

# Demand Management Engagement Strategy

Managing Network  
Peak Demand in Tasmania  
December 2019

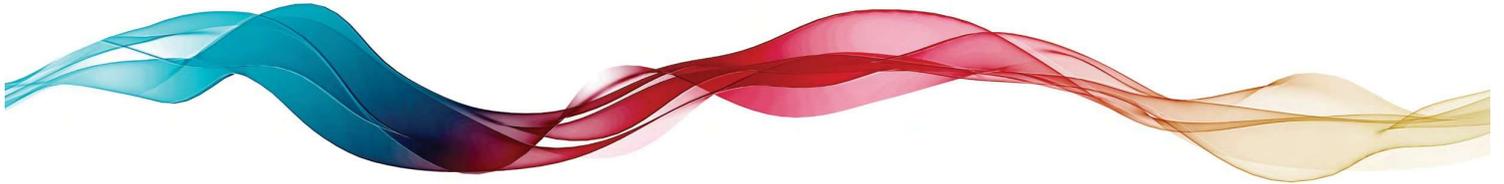




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# 1. Purpose

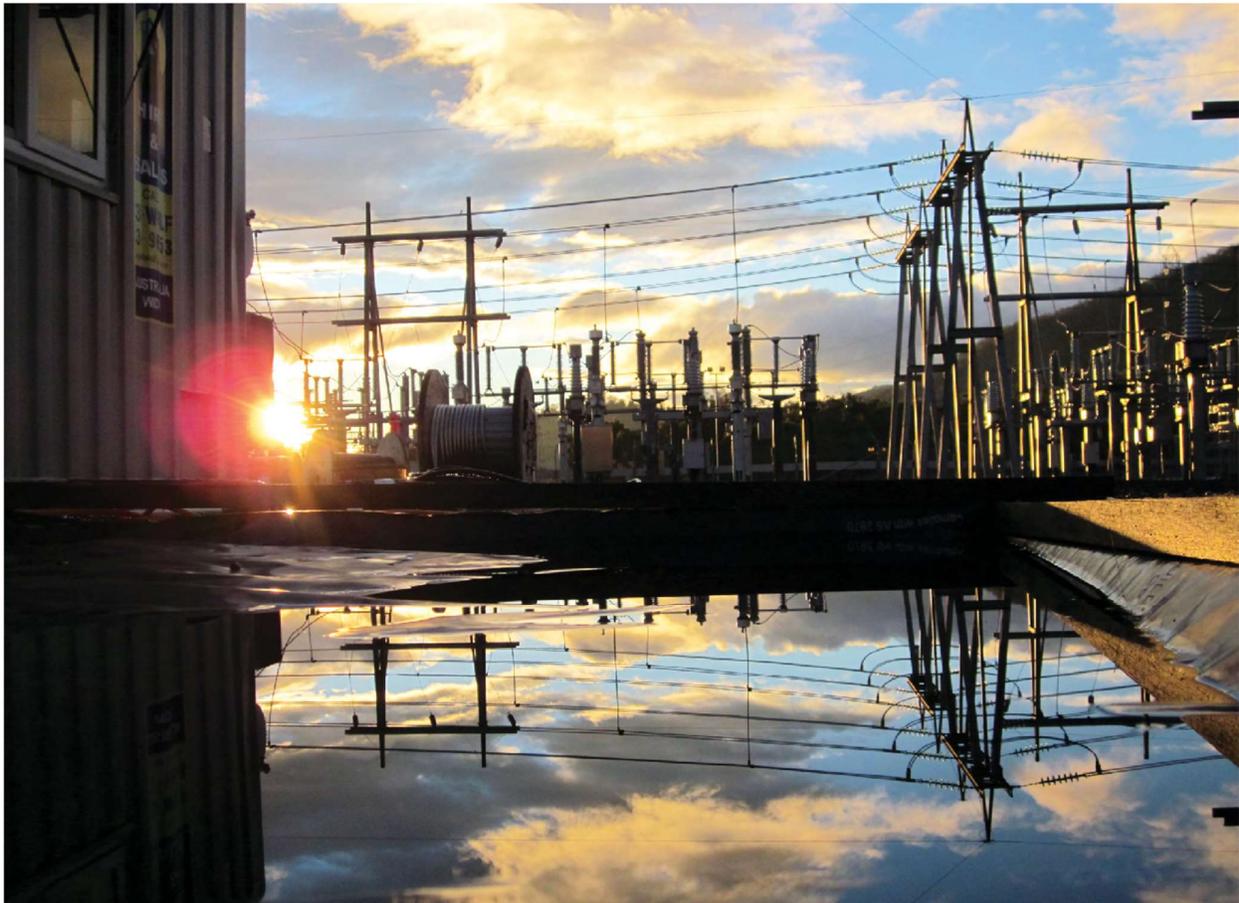


TasNetworks' Demand Management Engagement Strategy explains how we will engage and consult with our customers and suppliers to deliver demand management solutions for the Tasmanian distribution electricity network.

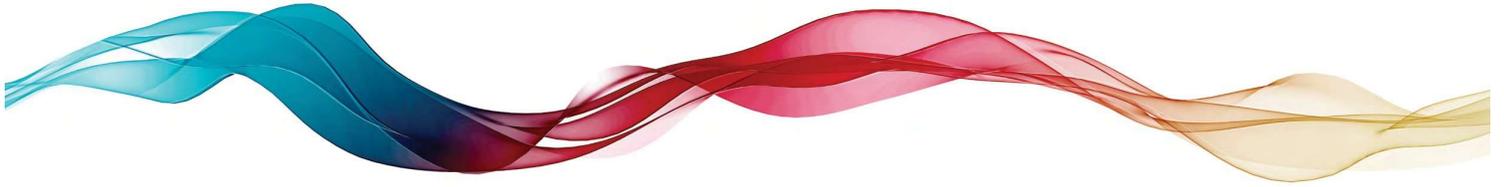
Our objective is to work with our customers to identify cost effective demand management solutions, which allow us to defer or avoid the need for network investment and reduce the long-term costs of the network.

This document supports our regulatory obligations under the National Electricity Rules clause 5.13.1(e to j). We are building our engagement strategies that continues to improve how we work with customers and demand management providers to cost effectively defer both transmission and distribution investment.

**Demand Management in some cases can reduce the cost of maintaining our network, keeping prices low and sustainable for our customers.**



## 2. Demand management and innovations



The distribution networks – the poles and wires – are built to cater for peaks in electricity demand, such as the peak that occurs on weekday mornings as people get ready for work or school.

If the electricity network is unable to cope with peak demand, the network may become overloaded or the voltage could drop, which can stop electrical appliances from working.

Peak electricity demand events in Tasmania usually occur during the winter period. However in recent years TasNetworks has observed summer peak demand in some parts of the network due to farming irrigation loads and air conditioners. Some parts of the network may only peak at specific times such as public holidays.

The diagram below illustrates a peak demand event occurring in an area with a high proportion of residential customers. Many customers running their appliances at the same time cause this issue.

### PEAK DEMAND

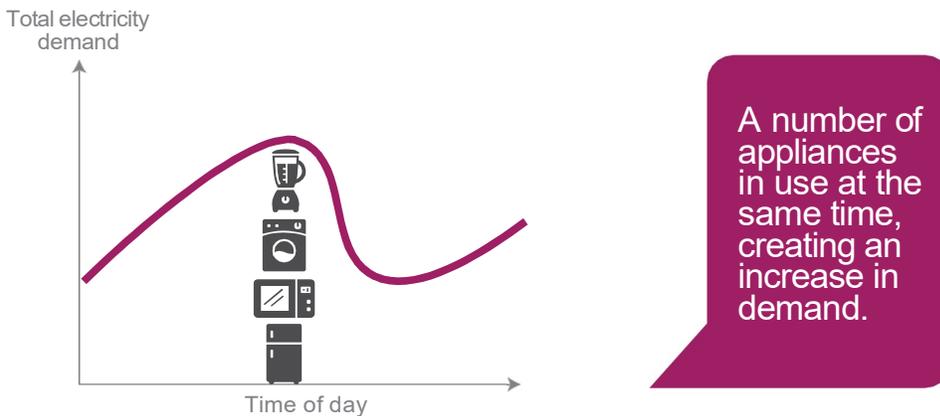


Figure 1: Peak demand occurring from residential appliances

When the capacity of the network approaches its limit due to high electricity usage, TasNetworks must investigate options to maintain a safe and reliable supply to customers. We can either increase network capacity, which is costly, or take steps to reduce present and forecast peak electricity demand. Reducing peak demand is referred to as demand management.

In some situations TasNetworks can use demand management to get more out of our existing assets rather than replace or upgrade them. This can be done by shifting some of the peak appliances or loads from the peak period to an off-peak time period.

## 2.1 Types of demand management solutions

The most common 'non network' solutions are:

- Shedding non-critical loads or load shifting by rescheduling the use of electricity;
- Change loads from electricity to another fuel source (e.g. gas);
- Reducing the electricity consumed by appliances for short periods (e.g hot water load control);
- Operating generators within a customer's electrical installation; and
- Battery storage, using some of the battery capacity to address peak demand issues (e.g customer owned battery).

## 2.2 Innovations

In recent years we have seen significant changes in the electricity network. Not only is the technology that we use to solve network issues changing, but use of the network itself is changing. External influences, such as new forms of embedded generation and smart devices have accelerated this change. Innovative solutions are being investigated to address network solutions including trial projects and embedded generators, they are discussed below.

### 2.2.1 emPOWERing You Trial

As part of emPOWERing You trial, TasNetworks encouraged a customer led shift to time of use network tariffs, while maintaining predictable and sustainable pricing for all our customers. A key challenge of pricing reform in Tasmania has been the lack of detailed household electricity usage data to guide and support customers' in making informed decisions about electricity tariffs.

In response, TasNetworks completed the emPOWERing You Trial, an off-market advanced meter trial investigating cost reflective tariffs. The trial gathered valuable information which has been used to refine our pricing strategy and help us support customers in choosing pricing structures which best suit their household and lifestyle.

As well as the quantitative advanced meter trial, emPOWERing You also involved 12 focus groups including customers varying in age, gender, income, location, bill type and electricity usage knowledge (self-identified) and 18 one on one interviews in participants' homes to ensure we engaged with customers who may not have been able to participate in focus groups due to; literacy challenges, mobility issues and linguistic differences.

### 2.2.2 Embedded generators

Generators connected to the distribution network that supply energy to local residences or businesses are referred to as embedded generators. The supply of electricity from embedded generators can sometimes offer a cost effective solution to a network need.

Further information for customers who wish to offer generation services including an application form, process for connection and technical requirements can be found on our website (Appendix G).

Embedded generators can in some cases receive payments for avoided customer Transmission Use of System (TUoS) charges as network support. These are determined in accordance with



Mark Drew, Project Lead (Right) with trial participants.

clause 5.3AA (h) of the National Electricity Rules. Further information can be found in Appendix F.

# 3. Demand management solution assessment process



TasNetworks considers non-network opportunities at every stage of the planning cycle. Each opportunity is different because it depends on the network issue and when a solution is required.

When we carry out our annual forecasts and identify a network limitation due to increasing load growth, TasNetworks will explore both network and non-network options to address the problem.

An early analysis of possible solutions is done at a high level and includes desktop studies, site visits and discussions with our customers and demand management providers. The evaluation of non-network projects involves analysis of the costs, benefits and risks associated with each option. More details on the demand management assessment process is presented below.

## 3.1 Stage 1: Investigation

The first stage of the assessment process is to investigate the network issue and determine whether a non-network option is a credible way to address the network need.

The investigation reviews the following:

- Network planning criteria;
- Why the network project is required;
- Timing requirements for the new solution;
- Time of day and duration of peak demand; and
- Load growth for the affected area.

Economic analysis is then carried out which estimates the savings derived by deferring or replacing the network upgrade project. Further information on our future network issues can be found in our Annual Planning Report (Appendix G).

## 3.2 Stage 2: Development

Once non-network options are identified as technically feasible, they will be compared against network upgrade options and evaluated for cost, risk and potential benefits.

During this stage, if a project is subject to the Regulatory Investment Test for Distribution (RIT-D) and a credible non-network option exists, then we will publish a Non-Network Options Report on our website (refer section 4.2 and Appendix A). The information provided will allow for a detailed assessment of non-network options.

## 3.3 Stage 3: Assessment

Once TasNetworks has asked for proposals from our customers and demand management providers to address an issue, the proposals will be evaluated according to the following criteria:

- Amount of load reduction that can be provided, and whether it is effective over the entire peak period;
  - Implementation issues (e.g planning permits);
  - Risks and assumptions in estimating the amount of demand management;
  - Description of the technology including opportunities to provide real-time monitoring and control to TasNetworks; and
  - Calculation of costs and benefits.

Further information on assessment of non-network options are shown in Appendix D.

### 3.4 Stage 4: Reporting

All written enquiries and proposals will receive a written response from TasNetworks. During the assessment of proposals, interested parties will be advised of the status of their assessment at regular intervals.

TasNetworks is required by the National Electricity Rules to publish the initial results from its assessment of distribution non-network projects in a Draft Assessment Report. This document is published on our website and allows our customers and demand management providers to view our assessment and provide feedback.

The report will evaluate all credible network and non-network options, consider their costs and propose the option that maximises the economic benefit to our customers.

TasNetworks will consider feedback on the draft report and then publish a final report that demonstrates a preferred solution and the reasons for its selection.

# 4. How we will engage, consult and negotiate payments for non-network solutions

This section describes how we will engage with, consult with and negotiate payments to customers or demand management providers of non-network proposals.

## 4.1 Engaging with our customers and demand management providers

Our customers and demand management providers can find information regarding potential non-network opportunities from:

- The TasNetworks Annual Planning Report; and
- Non-Network Options Report (refer section 4.2).

## 4.2 Consulting with our customers and demand management providers

Once a network issue has been identified, TasNetworks will develop plans and liaise with key stakeholders and local communities regarding demand management activities in accordance with TasNetworks Customer Engagement Framework (refer to TasNetworks Customer Engagement Framework in Appendix H).

The consultation will occur with customers located in the network constrained area to determine any potential non-network options. If there is no obvious solution then we will consult the broader community for opportunities as well as considering stakeholders nationally and abroad.

For projects that are subject to the Regulatory Investment Test for Distribution (RIT-D) then both the network upgrade and non-network options will be considered in accordance with clause 5.17.4 of the National Electricity Rules. If there are credible non-network options that can contribute to or provide a credible option then TasNetworks will develop a Non-Network Options Report that commences the consultation process. Customers and demand management providers interested in providing a submission can refer to Appendix A for more information.

## 4.3 Payments for non-network solutions

Network support payments are available to our customers or a third party who are contracted to provide demand management services to address a network issue. This is subject to the network having an identified network limitation and TasNetworks having entered into a formal network support agreement with the customers or provider.

Payments are made to customers or providers for modifying their energy usage, or supplying energy into the network using a generator or other energy source (e.g battery) during peak periods.

# 5. Demand Management Engagement Register



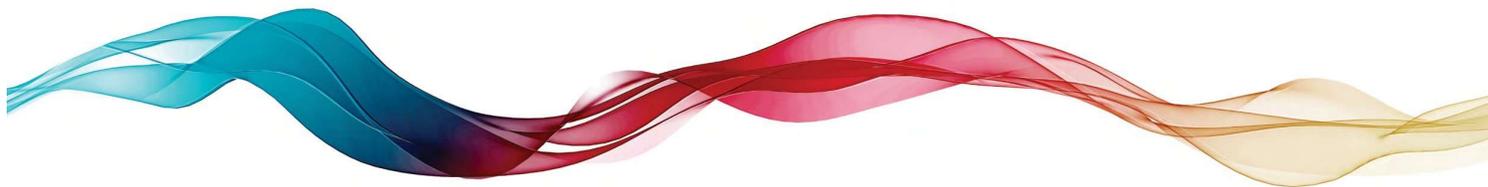
TasNetworks Demand Management Engagement Register is open to all our stakeholders including residential, commercial, agricultural and industrial customers and demand management suppliers. Registered stakeholders will receive information about our demand management opportunities identified in our Annual Planning Report, Non-Network Options Report, draft and final reports.

Our customers and demand management providers can receive information by signing up to our online register on our website (refer to demand management register in Appendix G).

Further information on this document or opportunities to address network limitations can be forwarded to TasNetworks Network Planning Leader at: [planning.enquiries@tasnetworks.com.au](mailto:planning.enquiries@tasnetworks.com.au)



# 6. Appendices



## Appendix A: Non-Network Options Report

A Non-Network Options Report seeks to discover demand management options that are not known to TasNetworks.

The report will contain the following information:

- Description of the network constraint including geographical map of the affected area;
- Details on the amount of load reduction and its duration required, and timing of project;
- Demand profile showing the peak period and time periods of peak;
- Predicted frequency of peak demand events;
- Forecast load growth for the area;
- Description of credible network and demand management options; and
- Deferral benefit of delaying the network option.

## Appendix B: Non-Network Options Report submission information

Parties interested in providing submissions to our Non-Network Options Report should include the following information:

- Name, address and contact details of individual or company making the submission;
- Network limitation description: provide information on the network limitation this non-network option is trying to address;
- Description of services offered: what is being offered by the demand management provider;
- Service level: describe the availability of the demand management offered and assumptions on how often the service is available per day and seasonally (when peak demand occurs);
- Description of technology used: details on the technology including opportunities to provide real-time SCADA monitoring and method for dispatch (i.e manual or remote via TasNetworks SCADA);
- Risks and assumptions: what assumptions have been made in estimating the amount of demand management and describe any risks (e.g acquiring a minimum number of customers);
- Timeline: when can the solution be enabled and how far into the future is the option available; and
- Cost for providing service: This is the network support payment paid to the non-network provider when requested by TasNetworks in \$/kW.

Refer to Appendix C for an example of a best practice non-network proposal.

### Demand management proposal by XYZ Company

**Name:** XYZ Company, 123 Tasmania Road, Tasmania

Network limitation description: Hobart Substation has exceeded its equipment capacity as shown in the recent TasNetworks Annual Planning Report. A minimum of 1.5 MW load reduction is required to defer the need for network investment. The identified peak period only occurs for approximately 12 events per year over winter between 7-10 am and 4-9pm.

Description of services offered: XYZ Company is an electricity aggregator that specialises in managing a large number of residential, commercial and industrial customers across Australia. For this project, XYZ Company intends to engage and incentivise residential and business customers in the impacted area to reduce or shift their load during peak periods. This would require XYZ Company to engage with approximately 3,500 residential customers that aggregate 2.5 MW of load capacity, this will ensure the minimum 1.5 MW of load reduction can occur. While the exact mix of support is unknown in Tasmania, XYZ Company have worked with other utilities on similar projects that include:

- Residential customers (hot water, batteries, other discretionary loads);
- Commercial customers (backup generation, demand deferral or reduction); and
- Industrial customers (backup generation, process modification or rescheduling).

The offer includes the following end-to-end services:

- Engaging customers (including marketing);
- Hardware installation and maintenance;
- Ongoing communications with hardware and customers;
- Real-time SCADA data monitoring; and
- Automatic and manual dispatch of support through XYZ Company interface.

For this project, a manually dispatched solution is

the preferred option. This reduces the integration costs significantly but requires TasNetworks control room people to call XYZ Company operations centre to schedule support. An automatic option is also available.

Service level: The solution is tuned to the TasNetworks specification and will offer:

- At least 1.5 MW demand reduction for at least 3 hours twice a day on each network support day;
- 99% guaranteed response when support is scheduled at least 1 working day ahead;
- Up to 20 demand response days in a winter period (June – August);
- Real-time data through SCADA monitoring; and Manual dispatch of demand support.

**Description of technology used:** XYZ Company will use 123 relay and 3G communication at the customer's premises. This relay is capable of measuring customer demand to 1% accuracy and controlling a variety of devices. This relay has a proven life of over 10 years. Some examples of where it has been used in the past are:

- Hot water cylinder control for Utility X in Victoria (contact details for Utility X);
- Controlling Company Z backup generation to manage market prices (contact details for Company Z); and
- Monitoring demand response activities for Utility A in New South Wales (contact details for Utility A).

## Demand management proposal by XYZ Company

**Risks and assumptions:** There are a number of key risks and assumptions that effect this proposal, XYZ Company will work with TasNetworks to manage these. The major risks and assumptions are:

- XYZ Company offers real-time control of customer loads. The load reduction relies on customers having their loads available to respond to support requests. While the load reduction is calculated on many years of experience in this sort of solution there is still a risk that there will not be enough load to meet a request that TasNetworks has made. XYZ Company believes there is an adequate amount of load available for reduction in this proposal. If this is not sufficient then XYZ Company will procure more support;
- Initial assessments show there are enough customers in the area that TasNetworks has nominated to provide the support. If TasNetworks chooses to consider this option further, then Company XYZ proposes to do an initial customer survey to ensure this solution is feasible;
- The customer engagement activities have been priced assuming that most customers will be sourced by advertisements in local media. The budget includes visits for up to five larger customers;
- The estimated price assumes that TasNetworks will field initial customer enquiries. Scripting and materials will be provided by XYZ Company;
- Installation estimates are based on previous experience with similar projects using standard enclosure for installations;
- Hardware integration with many common types of generator controllers and some major batteries. Similarly the controller can switch loads using the built in contactor. Integration with other hardware will be charged at XYZ Company standard engineering rates;

- TasNetworks existing service centre will provide level one support for hardware issues and faults. Scripting and materials will be provided by XYZ Company; and
- Provide ongoing product support and maintenance.

### Timeline:

- October 2017: sign agreements;
- November 2017: customer survey
- November–February 2017: customer engagement and sign-up;
- March – May 2017: hardware installation;
- November – January: SCADA integration; and
- May 2017 system ready

**Cost:** XYZ Company standard fees and charges are:

- Platform fees of \$ (one required for all endpoints);
- Residential endpoints at \$ per endpoint; and
- Commercial and industrial endpoints priced at \$ per kW under control.

This would result in a cost for a scheme suitable to manage TasNetworks network issue of \$ pa.

## Appendix D: Factors considered when assessing Demand Management submissions

The submissions will be reviewed and evaluated according to the following criteria:

- Amount of load reduction that can be provided, and whether it is effective over the entire peak period;
- Implementation issues (e.g. planning permits);
- Timeframe for implementation
- Information including how the demand management project will be delivered and how far into the future the solution is effective;
- Risks including implementation delays and mitigation measures;
- How would TasNetworks inform the provider to enable demand management for a peak demand event; and
- Any upfront capital contribution costs and ongoing network support costs (i.e. \$/kW).

TasNetworks will initially review all proposals and if there are any with insufficient information then those providers will be contacted for more information. The demand management options will be compared against the network options. If an option cannot meet either the timeframe or provide the required reliability then it will be excluded.

The final demand management options will be ranked from lowest to highest \$/kW. Where a network limitation requires a combination of demand management options then we will determine the best mix with a preference on lower \$/kW when other factors are considered equal.

## Appendix E: Example of non-network assessment

TasNetworks has published a Non-Network Options Report and received two credible submissions from demand management providers. For the non-network proposal to be considered it must:

- Meet the technical requirements of the network limitation;
- Meet the operational requirements; and
- Meets the timing of the identified limitation.

	Meets technical requirements	Meets operational requirements	Meets the timing of the identified limitation	NPV ranking
<b>Network option 1:</b> Upgrade transformers	✓	✓	✓	2
<b>Network option 2:</b> Build new zone substation	✓	✓	✓	3
<b>Non-network option 1:</b> Customer embedded generator	✓	✓	✓	1
<b>Non-network option 2:</b> Commercial customer demand side management	✓	✓	✗	N/A

The example shown would demonstrate that non-network option 2 does not meet the criteria because the amount of demand that is required to be controlled cannot be achieved within the timeframe.

## Appendix F: Avoided Transmission Use of System (TUoS) charges

Our transmission network supplies direct connect customers and the distribution network. A portion of the network charges are determined on how much capacity the transmission network needs to supply.

An eligible embedded generator can receive any costs saved by the distribution network in Avoided TUoS charges. This can only occur when the embedded generator operates during peak demand periods. The distribution network can then reduce the maximum demand contract with the transmission network, and reduce the cost.

Even though in Tasmania the transmission and distribution functions are in one business (TasNetworks), the National Electricity Rules require the transmission network to pass on its charges to the distribution network.

Further information can be found on our website ([www.tasnetworks.com/Distribution-fees-and-tariffs](http://www.tasnetworks.com/Distribution-fees-and-tariffs)).

## Appendix G: Website addresses

Demand management engagement register:

[www.tasnetworks.com.au/demand-management-engagement-register](http://www.tasnetworks.com.au/demand-management-engagement-register)

Annual Planning Report:

<https://www.tasnetworks.com.au/Poles-and-wires/Planning-and-developments/Planning-our-network>

Avoided Transmission Use of System (TUoS) charges:

<https://www.tasnetworks.com.au/Poles-and-wires/Pricing/Our-prices>

Connecting a generator to our distribution network:

[www.tasnetworks.com.au/embedded-generation](http://www.tasnetworks.com.au/embedded-generation)

## Appendix H: TasNetworks Customer Engagement Framework

# TasNetworks Customer Engagement Framework

TasNetworks' engagement framework defines the different levels of participation available to us when engaging with our customers. The framework is used to determine the most appropriate level of customer participation that should be used when undertaking community consultation on particular issues. The framework is based on the International Association of Public Participation Spectrum (IAP2). Five levels of public participation are identified and range from inform to empower. TasNetworks identifies the appropriate level of engagement on a case by case basis, as it is not always possible to provide customers with a decision making role ie: on safety issues.

Increasing Level of Customer Participation					
Customer Engagement Goal	Inform:	Consult:	Involve:	Collaborate:	Empower:
Promise to our Customers	To provide our customers with balanced and objective information to assist in understanding the problem, alternatives, opportunities &/or solutions.	To obtain customer feedback on analysis, alternatives and/or decisions.	To work directly with our customers throughout the process to ensure that customer concerns and aspirations are consistently understood and considered.	To partner with our customers in each aspect of the decision, including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of our customers.
Customer Engagement Tools	We will keep you informed.	We will keep you informed, listen and acknowledge concerns and provide feedback on how customer input influenced the decision.	We will work with you to ensure your concerns and issues are directly reflected in alternatives we develop and provide feedback on how customer input influenced the decision.	We will look to you for direct advice and innovation in formulating solutions and will incorporate your recommendations into decisions where possible to the maximum extent.	We will implement what you decide.
	Fact sheets Newspaper/TV/radio Letters/Customer cards Social Media Customer charter Brochures	Focus Groups Community Forums Public Meetings Trade Nights Surveys	Workshops Consumer Engagement Forums	Advisory committees Contracts/Legal Agreements	Delegated decisions



## Appendix I: Compliance with the National Electricity Rules

Table 2: Demonstrated compliance with Schedule 5.9 of the Rules.

Clause	Demand Management Engagement Strategy requirements	Reference
a	A description of how the Distribution Network Service Provider will investigate, develop, assess and report on potential non-network options.	section 3
b	A description of the Distribution Network Service Providers 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.	section 4
c	An outline of the process followed by the Distribution Network Service Provider when negotiating with non-network providers to further develop non-network options.	section 4.2 and Appendix D
d	An outline of the information a non-network provider is to include in a non-network proposal, including where possible an example of a best practice non-network proposal.	Appendix B and C
e	An outline of the criteria that will be applied by the Distribution Network Service Provider in evaluating non-network proposals.	Appendix D
f	An outline of the principles that the Distribution Network Service Provider considers in developing the payment levels for non-network options.	section 4.3
g	A reference to any applicable incentive payment schemes for the implementation of non-network options and whether any specific criteria are applied by the Distribution Network Service Provider in its application and assessment of the scheme.	section 4.3
h	The methodology to be used for determining avoided Customer TUoS charges, in accordance with clauses 5.4A and 5.5.	Appendix F
i	A summary of the factors the Distribution Network Service Provider takes into account when negotiating connection agreements with embedded generators.	section 2.3
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.	section 2.3
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.	section 2.3
l	Worked examples to support the description of how the Distribution Network Service Provider will assess potential non-network options in accordance with paragraph (a).	Appendix E
m	A link to any relevant, publicly available information produced by the Distribution Network Service Provider.	Appendix G
n	A description of how parties may be listed on the demand management engagement register.	section 5



Tasmanian Networks Pty Ltd