

# ESCRI-SA Dalrymple BESS Project Status and Update

ESCRI-SA Knowledge Sharing Reference Group

3 March 2020

In partnership with:



**Advisian**  
WorleyParsons Group

This activity received funding from ARENA as part of ARENA's Advancing Renewables Programme

Dalrymple  
North

ESCRI-SA  
Battery  
Energy  
Storage  
System  
(BESS)





# Innovation Awards

Energy Networks Australia:  
2019 Industry Innovation Award



South Australia Premier's Award:  
2019 Energy Sector -  
Transformational Innovation



## Winner

### Energy Sector

Innovation – Transformational Innovation

Presented to

**ElectraNet**

Dalrymple Battery Energy Storage System

**Hon Steven Marshall MP**  
Premier of South Australia



# Outline

- Project Status and Update
- 6 Monthly Operational Report
  - ElectraNet Perspective
  - AGL Perspective
- Q & A
- Summary and Next Steps
- Networking Afternoon Tea

# Project scope and objectives

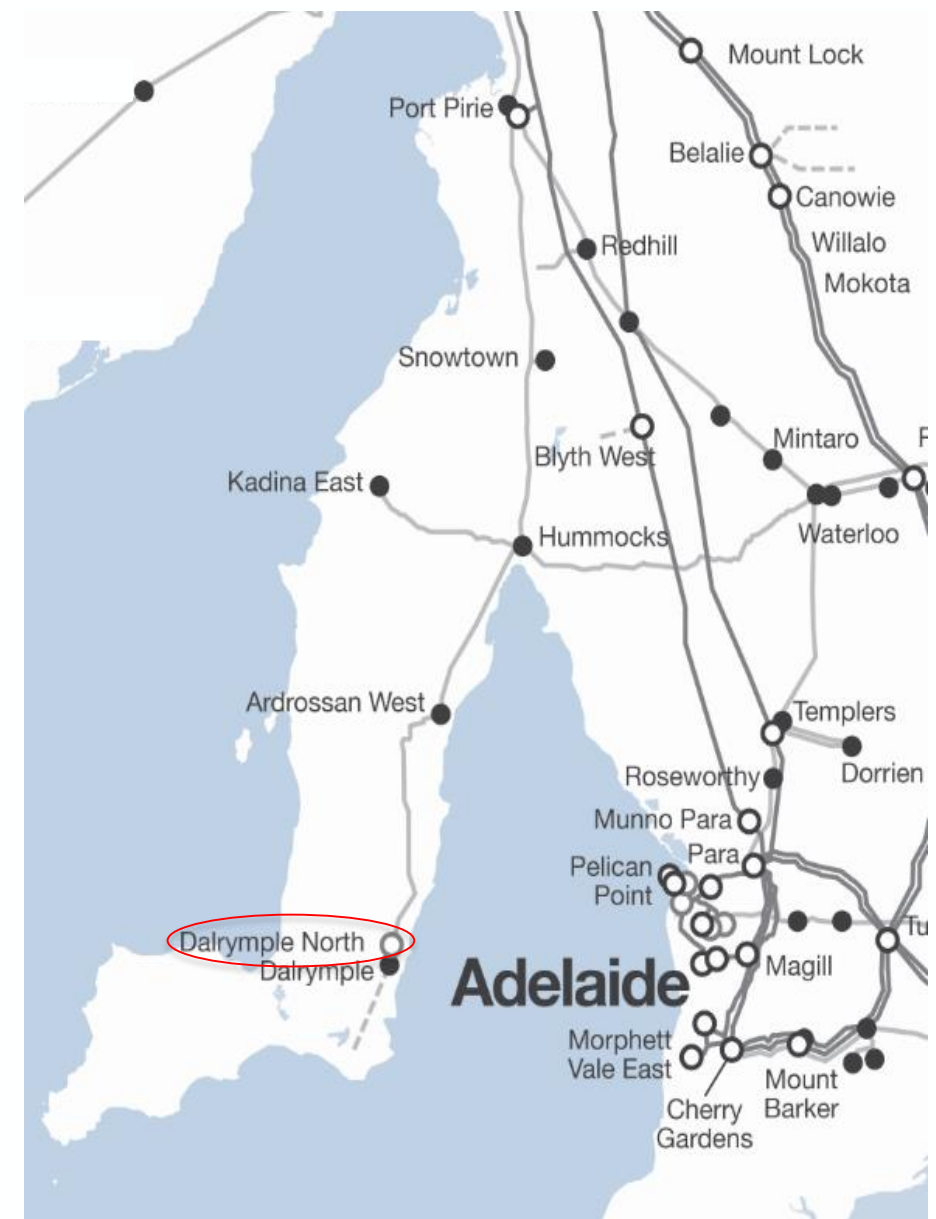
## **Scope: Nominal 30 MW, 8 MWh lithium-ion battery**

1. Gain practical experience and learnings from the application of grid connected utility scale battery storage as an enabler of large scale intermittent renewable energy on an interconnected system
2. Demonstrate that utility scale battery storage can effectively provide network reliability and security services alongside market services
3. Demonstrate network ownership of battery storage and commercial appropriate separation of provision of regulated services and competitive energy market services
4. Demonstrate “seamless” islanded operation with 100% renewable generation following transmission outages

# Location

## Site selected to maximise value from battery

- Connection at 33 kV at Dalrymple substation on Yorke Peninsula – land available
- Opportunity to reduce expected unserved energy under islanding conditions (max demand is about 8 MW but on average need about 3 MW for 2 hours)
- Site is close to the 91 MW Wattle Point Wind Farm – provides opportunity for battery to support islanded operation with the wind farm and 2 MW of local rooftop solar, following network outages





# Location



# Benefits / Revenue streams

**Providing both regulated and competitive market services**

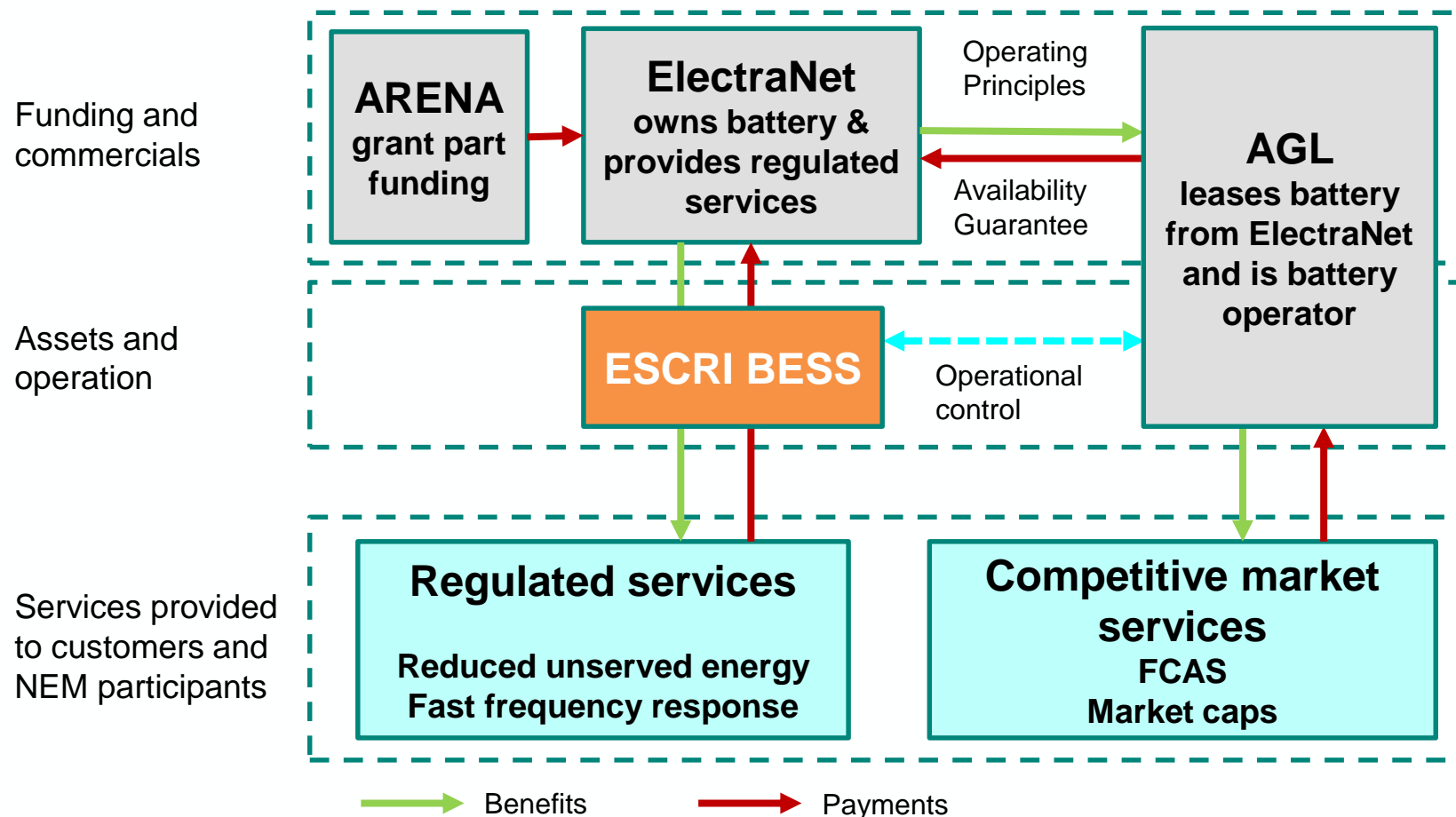
<b>Regulated services<sup>1</sup> (ElectraNet)</b>	<b>Competitive market services (AGL Energy)</b>
Fast frequency response Heywood Interconnector benefit	Ancillary services revenue (FCAS)
Reduced unserved energy benefit	Market cap trading

1. During project implementation the BESS was incorporated in the System Integrity Protection Scheme (SIPS), providing additional regulated benefits. The SIPS is an important emergency control scheme that significantly enhances power system security in South Australia (SA) for the non-credible loss of multiple generators in SA.



# Commercial arrangements

## Providing both regulated and competitive market services



EPC/ D&C contract and 12-year maintenance agreement awarded to Consolidated Power Projects (CPP) following extensive procurement process

# Project Milestones

Key deliverable	Target date
Financial close and contract award	21 September 2017
Energisation of battery system	30 April 2018
Commissioning and compliance tests of battery system	July – October 2018
Handover for commercial operation to AGL Energy	14 December 2018
ARENA reporting and knowledge sharing period ends (two years)	Q1 2021

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Battery  
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# Summary & Next Steps

# Key learnings / challenges

- Each battery project appears to have its own set of unique challenges and some learnings are quite project specific
- Learnings/ challenges have included...
  - demonstration project with an aggressive timeline - pushing technical boundaries, e.g. wind farm islanding, vector shift
  - regulatory treatment
  - obtaining equipment models and evaluation of Generator Performance Standards (GPS)
  - clarifying AEMO registration and metering requirements
  - improving understanding of performance parameters - obtaining / refining equipment models for evaluation of Generator Performance Standards, exacerbated by optimising control for grid-connected and islanded operation
  - islanding challenges
  - managing commercial contract signed before design was completed

# Knowledge Sharing Portal

- ARENA knowledge sharing commitments
  - Project delivering substantial knowledge sharing benefits to stakeholders
- Real-time data
- Data downloads
- Reports
- Presentations
- Knowledge Sharing Reference Group
  - Agendas
  - Minutes

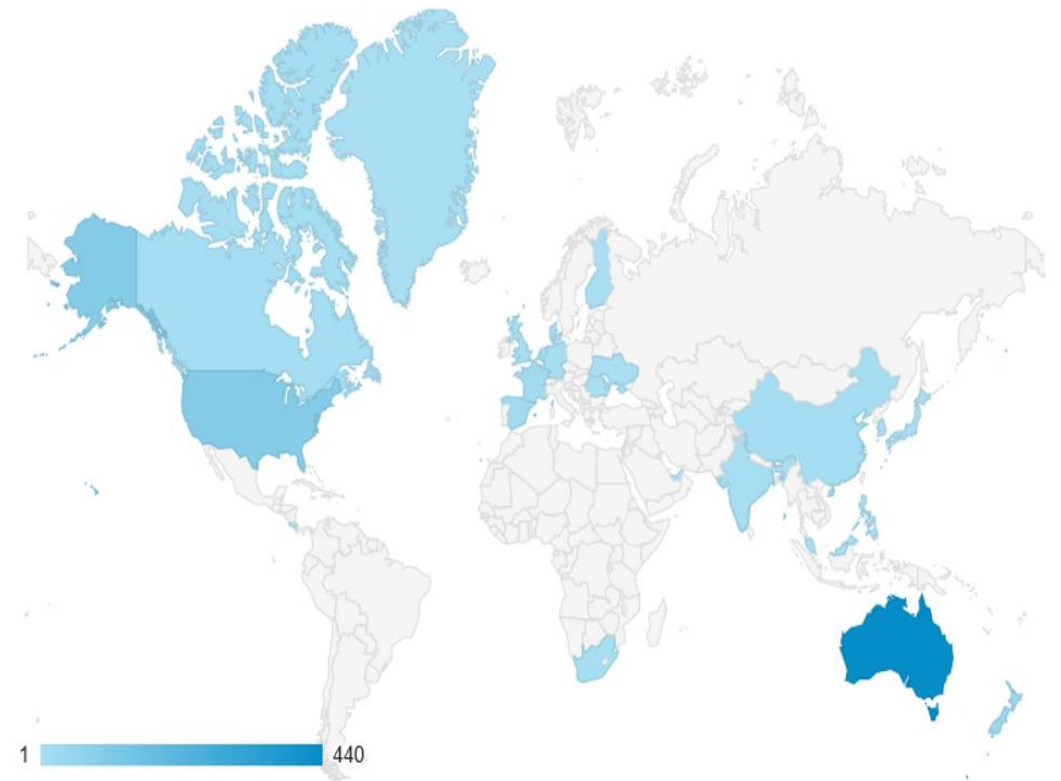
[www.escri-sa.com.au](http://www.escri-sa.com.au)





# Portal usage

	14/12/2018 to 14/06/2019	14/06/2019 to 14/12/2019	Total 14/12/2018 to 14/12/2019
Page views	1241	799	2040
Unique page views	984	666	1650
Average time on page	1:54	2:14	2:01
Number of report/presentation downloads	76	47	123
Number of data downloads	230	103	333



# Future challenges and next steps

- Manage promised 96% availability
- Energy losses
- Manage BESS capacity – 8 MWh – after 12 years!!
- Second Operational Report
- KSRG Meeting #6 – 16 September 2020



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# Thank you

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**ARENA**  
Australian Government  
Australian Renewable  
Energy Agency



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