

Peer review of the Grid Reliability Standards (GRS)

A peer review by two British experts of the Commission's grid reliability standards (GRS) has found they are in line with the latest international trends and are clearly superior to older methods of setting reliability standards.

Part of the Commission's role is to set standards on behalf of consumers that Transpower must achieve to ensure supply is reliable. Transpower also uses these standards in determining where investment is needed to improve reliability, as it has done on a number of investments.

The Electricity Governance Rules set a minimum standard of reliability for the core grid called n-1, meaning the system should be able to operate even if the largest transmission or generation asset is lost. This is a deterministic standard – that is, the grid must always operate at least n-1, whether that is a reasonable standard or not – that has been in use for over 40 years.

Improvements in computing mean the chance of a failure and its impact can now be modelled more accurately. As a result the GRS use a probabilistic approach, where the risk of a grid failure is balanced against the cost of that failure. This method showed recently that a higher level of reliability was merited for Auckland because the cost to consumers of a major power cut would be very high. As a result the power supply into Auckland now has to be able to survive the loss of the largest supplying generator as well as the largest transmission asset.

Because this approach was new to New Zealand, the Commission sought an external expert view of its application of the GRS and a comment on overseas grid planning trends. It engaged Professor Goran Strbac, Chair in Electrical Energy Systems at Imperial College London, and his colleague, Dr Predrag Djapic. Both have extensive work experience advising the British government, the UK electricity regulator and industry on network security, investment, access and pricing matters. Professor Strbac has also been involved in significant analytical work on the impact of wind generation in New Zealand for Meridian Energy.

The two experts said that probabilistic standards are “clearly superior to deterministic planning standards and in line with recent developments overseas”. A similar approach is used in the UK and Australia. They also found that the GRS provide an appropriate framework for quantifying costs and benefits of grid investment options, including non-grid solutions.

For more information go to www.electricitycommission.govt.nz/opdev/transmis/gridreliability

North Auckland and Northland grid upgrade proposal (NAaN)

In April 2009 the Commission approved Transpower's project to upgrade the transmission grid between Pakuranga and Albany. The \$473 million project will improve security of supply into Auckland and Northland.

Earlier, in December last year, the Commission reached a preliminary decision declining this proposal. The Commission did so largely because it was possible that before this upgrade was strictly needed (to meet growing Auckland demand) a new power station might be built at Rodney. Arguably, a source of electricity north of Auckland would defer the need to upgrade transmission coming into Auckland from the south. It seemed sensible to wait a couple of years before making a final decision on this project.

Transpower and others asked the Commission to consider further evidence. New information was presented about system risks and high impact, low probability events. Meanwhile Genesis obtained consent from the Northland Regional Council to proceed with the Rodney station. But the terms of this consent gave Genesis 15 years to decide whether to proceed, making it unlikely that they would do so in the next two years.

The new information convinced the Commission to reverse its earlier decision. In particular the Commission benefited from public hearings held in Auckland in March. The Commission is grateful to those who helped it reach a difficult decision. Including this project, since 2004 the Commission has approved over \$2.7 billion in improvements to the transmission grid.

For more information go to www.electricitycommission.govt.nz/opdev/transmis/gup/naaN



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Notes from the Chair

Electricity
Commission

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Chair Comment

The National Government's Energy Policy included a commitment to “undertake a careful review of the roles that the Electricity Commission, the Commerce Commission and Transpower play in the electricity sector.” It said they would “do this with a view to ensuring the best outcomes for consumers – in terms of security of supply and affordability – and .. with the goal of eliminating unnecessary role duplication.”

Accordingly, in April the Minister of Energy and Resources, Hon Gerry Brownlee, announced a Ministerial review of the electricity sector. A panel of six advisers is assisting officials from the Ministry of Economic Development. Initially the review will look at regulatory and governance issues. A second phase will address issues of electricity market performance.

There are at least two reasons for welcoming the review. The first is that much has changed since the Commission was established in 2003. The Commission replaced a set of private, voluntary industry contracts that largely governed the wholesale market. Since then other functions have been added, without any overall examination of their interaction or internal consistency. For example, being responsible for the peaking plant at Whirinaki helps address security of supply, but arguably conflicts with the role of administering the wholesale market neutrally as between participants.

The point that the Electricity Commission isn't truly independent (in the same way as the Commerce Commission, for example), is the other reason to welcome the review. Stakeholders have emphasised that they see this as a real concern.

The review is an opportunity to improve the performance of the electricity system. The Electricity Commission looks forward to working with officials and their advisers and to responding to their views in due course.

David Caygill

Market Design Review

Over the past year the Commission has been working on its Market Design Review project. The wholesale electricity market has been in operation since 1996. Yet consumers still have concerns about fairness of prices and, from time to time, supply, when the South Island ‘battery’ lakes do not receive as much rain as is preferable. At the same time generation investors are dealing with a number of variables including exchange rates, changing primary fuel availability and costs and a more capital constrained financial world. The challenge for everyone is to ensure a reasonable price for consumers, while at the same time maintaining a stable platform to enable generation investment.

A key focus for the Commission at present is combining the work that has already been done on the Market Design Review with the information that has come out of the Winter 2008 Review and the Commerce Commission’s Wolak report. The Market Development Programme (MDP) has reprioritised these three pieces of work to ensure a sharp focus is kept on the work which potentially has higher value in terms of constraining prices, strengthening price signals and enabling competition.

Three core projects of the MDP are:

- Capacity and scarcity pricing
- Future of Whirinaki
- Locational hedges.

These core projects are backed up with work on transmission and distribution pricing, the frequency and reserves market, market monitoring and security information and load management. The Wolak work will be considered in a careful way, as it is essential to ensure prices are both fair to consumers and send appropriate signals to investors.

For more information go to www.electricitycommission.govt.nz/opdev/wholesale/marketdesign/marketdesignreview

Winter review

Earlier this year the Commission consulted on the ‘Review of 2008 Winter’, which makes a number of recommendations for consideration by the Commission, ranging from how security of supply is managed to who should pay for it.

The review was prepared by energy sector consultant David Hunt, company director John Isles and project manager Megan McKenna. In the process of reviewing the performance of the market during this winter they interviewed a range of industry stakeholders, including consumers, business organisations and electricity companies.

The review found that winter 2008 and the months leading into it had some of the lowest hydro lake inflows on record. It was also the first time that the Commission’s present security of supply policy had been seriously tested, and the expected outcomes were not fully met. The policy aimed to maximise thermal generation to conserve water, yet there were periods when this did not happen.

The review team found that, while no rules were broken, market participants know that if the system becomes sufficiently stressed, they can look to the Commission for help, as the de facto ‘supplier of last resort’, in which case much of the cost will be met by others. Also, there is a risk that suppliers do not reflect into their decision-making the cost of power cuts to users. If suppliers do not perceive this cost, it is likely to increase the chance of an actual shortage occurring.

The reviewers made eight recommendations:

- Change the rules to ensure decision-makers face the cost to consumers of any forced power cuts rather than pass them off through the market, and the reserve energy scheme be discontinued or modified to ensure those who benefit pay the costs. Alternatively, introduce compulsory dry year insurance;
- Review the location of and fuel for Whirinaki reserve plant, and, if necessary, its removal from the reserve energy scheme;
- The Commission should pre-define and publish plans and triggers for any emergency measures it might take;
- Determine whether the ‘informal’ information arrangements used in winter 2008 should be formalised;
- Improve risk disclosure around suppliers’ demand expectations and their ability to supply;
- The Commission should consider whether it can provide more certainty to councils around the terms of resource consents involving ‘emergency’ generation resources that make reference to the Commission or its policies;
- The roles of the Minister and the Commission around security of supply should be clarified, and the Commission have more independence in the exercise of its regulatory functions;
- The Commission should prioritise initiatives that will facilitate competition.

These recommendations are not independent. Implementation of some may mitigate the need for others. For example, if decision-makers are exposed to the cost to consumers, the Commission may not need to contract for reserve energy.

The Commission expects to put its conclusions in front of the government in the near future.

For more information go to www.electricitycommission.govt.nz/consultation/winter08

Advanced metering

Last November the Commission held its first advanced metering solutions conference to provide an update on recent developments in advanced metering in New Zealand and overseas, and progress on the Commission’s metering policy.

With a number of retailers planning to roll out smart meters, and some having already started, advanced metering is gaining momentum. Retailers, consumer groups, distributors, meter owners and service providers shared their perspectives on the technology with over 100 conference attendees.

With access to real-time pricing information consumers could use energy more efficiently, reducing their peak energy consumption and so reduce the need for expensive thermal plant that is typically ramped up to meet peak demand, and reducing the need for expensive network investment.

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For example, Genesis Energy expects their customers to benefit from more accurate electricity bills that are always based on actual readings (rather than sometimes based on estimates) made remotely, and the ability to see information about their electricity consumption. Retailers will be able to offer tariffs that more closely reflect the delivered cost of electricity.

This will help consumers save money by encouraging the use of appliances such as dishwashers, washing machines and dryers, at low-cost times. With access to real-time pricing information consumers could use energy more efficiently, reducing their peak energy consumption and so reduce the need for expensive thermal plant that is typically ramped up to meet peak demand, and reducing the need for expensive network investment. Retailers will benefit from reduced costs associated with meter reading and customer queries due to estimated energy bills.

However consumers have some concerns. Consumer NZ said advanced metering infrastructure could give suppliers the ability to control the output of some domestic appliances such as heat pumps remotely, as new standards require them to have these control features built in. Also, consumers might turn off their heaters at peak times if they are exposed to spot prices. It says the interests of vulnerable consumers will need to be considered carefully as tariff structures are designed and implemented.

For its part, the Commission continues to review its rules to ensure they keep pace with technological and regulatory changes. Work has commenced on a major review of the part D rules relating to metering to ensure barriers to the introduction of this new technology are removed.

For more information go to www.electricitycommission.govt.nz/opdev/retail/ami/index.html