Demand Management Innovation Allowance Mechanism Compliance Report for 2020-21

Submission to the Australian Energy Regulator

October 2021

PowerWater

Introduction

The Australian Energy Regulator (AER) applied a Demand Management Innovation Allowance Mechanism (DMIAM) to Power and Water Corporation (Power and Water) for the 2019-24 regulatory period. The DMIAM provides distribution networks with funding for research and development in demand management projects that have the potential to reduce long term network costs.

In its final determination for the 2019-24 regulatory period, the AER provided Power and Water with a total funding of $1.57 million ($2017-18) under the DMIAM. Under the mechanism, Power and Water can spend the funding amount on AER approved eligible projects during the 2019-24 period. However, if Power and Water does not spend the full amount on AER approved eligible projects, there will be a revenue adjustment in the next period equal to the shortfall.

Under section 2.3 of the DMIAM, Power and Water are required to submit an annual compliance report to the AER setting out the projects that have been undertaken under the mechanism for the past regulatory year. The 2020-21 regulatory year is the second year the DMIAM has applied to Power and Water, and consequently this is our second compliance report.

The information provided in this report will also be reflected in the relevant sections of our Annual Regulatory Information Notice (RIN) for 2020-21, which we will submit later this year.[1] While the AER does not require this report to be externally reviewed for assurance, we note the information provided in the annual RIN is subject to assurance requirements.

2020-21 regulatory year

Power and Water has not committed any expenditure to eligible projects in 2020-21 that meet the criteria under the DMIAM. For this reason, both our annual RIN and this report identify that no amount of DMIAM funding was spent in 2020-21.[2] Accordingly, we have not identified any eligible projects in this report which require further information.[3] We have consequently not provided a statutory declaration in respect of expenditure on eligible projects, nor have we identified any confidential information in this report.[4]

Future Demand Management expenditure

Although Power and Water have no reported projects in the 2020-21 year, we are in the process of developing a Roadmap to integrate innovative technologies to better manage demand in Power and Water's network. Projects identified in the Roadmap may be eligible for funding under the DMIAM during the remainder of the regulatory period.

---

[1] This includes data relating to the DMIAM in Table 7.11.2 of Workbook 1 of Appendix A of Schedule 1 of the 2020-21 Annual Regulatory Information Notice issued to Power and Water by the AER. It also includes our written response to questions 7.1 to 7.4 of the RIN in relation to DMIAM.

[2] Under section 2.3(3)(a) we must identify the amount of the allowance spent.

[3] Under section 2.3(3)(b)(c)(d) and (e), our annual compliance report must identify any eligible projects for the previous regulatory year, and if so, provide accompanying information and detail on the projects.

[4] Under section 2.3(3)(f) we must provide a statutory declaration if we have identified any eligible projects. Under section 2.3(4) we must identify if the report contains any information that contains confidential information.

The projects in the Roadmap have been carefully selected to lay the groundwork for maximising the contribution of distributed energy towards achieving the 50% renewable target for the Northern Territory power system by 2030, in line with the focus areas in the Darwin-Katherine System Plan[5]. The Roadmap projects will achieve this through enhancing knowledge and understanding of the low and medium voltage electricity networks and implementing demand management capability in the unique context of the Power and Water network, whilst working towards reducing long term network costs. As a result, we foresee this capability will enable greater integration of distributed energy resources (DER), unlocking the full potential of customers to participate in the energy transition.

The sections below provide an outline of the projects in the Roadmap which may be eligible for funding under the DMIAM in the remaining years of this regulatory control period.

Trialling improved visibility and optimisation of the network and dynamic operating envelopes

We understand that the key to a successful transition to a renewable energy market involves optimising and orchestrating small scale technology such as rooftop solar and batteries. However, the Power and Water network currently does not possess the capabilities required to coordinate behind-the-meter assets to manage or optimise demand and electricity usage.

We are proposing to facilitate a small-scale trial in our network to implement real-time monitoring capability with the ability to publish dynamic operating envelopes to partnered aggregators to better manage and optimise the network in the most efficient and cost-effective way for the customer, the network and the power system in the Northern Territory.

Low costs ways to improve visibility of our network

The existing state of the network is not fit to endure the impacts associated with significant penetration of embedded generation, which export into the network creating thermal and voltage issues. A key issue is that we have limited visibility over the low voltage network, where constraints in our network may cause customers to experience poor quality of supply or unplanned outages. We recognise that enacting constraints on export of embedded generation is not a viable and sustainable option for our customers and the network.

We are proposing to implement a research project to investigate cost-effective methods to improve visibility of our network, particularly in the low voltage regions. These methods will be assessed to ensure they are fit-for-purpose in the context of Power and Water's network current and future needs.

Understanding the role of community batteries

In reaching the 50% renewable target by 2030, batteries will play a key role in supporting the security and reliability of the power system. However, the specific role of community batteries is yet to be explored.

We are proposing to conduct a research project to understand the key use cases and benefits that community batteries can provide in the Power and Water network, and test the feasibility of community batteries and their economics to determine when and where the business case for

[5] https://territoryrenewableenergy.nt.gov.au/__data/assets/pdf_file/0011/1056782/darwin-katherine-electricity-system-plan.pdf

community batteries are viable.

Proactively preparing for electric vehicles

Similar to the monumental shift in the adoption of small-scale renewable energy technologies by our customers, we foresee that electric vehicles (EVs) will become more prominent in our network in the short-term future as the cost of EVs decline, fuel range improves, and overseas car manufacturers transition away from conventional combustion. As adoption of EVs in the Northern Territory increases, the Power and Water electricity network will be profoundly impacted by residential and commercial EV charging behaviour which will increase the cost of the network if left unmanaged. However, we recognise that EVs also have the power to change the profile for electricity use similar to that of batteries. As such, EVs presents both opportunities and challenges for Power and Water's network.

As there are currently very few EVs and EV charging infrastructure in the Northern Territory, we are proposing to undertake a research project to proactively identify where and when localised network issues may arise and develop possible solutions to mitigate these impacts. This will allow for Power and Water to be ahead of the curve and work toward coordinated planning for the roll-out of charging infrastructure and managed charging options.