Powerlink Queensland

EXPRESSION OF INTEREST FOR THE INSTALLATION AND OPERATION OF LARGE-SCALE BATTERY ENERGY STORAGE SYSTEMS IN THE POWERLINK NETWORK

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1. Purpose, Scope and Process

Queensland Electricity Transmission Corporation Limited trading as Powerlink Queensland (**Powerlink**) delivers electricity to almost five million Queenslanders through a transmission network (**Network**) spanning over 1,700km throughout the State of Queensland. At Powerlink we recognise that the world is changing rapidly and the energy supply industry we operate in is undergoing transformative change. Together with our customers and stakeholders, we have looked out 30 years to develop our Network Vision to help us navigate the changes coming our way with a focus on the safe and reliable operation of our transmission network to meet the needs of Queenslanders.

Powerlink recognises that as well as network support capabilities, large scale Battery Energy Storage System (**BESS**) projects have the ability to provide positive commercial outcomes for owners and investors and positive outcomes for Powerlink's stakeholders and customers. Powerlink is investigating the application and benefits of BESS installed within the Powerlink Transmission Network.

This Expression of Interest (**EOI**) is for Powerlink to engage with external developers, investors and stakeholders in BESS for the purpose of generating innovative commercial and technical models that will meet both Powerlink's Network technical requirements and investors' requirements for commercial returns. Powerlink does not propose to operate BESS in the market but rather seek synergies with commercial operators to enable scale and scope efficiencies and achieve the objectives of both network technical requirements and commercial outcomes for investors.

Through this EOI Powerlink is seeking to enable the development and construction of storage solutions for the benefit of our customers and the wider market energy transition. Powerlink proposes to offer BESS project proponents (**Proponents**) the opportunity to construct and install their BESS at key points in the Network. Powerlink will facilitate these projects through various technical and commercial support mechanisms which are outlined within this EOI.

PROCESS

Powerlink is progressing the BESS investigation in the following stages:

1. **Stage 1** – this **EOI** will canvass the market to identify **Proponents** who have the capability, experience, technical innovation, access to technology and financial capacity who can work with Powerlink to create innovative commercial and technical BESS solutions and models such that Powerlink can shortlist preferred Proponents to move to Stage 2;

2. **Stage 2** – Request for Proposal – this stage will invite shortlisted Proponents to submit proposals to Powerlink for BESS solutions and commercial models

potentially resulting in Powerlink resolving to work with one or more Proponents to move forward on a proposal; and

3. **Stage 3** – Depending on the Stage 2 outcomes, this final stage could result in Powerlink and the Proponents moving forward on a BESS solution through a process of negotiation and final selection.

2. Key Objective

Powerlink's Key Objective in this EOI process is to:

1. Highlight an opportunity that exists to locate large scale BESS that leverage Powerlink's landholdings and access to Network connection at locations that could benefit the Network;
2. Engage with Proponents to further understand technical, commercial and contractual aspects of large scale BESS delivery and operation;
3. Understand the scale and scope of network related services that Proponents may offer to Powerlink through installation of large scale BESS;
4. Understand commercial benefits for Powerlink, in exchange for access to land and network connection;
5. Understand the project delivery capabilities of Proponents, their ability and requirements for a BESS to reach financial close (speed to market); and
6. Shortlist potential Proponents who have interest, capability and commercial drivers to partner with Powerlink in the delivery of large scale BESS project(s) in Queensland.

3. Powerlink Project Participation and Support

Powerlink is proposing the following support mechanisms to Proponent(s), with the expectation that such support will be mutually beneficial over the life of the Project.

(a) Access to Powerlink land

Powerlink has identified a number of substation sites in each of three Powerlink regions (refer to Section 5) which have adjacent land suitable for the installation of large-scale BESS. Powerlink will provide access to this land to locate the BESS.

Subject to project requirements, Powerlink may be able to assist with general land infrastructure requirements such as safety fencing and security, and where practical, other site facilities such as Occupational Health and Safety, water and power.

(b) Access to Powerlink substation connection points/bays

Powerlink will provide the Proponent with transmission infrastructure required to connect the BESS to the transmission network, including transformation.

(c) Engineering support
Project Proponents could have access to support for the electrical and physical design of the proposed BESS from some of Australia's leading power system engineers within Powerlink.

(d) Grid connection approvals
Where possible, Powerlink will provide engineering support to the project proponent to facilitate the Network connection approval process.

(e) Development Approvals
As the proposed BESS projects will be constructed on Powerlink property, we will manage all aspects of the development approval for the Project.

(f) Maintenance
Powerlink may consider offering Level 1 maintenance services to the BESS systems located on Powerlink land, noting at all times that performance and availability guarantees are the responsibility of the Proponent.

4. Powerlink Network Services

The flexible nature of batteries means that there is the potential to provide a variety of different grid-support services, potentially with little or no impact on the battery's commercial operations. These services are envisaged to include:

(a) Grid forming services: services that an appropriately specified battery will provide whenever they are online, with no impact on commercial services;

(b) Voltage (reactive power) services: a variety of services which modulate the voltage set point of the battery in response to different network conditions, with minimal impact on the battery's commercial operations;

(c) Real power services: a variety of services which modulate the real power output of the battery in response to different network conditions; and

(d) Other network support services: services in addition to those specified above the proponent is prepared to provide from the battery, and the potential these services have to change over time.

The demand for such network services is likely to increase in coming years with ongoing changes in generation type and operating patterns. The ability of a BESS to provide these services depends on a range of factors including:

(a) Location: many services require a battery to be located in specific location

(b) Specification: design considerations like grid-forming controls, short-term overload capability, black start capability

(c) Capacity: Various Power System needs at different locations may require a minimum or maximum BESS capacity.

(d) Integration with network controls: many network services require the battery to have integrated network control systems.

While not all of these services are critical for every application, Powerlink envisages that some will be important factors for Powerlink in its evaluation of responses to this EOI. As noted above, Powerlink seeks innovative offers for a broad range of services.

5. Network Sites

The Powerlink network is extensive, with over 1,700km of transmission lines delivering power to almost five million Queenslanders. The opportunities for network support will vary from region to region and be dependent on the network topography and the availability of land and spare bays at substations across the State.

Powerlink has identified a number of sites that have spare land and connection point suitable for the connection of a BESS and would both benefit from BESS support services. These are broadly grouped into three (3) regions:

1. North Queensland
2. Central Queensland
3. Southern Queensland

While the total number of sites is yet to be finalised, there is expected to be at least one (1) site in each region, with the potential for multiple sites in the same region. Powerlink would like to understand the number of sites Proponents are interested in partnering with Powerlink in the development of a BESS and if Proponents have a preference for particular regions.

6. Network Support and Commercial Arrangements

Powerlink is requesting Proponents of BESS projects to propose new and innovative network support and commercial arrangements, which deliver the Powerlink Network Services to the extent possible, while also allowing the Proponent to realise expected return on investment.

Powerlink is, within this EOI, proposing significant project support to Proponents and has subsequent high levels of expectation that this support will result in Arrangements which deliver positive outcomes for our customers and ensure the optimal performance of the Network.

Powerlink has outlined the Network Services in section 4 above. It is noted that this is not necessarily an exhaustive list and not all services may be feasible for every installation. Hence Powerlink is seeking to understand the network support services Proponents are willing to provide in exchange for access to land, network connection infrastructure and grid connection approvals.

Powerlink is not prescribing in this EOI what form commercial arrangements may take. Powerlink recognise the strategic value of land adjacent to a substation, the provision of network connection infrastructure and oversight of the grid connection under the National Electricity Rules (NER). We seek feedback on additional commercial arrangements which recognise this value.

As a long-term participant in the Queensland electricity sector, Powerlink is seeking to develop a long-term relationship with the successful Proponent(s). Powerlink has a strong preference for those Proponents who plan to remain the project owner throughout the life of the Arrangement.

7. Key Requirements from Proponents

As part of this EOI, Powerlink asks respondents to, at a minimum, address each of the following:

1. Outline the Proponent's capability and experience in delivering BESS, including the proponent's experience with and/or preferences for particular technologies and vendors;

2. Demonstrate the Proponent's technical capabilities for BESS, future technology and innovation and how it has access to these technologies to support the Network;

3. Identify locational preferences for BESS (North Queensland, Central Queensland or Southern Queensland), and why;

4. Outline Network Services and access envelopes that Proponents may offer to Powerlink through installation of large scale BESS, and the ability for this to change over time in response to network needs and technology changes;

5. Outline any additional commercial arrangements acceptable to the Proponent in exchange for land, network connection and grid connection approvals under the NER;

6. Explain the Proponent's affiliation and preferences to use and deploy certain technologies, in particular battery chemistry, software control systems and features under development such as grid forming;

7. Demonstrate the Proponent's financial capability and capacity to develop and deliver BESS;

8. Outline key requirements for the Proponent to reach financial close on a BESS, allowing Powerlink to assess speed to market; and

9. Confirm ability to comply with the General Technical Specifications listed in Section 8 of this EOI, and any proposed deviations.

8. General Technical Specifications

In addition to the Key Requirements above, there are general technical specifications Proponents are asked to consider in their submission. Any deviations to these specification need to be justified in the EOI response.

8.1 Network Requirements

Powerlink has a number of network requirements for any BESS to be installed as a result of this EOI.

1. The BESS should be of transmission grid scale and a capacity in the order of at least 100MW is expected[1];

2. Subject to land availability and connection capacity, the BESS should be capable of expansion to higher capacities within an agreed period of time and commercial arrangements;

3. The Network Services offered by the Proponent need to be clearly defined in terms of frequency and duration. Where this cannot be defined, an envelope of access to the battery for the provision of Network Services should be specified;

4. Some Network Services may also require the BESS to adopt a particular technology and/or control strategy (e.g. grid forming). Such technology implementation may also be aligned with maximising other revenue streams (e.g. inertia and black start services);

5. Proponents must be able to demonstrate that the proposed BESS system has extremely high reliability, fast response capabilities and intelligent control systems to ensure the Key Objective is capable of being met. Powerlink will require Availability and Performance Guarantees to be further defined and discussed; and

6. The BESS system must be capable of installation and commencement of operation within 12 months of the date of the conclusion of this EOI and any subsequent tender process (forecast for Q2/Q3 2021).

8.2 BESS Requirements

Capacity

Proposed solutions must be large enough to meet the general requirements for Network Services. As indicated above, grid scale installations are required and ideally be capable of expansion to higher capacities.

[1] Powerlink is generally seeking large scale BESS (>100MW) with expansion capability. However it is noted that some network locations and applications may limit the size of the battery that can be accommodated.

Physical Footprint

Proponents should provide an overview of the physical dimensions of the proposed BESS and total land requirements, assuming no limitation on land availability or connection capacity.

Technology

Future capabilities for grid forming synthetic inertia would be highly regarded.

Life

The offered BESS solution should be designed to have a minimum operating life of 10 years, with longer terms viewed favourably. Degradation figures over the life of the BESS should be provided.

BESS Manufacturer

The Proponent must be able to demonstrate that the proposed BESS system has been manufactured by, and will receive on-going support from, a reputable, experienced Tier 1 battery systems original equipment manufacturer (**OEM**).

Maintenance

The Proponent should include as part of its response a maintenance regime for the BESS which will ensure its availability to Powerlink as required. Successful proponents will be required to provide Performance and Availability Guarantees for the BESS over the life of the Arrangement.

As noted Section 3(f), Powerlink may consider offering Level 1 maintenance services to the BESS systems located on Powerlink land, subject to agreement.

Control System

Proposed BESS systems should integrate intelligent control system software allowing maximum utilization of the BESS capacity and capabilities.

BESS control and monitoring systems should also be able to clearly demonstrate that they have been used successfully to manage large-scale BESS systems in the support of large transmission networks.

Control systems must be compatible with Powerlink network controls and be accessible to Powerlink standard operating systems and will allow changes to control settings in response to changing network requirements. Powerlink has a preference for open standard interfaces.

All control systems must meet Australian transmission system standards.

Safety

Proponents must be able to demonstrate that proposed BESS systems operate under, and can be maintained with, the highest level of safety standards for Occupational Health and Safety and Environmental Safety.

A Safety Plan which outlines the safe operating procedures for the BESS will be viewed favourably. The Proponent should also outline plans for the removal and safe disposal of the BESS at the end of its life or the termination of the Arrangement.

9. Expressions of Interest

Powerlink welcomes EOIs from BESS Proponents with innovative solutions for co-operative technical and commercial arrangements.

Submissions should be presented in a written form and should clearly identify the author of the submission, including contact details for subsequent follow-up if required.

Submissions from Proponents should contain the following information:

1. details of the party making the submission (or proposing the service);
2. responses to each of the matters identified in Sections 6 and 7;
3. anything else Proponents consider necessary or relevant for Powerlink to consider.

Submissions must be received by Powerlink by 2:00pm on Friday 23rd April 2021 (Brisbane time) after which this EOI is closed. Powerlink may (but it is not obliged to) consider a late submission in its absolute discretion.

Powerlink is not obliged to make any contract offers (or enter into any contract) with a Proponent as a result of this EOI. Proposed options or combinations thereof are subject to confirmation by Powerlink of their technical feasibility and capability to meet the pre-requisites and criteria identified in this EOI. All costs incurred by Proponents in relation to this EOI must be borne by them. Regardless of the outcome, Proponents are not entitled to claim for reimbursement of time, materials or expenses occurred in connection with this EOI.

Powerlink may at its discretion decide not to proceed with this EOI or any stage of it.

All negotiations and communications between Powerlink and Proponents are strictly on a subject to contract basis.

Please note: Emailed submissions are subject to a 10MB file size (including email text). Please contact BusinessDevelopment@powerlink.com.au to arrange a file transfer if submissions exceed this limit.

Contact details:

Powerlink Queensland
PO Box 1193
VIRGINIA QLD 4014
BusinessDevelopment@powerlink.com.au

10. Next Steps

Following receipt of EOI responses, Powerlink will consider submissions and Powerlink then expects to short list some Proponents for Stage 2 of the BESS process (see Section 1). The commencement of Stage 2 is likely to be, within 2-3 months of the close of the EOI.

Powerlink may, at its discretion, decide not to proceed with the Stage 2 at any time.

11. Disclaimer

The information contained in this EOI is owned by Powerlink and contains Powerlink's confidential information, and must not be reproduced, distributed, duplicated or altered, or otherwise disclosed outside of the Proponent or its agents authorised to review this opportunity (subject to them agreeing to keep the information confidential) without the written consent of Powerlink or as required by law.

The Proponent is only authorised to use this EOI for the purpose of its intended use, namely, to provide a response to the Powerlink EOI.

The information contained in this EOI is only current at the time of its publication, it may be expressed to be subject to limitations, assumptions and exclusions, and Powerlink is not under any obligation to inform any Proponent if the information changes or becomes inaccurate. This EOI is subject to re-evaluation by Powerlink.

While Powerlink has taken care in preparing this EOI and it is provided in good faith, Powerlink accepts no responsibility or liability (including without limitation, liability to any person by reason of negligence, negligent misstatement or otherwise) for any loss, liability, cause of action or damage that may be incurred or suffered by any person (including the Proponent) using or relying on this information or assumptions drawn from it, except to the extent that liability under any applicable Queensland or Commonwealth of Australia statute cannot be excluded.

Powerlink's liability under any condition, warranty, or obligation implied by law in relation to this EOI (or its preparation) that cannot be excluded is limited, in the case of goods, to the replacement of the goods, the supply of equivalent goods, the repair of the goods, paying the cost of replacing the goods or of acquiring equivalent goods, or paying the cost of having the goods replaced; and in the case of services, to the supplying of the services again or the payment of the cost of having the services supplied again.

Proponents should complete its own investigations to satisfy itself of the accuracy of the information contained in this EOI.

Where specifically noted, this EOI may contain information derived from third party sources. Powerlink does not warrant or promise the suitability, currency, validity, correctness or completeness of information supplied by third party sources.

Nothing in this EOI represents an offer that is capable of acceptance by the Proponent. If the Proponent wishes to proceed with any of the options presented in this EOI, it should contact Powerlink for further discussion about the technical and commercial feasibility of proceeding with the option.

Contact us

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