ELECTRICITY AUTHORITY
TE MANA HIKO

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Brent Alderton
Chief Executive
Commerce Commission
PO Box 2351
Wellington 6140

Dear Brent

Transpower's Demand Response Programme

Transpower has developed a demand response (DR) management programme which utilises a tool it purchased from the PJM electricity market in the United States. Over recent years, Transpower has been piloting this tool in the North Island to test its effectiveness to curtail electricity demand to defer transmission investment. The development and testing of this DR programme was funded by a $12 million allocation for transmission alternatives provided in regulatory control period 1 (RCP1).

The Authority has had preliminary concerns that Transpower's DR programme, and its funding by "regulated" revenue, may result in inefficient wholesale market outcomes and thus be inconsistent with the Authority pursuing its statutory objective. In 2013, Authority staff met with staff from the Commerce Commission and separately with Transpower (both the system operator and grid owner areas) to discuss our concerns. One outcome of the meeting with Transpower was that the Authority agreed that we would work with Transpower to prepare a joint "road map" paper on DR. The paper will analyse existing DR, review DR initiatives that are currently being planned or developed, give a combined view on how DR can be better coordinated and analyse the efficient scope of Transpower's DR programme.

Recently, we became aware that Transpower had included within its regulatory control period 2 (1 April 2015 to 31 March 2020 (RCP2)) proposal of Opex for $10 million for it to continue to develop and enhance its DR programme.

As well as to defer transmission investment, Transpower has stated that its DR management tool could be used for operational purposes such as during supply shortfalls or to help manage outages. The Authority understands that the system operator would manage this operational use of DR.

In principle, the Authority has a number of concerns, as detailed below, with extending the tool for purposes beyond transmission deferral. We have not assessed to what extent these concerns are real. As indicated above we intend to do this through the joint "road map" work.

Transpower's DR programme may crowd out other uses for DR

There are a wide range of potential uses for DR capability. Some existing uses include responding to spot prices, interruptible load (a form of instantaneous reserve) and lines companies' schemes to control peaks to defer local network investment. The Authority's dispatchable demand initiative, which will go live in mid-May 2014, will further enhance the use for DR. In addition, other uses of DR are being considered, such as for frequency keeping.

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The Authority is concerned that these existing uses of DR may be inefficiently "crowded out" by Transpower's regulatory funded DR scheme if it intends to extend this to non-transmission deferral, operational purposes. This "crowding out" may be inefficient even if non-regulated/commercial funds are used to expand the scheme into this area by virtue of the fact that the fixed costs of the tool would be met by regulated revenue.

In the longer term, this may lead other competing, commercially funded DR providers to scale back or even withdraw from the New Zealand market. This would reduce competition.

Transpower's DR programme may lead to inefficient spot market prices

The Authority has progressed, and is progressing, a number of initiatives to improve the efficiency of spot market pricing, such as scarcity pricing and the alignment of forecast and settlement prices. Current spot market prices are based on actual metered load. The Authority is concerned that Transpower's decision to activate its DR programme for operational purposes will have an effect on spot prices. The effect could be significant at some times, potentially causing prices to become depressed during scarce resource situations and exacerbate the misalignment between forecast and settlement prices.

Side payments reduce market efficiency

An efficient wholesale market will use the "cheapest" resources available (whether that be generation or DR) to meet the needs of purchasers. One concern about Transpower's side payments for DR for operational purposes is that they may interfere with this market mechanism, leading to inefficiency, lower net benefits to New Zealand, and higher costs for electricity users. In effect, what could happen is that consumers could be inefficiently subsidised by regulated revenue to curtail demand. The explanation for this is as follows.

A purchaser who is eligible to receive a side payment for DR faces an incentive that is additional to the spot price. A purchaser reducing its purchases by 1MWh will pay for one less unit (saving the spot price) but will also receive the side payment. The overall incentive to reduce purchases is greater than the spot price. Consequently, some higher value uses of electricity will be curtailed while lower cost generators remain idle. If consumers can use their own generation to provide DR then higher cost generation crowds out lower cost generation offered to the spot market.

These kinds of inefficiencies arise whenever different participants face different prices (e.g. purchasers would be eligible to receive the side payments, but generators would not be). A single price for all participants achieves the most efficient outcome.

Perceptions of non-impartiality because the system operator is not separated from the transmission asset owner

In most other electricity markets where the system operator undertakes DR, such as the PJM market in the United States, the grid owner function and the system operator function are completely separate. In New Zealand, this is not the case. This leads to concerns, including concerns regarding perceptions of impartiality, that the grid owner has an unfair advantage in introducing and operating its DR programme in comparison to other commercial DR programmes. This concern would be particularly enlivened with respect to the use of Transpower's DR programme for non-transmission deferral purposes.

In summary, the Authority's initial view is that regulated money should not be used to fund Transpower's DR tool when used for operational, non-transmission deferral purposes. This view will be tested by the further analysis we intend to undertake as part of the joint "road map" work.

Suggested mitigation

These concerns could be mitigated by the Commerce Commission approving the funding but with conditions, as follows:

(a) before Transpower plans to first use its DR programme for any purpose including for the deferral of transmission investment, it must obtain the Authority's approval. This process could be further improved by Transpower developing and publishing a protocol on its overall approach to the use of its DR management tool

(b) Transpower must report its use of DR in its monthly report to the Authority (which the Authority publishes on its website)

(c) Transpower must work with the Authority during RCP2 on developing a mechanism to incorporate its DR programme into the spot market and other DR schemes, such work to be prioritised with other Transpower and Authority work.

Authority staff would be happy to meet with Commission staff further to discuss and elaborate on the points made in this letter.

Yours sincerely

Carl Hansen

Carl Hansen
Chief Executive

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