Real-time pricing (RTP) project update

We are changing the way spot prices for electricity are calculated and published so everything will be done in real time. The shift will deliver more accurate and certain wholesale pricing.

Since you last heard from us, we've been busy working with service providers on refining the details of the market systems design for RTP. We are coming to the end of the detailed design stage and the system operator and NZX are preparing to start systems development.

The following pages describe the changes and what they mean for the market.

We want spot prices to be more actionable and more efficient

Spot prices are currently finalised at least two business days after real-time. These prices determine payments between buyers and sellers for spot market sales and settle electricity risk management contracts, such as futures contracts.

Real-time pricing allows for better decision making

Currently, the real time dispatch of the power system does not include pricing information (dispatch prices). The real-time prices people see when they buy and sell electricity on the wholesale market are only indicative: they get the final price two days later. The indicative prices are generally a good indication of likely final prices. But sometimes the indicative price is quite different from the final price. This is most likely when the power system is under stress—when access to reliable price signals matters most.

The Electricity Industry Participation Code (The Code) requires the system operator to make reasonable endeavours to publish indicative prices if the information is available to calculate them. This means these indicative prices are not always available. Shifting to real-time pricing, and the use of dispatch prices to directly calculate interim and final prices, will deliver more accurate and certain wholesale pricing.

We want to encourage greater participation in the wholesale market

Currently, participants invest in expensive communications and monitoring infrastructure and maintain a 24/7 trading function. This compliance cost limits participation to a small number of larger companies.

This does not stop smaller companies from reacting to published prices but, as they are not offering or bidding into the market, it can be difficult to judge the effect of their actions on price in real time. By including a lower cost participation class for small generators and demand management companies, we aim to encourage greater participation in the price discovery process which should provide more certainty for small scale demand response and embedded generators.

Scheduling and pricing mismatch

Streamlining price publication and align final pricing with dispatch pricing

	Now			Under RTP		
Schedule	**Frequency**	**Load input ***	**output**	**Frequency**	**Load input ***	**output**
Real time dispatch	At least once per trading period	Generator output MW	dispatch MW (no prices)	At least once per trading period	Revenue quality grid load meters	dispatch MW and dispatch prices
Indicative 5-minute prices	Every 5 minutes	Grid load meters (not revenue quality)	Indicative prices for the previous 5 minutes		Schedule removed	
Interim and Final pricing	Daily for the previous day, finalised a further day later	Revenue quality grid load meters	Settlement prices for the market		Schedules removed Settlement prices determined by averaging real time dispatch prices for each trading period	

∗ Different load inputs can be measured at different points in the grid and be subject to different standards of accuracy. This can lead to different price outcomes in the market schedules as the market system tries to match the offered generation with the expected system load

Scarcity pricing

Scarcity pricing is intended to signal a shortage of resources to securely supply New Zealand's electricity needs in real time

Now	Under RTP
Scarcity is not accounted for in real time. It's only confirmed in the final pricing the following day when it's too late to react to it.	Scarcity will be clearly signalled in the forward and dispatch schedules Participants can react quickly to mitigate scarcity situations.
Some real-time infeasibilities may appear to be scarcity situations, resulting in very high indicative prices (>$50,000 / MWh).	Once scarcity has been revealed in dispatch pricing, the scarcity price will persist until the situation is resolved.
Prices will be suppressed in the final pricing process unless strict criteria are met. This suppression makes final prices very hard to predict at times of system stress.	Final prices will be more closely related to dispatch prices, reflecting scarcity situations.

Removing infeasibilities

Infeasibilities arise in schedules when the market system needs to break its internal software rules to provide a solution

Now	Under RTP
Infeasibilities occur in real time when the software model in the market system doesn't align with real life.	The number of common causes of real time infeasibilities will be reduced through tool and process improvements.
This causes pricing uncertainty as the final pricing solution may reduce or remove the misalignment.	Improved schedule checking will ensure that the dispatch schedule reflects the real grid situation as closely as possible.
Final pricing data issues can also generate infeasibilities which further slow final pricing publication	The removal of the final pricing schedule will remove the data issue infeasibilities.

Reducing barriers for smaller participants

The requirements to participate in the market impose significant barriers on smaller organisations

Now	Under RTP
There are significant costs associated with being a market dispatch participant. Expensive communications and staffing requirements are a barrier for smaller participants.	The Dispatch Notification class will reduce equipment costs and compliance burdens for these participants. Participation will be subject to approval from the system operator.
The obligation to always follow dispatch may not suit some operational circumstances for smaller participants	Removing the need to be always dispatchable will encourage smaller businesses to participate in the electricity market.
Reacting to indicative prices can result in more price variability than otherwise would have happened.	The more that price responsiveness is signalled in the market, the more reliable forward pricing schedules are likely to becomes and the more stable dispatch prices are likely to be within a trading period.

Bid and offer updates

Current market rules restrict a participant's ability to update their bids and offers for the current trading period

Now	Under RTP
Offers and bids cannot be revised within the trading period.	Participants will be able to offer bids and offers electronically for the current trading period under certain circumstances.
Changes due to plant tripping or grid emergencies must be phoned through to the system operator and manually applied as constraints in the market.	This means no manual handling and it is likely to reduce the risk of errors being introduced.
Applying market constraints is time consuming and introduces an increased chance for manual error.	The system operator may still need to be notified by phone of offer changes under some circumstances.

Some things won't change

Not everything will be changing with the introduction of real time pricing.

- Forward looking schedule inputs, outputs and publication frequency.
- Offers and bidding obligations for current participants including the gate closure rules.
- Clearing and settlement processes.

We'll keep you updated

The Authority and the system operator will arrange workshops soon to talk to you about the operational changes and the impact they will have on participants ahead of finalising the systems design. The Wholesale Information and Trading Systems (WITS) manager will also be in touch with their user group to discuss changes to the WITS interface as a result of the RTP changes to the market.

Once the detailed systems design has been signed off (around mid-2020) we'll communicate updates through a regular quarterly newsletter. We will also form engagement groups to communicate the design implementation decisions and the impact on the real-time operation of the wholesale market. These groups will also give you the opportunity to ask questions.

Talk to us

If you have any questions about the RTP, contact Chris.Otton@EA.govt.nz