Improving incentives for long-duration firming - submission from Rewiring Aotearoa

Key messages

We strongly support the Electricity Authority to develop well-designed long-duration firming contracts as a no regrets step as part of an enduring dry year solution. Right now we appear to be going into a boom market. This extra energy in the market means maintaining current thermal generation (especially coal and diesel) alleviates security of supply concern in the near term, but doesn't necessarily ensure security of supply.

The mechanism to address the dry year challenge should be technology neutral and the Government's proposed Winter Energy Reliability Obligation risks favouring thermal fuel solutions, when as the Authority rightly notes, renewable dry year solutions could be lower cost. We are concerned about the process undertaken by the Government and MBIE to deliver the wider dry year solution and encourage the Electricity Authority to weigh in on policy matters, and advocate for this market design exercise to be undertaken by experts in market design.

Firm energy contracts market provides alternative to scarcity pricing to underpin investment in firm energy

We agree with the Authority's market failure problem definition in the consultation. Because firm generation is only needed in dry years, its revenues are volatile and weather-dependent, dry-year investments are best facilitated by long duration contracts.

We have included screenshots of 4 slides from a report by Sapere, commissioned by Rewiring Aotearoa called *From Faultlines to Resilience*[1] which set out our views on the electricity market failure and the rationale for a well designed long duration firm energy market as part of the solution to the dry year challenge.

[1] From Faultlines to Resilience, Sapere 2026.

Contracts are the best way to underpin firm-energy investment, but they haven't happened

- Because firm generation is only needed in dry years, its revenues are volatile and weather-dependent, dry-year investments are best facilitated by long-term contracts.
- The original NZ electricity market design expected investment to be underpinned by contracts. However:
  - It was assumed that contracting would flourish by simply publishing a wholesale price, and that the counterparties would have sufficiently high creditworthiness to sign long-term contracts.
  - It was assumed that generators and customers would agree on scarcity, volatility and credit and would, therefore, contract.
- However, liquid firm-energy contracts have not eventuated, due to a multitude of factors :
  - Government intervention have made the economics of private investment in firm energy uncertain by signaling a preferred dry-year solution, suppressing the willingness of firm-energy sellers to invest, and thus their willingness to offer firm energy contracts
  - Many potential electricity buyers resist the long-term contracts necessary to underpin firm energy investments or are too risky to contract with on a long-term basis (counterparty risk).
  - Unclear, unreliable gas reserve forecasts have masked the risk of depletion and higher power prices, weakening users' incentives to lock in electricity contracts.
  - High baseload contract premia can encourage users to self-insure rather than hedge: it is theoretically cheaper to self-cover for wholesale electricity market risk when contract risk premia are higher than the cost of keeping liquid current assets to cover payments (suitably adjusted for risk). This tactic only works if an end-user is able to predict the worst outcome and have sufficient current assets to cover the cash flow in that outcome.
  - Smaller electricity buyers may have an incentive to forgo contracting, on the assumption that larger market participants would undertake inter-generator contracting and investment (the free-rider problem).
- The next slide illustrates the feedback loop of these factors.

There is a reinforcing loop that has prevented firm energy contracting

This reinforcing loop has been a characteristic of the NZ electricity system since its introduction

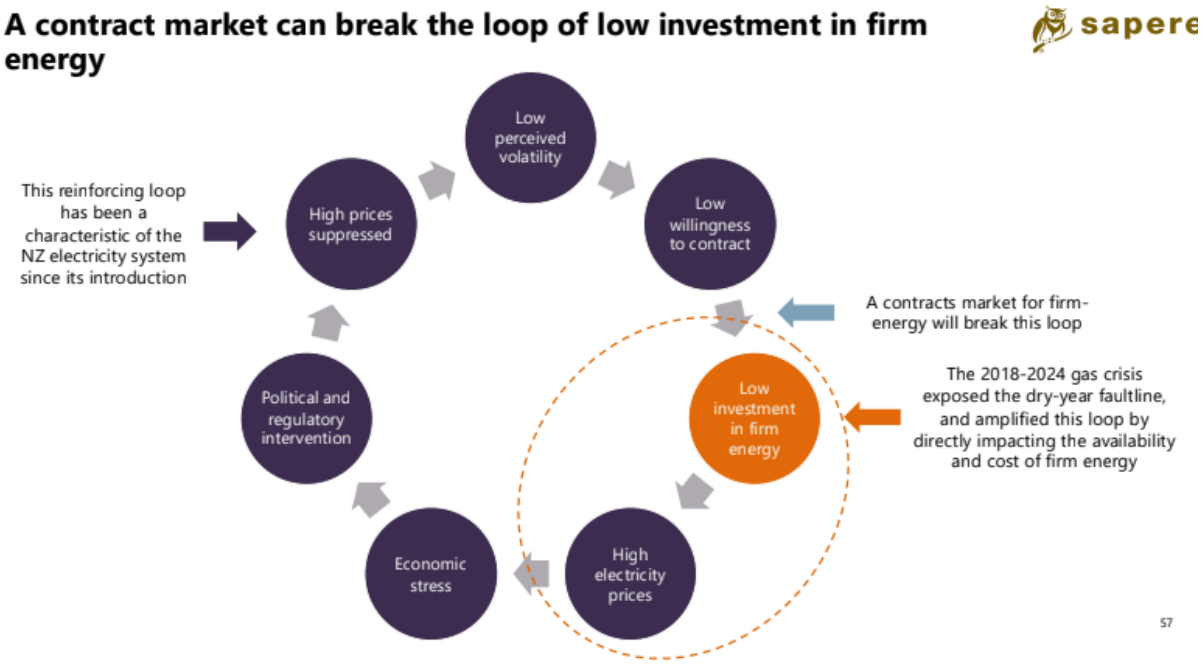


The 2018-2024 gas crisis exposed the dry-year faultline, and amplified this loop by directly impacting the availability and cost of firm energy

The lack of dry-year firming contracting meant that little new firm capacity was built, and, as a consequence,

- wholesale prices to unprecedented levels;
- general fear of scarcity has been imputed into wholesale prices and contract prices; and
- this severely exposed unhedged users.

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Target an enduring solution that works as part of a well designed electricity market

Addressing our dry year challenge through electricity market design is a key part of providing affordable electricity which underpins our economy.

We need to be looking for an enduring solution that works well into the future. One of our concerns is that the Electricity Authority's analytical focus in this paper was on short-term fuel security. The analysis only considered the risk of dry year shortage

given existing thermal capacity and demand response out to 2031. The energy system is rapidly changing, including the potential for significant customer energy resources (solar, batteries, EV uptake), and any interventions in the market should include modelling of future states that include significant uptake of these types of customer energy resources in of the energy system.

As part of work on the dry year solution we recommend updated modelling with assumptions that reflect these technology changes, in particular potential uptake of EVs, home batteries, and distributed solar.

Analysing long-term dry year security risk relies on forecasts of the supply and demand balance in the market. Currently we are in a boom phase with a healthy increase in renewable generation entering the market relative to demand growth in recent years.

This highlights the inherent importance of having dry year backup that is available regardless of the fluctuation in supply/demand balance associated with boom and bust build cycles in the market. It also highlights the current vulnerability of our system to this cycle and the importance of wholesale market price signals and competition in the market to bring forward build. Maintaining a healthy supply/demand balance lowers requirements for dry year back up and highlights the interconnectedness of different aspects of electricity market design.

We are concerned by the fragmented process that is currently being used to design the dry year solution. A lot of detail still needs to be worked out including the design of security standards. In parallel, MBIE's work on the Winter Energy Reliability Obligation could risk a poorly designed solution that could result in damaging security outcomes.

Our view is that the wider dry year solutions should be tested through a transparent market design process, drawing on a team of experts including practical economists and experts in electricity market design.

The responsibility here does not fall solely on the Electricity Authority, MBIE and Ministerial direction have delivered the current fragmented approach to the Winter Energy Reliability Obligation and complementary market design components. However, as an independent regulator, the Authority has a role in providing commentary and advice on how to undertake a better process to deliver enduring market design, which considers the dry year solution as part of holistic market design exercise. It is also fundamental to enlist the right skillset to deliver this work, expertise in policy and regulation is different from expertise in market design.

Mechanism should be technology neutral and deliver least cost solution

The Electricity Authority should ensure that its work on market design to deliver dry year security is technology neutral, and delivers on the Authority's goal to ensure the system delivers reliable power at least cost to consumers.

Options in this consultation paper are intended to work alongside other measures currently being considered by the Government, including a proposed Winter Energy Reliability Obligation, and an import terminal for LNG. These policy measures to address dry year security risk are biased to thermal fuel.

As the Electricity Authority rightly notes:
"*The selection of long-duration firm energy is therefore an economic problem, not a technological one, that tends to favour lower fixed cost investment propositions (e.g., traditional thermal). However, as the variable costs of these types of firming rise, intermittent renewables may, in fact, become lower overall cost*."

As the Authority notes there are different solutions to the dry year problem. This could include a technology neutral reliability obligation (to ensure liquidity for provision of dry year firming) combined with workable well designed dry year contracts (to deliver price discovery and access to dry year insurance for purchasers).

A better designed reliability obligation that is not biased towards thermal fuels or an out of market dry year renewable strategic reserve may deliver better outcomes for consumers than the current Winter Energy Reliability Obligation option set out by MBIE.

A renewable strategic reserve could provide an elegant dry year solution, with dry year supply being treated as another ancillary service, clear market rules that specify when it could be utilised based on lake storage and flow metrics could be defined. Thermal dispatch lifts prices in a drought, while a renewable solution would avoid this high wholesale price uplift and lower water values that set hydro dispatch prices by providing greater certainty.

As an independent regulator, the Authority should ensure that it is considering solutions that deliver reliable power at least cost to consumers, and as part of its work on long-duration firming contracts it should review whether the current combination of policy measures meets these outcomes for customers.

Time to implement well

The analysis in this consultation supports the point that many in the sector have been making: that we have more time to implement an enduring well designed dry year solution, than was previously thought after the 2024 price shocks.

Both the Electricity Authority's analysis and Sapere's analysis show that even in the absolute worst case hydro shortage scenarios (either considered annually or over a three month period) the dry year deficit is declining.

Response template

Questions	Comments
Q1: Do you agree with the Authority and Sapere's analysis that New Zealand faces an ongoing, but declining, long-duration firm energy gap? Please explain your views.	It looks like the LDF energy gap is declining, but it is hard to tell what the ongoing situation will be because the analysis only goes out to 2031. We recommend updating modelling with assumptions based on the updated technology context, in particular potential uptake of EVs, home batteries, and distributed solar.
Q2: Do you agree with the Authority's assessment of barriers to the market providing additional sources of long-duration firming? Please explain your views.	See submission above - but broadly yes
Q3: Are there any other barriers you think limit participation in firming contract markets for buyers, sellers and potential new entrants? Please explain your views.	See submission above
Q4: Does the tenor gap represent a material barrier to investment? What additional work or interventions, if any, could be considered by the Authority to address this issue?	No response
Q5: What is the most appropriate method for assessing long-duration firming risks? For example, should the assessment focus on dry seasons or dry years or both?	No response
Q6: What information or guidance on firming contracts would be most useful for market participants?	No response
Q7: What information relating to firming contracts should be disclosed to improve market transparency?	No response

Q8: What measures, if any, should be prioritised to improve investment incentives for long-duration firming?	See submission above.
Q9: Would a physical or financial firming product be more effective in supporting market liquidity, managing risk, and supporting investment signals? Please explain your views.	See submission above.
Q10: Do you support the introduction of a mandated sell-side auction for a small volume of firm energy products? Why or why not? If you support this option, please include in your response the types, volume, and duration of products that should be auctioned.	No response
Q11: What additional measures could be introduced to facilitate more effective, or additional, demand response arrangements?	No response