



T R A N S P O W E R

Transpower House, 96 The Terrace,
PO Box 1021, Wellington,
New Zealand
Telephone +64-4-495 7000
Facsimile: +64-4-495 7100
www.transpower.co.nz

Richard Fletcher
richard.fletcher@transpower.co.nz

18 June 2010

Submissions Administrator
Electricity Commission
PO Box 10041
WELLINGTON 6143

Dear Sir/Madam

Re: Dispatchable demand regime

This is Transpower New Zealand Limited's submission on the Electricity Commission's 19 May 2010 consultation paper *Dispatchable demand regime*. Transpower supports the concept of dispatchable demand, provided the benefits can be shown to exceed the costs and there is appropriate scheduling in terms of market systems changes. As well as its direct benefit to some loads, dispatchable demand should assist security for the system operator and help facilitate some grid support contracts.

Because this initiative will become an important system product, it is imperative that clear standards for compliance are set and consequences for non-compliance enforced.

The implementation of dispatchable demand should be contingent on the prior introduction of the Demand-side Bidding and Forecasting (DSBF) initiative. This will set up a framework of processes and software changes on which the dispatchable demand options can build.

There are a number of refinements discussed to the basic design, such as co-optimisation with interruptible load, complex bids, and binary dispatch. Given that the degree of uptake is uncertain, we recommend a two stage approach, introducing first a 'plain vanilla' product, and any refinements later, based on participant experience.

There are a number of components to the dispatchable design that will require more detailed investigation by the System Operator. Consequently, our responses to the consultation questions highlight areas where we agree in principle, but anticipate that the System Operator will need to work on the implementation details with the regulator and the industry.

Yours sincerely

Richard Fletcher
Regulatory Strategy Manager

Consultation Questions

No.	Question	Response
Q 1	Would the Proposed Design be workable?	<p>The proposed design is comprised of a number of concepts. The majority of these appear to be good and technically workable ideas, but whether or not they are sufficient to entice participation is unclear.</p> <p>In terms of the proposal, although a number of concepts are mooted, at this stage the design detail needs to be fleshed out in order to fully examine the implications. However, some design concerns we have noted are:</p> <ul style="list-style-type: none">• System security requires the ability to change generation/demand in real time. An advance warning to participants of two hours is not a practical way to achieve the desired benefits• The paper states, in paragraph 2.3.1, that the purchaser will gain certainty that they will be dispatched at a particular price. This is based on the belief that purchasers will not be consuming when prices are high or taking sub-optimal load when prices are low. However, this operational certainty at the time of dispatch does not automatically mean price certainty in final pricing. The reason for this is that the prices which trigger operational responses at the time of dispatch will not be the final prices (due to different load inputs into each schedule). Therefore, certainty of final price will not necessarily be resolved.• Variation between forecast and final prices (which happens due to the different load inputs that go into each schedule) will affect the calculated constrained on and off payments. Querying such variations is likely to increase the System Operator's workload and detract from key business as usual activities. <p>Other items that Transpower, as System Operator, will need to investigate as part of the design relate to the structure of the bids in each of the schedules, the relationship with the load forecasts and consideration of co optimisation with reserves (which will include a review of the way constrained payments are calculated). Our high level responses to particular aspects of these suggestions are noted</p>

No.	Question	Response
		<p>in the answers below. However, a fully considered opinion is not possible without in-depth investigation.</p> <p>We suggest that it would make sense to introduce a simplified version of the proposed design first and follow this up with a second stage implementation that includes interruptible load and dispatchable demand co-optimisation, more complex bids and possibly an allowance for binary load.</p> <p>Note, there are a number of contingent projects:</p> <ul style="list-style-type: none"> • Transpower highlighted in its last submission that, prior to the introduction of any dispatchable demand regime, a pre-requisite is to have in place the processes and software changes outlined in the Demandside Bidding and Forecasting (DSBF) initiative. • The benefit of any demand-side regime is increased by having a robust load forecast. The System Operator has a project under way to enhance its load forecast.
Q 2	<p>What approach should be used to allow dispatchable electricity users to manage the risk of yo-yo dispatch during a trading period? (Refer to the section beginning at paragraph 3.4.15).</p>	<p>The paper suggests that providing ramp rates as part of any bid would alleviate the “yo-yo” dispatch effect. The ability to include ramp rates as part of a bid used as an input to SPD will need to be carefully investigated and verified. Currently, more than one ramp rate per trading period is not feasible. A better solution would be achieved via enhanced complex offer capability which could be integrated into this initiative as part of stage two. In the interim, if dispatchable demand providers wished to avoid “yo-yo” effects, the only available alternative would be a gradual dispatch of demand determined by a small offered ramp rate which is neither optimal for the purchaser or for system security.</p>
Q 3	<p>What metering and communications obligations should a dispatchable load station have (refer to paragraphs 3.3.4 to 3.3.9)?</p>	<p>As identified in the paper, the dispatchable load station would need to provide:</p> <ul style="list-style-type: none"> • 8 second SCADA data for compliance; noting that a SCADA read is required for each separate dispatchable load entity. This will be a requirement of secure dispatch. • Half hour metering for final pricing and settlement, including any constrained on/off payments.

No.	Question	Response
Q 4	Should a dispatchable load station be required to be “ring fenced” from non-dispatchable load? Why? How should this be managed? (Refer to the section beginning at paragraph 3.3.10).	“Ring fencing” could be addressed using similar provisions to those made for station security constraints. The obligation for compliance with the “ring fence” would rest with the load taker, and compliance monitored via SCADA readings. As noted previously, to achieve this level of compliance monitoring a SCADA read is required for each separate dispatchable load entity
Q 5	How accurate would dispatch compliance need to be, both for system security purposes (including matters like keeping asset loadings within limits) and for maintaining the integrity of market prices calculated using bids?	<p>Without dispatch compliance the benefits of security may not be realised. The guideline of a $\pm 2-3$ MW deviation trigger for compliance investigation is appropriate, but the proposal for how such triggered compliance would operate appears inadequate, given the security implications of non-compliance.</p> <p>As this product will form an important element of system security, we will be relying on it in our scheduling and security processes. Consequently, the regime needs clear standards for compliance comparable with those for generators and ancillary service providers. The current compliance regime is the minimum starting point, since there is uncertainty in the compliance rules, combined with the fact that the compliance process takes some time to run its course and, to date, has not penalised participants for non-compliance, making this model a very weak regime. The dispatchable demand initiative would fail in its task as a security product if these compliance issues were not addressed. The DSBF proposal, a pre-requisite to dispatchable demand, has a loosely defined dispatch regime, which Transpower has highlighted previously would make practical application hard. This too would need to be addressed.</p> <p>For effective application of both regimes “who owns the load?” needs to be determined. In Transpower’s view there is only one answer to this long term, and that is that the consumer owns their own load. However, transition to this status would need careful management as some companies use load for security purposes, e.g. interruptible load and distribution network management</p>

No.	Question	Response
Q 6	Do you agree that large binary machines should not be eligible for dispatch? (Refer to the section beginning at paragraph 3.4.11). Why or why not?	Initially, large binary machines should be excluded from the initial design, as allowing for them would be technically challenging within SPD. However, they should be considered as part of a second stage project.
Q 7	What other adjustments to the Proposed Design might be helpful?	<p>The additional features that should be considered in a second stage of the project are:</p> <ul style="list-style-type: none"> • Interruptible load-dispatchable demand optimisation; • Allowing for large binary load; • Forward dispatch. This is not considered in the paper, but many loads (from USI DSP trial experience) require several hours' notice to drop. This may require inter-temporal optimisation in SPD and/or significantly improved load forecasting; • Inclusion of enhanced complex offer and bidding capability.
Q 8	In your best judgement, would the Proposed Design be likely to produce net benefits over reasonably practicable alternatives (including the status quo)? What priority should be attached to this work?	<p>The net benefit to Transpower, as System Operator, is in the form of system security – however, this will only be realised with dispatch compliance.</p> <p>Transpower, as Grid Owner, would gain a benefit from grid security. Transpower offers, as required, grid support contracts (GSCs) for demand response to assist with managing risks resulting from any construction delays, higher than forecast demand growth or major asset failure, and to defer some transmission investment under certain conditions. Currently, these need to be 'out of market' arrangements. The dispatchable demand regime should enable GSCs to become part of the wholesale market, through Transpower contracting with load or load aggregators to offer their load as dispatchable demand. The ability to use dispatchable demand for GSCs would be a material benefit for Transpower and all grid users</p>
Q 9	Is the net benefit analysis framework described in section 3.7 appropriate?	<p>The network demand analysis is qualitative only and, as such, although benefits and gains are surmised, the quantitative effect of one against the other cannot be compared.</p> <p>A benefit that is not covered in the analysis relates to those demand sources that have two or more tranches dispatchable. With one tranche, the benefit over price response may be minimal. With</p>

No.	Question	Response
		<p>two or more the benefit could be significant, as observing price will not be adequate to decide whether or not to drop the second (and any subsequent) tranche.</p> <p>In terms of costs, the costs of changing the System Operator's scheduling and dispatch systems to implement the proposal should include not only direct costs, but also the opportunity costs of any consequential delays in other market or system operator security improvements.</p>
Q 10	If you are an electricity user, would you be likely to participate in the Proposed Design? What quantity (in MW) might you typically make available for price-responsive dispatch?	Transpower as grid owner may make use of dispatchable demand as a way to realise future grid support contracts. That is, Transpower would contract with load or load aggregators to offer their load as dispatchable demand. See the answer to question 8.