to recommend that:

> "The Government should give priority to revising both the NPS-REG and the NPS-ET to ensure that local authorities give sufficient weight to the role that renewable electricity generation and upgrades to the transmission network and distribution grid will play in New Zealand's transition to a low-emissions economy. This will likely require making the language of the NPS-REG and the NPS-ET more directive, and to be more explicit about how the benefits of renewable electricity generation should be recognised and given effect in regional and territorial authority planning instruments."

Over four years later, the industry is still waiting for stronger national direction.

The current NPS REG provides only weak guidance to councils who will exercise vague discretions in decision-making for renewable generation projects. The weakness in the NPS REG is especially apparent when compared to stronger national direction like that under the National Policy Statement for Freshwater Management and the draft provisions of the National Policy Statement for Indigenous Biodiversity. In Meridian's experience, this means that other priorities (e.g. freshwater quality, biodiversity, or landscape values) can undermine existing renewable electricity generation and limit or veto new developments. As an example, the majority decision issued in the Project Hayes Environment Court hearing was that the Court was not persuaded that the national benefits of the wind generation project outweighed the local adverse visual impacts. The Court also wanted to consider a range of alternative electricity generation options rather than grant consent. It is vital that the national direction on infrastructure to support decarbonisation is at least as strong as the direction regarding environmental limits that will hinder that development. At the moment, the balance is moving in the wrong direction.

A weak NPS REG is not only an issue for investment in new renewable generation but also for reconsenting existing renewables, particularly large hydro assets, where there is pressure from other water interests to reduce generation and storage. Incrementally undermining the foundational and flexible role that hydro generation plays in the electricity system would limit the ability of the system to incorporate more intermittent renewables. Hydro generation capacity is flexible and dispatchable and therefore can respond to demand peaks and the intermittency of other renewable generation sources.

Meridian understands that the Government's intention is to include direction in the National Planning Framework under the recently introduced Natural and Built Environment Act.

clause 58 of the Bill states that the national planning framework must include content that provides direction on enabling renewable electricity generation and its transmission.[16] However, the details of this national direction are yet to be seen.

Wider issues with the transition to a new legislative framework

The Natural and Built Environment Bill was recently introduced to Parliament, and we are still reviewing the contents but from what we can see there remain several unresolved issues:

- The Bill proposes hard environmental limits that must be complied with, regardless of any emissions reduction benefits of a development. This approach risks ruling out development in a wide range of settings.
- Currently a resource consent for a reconsented hydro scheme would be limited to 10 years in duration.
- The "System Outcomes" in clause 5 of the Bill are very strong when applied to natural values, requiring "protection" and "restoration". The weak words regarding climate change only require a "reduction" in greenhouse gas emissions, and "provision" of infrastructure services.
- It is not clear yet how the proposed national direction on enabling renewable generation and transmission in the NPF will interact with this strict limits-based framework in the Bill. Nor is it clear the timeframe on which stronger national direction will be delivered and whether it is a precondition to the new Bill taking effect.
- In respect of the national direction itself, it is critical that the language used is strong and directive so that there can be no doubt in the minds of local authorities and the courts that renewable generation is a priority to enable economy-wide emissions reductions. The direction should apply to both new and existing renewable generation and recognise the scale of development that is required to achieve national emissions reduction targets.
- We understand that the Government's intention is for a Spatial Planning Act to sit alongside the NBEA. The spatial planning approach that seems to be intended for the Regional Spatial Strategies (RSS) is problematic because no one knows now what generation development will be most economical in future. Generation developers operate in a dynamic, innovative, and highly competitive environment meaning the technology choices and investment opportunities of the future are not known today. It would be unreasonable, in our view, to assume any government

[16] https://www.legislation.govt.nz/bill/government/2022/0186/latest/LMS783198.html

body could anticipate and realistically zone for what needs to be built and where. Planning documents are slow to respond to changing market conditions and consumer needs and tend to be reviewed on a decadal cycle. Furthermore, spatial planning for generation developments would risk picking winners amongst competing generation developers, each of whom has existing options on the ground now and would lobby for recognition of their options in spatial plans.[17]

- The process for developing RSS provides no effective opportunity for the involvement of generation developers and operators and lacks simple natural justice features such as expertise of the decision-makers and a requirement to evaluate the evidence.
- Even in the best case scenario where the end state of the reforms delivers an ideal outcome that enables renewable electricity generation and transmission, there will still be a considerable period of uncertainty through the transition that will be challenging to navigate and is likely to increase costs for generation investors. The sooner the Government can provide certainty on the framework as a whole, the better investment outcomes will be.

Meridian will continue to engage with the Government and in Parliamentary processes for the proposed legislative changes.

Meridian encourages the Authority to take a greater interest in this topic and to have a proactive role with other government agencies as an advocate on behalf of the industry for improved outcomes.

Pro-competitive conditions on consents

As an aside, the Authority also invited MBIE and the Ministry for Environment to investigate the evidence for, and merits and feasibility of, applying pro-competitive conditions on consents for renewable generation (use-it-or-lose it). We note that the RMA already contains use-it-or-lose it provisions with a presumption that consents lapse after five years if they have not been exercised.[18] Section 272 of the Natural and Built Environments Bill as

[17] It is worth noting that we see a similar risk that nationwide competition for generation development has the potential to by stymied by Transpower's proposal to implement Renewable Energy Zones (REZ) to coordinate transmission investment. This could determine what generation gets built when and disrupt the standard process of nationwide competition to develop the least cost generation options at pace. For further detail see Meridian's submission here: https://www.transpower.co.nz/renewable-energy-zones-consultation-responses-2022

[18] See section 125 of the RMA: https://www.legislation.govt.nz/act/public/1991/0069/latest/DLM235211.html

introduced contains the same presumption. Therefore, it seems there is no need for the Authority's invitation to look further at this because it is already a part of the framework.

We would nonetheless challenge the presumption in the Authority's invitation that applying pro-competitive conditions on consents for renewable generation would be inherently positive for consumers. The fact that consents have to be exercised generally within 5 years before they lapse is part of the reason why on-the-shelf options were scarce following a decade of no demand growth. There is a balance to be struck between competition for development sites on the one hand and the ability to quickly respond to market conditions and the lead in times which are required for significant investment and build decisions on the other. Large scale renewable development projects are often affected by influences beyond the control of developers (i.e. exchange rates, labour, pricing of componentry, electricity demand, and wholesale prices) and a longer period to exercise a consent would lead to more efficient outcomes than constantly consenting short-dated options on the same site.

While use-it-or-lose it conditions on consents in respect of contestable public resources like freshwater or coastal space may have merit, use-it-or-lose it conditions would not seem to us to be a particularly effective pro-competition mechanism for the generation developments that are anticipated over the next few decades (largely wind and solar) where the underlying land and development potential for the land is "owned". The Authority seems to have in mind some benefits from discouraging the banking of development options; however, in our experience option "banking" is not a real problem and if a wind or solar developer wanted to do that it could always acquire rights to land. That being the case, use-it-or-lose-it provisions on resource consents would not be an effective way to limit the banking of generation development options and would simply increase the costs of generation development with no corresponding competition benefit.

There is uncertainty regarding the role of direct Crown investment in the market and whether interventions will fundamentally alter the market

For many years the Government has pursued an "aspirational target" of 100 percent renewable electricity generation. The ambition of the target has increased over time so that it is now to be achieved by 2030 rather than 2035 and the caveat of 100 percent "in a normal hydrological year" has been dropped. The target has become something more than an aspiration as the Government has contemplated direct investment in the electricity market

via the NZ Battery Project, in particular considering a large-scale pumped hydro scheme at Lake Onslow.

This agenda has been pursued despite advice to the contrary from several independent advisors to the Government and despite widespread opposition from the industry. The Government asked the Interim Climate Change Committee to provide advice on planning for the transition to 100% renewable electricity by 2035. The Committee responded that:[19]

> "Going from 99% to 100% renewable electricity by overbuilding would avoid only 0.3 Mt CO2e of emissions at a cost of over $1,200 per tonne of CO2e avoided. It is also likely to result in much higher electricity prices than in the business as usual future."
> …
> "The Committee therefore recommends that the Government prioritises the accelerated electrification of transport and process heat over pursuing 100% renewable electricity by 2035 in a normal hydrological year."

Even earlier than that the Productivity Commission considered the same issue and concluded that:[20]

> "Given technological uncertainty and the importance of electricity prices for the adoption of low-emissions technologies in other parts of the economy, the Government should not favour particular electricity generation technologies. It should also be cautious about setting stringent targets for electricity-sector emissions before technology becomes available to further reduce emissions at reasonable cost. The Government should, instead, through the NZ ETS, rely mostly on effective emissions pricing to guide investment in new electricity generation."

More recently the Infrastructure Commission has flagged that:[21]

> "The prospect that the Government may provide hydro firming through a large pumped hydro storage scheme at Lake Onslow could feasibly increase dry year risks in the interim if it stalls private sector investment in other forms of hydro-firming generation."

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[19] https://ccc-production-media.s3.ap-southeast-2.amazonaws.com/public/Advice-to-govt-docs/ICCC-accelerated-electrification-report.pdf
[20] https://www.productivity.govt.nz/assets/Documents/lowemissions/4e01d69a83/Productivity-Commission_Low-emissions-economy_Final-Report_FINAL_2.pdf
[21] https://www.tewaihanga.govt.nz/assets/Uploads/Energy-Sector-State-of-Play-Discussion-Document-February-2021.pdf

Meridian supports the Authority adding their voice to other expert advisors and calling for greater clarity regarding the Government's intentions. The Authority has invited "MBIE to bring forward the completion of the Gas Transition Plan, Energy Strategy, and NZ Battery project, as reduced uncertainty would contribute to more renewable generation investment and so lower prices sooner." We agree. However, while greater certainty will undoubtedly help, a clear decision to invest in large-scale pumped hydro (or phase out gas too quickly) would also risk harm to consumers in Aotearoa.

The electricity market relies on significant investment of private capital to deliver generation to meet growing electricity demand. According to recent analysis by the Boston Consulting Group (BCG), in the 2020s alone, the industry will need to invest "$10.2 billion in 4.8 GW of new utility-scale renewable generation capacity–more than a 50% increase on installed capacity in the system today" as well as "$1.9 billion in new flexible generation and demand resources to cater for peak demand periods and dry years. This represents 4 times the supply-side flexible capacity that was developed in the 2010s."[22] As BCG makes clear "Lake Onslow's development, or even speculation that the project may go ahead, could impact investment in both interim and future flexible capacity." Concept Consulting who partnered with BCG on the report was even more explicit, stating:[23]

> "A mega-scale flexibility project will 'crowd out' other forms of flexibility provision. For example, it will substantially reduce the returns for investing in demand flexibility at the Tiwai aluminium smelter, or in a potential hydrogen production facility. This will reduce the international competitiveness of electricity-intensive commodity industries for whom flexibility is a practicable option. It will also likely crowd-out potential investment in additional fast-start peakers or other equivalent sources of flexibility which our modelling indicates could be required even before 2030."

Concept's August 2021 review of the generation environment carried out for the Authority also noted the example of Todd Generation's Otorohanga peaker (360 MW) which has been consented but is "likely to be affected by the government target of achieving 100% renewable electricity by 2030."[24]

In the recently published consultation on options for Winter 2023 the Authority noted an immediate challenge for the market, stating "it is not total generation capacity but availability

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[22] https://web-assets.bcg.com/18/8c/583cf435404491fdcf5614ddd415/the-future-is-electric-full-report-october-2022-new-zealand.pdf
[23] https://www.concept.co.nz/uploads/1/2/8/3/128396759/which_way_is_forward.pdf
[24] https://www.ea.govt.nz/assets/dms-assets/29/Concept-Report_-Review-of-generation-investment-environment-v3.pdf

of sufficient flexible generation (and demand response) at peak times that has been the issue". The Authority acknowledged that the wider problem is that "Investment in new flexible generation and demand response solutions are needed." In Meridian's opinion, a key driver of the current winter peak capacity risks is that anyone looking to invest in fast-start peakers, or demand response options will struggle to make a business case stack up due to the threat of the Government intervening with a large-scale pumped hydro investment. If a government investment of the scale of Onslow was to be commissioned in 2030, then any investment today in flexibility or dry year assets with a (say) 20-year life would only have seven years prior to the commissioning of the Government's option to earn a return on investment and would not likely be profitable.

The Government's uncertainty casts a long shadow over private investment in peak capacity or demand response, but so too would a decision that the Government will invest. The economically logical response from private investors in dry year and peak capacity is to wait and see. It will be even more economically logical to not invest if a decision is made by the Government to build Onslow or something similar by 2030. A lack of investment in peak and dry year flexibility during the 2020s will lead to sub-optimal outcomes for consumers. To be clear, the market has not failed here – it is the policy uncertainty and threat of Government intervention in a non-economic way that has created a distortion.

The Authority almost puts its finger on the issue when it states that:[25]

> "A further potential reason for the persistence of prices above the cost of new supply is that developments currently in the pipeline may not yet be a credible substitute for flexible fossil-fuelled generation (eg, during extended periods of low wind and sun). Forward prices above the cost of new supply thus may reflect the ongoing use of fossil-fuelled flexible generation (forecast to become more expensive to run due to rising carbon prices) and the market's perception of continued supply scarcity relative to forecast demand."

In Meridian's opinion, there is slightly more nuance to the Authority's speculation about forward prices. Those prices could reflect a situation where the market sees an ongoing need for gas peaking (or other sources of flexibility like demand response) in the 2020s but also sees that there is little incentive to invest private capital in projects that could subsequently be crowded out by the Government. Ongoing peak scarcity is the likely result with slow-start thermal generators remaining in the system longer than would otherwise be

[25] Issues paper, page iv.

the case but struggling to meet peak demand needs. To alleviate the situation, the Government needs to provide a pathway for investment in new gas peakers, biofuel peakers, and/or demand response so that baseload thermal generation can retire. The best way to provide that pathway would be for the Government to simply and unequivocally state that it has no intention to invest in dry year or peak generation and storage itself, signalling that the market needs to deliver security and reliability itself through investment of private capital. Meridian is confident that the market can, and would, respond to deliver a superior outcome for consumers.

Meridian's view here is consistent with the BCG report, which finds:[26]

> "A suite of low-cost solutions that maintain optionality is required to meet New Zealand's system stability, peak capacity, and dry year energy needs, and support an electricity sector comprised of more than 98% renewables".

Meridian would welcome the Authority working closely with other government agencies and Ministers to help better inform and guide future policy decisions. Meridian is encouraged to see the independent recommendations to government in the issues paper and hopes that this continues.

Meridian supports the comments on gas information disclosure, but the Authority could do more here

The Authority asks MBIE to progress work to improve disclosure of information on availability of gas for electricity supply, in particular an amendment to the Electricity Industry Act 2010 so that section 46 powers include parties in industries critical to security of electricity supply, and in particular the gas industry. Meridian supports this proposal.

As noted elsewhere in this submission, the Authority should also improve information disclosures using its existing powers to regulate electricity market participants that hold thermal fuel information. Meridian has always found it perverse that hydro generators make extensive disclosures to the market about their stored fuel, while thermal generators make almost no information public. A more informed market would deliver more efficient outcomes, in particular as participants managing hydro storage will better understand the risks and opportunity costs associated with their storage management decisions. Currently

[26] https://web-assets.bcg.com/b3/79/19665b7f40c8ba52d5b372cf7e6c/the-future-is-electric-full-report-october-2022.pdf

there is extremely limited information available about thermal fuel supply for electricity generation and the rest of the market is forced to make assumptions based on observed offer behaviour. We agree with the Authority that uncertainty regarding thermal fuel supply and constraints potentially increases the opportunity cost of stored hydro.[27]

The Authority's information paper in response to submissions contains the following acknowledgement:

> "…some unoffered generation may be being physically withheld with the express purpose of trying to increase the spot price (similar to economic withholding) … It is hard, however, to know what proportion (if any) of the unoffered generation is being used in this way, or is simply due to fuel availability or other operational constraints."

Surely the Authority needs to know this if it is to:

- reach any sensible conclusions regarding the state of competition in the wholesale market; and
- properly monitor the trading conduct of thermal generators.

The last time the Authority consulted on improved information disclosure in respect of thermal fuels, the Authority declined to take action to require more thermal fuel information disclosure to the market (which would have required changes to the exceptions to the disclosure obligation in the Code). Instead, the Authority put in place a quarterly reporting regime that required all "major participants" to disclose to the Authority (rather than the market) when they relied on exceptions to the disclosure obligation. We had assumed that as a result generators with thermal fuel information were now telling the Authority on a quarterly basis about their thermal fuel supply and any constraints. However, this assumption is difficult to reconcile with the Authority's statement above that it does not know why some thermal generation is not being offered. Meridian hopes that the quarterly reporting regime is a stepping-stone for the Authority to move towards requiring that thermal fuel information be disclosed to the market and not just to the Authority in quarterly reports. In the meantime, if we have understood the Authority's above-quoted comments correctly, the newly-introduced quarterly reporting may not have improved the quality of thermal fuel information and may not have helped to deliver more efficient outcomes for consumers.

[27] See paragraph 6.35 of the issues paper.

Other options that the Authority invites government entities to consider

Removing impediments for overseas investors

The Authority has invited:

- MBIE to publish an Annual Electricity Generation Investment Opportunities report, targeting international developers, with input from NZ Trade & Enterprise, Transpower, the Electricity Authority, Overseas Investment Office, and Ministry for Environment.
- MBIE to investigate the merit of a providing a one-stop shop for overseas investors in renewable electricity generation, to help navigate and streamline the regulatory requirements and agencies, and advice on relevant stakeholders they should engage with.
- The Overseas Investment Office to publish, before the end of 2022, guidance for overseas investors in renewable electricity generation, and consider providing a helpdesk to support developers to navigate the Act's requirements.

Meridian supports these proposals and welcomes competition from international investors. Lowering any impediments or entry barriers for overseas investors can only be good for electricity consumers in the long term. However, the regulators responsible no doubt have other purposes in mind including limiting overseas ownership of sensitive assets and national security interests associated with overseas control of vital infrastructure.

Monitoring and streamlining new connections

The Authority has also invited Transpower to publish connection enquiries and connection studies and to streamline new connection application processes. This seems unusual given that Transpower is a market participant rather than a government entity and therefore the Authority can make Code to tell Transpower exactly what it is required to do to promote competition in the interests of consumers. Regardless, Meridian agrees that the new connection process is worthy of increased attention from the Authority.

Transpower is contemplating the implementation of Renewable Energy Zones (REZ) to coordinate transmission investment to support the connection of new generation and load customers within specific regions. Meridian considers there to be a risk that the REZ

process could determine what generation gets built when and disrupt the standard process of nationwide competition to develop the least cost generation options at pace.[28]

Transpower also recently implemented a new connection queue management system. In Meridian's opinion, the new system:

- May result in a fundamental departure from the current open access grid arrangements and have a negative impact on competition in the market for new generation development.
- Risks the progress of generation developments becoming dependent on a layer of subjective decision-making by Transpower to prioritise limited resources (at best) or pick winners to proceed to market (at worst).
- Seems to invite gaming behaviour or speculation from generation developers to secure a "place in the queue" and access to valuable connection assets, potentially at the expense of more robust and well progressed generation options.

In Meridian's opinion, Transpower should offer to progress all new connection projects equally and should remain completely neutral to allow competitive processes to determine which developers and projects get across the line first with a Transmission Works Agreement. This may require Transpower to increase the flexible resources at its disposal to process all connection enquiries and applications without delay.

Meridian made these points to Transpower[29], but the queue management system was implemented regardless. It is unclear what the next steps will be for the REZ proposal.

Carbon pricing

While the Authority does not invite any changes to the New Zealand emissions trading scheme (ETS) or tax system it does digress at length on the effect of the ETS on electricity prices. The Authority raises the spectre of a "windfall gains" tax and Meridian feels compelled to respond even though the Authority has no proposal to invite other government entities to consider the subject.

[28] For further detail see Meridian's submission here: https://www.transpower.co.nz/renewable-energy-zones-consultation-responses-2022.

[29] For some reason submissions on the queue management system were not published by Transpower but we would be happy to share our submission with the Authority if it is interested.

The impact of the ETS on electricity prices is widely understood and entirely expected. The ETS has the twofold effect of increasing the cost of emissions intensive electricity generation and also creating an incentive to invest in new non-emitting (or low-emitting) electricity generation. This is exactly how the ETS was designed to operate and over time it will incentivise retirement decisions from emissions-intensive generators and the replacement of such generators with renewable options. Generally, "windfall gains" are understood to arise from an event that has caused profits to rise unexpectedly (the war in Ukraine being a recent example in European energy markets) as opposed to the logical outcome of long-term structural settings in the market that are operating as intended.

Meridian agrees with the Authority when it says, "the acceleration in the renewable generation investment pipeline suggests that carbon pricing is doing what it is meant to do, even if the adjustment is taking some time. The trade-off is an increased cost to consumers in the 'short run' during the transition."[30] While carbon prices are expected to rise, so too will the percentage of trading periods when thermal generation is not the marginal price setter. The effect of the ETS on electricity prices will therefore be expected to diminish as the sector approaches 98 percent renewable by 2030 and 99 to 100 percent renewable thereafter. Any attempt to tax supposed "windfall gains" would only unwind the positive incentives created by the ETS and extend the timeframes for the transition to a more renewable power system, locking in emissions for longer.

There would be significant practical challenges and potential unintended consequences associated with any attempt to unwind the ETS incentive to invest in renewable generation. In addition to the chilling effect on new investment, the Authority rightly notes that:

> "It is not a clear-cut exercise to determine how much of this should be counted as 'windfall gains'. Such an estimate depends on generators' retail and contract and hedge positions. Further, for some existing renewable generation plant, the business case for past investments in renewable generation will have relied on an expectation of rising carbon costs (and the extra earnings are thus not a windfall gain but a return on investment)."

Meridian would add that it would be an enormous practical challenge to identify a portion of revenue that represents the supposed "windfall". The effect of the ETS on electricity prices would need to be tracked over time including changes in ETS unit prices and changes in the composition of the national generation fleet and frequency at which emitting plant was

[30] Issues paper, page 26.

marginal. Any tax would have to be constantly recalibrated to account for changes in the market.

One would also have to ask, why stop at electricity when there are other sectors of the economy where the same effect is in play as a result of the ETS. Most markets economically price at the marginal cost of production. For example, should we also tax growers of mushrooms or tomatoes that use biofuel or geothermal steam for heat or carbon dioxide rather than fossil fuels. Those growers also compete with higher emitting growers that are exposed to emissions pricing and may be able to price their tomatoes at the marginal cost in the market. Likewise, if any other industrial business in New Zealand converted a coal boiler to electricity (at significant capital cost) should we then tax them because their operating costs to create their product may at some point be lower than the short run marginal cost of competing coal fired producers that also pay emissions prices? As with the electricity market, the outcome would be a sub-optimal incentive to not invest in low or non-emitting options.

Finally, it is also worth a reminder that all ETS auction revenue and 51 percent of the dividends from the mixed ownership model power companies is already returned to the Government. Increased auction revenue and any increase in dividends could easily be used by the Government to deliver on a just transition for New Zealand electricity consumers, for example by means testing and extending support from the Winter Energy Payment.

Market power in the transition to 100% renewable generation

Speculation on the potential state of competition in future seems of limited value and the assumptions made seem questionable

The issues paper speculated on the state of competition that might be expected in the market in future:[31]

> "Under current structures, market power of generators with stored hydro may increase when fossil fuelled generation exits, unless and until viable green-peaker type solutions (eg fuelled by biomass) emerge. The impact may depend on the ownership of future investments made in generation competing with stored hydro."

We see limited value in such speculation. MDAG asked similar questions in its first consultation paper on price discovery in a 100 percent renewable power system and again in its most recent papers. As we said to MDAG, it will be difficult to undertake any meaningful analysis of competition in a hypothetical future market. We do not know how the market will evolve over the coming years. If seasonal flexibility or peaking services become highly concentrated, then the issue could be considered as and when it arises. The regulator should remain mindful of this as the market evolves and monitor the evolution of the market, but it would not make sense now to analyse (or attempt to solve) an unspecified problem that may or may not arise in future.

In Meridian's opinion, the assumptions underlying speculation that market power may increase are also questionable. No one is developing new hydro generation options given the consenting challenges involved. In fact, reconsenting of existing hydro schemes risks a reduction in the ability of hydro schemes to store water and respond flexibly to seasonal or peak capacity needs. The speculation about future market power seems to assume that the need for power system flexibility will decrease and that thermal generators will be able to retire without any replacement flexibility entering the system. With a higher penetration of intermittent renewable generation this speculation does not seem particularly plausible. If thermal generation retires and there are insufficient flexible alternatives then the problem

[31] Issues paper, paragraph 5.6.

will be physical reliability rather than market power. Hydro offers would potentially be higher to try to conserve storage and encourage entry by alternative sources of flexibility because in the absence of that the lights will go out. This would not be an exercise of market power but prudent storage management to reduce risk and it would send the right market signals for future investment.

It seems more likely to Meridian that the future of the market will involve a range of diverse flexibility sources competing with hydro operators for seasonal and peaking needs. For example, aggregated small scale demand response from EV chargers, household hot water heating, batteries and connected appliances may compete alongside large scale industrial demand response, grid-scale batteries, and gas peakers (using fossil gas or green gases further into the future). The proposal in the issues paper to accelerate the development of a demand response market seems more consistent with this view of the future rather than one in which control of flexible resources becomes more concentrated.

Furthermore, the prices offered by incumbent generators will be disciplined by the threat of new entry. For example, if hydro generators have higher-priced offers in general for stored water then that should over time result in increased entry by intermittent renewable generation and therefore greater spill from the hydro operators. Grant Read discusses the valuation of hydro resources in the different environment that is now emerging in his paper for MDAG titled *Opportunity Costing in the NZEM* and states that:[32]

> "One key issue is that different optimisation models, each applying the same basic principles in its own way, are known to produce quite different looking "optimal" marginal water value curves. But the issue is not how high or low the MWV is, for a particular storage level, but what effect the overall curve has on the trade-off between system operational cost, spill, and shortage probability.
>
> Simulation and experience suggest that equilibrium outcomes are actually not very sensitive to raising the MWV curve level. The system settles into a new equilibrium, with more storage, less shortage, and more spill, without necessarily raising system costs or prices by much at all."

The level at which hydro operators price their water makes very little difference to the long run average costs of the system but simply establishes a different equilibrium of shortage and spill. This will continue to be the case in future with declining participation of thermal

[32] https://www.ea.govt.nz/assets/dms-assets/29/05-Water-Values-under-100-Renewable-Electricity-Dr-Grant-Read1341584-v2.1.pdf

generation (putting to one side the potential viability of green peakers). The value of stored water will be intimately connected to the value of demand response from diverse sources as well as the likelihood of increased entry by intermittent generators which would push hydro storage higher and result in increased spill.

Regardless of Meridian's, the Authority's, or MDAG's view of the future market structure and whether that may or may not lead to market power issues – these are not questions that can be answered now. We expect the Authority to continue to closely monitor the market and, if any issues arise in future, to contemplate the costs and benefits of options at that time.

Even if market power did become more concentrated the trading conduct rules are effective and prevent the exercise of market power

The trading conduct rules in the Code appear to be highly effective and will prevent the exercise of market power even if market power becomes more prevalent in future (although as discussed, speculation on that point does not seem particularly useful).

Meridian strongly agrees with the Authority's conclusion that "reliance on the current conduct-based measures remains broadly appropriate for the transition toward 100% renewable electricity."[33]

Meridian's own experiences align with the Authority's assessment that trading conduct provisions appear to be having an impact on generator behaviour. Like the Authority, we have observed increased volatility with very low price periods together with some very high price periods. Price separation is also more commonplace.

Meridian agrees that structural reforms would be inappropriate

No clear purpose or benefit to structural interventions

Given the trading conduct rules appear to be working as intended and there is significant entry occurring from diverse sources, Meridian strongly agrees with the Authority's assessment that:[34]

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[33] Issues paper, page iv.
[34] Issues paper, page iv and paragraph 5.11.

> "…more fundamental structural options are currently not justified by the available evidence. Further, they would: take considerable time and cost to implement and may not be available during the transition, may or may not be effective in fundamentally improving competitive conditions, and would add uncertainty that would stymie investment."

As the Authority acknowledges in the issues paper:[35]

> "The literature indicates it is unclear if going from a small number of competitors to a somewhat larger, but still small, number would improve competition. It might, but it might not."

We also agree with the comments by EPOC that the scale of the New Zealand market and capital requirements for investment in grid-scale generation mean there is a limit to how much competition can be improved by structural means, without also having a detrimental effect on the efficiency of investment in new generation.

The Authority also notes that transmission investment may be a highly effective means of reducing market concentration in the South Island with additional HVDC capacity in particular materially reducing the Authority's measures of concentration and gross pivotal. While we question whether those are meaningful measures to use in the first place, the fact that existing transmission plans will address the Authority's apparent concerns renders any further intervention pointless and without benefit. Transpower's Net Zero Grid Pathways work is expected to seek Commerce Commission approval of Major Capex Proposals to install new reactive plant on the HVDC at Haywards in 2026 and additional Cook Straight cable capacity in 2027.[36]

Significant cost, disruption, and chilling of investment

Given the potential disruption and unintended consequences associated with structural intervention options, we agree with the Authority that "breaking-up a company to address market power likely requires a high standard of proof of significant harm to consumers, which

[35] Issue paper, paragraph 6.47.
[36] https://www.transpower.co.nz/about-us/our-strategy/net-zero-grid-pathways/nzgp-phase-one/nzgp-latest-updates

because of imperfect information may be difficult to establish."[37] We would go further to say that standard of proof has clearly not been met. As discussed further below, the Authority has not identified any evidence of the sustained exercise of market power. Furthermore, the costs and benefits of structural interventions have not be properly assessed but in Meridian's opinion the costs would far outweigh any competition benefits.

Forcibly breaking up any company, particularly a listed company would have widespread ramifications for investment confidence, not just in energy markets but in New Zealand more generally. The cost of such chilling of investment should not be taken lightly and the implications for the New Zealand economy more broadly would need to be considered.

Practical challenges

The Authority rightly notes that it would not be easy (impossible we would suggest) to divide hydro generation assets further without disrupting coordination on interconnected river chains. Less efficient storage use and increased spill would be inevitable.

The Authority appears to leave the door very slightly open to changes in the ownership of the Manapōuri power scheme. This seems misguided at a practical level (in addition to the other concerns noted above) because the Manapōuri scheme operates under such tight environmental conditions and has such limited effective storage that it is in many ways equivalent to a run of river scheme. Offers from Manapōuri are generally binary (very low priced clearing offers and offers that are not intended to clear) to ensure dispatched volumes are tightly managed and thereby ensure compliance with the relevant environmental constraints. Changing the ownership of Manapōuri would be unlikely to change the way it is offered or have any impact on competitive dynamics. There would be significant, costs, uncertainty, disruption, and chilling of investment for no benefit.

[37] Issue paper, paragraph 6.39.

There is no evidence market power was exercised during the review period

The Authority needs to be clear what "evidence" it thinks exists that market power was exercised during the review period

On several occasions in its documents and communications relating to the Review of Competition in the Wholesale Market the Authority has made statements such as:

- "we observed some evidence to suggest that prices may not have been determined in a competitive environment";[38] and
- "there's evidence market power may have been exercised through economic withholding."[39]

The first heading of the issues paper declares: "Market monitoring review found some evidence of market power being used" removing the caveat of the word "may". This is a significant and unqualified escalation in the language used and the statement is entirely unsupported by any evidence.

Later the issues paper more accurately reflects the findings of the first consultation paper by stating that:[40]

> "Taken together, the suite of structure, conduct and performance indicators did not allow the Authority to reach a conclusive view, but the WMR [first consultation paper on the wholesale market review] did state there was "some evidence to suggest that generators have an increased incentive and ability to exercise market power, and may have been doing so over the review period.""

The Authority does not direct readers to the supposed "evidence" but a close read of its analysis across all published papers suggests the supposed "evidence" could be any of the following:

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[38] Electricity Authority Market Monitoring Review of Structure, Conduct and Performance in the Wholesale Electricity Market Since the Pohokura Outage in 2018 available here https://www.ea.govt.nz/assets/dms-assets/29/Monitoring-Review-of-structure-conduct-and-performance-in-the-wholesale-electricity-market-updated-paper.pdf at paragraph ii.

[39] Official transcript, page 4, available here: https://www.parliament.nz/resource/en-NZ/53SCED_EVI_118375_ED8749/b86f32bba45a532139cecb4909f028d65ab475f8

[40] Issues paper, paragraph 1.8.

- the Authority's regression analysis published in the first consultation paper (although the Authority and its independent peer reviewers confirm in no uncertain terms that "definitive evidence of the exercise of market power was not found."[41]);
- the rest of the Authority's structure conduct and performance review published in the first issues paper (although the actual observations here were in respect of increased *incentives* to economically withhold generation over the review period but there was no evidence found any generator actually did this);
- previous transient periods where the Authority investigated UTS or trading conduct allegations (although most of these transient periods fall outside the review period or in one case were an unprecedented confluence of factors that has already been corrected by the Authority); and
- the issues paper now seems to subtly suggest the only "evidence" market power may have been exercised is the NZAS contract signed in January 2021 (although the Authority has also stated that was "potentially" an example of the use of market power and it has not in fact made any determination in respect of the NZAS contract).

We examine each of these possibilities more closely below, but Meridian's short point is this – when an expert regulator, like the Authority, uses the word "evidence" and claims it has evidence for a particular proposition, such statements are taken at face value. The public and media reasonably assume that such evidence will be real, that it will be substantial and that it will outweigh any evidence to the contrary that the Authority has. Otherwise, it would not be fair or reasonable for the Authority to make such a claim.

Furthermore, by inserting words to suggest there "may" be evidence or "potential" evidence the Authority appears to acknowledge the weakness or non-existence of its evidence base. Saying there is "evidence" that something "may" have occurred is internally inconsistent. The word "evidence" suggests positive proof of something rather than speculation about what "may" have occurred. However, that subtlety is lost on most people who reasonably take the word "evidence" at face value when it is used by an expert regulator and assume such evidence exists, can be relied upon, and that any evidence to the contrary is outweighed. The Authority needs to use the word "evidence" with greater care and precision.

[41] https://www.ea.govt.nz/assets/dms-assets/29/Munro-Duignan-Review-Letter-for-InformationPaper-v2.pdf

The reality of course is that the Authority has acknowledged the limits of its statistical analysis and acknowledged that any evidence it has is "weak"[42] (at best) and both the Authority and its reviewers referenced the real and substantial evidence to the contrary which suggested that the unexplained uplift in average wholesale prices during the review period was more likely to be entirely explained by ongoing gas market uncertainty. Despite all this, the Authority greenlights readers into ignoring these matters and the contradictory evidence it had presented in its paper by making the one-sided and unsupported summary statements about "evidence" of the exercise of market power.

Electricity industry participants and New Zealanders in general have a legitimate expectation that statements by the Authority will fairly and reasonably represent the totality of the evidence and analysis available to it. Unsupported, conflicting, or one-sided statements about "evidence" risk confidence in the market and in the regulator.

The Authority's regression analysis provides no evidence that market power was exercised

The Authority carried out a regression analysis of wholesale prices over the review period and described it in the first round of consultation on the review as follows:

> "…a linear regression model of the electricity market is an imperfect approximation of the interactions that occur between supply and demand in the electricity market. Therefore, the results observed must be treated with caution. The time series model confirms there have been higher prices following the 2018 Pohokura outage, which are not explained by the underlying supply and demand conditions in the model. The model — that is, the significant coefficient on the dummy variable — predicts that prices have been $39/MWh higher on average after the 2018 Pohokura outage, even when controlling for other fundamentals such as the gas price (including carbon price) and hydro storage. As mentioned previously, this dummy variable could be picking up other impacts on the price, including gas supply uncertainty, that we cannot control for perfectly in the model."

The Authority's papers were peer reviewed by Pat Duignan and Concept Consulting, both of whom commented in detail on the Authority's regression analysis and the dummy variable used to identify the unexplained uplift. Meridian generally agrees with the comments from both peer reviewers:

[42] https://www.ea.govt.nz/assets/dms-assets/29/Monitoring-Review-of-structure-conduct-and-performance-in-the-wholesale-electricity-market-updated-paper.pdf at paragraph 5.94.

> “The regression analysis is technically very thorough and provides robust evidence of a structural change in the influences on spot prices, dating from the Pohokura outage. The regression analysis cannot however pin down the extent to which the change reflects uncertainty regarding medium term gas supplies, over and above the direct effect on spot gas prices, versus the exercise of market power... As the paper concludes… definitive evidence of the exercise of market power was not found.”[43]

> “The Authority’s overall conclusion is that it did not find definitive evidence of an exercise of market power… We think this overall conclusion is reasonable in light of the available evidence.”[44]

The Authority’s analysis of the uplift in price through a dummy variable considers the timing of the uplift and factors such as Ahuroa storage, which by the Authority’s account “lends support to the proposition that the dummy variable is, at least to some extent, picking up an effect due to increased uncertainty surrounding gas supply from Pohokura and other fields.”[45] Concept Consulting similarly contemplated the coefficient on the spot gas price variable in the regression equation, which was far lower than Concept expected suggesting that electricity spot prices were much less sensitive to changes in gas spot prices than might ordinarily be expected based on physical factors alone, and according to Concept this “reinforces our view that gas spot prices may not be capturing the full picture in relation to gas market conditions.”

In response to the first round of submissions the Authority has now confirmed: “We consider that increased gas uncertainty and risk aversion caused an increase in spot prices during the review period…”[46]. This is the first positive acknowledgement that gas uncertainty and risk aversion caused the uplift (in whole or in part). The Authority should make that finding far more explicit to participants and observers, who could be under the mistaken impression that market power is the most likely cause of the uplift. The Authority goes on to also say:

> “…but we still cannot rule out that the exercise of market power may have been contributing to these higher prices. Quantifying the premium for gas uncertainty is difficult and depends on the level of risk aversion of each participant. It is therefore still

[43] https://www.ea.govt.nz/assets/dms-assets/29/Munro-Duignan-Review-Letter-for-InformationPaper-v2.pdf
[44] https://www.ea.govt.nz/assets/dms-assets/29/Concept-Review-Letter-for-Information-Paper-v3.pdf
[45] Paragraph A.20 https://www.ea.govt.nz/assets/dms-assets/29/Monitoring-Review-of-structure-conduct-and-performance-in-the-wholesale-electricity-market-updated-paper.pdf
[46] Response to submissions, paragraph 2.18.

possible that some of the increase was due to the exercise of market power, or some other unidentified source of uncertainty that justified caution in offering."

An inability to rule out market power as having some effect on prices is very different to "evidence" that market power was exercised during the review period. An accurate summary of the findings of the regression analysis in the Authority's first information paper would therefore be that the Authority's analysis confirmed gas uncertainty and risk aversion caused some or all of the unexplained uplift in wholesale price over the review period. However, the Authority cannot quantify the extent of that effect and therefore cannot confirm that the entirety of the uplift is attributable to gas uncertainty and risk aversion. Therefore, the Authority cannot rule out that there may be other causes also contributing to the uplift.

The wider structure conduct performance analysis similarly did not present any evidence that market power was exercised during the review period

The rest of the structure conduct and performance analysis did not present evidence that market power was exercised during the review period. Structure and performance analysis can indicate changes in incentive and ability to exercise market power but only the conduct assessment could provide evidence that any generator actually exercised market power during the review period.

The Authority undertook a series of comparisons between generation offers and various estimates of short run marginal costs (SRMC) for those generators. As the report from Axiom Economics[47] made clear, even in the best of circumstances, it can be exceedingly difficult to distinguish between price rises stemming from genuine scarcity and from contrived shortages. Doing so requires comprehensive information on the probabilities and opportunity costs of shortage, which is typically very difficult to obtain especially in the context of the New Zealand's wholesale electricity market where SRMC are influenced by actual and projected lake levels, gas market conditions (and the potential flow-on implications for reservoir management) and myriad other factors. Axiom concluded that it would be virtually infeasible to arrive at robust measures of SRMC against which to compare prices and that all the Authority's attempts to do so were unreliable and could not provide any meaningful insights into the state of competition.

[47] Appended to Meridian's submission on the first round of consultation on the Review of Competition in the Wholesale Market.

It is worth noting at this juncture that the Authority seems to have misunderstood (or misrepresented) Axiom's analysis in its response to submissions. The paper in response to submissions[48] seems to imply that Axiom raised questions about generators artificially inflating prices when in fact it did nothing of the sort. For the avoidance of doubt the appended letter from Axion summarises what the Axiom report found, in particular:

- It explained that it is entirely appropriate for hydro generators to reflect tightening gas market conditions in their offer prices. This would not constitute a 'taking advantage' of market power for an anticompetitive purpose warranting regulatory intervention. It would instead constitute efficient, cost-reflective pricing.
- It also contained a *purely theoretical* discussion of the circumstances in which it might be profitable for an inframarginal supplier to strategically withhold supply to produce artificial scarcity and raise prices. However, it *expressed no opinion* about whether hydro generators had done so, and it is unreasonable for the Authority to imply Axiom argued otherwise.

The Authority has also pointed to examples outside of the review period or where corrective actions have already been applied

The Authority's issues paper also referred back to the first paper in the Wholesale Market Review and noted previous instances where the Authority had been concerned about the exercise of market power:

- a period of high prices on 2 June 2016 as an example of possible economic withholding;
- high final prices for energy and reserves in the North Island on 8 December 2016 due to a withdrawal of reserves; and
- an undesirable trading situation (UTS) during November and December 2019.

The first two examples predate the review period by several years so are entirely irrelevant to any statements suggesting there is "evidence" market power was, or may have, been exercised during the review period. Furthermore, on both occasions in 2016 the Authority investigated and decided to take no further action.

The UTS period in late 2019 was in the words of the Authority "a confluence of factors that we considered made the situation unusual"[49] it is therefore not "evidence" of any sustained exercise of market power during the review period. No generator was found to have

[48] Response to submissions, paragraphs 2.2 and 4.12.
[49] https://www.ea.govt.nz/assets/dms-assets/27/UTS-Final-Decision-Paper-22-December-2020.pdf

breached the trading conduct provisions, and the Authority's investigator found that multiple safe harbours applied, including because "Meridian would not benefit from an increase in final price".[50]

The UTS is doubly irrelevant as a data point of the sustained exercise of market power during the review period because the UTS was corrected by the Authority so that market outcomes ultimately reflected the Authority's ideal outcomes. Therefore, even if transient market power was exercised (and we do not think it was) the existing regulatory settings were sufficient to mitigate that and ensure there was no impact on market participants or consumers.

The Authority now seems to suggest the only "evidence" market power may have been exercised is the NZAS contract signed in January 2021

The Authority's issues paper alludes to one other potential data point as "evidence" of the sustained exercise of market power during the review period:[51]

> The Authority's Market Monitoring Review of Structure, Conduct and Performance in the Wholesale Market (WMR) from 2019 to mid-2021 concluded that prices over the review period had, at least to some extent, reflected underlying supply and demand conditions – a sign of a competitive market. But it also found that the sustained upward shift in the average price level was not fully explained by gas supply uncertainty or other underlying demand and supply conditions being controlled for.*

That paragraph contradicts the statements elsewhere that gas supply uncertainty and risk aversion *could* fully explain the uplift, but the Authority could not rule out other contributing factors. However, that is not the point we are making here – the footnote of the paragraph refers only to the NZAS contract as an example of what else might explain prices if not gas supply uncertainty and "other underlying supply and demand conditions being accounted for". The footnote states:

> "The contracts between Meridian, Contact and NZ Aluminium Smelters were presented as one example of generators potentially using market power to conduct inefficient price discrimination (with efficiency losses estimated to be of the order of $57m-$117m per year). On 18 August 2022, the Authority announced an urgent Code amendment

[50] https://www.ea.govt.nz/assets/dms-assets/28/Investigator_report_1912MERI2.pdf
[51] Issues paper, page i.

to prohibit very large contracts over 150 MW that cannot be shown to be efficient, together with a voluntary clearance process."

Nothing else is referred to here. If the Authority now considers the NZAS agreement to be the only piece of "evidence" it holds that market power may have been exercised during the review period then it should say so explicitly and put to one side the other speculation it has made in the regression analysis, the rest of the structure, conduct, performance analysis, and in referring to periods that are outside the review period or have already been corrected.

The suggestion that the NZAS contract is "evidence" market power was (or may have been) exercised also does not withstand scrutiny. The paper on inefficient price discrimination in the wholesale market looked at this in detail. Rather than come to a firm conclusion in respect of the NZAS contract the Authority made it clear:[52]

> "The Authority's focus is not [Authority's emphasis] whether the most recent iterations of the Tiwai contracts were in fact inefficient."

And that the analysis of the Tiwai contracts was an illustrative example only:

> "…the Authority did not make any determination that the current Tiwai contracts were definitively inefficient – it was recognised "that alternative calibrations [of assumptions] can suggest that the arrangements are wealth-enhancing." However, future contracts with similar features to the Tiwai arrangements have the potential to be inefficient and cause significant harm to consumers."

Meridian's submission[53] on the inefficient price discrimination paper detailed at length the failure of the Authority's analysis to prove the inefficiency of the current NZAS contract and pointed out the many factors that were overlooked by the Authority. Rather than engage with the evidence provided, the Authority side-stepped around it and said its concern was about the future not the current contract.

If the Authority has now made a determination that the NZAS contract constitutes some "evidence" that market power has (or may have been) exercised it should say so explicitly, and say why it has changed its mind so quickly given the statements above were made in August 2022.

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[52] https://www.ea.govt.nz/assets/dms-assets/30/Inefficient-Price-Discrimination-in-very-large-electricity-contracts-Consultation-paper-v2.pdf
[53] https://www.ea.govt.nz/assets/dms-assets/29/Meridian-submission.pdf

Finally, even if the NZAS contract was the supposed "evidence" that market power was (or may have been) exercised during the review period, the Authority has passed urgent Code to address such situations. As with the trading conduct rules, this is an example where the Authority has already addressed any perceived issues through a Code change but regardless continues to publish reviews asking stakeholders whether there is a problem.

Appendix A: Responses to consultation questions

1.	Do you agree that a key competition issue in the transition is that it weakens competition in extended times when intermittent generation cannot run?	It is not clear today how competition will evolve in future. Meridian considers such speculation to be of limited value but in our opinion it is likely that diverse sources of flexibility will compete with incumbent hydro operators at times of reduced intermittent generation. Even if competition was to become weaker at times of reduced intermittent generation, the trading conduct rules are effective and would prevent the exercise of market power. Meridian agrees the Authority should continue to monitor the evolution of the market. See the section of this submission titled "Market power in the transition to 100% renewable generation" from page 35 for further comments.
2.	Do you have any comments on the contents of chapter 2?	Yes, see the body of this submission including comments in the Executive Summary on competition for the long-term benefit of consumers and comments from page 37 on the trading conduct rules.
3.	Do you have any comments on the impediments to generation investment?	Yes, see the body of this submission including pages 9 to 14 and 20 to 29.
4.	Do you agree that the lag in investment is not due to anticompetitive behaviour to slow down investment and discourage entry, or can you provide instances or other evidence to the contrary?	Meridian agrees and is not aware of any evidence to the contrary. See further comments on page 14 of this submission.
5.	Do you have any comments on the role and impact of carbon pricing on investment and wholesale market competition or the other contents of this chapter?	Yes, see the body of this submission from page 32.
6.	Do you agree with the Authority's overall conclusion that it currently considers that continued reliance on the current conduct-based measures to mitigate the exercise of market power remains broadly appropriate in	Yes, Meridian agrees.

	the transition toward 100% renewable electricity?	
7.	Do you agree with the objective and evaluation criteria set out in this chapter?	The objective and criteria appear broadly reasonable.
8.	Do you have any comments on the contents of chapter 5?	Yes, see Meridian's comments on the proposed package of actions at pages 15 to 32 of this submission.
9.	Are there any other options that would promote wholesale electricity market competition in the transition that you consider would be more effective and efficient?	Meridian has not identified any other options at this stage.
10.	Do you have any comments on the contents of chapter 6?	Yes, see Meridian's comments on the proposed package of actions at pages 15 to 32 of this submission. From pages 37 to 39 of this submission we also comment on the structural options considered by the Authority.
11.	Are there any other options that would better facilitate efficient investment in renewable generation to promote wholesale electricity market competition in the transition?	Meridian has not identified any other options at this stage.
12.	Do you have any comments on the contents of chapter 7?	Yes, see Meridian's comments on the proposed package of actions at pages 15 to 32 of this submission.

Appendix B: Axiom Economics Letter