



Government of Western Australia
Energy Policy WA



Disconnected Microgrid (DMG) Webinar

Presented by:
Energy Policy WA & Western Power

17 November 2021

10:30am – 11:30am

Working together for a
brighter energy future.

Welcome, Acknowledgment and Introduction

Jai Thomas – Assistant Coordinator, Energy Policy WA

Agenda

10.35am Item 1:
Government policy & the regulatory framework
Sasha Naughton, A/Principal Policy Analyst, Energy Policy WA

10.45am Item 2:
Western Power introduction & overview
Ben Bristow, Head of Grid Transformation, Western Power

10:55am Item 3:
The ROI opportunity & requirements
Janica Lukas, Distribution Grid Strategy & Planning Manager

11:10am Item 4:
Procurement process & next steps
Matthew Torquato, Category & Contracts Specialist

11:20am Item 5:
Q&A and close
Jai Thomas, Assistant Coordinator, Energy Policy WA
Ben Bristow, Head of Grid Transformation, Western Power

Agenda item 1:

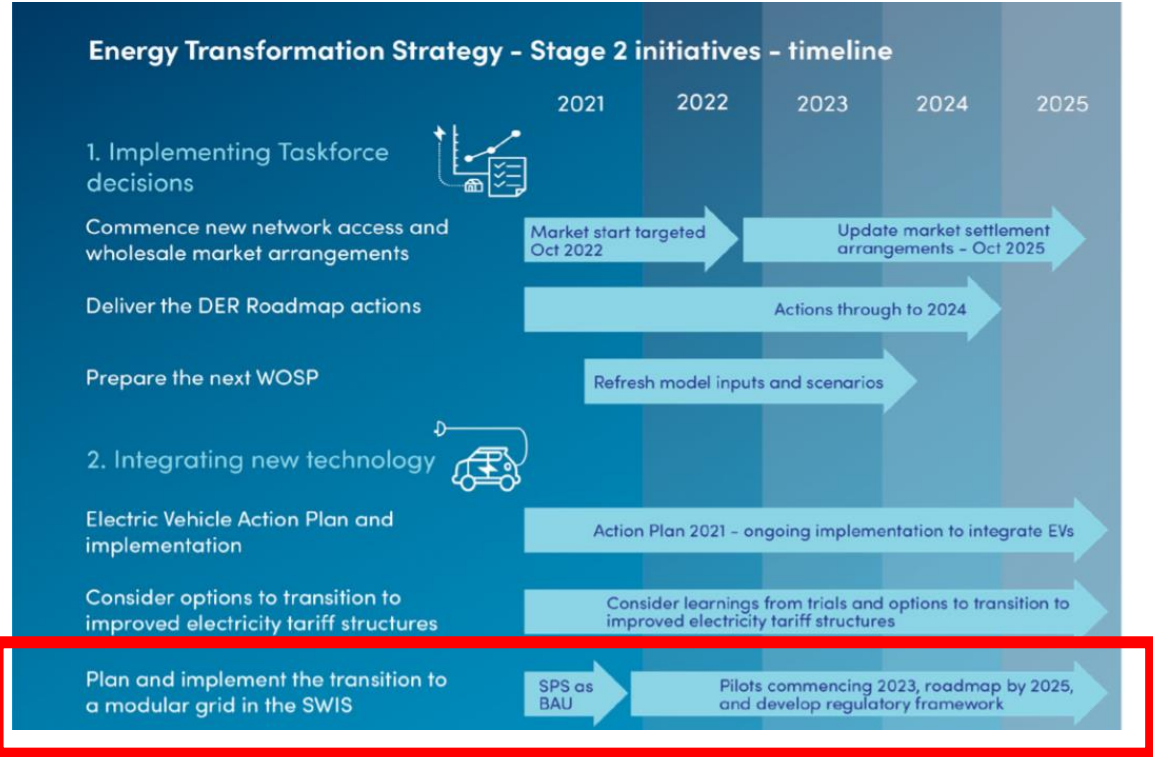
Government policy & the regulatory framework

Sasha Naughton, A/Principal Policy Analyst, Energy Policy WA

What is a Disconnected Microgrid (DMG)?

Our working definition of a DMG is taken to mean a small, isolated self-supporting network which was once connected to the interconnected network but now operates independently from the rest of the grid on a permanent basis.

Alignment to government policy objectives



The policy & regulatory framework

Building on the framework for stand-alone power systems (SPS):

- SPS regulatory amendments - gazetted on 5 November 2021

Policy and regulatory review implemented in two stages:

- The DMG Pilot, and
- Beyond the Pilot

Key issues to be examined:

- Definition
- Supply
- Connection
- Technical standards
- Consumer
- Compliance and reporting

Key issues to be examined

1. Definition

- Review of the current definition of an SPS to understand what amendments may be required to accommodate the DMG pilot.

2. Supply

- Assessment of the prescribed number of customers a DMG can serve under a pilot setting.

3. Connection

- Review of whether the obligation to connect and new customer connection costs are fit for purpose in a DMG context.
- Consideration of the process for exiting customers from the Wholesale Electricity Market and associated cost and revenue allocation model.

4. Technical standards

- Examination of the prescribed performance standards in the context of microgrids (and SPS).

5. Consumer

- Confirm whether customer protections are fit for purpose in a DMG context.

6. Compliance and reporting

- Review and confirm that existing licenses have the authority to deploy DMG and safety obligations are retained.

Policy & regulatory objectives



Deliver improved reliability and quality of supply at the lowest sustainable cost



Ensure clear local content expectations are included and leveraged as part of procurement process



Provide lowest emissions supply arrangements



Utilise the lessons for transferability and standardisation of future DMGs



Provide continued parity of customer rights, safety and protections with grid connected customers

Western Power

Agenda item 2: Introduction & Overview

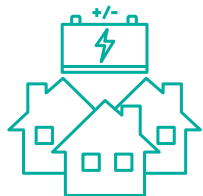
Ben Bristow – Head of Grid Transformation



About Western Power



2,700+
strong workforce



13 community
power banks



~793 battery
systems approved



1GW+
rooftop solar
(~30% homes)



271,000
streetlights



2+ million
people connected



Why we are evolving our grid

A more flexible grid will support our customers adoption of changing generation and storage options. Grid evolution is reliant on community behaviour, technology advancement rates, regulation and policy.

Integrated Network



Our traditional interconnected network of poles and wires

Fringe Disconnection



A centralised network with consumers at the edge of the network on island systems

Modular Network










A flexible model with a centralised grid embraces SPS, microgrids, VPPs and other new technologies

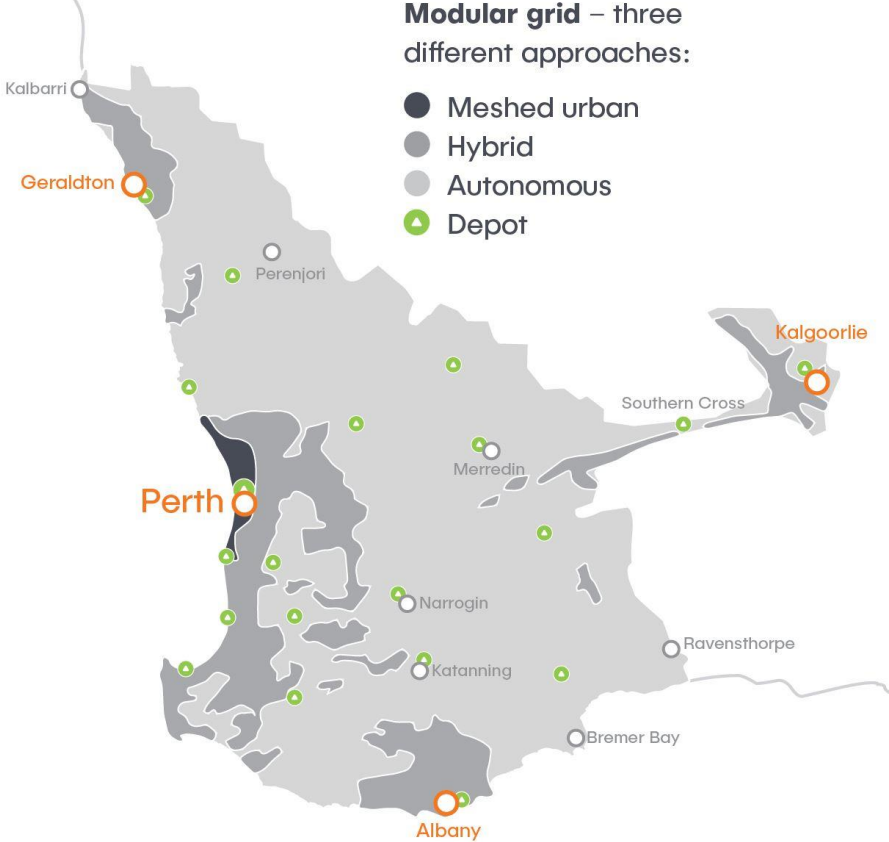
Fully Decentralised



An extreme model with no centralised network

Optimising the modular grid transition

Meshed urban	Hybrid	Autonomous
 <p>Undergrounding</p>		
 <p>Poles and wires</p>		
 <p>Transmission</p>		
	 <p>Microgrids</p>	
	 <p>Stand-alone power systems</p>	
 <p>Renewables</p>		
 <p>Storage</p>		



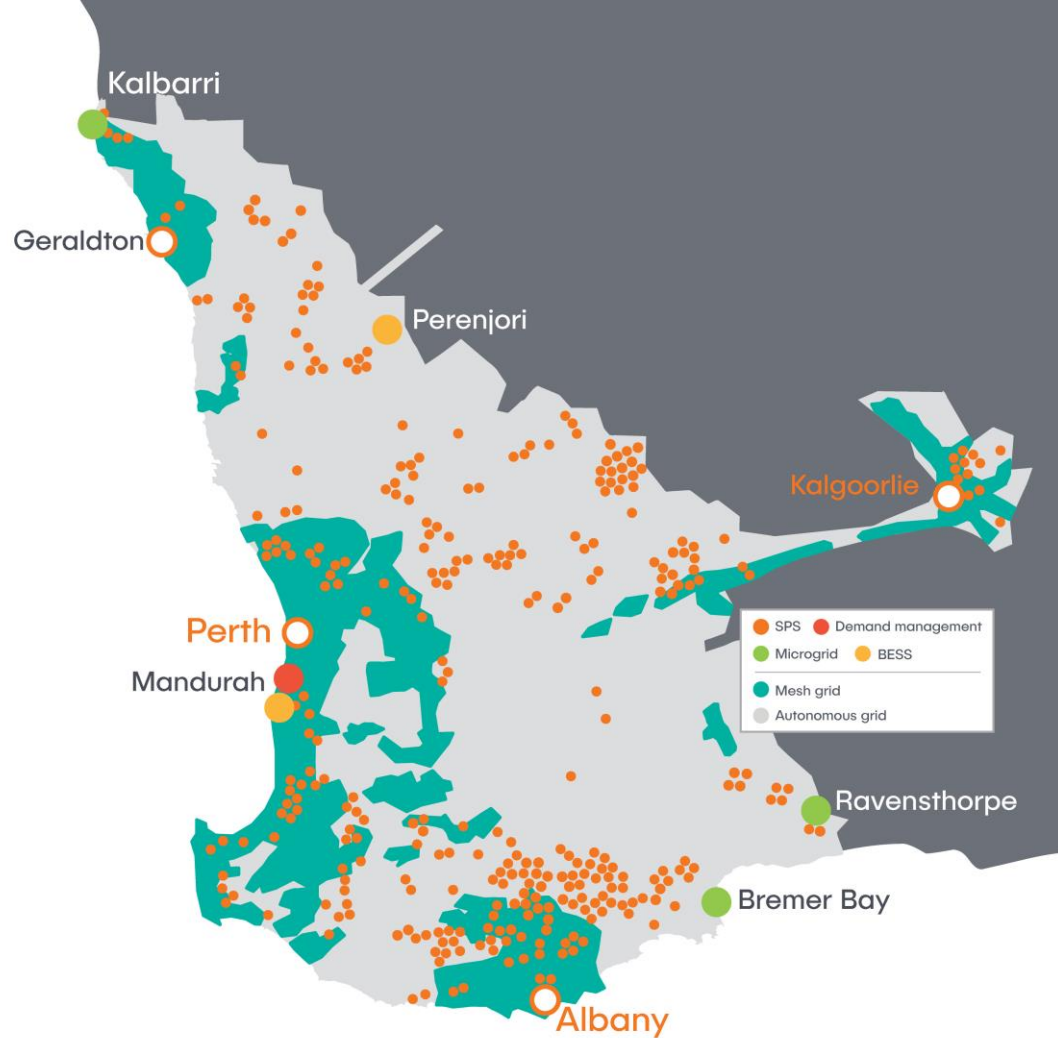
Microgrid evolution

Microgrids

- Ravensthorpe – 2013
- Bremer Bay – 2017
- Perenjori – 2018
- Kalbarri – 2021





Stand-alone power systems

- Ravensthorpe (6 units) – 2016
- Round 1 (52 units) – 2019/20
- Round 2 (88 units) – 2020/21
- Cyclone Seroja (37 units) - (2021)



Western Power's future direction: Powering the lives of our community by moving to the modular grid

Our community expects us to SAFELY:

 <p>Provide reliable supply</p>	 <p>Keep costs low</p>	 <p>Connect more renewables</p>	 <p>Support jobs and growth</p>
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Our plan to deliver for the community focuses on:

 <p>Optimising the modular grid transition</p>	 <p>Integrating DER into the grid</p>	 <p>Delivering outcomes for customers</p>	 <p>Driving financial sustainability</p>	 <p>Decarbonising our community</p>
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Built upon our values:

Driven by our people	 <p>Safety First</p>	 <p>Customer Focus</p>	 <p>Be Bold</p>	 <p>Teamwork</p>	Enabled by technology
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Registration of Interest

Agenda item 3: Opportunity & Requirements

Janica Lukas – Distribution Grid Strategy & Planning Manager





Problem Statement



Ageing
Network



Regulatory
Change



Carbon
Emissions

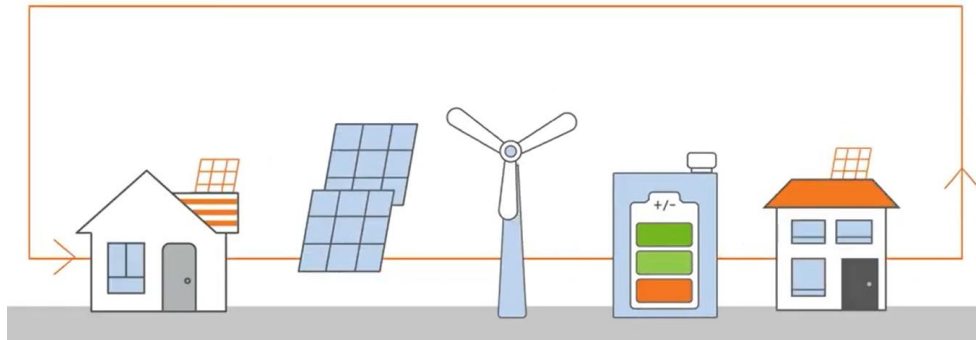


Reliability

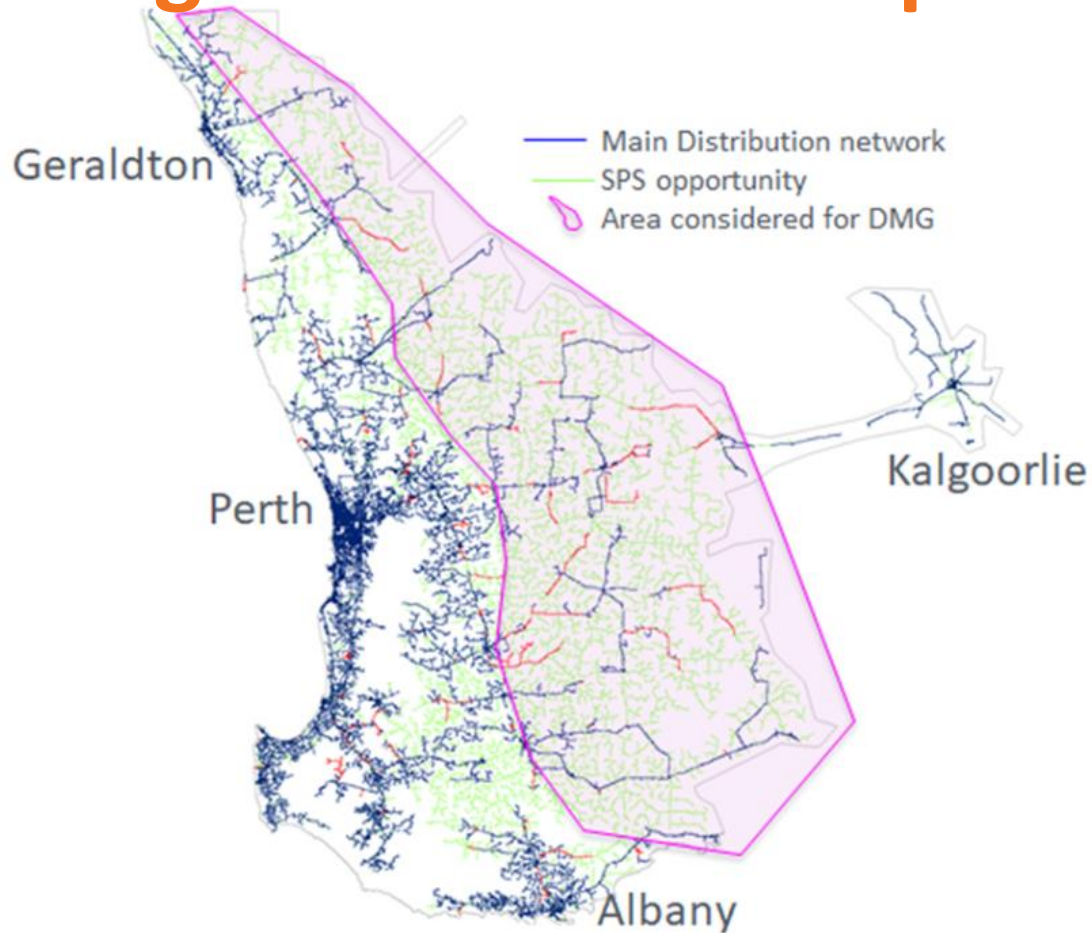
- Western Power's ageing distribution network (415v to 33kV) is approaching end of life in many areas
- Like-for-like replacement cost can present a significant challenge
- Small edge of grid towns can experience poor reliability, with customers experiencing frequent power interruptions due to stretches of bare overhead conductor sometimes hundreds of kilometres long
- Some rural towns have relatively low peak loads in the order of a few hundred kilowatts and daily average kWh usage of in the order of few hundred kilowatt hours for the majority of the year. The demand increases during grain receivals, roughly Nov/Dec to in about 1000 kWh per day during weekdays

Opportunity

- Preliminary Feasibility (PF) assessments indicated that the rebuilding of the network may be a higher cost than providing a supply to some towns via a Disconnected Microgrid (DMG).
- A DMG is a small, isolated self-supported network operating independently from the rest of the grid on a permanent basis.
- Similar to a stand-alone power system (SPS) but services more than 5 customers.
- Envisaged that the first pilot DMG will supply power to less than 50 customers.
- New technology additionally provides other benefits such as decarbonisation, reliability and power quality improvements.



Area being considered for pilot DMG



Key Requirements



Decreasing cost of
renewables



A greener future

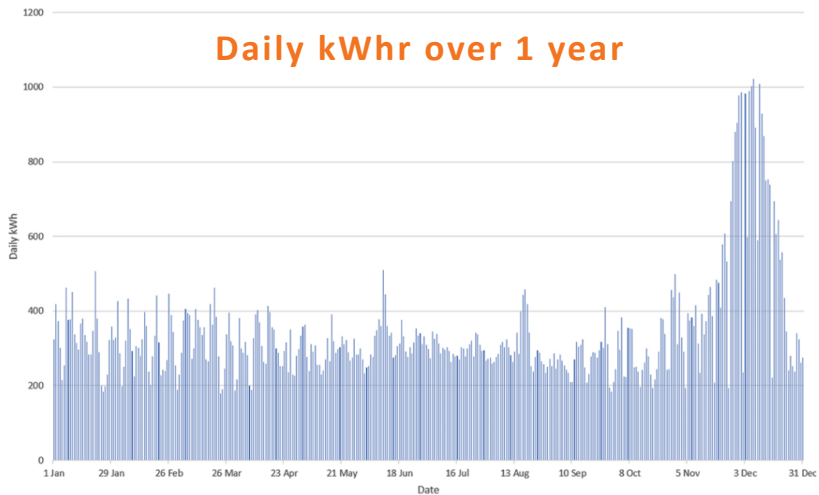


Technology and
innovation

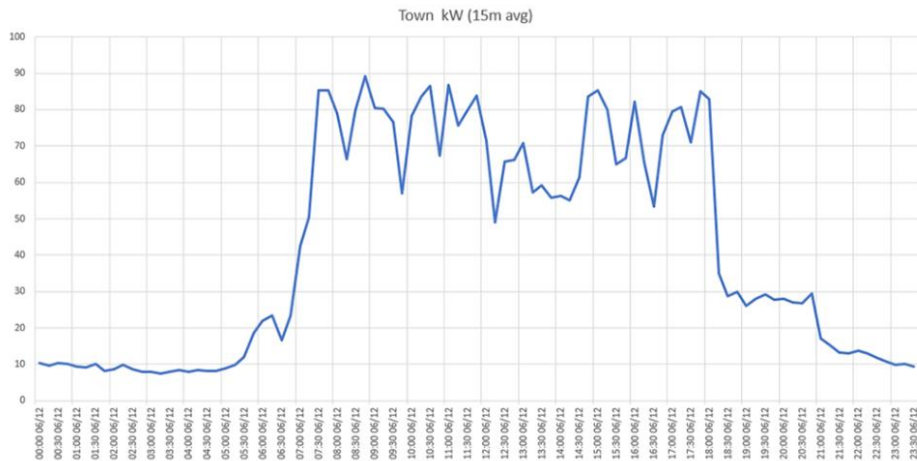
- Proven capability and qualifications of proponents
- Preference for local businesses to promote growth in this emerging industry.
- Significant proportion of generation to be supplied via renewable energy (90% or more).
- Long term operation that is reliable and maintainable; understanding components may require replacement over time.
- Sufficient fault current and duration to ensure protection operation & motor starting requirements as per ROI information on website.
- The solution must comply with relevant criteria in relation to the quality of supply in Technical Rules Section 2.
- Solutions must be deliverable by June 2023.

Daily kWh

Daily kWh over 1 year

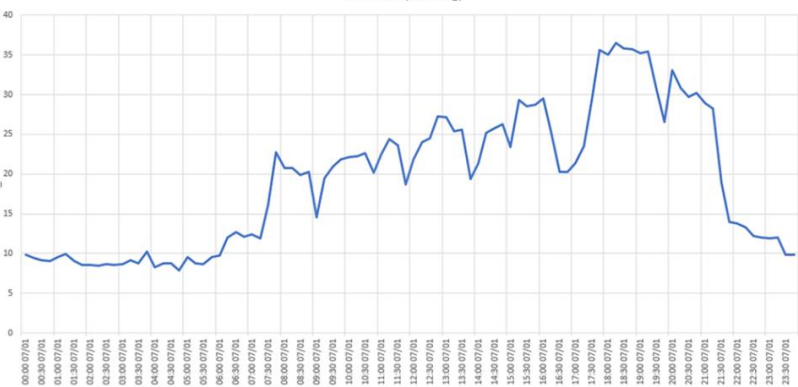


Typical December (harvest receipt) High Load Day



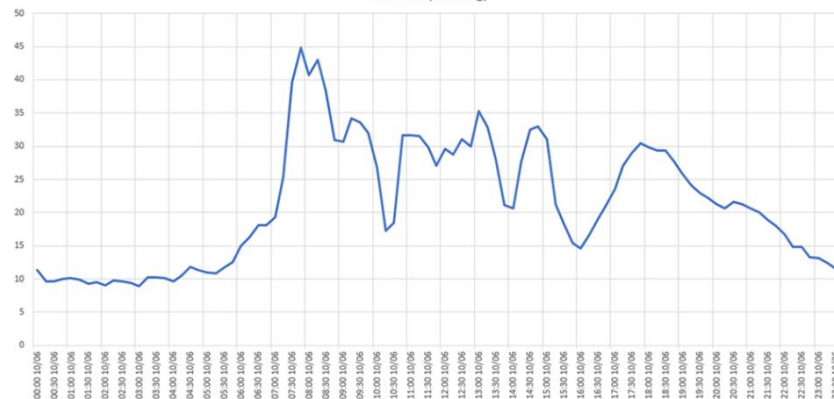
Typical January High Load Day

Town kW (15m avg)



Typical Winter High Load Day

Town kW (15m avg)



Commercial Information

Agenda item 4: Procurement Process & Next Steps

Matthew Torquato – Category & Contracts Specialist



ROI Submission Types

- Western Power is seeking submissions from vendors that can provide a:
 - CAPEX Solution (Western Power owned, operated and maintained asset);
 - OPEX Solution (vendor owned, operated and maintained asset); or
 - A combination of both CAPEX and OPEX solution, that satisfies the design, supply and installation of a disconnected microgrid for a small rural town.

- Western Power notes that due to the unknown OPEX solutions available in the market, any potential solution may be considered. Ongoing maintenance of the outstanding poles and wires can be included in potential OPEX solution, however is not mandatory.



ROI

Vendors are invited to Register their Interest through the Western Power website. All vendors will be provided to answer the following criteria:

- Provide details on the product(s)/service(s) and how it/they can contribute(s) to satisfying the scope requirements (1000 words max)
- Provide examples on where and how your product(s)/service(s) have been used to satisfy the scope requirements (1000 words max)
- Reference at least three customers. Include description of the engagement, name, company and contact email/phone number (500 words max).

Safety Requirements - ROI

Safety Record – including any subcontractors working for you.

- Fatalities in the last five (5) years
- Total Recordable Injury Frequency Rate (TRIFR)
- Number of Lost Time Injuries (LTIs)
- Number of Total Recordable Injuries (TRIs)

Safety information will be required to be submitted before consideration into the next part of the procurement event.

ROI Submissions

ROI to be submitted via link on website by 4PM AWST,
Friday 7th January 2022

- Please specify the advertised tender event number you are responding to: **WS314946691 Disconnected Microgrid - Network Support Services**
- Commodity Code Number and Title: **81 – Engineering and Research and Technology Based Services**



Timelines

- Closing of ROI – 4pm (AWST) on Friday, 7 January 2022.
- RFP in market – February/March 2022.
- Construction to be completed by June 2023.



Future Procurement Events

- All Western Power procurement events (except ROI's) are conducted via Ariba.
- If shortlisted from the ROI, the vendor will be required to meet Western Power's Ariba requirements to be invited to the next stage.
- If the vendor is awarded a Contract, the vendor will be required to pass the Cm3 requirements.
- Cm3 is Western Power's third party safety compliance vendor.

Departures

- At this stage of the procurement event, Western Power will not accept any departures to the scope.
- Departures (both contractual and scope) may be considered in future procurement events.



Probity

- Western Power will be engaging a probity auditor near on the completion of the ROI.
- To maintain probity throughout the procurement event, all communication relating to the event must be directed to me at matthew.torquato@westernpower.com.au.
- Note that any additional information provided to me outside the ROI requirements will not be considered during the procurement event unless all vendors are afforded the opportunity to provide similar information to Western Power.
- Western Power has a pre-agreed Sourcing Strategy that outlines the assessment criteria for the ROI and the RFP.
- Western Power reserves the right to include an EOI between the ROI and RFP in the event the submissions received in the ROI indicate to Western Power that more information needs to be divulged to vendors for an accurate submission can be made at the RFP stage.
- Western Power also reserves the right to directly negotiate with a single vendor if Western Power deems only one (1) vendor is able to meet the scope requirements.



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Q&A

Jai Thomas - Assistant Coordinator, Energy Policy WA

Ben Bristow - Head of Grid Transformation, Western Power

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