# Overview of demand-side forecasting and dispatch initiatives

**21 October 2011**

## Introduction

On 20 October 2011 the Electricity Authority (Authority) made two amendments to the Code that governs the wholesale electricity market to improve the way electricity users interact with the wholesale market.

The first is the demand-side bidding and forecasting (DSBF) initiative, which improves price forecasts and makes better use of generation and demand response capability. Those changes come into force on 28 June 2012.

The second is the dispatchable demand (DD) initiative, which provides demand-side parties with the opportunity to be dispatched by the system operator, just as generators are dispatched. Those changes will come into force a year later in June 2013. At this stage the DD initiative is relevant mostly for very large consumers or consumers with standby generation but the Authority is planning to consider extending the initiative to smaller consumers at a later date.

The gazetting of these amendments meets the Authority's obligation under section 42(2)(d) of the Act to implement Code amendments by 1 November to allow demand-side participants to benefit from demand reductions. Together both initiatives are a significant change to the wholesale electricity market which will assist with the management of tight supply situations by making use of demand-side responsiveness.

Several demand-side parties have been calling for these initiatives for many years, and it is now up to them to take advantage of the new arrangements once they have been implemented.

The DD initiative, in particular, is likely to increase competitive pressure on spot prices during tight supply situations, as providers of last resort plant will be competing with demand-side participants for dispatch.

When fully introduced the DD regime also has the potential to make greater use of standby generation plants, which should also increase competitive pressure on mainstream generators when supply situations are tight.

The DSBF initiative will improve the accuracy of forecast prices, which is important for purchasers that rely on those prices for making their consumption decisions. More accurate forecast prices should lead to more accurate consumption decisions and more accurate scheduling of generation resources.

In contrast the DD initiative allows large consumers to participate in the spot market in the same way that generators do. They won't have to rely on forecast prices because the DD

regime guarantees they will never pay prices higher than they bid into the market. But the 'quid pro quo' is that they will need to cede control of some of their consumption choices to the system operator.

The DD regime mimics the approach adopted for generators, who leave it to the system operator to decide which of their generating stations will be dispatched but in return they are guaranteed to be paid prices at least as high as the generator has offered to the market.

## DSBF changes

The DSBF changes will mean that wholesale market purchasers (mainly electricity retailers) will no longer have to provide demand forecasts to the market for most grid locations around the country, called grid exit points or GXPs. Instead, Transpower as the system operator will be responsible for forecasting demand at locations that follow a predictable daily demand pattern. Wholesale market purchasers will need to submit forecasts only for those locations that do not follow a predictable pattern.

This approach will save costs and produce a better forecast.

Locations with a predictable demand pattern will be called 'conforming GXPs' while those that do not follow a predictable pattern will be called 'non-conforming GXPs'. The Authority will be responsible for making this classification.

Purchasers at non-conforming GXPs will continue to prepare their own forecasts of electricity usage at those GXPs for market scheduling purposes in the form of nominated bids. The obligation for a purchaser at these GXPs to revise a bid when new information comes to hand will be relaxed to reduce compliance costs. The Authority will actively monitor compliance with the obligation.

Purchasers at conforming GXPs will be able to submit bids called 'difference bids' on a voluntary basis to signal that some load at the GXP may differ depending on real time expectations of price.

The system operator will stop publishing the pre-dispatch schedule (PDS) and the schedule of dispatch prices and quantities (SDPQ). Instead, the system operator will publish two new schedules called the price-responsive schedule (PRS) and the non-response schedule (NRS). The new schedules will provide more reliable and informative information to participants. Comparing the two new schedules will provide information about how price-responsive bids affect the schedules. The new schedules will cover a rolling 36 hour period.

## DD changes

The DD changes allow an electricity user at a non-conforming GXP to elect to subject their load to dispatch for a half hour trading period. This means it will receive dispatch instructions from the system operator during that trading period directing how much electricity to use.

The electricity user must first apply to the system operator to become a 'dispatch capable load station' (DCLS). Once approved, it can elect whether to subject itself to dispatch by the system operator in any trading period.

If the DCLS elects to be dispatched in a trading period, it must closely follow its dispatch instructions. If it elects not to be dispatched in a trading period, the load can use electricity with considerable freedom like any other load, and will not receive dispatch instructions.

Participation in the DD regime will involve significant compliance obligations similar to those that exist for generators. Consequently, participation is expected initially from perhaps one to three major electricity users, although that may grow over time.

The DCLS must submit a separate nominated bid for every trading period which will specify the quantity of electricity the DCLS expects to use at different price levels. If the DCLS elects dispatch, the dispatch instructions must be consistent with that dispatch bid.

Dispatch bids will be used as an input into all schedules, including the final pricing schedule. A dispatch bid may set the market price, just as generators offers set the market price.

In certain circumstances, DCLS purchasers will receive constrained on and/or constrained off payments with respect to their dispatch bids. This will compensate them for any differences between real time dispatch prices and final prices that are calculated the following day. These payments have the effect of ensuring that the DCLS will not pay more for its electricity than its bid price.

The reward for participating in the DD regime is that the DCLS can more effectively avoid electricity usage at times of high prices. This results in a cost saving over time. The DCLS will not receive payments for demand reductions, since these would need to be funded by all purchasers, increasing the overall cost of electricity.

A further advantage of the DD regime is that it allows the DCLS to optimise its trade off between the use of electricity and the provision of interruptible load (which is an automated response to a system disturbance). The trade off is that, when prices are high, the electricity user may want to reduce usage, but that means that less interruptible load can be provided reducing the DCLS's income from that source.