Endeavour Energy Off Peak + Fact Sheet

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Off peak hot water systems work like this

Some homes receive their hot water via an electric storage system.

It works via a hot water load control unit at an electricity zone substation which sends a signal using the local electricity network to a receiver on customer switch boards.

It turns hot water systems on and off at different times of the night and day. It is known as a ripple or frequency control system.

The customer pays a cheaper tariff for their hot water energy use and the system helps to defer electrical load outside peak times, which keeps substations operating within safe levels.

It's a way to reduce peak demand and unnecessary and costly upgrades to the electricity network.

This type of system has been in place in NSW since the 1950s, helping to defer load. The hot water tanks effectively act as battery energy storage systems.

A new way to operate hot water systems via Albion Park Zone Substation

Endeavour Energy's Albion Park Zone Substation was commissioned around 1970 and provides power to about 10,000 homes and businesses in the region.

About 2,500 homes connected to the substation also use electric hot water tank systems for their hot water needs and about one quarter of homes in the area have installed solar PV systems.

The Albion Park load control unit is old and due for replacement. However, rather than replace the system with old style technology, Endeavour Energy is providing the load control service via smart meters installed at customer switchboards.

How the smart meters work to control hot water systems

The hot water systems can be individually switched on and off remotely via a communicating modem in the smart meter.

Australian metering intelligence specialist Intellihub has designed a smart operating system that allows Endeavour Energy and any of the retailers to control individual hot water systems at day or night.

Endeavour Energy will be sent energy and network data from each meter, that will provide greater visibility of the low voltage network and household connection.

It can help detect serious safety issues with neutral connections, detect when power is out and provide insight on voltage fluctuations resulting from solar power flowing back into the grid.

This will in turn enable more solar PV to be safely installed behind the meter at homes and businesses.

The meter can perform many extra tasks. It can control hot water systems, so they can soak up excess solar power, just like a virtual power plant or storage system.

It means solar generated in the community on local rooftops will be consumed locally via hot water systems. The smart meter will also be able to support any future solar PV systems at customer premises.

It will mean retailers can provide new products for electric vehicle charging, batteries or other forms of load control or demand response services to reduce peak demand and electricity costs.

It can work with apps to break down energy use or solar power generation in the home and allow remote connection and monthly billing to help manage household budgets.

Off Peak Plus Benefits

Endeavour Energy's customers

- Faster restoration, reduced blackouts and improved safety due to smarter grid
- Greater access to clean and cheaper forms of renewable energy
- Helps local communities to share the benefits of surplus solar feeding into the grid.

Energy networks

- Improved safety due to neutral integrity monitoring
- Helps to future proof the network by enabling more solar
- Avoids expensive infrastructure investment through improved asset performance insights and targeted maintenance
- Better outage management/restoration via real-time data
- Dynamic voltage control helps manage network peaks
- Coordinates smart charging infrastructure for Electric Vehicles

Retailers

- Enable VPP and DER schemes using through-the-meter control of solar, batteries and electric vehicles
- Real-time data improves demand forecasting/consumer insights
- Provides opportunities for new and innovative customer products