



**Project performance
report – Energy Under
Control
May 2019**

Contents

1. Introduction.....	1
2. Summary of Knowledge Sharing Activities.....	2
3. Response provided.....	3
4. Analysis of performance	4
5. Lessons learnt	6
6. Other demand response activities	8
7. Key contacts.....	9

This Activity received funding from ARENA as part of ARENA's Advancing Renewables Programme - Demand Response and from the NSW Government.

The views expressed herein are not necessarily the views of the Australian Government, and the Australian Government does not accept responsibility for any information or advice contained herein.

1. Introduction

This is the Project Performance Report for Flow Power’s Energy Under Control project. Part of ARENA’s Demand Response Competitive Round, Flow Power works with commercial and industrial customers to provide strategic reserves in the National Electricity Market.



We’re a licensed electricity retailer focusing on giving Australian businesses access to the wholesale market.

We offer businesses



Transparency



Flexibility



Cost savings

2. Summary of Knowledge Sharing Activities

In the December 2018 – May 2019 period, Knowledge Sharing Activities focused on confirming customer participation and sharing learnings with the broader energy community.

ACTIVITY	KNOWLEDGE CONTENT	AUDIENCE	DOCUMENTATION
Webinars	Provided a run through of the results from summer	Prospective participants and current participants	flowpower.com.au/webinar-wrap-up-demand-response-results/
Events	Thought leadership on the role of demand response in the Australian power market	Industry, prospective and current participants	
Media coverage	Focus on customer facing stories that show the value of demand response	Industry, prospective and current participants	Coverage in major publications
Social media	Focus on driving the conversation towards demand response	Industry, prospective and current participants	
Material creation	Focused on educating customers on how the Controller will make demand response simple and the revenue streams available through demand response	Industry, prospective and current participants	

3. Response provided

Technology

Proprietary technology, the kWatch® Intelligent Controller, has been installed at each customer site to facilitate ten-minute response to AEMO activation signals.

Purpose built for allowing customers to respond to market signals and automate the curtailment of load, the Controller gives customers:

- Live data feed – weather, market data, other signals as desired
- Alerts
- Automation of connected equipment

If AEMO call an event, Flow Power sends alerts to customers. Customers typically need to accept the activation and opt in before the Controller will then reduce their load; however some customers have elected to operate on an “opt out” basis.

Model

Customers receive two payments:

- Availability – based on the volume of capacity provided during tests or activations
- Activation – based on the volume of load shed during events

Customers pay an annual fee to cover the installation of and access to data from the Controller.

Portfolio

Flow Power’s portfolio is comprised of customers from a diverse set of industries across NSW.

INDUSTRY	INDUSTRY TYPE	RESERVE	LOCATION
Agri-businesses	Orchards/Irrigators	1.47	NSW and VIC border
Warehouse/Storage	Refrigeration	1.16	Sydney
Councils	Water Management	1.3	Throughout NSW
Food Processing	Packaging/Manufacturing	1.7	Throughout NSW
Forestry	Timber Mill	0.5	North Eastern NSW
Manufacturing	Building Supplies	3.7	Western Sydney region
Manufacturing	Steel Production	15	Newcastle region

4. Analysis of performance

INITIAL TEST – 30/01/2018

TARGET RESERVES	5	MW
Recruited Capacity	7	MW in Maximum demand
Number of Customers	4	
Test Results	1.52	MW
Number of Activations	0	

RE-TEST – 27/03/2018

TARGET RESERVES	5	MW
Recruited Capacity	11.6	MW in Maximum demand
Number of Customers	7	
Test Results	3.51	MW
Number of Activations	0	

TEST TWO – 23/05/2018

TARGET RESERVES	5	MW
Recruited Capacity	39.3	MW in Maximum demand
Number of Customers	6	
Test Results	27.9	MW
Number of Activations	0	

TEST THREE– 24/10/2018

TARGET RESERVES	15	MW
Recruited Capacity	39.57	MW in Maximum demand
Number of Customers	7	
Test Results	21.8	MW
Number of Activations	0	

5. Lessons learnt

Year 1 – Recruitment and Set up

- Many large customers (Maximum Demand > 1 MW) felt the financial reward was not significant enough to offset their risks of program participation. This forced Flow Power to shift the focus towards smaller businesses. In some cases the Controller was provided at no cost as an additional incentive to program participation.
- In comparison to Flow Power's experience operating and recruiting for RERT portfolios in Victoria and South Australia, NSW customers generally had less knowledge of demand response and the RERT mechanism.
- In some occasions, Flow Power found that within customer organisations there were varying drivers. For example, operation managers had different motivations to the main decision makers signing onto the program, namely operational targets being of greater importance than pure financial decisions. In some cases these different motivations may be encapsulated in operational or revenue-based KPI targets.
- Several customers, specifically those who are not existing Flow Power customers, expressed concerns about integrating new technologies with their existing control systems. This issue is often resolved through improving the customer's understanding of how the kWatch® Intelligent Controller operates and the process followed when sending customer signals.
- The initial recruitment of customers yielded significantly lower demand reductions than anticipated or estimated. For example, the initial contracted portfolio was expected to provide 6 MW, however the first test yielded only 1.5 MW. The second test yielded a 3.6 MW reduction in demand from an expected portfolio of 9 MW. The risk of portfolio underperformance due to weather conditions or altered production conditions can be mitigated by over-subscribing the portfolio.
- The kWatch® Intelligent Controller has had significant updates to its installed firmware. Major development effort was undertaken to improve the reliability and stability of the Controller under all conditions. Flow Power achieved the goal of keeping all the Controllers online the majority of the time. The Controllers have an in-built watchdog monitoring network failures and device recovery.
- The kWatch® Intelligent Controller has the ability for near-real time information collection from meters and delivery (via portal and app) to enable participants to make educated decisions about energy usage. Continued development also been undertaken to provide notifications of events via various communication channels.

Year 2 – Build and Maintenance Phase

- The delay in metering upgrades in NSW has made receiving data feeds more difficult than in states such as Victoria. The Controller is designed to receive customer energy usage and other site-based data via the Modbus standard (available on the EDMI mk10 device but not the mk6, for example). Modifications have been made to the Controller to allow pulsing inputs from older meters.
- Seasonality of customer loads has an impact on the portfolio – the agricultural loads are primarily based on irrigation requirements, which are significantly reduced or in some cases non-existent during winter. Cold store loads while constant throughout the year are highly dependent on ambient temperatures. This is an issue for the ARENA DR portfolio which has a static size between the winter and summer periods as well as payments based on a constant rate.
- As the program matures individual customer performances have been improving. This is a combination of improved understanding of demand response on the customer side, education and resources provided by Flow Power, as well as improved operational systems and processes within Flow Power. While the improvement with program maturation is to be expected, it highlights the importance of familiarity and education to implementing successful demand response initiatives.
- As the public discussion and awareness of demand response has increased, and with the cost of electricity remaining very high a number of customers have approached Flow Power asking about participation in demand response programs. Although Flow Power's ARENA portfolio is fully contracted, new customers may help to diversify the portfolio further.

6. Other demand response activities

To the best of our knowledge, no participants in the program are participating in formal firm demand response programs.

Some customers do actively respond to wholesale price signals. This will be recognised in the baseline methodology calculations.

7. Key contacts

ROLE	NAME	PHONE	EMAIL
Project Manager	Alex Leemon	0437 820 822	Alex.Leemon@flowpower.com.au
Project Lead	Nathaniel Galindo	0428 773 468	Nathaniel.Galindo@flowpower.com.au
Knowledge Sharing	Liz Fletcher	03 8832 0362	Liz.fletcher@flowpower.com.au