

## Description of integrated pilots/demonstrations/field tests/existing practices

1. Transpower, winter 2007 DSP Pilot

2. What is integrated with DSM

DG

Energy storage

Smart grid technologies

3. What is the level of commercialization

Research project

Demonstration

Field test

Existing practice

4. Where to find more information?

<http://www.gridnewzealand.co.nz/n945.html>

5. Objectives of the case

To determine the reliability of small scale DSP (Demand Side Participation) and its aggregation for the purpose of developing and refining the GSC (Grid Support Contract) product.

Also to provide information on:

volume of demand available;

different types of demand available;

responsiveness of different demand types;

call-up mechanisms and notice period;

interaction with other load management programs and other markets;

effect of DSP on market spot price;

the price curve for DSP; and

the processes required to ensure a competitive procurement of offers.

This was subsequently broadened to include:

logistics required to deploy DSP;

aggregation of DSP sources to provide reliability;

verification issues;

peak load forecasting accuracy;

upper South Island DSP issues; and

contractual and payment issues.

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### 6. Business rationale/model

The scope of the pilot involved a small number of providers with only limited calls on their services. The pilot could therefore not provide complete information on all these issues. Nevertheless the pilot process was designed and managed to maximise learnings with regard to these issues.

### 7. Technologies used

Source type	MW offered	MW accepted
Generation	34.8	3.5
Hydro	0.4	0.4
Industrial	11.1	7.0
Cold store	3.3	3.3
<b>Total</b>	<b>49.5</b>	<b>14.2</b>

### 8. Short description of the case

#### **Pilot operation**

Operationally, as part of a future GSC product, DSP would be called as required to prevent load exceeding the transmission system's capacity to supply. However, calls in the pilot phase were artificially structured to test delivery at various times, days and notice periods corresponding approximately but not necessarily exactly with peak times. Over July and August 2007, Transpower called eight times requesting DSP for two hour durations per event at times likely to coincide with system peak loads. The calls were pre-planned by Transpower on a weekly basis taking into consideration the following factors:

- the results for previous calls;
- the number of calls remaining and the time left for pilot completion;
- likely times of peak system demand as indicated by the System Operator demand forecasts, the weather forecast and Met Service data;
- the need to test different time periods (e.g. morning versus afternoon, consecutive days versus single days, different days of the week);
- calling on the half hour or off the half hour;
- the selection of DSP sources;
- the notice periods for providers – especially where providers offered lower rates for longer notice periods; and
- meeting the minimum contractual requirements in the contracts.

Call sheets specifying the date, time and sources for each call were developed for use by the System Operator, who communicated these instructions to the Regional Centre South (RCS). Details of the calls are listed in Table 4 in section 3.3.

The RCS contacted the providers via their preferred method (telephone or fax) and the providers confirmed receipt of instruction from RCS. In turn, the providers contacted their suppliers to request DSP delivery for the required call period.

#### **DSP Delivery, Verification and Payment**

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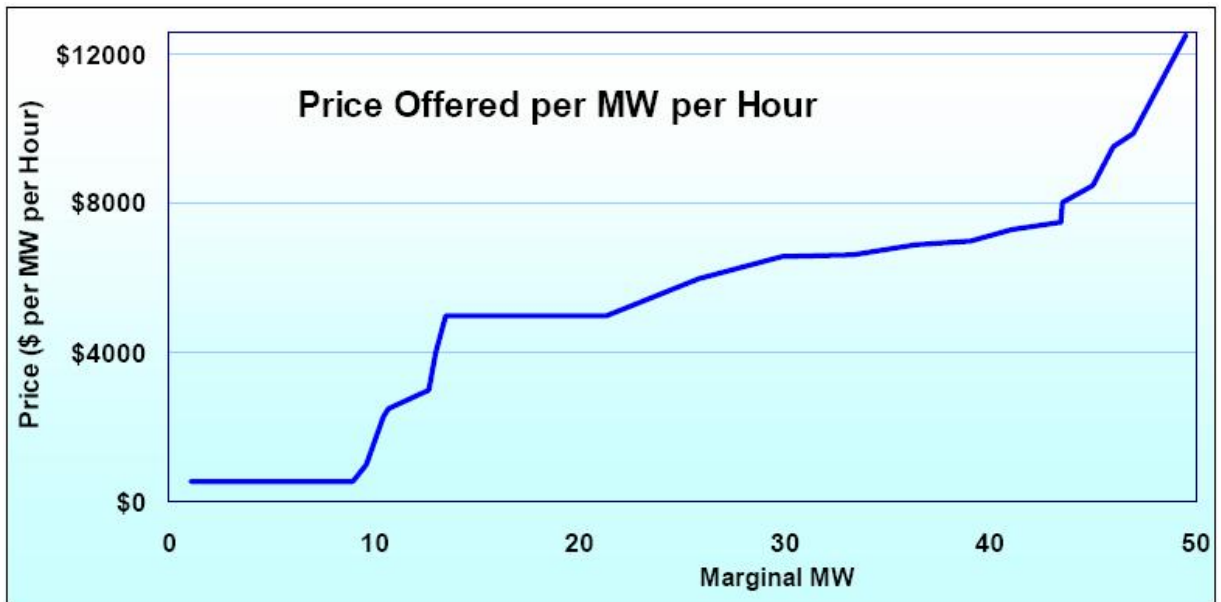
After the call period, the providers submitted verification reports to Transpower. These were checked for logic, accuracy and additionality, queried as appropriate, and used as the basis for payment.

### Debriefings

On completion of the pilot, Transpower hosted a debriefing meeting with the five providers and those parties who offered proposals that were not accepted, and hosted public briefing meetings in Auckland, Christchurch and Wellington.

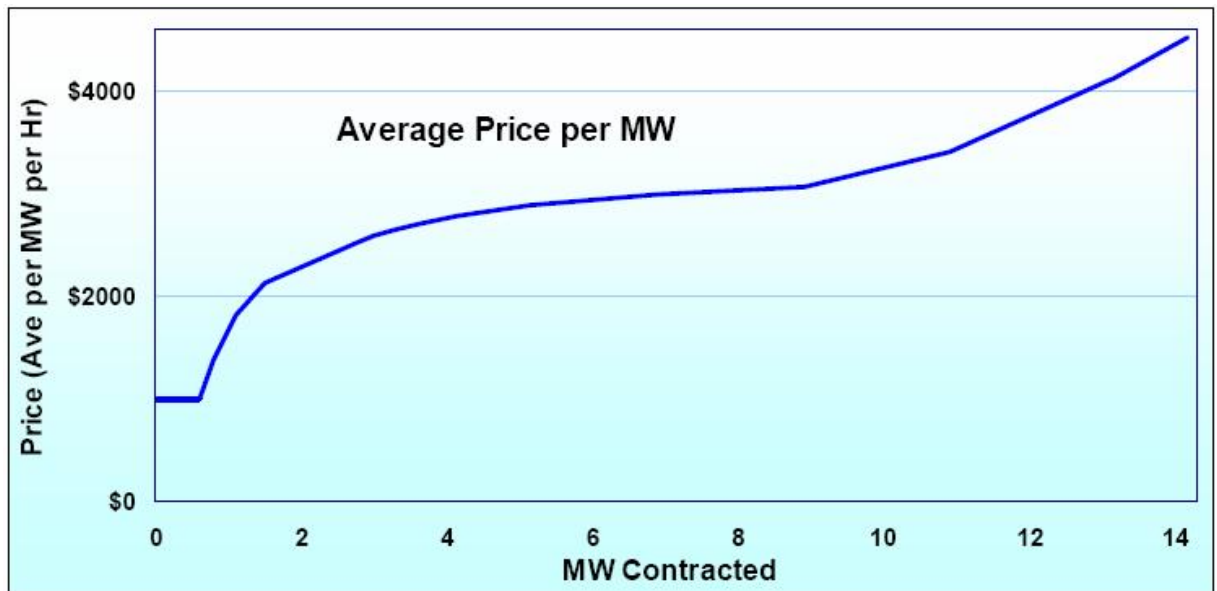
9. Achieved/expected results (operational savings, CO<sub>2</sub>, efficiency enhancement)

Offered:



Contracted:

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The following observations were made:

- most sources under-delivered on most occasions;
- some industrial suppliers decided not to respond to some calls;
- standby generation responded when their plant was available;
- one generation plant failed during a call;
- one major plant item resumed operation during a call;
- some cold stores failed to respond occasionally;

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- the hydro plants were not able to respond to all calls; and
- capacities of several sources were overstated in the contract.

Transpower was not notified if sources did not intend to respond or if the DSP was likely to be less than contracted.

### 10. Lessons learnt