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# Case study:

## Oji Fibre Solutions



Oji Fibre Solutions Pulp and Paper Business Unit runs three mill facilities: Kinleith (68MW) in Tokoroa, Tasman (18MW) in Kawerau, and Penrose (4.5MW) in Auckland, as well as an integrated paper recovery and recycling service, Fullcircle (also in Auckland).

Each facility has differing requirements for taking load off. In the Penrose paper mill, load can be shed relatively quickly – a controlled shut-down is possible in 45 minutes. However, the Tasman plant has limited ability to do so and needs between two to four hours to take off load. In every instance, Oji requires at least two hour's notice to prepare any plant for load shedding.





## Commercial barriers to demand response.

Oji says the savings generated by avoiding high spot prices when taking load off are nowhere near enough to incentivise taking action. It points to multiple instances where load was taken off, only for the spot price to collapse and for it to realise an unnecessary loss of production.

For demand response to be commercially feasible and attractive financially, Oji says there must be a clearer way to demonstrate financial gain from high spot price avoidance. Given the extended timeframes required to take load off, even to avoid short periods of elevated spot pricing, can result in millions of dollars in costs to the business – up to \$300,000 per hour.

Given the time to take load off and then restart, there is a risk Oji could have load off for six hours to avoid a five-minute spike in prices, with the only benefit being the avoided cost of the high price for that period. If Oji takes load off, the fixed and sunk costs of the plants remain the same while its operation faces significant production and efficiency losses.

Measuring if there has been a financial gain from taking load off is also very difficult for Oji. It is impossible to see where prices will go once load is taken off, and the company would incur significant costs if the price didn't spike as predicted, or if lower demand contributed to a lower price.

There is a lot of guesswork required when Oji must start taking load off two hours before an expected price spike, and having better visibility of price curves would better inform these decisions. Even having visibility of pricing after the fact would assist Oji to make future decisions, or better understand the financial benefits or losses of taking load off.

## Ramping down demand also decreases co-generation at Kinleith.

The Kinleith operation uses process heat from steam to generate electricity. This means that any reduction in production would also reduce the amount of electricity generated.

For example, if Oji reduced demand by 2 MW it would lose 1 MW in generation – effectively halving the efficiency of taking load off at Kinleith. For example, by turning off high-steam processes Oji also reduces power generation by about 13 MW.

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## Loss of production and safety risks.

After 30 minutes without heat, pulp left in processors can harden into a concrete like substance. Cleaning up and restoring production after this occurs can take days. By taking load off, Oji is incurring this risk.

The Oji facility at Kinleith is a major hazard area. Because of the chemicals present in its processes, a continuous supply of electricity is essential to maintain ventilation and water purification processes. As the electrical circuits are all interconnected, taking load off must be carefully considered and planned. Oji can't afford to have anything go wrong with the processes and accidentally release gas or chemicals into the environment.

Restarting processes can take four to eight hours depending on the site and equipment – in some situations, it can be 24 hours before Oji is restored to full production.