

Renewable generation opportunities

New Zealand has a significant amount of renewable energy potential, including up to more than 40,000MW of wind power, according to the final report on phase one of the Commission's Transmission to Enable Renewables project.

The New Zealand Energy Strategy has set a target of 90% of electricity being generated from renewable sources by 2025 to reduce greenhouse gas emissions. The Commission initiated the TTER project last year to facilitate coordination of renewable and transmission investment.

Renewable generation is often remote from existing load and transmission lines and timing differences can exist between the development of renewable generation assets and transmission, with transmission typically taking longer. Where transmission is needed to get electricity to consumers, the timing difference might deter generators from investing in renewable plants.

The Commission has completed phase one of the TTER project with the publication of the final report, which includes supporting papers on existing and potential geothermal, hydro, wind and transmission network resources. There are significant development opportunities including 1100MW of geothermal energy, 1293MW of hydro energy, and 41,000MW of wind energy. New Zealand's total current installed generation capacity is about 9000MW. This data has been used to support the Commission's work on transmission investment opportunities.

At this stage, the project is only looking at geothermal, hydro, and wind energy. Current technology and costs mean other renewables such as solar energy are not suitable for large scale generation. However, the Commission has started an investigation into marine energy opportunities in New Zealand, and expects to publish work on this soon.

The next phase of the project will address information gaps identified during phase one. This includes further work into identifying enabling technologies for the integration of renewable generation.

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

Reconciliation project complete

The first runs under the newly commissioned reconciliation system were successfully completed in June, so bringing to an end a major Commission project to update a vital component of the electricity system.

Electricity that is traded in the wholesale electricity market must be reconciled correctly so that purchasers pay for their consumption and generators are paid for their production. The costs associated with transmission and distribution electricity losses, and unaccounted for electricity are also allocated to market participants during the reconciliation process.

The reconciliation project, which began in 2001, was undertaken to improve the fairness, accuracy and efficiency of the electricity reconciliation system. It involved significant changes to the Electricity Governance Rules, and to the IT systems of industry participants and service providers. The project was completed on time and to budget.

The new system has improved the quality of the data that goes into the reconciliation process, allowing electricity volumes to be more accurately and fairly allocated to purchasers and generators. Increased transparency of market processes under the new rules will make it easier to locate errors and omissions during the settlement process.

One of the key objectives of this project was to future-proof the reconciliation system. This will now support the introduction of advanced or 'smart' meters, which are being introduced by retailers around the country. These have the capability to align consumer prices more closely with wholesale market prices and distributor pricing, and allow residential meters to be read remotely so power electricity bills are based on actual rather than estimated usage.

The new system and rules also support the expected growth in small-scale generation by homeowners by making the settlement process for distributed generation simpler and more efficient.

For more information go to www.electricitycommission.govt.nz/advisorygroups/pjtteam/reconproject



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Notes from the Chair

Electricity
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Chair's Comment

As I write, South Island hydro lakes still have less than half the water we would usually expect at this time of year. The very dry period from March to June was followed by above average rain, but mainly in the North Island. Lake Taupo is currently full, but Pukaki and Tekapo are not. So the HVDC link has been operating in North to South mode much more than is usual. In itself that is not a problem, but it emphasises the importance of this crucial transmission link.

The rain in the North Island has led one prominent North Island journal to question whether there ever was a hydro 'crisis'. I agree that that word was always unhelpfully dramatic. But low rainfall towards winter certainly justified concern.

For the first time since the Commission was established storage fell below our 'minzone' – a threshold indicating a roughly 1.5% chance of involuntary power cuts. In June storage approached the 'emergency zone' – meaning roughly a 10% chance of cuts.

In one sense that still left a large margin. But I would prefer the industry behaved conservatively. Things can go wrong. The unexpected can happen. Towers can be blown over and cables fail – no matter how careful we are. So it made sense to be prudent.

The Commission's attention is now moving to next winter. Shortly we will formally assess the likely demand and capacity for the next two years. Looking further ahead smarter meters will allow residential customers to see the impact of dry years. Perhaps in future we won't need to advertise on television to persuade consumers to act prudently. Instead – as in California – their suppliers will pay them to do that.

In the meantime we know that a large amount is being spent on both new generation and transmission. What we don't know is whether the driest March to June since 1947 is a one-off or a pattern. Prudence still seems like common sense.

David Caygill

SOO published

The Commission has released the 2008 Statement of Opportunities, a key document for the industry which provides a range of supply and demand scenarios used in planning and assessing grid investments.

The purpose of the SOO is to enable the identification of potential opportunities for efficient management of the grid, including investment in upgrades and transmission alternatives. It is not a plan for the future development of the grid or generation, nor does it set out what the Commission thinks will or should happen. Instead it tries to provide insights into what might happen.

Generation investment decisions are made by companies who have to weigh up the market risks and manage usual commercial disciplines on spending. Potential investors might use the SOO to identify investment opportunities.

The SOO looks at five generation scenarios – Sustainable Path, South Island Surplus, Medium Renewables, Demand-side Participation, and High Gas Discovery.

These scenarios have been designed to encompass the range of uncertainty, rather than to provide a central forecast of investments. Although each scenario is intended to be a plausible view of the future, none represents the Commission's view of a 'most likely' future scenario.

Included is a 90% renewable scenario – 'Sustainable Path' – which looks at a possible path for New Zealand to gain 90% of its electricity from renewable sources by 2025, in line with the New Zealand Energy Strategy target.

The initial SOO was published in 2005. While the Commission aims to publish a new one every two years, the Commission waited for the energy strategy in view of the significant potential changes that could impact on the generation system.

Since the initial SOO was published, the Commission has been reviewing and progressively enhancing its models and analysis tools, its information databases and its approach to developing and publishing a SOO.

The SOO takes into account the impacts of the energy strategy, stakeholder feedback on the 2005 SOO and submissions on the draft Grid Planning Assumptions.

The Commission consulted widely before publishing the final 2008 SOO.

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

Transmission sign offs

The Electricity Commission has in the last two months signed off on two transmission upgrade projects, the first on the West Coast and the second an upgrade of the HVDC link between the North and South Islands.

The Commission has given final approval to a \$19 million upgrade of the West Coast's power supply. As well as incremental growth, additional demand is expected from industries such as mining and dairy. The proposal comprises a number of measures, including the construction of a new 110kV circuit from Dobson to Reefton, to meet this expected demand. The new circuit is in addition to the existing 110kV circuit.

The Commission assessed the proposal using the Grid Investment Test. This test provides a standardised approach for assessing the merits of transmission investments. The approved project is similar to Transpower's original proposal, but this was refined following discussions resulting in a cost reduction of \$8 million.

The Commission has also announced its intention to approve a proposal to upgrade Pole 1 of the HVDC link between the North and South Islands. This \$672 million project will see the replacement of the Pole 1 substation equipment at Benmore in the South Island and Haywards in the North. The existing pylons and cabling will remain in place. The redeveloped link will be capable of handling 1000MW from 2012, increasing to 1200MW in 2014. The link is currently operating at less than 1000MW.

The Commission accepted that the proposal would have benefits in enabling greater system flexibility in managing the risk of low hydro flows, enable South Island hydro plant to better contribute to peak demand and 'firming' generation in the North Island, and better support ongoing investment in wind generation. Electrical losses are also reduced by increasing the effective transmission voltage.

The Commission will be holding a public conference on the HVDC decision in September where it will hear submissions on the merits of its intended decision. A final decision on HVDC is expected following this.

These latest decisions mean the Commission has approved \$2 billion in transmission upgrades since 2004. Later in the year the Commission expects to conclude its review of a \$590 million proposal for an upgrade of transmission in the north of Auckland and Northland.

For more information go to www.electricitycommission.govt.nz/opdev/transmis/gup/gup2007

Market design review

The Commission is seeking feedback on a range of measures that might improve the electricity market, following the release of its Market Design Review Options paper.

The paper is the next stage in the Commission's review of the market design, following the release of an issues paper last year. Consultation identified key areas of concern to stakeholders – prices and competition, energy affordability, the effectiveness of the energy-only market, demand-side participation, and availability of market information.

The Options paper sets out a range of ways these issues could be addressed. It found that some consumers could save up to \$150 a year by switching to the cheapest supplier in their area, however most do not, despite retail prices having increased markedly since 1999. The Commission plans to make it easier for consumers to find and switch to lower cost suppliers through increasing access to information on pricing comparisons and switching.

There are indications that energy affordability is a problem in some New Zealand households, and work is being carried out by a number of agencies to better understand its causes and extent. The Commission will continue monitoring the implementation of the revised Guideline on Arrangements to Assist Low Income Customers, look at ways to strengthen retail competition, and support electricity efficiency initiatives that result in reduced electricity costs for consumers.

At present generators are paid only for what they generate, not for investment in new generation or ensuring plant is available, ready to generate if required. The Commission believes it is worthwhile examining paying generators to have capacity available. This could be beneficial for security of supply as it could provide more certainty for investment in resources that are needed infrequently.

The Commission will look to increase demand-side participation by improving access to information, ensuring incentives are aligned so users benefit from their actions, and by removing barriers to participation in the market. Concerns were also raised about the availability of market information. The Commission wants to improve access to consistent, timely and comprehensive market information. The review has considered the information needs of different classes of users, providing options to improve the quality of their information.

Consultation on the paper closed on 1 September. The Commission will identify which options it will pursue following a review of submissions.

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