Electricity Authority
Via Email: reviewconsultation2021@ea.govt.nz

17 January 2022

Mercury Response to the Electricity Authority's Wholesale Market Competition Review

Mercury welcomes the opportunity to provide a response to the Electricity Authority's wholesale market competition review. This submission provides Mercury's response to both the inefficient price discrimination issues and options paper and the market monitoring review of Structure, Conduct and Performance. No part of this submission is confidential.

Market volatility a feature of increased uncertainty facing the sector in transition

Mercury acknowledges that the heightened volatility and wholesale prices over the review period are of concern and are creating challenges for market participants. New Zealand is fortunate to have consistently achieved world leading performance and managing the energy trilemma of affordability, renewability and security but looking forward there are many sources of uncertainty creating challenges for the electricity market as New Zealand transitions to a low carbon economy including:

- Increasingly volatile hydro inflow sequences;
- Uncertainty around future gas supply;
- Changing consumer and investor preferences for renewable fuels;
- The pace of electrification demand from other sectors of the economy;
- Managed transition for flexible thermal generation;
- The uptake of distributed energy and storage technologies; and
- Government policy settings to achieve the 100% renewable electricity target.

These factors and their complex interrelations regarding the trilemma performance of the sector are outlined in Attachment Two.

The lower short run marginal cost of renewable generation will positively contribute to reducing average wholesale prices as new generation projects are commissioned. The sector is responding strongly to market signals with around $2 billion invested in new renewable generation in excess of 3.8TWh under construction. This is consistent with the electricity sector's contribution to achieving the carbon budgets established by the Climate Change Commission. However the emerging consensus is that wholesale electricity market prices will continue to exhibit volatility as intermittent renewables replace firm sources of thermal generation able to provide flexible capacity to meet both short term peak demand and energy needs over longer durations (i.e. to manage dry year risk).

Main challenge is balancing the energy trilemma in the transition to a low carbon economy

Maintaining New Zealand's balanced trilemma performance is currently an area of considerable focus for the electricity sector. Mercury is encouraged by the level of engagement across government, industry and regulators to analyse the challenge and identify potential options to enable a managed transition.

We welcome the Authority's analysis of structure conduct and performance (SCP) within the electricity sector. The conventional economic analysis framework for whether material market power issues exist is whether average prices are significantly above the long-run cost of entry and expansion and whether there are significant and

enduring barriers for preventing entry and/or expansion from occurring to reduce those prices. The Authority's analysis does highlight wholesale prices have been elevated over the review period but also notes this outcome can be explained by the reduced availability of hydro storage and gas supplies rather than being explicitly due to market power concerns. Mercury agrees with the Authority that these are significant contributing factors but also notes that risk and uncertainty across the sector has significantly increased and a myriad of factors are needed to be managed to maintain balance in the energy trilemma (as discussed above and outlined in Attachment One).

Mercury's analysis is that the averaging approach taken to the water value and gas market modeling significantly underestimates the risks faced by generators in the market where operational decisions are based on assessments of marginal, not average, costs. Our assessment is that, when an appropriate risk weighted evaluation is made, many of the amber indicators would in fact show positive performance against the SCP criteria. Attachment Three provides a high-level assessment of these indicators as well as Mercury's view on the Authority's water model. Mercury would be pleased to discuss in greater detail with the Authority trading strategy formation and how this has evolved over time in response to changing market conditions including changing market rules.

In terms of barriers to entry and expansion of new generation (the second limb of a conventional market power test) Mercury considers the sector is responding strongly to market signals as outlined above. Mercury agrees with the independent report from Concept Consulting that:

> "…there are signs the investment environment is improving. Development interest (especially in solar farms) is surging, concern about a Tiwai smelter exit has reduced and the demand outlook is strengthening. In this context it is notable that Transpower reports connection enquiries for generation (excluding GXP enquiries from EDBs) have risen almost tenfold over the past two years."[1]

The Authority raises concerns that the future pipeline for renewable generation development appears thin and questions whether the existing consented generation will be brought to market, particularly given reconsenting challenges. This is an area of significant industry advocacy currently, particularly to ensure reforms to resource management frameworks explicitly recognise and support decarbonisation and that biodiversity outcomes can be supported through adaptive management practices[2]. This is an area Mercury and wider industry would value advocacy and support from the Authority in its interactions with government. Streamlined resource consenting processes would have material benefits in terms of ensuring competitive outcomes in the sector and for the long-term interests of consumers.

Given barriers to future generation investment is not an area the Authority's analysis considers, Mercury would advocate this is included and expanded upon as the problem definition for the review progresses. Evaluating the performance of the sector from the conventional test for market power outlined above and using a trilemma framework are the main points of feedback Mercury would provide as an alternative to relying on the narrower structure, conduct and performance framework alone.

It would be wrong however to characterise Mercury's view as there being no problem to address. The main challenge facing the sector is not in our view related to competition and the structure, conduct and performance of the sector but is how to maintain a balanced trilemma performance in the transition to a low carbon economy. Volatile wholesale prices do not reflect a lack of competition but do create very real challenges for New Zealand's decarbonisation objectives.

Mercury appreciates that as a competition regulator the Authority does not have a direct statutory objective to support decarbonisation. However, we welcome the recent commitment by the Authority to develop a roadmap on

[1] Concept Consulting (August 2021) Review of generation investment environment available from: https://www.ea.govt.nz/assets/dms-assets/29/Concept-Report_-Review-of-generation-investment-environment-v3.pdf

[2] Refer to Mercury's submission to the Government's Emissions Reduction Plan discussion for further detail: https://issuu.com/mercurynz/docs/mercury_submission_to_emissions_reduction_plan_con?fr=sYzYwNjQxNjE3MzA

the transition for the sector to a low emissions energy system and particularly the recognition that its purpose and strategic ambition includes facilitating the transformation and enhancement of the power system to low emissions energy[3].

Mercury encourages the Authority to consider how its stated purpose and strategic ambition will interact with and complement its competition objective to ensure that well-intentioned policy measures, perceived to further competition outcomes, do not result in unintended consequences. An example is the option the Authority has put forward that all electricity supply contracts over a certain size should be subject to regulatory approval. This would create significant delays and uncertainty for new generation development at a period where the sector is required to deliver in the next 15 years as much generation as was built in the past 40 years[4]. To put this in perspective this requires the commissioning of a windfarm the size of Mercury's current Turitea development every nine months for the period to 2050.

Mercury also has concerns that requiring regulatory approval would stifle the emerging market for Power Purchase Agreements (PPAs) with Mercury recently signing long term agreements with Genesis to displace output from the Huntly power station. Similarly, when viewed from a decarbonisation perspective the contract for supply to Tiwai provided greater certainty for new renewable generation development to progress and time for transmission investment to be secured which would enable much wider consumer benefits from the exit of the smelter in the future.

Market and policy settings must evolve to support the transition

While there is little evidence of material competition concerns, the analysis from the Authority does highlight the challenges facing the sector to maintaining balanced trilemma outcomes in the transition to a low carbon economy. Mercury agrees it is critical that market and policy settings continue to evolve to support this outcome. The Authority is undertaking many valuable workstreams which are providing insight into the challenges and potential options to address these including the MDAG Price Discovery Project, the Future Security and Reliability review and work on market settings for distributed energy resources.

Fragmentation of process and decision-making remains the material challenge that Mercury considers needs to be addressed across the sector. Mercury has supported the recent proposals in the Government's Emissions Reduction Plan development process to establish a National Energy Strategy (NES). The main opportunity from a NES is to bring together the wealth of knowledge being generated to evaluate the most optimal pathway for the decarbonisation of the energy system within the New Zealand economy.

This objective could be best supported by establishing a forum that brings together policy makers, regulators and industry experts to more purposefully consider the energy transition challenges and opportunities under the NES process. An Energy Sector Taskforce comprising senior representatives from electricity generation, electricity networks, gas infrastructure as well as the transport and process heat sectors to provide advice would be a valuable step. The open letter provided by leading companies in the energy sector in May 2021 indicated public support for working constructively and collaboratively with government and regulators on frameworks to support rapid decarbonisation and the development of a shared NES[5].

Mercury advocates that the Authority encourages the government to set up an Energy Sector Taskforce to provide advice on the key transition issues for the sector and ensure an integrated rather than a fragmented approach. This advice would incorporate the work the Authority already has underway. The most pressing short-term issue is achieving the orderly phase-out of thermal generation while maintaining security of supply, affordability, investment signals and efficient market operation. Price volatility over the next few years will need to be managed by ensuring price discovery is transparent, market dispatch is efficient and includes demand-side

[3] https://www.ea.govt.nz/development/why-we-work-on-developing-the-electricity-market/roadmap-transition-to-low-emissions-energy-system/

[4] Transpower (Feb 2020) Response to MBIE Accelerating Renewable Energy and Energy Efficiency Consultation Submission

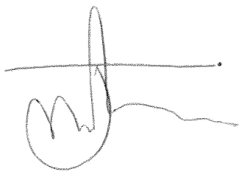
[5] See https://issuu.com/mercurynz/docs/industry_open_letter_on_decarbonisation?fr=sYzhiMDE4MTY2Nzk

response and flexibility to ensure New Zealand has capacity adequacy to cover peak demand. In the longer-term, supply, storage and investment decisions will be made if policy settings give investors confidence to make decisions. We agree with the Authority there may be a few specific measures that warrant immediate consideration through existing workstreams. For example, monitoring of the recent changes to the high standard of trading conduct provisions to understand their impact on offer behaviour. Mercury supports investigating the potential for further transparency measures such as providing more information on the category of participant hedges are being transacted between (e.g. the types of participant engaged) and the time frames.

Market platforms for PPAs are also beginning to emerge and there is scope for the Authority to consider ways to support and develop this outcome and make the execution of PPA's easier and more streamlined. An important aspect of this work will be engaging with major electricity users around the importance of being prepared to negotiate long term contracts and to provide flexibility around demand side response to help manage dry year risk.

Mercury advocates that to avoid the potential for misalignment and further fragmentation the Authority could task the MDAG to consider how the analysis and options identified in the wholesale market review could dovetail with and be integrated into its current Price Discovery Project. This would reduce overhead for market participants at a time when there is significant policy and regulatory consultation occurring across the sector. Mercury would support cross submissions being made available to respondents to provide further feedback on options that emerge through the consultation process.

Yours sincerely



Nick Wilson
Head of Government and Industry Affairs

Further Comments

1 Key dynamics that impact on electricity price formation

The Authority's analysis highlights two main factors of hydro inflows and high gas prices as the main contributing factors to wholesale price increases over the review period. The following outlines how gas market dynamics impact on price formation and hydrology management in the wholesale market among other factors.

Gas price and shortages flow directly through to the electricity market due to the increased cost of gas fired electricity generation and because (high cost) coal is also needed to make up for shortfalls, which has become considerably more expensive over the past two years due to its high carbon emission intensity.

Thermal generation has an opportunity cost of the next available unit of capacity. During periods of scarcity the cost of thermal supply is expected to rise to the opportunity cost of capacity or else the backup generation that ensures security of supply does not achieve revenue adequacy for the total cost of investment, i.e. including fixed and non-cash costs.

Hydro reservoir operators have no choice but to value water against the cost of thermal generation. The purpose of Water Values (WV) is to ration hydro storage prudently given future uncertainty of hydro supply and other market risks. If WV is set below thermal costs, then hydro generation will always be dispatched in preference to thermal generation until the reservoirs run dry. At this point, there may not be enough thermal capacity to make up for the energy shortfall. Higher thermal supply costs necessarily increase the cost of all marginal capacity where that capacity's opportunity costs are tied to the cost of thermal generation.

Offering behaviour has always and continues to change. For example, the cost and portfolio impacts of an unplanned outage last year at the Kawerau geothermal power station coupled with the broader changes in thermal fuel cost and availability, has led Mercury to place a higher value on hydro shortage. Regulatory changes have also changed offering behaviour. The recently introduced changes to the trading conduct rules have made offering more static and process oriented. Exactly how this will play out in offer formation is yet to be seen fully.

The Huntly Rankine units are older technology and are operated more flexibly than is optimal for this type of plant. The performance of these units has been impressive but continuing to rely on them poses an increasing supply risk. Where gas shortages limit the availability of gas for gas fired thermal generation, any outages of the remaining baseload generation (i.e. the Huntly Rankine units, the Whirinaki diesel plant and geothermal stations) can have a material impact on the cost of supply.

2 Gas prices will remain volatile through the transition

New Zealand has a small, reasonably low-cost and reliable gas market due to the significant historic reserves of the Maui gas field where development was underwritten by government. Since the depletion of Maui, gas supply has become less secure, and reliant on a few smaller gas fields under commercial arrangements. Some of these fields are under-performing, including the largest at Pohokura.

It is well understood that gas consumption needs to be reduced if New Zealand is to meet its climate change commitments, but by how much and by when are uncertain. This is not a favourable environment for maintaining infrastructure capacity (e.g. pipeline capacity), which is desirable in the long run, for eventual green hydrogen production, and is also problematic in the short to medium term as investors and operators will only invest in gas infrastructure if their returns are quick and low-risk which tends to result in lower value "quick fix" rather than high value, long-term strategic investments. Even where these opportunities are pursued, because investors are starting to favour green investments, the cost of capital associated with financing fossil fuel developments is rising rapidly.

> "The threshold of projected return that can financially justify a new oil project is now at 20% for long-cycle developments, while for renewables it's dropped to somewhere between 3% and 5%. "That's an extraordinary divergence, which is leading to an unprecedented shift in capital allocation."
> Michele Della Vigna, a London-based analyst at Goldman Sachs Group Inc.[6]

Gas availability may improve over the short-term, with short-term investments in under-performing fields, but availability is likely to reduce over time. Occasional shortages are likely to become more frequent and less predictable. Regardless of availability, gas will be more expensive. When in shortage, the opportunity cost of gas could far exceed its financial cost.

While the industry is committed to reducing the use of fossil fuels for electricity generation over time, the (limited) use of this technology will play a critical role in providing security of supply over the transition period while new renewable generation is being brought on-line. The lower cost of this new renewable generation will reduce average wholesale electricity prices, but significant volatility will become a feature of the wholesale market particularly during periods of peak demand where there may be reduced thermal capacity.

3 Investment in new renewable generation is being delivered

Mercury considers the view put forward in the consultation paper that the development pipeline appears "thin" is not substantiated by the current market situation. Increased demand and constrained supply have led to higher prices signalling for investment in new generation. The cost of building new renewable generation like wind and solar is falling. There are signs of new generation development. Transpower has received record enquiries for connecting new wind and solar generation with the total number of enquiries jumping from 23 in 2019/20 financial year to 63 in the 2020/21 financial year.

By our calculations more than 3.8 TWh of currently committed generation projects to be built between 2020 and 2024, without taxpayer subsidy. This amounts to $2 billion committed by the sector to new renewable generation, equivalent of 8% of national demand. For example, Tauhara (Contact, $580m, 1,300 GWh); Turitea (Mercury, $465m, 840 GWh); Harapaki (Meridian, $395m, 542 GWh). A full list of New Plant Developments is available in MBIE's Energy in New Zealand 2020 report.[7] The Authority has not taken into account the approximately 8000 GWh per annum demand reductions from Norske Skog and the New Zealand Refinery.

This and further expected near-term investment would get New Zealand to over 90% renewable in next 5 years which in turn brings the sector within the emissions intensity required to contribute to a 1.5 degree future. If Tiwai closes (between 2025 and 2030) generation will be greater than 100% renewable. To the extend that we've seen slow investment this is mostly due to Tiwai exit risk (which is resolving) but is being now replaced by uncertainties around a major government-led investment to resolve dry year risk through for example Lake Onslow pumped hydro storage scheme.

Mercury alone has invested $1.4b over 20 years invested in new geothermal generation and $300m over 10 years reinvested into hydro refurbishment programme. Mercury agrees with following from one market commentator: 'Our view is that the market is delivering the necessary investment to meet consumer needs with $1.7b/+3,000GWh committed by generators over the review period, and price impacts on major energy users largely caused by fuel constraints, whilst added to by Tiwai's disruption of investment decisions as well as renewable energy project execution issues, both delaying electricity coming to market by 12-18 months.'[8]

[6] https://www.bloomberg.com/news/articles/2021-11-09/cost-of-capital-widens-for-fossil-fuel-producers-green-insight
[7] 'Energy in New Zealand 2021' MBIE, pg30.
[8] Craigs Investment note to investors

4 Impacts on New Zealand Electricity Demand

The CCC has established that New Zealand is well placed to use its renewable electricity advantage to decarbonise the transport and industrial process heat sectors. While the government has announced and implemented some policies to encourage this trend, there remains uncertainty until the Emission Reduction Plan is finalised in May 2022

Challenging economic conditions have contributed to many industrial consumers undertaking strategic reviews of their viability in New Zealand, with NZAS and Refining NZ having already published plans to reduce demand. Therefore, while the industry is generally gearing up for long-term growth, the prospect in the short to medium term could be anything from early, fast growth to significant contraction of demand. Indeed, depending on the view of how firm NZAS' exit plans are, demand contraction is likely. The Authority's view that the immediate exit of the Tiwai aluminium smelter would lead to all consumers being better off is challenging in Mercury's view. While there would be a greater frequency of very low prices, especially in the South Island, there are three countervailing effects:

1. Rapid, disorderly retrenchment of fossil fuel generation in the North Island, and a slowing of renewable investment,
2. Transmission constraints across the HVDC and within the North Island HVAC system,
3. Significant increase in the demand for instantaneous reserve to support significantly higher HVDC transfers.

Electricity prices in some locations would be even more volatile than they are now and could even be higher on average. The three years of extension of the smelter's consumption enables investigation and investment into genuine alternative uses for the energy (consistent with decarbonisation objectives – e.g. electrolysers), any residual reinforcement required of the Lower South Island transmission network, and provision of reserves. In this context, the Authority's conclusion that there is an immediate higher value alternative for 5,000 GWh p.a. of electrical energy at the bottom of the South Island appears unfounded.

Another effect of the high prices is that industrial process heat and other high carbon industries considering electrification must be, at best, deterred from converting in the short-term.

5 Price discrimination in the contracts market

Mercury considers further analysis is necessary before the Authority can conclude that significant interventions to correct inefficiencies in the contracts market are necessary. At this stage it is unclear whether material inefficiencies exist and whether proposed interventions to interrogate price differentials across contracts are practicable and/or justifiable given the likely low scale of inefficiencies.

The ASX futures market trades in standardized futures contract products (monthly and quarterly base load contracts, quarterly peak contracts, all sized at 1 MW for the Otahuhu and Benmore nodes.) Price discrimination by definition cannot exist in this standardised, exchange-traded market.

The FTR market allows participants to hedge (or speculate on) locational price differentials between pairs of eight hubs on a monthly basis. Again, these are standardized products (baseload, sized at 0.1 MW increments) that are bid for at auction. Price discrimination does not exist in the auctioning of FTRs and the secondary market for FTRs (where price discrimination may occur) is very limited.

In addition to the ASX futures market, large volumes of contracts are also traded over-the-counter (OTC.) These trades tend to follow the ASX futures curve and current spot pricing (as applicable), subject to variations in:

- Term
- Start date
- Location

- Profile
- Volume
- Counterparty creditworthiness

OTC deal-making also includes the emerging trade in PPAs, which may involve long timeframes and pricing linked to the LRMC of a new renewable generation project rather than the ASX futures curve. Profile is also relevant to PPA pricing, such as whether the offtake quantity is not firm (i.e., generation following) or firm.

Details of OTC trades are published on the Electricity Hedge Disclosure system, allowing for viewing and comparing contract details. Parties are therefore able to assess the competitiveness of the contracts market as well as access details of historic contracts which may assist them when negotiating their own contracts.

In addition to ASX futures, FTRs and OTC deals as described above, both physical and derivative power procurement from both large and smaller commercial enterprises often follow formal tender processes (RFIs, RFPs, etc.), sometimes with the assistance of an independent broker or consultant. In addition to the scrutiny over pricing these processes provide, they are increasingly interested in qualitative aspects of procurement such as:

- Renewable electricity credentials of the supplier.
- Synergies in electricity procurement with opportunities to make capital investments in process electrification or co-optimising renewable electricity with other renewable energy carriers (e.g., biomass) and non-renewable energy carriers (e.g., coal, gas.)
- Energy monitoring, reporting and efficiency.
- Support for broader sustainability goals such as transport fleet conversion and/or the provision of electric vehicle charging.

Where a commercial user of electricity is interested in developing their own sources of renewable power (e.g., solar, as is increasingly the case), electricity contract negotiations can become even more complex, involving structures to firm lulls in renewable generation to match customer load and/or the offtake of excess generation.

Whilst individual consumers are not in a position to take direct advantage of the above contract mechanisms, they are able to do so indirectly through their choice of electricity retailer. The retail market is increasingly competitive. In three years since mid-2018, independent retailers have secured over 100,000 ICPs. Some of these retailers are also highly innovative in terms of time-of-use pricing plans, peer-to-peer electricity trading and their digital offerings.

In conclusion, we consider that contracting in the wholesale market is:

- Subject to strong scrutiny and processes that make material price discrimination unlikely, noting that our views on the Tiwai contract specifically are outlined in greater detail below. Aside from the Tiwai contract, does the Authority have evidence of material price discrimination in the market, such as through a review of hedge disclosures indicating significant variances that are not readily explained? Mercury would support measures to increase transparency around market contracts and notes the MDAG are considering recommendations in this space.

- Increasing in sophistication about both quantitative and qualitative factors affecting contract pricing and structures. As a result, we believe that the costs of interrogating all contracts above a given threshold for price discrimination risks significantly outweighing any benefits. We are concerned that heavy-handed interventions will slow down commercial decision-making and place the development of new renewables projects at heightened risk.

However, we do believe that further investigations into the contracts market are warranted to ensure that New Zealand's electricity system transitions towards 100% renewable efficiently. For example, as outlined in the Authority's recent Energy Transition Roadmap:

- Will the existing wholesale market design provide sufficient incentive for the required rate and quantity [of] new generation required to meet New Zealand's targets? If not, what changes to the design may be required to provide a more certain and conducive investment environment?

- What are the barriers to independent renewable generation of all scales being developed, connected and operated, and how can these be addressed?
- Are new standard products or agreements required to support the development of and purchase of power from new generation, specifically?
- Are there any barriers to the thermal generation that is required by the system achieving sufficient revenue, either through the spot or hedging markets, to enable it to stay open?

Mercury also believes that the sector may need to be more sophisticated around their understanding of risk, particularly as the market evolves to one with increased renewable share. To this end we agree with the Energy Transition Roadmap asking:

- Will market participants on both the demand and supply sides have the tools and capability they require to manage financial risks in a world of increased volatility?
- Do more risk management products need to be introduced into the market – from cap products to standardised power purchase agreements?

6 Observations on the Tiwai Contract

Mercury agrees with other market participants and commentators that the supply contract between Meridian and Tiwai was bespoke or a 'one off' and doesn't indicate a problem in the wholesale electricity market more generally. It isn't possible to determine whether the contract price was 'too low' as there is no counterfactual given there is no other large scale consumer situated at the bottom of the South Island to take supply and it is not currently possible to send the supply north to other consumers.

In any market Mercury would expect a large player to be able to negotiate a bulk discount on price for a limited time period. In our view this is what happened here rather than Meridian possessing any ability to manipulate supply from a position of market power. As discussed from in our cover letter, the arrangement benefitted New Zealand by helping to smooth the transition towards decarbonisation, providing more time to find new industries to locate in Southland and provide jobs, new renewable generation projects to be consented and built, and for Transpower to build transmission to enable renewable electricity to be transported north.

Attachment One: Response to Questions

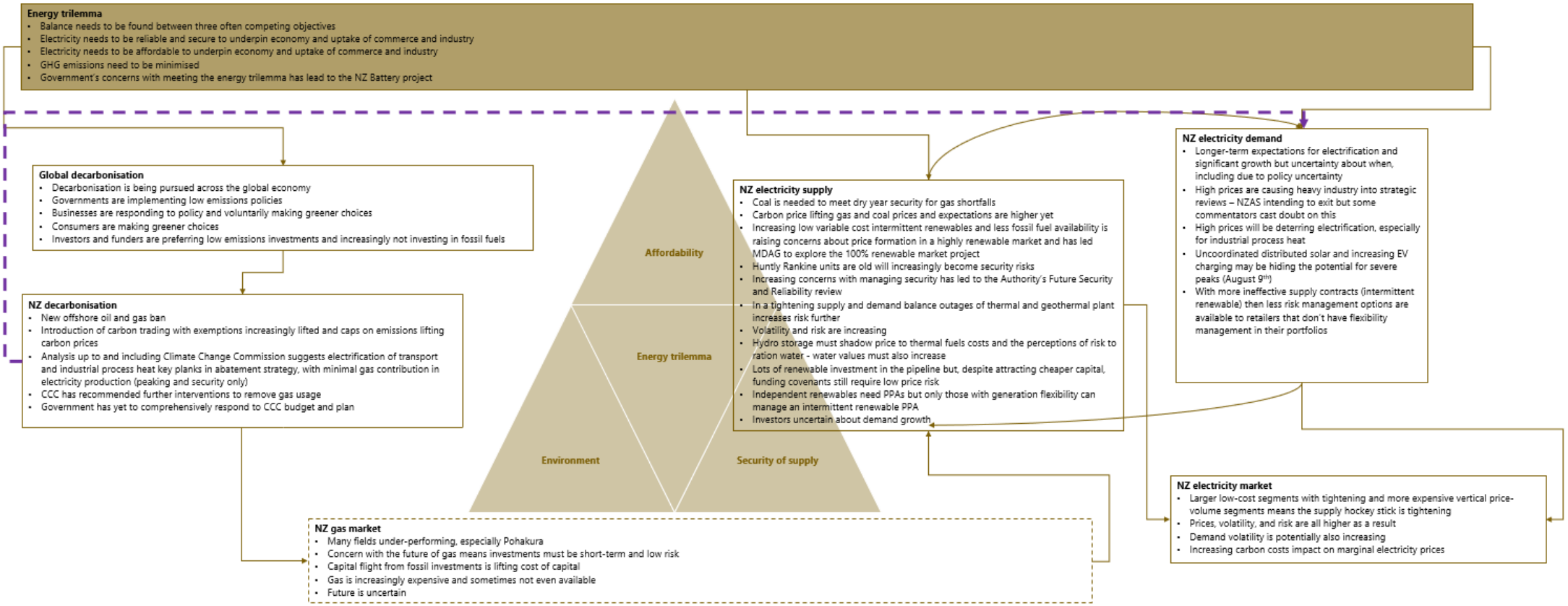
Consultation Question	Mercury Response
Price discrimination	
1.NZAS has a number of unique attributes as a consumer of electricity including size, location, the related potential for stranded water, and capacity to provide demand response. Do you agree these factors support a discount relative to Benmore prices? Are there other relevant factors and how might one determine an appropriate level of discount?	The supply contract was bespoke. It is not possible to determine whether the price offered was 'too low' as there is no counterfactual given there is no other large consumer situated at the bottom of the South Island and transmission constraints prevent sending the load north. In any market a bulk purchaser can negotiate a bulk discount for a limited time. The contract benefited NZ by helping to smooth the transition towards decarbonisation, buying time to find new industries for Southland and to build more transmission and for new generation projects to be consented and built.
2.Any additional feedback on Tiwai contract?	See commentary in Section 6 above.
3.Do you agree the EA should investigate price discrimination in relation to wholesale contracts?	We consider that contracting in the wholesale market is subject to strong scrutiny and processes that make material price discrimination unlikely. The Authority does not appear to have evidence of material price discrimination in the market, such as through a review of hedge disclosures indicating significant variances that are not readily explained. Mercury supports measures to increase contract market transparency noting MDAG are considering this. We support further investigations into the contracts market to ensure that New Zealand's electricity system transitions towards 100% renewable efficiently and there is a more sophisticated understanding of risk management. For example, as outlined in the Authority's recent Energy Transition Roadmap. See our further comments in Section Five above.
4.Should EA consideration extend to where electricity is supplied both at discounts and premiums above market prices?	No. For the reasons outlined in in our main submission we do not consider there is sufficient evidence of price discrimination to warrant such consideration.
5. Do you agree these baseline assumptions are reasonable? What other assumptions should be tested?	No comment.
6. Do you agree that any barriers to investment highlighted by the Tiwai contract are best addressed through EA more general work on entry barriers intended for 2022?	We would welcome the Authority working with Government on the need for RMA reform that supports decarbonisation and recognises biodiversity outcomes can be supplied through adaptive management practices. See comments in cover letter.
7. Is discriminatory pricing or discriminatory terms and conditions adversely affecting efficiency and competition in the electricity system beyond the Tiwai contract?	See comments in section five and six. We do not consider price discrimination was a factor or that it has led to impacts to efficiency and competition in the market.
8.Are there other options the EA could implement to mitigate inefficient price discrimination?	Mercury is supportive of measures to improve transparency in the contract markets such as the options being considered by the MDAG.
Status quo option	
9.What are the pros and cons of the status quo?	The status quo can always be incrementally improved as required see our response to questions g and h below for suggestions to be added to the existing work programme. We do not favour creating additional programmes of work given the fragmented nature of existing policy responses both within the Authority and across government. There is

	an urgent need for better co-ordination and integration to avoid unnecessary duplication, unintended consequences and submitter/engagement fatigue.
10. Does the status quo addresses the problem identified?	As discussed in our cover letter the Authority analysis highlights elevated wholesale prices over the review period but also notes these can be explained by reduced hydro storage, elevated gas prices and rising carbon costs. To these factors we would add risk and uncertainty in the sector due to the need to balance the energy trilemma. Mercury considers the priority short-term issue is achieving an orderly phase out of thermal generation while maintaining i) security of supply, ii) affordability, iii) investment signals and iv) efficient market operation. Price volatility will need to be managed by ensuring price discovery is transparent, market dispatch is efficient and involves demand side response and flexibility to ensure NZ has capacity adequacy to cover peak demand. In the longer term, supply, storage and investment decisions can be made if we have policy settings that give investors the confidence to make decisions. Market and policy settings do need to evolve to support the transition as the MDAG price discovery project, the future security and reliability review and the work on market settings for distributed energy resources shows.
Prohibiting use-it-or-lose-it clauses option	
11.Do use-it-or-lose-it clauses have a legitimate commercial role in the wholesale market? What would the effect of prohibiting them be?	Yes, as they do in all markets. However, Mercury is unaware of these clauses being a material feature of supply contracts in the sector.
14. Would prohibition address the problem?	See our response to Q10 and 11.
EA contract pre-approval option	
17. MW or $ threshold?	
18.Pros and cons of pre-approval?	We agree with the EA analysis that the cons would significantly outweigh the benefits. If implemented this option would result in material delays to new renewable generation at a time when significant investment is required to meet the government's emission reduction targets by 2050. See further commentary in our cover letter.
19.Does pre-approval address the problem identified?	See our response to Q10.
Mandatory public offering of hedges option	
23. Pros and cons of offering hedge contracts	We agree with the EA analysis that the cons would significantly outweigh the benefits. We would be happy to provide the EA with insight into how RFP processes currently operate. Hedges are publicly bid and offered already in the vast majority of cases.
24.Does public offering of hedge contracts address the problem?	See our response to Q10.
Mandatory large hedges public trading option	
26.What are the pros and cons of this option?	We agree with the EA analysis that the cons would significantly outweigh the benefits.
27.Does the option address the problem?	See our response to Q10.
Extending trading conduct provisions beyond spot to hedge market option	
28.Which types of contracts should be covered by trading conduct- type provisions?	See our commentary in section five. Given hedge market contracts are standardised there is no ability for price discrimination and therefore no ability for extending

	trading conduct provisions to have any effect.
30.Pros and cons of extending trading conduct-type provisions	We agree with the EA analysis that the cons would significantly outweigh the benefits.
31.Would extending trading conduct-type provisions address the problem?	See our response to Q10.
Non-discriminatory pricing rules option	
35. Pros and cons of non-discriminatory pricing rules	We agree with the EA analysis that the cons would significantly outweigh the benefits.
36.Would non-discriminatory pricing rules address the problem	See our response to Q10.
Hybrid of non-discriminatory pricing and pre-approved contracts option	
38. Pros and cons of hybrid option	We agree with the EA analysis that the cons would significantly outweigh the benefits.
39.Would the hybrid option address the problem?	See our response to Q10.
Structural options	
40.Is inefficient price discrimination best addressed through a Code amendment or through structural options that would involve other parts of Government?	Mercury does not consider any evidence of inefficient price discrimination has been found that needs to be addressed. The most pressing short-term issue for the wholesale market is achieving an orderly phase-out of thermal generation while maintaining i) security of supply, ii) affordability, iii) investment signals, and iv) efficient market operation. See our cover letter for further detail.
41. Which structural options should be considered further and why?	See our response to Q10, Q40 and our cover letter.
42. Do you agree with the criteria proposed to assess the options?	See our response to Q10.
Extra questions on whether structure, conduct and performance is the best approach to assess wholesale market competition	
(a) What are you views on the structure, conduct, performance approach used to assess competition in the wholesale market?	We suggest the Authority use conventional economic analysis for whether market power issues exist. This involves assessing whether prices are significantly above the long-run cost of entry and expansion and whether there are significant and enduring barriers to entry and/or expansion occurring to reduce prices. The Authority's analysis does highlight wholesale prices have been elevated over the review period but also notes this outcome can be explained by the reduced availability of hydro storage and gas supplies rather than being explicitly due to market power concerns. Mercury agrees with the Authority that these are significant contributing factors but also notes that risk and uncertainty across the sector has significantly increased and there remains a myriad of factors needed to maintain balance in the energy trilemma (as discussed above and outlined in Attachment Two). See our cover letter for further detail.
(b) Is there any other methodology or framework that the Authority should be using instead of structure, conduct, performance? (If so, please describe.)	See our response to (a).
(c) Are the indicators used in this information paper appropriate to inform the Authority's assessment of wholesale market competition?	See our Attachment 3 where we have detailed our response indicator by indicator. Mercury's main feedback is that the indicator by indicator approach creates the impression that there are issues to resolve when in reality

	the significant majority of indicators are inconclusive. NZ's electricity sector has delivered world leading outcomes in terms of balancing the trilemma, significant investment is occurring in response to market signals and barriers to entry are low. Mercury considers the focus should be on how to maintain this performance into the future as outlined in our cover letter.
(d) Do you agree with the Authority's interpretation of the indicators presented in the information paper. (If not, please explain.)	See previous question.
(e) What other indicators should the Authority use to inform its assessment of wholesale competition?	As noted in our cover letter the Authority needs to consider how the sector balances energy trilemma considerations in response to broader Government policy goals linked to decarbonisation. See response to (a) for support for analysis of more conventional assessments of market power.
(f) Are there any additional competition issues that the Authority should consider?	See above.
(g) Are there any interventions that the Authority should consider, to improve competition in the wholesale market?	We support the Authority monitoring recent changes to the high standard of trading conduct provisions to see how they are impacting the market. In addition there are incremental enhancements to hedge market transparency worthy of investigation particularly more information on category of participant hedges being transacted and types of counterparty and timeframes. Finally the Authority could look at ways to support and develop the emerging market platform for PPAs particularly the need to engage with large consumers about the importance of being willing to enter into long-term contracts and offering demand side response flexibility to assist with management of dry-year risk during the decarbonisation transition.
(h) Are there any future workstreams that the Authority should develop to transition red and orange indicators outlined in Table 2 of the Information Paper to green?	We don't think additional workstreams are helpful given the fragmentation already occurring. We suggest the Authority task MDAG with considering how the wholesale market review analysis and options could dovetail with its current price discover project.
(i) How should any proposed interventions be monitored and evaluated?	Through the Authority's usual processes. We strongly recommend that any proposed interventions be considered as part of an existing project to avoid further fragmentation of the policy and regulatory response.

Attachment Two: Factors impacting on the energy trilemma for the NZ electricity sector



Attachment Three: Mercury Assessment of the SCP indicators

Market Structure			
Seller concentration			
Issue	*Authority's assessment*	*Mercury's assessment*	*Future challenges*
Generation Herfindahl-Hirschman Index HHI	 The Authority has assessed that HHI has fallen but acknowledges this is potentially due to drier conditions.	 Market structure is essentially unchanged since 2015 when SWN and OTC exited.	The SWN and OTC exits were seen as desirable as would be the removal of any fossil fuel generation. However, **the market needs a replacement for the role fossil fuel plays**.
Gross pivotal	 Based on Meridian's time at gross pivotal growing from 77% to 90% from 2016 to 2021.	 The Authority's analysis is partial. Meridian was gross pivotal only in the South Island and was just as high in 2015 as any other year assessed.	Will whatever **replaces thermal in the hydrofirming** role be, not only gross pivotal, but **net pivotal**?
Barriers to entry			
Issue	*Authority's assessment*	*Mercury's assessment*	*Future challenges*
Vertical integration	 Power purchase agreements have increased slightly, possibly linked to change in vertical integration (VI). Mercury and Contact decreased while Meridian increased.	 This was a potential concern for the Electricity Pricing Review. Authority has responded by requiring VI generators to publish Internal Transfer Price. Wait to see how a transparent ITP will work.	N/A

Market Conduct			
Price-cost relationship			
Issue	*Authority's assessment*	*Mercury's assessment*	*Future challenges*
Offers over time[1]	 The offers are increasing over time (Meridian mostly) and in the top tranche.	 Increase in offer costs is due to cost increases and uncertainty, particularly in the gas market. It is not a market conduct issue. More offers above $300/MWh because marginal gas supply is more expensive and less available. For the generators of last resort, the cost is not the opportunity cost of gas but the opportunity cost of scarcity. Hydros must price their water against the prevailing thermal cost to ration.	**High prices are a significant issue due to the intended displacement of fossil fuels affecting markets now.** These issues are not going to abate until the industry has transitioned to a low carbon future. **Focus needs to be on an integrated, effective transition plan.**
Percent of offers above cost	 Meridian and Mercury have consistently offered above cost and opportunity cost, beyond Genesis and Contact. Uncertainty of supply and hydro operating constraints may be factors in this.	 DOASA water values are far too low. Every indication that market price is the opportunity cost of electrical energy. Any non-baseloaded plant that can make discretionary capacity available flexibly will have a significant percentage of offers above cost (clearing price).	Any plant that provides **flexibility or last resort capacity will need to ration that capacity by pricing above clearing price**. This could cause problems with price formation and volatility, which is being addressed by MDAG. **The 100% renewable pricing project is critically important.**

[1] Mercury would be pleased to discuss in greater detail with the Authority trading strategy formation and how this has evolved over time in response to changing market conditions including changing market rules.

Market Conduct			
Price-cost relationship			
Issue	*Authority's assessment*	*Mercury's assessment*	*Future challenges*
Relationship of water storage to cost	 Negative correlations, for cost and stored water in generators across the firms.		N/A
Lerner index	 Higher than average for Stratford, Meridian and Mercury. Likely due to valuing water using DOASA for the latter two.	 DOASA water values are too low, not useful for the Lerner index (see below). The authority has tended to use measures that assess the average cost of gas rather than the marginal cost, marginal cost is more relevant for electricity market effects in a dry year. The Authority is probably calculating Stratford's cost incorrectly. As it runs less it will need higher prices to recover fixed costs over time.	If there is no **replacement** for the **security of supply** role prices will get **higher and more volatile**.
Output			
Issue	*Authority's assessment*	*Mercury's assessment*	*Future challenges*
2 percent decrease in demand in the SI	 The average price decrease due to demand reduction was higher during the review period compared with other periods. Reason unknown but might be linked to steeper supply	 The greater increases in price for a fixed increase in demand can only be due to a steeper supply curve - this tells us nothing about market conduct.	The supply curve will get steeper until, at least, the market has successfully **transitioned to a low carbon future**. **MDAG's 100% renewable** pricing work is **critical** as is an **integrated energy transition plan**.

Market Conduct			
Output			
Issue	*Authority's assessment*	*Mercury's assessment*	*Future challenges*
Inter-island price separation	 Costings were more similar between North and South Island than expected.	 The Authority has already addressed this issue by bringing in the trading conduct rules. Probably warrants amber until the new rules have played out but shouldn't introduce further intervention on this issue until they have	N/A
Trading periods with price separation in pre-dispatch but not in final	 No evidence that any generator changed offer prices to avoid or cause price separation consistently with pre-dispatch.		N/A
Trading periods with high prices	 Hydro generators had large percentage of offers priced at higher than the final price in these trading periods. Potential economic withholding but no obvious manipulation.	 This is a reiteration of the 'percent of offers above cost' issue above. There is no manipulation.	Any plant that provides **flexibility or last resort capacity will need to ration that capacity by pricing above clearing price**. This could cause problems with price formation and volatility, which is being addressed by MDAG. **The 100% renewable pricing project is critically important.**
Tiwai contracts event analysis	 This contract was below cost and that should not occur in a competitive market. The risk the smelter would have exited rather than pay market price is an assumed product of efficiency cost.	 The issue addressed in the main submission - Tiwai is not priced below short-term opportunity cost and is a unique situation.	N/A

Market Performance			
Pricing trends			
Issue	*Authority's assessment*	*Mercury's assessment*	*Future challenges*
2 percent increase in demand	 Incentive to economically withhold is being driven by tighter supply	 This is the same issue as the 2 percent decrease above.	The supply curve will get steeper until, at least, the market has successfully **transitioned to a low carbon future. MDAG's 100% renewable** pricing work is **critical** as is an **integrated energy transition plan**.
Spot market supply curve	 Supply tightening may be incentivising exercise of market power.	 Limited evidence available to support the exercise of market power, supply being tight is an external factor, not related to market conduct issues.	The supply curve will get steeper until, at least, the market has successfully **transitioned to a low carbon future. MDAG's 100% renewable** pricing work is **critical** as is an **integrated energy transition plan**.
Marginal analysis	 Marginal changes in supply appear to be related to gas supply issues on the whole, but Mercury has become marginal more frequently which may be an exercise of market power.	 Being marginal gives no guidance on the exercise of market power. If thermal is less often marginal other plant must be more often marginal.	If there is no **replacement** for the **security of supply** role prices will get **higher and more volatile**. **Fewer parties** will be able to be **marginal** under **tighter supply conditions**.
Actual versus predicted prices	 Despite the evidence, the Authority is uncertain that the cause of rising prices is due to underlying market conditions.	 The rising prices are due to underlying market conditions. There are significant externalities that the industry needs to adapt to.	**High prices are a significant issue due to the intended displacement of fossil fuels affecting markets now.** These issues are not going to abate until the industry has transitioned to a low carbon future. **Focus needs to be on an integrated, effective transition plan.**
Forward prices	 Despite the evidence and its conclusion, the Authority marked this issue as amber.	 There seems to be no reason for the amber assessment.	N/A

Market Performance			
Profitability			
Issue	*Authority's assessment*	*Mercury's assessment*	*Future challenges*
Cost to income ratio	 Firms are not making excessive profits – Meridian was the exception with increased earnings.	 It wouldn't be surprising for some low fuel cost firms to make higher profits in a period of high prices. Industry is investing in new renewable generation and no evidence of barriers to entry.	N/A
Dynamic efficiency			
Issue	*Authority's assessment*	*Mercury's assessment*	*Future challenges*
Investment	 The thin pipeline of new supply may be weakening the incentive on existing players to commit new investment in a timely manner.	 Mercury disagrees that the supply chain is thin. There is plenty of evidence of new renewable projects. See main submission.	This isn't a general investment issue but one related to specific **security of supply investment**. **What replaces thermal** used **for security of supply** is the **critical** investment question.

DOASA Water Values

The Authority notes a number of problems with its calculated water values. It concludes that the DOASA water values represent a lower bound of water value. However, this statement overstates the degree to which the Authority's calculated values are useful in assessing the opportunity cost of water.
The Authority makes the comment "5.80 Overall, none of the generators' offers appear to be related to the DOASA water values, despite the DOASA water values being correlated with storage during the review period". Merely being correlated is a weak test for the efficacy of water value calculation. Similarly, the Authority makes the point "… the water values obtained from the generators are much more variable than the water values from DOASA." (5.72). However, the Authority also stated "5.60 We use the average water value over all of New Zealand from DOASA rather than the water values for individual reservoirs because the individual reservoir water values are very volatile." The statement in 5.72 is incorrect in our view. DOASA did produce volatile water values, the Authority chose to use an average rather than try to reconcile individual reservoir results to its calculated outcomes.

The Authority has noted the criticality of the inputs to calculating water value. It is particularly critical to select the best estimates of fixed alternative cost for the water value calculation to determine the opportunity cost of release versus the opportunity cost of storage. In assessing this the Authority has attempted to use a variable cost of thermal generation based on publicly available gas costs. This gives rise to two problems:

- First, the gas prices used by the Authority seem to give the average cost of gas over the periods. The average cost of gas will include take or pay contracts (where the opportunity of gas tends towards zero), baseload contracts (which may have little impact on price formation – being infra-marginal most of the time), and a small volume of marginal gas contracts. These marginal gas contracts will have a disproportionate impact on the electricity price due to these contracts likely driving the marginal offers for electricity supply as supply gets scarcer.

- Second, during periods of scarcity, thermal offers will not only represent the variable cost of supply but will also seek to recover fixed and non-cash costs. These marginal offers can be significantly higher than variable cost only and not assessing them correctly can have a material impact on water value calculations.

While we recognise that the Authority has noted that, in general, the many assumptions and choices it had to make about inputs means that it has likely understated the water values, and that the output should be treated as any other estimate. We suggest that the choice of potentially incorrect assumptions for every input of water value calculation will lead to substantial error in the output. Good water value modelling needs not only good modelling skill but also significant market experience. The choice of inputs needs to be very carefully done given the specific context of every period analysed.

Overall, the water values calculated by the Authority perhaps provide for useful context in the same way as any estimate. However, such an estimate should not have been used to derive the Lerner Index assessment.