ENERGY NEWS
www.energynews.co.nz
Tuesday, 11 March 2025

NEWS | SECURITY OF SUPPLY

Security of supply the key market issue - Sapere

Felicity Wolfe

Tue, Feb 18 2025

Security of supply - including gas - is the biggest of several interconnected issues behind current electricity

market stress, consultancy Sapere has told Government ministers ahead of a Cabinet-ordered independent review.

In the latest report commissioned by Mercury, Sapere directors David Reeve and Stephen Batstone prepared a graphic representation of electricity industry issues and what they consider to be key priorities for ministers.

"Based on our previous work on security of supply, distributed energy resources and flexibility, we conclude that security of supply (including the gas market) is the predominant cause of market stress, with the attendant impact on prices, and an urgent area of focus," they say.

Overall, the industry's key strategic questions "relate to the gas market, security of supply in electricity and the coordination of distribution networks and distributed energy resources, Reeve and Batstone say.

What they call the Electricity Authority's loss of focus on its reliability objective - which they raised in September - means that "security and reliability have been eroding over some time", they say.

"While there are regulatory standards for security and reliability, they have not been regularly updated and there is no method to ensure standards are met."

Security of supply has "fallen behind growth in peak demand" because there is "no security standard that the market is required to meet".

There has been only "minimal investment" in firm flexible resources - gas, diesel, coal and hydro with storage - that provide both peak demand security and dry-year security.

That, alongside the increasing scarcity of gas, has seen a "contraction in the flexible fuel available to manage dry years", Reeve and Batstone say.

They call for a "material and concerted regulatory focus on security of supply and the availability of flexible resources", saying that the industry relies on "competition and unfettered price signals to deal with market power and drive efficient investment".

Simplifying complexity

The heat-map style presentation and accompanying explanation of details was commissioned by Mercury, which asked that the issues be presented as simply as possible.

In the report, Reeve and Batstone, together with Mercury and utilities legal and policy advisor Christine Southey, identify what they think are the symptoms of market issues and seek to distil those down to the "key ones that really matter".

They developed graphics to capture the complexity of the challenges industry, including a "heat map" of issues while looking at the root causes of the "symptoms".

Many of the issues were, for example, "symptomatic of a wholesale electricity market under stress".

The identified issues are expanded in an addendum report.

Sapere was asked to consider the key policy decisions that need to be made, and factors such as ensuring the durability of those decisions, despite political cycles and the effects of political pressure on market-design choices.

They were asked who should lead the market design for these key areas, how these bodies should be held accountable, and the risks associated with multiple regulators and the unintended consequences in the gaps between those regulators.

They were also asked to consider whether the gas market can function in a stable manner, whether security of supply arrangements can meet consumer expectations, and how wholesale and retail market design can help coordinate distributed energy resources on networks and consumer participation.

Political influence

Reeve and Batstone say the energy industry's regulators - the authority, the Commerce Commission and the Gas Industry Company - "need to develop robust, comprehensive approaches to prioritisation of effort that are deeply rooted in the long-term interests of the economy and society".

They have previously argued that the authority has shown signs of political capture, and say these bodies need to maintain their independence from "political cycles, lobby groups and hot topics".

Governments making policy for the industry should be most concerned about the certainty of their policy choices over the life of assets being invested in by large market-participants and residential consumers, Reeve and Batstone say.

"Policy choices made today will not materially de-risk investments that have 20-year asset lives if they are subject to short-term political cycles."

Efficient network investments

The report's second key concern is the need for efficient coordination and pricing of smart technology, distribution networks and retail markets to "avoid wasting billions of dollars on networks and demand-side technology".

They say the electricity system is experiencing "profound changes, most of them externally driven" by variable renewables, technology and electrification.

They highlight that the spending on distribution and transmission to meet the demands of electrification has been forecast at about $85 billion over the next 25 years - "nearly four times the anticipated investment in generation over the same period".

Effective economic signalling and coordination to "ensure efficient capital allocation, optimise network use" is urgently needed to reduce that spend, they say, pointing to Boston Consulting Group's The Future is Electric report which suggested about $14 billion could be saved under a "smart system evolution" pathway.

That investment is "somewhat driven" by the electrification of transport and process heat and the construction of variable renewables - including household-scale and utility-scale solar and wind - to supply that electricity.

Distribution networks make up the bulk of that projected investment - about $65 billion.

Those networks will host most of these new connections "which results in the potential for two-way flows on networks that were designed for one-way flows".

These new electricity consumption and storage devices also, however, come equipped with "significant smarts", allowing them to provide flexibility services to the electricity system-including being able to defer network investment by reducing network peaks, improving long-term affordability.

Gas decline

While the gas industry has provided fuels to both the broader energy users and electricity generation for decades, its production and discovery have declined materially.

Reeve and Batstone say the gas market is a "serious risk for the country's energy system, particularly due to the sheer uncertainty and lack of information about remaining reserves and the end-of-life status of existing fields".

This uncertainty is exacerbated by gas fields becoming "more unpredictable as they approach end of life", they note.

"Consumption technology has also changed, enabling the electrification of two significant forms of energy consumption-transport and process heat."

While electric vehicles are incredibly energy efficient, they may require "high levels of instantaneous demand from the system (relative to other consumer appliances)".

Businesses are also electrifying process heat, either through industrial heat pumps or electrode boilers.

These pressures are "creating tension, illustrating decarbonisation-security-affordability issues" through the lens of the World Energy Council's energy trilemma, which highlights that the tensions between sustainability, cost and security, and reliability must be carefully balanced.

"Allowing any of the limbs of the trilemma to fall out of balance can then affect the other limbs. The New Zealand electricity system is out of balance," the report says.

The erosion of security margins - particularly for the capacity required to meet the short periods of very high demand, and potentially the longer-term fuel required to support hydro during periods of low inflows - is creating market risks, it says.

"In the short-to-medium term, these risks primarily relate to lack of confidence that fuels (principally gas) which provide secure capacity during

peak-demand periods and support hydro when inflows are low, will either be unavailable or only available at very high prices," Reeve and Batstone say.

"In the long term, these risks manifest as highly risk-averse investment behaviour in security of supply.

"Uncertainty about gas availability, as well as the threat of significant government involvement in providing security of supply (the NZ Battery project), significantly increases the risk of committing capital to plant that provides a security of supply service."

Political temptations

Reeve and Batstone conclude there are some hard questions that must be asked and answered.

"Politics has, undoubtedly, both directly and indirectly affected price formation in the wholesale electricity market.

"The reality is that this temptation will always be there," they say.

They ask what design changes would best insulate the market - and particularly security of supply - from "political whim".

"There are also critical design questions about wholesale, retail and network challenges; however, we believe New Zealand could lead the world again in developing solutions to these," they say.

"Above all, though, the Government and public need accountability not only for the timely delivery of necessary solutions but also for the quality of the outcomes."