



Demand Side Engagement Document

JEN PL 0140

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List of acronyms

AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
DAPR	Distribution Annual Planning Report
DM Plan	Demand Management Plan
DNSP	Distribution Network Service Provider
DSED	Demand Side Engagement Document
DSP	Demand Side Participation
GWh	Gigawatt Hours
HS&E	Health Safety and Environment
JEN	Jemena Electricity Networks (Vic) Ltd
MD10	Top Ten Demands
NER	National Electricity Rules
NPV	Net Present Value
RIT-D	Regulatory Investment Test – Distribution
SIR	Service Installation Rules
TS	Terminal Station
VEDC	Victorian Electricity Distribution Code

1. Executive Summary

Jemena recognises the importance of managing supply and demand to ensure our electricity network is developed optimally to minimise costs and deliver efficient prices to customers. Through this document, Jemena is committed to engage with the community and encourage innovative initiatives that will assist in managing electricity demand and delivering efficient network capital investment.

1.1. Demand Side Engagement Document (DSED)

This Demand Side Engagement Document (DSED) is prepared in accordance with the requirements of Clause 5.13.1 and Schedule 5.9 of the National Electricity Rules. It documents Jemena's strategy for engaging with non-network providers and considering non-network options in its distribution investment planning.

1.2. About Jemena

Jemena is one of the five DNSPs in Victoria serving over 320,000 electricity sites, 88 per cent of which are residential. Jemena's network service area covers 950 square kilometres of northwest greater Melbourne and includes the Melbourne International Airport at its approximate physical centre. The network has over 6,251 kilometres of electricity distribution lines and cables, delivering in excess of 4,400GWh of energy to a number of energy retailers.

The network service area ranges from Couangalt, Clarkefield and Mickleham in the north to Williamstown and Footscray in the south and from Hillside, Sydenham and Brooklyn in the west to Yallambie and Heidelberg in the east. It borders with each of the other Victorian DNSPs: CitiPower, Powercor, SP AusNet, and United Energy and interconnects to the transmission network owned by SP AusNet. An illustration of the Jemena network by zone substation areas is presented in the Map below:

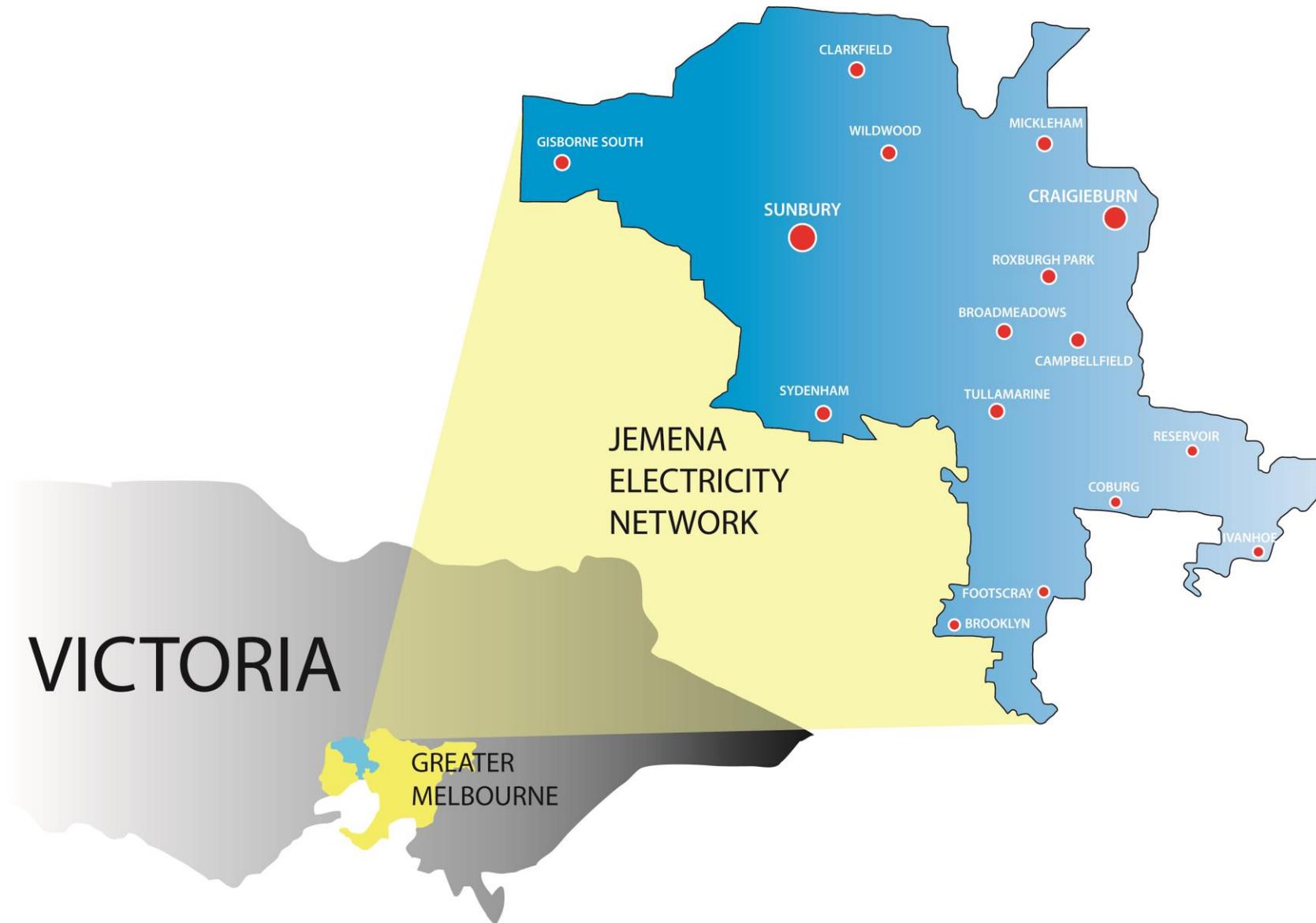


Figure 1: Jemena Electricity Network Map

1.3. Jemena's Demand Management Plan

Jemena recognises the importance of managing both supply and demand to develop its network whilst meeting customer expectations of supply security and reliability. To achieve this balance Jemena is undertaking studies and trials to inform itself of the viability and impact of various demand management technologies. These activities are conducted in parallel with the publication of this DSED and other documents, such as the Distribution Annual Planning Report (DAPR) and any Regulatory Investment Tests for Distribution (RIT-D), which provide interested parties with an opportunity to submit innovative non-network options for Jemena to consider.

A strong level of understanding and support from the community are important to ensure the benefits of Demand Management are maximised. DNSPs and non-network option providers will need to embrace changes in the way electricity is generated, distributed and consumed to pursue gains from Demand Management, which provides benefits to consumers, DNSPs and non-network option providers.

1.4. Structure of this document

This DSED has been prepared in accordance with the requirements of the NER and follows the framework of Schedule 5.9. A review of this document, being a revised DSED, will be published at least once every three years.

Section 2 of the document briefly outlines how Jemena manages all activities relating to demand management addressing Schedule 5.9 (a) of the NER.

Section 3 addresses Schedule 5.9 (b) of the NER by setting out how Jemena will engage with potential non-network options providers through the establishment of a Demand Side Engagement Register for the registration of interested parties. The Section goes on to discuss how Jemena will negotiate with non-network options providers in accordance with Schedule 5.9 (c) of the NER and elaborates on the information to be provided by non-network option providers as called for in Schedule 5.9 (d).

Section 4 briefly summarises the criteria, as called for in Schedule 5.9 (e) of the NER that Jemena is to apply in evaluating non-network option proposals.

Section 5 provides an outline of the principles that Jemena will consider in developing payment levels for non-network options in accordance with Schedule 5.9 (f) of the NER.

Section 6 outlines the methodology that Jemena uses for determining avoided customer transmission use of system (TUoS) charges as required under Schedule 5.9 (h) of the NER. The methodology assesses the impact a non-network option has on the maximum demand of the relevant terminal station during the top ten maximum demand days in a calendar year and then calculates the avoided TUoS usage charge.

Section 7 presents a summary of the factors that Jemena takes into account when negotiating connection agreements with embedded generators (when offered as non-network options), the process employed and a summary of any specific regulatory requirements for setting charges and the terms and conditions of connection agreements for embedded generating units.

Section 8 has a placeholder to present worked examples to support the description of how Jemena will assess potential non-network options in accordance with Schedule 5.9 (l) of the NER. A link is given to relevant, publicly available information produced by Jemena as well as an outline of how parties may be listed on the Demand Side Engagement Register and Jemena's contact details all in accordance with Schedule 5.9 (m), (n) and (o) of the NER.

2. Background

Appropriate non-network options can defer network augmentation and capacity upgrades, which can lead to short term deferral of capital expenditure along with the associated costs of that capital expenditure. Non-network solutions can also alleviate the loading risks in the period leading up to the required network augmentation.

Clause 5.13.1 of the NER is intended to ensure greater consistency and transparency in DNSP's evaluation of expenditure for network investment against non-network options. This DSED sets out to fulfil those requirements of the NER and to test, against robust criteria, whether a non-network option offers a deferral viable solution. This is discussed further in Section 4.

Jemena's demand management team has been given the task of undertaking studies, pilots and trials in accordance with Jemena's Demand Management Plan so as to be informed of the practicality and the potential for various Demand Management initiatives to replace traditional network options in addressing network constraints.

2.1. Demand Management organisation and roles

The General Manager Asset Strategy Electrical has the overall accountability for Jemena's demand management activities and compliance with Jemena's demand side engagement strategy in accordance with the NER. Reporting to the General Manager Asset Strategy Electrical are a number of teams responsible for accessing the needs for distribution investments associated with augmentation and end-of-life asset replacement. In particular, the Network Technology & Measurement Manager is responsible for developing Jemena's demand management strategy and capability, administering demand management trials under the Demand Management Incentive Scheme, and providing support for the consideration of non-network options in distribution investment planning. The Network Capacity Planning and Assessment Manager is responsible for the publication of the Distribution Annual Planning Reports (DAPR) and the initiation of Regulatory Investment Tests – Distribution (RIT-D).

2.2. Obligations

Jemena has an obligation under the NER to engage with non-network options providers and consider non-network options as alternatives to network options for distribution investment. Jemena will engage with non-network option providers in accordance with its Demand Side Engagement Strategy as outlined in this document.

Since 1 January 2014, for those network augmentation projects where the estimated capital cost of the most expensive potential credible option is more than \$5 million, Jemena has an obligation under the NER to apply the RIT-D and in these cases, Jemena will engage with non-network options providers as part of the RIT-D process. Since the Rule came into effect, Jemena has conducted a number of RIT-D on significant augmentation projects. Details can

be found in Jemena's web site (<http://www.jemena.com.au/industry/electricity/network-planning>).

3. Demand Side Engagement Register (DSER)

This Section addresses the provisions of the NER, which requires Jemena to provide a description of its engagement process with potential non-network option providers.

Under the NER, Jemena must, when considering distribution investments:

- (i) engage with non-network options providers and
- (ii) take account of non-network options.

The objective of this engagement process is to explore and, if appropriate, implement non-network options that address specific system constraints as they arise as well as more general non-network options that lead to long term peak demand reduction.

3.1. Establishing a Demand Side Engagement Register

For the purpose of engaging with non-network options providers under the NER, Jemena has established a Demand Side Engagement Register (DSER), which records the details of parties (herein referred to as **Interested Parties**) who have requested to be kept informed of opportunities to provide potential non-network options to network constraints. The registration form is available on Jemena's web site¹.

The Demand Side Engagement Register assists Jemena's consultation on network constraints by providing details of Interested Parties, therefore allowing Jemena to inform these Interested Parties of instances where non-network options may potentially be used.

3.2. Registering as an Interested Party

A person or organisation may register as an Interested Party by following the instructions available on Jemena's web site. Section 8.3 provides a more detailed process for registering as an interested party.

Parties who register their interest will be informed by Jemena of developments relating to distribution network planning and expansion, the publication of non-network options reports and project assessments.

3.2.1. Information to be provided at Registration

Interested parties are required to provide the following information as a minimum at the time of registration:

- Name and contact details of the registering person or organisation
- Business registration information (Trading Name, ABN, ACN...etc)
- Nature of the business
- Business and Management structure
- Location
- Prior experience

¹ <http://jemena.com.au/about/document-centre/electricity/demand-side-engagement>.

3.3. Initial Engagement

Jemena will engage with the interested party following their registration through phone calls, preliminary meetings or other means to further understand the registered parties' intent and capabilities.

3.4. Pre-Qualification

Jemena is committed to engage with the community and encourage innovative initiatives that will assist in managing electricity demand and delivering efficient network capital investments. Jemena's Network Technology & Measurement team has been given the task of undertaking studies, pilots and trials in accordance with Jemena's Demand Management Plan so as to be informed of the practicality and potential for various Demand Management initiatives to replace traditional network options in addressing network constraints.

In recognising the effort and time required to determine technical and commercial viability of interested party and their proposed solution in response to any future RIT-D process, Jemena is providing the opportunity to all non-network service providers who register their interest with Jemena to engage in a pre-qualification process.

The pre-qualification process will provide Jemena an opportunity to assess the technical and commercial viability of non-network options at an early stage. This will provide efficiency to both Jemena and interested parties during RIT-D process and enable Jemena to provide feedback to the Interested Parties and provide them an opportunity to prepare for future engagement.

3.5. Pre-Qualification Process and Criteria

The Pre-qualification process starts when Jemena receives a pre-qualification application with all associated documentation. Jemena will perform a preliminary assessment and will advise the registered Interested Party of any further information required. Jemena then initiates the pre-qualification assessment process and advises the Interested Party of the outcome in due course.

The Pre-Qualification process flow diagram can be found in section 9 Appendix 1. Jemena will assess all non-network proponents' submissions against the following criteria to determine the capability and viability of the parties:

- Commercial/Financial
- Technical
- Industry Experience
- Systems and Technology
- Safety and Regulatory Compliance

3.5.1. Commercial/Financial

Jemena recognises that non-network solutions may require significant commercial/financial investment and to ensure Jemena's customers are not exposed to undue risk, will undertake an assessment of the commercial/financial status of a non-network proponent to ensure they have the required financial viability to be able to provide services to JEN and its customers for the life of the contract.

3.5.2. Technical

Jemena recognise that demand side management solutions will require in-depth understanding of electricity distribution characteristics, operation and customer loading arrangements. To ensure Jemena's customers are not exposed to undue risk Jemena will undertake an assessment of the technical capabilities of a non-network proponent to ensure they have the required knowledge and skills to be able to provide the services to JEN and its customers.

3.5.3. Industry Experiences

While prior industry experience is not mandatory, past electricity industry experience will be highly desirable as Jemena recognise that demand side management solutions will require in-depth understanding of electricity distribution characteristics, operation and customer loading arrangements.

3.5.4. Systems and Technologies

Jemena recognise that demand side management solutions will require demand management systems and associated technologies to control and manage electricity distribution customer demand and loading. Jemena will undertake an assessment of the technology and solution utilised by the non-network proponent to ensure the party is able to provide the services to JEN and its customers within the requirements of the performance specification.

3.5.5. Health, Safety and Compliance

Health and Safety compliance along with legal and regulatory compliance is of utmost priority and the core operating principle of Jemena. Jemena will undertake an assessment of the Health, Safety and compliance track records and quality processes of the non-network proponent to ensure parties are not exposed to any undue risk. Through assessment of the technical capabilities of a registered Interested Party, Jemena will also ensure the party have the required knowledge and skills to provide the services in a safe and compliant manner to JEN and its customers.

3.6. How to Apply for Pre-Qualification

Applicants who wish to undertake pre-qualification are to contact the Jemena Demand Side Engagement Responsible Person. Contact details are listed in section 8.4.

3.7. Negotiating with non-network options providers

Jemena encourages non-network option providers with an interest in Jemena's electricity network, to register as an Interested Party. Interested Party will be notified of Jemena's emerging network constraints through the publication of the Distribution Annual Planning Report (DAPR), Transmission Connection Planning Report (TCPR) and consultations with regard to Regulatory Investment Test – Distribution.

Jemena will engage with non-network options providers and consider non-network options as alternatives to network options for addressing system limitations as published in the DAPR or RIT-D non-network options reports. All subsequent complying submissions received will be evaluated against the criteria as stipulated in the RIT-D non-network options reports. . The results of the evaluation are used to determine whether there is a viable non-network option for implementation in accordance with the NER.

3.8. Information to be provided by non-network options providers

For projects subject to the RIT-D under the NER, non-network option providers are required to provide information in accordance with the requirements specified in the non-network options reports. The requirements may include technical characteristics such as the size of peak demand offsets, timing of offsets, operational profile and reliability. The non-network option proponents are to provide a detailed submission addressing Jemena's requirements and may include:

- Proponent name and contact details;
- Overview of the extent to which the proposal addresses the identified need;
- A technical description of the proposal, including:
 - location;
 - size of the load reduction or additional supply;
 - electrical layout schematics;
 - network connection requirements, if needed;
 - contribution to power system security or reliability;
 - contribution to power system fault levels, load flows and stability studies (if applicable);
 - the operating profile;
 - reliability; how each of these matters is consistent with the applicable technical standards;
- Timing of delivery of solution and its estimated lifespan;
- Proposed operational and contractual commitments, including financier commitments;
- Planning application information, where required;
- Salvage and removal costs; and
- An evaluation of potential risks associated with the proposal, including a comparison with the risks associated with the preferred network augmentation option, and any actions that can be taken to mitigate these risks. This assessment should address the risk of not meeting the demand requirement and the compensation arrangements that would apply in such circumstances. .

3.8.1. Example of a best practice non-network proposal

As examples of best practice non-network proposals come to hand and subject to commercial confidentiality, they will be included in future revisions of the DSED.

4. Criteria to Evaluate Non-Network Proposals

This section provides an outline of the criteria that will be applied in evaluating non-network proposals. In broad terms the NER state that all projects in which the most expensive credible option is greater than \$5 million are to be the subject of a RIT-D as follows:

“The purpose of the regulatory investment test for distribution 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 National Electricity Market (the preferred option). For the avoidance of doubt, a preferred option may, in the relevant circumstances, have a negative net economic benefit (that is, a net economic cost) where the identified need is for reliability corrective action.”

In keeping with the above principle, the overall general criteria applied to evaluating non-network option proposals under the NER include the technical, temporal and behavioural requirements of the non-network proposal as well as the cost. The evaluation will be guided by the document “Regulatory investment test for distribution - Application Guidelines” issued by the AER on 23 August 2013 (<https://www.aer.gov.au/system/files/AER%20-%20Final%20RIT-D%20application%20guidelines%20-%2023%20August%202013.pdf>).

4.1. Non-network options

The specific criteria for which non-network option proposals will be assessed are:

- compliance with the information requirements as set out in Section 3.8;
- submission of the proposal on time, according to the deadlines published with the non-network options report;
- the option’s technical viability (credible option test);
- analysis of the option’s NPV, including sensitivity analysis;
- the option’s compliance with all applicable laws, standards and regulations;
- the community, customer and stakeholder acceptance of the option;
- the option provider’s commercial viability (can the non-network option’s provider build it, fund it and operate it); and
- the capacity of the non-network option provider to meet Jemena’s contractual requirements.

4.2. Community engagement

Recent community engagement regarding smart meters and Jemena’s Electricity Outlook Portal have increased awareness with consumers of the impact their behaviour has on electricity prices. Jemena’s Electricity Portal provides residential customers who have a smart meter with the opportunity to understand their electricity consumption. In this Demand Side Engagement Strategy, Jemena has therefore provided for strategies that consolidate this improved awareness through ongoing communication activities to highlight the benefits of Demand Side Participation (DSP). Central to this approach is the ongoing collaborative work with stakeholders such as local government, developers, building and building service designers and community and consumer groups. Jemena undertakes initiatives which involve educating and informing these stakeholders and the media on the benefits of DSP.

As part of its DM Plan, Jemena is interested in engaging with local communities as well as individual customers to increase participation in and awareness of its DM trials. Jemena regularly meets with customers who have volunteered to participate in specific trials, and documents the findings of these trials through targeted case studies and information campaigns to publicise their results.

Jemena will engage with non-network options providers through the mechanisms discussed Sections 3.1 to 3.3 of this DSED.

Regarding specific non-network option proposals, the proponent may also need to undertake similar community engagement activities to determine the level of community or stakeholder acceptance of the proposal being put forward. Jemena will hold meetings with non-network

option providers to ensure that Jemena's community engagement strategies are understood and consistent with any actions planned or undertaken by non-network option providers.

5. Non-Network Options Payment Principles

In compliance with the NER, Jemena is to provide an outline of the principles it considers in developing the payment levels for non-network options. In establishing an overarching framework to set non-network options payments principles Jemena will, in assessing the proposed non-network options, have regard to:

- deferred capital expenditure;
- the impact on operation and maintenance costs; and
- the extent the non-network option meet Jemena's requirements

Jemena will negotiate a network support agreement, which will include commercial terms and payment with the successful non-network option provider. The general principle that Jemena would apply to network support payment is that amount paid under any network support agreement at any time should reflect the costs avoided by the provision of network support up to that time. This is to avoid over-compensating the network support provider in the event that the network support agreement is terminated earlier than expected.

6. Methodology to Determine Avoided Customer TUoS Charges

Avoided Transmission Use of System (TUoS) charges are only payable to proponents of non-network solution if the solution results in discernible reduction in the peak demand at the relevant terminal station. The five detailed steps of the methodology to be used in determining avoided customer Transmission Use of System (TUoS) charges are as follows:

1. **Load:** Using the relevant non-network solution interval data, calculate the load at the relevant terminal station (**TS**) assuming the relevant non-network solution is not activated. This is done by adding the non-network solution to the metered TS metering data.
2. **MD10:** Determine the top ten demands (MD10) and their timing occurring at the relevant TS assuming the relevant non-network solution is not activated. Using the data from step 1, determine the maximum daily demand at the relevant TS and then determine the top ten daily demands using the prevailing survey period TUoS Usage Charges (ie weekdays from 7:00am to 11:00pm EST).
3. **New MD10:** Calculate the new MD10 quantities for the relevant TS assuming the relevant non-network solution is not activated. Using the data in step 2, calculate the average of the top ten demands at the relevant TS.
4. **Incremental average:** Calculate the incremental average of the top ten demands. This is the difference between the average of the top ten demands calculated in step 3 and the average of the top ten demands using the metered TS demands.
5. **Avoidable TUoS:** Calculate the avoidable TUoS usage charges resulting from the activation of the non-network solution. Multiply the prevailing TUoS usage price at the relevant TS by the incremental average of the top ten demands calculated in step 4.

7. Factors in Connecting Embedded Generators When Offered as Non-Network Solutions

7.1. Connection Agreement

As part of the embedded generation connection process, Jemena will negotiate a connection agreement that contains all technical material, commercial provisions and terms and conditions of the connection, including any ongoing fees to be paid by the embedded generator. The connection agreement imposes obligations on both Jemena and the embedded generator to ensure the proposed connection will not adversely impact the safety, quality and reliability of supply to other network users.

Responsibilities defined under the Victorian Electricity Distribution Code (VEDC) and NER require that the DNSP to enforce a comprehensive but reasonable technical requirements. To this end, Victorian DNSPs maintain a set of service installation rules (**SIRs**) to ensure that embedded generator installations comprise suitable equipment, a safe environment for personnel operating the distribution network and the public, and does not adversely affect the DNSP's distribution system.

If the generator owner decides to augment or significantly modify their generating plant after the Connection Agreement is executed, the generator owner must make an application to Jemena to modify their plant using the process described below.

7.2. Connection Process

Jemena's web site contains up-to-date information about the connection process of embedded generation. Refer <http://jemena.com.au/industry/electricity/embedded-generation>.

7.3. Connection Charges

Clause 5.5(f) of the NER contemplates a distributor and an embedded generator reaching agreement on the following aspects of their connection agreement:

- a. a connection services charge;
- b. a use of system services charge
- c. amounts payable in relation to costs incurred by the distributor in providing generator access; and
- d. compensation to be provided by the distributor to the embedded generator, or by the embedded generator to the distributor, when certain constraints occur.

Jemena will negotiate in good faith to reach agreement on all matters in the connection agreement with the Non-network option proponent, in compliance with the NER and any relevant guidelines.

In addition to the above, Jemena will negotiate to reach agreement with the Non-network solution proponent to cover risk and insurance provisions, stakeholder communication and other usual commercial provisions.

8. Assessing Potential Non-Network Options

8.1. Worked examples

This document will be updated with worked examples once they become available.

8.2. Links to publicly available information

Documents related to this DESD are available from Jemena's web site, including:

- Distribution Annual Planning Report (DAPR) (December annually) (<http://www.jemena.com.au/industry/electricity/network-planning>)
- Transmission Connection Planning Report (TCPR) (December annually) (<http://www.jemena.com.au/industry/electricity/network-planning>)
- Jemena Embedded Generation Guidelines (<http://jemena.com.au/industry/electricity/embedded-generation>)
- Non-network Options Reports (as appropriate) (<http://www.jemena.com.au/industry/electricity/network-planning>)
- Trial case studies (when published).

8.3. Registering on the demand side engagement register

This Section describes how parties may be listed on the Demand Side Engagement Register in accordance with the Rule.

Jemena invites expressions of interest from parties who wish to be included on the Demand Side Engagement Register. The application information for registration is available on Jemena's web site at:

<https://jemena.com.au/industry/electricity/demand-management>

Interested Parties should note that names and information on the Demand Side Engagement Register will be made public unless confidentiality is specifically requested.

Alternatively an email requesting to be placed on the Demand Side Engagement Register may be sent to **DemandManagement@jemena.com.au** with the following information:

- First Name
- Surname
- Position (if applicable)
- Company name (if applicable)
- Postal address
- Email address
- Contact phone number
- Additional comments

A confirmation email will be sent to the Interested Party once that Party has been included on the register.

8.4. Contact details

Jemena's contact for matters relating to this DSED is:

Network Technology & Measurement Manager
 Email: DemandManagement@jemena.com.au
 Phone: (03) 9173 7000
 567 Collins Street
 Melbourne, VIC, Australia

9. Appendix 1

Pre-qualification process flow diagram

