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EA loses reliability focus, independent SRC needed - report

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The Electricity Authority has taken its eye off its electricity reliability and security objective to focus on

government policies to decarbonise electricity, Sapere concludes in two reports for Mercury.

The reports call - among other things - for the Security and Reliability Council to be strengthened and given independence from the authority so it can provide an impartial, expert view of the electricity system's reliability.

The authority is disputing some of the reports' conclusions, saying they overlook much of the work that is being done, but says they provide useful industry input.

The two authors of the reports, Sapere managing director Kieran Murray and director David Reeve, say the authority's role as a regulator independent of government "appears to have been forgotten" during the period from 2020.

One report, the *Confluence of factors threatening electricity reliability,* says that, unlike the Ministry of Business, Innovation and Employment, the regulator is "not a core government department - its job is not to align with the Government's priorities".

However, in 2022, the leadership at the time assured former Energy Minister Megan Woods that it was "well-placed to align" with the-then Government's focus on a "just transition to net-zero carbon emissions by 2050, while building a more productive, sustainable and inclusive economy".

As a result, Murray and Reeve say, the authority had a "blinkered view" of the impending gas-market failure, despite repeated industry warnings between 2021 and this year that "the Government's interventions were damaging the gas market with severe implications for security of supply in electricity".

Independence lost

In their second report, on the need to strengthen a more independent Security and Reliability Council , Murray and Reeve say that in the years from about 2020, the authority may have compromised its independence from the Government.

"Where the authority refers to its statutory objective, it is now often somewhat perfunctory, rather than a test of its intervention," they say.

Instead, the authority has "sought to align its priorities with the government-of-the-day's priorities" which has "constrained and muted the Security and Reliability Council," they say.

Murray and Reeve point to the Gas Industry Company's release of figures on 8 May showing a 12.5 per cent reduction in gas production, and a 27.8 per cent reduction in gas production beyond what was projected in the first three months of this year.

They say that while the authority accepted the Market Competition Review 2022 conclusions that gas market uncertainty was affecting the electricity market, and made recommendations to MBIE, the regulator's response was largely "inactive".

They suggest either the authority gave "little weight to the link between poorly conceived regulatory interventions and investment incentives" or it

"felt obligated to support the policies of the government rather than express an independent view".

The more plausible explanation, they say, is that the authority thought it should support government policy, or "at least not be vocal in pointing out the implications of that policy for promoting its statutory objectives in the electricity sector".

This loss of independence is an issue in the electricity and gas sectors, which are "particularly vulnerable to behavioural uncertainty by regulators", Murray and Reeve say.

First, they have large, specific, and fixed technological investments, giving regulators and political stakeholders "considerable leeway to act opportunistically," they say.

Second, the entire population consumes electricity services, therefore politicians and interest groups are "sensitive to price and service levels".

And finally, the services are a focal point for individuals and groups concerned with climate change and emissions, they say.

These factors provide governments with strong incentives to adopt short-run policies that may harm long-run policies, Murray and Reeve say.

"In the absence of a safeguard against regulatory actions that undermine investment, businesses subject to intervention will protect themselves from this risk by under-investing," they say.

May 10 effects

The Sapere reports were commissioned by Mercury NZ, which asked Sapere to consider "potential deficiencies in the current industry arrangements that might lead to an erosion of security of energy supply".

The reviewers say Transpower's call for nationwide demand conservation on the morning of 10 May because of a risk that the wholesale electricity

market could fail to "fulfil its primary purpose of reliably matching supply to demand" put the question of the market's security into sharp relief.

While demand was reduced by about 260 MW in response, they say additional generation was also made available as maintenance was cut short and Transpower "constrained-on" plant at a wholesale price below its offer price.

"Wholesale electricity prices over the relevant part of the morning peaked well below scarcity levels ($459/MWh at Otahuhu at 0730, compared to $4933/MWh at the same time two days earlier when there was no warning notice or associated public communications)," they say.

These events are "clearly not consistent with a market operating in the long-term interest of consumers," they say.

"It is likely some consumers curbed their use of electricity (acting in the public interest) when the benefit to them from using that electricity would have exceeded its cost of supply.

"It is also the case that some generation plant ran when its operating costs exceeded the market price."

In addition to these immediate "welfare-reducing" outcomes, Reeve and Murray say the long-term costs to consumers will be much larger if "incentives and confidence to invest in electrification, generation and demand reduction were compromised".

Peak growth visible

They also say that what happened on 10 May was not an isolated event and that it was "symptomatic of a fundamental problem which has been building for nearly a decade".

Growth in peak demand has outstripped growth in firm supply capacity since 2015, and they expect there will be more occasions in which a shortfall of generation is predicted and a much higher risk of outages.

"The market cannot, therefore, be said to be delivering reliable supply for the long-term benefit of consumers, a core element of the authority's statutory objective."

They note that until about 2015, new generation - geothermal and wind - was being added to the electricity system, resulting in an oversupply and pushing down wholesale prices.

By 2015, that had challenged the economics of Contact's gas-fired power station, Otahuhu B, and Mercury's gas-fired Southdown plant. These were subsequently decommissioned, removing firm capacity from the system.

"Possibly, these events were the first hint that the remuneration for low-utilisation plant during system peaks (that is, high spot prices for short periods of time) was insufficient for investors."

Mounting factors

In their *Confluence of factors threatening electricity reliability* report, Murray and Reeve say the business case for new firm capacity was undermined by the Lake Onslow dry battery proposal, especially when the discussion around it moved from being solely a dry-year solution to a generator that would run whenever operation was economic.

"Since Onslow would have had an instantaneous capacity of approximately 1200MW, it would have been the biggest peaker in New Zealand's history," they say.

"With the prospect of the Government entering the market to provide firm capacity on a massive scale, the business case for commercial investment in peak-supporting plant became very difficult, at best."

Other issues were the 2018 implementation of the-then government's ban on new offshore exploration permits, "combined with concerns about how the Government might view the role of gas as the New Zealand economy decarbonises", and a lower investor appetite for greenhouse gas-emitting industry.

They also highlight the loss of the regional coincident peak demand (RCPD) price signal from the transmission pricing methodologies.

"There is evidence that peak consumption has increased since the removal of the peak pricing signal," the report says.

These factors combined to significantly reduce incentives to invest in maintaining New Zealand gas production, Murray and Reeves say.

The net-outcome was that peak electricity demand has outstripped firm capacity growth for the past decade, and the events of 10 May "become inevitable", they say.

This peak capacity shortfall is evident in Transpower's 2024 Security of Supply Annual Assessment, they say.

Its stage one assessment, which considers only existing and committed generation, has the winter capacity margin falling below the existing standard by 2026.

Based on projects not yet committed to but with consent, that date goes out to 2028, and to 2029 if projects with consents that have lapsed are included.

The standard remains met only when adding in projects that are expected to apply for consent in the next two years - assuming sufficient gas.

"The low gas supply scenario - which should probably now be considered the reference scenario - shows all stages falling below the winter capacity margin by 2029, even under stage four which assumes substantial investment in new generation," the report says.

Security entity recommendation

Resolving these issues would be helped by an "independent entity, which is adequately resourced, and which has a singular focus on reliability, security, and resilience." Murray and Reeve say.

This is currently missing from the New Zealand electricity market.

"We noted that such an entity should also be independent of the industry regulator, as those regulators themselves need to be monitored for how their decisions impact reliability, security, and resilience," they say.

Therefore they would not make changes to the Electricity Industry Participation Code, but would instead focus on providing a "publicly independent voice on all levels of security of the electric power system, including monitoring long and short-term planning and operations," they say.

"While the entity should not make code changes, it could be consulted on proposed changes that affect security."

A singular focus is necessary because of the importance of security of supply, and also because the topic is highly technical and complex," they say.

"Not only is expertise required, but also experience. The entity cannot rely on Transpower for such expertise or experience, as Transpower is the primary entity that is being monitored."

Reliability importance increasing

The importance of security and reliability will increase with electrification of transportation, industrial processes and new loads to support an "ever-increasing digital future", Murray and Reeve say.

Little attention is being paid to resource adequacy in New Zealand, relative to other electricity markets, they say, adding that these types of entities feature in many electricity industry jurisdictions for "good reason".

The North Island winter capacity margin is New Zealand's sole resource adequacy standard for capacity, they say.

This measure has not been updated since implemented in 2012 and "compares unfavourably with electricity markets elsewhere, which take a much more dynamic approach to assessing and managing reliability," they say.

"The importance that New Zealanders attach to reliable supply will have increased materially since the authority calculated its 'optimal' capacity margin 12 years ago," the report says.

It also points out that in 2012, the authority's cost-benefit analysis concluded that "up to 22 hours per annum of energy or reserve shortfall (as a result of a capacity shortage) is economic before additional investment in peaking generation is warranted".

That conclusion is "unlikely to be politically credible today", Murray and Reeve say, with political leaders (representing consumers) more likely to state a zero-tolerance for blackouts.

International comparisons

The reports point to the number of international electricity markets that are "arguably quite similar" to New Zealand.

The Northeastern Power Coordination Council has a resource adequacy standard averaging 0.1 day - 2.4 hours - of lost load per year. Reliability First in the eastern United States area, including from New Jersey through to Wisconsin, has a resource adequacy target of one day of lost load in 10 years -again, 2.4 hours on average per year.

"Like New Zealand's winter capacity margin and winter energy margin, these are described as standards, but unlike New Zealand, they must be achieved," they say.

The Pennsylvania-Jersey-Maryland regional transmission area relies heavily on a capacity market, but the reliability requirement influences the capacity market design, with firm capacity obligations to be met out to three years, they say.

The New York Independent System Operator goes further, they say, including mechanisms such as designating that generators which are planned to be deactivated be retained to meet their short-term assessment of reliability.

The reports say that in New Zealand, an independent reliability entity would "ideally provide oversight over the whole electric power system, including distribution and distribution-level resources".

It should also be empowered to consider the upstream sources of electricity supply, to the extent that they affect reliability, security and resilience, "most notably gas and coal markets and supply chains".

While it was the intention that the Security and Reliability Council would provide at least some of this role, it has instead become more of an advisory group to the authority, they say.

"However, we identified that, within the current arrangements, the SRC could be structured to provide the role," the authors say.

Authority response

The authority says it welcomes input and thinking from the industry on how best to achieve a secure, reliable, and efficient energy system.

"Industry insights and experience provide valuable perspectives to help inform our work," general manager of market policy Andrew Millar tells *Energy News*.

"However, we are concerned that there are some assumptions and inaccuracies about the authority's approach to security and reliability in these reports."

Millar says the reports are "incorrect in their assessment of the authority's and SRC's respective statutory roles and functions under the Crown Entities Act" and also do not reflect the most recent statement of intent, which includes a strong focus on a secure and resilient electricity system.

The regulator has a substantial and proactive work programme focused on the security of supply and resilience of the electricity system, which was largely "omitted from the report, including the work of the Security and Reliability Council, he says.

Millar also points to the recent outage coordination rules improvements, and that it is considering amendments to the Security Standards Assumptions Document as highlighted in the October SRC meeting papers .

The regulator is also consulting on scarcity pricing settings and working on improvements to the accuracy of intermittent generation forecasts and thermal fuel disclosure information.

Millar also says the authority recognises the vital importance of the Security and Reliability Council in helping ensure New Zealand has a secure and resilient, accessible and efficient energy system that benefits consumers in the long term.

The regulator has "confidence in the advice it provides", Millar says.

However, despite the authority's concerns with the reports, Millar says aspects will be discussed with the SRC, and options to improve the way the SRC operates are being explored.

"We want to ensure the SRC is best able to assist the authority meet its reliability and security of supply objectives by providing independent advice that draws on the deep industry knowledge SRC members contribute," Millar says.