# Scarcity pricing fact sheet

## What is scarcity pricing?

Electricity supply and demand must always be in balance to maintain quality of supply to consumers. At extremely rare times, there may not be enough generation to meet short periods of peak demand on the power system. Price signals for these periods are known as scarcity prices.

If the system operator forecasts a potential shortfall of supply, they will communicate ahead of time to encourage immediate responses to the emerging situation. The associated forecast high spot prices in the market schedules also provide a strong signal to incentivise immediate responses. Electricity prices on the spot market (including forecast spot prices) reflect the supply and demand balance and will be very high during periods of extremely tight supply.

If there is still not enough supply in real time, the system operator will act to reduce energy demand to the level that can be supplied. This involves instructing lines companies to shut off supply to some customers and is known as emergency load shedding.[1] However, when energy demand is reduced, spot prices will fall to more 'normal' levels as a new demand-supply balance is reached. This fall in spot prices weakens the signal to generators and consumers to better manage future demand peaks. This is where scarcity prices come in – by holding spot prices higher for the relevant period – to maintain the price signal and provide incentives to invest to manage future scarcity situations.

## Scarcity prices need to be high to provide effective price signals

Scarcity prices are set high to provide an effective price signal and create the response needed to maintain a stable and reliable electricity system. Table 1 summarises the different incentives from scarcity pricing signals.

**Table 1: Types of scarcity pricing signals, incentives and outcomes**

| Horizon | Price type | Incentive | Desired Outcome |
|---|---|---|---|
| Short term | Forecast prices (up to one week ahead of real time) | To encourage generators and batteries to increase offers of energy and reserves for the peak to maintain the balance of supply and demand | To avoid emergency load shedding and ensure there is enough electricity to meet consumer needs |
| | | To encourage spot-exposed consumers to reduce or shift their electricity usage away from peak | |

[1] The system operator may request lines companies to reduce demand. If this is not enough then they may instruct demand to be disconnected.

| Horizon | Price type | Incentive | Desired Outcome |
|---|---|---|---|
| | Real time and final prices | To incentivise last-resort resource to respond to scarcity price signals | To prevent prices from collapsing when emergency load shedding occurs to:<br>• accurately reflect grid conditions<br>• provide revenue certainty for providers of last-resort resource |
| Long term | Historic prices | To signal to the market the need for more investment in flexible capacity such as demand response, batteries and fast-start generation | To maintain a reliable electricity supply in the long term |

### Scarcity pricing is rarely applied

The concept of scarcity pricing was introduced in the wholesale market in 2013[2] and their application was updated in November 2022 with the introduction of real-time pricing (RTP).

Scarcity prices are typically short-lived and occur infrequently. Since RTP was introduced:

- energy scarcity has **never** occurred in real time or final prices[3]
- there have been **three instances** of five-minute fast instantaneous reserve (FIR) scarcity prices in the North Island across two trading periods. These all relate to the tripping of pole 2 of the HVDC on 12 December 2024
- there have been **21 instances** of five-minute sustained instantaneous reserve (SIR) scarcity prices in the North Island across 11 trading periods
- there have been **no instances** of FIR or SIR scarcity five-minute prices in the South Island.

**Table 2: Occurrences of scarcity pricing in real time prices since 1 November 2022**

| | Energy scarcity | FIR scarcity | SIR scarcity |
|---|---|---|---|
| Number of five-minute periods | 0 | 3 | 21 |
| Number of 30-minute trading periods | 0 | 2 | 11 |

[2] More information on the rationale for the original mechanism for scarcity pricing implemented in 2013 can be found at: *Scarcity pricing and related measures – proposed amendments to the Code*.

[3] At a nation-wide or island-wide level.

### Who pays scarcity prices?

Retailers or large spot-exposed consumers may pay scarcity prices if they do not have sufficient risk management contracts in place to manage their spot price exposure.

Most electricity consumers will not be affected by scarcity prices as they pay a fixed price for electricity from their retailer.

### Batteries can provide a strong response to manage the risk of supply shortages

Growing investment in utility-scale battery energy storage systems (BESS) will help to manage the risk of short-term supply shortages and scarcity pricing.

BESS can charge and store electricity during periods of low prices or demand. They have the flexibility to respond very quickly and supply stored energy to the grid during periods of peak demand. BESS can also support system security by providing instantaneous reserves.

The uptake of battery systems in New Zealand continues to increase. Table 3 summarises installed BESS as well as committed or actively pursued BESS projects.

**Table 3: New Zealand's current and future BESS projects as at March 2025**

| BESS project | Owner/ Operator | Capacity | Status |
|---|---|---|---|
| Rotohiko | WEL Networks/ NewPower | 35MW (35MWh) | Currently participating in the market |
| Ruakākā | Meridian | 100MW (200MWh) | Undergoing commissioning tests. Expected to be operational in April 2025 |
| Glenbrook | Contact | 100MW (200MWh) | Expected to be operational in March 2026 |
| Huntly | Genesis | 100MW (200MWh) | Expected to be operational third quarter 2027 |

In addition to the projects above, Genesis Energy has also signalled its intention to expand battery capacity at Huntly up to 400MW (800MWh).[4] Meridian has also brought forward development of a new 100MW battery in Manawatū. Transpower highlighted in an October 2024 report[5] that it has 6GW of enquiries with combined grid scale solar and battery in its grid connections queue.

As battery costs decline and quality improves, BESS is expected to play a greater role in the future to provide system flexibility and support security of supply.

[4] Huntly becoming NZ's multi-option electricity-security site | Energy News
[5] PowerPoint Presentation