DEMAND MANAGEMENT INNOVATION ALLOWANCE REPORT 2016-2017

Submission to AER

Prepared by Asset Standards and Design

Endeavour Energy

CONTENTS

1.0 EXECUTIVE SUMMARY

Endeavour Energy currently has one Demand Management Innovation Allowance (DMIA) project, the Residential Battery Energy Storage Trial which commenced in FY 2016/17. The total DMIA claim for 2016/17 is $318,937.

Project	Operating expenditure ($ nominal)	Capital expenditure ($ nominal)	Total expenditure ($ nominal)	New or Continuing
Residential Battery Energy Storage Trial	$318,937	$0	$318,937	New
Total	**$318,937**	**$0**	**$318,937**	

2.0 BACKGROUND

This report has been prepared in accordance with the AER's Regulatory Information Notice in response to paragraph 6 of Schedule 1. The information provided will constitute the provision of an annual report for the purposes of paragraph 3.1.4.1 of the Demand Management Incentive Scheme (DMIS) applying to Endeavour Energy (as set out in the 2014-2019 Distribution Determination).

As per paragraph 6 of AER's Regulatory Information Notice Schedule 1, Endeavour Energy is requested to provide responses describing its expenditure and the nature of its demand management activities for review by the AER. The annual reporting requirements are outlined below.

Endeavour Energy's response on the Demand Management Incentive Allowance must include:

1. *Identify each demand management project or program for which Endeavour Energy seeks approval.*

2. *For each demand management project or program identified in the response to paragraph 1:*

    - *explain:*
        - *how it complies with the Demand Management Innovation Allowance criteria detailed at section 3.1.3 of the demand management incentive scheme;*
        - *its nature and scope;*
        - *its aims and expected outcomes;*
        - *the process by which it was selected, including its business case and consideration of any alternatives;*
        - *how it was/is to be implemented;*
        - *its implementation costs; and*
        - *any identifiable benefits that have arisen from it, including any off peak or peak demand reductions;*

    - *confirm that its associated costs are not:*
        - *recoverable under any other jurisdictional incentive scheme;*
        - *recoverable under any other Commonwealth or State Government scheme; and*
        - *included in the forecast capital or operating expenditure approved in the 2014-19 Distribution Determination or recoverable under any other incentive scheme in that determination; and:*

    - *state the total amount of the Demand Management Innovation Allowance spent in the Relevant Regulatory Year and how this amount has been calculated.*

3. *Provide an overview of developments in relation to projects or programs completed in previous years of the regulatory control period, and of any results to date.*

3.0 NEW PROJECTS FOR APPROVAL

This section outlines the projects for approval by the AER.

3.1 RESIDENTIAL BATTERY ENERGY STORAGE TRIAL

The Residential Battery Energy Storage Trial is focused on investigating how Endeavour Energy can use battery storage technology to reduce peak demand, improve power quality and defer or avoid capital investment in terms of technical viability and financial attractiveness to both the customer and the company.

Parklea Zone Substation (ZS) has been chosen for the trial as the area has an existing high penetration of PV systems with the potential to maximise the energy storage benefits for customers. The site is also identified as a future network constraint due to the increased growth from re-zoning and developments along the North Wet Rail corridor.

Endeavour Energy will offer a fixed subsidy of 75% on the purchase price of the supplied battery system to serve as an incentive to those participating in the trial. The 75% is based on the expected reduction of the long term cost of the battery energy storage system and future customer revenue streams.

The recruitment target for this trial is 41 customers with existing PV systems.

3.1.1 NATURE AND SCOPE

Project scope includes:

- Recruit customers in the targeted area by developing the appropriate marketing material and recruitment systems;
- Engage a service provider, via the procurement process, to supply, install and commission battery energy storage systems of a suitable size at customers' premises, including the communications, control and signalling technology to ensure battery control and utilisation at the appropriate time;
- Collect and analyse customers' import and export energy consumption patterns;
- Quantify the total demand reduction in the targeted network area;
- Demonstrate the power quality benefits offered by battery energy storage systems;
- Model the technical benefits by developing network models utilising the data gathered from the trial;
- Determine the potential conflicts between parties wishing to access battery systems and how to manage conflicts; and
- Enhance the Demand Response Management System that manages the administration of customers and event signalling with a view of a large scale program implementation.

3.1.2 AIMS AND EXPECTATIONS

The deliverables of this project are to report on:

- The network demand reduction that can be reliably achieved by installing battery energy storage systems in residential premises and validating the average demand reduction per customer;
- The power quality benefits that battery energy storage systems can offer;
- The price point at which residential customers will pay for a battery energy storage system;
- Marketing and recruitment method for battery energy storage Demand Management programs; and
- The type and method of communication and control required to properly utilise the battery capacity.

3.1.3 PROJECT JUSTIFICATION

The growth in residential developments particularly in Western Sydney highlights the need to upgrade network assets in the near future to accommodate the additional demand from new connections. The North West Rail corridor development has resulted in rezoning of the existing area to high and medium density housing and commercial development along the rail corridor. Parklea ZS is one of several zone substations supplying this area and is forecast to exceed its firm capacity due to the additional load from the re-development.

Parklea ZS supply area has 3,413 residential customers with PV installations, which represent around 1 out of 5 customers. This supply area has the highest penetration of PV within the Endeavour Energy distribution area.

This trial aims to understand energy storage technology and how Endeavour Energy can utilise it for peak demand reduction, power quality benefits and deferral of capital expenditure.

3.1.4 IMPLEMENTATION PLAN

The trial will be implemented as follows:

- A service provider to supply, install and commission the battery energy storage systems will be selected through Endeavour Energy's procurement process;
- Customers within the target area will be invited to participate in the trial via a letter and promotional materials, Customers with certain sized PV systems will be selected within the target area;
- The service provider will inspect the customer's premise to determine its eligibility for an installation;
- The service provider provides a quote to the customer, which includes the 75% subsidy from Endeavour Energy and asks the customer to agree on the program terms and conditions;
- The system is installed and commissioned; and
- Endeavour Energy sends an instruction to the battery systems through the communication and control platform to discharge the energy stored during times of peak demand.

The trial commenced on 1 December 2016 and will run for three summer periods. A post trial survey will be conducted during FY 2018/19. An evaluation report for the trial will be completed by July 2019.

3.1.5 IMPLEMENTATION COSTS

The Residential Battery Energy Storage Trial has an estimated cost of $1,174,000 for FY 2016/17 to FY 2018/19 to be funded under DMIA.

Expenditure claim in FY 2016/17 is a total of $318,937 in OPEX covering the costs for DRMS enhancements, webpage design and online registration form, legal review of service agreement and customer terms and conditions, project management, marketing and communications, customer recruitment and battery system supply, installation and commissioning for a number of customers. All expenses are accounted in several work orders linked to the project.

3.1.6 RESULTS

Results will be reported after the conclusion of the trial in FY 2018/19.

4.0 STATEMENT

Endeavour Energy confirms the funding of the projects contained in this report are not:

a. recoverable under any other jurisdictional incentive scheme,
b. recoverable under any other state or Commonwealth government scheme, and
c. included in the forecast CAPEX or OPEX approved in the AER's distribution determination for the next regulatory control period, or under any other incentive scheme in that determination (such as the D-factor scheme for NSW).