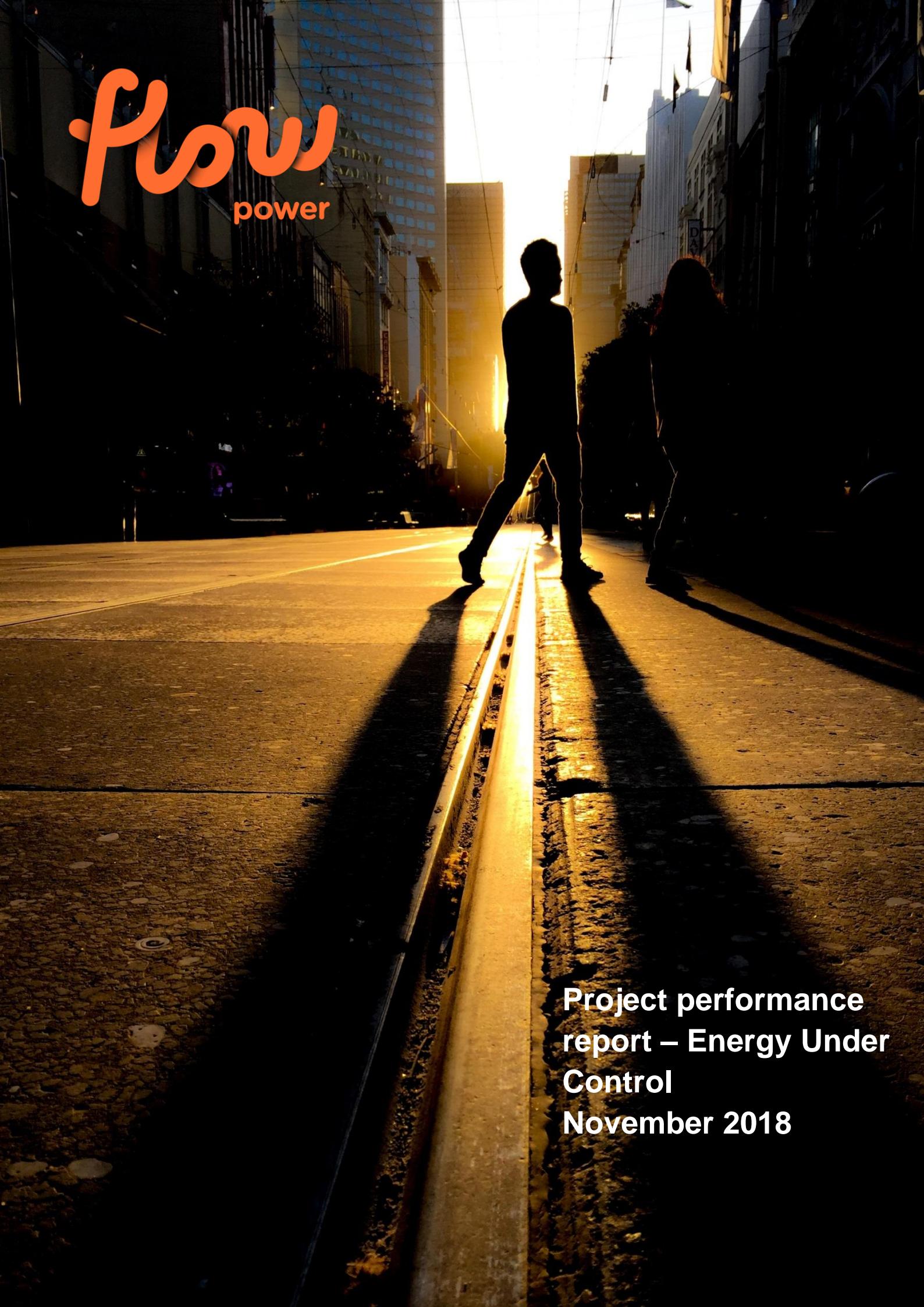


flow
power



**Project performance
report – Energy Under
Control
November 2018**

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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 will work with commercial and industrial customers to provide strategic reserves for the stable running of the power 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 period, Knowledge Sharing Activities focused on confirming customer participation and sharing learnings.

| ACTIVITY | KNOWLEDGE CONTENT | AUDIENCE | DOCUMENTATION |
|---------------------------------------|---|---|---|
| Webinars | Provided a detailed run through of the program in action | Prospective participants and current participants | flowpower.com.au/demand-response-rewards-webinar-wrap-up |
| 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 | Minimal coverage in the period but planning is in place |
| 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 | https://flowpower.com.au/get-rewarded-for-how-you-use-power-this-summer/ |
| Materials outside ARENA program on DR | Education about demand response | Prospective and current participants | https://flowpower.com.au/best-of-both-worlds-launch-event-wrap-up/ |

3. Response provided

Technology

Customer will install proprietary technology, kWatch® Intelligent Controller, to facilitate ten-minute response to AEMO market signals.

Purpose built for allowing customers to respond to signals, the Controller gives customers:

- Live data feed
- Alerts
- Automation

If AEMO call an event, we will send alerts to customers. At which point they need to accept the activation. The Controller will then reduce their load.

Model

Customers will 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 will need to pay for the installation of the Controller.

Portfolio

Our projected portfolio is comprised of customers on a diverse set of industries across different locations in NSW. From the outskirts of Sydney to the fringes of the NSW/VIC border:

| 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 |

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 | 5 | 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

- Many large customers (Maximum Demand > 1 MW) when asked to participate in the ARENA demand response program felt the financial reward was not significant enough to offset their risks they take from participating in the program. As such, we have changed our strategy and we now target smaller businesses and, in some cases, supplied the Controller at Flow Power's cost.
- In comparison to our experience participating in demand response program in Victoria and South Australia (RERT programs), businesses in NSW have shown lack of knowledge about demand response programs. We feel this is partly because NSW has been less exposed to reliability issues. As such, educating potential customers about demand response is a slow process and is further aggravated by our office being in Victoria. In some circumstances Flow Power representatives travelled to meet potential customers and explain the program. Flow Power is currently in the process of establishing an office in NSW and this will help with customer acquisition in the future.
- Many potential businesses were unable to participate in the program given that their process require more than 10 minutes to respond, with some customers requiring 30 minutes or more.
- On some occasions, Flow Power found that there were differing drivers within customer organisations. For example, operation managers had different motivations and key performance indicators than the main decision makers signing onto the program. This is something we are starting to resolve through different marketing strategies and internal education.
- Given that the availability payment is based on the AEMO baseline methodology, explaining how the baseline is used to calculate payments adds complexity. We will look to simpler ways to resolve this.
- Several customers, especially 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 we follow when sending customer signals.
- As a rule of thumb, we discovered that customers provide one third to half their maximum demand during a test or activation. We had initially contracted 6MW of maximum demand for our initial test, and this yielded 1.5MW. During our second test we increased our aggregated maximum demand to 9MW and this achieved a much more satisfactory result of 3.6MW during the test. Over subscribing customer reduces the risk of underperformance given that many customers do not completely shut down their operations or are subject to weather conditions or production changes on the day.
- It was not necessary to be the retailer for these customers to participate in the program, however it did make the whole process of recruiting and educating customers much easier.
- The kWatch intelligent controller has seen significant updates in terms of firmware and software installed on it. Major development effort was taken to make controller more reliable and stable. We have achieved our goal of keeping all of the controllers online the majority of the time. The Controllers have an inbuilt watchdog monitoring for network failure and recovery.

- The kWatch Intelligent Controller has near real-time information collection from revenue grade meters and delivers (via portal and app) this data to program participants, enabling them to make educated decisions around energy usage and responding to market signals. Continued development has also been undertaken to notify participants of events via various communication methods.

6. Other demand response activities

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

However, some 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 | Nabil Chemali | 03 9069 1162 | nabil.chemali@flowpower.com.au |
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