Demand Side Engagement Document

December 2022

Endeavour Energy

POWER together

Contents

1. Introduction

1.1 Purpose

This Demand Side Engagement Document outlines how Endeavour Energy engages with non-network service providers, interested stakeholders, registered parties and customers on the supply of non-network options and demand side solutions. It details our approach and processes to identify and evaluate non-network options and Stand-Alone Power System (SAPS) for addressing network limitations, be it from demand growth or asset replacement. It also outlines how non-network service providers are invited to submit proposals. This document also includes the following:

- Endeavour Energy's planning process for identifying (screening for non-network options) and implementing demand management solutions or SAPS as alternatives to network options;
- How planning information is provided to interested parties to develop non-network alternatives;
- The information we require from non-network option proponents to assess cost effectiveness of all feasible options.
- An example of how non-network options are investigated and evaluated as part of the Regulatory Investment Test for Distribution (RIT-D) process;
- The implementation process for non-network options;
- How financial incentives payments for non-network options are determined;
- The methodology used for determining avoided transmission use of system (TUOS) charges; and
- Invitation to suppliers of non-network solutions and other stakeholders to approach us at any time to discuss opportunities, that will benefit our customers in securing a lower cost delivery of electricity.

1.2 Introduction

It is Endeavour Energy's responsibility to ensure a reliable and safe electricity supply to customers. When the demand for electricity, at peak times (referred to as peak demand), is forecast to approach the capacity limits of the electricity network, Endeavour Energy will commence an investigation to identify credible options to address the limitation. Network limitation may also be caused by network assets reaching the end of their serviceable life. In this situation a feasible option may be to not replace the asset and investigate options to reduce and remove the demand for electricity on the network i.e., demand serviced in an alternate way.

Approaching the capacity limit is not necessarily the trigger for investment but the commencement of investigations. The trigger for investment is generally driven by the network risk level and by the value of expected unserved energy. An effective non-network solution, or alternatively switching connected customers to SAPS solution, can help manage the load at risk and defer or avoid network augmentation.

Credible options may be either an increase in network capacity (supply side management or network option) or reduce the peak electricity demand on the network (non-network option, also known as demand management). Embedded generation or alternative energy sources like SAPS or battery energy storage in particular are also considered and evaluated as part of the non-network option investigations.

Effective use of non-network solutions has the potential to reduce the cost of operating the network and lowering the cost to customers. There are a range of non-network solutions available for use by Endeavour Energy which includes:

- Demand Response
  - Shifting appliance or equipment use from peak periods to non-peak periods (load shifting or reshaping the load curve);
  - Converting the appliance energy source from electricity to an alternative power source (e.g. fuel switching);
  - Use of more energy efficient appliances and equipment (energy efficiency);
  - Turning off equipment or avoiding using electricity during specific time periods (load curtailment);
  - Operating appliances at lower power demand for short periods (demand limiting);
  - Operating appliances during off-peak times (controlled load)

- Use of Energy Storage Systems (typically batteries) to reduce peak demand (network support);
- Use of Stand Alone Power Systems, which potentially forego the need of building and maintaining long network connections for individual or small groups of customers in remote areas
- Operation of embedded generators (network support)
- Power factor correction (efficient use of electricity).

Section 2 of this document outlines Endeavour Energy's planning process and includes the provision of information to interested parties as well as the Screening Test for non-network options. An explanation of peak demand is also provided.

Section 3 of this document provides details of the Demand Side Engagement Strategy which includes community consultation, issuing Options Screening Report (OSR) as part of the procurement process and evaluating non-network option submissions. Also included is how DM programs are implemented and non-network option payment levels are determined. A description of the Distribution Annual Planning Report (DAPR) is provided and how the on-line mapping portal allows for the provision of regular updates for non-network opportunities and the submission of proposals at an earlier stage. This is particularly important for options that require a long lead time for development.

Section 4 covers the Register of Interested Parties while **Section 5** details our Dispute Resolution process.

Section 6 provides information on how customers may contact Endeavour Energy and how to make a submission.

1.3 Definitions

Australian Energy Regulator (AER)

Australia's national energy market regulator and has a range of responsibility in the national energy markets.

Avoided Distribution Cost (ADC)

The expected change in the Present Value of the distribution operating and capital expenditure resulting from the deferral or postponement (temporarily or indefinitely) of expenditure on the distribution system.

Credible Option

An option (or group of options) that: (1) address the identified need; (2) is (or are) commercially and technically feasible; and (3) can be implemented in sufficient time to meet the identified need, and is (or are) identified as a credible option in accordance with clause 5.15.2 in the NER.

Demand Management (DM)

Any initiative that reduces peak demand imposed on the electricity network by reducing customer demand (temporarily or permanently) or by incorporating a separate energy source downstream of the network limitation that results in a reduction of electricity drawn from the network for the sole purpose of avoiding or deferring the expansion of the electricity network, also known as demand side management, non-network option or network support option.

Distribution Annual Planning Report (DAPR)

An annual report produced by the Distribution Network Service Provider as part of their distribution annual planning process as stipulated in the NER clause 5.13.2.

National Electricity Rules (NER)

A set of rules that govern the operation of the National Electricity Market.

Network Option

A means by which an identified network limitation can be fully or partly addressed by expenditure on a distribution asset or demand management program which is undertaken by a Distribution Network Service Provider.

Non-Network Option

A means by which an identified network limitation can be fully or partly addressed other than by a traditional network option.

Option Screening Report (OSR)[1]

A report prepared under clause 5.17.4 of the NER. The report aims to seek proposals from the market for non-network solutions or Stand Alone Power Systems to address the network limitation.

Peak Demand

When the demand for electricity reaches its maximum value for a period being; day, month, season or year. It is caused by customers connected to the electricity network using high levels of electricity simultaneously resulting in a reduction in diversity of electricity use, generally as a result of extreme weather conditions.

Regulatory Investment Test for Distribution (RIT-D)

A process whose purpose is to identify the credible option that maximises the present value of the net economic benefit to all those who produce, consume and transport electricity in the NEM. Projects were the estimated cost of the most expensive credible option is equal to or greater than the RIT-D threshold (currently $6 million) are subject to RIT-D.

Stand Alone Power System (SAPS)

A SAPS is a system that generates and distributes electricity but is not physically connected to the main electricity grid. A SAPS can come in various forms, but for a residential customer it typically comprises of one or more renewable power generation units, a battery, and back-up generation. For some customers, this set-up will deliver safe power at lower cost and/or greater reliability than connecting to the national grid.

Sub RIT-D

Projects that do not meet the RIT-D threshold as defined in the NER.

2. Planning Process

Endeavour Energy follows its annual planning process to identify emerging network limitations resulting from the changes in the demand forecast and customer activity. This process is documented in detail in the Distribution Annual Planning Report (DAPR) and is available on the Endeavour Energy website. The non-network investigation actions are summarised below.

Each network limitation is analysed to determine credible options to overcome the limitation. Network options are developed first to determine the estimated network cost and the value of deferral. All projects are screened for Non- Network Solutions and or potential SAPS, but the RIT-D process is followed for all projects that meet the RIT-D threshold. A non-network investigation will also be conducted for projects with a capital cost below the threshold but may not necessarily adopt the full RIT-D process. These projects are nominated as Sub RIT-D projects.

For RIT-D projects, the network limitation is then screened to identify if a non-network option is feasible, refer to section 2.2. This is the commencement of the consultation process where interested parties are notified of the Screening Test result. RIT-D project notifications will be either through a Non-Network Screening Notice or Options Screening Report (OSR).

[1] Historically OSRs were referred to as Non-Network Option Reports (NNORs), with terminology updated to be inclusive of SAPS.

Sub RIT-D projects will generally utilise a simplified process to determine the cost effectiveness of non-network options and may include negotiating with customers or directly with service providers. The level of investigation will be commensurate with the level of network investment and likely benefit.

The non-network investigation for RIT-D projects is comprised of six separate stages:

1. Planning review to identify emerging network limitation with credible network options;
2. Conduct a screening test for non-network option;
3. Where non-network option is found to be feasible, issue an OSR as part of the consultation process to obtain proposals for non-network options from interested parties. Sub RIT-D projects generally involves issuing a Request for Demand Management Services or for Network Support Services ;
4. Perform the RIT-D evaluation to identify the most cost-effective options(s) for both RIT-D and Sub RIT-D projects; and
5. If a non-network option is identified as the most cost-effective option, negotiate an agreement with proponents to implement the solution.
6. If a non- network option is not found to be viable, the standard RIT-D processes is followed.

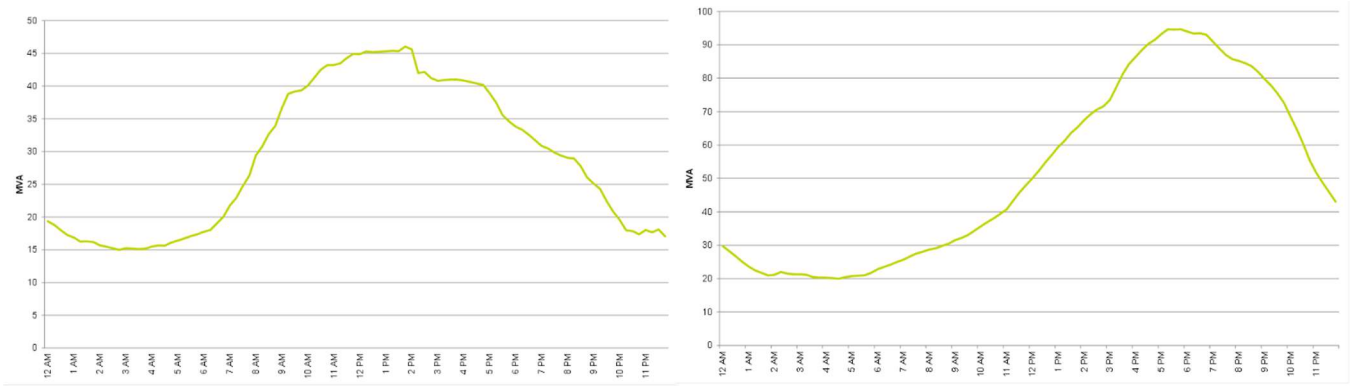
2.1 Peak Demand

A peak in the demand for electricity is caused from the coincident use and consumption of electricity by a large number of consumers. An example of this is on extremely hot or cold days when the majority of air conditioners for cooling or heating, together with other appliances, are used at the same time. During extreme temperature conditions, air conditioners generally do not cycle off and run continuously. This does not occur frequently.

Endeavour Energy's network area is made up of diverse climatic zones. Western Sydney is typically hotter than the coastal area of Wollongong and the South Coast which is different again to the Blue Mountains and Southern Highlands. The hotter climate areas tend to be summer peaking while the cooler climate areas can be winter peaking.

Load profiles, as can be seen in Figure 1, will vary according to the customer type. A non-network option may need to target a particular load profile type. Industrial/Commercial load types generally have a peak demand time in the middle of the day whereas the residential load type peak demand occurs from late afternoon to the evening.

Figure 1: Typical Industrial/Commercial and Residential Load Profiles



Industrial/Commercial Load Profile

Residential Load Profile

2.2 Screening for non-network options

In accordance with the NER, Endeavour Energy identifies network limitations based on the current load and connections forecast, the firm and cyclic capacity of the network and the unserved energy resulting from the network limitation. Also identified are credible network options to address the network limitation. Each identified network limitation will be screened for non-network solutions to address the network limitation to either avoid or defer the network option.

The Screening Test is conducted using a decision support tool, the New Technology Masterplan (NTMP). The NTMP is a web-based, technoeconomic analysis tool which inputs demand forecast and proposed network solution economics in order to compare with the non-network solutions. Non-network solutions are sized to a achieve range of possible deferral years, and using updatable cost inputs an optimised sized and deferral period can then be compared to the network solution. This analysis is preliminary but supports non-network opportunity identification and further detailed investigation on practicalities (such as available resource base) can then be undertaken to conclude the Screening Test.

The outcome of the Screening Test will be either; (a) a non-network option is feasible and should proceed to the OSR phase of consultation, for RIT-D projects, and Request for Demand Management Services or for Network Support Services for Sub RIT-D projects or; (b) a non-network option is not feasible and should proceed to consultation of the preferred network option (see Appendix A, RIT-D process). Results of the Screening Test will be included in the DAPR. If the screening shows that a non-network option is not feasible, the results will also be published on the website as soon as possible in the form of a Screening Notice. Proponents are still welcome to make a submission after the Screening Notice is published in order to comment on the investigation process or if it is believed that an alternative solution may be feasible.

The screening process for non-network options includes investigating the drivers of the peak demand and an analysis of demand growth. Screening includes the peak demand characteristics such as timing, duration and season. Other elements that are analysed include:

- An analysis of the existing customer base to determine the potential for demand reduction. In an existing network (brownfield site) there would generally be sufficient opportunity to reduce demand to at least defer the network augmentation;
- An analysis of new customers in greenfield sites and major growth centres. These areas usually involve rural zonings re-developed into medium and high-density housing with a commercial development component or industrial/commercial development areas;
- An analysis of redevelopment. This usually involves rezoning of residential areas to medium or high-density housing.
- Load at risk and unserved energy calculations;
- The deferral value of the preferred network option; and
- Evaluation of new technologies, such as battery energy storage, and their suitability within the target area and their ability to achieve cost-effective demand reduction.

3. Demand Side Engagement Strategy

Endeavour Energy's Demand Side Engagement Strategy's purpose is to provide all stakeholders and interested parties an understanding of how Endeavour Energy engages with non-network service providers and how to participate in our network planning and expansion process. Interested parties are provided with the information required to evaluate non-network alternatives and the opportunity to submit proposals during the process. The OSR, Request for Demand Management Services or Network Support Services are the means by which proposals are submitted however, submission may be made based on the DAPR or the publication of the Screening Notice.

This document provides instructions on how to submit non-network option proposals and the information to be included in a submission. Furthermore, information is provided describing how submissions are evaluated and how service providers will be engaged.

Endeavour Energy's demand side engagement strategy objectives include:

1. Providing opportunities to our customers, interested parties and non-network service proponents to participate in identifying cost effective solutions to network limitations;
2. Allowing all parties the opportunity to participate in the network planning and expansion process;
3. Provide all parties easy access to information on network limitations and development proposals through the DAPR and the online mapping portal; and
4. Assistance to the non-network services market to develop and to facilitate non-network options.

3.1 Community Consultation

Interaction is made with potential service providers and the community each time Endeavour Energy releases a public document and information on network limitations. This includes, but not limited to, the DAPR, publication of a OSR, Request for Demand Management Services or Network Support Services, the Draft Project Assessment Report and/or the Final Project Assessment Report. These documents will be made available on Endeavour Energy's website. Each document will provide details on how to make a submission. The information required by Endeavour to evaluate a submission is covered in section 4.3. . General responses and feedback can be emailed to consultation@endeavourenergy.com.au.

Endeavour Energy also notifies all parties on our Register of Interested Parties of any documents that are made available regarding network planning and invite submissions for non-network alternatives. Consultation is conducted at each stage during the RIT-D process. Endeavour Energy also investigates alternative supply strategies with developers for new release areas and is a member of the Urban Development Infrastructure of Australia. Developers are welcome to contact Endeavour Energy to discuss alternative supply arrangements either through the infrastructure committee or directly.

3.2 Non-Network Options – Procurement Process

For RIT-D projects, an OSR is produced and issued as a means of soliciting submissions for non-network options from interested parties for RIT-D projects that pass the Screening Test. Sub RIT-D projects will follow a similar process and will issue a Request for Demand Management Services or Network Support Services. These reports are Endeavour Energy's procurement process for tendering non-network services. The reason Endeavour prefers the procurement services at this stage is to avoid going to the market a second time and requesting the same information. This saves time in implementing the non-network option and avoids service providers making a second submission.

Alternatively, a process where short-listed proponents are identified and invited to submit an Expression of Interest to provide a proposal for non-network solution can also be considered in parallel with the OSR. This

allows for a more proactive approach and enables Endeavour to directly engage with interested parties earlier in the consultation period.

The OSR will follow Endeavour Energy's tendering guidelines and will include other documents for proponents to make a formal complying submission. The procurement process will be open and fair and provide all parties with equal opportunity. It is incumbent on the proponent to ensure they obtain and complete all documents associated with the tender.

The OSR will contains the following:

- Description of the identified need, location, load profile, size and duration of the network limitation;
- Assumptions used to identify the need;
- Technical characteristics that a non-network option would be required to deliver;
- A map identifying the geographical boundaries of the network limitation area;
- What a non-network option needs to achieve to be successful;
- Technical, timing and cost details for identified credible options;
- A load profile showing the peak time and duration;
- Information to assist service providers in submitting credible proposals for consideration;
- Deferral value of the identified need; and
- Possible financial remuneration for peak demand reduction.

The OSR will be placed on the Endeavour Energy website and will be the beginning of a three-month consultation process, as a minimum. The Request for Demand Management Services or Network Support Services may be posted for a shorter period. Upon publication of the reports all participants registered on the Endeavour Energy Register of Interested Parties will be notified of their availability and location.

Endeavour Energy will consider submissions received based on the DAPR information. It is incumbent on the proponent to ensure that all relevant information is provided to allow a thorough analysis of the proposal for submissions based on the DAPR information. If deemed cost effective and prudent, we may directly negotiate the implementation of the non-network proposal.

3.3 Non-Network Proposal Submission

The OSR and Request for Demand Management Services or Network Support Services will include an outline of the information service providers are to include in their submission. An example of the type of information requested in the submissions is listed below:

- Name, address and contact details of the company or person making the submission; and the person responsible for the follow up contact;
- Size, type and location of load(s) that can be reduced, shifted, substituted or interrupted;
- Size, type and location of embedded generators that can be used if required;
- Type of action or technology proposed to reduce peak demand/provide alternative supplies;
- Time required to implement these measures and any period of notice required before loads can be interrupted or generators brought on-line;
- Limitation of the initiative in providing the level of demand reduction required;
- Total cost to implement these measures and any cost savings that would accrue to the owners/ operators of the equipment;
- The level of contribution or assistance requested from Endeavour; and
- Other information that would assist Endeavour Energy in investigating an evaluating the non-network option.

If there is insufficient detail provided in a submission to evaluate the impact on the peak demand and/or the cost of the proposal, Endeavour Energy will contact the proponent to request further information.

Embedded generator proposals are to include details as stipulated in the reports. Endeavour Energy will offer embedded generators an annual financial remuneration package for the term of the agreement and based on performance and as agreed to by both parties. Proponents must follow the procurements guidelines and request for information and ensure all mandatory information is provided.

3.3.1 Non-Network Option Submission Review

All submissions are reviewed and evaluated in accordance with the following criteria:

- Demand reduction (kVA) potential;
- Ability of the service provider to achieve the specified outcome and to address the peak demand;
- Cost of the proposal (NPV and $/kVA) and its cost-effectiveness;
- Time of day / seasonality of the demand reduction available;
- Timeframe for implementation;
- Reliability of demand reduction;
- Experience in delivering demand management initiatives; and
- Risks associated with the proposal.

The proposal or combination of proposals that offer the best net economic value that achieves the desired outcome will be selected as the credible non-network option, if technically feasible. This will then be evaluated with other credible options to identify the preferred option that maximises the net economic value to all those who produce, consume, and transport electricity in the NEM. The details of the evaluation methodology can be found in the AER RIT-D Application Guidelines published on the AER website . The market benefits included in the RIT-D that Endeavour believes are significant in assessing non-network options are:

- Changes in voluntary load shedding;
- Changes in involuntary load shedding;
- Changes in network losses;
- Differences in the timing of network investment expenditure; and
- Changes in costs for parties other than the RIT-D proponent.

These impacts will be calculated according to the AER's published RIT-D application guidelines.

A solution can comprise a number of non-network options if each proposal is cost effective in its own right and provides a combined NPV superior to the preferred network option.

It is important for embedded generator, virtual power plant and storage proponents to demonstrate the reliability history of equipment to be installed and to provide examples of previous experience and usage. Other information to be submitted for review includes:

- Type of fuel and storage;
- Reliability of fuel supply;
- Proposed connection point and location;
- Ability to meet quality of supply and network protection requirements.

The tender process may include a follow-up meeting to clarify the submission details and the proposal deliverable. A worked example of a non-network option investigation and evaluation is included as Appendix B.

3.3.2 Avoided Transmission Use of System Change

Endeavour Energy's distribution network connects to the TransGrid transmission network at multiple connection points. TransGrid is the Transmission Network Service Provider in NSW. The transmission use of system charge (TUOS) at the connection point that is charged to Endeavour Energy is recovered from the customers connected to the distribution network through the Network Use of System (NUOS) charges.

Avoided TUOS charges are calculated using the components of the TUOS charge that are avoidable as a result of the embedded generation being connected to that part of the network. It is based on the monthly energy and demand reduction achieved by the embedded generator at time of network peak at the Bulk Supply Point.

The reduction in TUOS charges is passed onto the embedded generators annually that are eligible to receive the avoided TUOS under the NER. Avoided TUOS payments are required to be paid only for intervals where the embedded generator reduces the actual Endeavour Energy TUOS payment to TransGrid.

3.3.3 Non-Network Payment Levels

The payment allocation for non-network options will initially be based on the avoided distribution cost (ADC) of deferring or avoiding the most credible network option. The ADC will be calculated in accordance with regulatory guidelines. This will form the upper bound for non-network option payment levels as this represents the point where network option becomes higher value.

The target demand reduction and duration of unserved energy will be determined using the latest demand forecast for the network component experiencing the limitation. Together with the ADC, a dollar per kVA and kVAh is calculated which represents the maximum payment level. Individual proponent payments levels may vary and will be based on:

- The total deferral value;
- The magnitude of the demand reduction offered by the proponent;
- Duration of demand reduction delivered;
- Availability and reliability of the demand reduction offered by the proponent;
- Other running and administration costs of the DM program and for each initiative; and
- The proportion of the delivered demand reduction and the total requirements.

Payments for network support will be negotiated on commercial terms to achieve the lowest cost outcome for Endeavour Energy's customers. Information about incentive payments may be provided as part of the OSR or a Request for Demand Management Solutions or Network Support Services.

3.3.4 Access to Incentive Payments

Endeavour Energy will pay proponents a demand management incentive payment based on performance. This will be based on measured demand reduction when required and the agreed service delivery criterion. It is understood that certain initiatives may require a set-up cost. Endeavour Energy is willing to negotiate providing financial assistance in this situation based on guaranteed delivery of service.

Demand Management incentive payments may be in many forms, but it is Endeavour's preference to pay based on dollar per kVA of verified demand reduction. This is subject to negotiation during the agreement negotiation phase and may include both fixed and variable components. Load curtailment and demand response programs may be paid on a kVAh or kWh, on a per event basis or as negotiated.

3.4 Non-Network Program Implementation

On completion of the economic evaluation and the non-network option consultation process a preferred option or combination of options will be identified. A Draft and/or Final Project Assessment Report will be produced in accordance with the RIT-D process, see Appendix A. if the preferred option involves implementing a non-network option, negotiations for implementation may commence prior to the issuing of the Project Assessment Reports, however, the preferred non-network option will be implemented once the process is complete. There are certain circumstances where a non-network option may need to be implemented at an earlier stage, particularly for non-network options that require a long lead time for development. These decisions will be made public and based on regulatory approval.

A formal agreement with the preferred proponent(s) will be negotiated upon completion of option review and selection process. The agreement will detail the service to be provided, demand reduction targets, timeframes, milestones and remuneration. On signing of the agreement, the marketing and recruitment and/or construction phase will commence to ensure adequate time is provided for demand reduction delivery.

3.4.1 Embedded Generation

If the preferred non-network option involves the installation of an embedded generator the proponent will need to engage Endeavour to commence the process for determining the appropriate connection methodology.

Embedded generation must be connected via the customer's own electrical installation. It may be used to either:

- Offset, a customer's own (on-site) demand and/or energy consumption,
- Produce and export electricity onto the local distribution network for commercial reasons, or
- To provide distribution network support under a contractual arrangement.
- There exist several alternative processes to ensure efficient implementation of an embedded generator connection depending on the type and size of generator installation. Endeavour Energy will consider the following high-level factors during the connection enquiry and application to connect process;
- Network safety, security and stability;
- Network infrastructure availability, capability and capacity to facilitate the proposal;
- Infrastructure and commercial demarcation and crossover, especially when multiple jurisdictions are involved;
- Where applicable, compliance and alignment with the RIT-D requirements;
- Consideration for non-network support opportunities;
- Network and proposal interconnection protection;
- Network infrastructure thermal capacity;
- Network voltage control;
- Generator fault level contribution;
- Power factor of generator operation;
- Power quality of supply generated and customer impact;
- Network augmentation required to facilitate the proposal in terms of contestable and non- contestable works;
- Network scope of work delivery timeframe;
- Legal review of the connection agreement;
- Any other considerations unique to the proposal

Generator Connection Offer

The connection requirements will be provided in a connection offer in response to the application. For micro embedded generators simplified connection requirements have been developed. For other embedded generators network augmentation and customer installation upgrade, a more detailed analysis to determine the connection requirements is required.

Technical Studies and Design

For large embedded generators connection, additional technical studies may be required together with the scope, process and associated costs will be detailed in the connection offer. Endeavour Energy has the obligation to ensure safety and security for its network and for all customers connected to the network.

Connection Works and Charges

Embedded generation connection works dedicated to the customer are contestable however, work on the shared network are usually funded by Endeavour Energy unless advised otherwise.

The NER governs the processes associated with the generator connection charges. This has many dependent factors including but not limited to network capability and capacity, generator capacity, connection voltage, augmentation requirements and connection complexity of the proposal.

To formalise the connection, the connection applicant would be financially responsible for:

- The full cost of the generator connection assets and services; and
- Any cost of removing the distribution network limitations that are specific to the connection of the generator.

The connection applicant is also financially responsible for settlement of the charges specific to the connection process to cover the expenses reasonably incurred by Endeavour. These include but are not limited to:

- Preliminary/Detailed Enquiry application Processing Fee;
- Application to connect – Connection Charges;

The connection charges may include:

- Network Augmentation Works. If significant this may be subject to a separate commercial contract (per application);
- Expenditure recuperation for applications which expanded beyond the original scope;
- Legal and commercial negotiation charges;
- Commissioning works such as inspections and or validation; and
- Connection Sanction review

Connection Agreement

An embedded generator has the option of accepting a standard connection agreement or negotiating a connection agreement depending on its size and preference. Small and micro embedded generators can utilise the standard agreements available to streamline the connection process and accept the standard terms and conditions. This is designed to meet the need of most residential and small-scale embedded generators. Embedded generators greater than 5 MW will be connected via chapter 5 of the NER and need to negotiate the connection agreement. Embedded generators less than 5 MW may elect to negotiate the connection agreement under chapter 5A of the NER.

Endeavour will document all the negotiated factors listed above during the 'Application for Connection' stage into the negotiated connection agreement.

Test and Commissioning

All generators connected to the network must be tested and commissioned prior to operation by the embedded generation owner. Endeavour Energy may perform a safety and/or technical compliance audit of the installation.

3.5 Distribution Annual Planning Process (DAPR)

The DAPR is produced annually as part of Endeavour Energy's annual planning process. This document details the latest summer and winter demand forecasts, network firm and total installed capacity and identifies emerging network limitations for all transmission and zone substations, subtransmission and primary distribution feeders where appropriate. Network limitations may be caused from either natural load growth or the need to replace assets that have reached the end of their serviceable life. It also contains information where demand management has been investigated and where demand management opportunities exist as well providing the technical details to be addressed by a non-network option.

The DAPR provides an overview of the network performance and planning review outcomes and details where network enhancement is required. Interested parties are able to identify opportunities to submit proposals for demand management (non-network) options.

The DAPR information is also displayed on an interactive mapping portal. This helps interested parties to identify the location of the limitation, view the supply area and the load profile. Information can be downloaded to assist applicants prepare submissions for non-network solutions. The DAPR mapping portal as well as the document can be viewed on the Endeavour Energy's website under the Distribution Annual Planning Report page.

Questions, requests for meetings and collaborative discussions with non-network service providers based on our DAPR information are invited. We welcome collaboration with non-network service providers in understanding the technical aspects of their solutions and how they could meet our current and future network needs and develop economically efficient non-network options for the benefit of our customers and stakeholders.

4. Register of Interested Parties

Endeavour Energy maintains a Register of Interested Parties on its web site. We are always keen to receive ideas for possible non-network solutions to identified issues or limitations on our network.

All registered parties will receive notification of the following:

- Projects that are subject to the RIT-D;
- Results of the Screening Test for non-network options of RIT-D projects;
- The publications of OSRs;
- The issue of RFP's for demand management services;
- The publication of Draft and Final Assessment Reports;
- Annual update of the DAPR; and
- Any other reports, documents or information regarding network limitations and non-network/demand management options

Any party may register at any time via the Endeavour Energy website or by emailing their details using consultation@endeavourenergy.com.au. An interested party may also request to be removed from the register of interested parties at any time via the same web site and email address.

5. Dispute Resolution

Any party may, by notice to the AER, dispute conclusions made by the RIT-D proponent on the grounds that:

- The RIT-D proponent has not applied the RIT-D in accordance to the rules; or
- There was a manifest error in the calculations performed by the RIT-D proponent in applying the RIT-D

The dispute must meet the criteria as detailed in section 5.17.5 of the NER. A copy of the dispute is to be given to the RIT-D proponent at the same time as being provided to the AER.

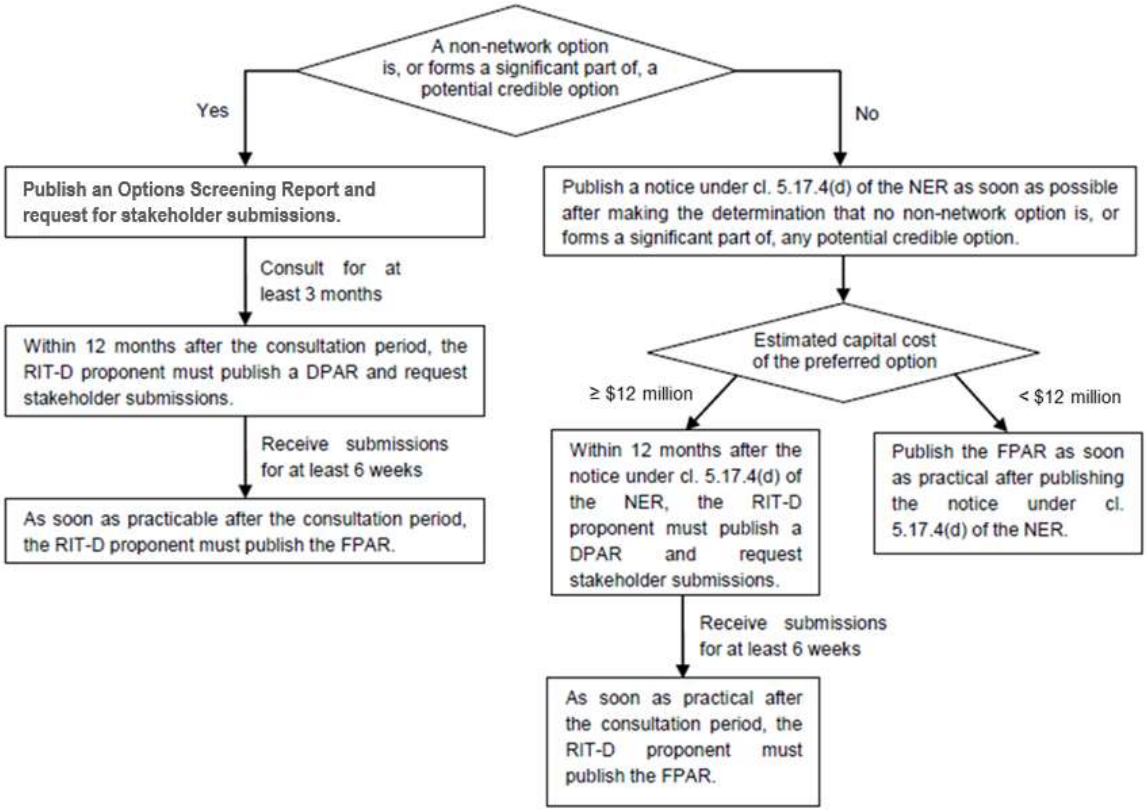
The AER will respond the dispute notice in accordance with section 5.17.5 of the NER. The RIT-D proponent will comply with the AER determination within the timeframe specified by the AER.

6. Contact Details

Interested parties are invited to comment on this document or any other Endeavour Energy documents released as part of the annual distribution planning process. You may contact Endeavour Energy by the following methods:

Telephone:	133 718 (ask to speak to the Head of Asset Planning and Performance)
Email:	consultation@endeavourenergy.com.au.
Correspondence:	Chief Executive Officer
	Endeavour Energy
	PO Box 811
	Seven Hills NSW 1730

APPENDIX A – RIT-D Process for Non-Network Options



APPENDIX B – Worked Examples (Hypothetical)

The following example is to assist non-network proponents understand Endeavour Energy's consultation, assessment, and engagement process for non-network options. This example relates to a RIT-D project which follows the process of:

- Identifying and verifying the network limitation and performing a screening test;
- Evaluating the network options;
- Issuing a OSR and informing the market and register of interested parties;
- Evaluating all option using the RIT-D principles to identify the preferred option;
- Issuing a Draft and Final Project Assessment Report;

A Sub RIT-D project would generally follow the same process with the exceptions of:

- Issuing a Request for Demand Management Services or for Network Support Services rather than an OSR but still informing the market and register of interested parties;
- Not needing to issue a Draft and/or Final Project Assessment Report.

Description of the Network Limitation:

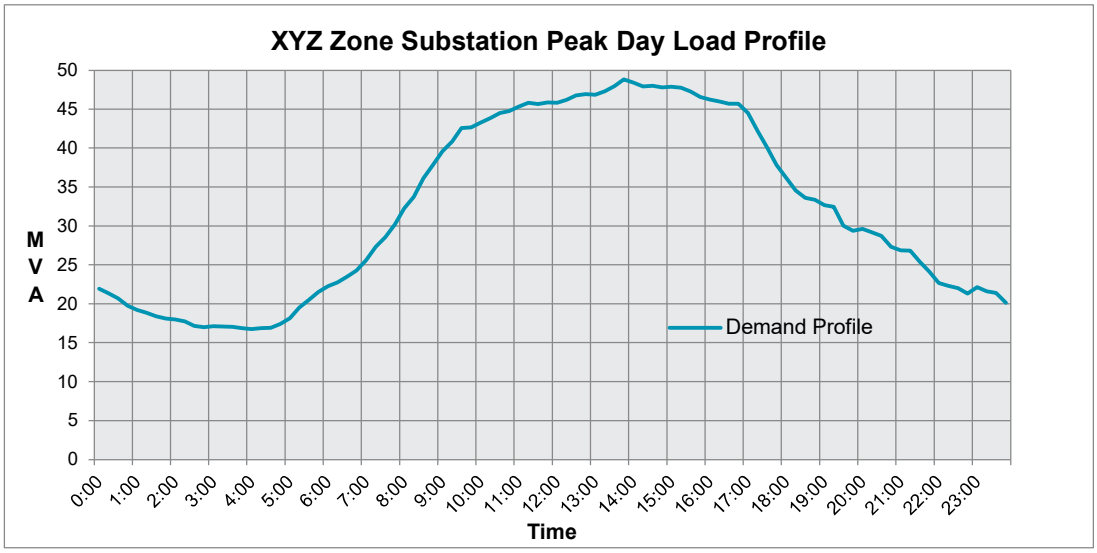
The XYZ zone substation supplies residential, commercial and industrial areas. The main contributor to the peak demand is the commercial load. These areas are experiencing natural growth in all sectors in what is considered a brownfield area. There are also spot load developments in the commerical and residential sectors. This is resulting in current capacity limits being reached and the need the investigate options to address the network capacity limitation. The demand forecast for XYZ zone substation is shown in Table B1. Also shown is the peak demand contribution from the known spot loads

Table B1 – XYZ ZS Forecast and Overload Statistics

Forecast	2020	2021	2022	2023	2024	2025
XYZ ZS (MVA)	48	48.4	48.8	49.2	49.6	49.9
Spot loads (MVA)	0	1	1.5	2	2.7	3.3
Total Load (MVA)	48	49.4	50.3	51.2	52.3	53.2
Firm Capacity (MVA)	45	45	45	45	45	45
11kV Network Automation Scheme (MVA)	2.1	2.1	2.1	2.1	2.1	2.1
Load At Risk (MVA)	0.9	2.3	3.2	4.1	5.2	6.1
Expected Unserved Energy (MWh)	2.0	15.6	36.0	55.6	74.9	86.4
Hours of overload (hrs)	16.0	22.0	30.0	42.0	50.0	60.0

The summer peak day load profile for XYZ zone substation is shown below in Figure B1.

Figure B1 – XYZ Zone Substation Peak Day Profile



A screening test has identified there is sufficient demand reducing opportunites within this brownfield supply area and, together with other embedded generation opportunities, it is considered that a non-network option is feasible to obtain the level of demand reduciton required to defer the network limitation. Therefore, an OSR will be issued as this prject meets the RIT-D criteria.

Preferred Network Option:

A network options analysis has identified the preferred network option to be the construction of a new 33/11kV zone substation at south XYZ. An 11kV network automation scheme has already been implemented and transferring 2.1 MVA of demand during high demand periods which has deferred the network limitation for four years. The level of the transfer capacity is shown in Table B1. The existing XYZ zone substation cannot be further augmented due to space limitations and its ability to distribute the capacity throughout the supply area. The cost of the preferred network option is $20.1 million.

Non-Network Option Technical and Financial Evaluation:

A non-network option will need to reduce the load at risk and the expected unserved energy to acceptable levels. Endeavour Energy is seeking a minimum deferral period of one year but with a preference of longer deferral periods. The financial evaluation to determine the demand management program financial incentives is based on a one year deferral.

A successful demand management program would be one that reduces the summer afternoon peak demand by **5.2 MVA** in 2024 increasing from 2.3 MVA in 2021. This will defer the construction of South XYZ zone substation by a minimum of one year, refer Table B2. Load reduction may be either permanent (energy efficiency) or temporary (demand response/ embedded generation) to achieve this objective.

Endeavour Energy is able to offer a maximum financial incentive for permanent demand reduction of between **$170 to $200** per kVA as a one-off payment for the implementation of DM initiatives. The actual customer financial incentive payment will depend on the running cost of the program and other factors, refer section 3.3.3. Payments are based on certain criteria of reliability and sustainability being met.

A technical and financial review was conducted for the non-network option and is summarised below:

Financial

- Preferred network option cost: $20.1 million
- Deferral period: 1 year (from 2022/23 to 2023/24)
- Avoided distribution cost for a one year deferral: $1.2 million
- Financial incentive for permanent demand reduction: $170 to $200 per kVA
- Financial incentive for temporary demand reduction: $1.10 to $1.50 per kWh

Technical

- Target demand reduction required: 5.2 MVA
- Duration of DM Program: 4 years
- Forecast hours of overload over 4 years: 144 hours
- Time period for temporary demand reduction: 10am to 5pm
- Number of events per annum: Refer Table B2

A summary of this infromation is provided in Table B2.

Table B2: Financial Evaluation Summary – Expenditure/Incentive Profile

Item	2020	2021	2022	2023	2024	2025	Comments
Load at risk (MVA)	**0.9**	**2.3**	**3.2**	**4.1**	**5.2**	**6.1**	-
Network expenditure ($'000)	0	3,000	10,000	7,100	0	0	Total = $20.1m
One-year deferral ($'000)	0	0	3,000	10,000	7,100	0	ADC = $1.2m
Permanent demand reduction ($/KVA)		170-200	170-200	170-200	170-200		One-off payment
Number of events per annum	4	5	6	9	10	12	

An OSR was issued containing this information. All registered participants on Endeavour Energy's Register of Interested Parties were notified and all maket participants:

Non-Network Option Submissions Received:

Six proposals were received as listed below:

1. AA Energy Management Consultant:
   Providing energy audits and assistance to customers implement demand peak reduction
2. BB Energy Management Consultant:
   Providing energy audits and assistance to customers implement demand peak reduction
3. CC Energy Management Consultant:
   Providing energy audits and assistance to customers implement demand peak reduction
4. DD Generator Hire Company:
   Providing diesel generators on a monthly rental basis
5. EE DSR Aggregator:
   Identifying customers with DSR potential and scheduling DSR events for network support
6. FF Embedded Generation Facility:
   Establishing a 2 MW 8MWh grid connected Battery Energy Storage System for network support

Submissions Evaluation

Submissions were evaluated in terms of specified criteria. The result of the evaluation is shown below in Table B3.

Table B3: Non-Network Option Criteria Evaluation

Non-Network Option Criteria Evaluation						
	Submissions					
	1	2	3	4	5	6
Effective demand reduction proposal (High/Medium/Low)	Medium	Medium	Medium	High	Medium	High
Reliability of peak demand reduction (High/Medium/Low)	High	High	High	High	High	High
Flexibility to change demand reduction target (High/Medium/Low)	Medium	Medium	Medium	Low	Medium	Low
Total cost within ADC per kVA	Yes	No	No	No	Yes	Yes
Level of risk to deliver demand reduction (High/Medium/Low)	Medium	Medium	Medium	Low	Medium	Low
Able to meet timeframe	Yes	Yes	Yes	Unknown	Yes	Yes

The financial evaluation was conducted to identify the most cost-effective non-network option or combination of options. The results are shown below in Table B4.

Table B4: Non-Network Option Proposal Ranking

Non-Network Option Financial Evaluation				
Submission	Demand Reduction (KVA)	Total Cost ($)	Cost per kVA ($)	Rank
1	2,000	340,000	170	1
2	2,000	420,000	210	4
3	2,000	460,000	230	5
4	2,000	540,000	270	6
5	1,200	216,000	180	2
6	2,000	380,000	190	3

The evaluation has identified the most cost effective non-network option as submission 1, AA Management Consultant to identify and implement demand reducing initiatives, followed by the EE DSR Aggregation Services that provides load curtailment in residential and business sectors, followed by the FF Embedded Generation Facility, Battery Energy Storage Systen. These three submissions will provide sufficient demand reduction to meet the 5,200 kVA demand reduction target. All three preferred proponents are cost-effective in their own right and as a combination will provide the most cost effective option.

The preferred non-network option is a combination of three separate non-network service providers, refer Table B5. This option is able to postpone the network option by one year and is below the calculated ADC which makes the project the most cost-effective with the highest net present value and the preferred option. The RIT-D evaluation methodology allows for a non-network option to be combined with a network option and be presented as one option to be evaluated against other options.

Table B5: Preferred Non-Network Options

Preferred Non-Network Options (Combination of Initiatives)			
Submission	**Demand Reduction**	**Total Cost**	**Cost per kVA**
AA Energy Consultant	2,000 kVA	$340,000	$170
EE DSR Aggregator	1,200 kVA	$216,000	$180
FF Battery Energy Storage System	2,000 kVA	$380,000	$190
Total	**5,200 kVA**	**$936,000**	**$180**

Recommendation

A Draft Project Assessment Report will be issued recommending the preferred option of implementing a non-network option from three non-network initiatives to defer the construction of South XYZ zone substation by one year. Subsequent to the 6 week consultation period, and if no objections are received, a Final Project Assessment Report will be issued detailing the preferred option to be implemented.

Also recommended is to enter into three separate agreements:

7. AA Energy Consultant: Demand Management Energy Auditing Services Agreement:
8. EE DSR Aggregator: Load Curtailment - Network Support Services Agreement
9. Battery Energy Storage System: Embedded Generation - Network Support Services Agreement

APPENDIX C – NER Compliance

NER Clause	Schedule 5.9 industry engagement document clause 5.13.1(h) Requirements	Document Section
(a)	A description of how the Distribution Network Service Provider will investigate, develop, assess and report on potential non-network options and (in relation to a SAPS enabled network) potential SAPS options;	2
(b)	A description of the Distribution Network Service Provider's process to engage and consult with potential non-network providers to determine their level of interest and ability to participate in the development process for potential non-network options or where applicable, potential SAPS options;	3.2
(c)	An outline of the process followed by the Distribution Network Service Provider when negotiating with non-network providers to further develop a potential non-network option or SAPS option;	3.4
(d)	An outline of the information a non-network provider is to include in a non-network or DNSP-led SAPS project proposal, including, where possible, an example of a best practice proposal;	3.3
(e)	An outline of the criteria that will be applied by the Distribution Network Service Provider in evaluating non-network or DNSP-led SAPS project proposals;	3.3.1
(f)	An outline of the principles that the Distribution Network Service Provider considers in developing the payment levels for non-network options or (where applicable) SAPS options;	3.3.3
(g)	A reference to any applicable incentive payment schemes for the implementation of non-network options or SAPS options and whether any specific criteria is applied by the Distribution Network Service Provider in its application and assessment of the scheme;	3.3.4
(h)	The methodology to be used for determining avoided Customer TUOS charges, in accordance with clauses 5.4AA and 5.5;	3.3.2
(i)	A summary of the factors the Distribution Network Service Provider takes into account when negotiating connection agreements with Embedded Generators;	3.4.1
(j)	The process used, and a summary of any specific regulatory requirements, for setting charges and the terms and conditions of connection agreements for embedded generating units;	3.4.1
(k)	The process for lodging an application to connect for an embedded generating unit and the factors taken into account by the Distribution Network Service Provider when assessing such applications;	3.4.1
(l)	Worked examples to support the description of how the Distribution Network Service Provider will assess potential non-network options or SAPS options in accordance with paragraph (a);	Appendix B
(m)	A hyperlink to any relevant, publicly available information produced by the Distribution Network Service Provider;	3.5
(n)	A description of how parties may be listed on the industry engagement register; and	4
(o)	The Distribution Network Service Provider's contact details.	6

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