TasNetworks
Delivering your power

Distribution Annual Reporting RIN, 2016-17

Basis of preparation

CONTACT

This document is the responsibility of the Strategy and Stakeholder Relations Group within Tasmanian Networks Pty Ltd (ABN 24 167 357 299). Please contact the indicated owner of the document with any queries or suggestions.

RESPONSIBILITIES

Document Owner

Regulation Leader
Tasmanian Networks Pty Ltd
1 – 7 Maria Street
Lenah Valley TAS 7008
email: revenue.reset@tasnetworks.com.au

Document Management

Strategy and Stakeholder Relations Group

Introduction

This Basis of Preparation document represents part of the response of Tasmanian Networks Pty Ltd, ABN 24 167 357 299 (TasNetworks), to the Regulatory Information Notice (RIN) issued in August 2014 by the Australian Energy Regulator (AER), under Division 4 of Part 3 of the National Electricity (Tasmania) Law, for the purposes of collecting the information required to monitor TasNetworks' compliance with the distribution determination applying to the regulatory control period that commenced on 1 July 2012 (referred to as the current Distribution Determination).

The information and explanatory material included in this Basis of Preparation relate to TasNetworks' activities as Tasmania's licensed Distribution Network Service Provider (DNSP) during the 2016-17 regulatory year (referred to throughout this document as the current reporting period).

Unless indicated within the relevant section, no estimated information has been used to provide the data required for the RIN.

Table of contents

Definitions and interpretation

In this document and TasNetworks' response to the RIN, unless otherwise noted:

'**TasNetworks**' refers to TasNetworks, acting in its capacity as a licensed Distribution Network Service Provider in the Tasmanian jurisdiction of the National Electricity Market.

'**current Distribution Determination**' refers to the distribution determination made by the Australian Energy Regulator for the 2012-2017 period applying to Aurora Energy and, now, TasNetworks.

'**Aurora Energy**' refers to Aurora Energy Pty Ltd, acting in its capacity as the licensed DNSP in Tasmania prior to 1 July 2014.

AER	Australian Energy Regulator
Aurora Energy	Aurora Energy Pty Ltd
CAM	Cost Allocation Method
DBill	TasNetworks' Market and Billing System
DNSP	Distribution Network Service Provider
Gentrack	TasNetworks' Market Data Management System
MAIFI	Momentary Average Interruption Frequency Index
OTTER	Office of the Tasmanian Economic Regulator
POW	Programme of Work
RIN	Regulatory Information Notice
Rules	National Electricity Rules
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SOM	TasNetworks' Service Order Management System
SDW	TasNetworks' Spatial Data Warehouse
TasNetworks	Tasmanian Networks Pty Ltd
TEC	Tasmanian Electricity Code
TNSP	Transmission Network Service Provider
WASP	TasNetworks' program-of-work management system (Works, Assets, Solutions and People)

- TasNetworks has provided explanations only in cases where the difference between forecast and actual expenditure shown in Table 1 is greater than ±10 per cent of forecast expenditure
- the forecasts used for comparative purposes have been adjusted to the same dollar terms as the actual data reported for the current reporting period in the RIN template
- the actual expenditure data reported in Template 6a has been drawn from reliable and objective data sources which are used in the normal course of TasNetworks' business

(b) Information sources

The expenditure analysis undertaken in support of Table 2 drew on the current Distribution Determination and the expenditure reported in Table 1 was sourced from WASP, TasNetworks' financial systems and TasNetworks' audited statutory accounts.

(c) Methodology and assumptions

Explanations of material differences have been provided on the basis of comparisons of actual to forecast expenditure. The forecasts used for comparative purposes are as per the current Distribution Determination and have been adjusted to the same dollar terms as the actual data reported for the current reporting period in the RIN template.

Table 3 Other network operating costs

(a) Compliance with the requirements of the RIN

The explanation of significant other network operating costs provided in Table 3 is consistent with the requirements of the Annual Reporting RIN, in that:

- TasNetworks has reported any items contributing to the other management costs reported in Table 1 which constitute more than five per cent of total standard control services operating costs in the current reporting period

(b) Information sources

The network operating costs reported in Table 3 were been sourced from WASP and TasNetworks' financial systems , TasNetworks' analysis reporting tool (BAF)), and TasNetworks' audited statutory accounts.

(c) Methodology and assumptions

This table shows the breakdown of 'Other Non-Network division management costs' in the current reporting period as these costs are greater than five per cent of standard control services operating costs.

Table 4 Operating Expenditure - Non-Recurrent Network Operating Costs

(a) Compliance with the requirements of the RIN

As no non-recurrent network operating costs reported in Table 1 represented more than five per cent of standard control operating costs in the current reporting period, Table 4 has not been completed.

Table 5 Non–network alternatives (demand management) operating costs that are not captured by the DMIS ($ nominal)

(a) Compliance with the requirements of the RIN

The information provided about non-network alternatives in *Table 5 Non–network alternatives (demand management) operating costs that are not captured by the DMIS* is consistent with the requirements of the Annual Reporting RIN, in that:

- all fields have been completed for non-network projects which are applicable
- only projects not covered by DMIS have been reported
- the capital cost impacts were calculated from quotations or estimates made at the time of project initiation
- the assumptions made in generating these values have been provided in this Basis of Preparation

(b) Information sources

Past loading data was retrieved from TasNetworks' distribution SCADA management system –'PI Historian'

Future loading data was taken from TasNetworks' annual Feeder Forecast.

Financial estimates for augmentation deferral were sourced from external quotations by contractors and design estimations made internally by TasNetworks.

The amount of generation required for peak shaving purposes in the current reporting period was acquired through consultation with network operators.

(c) Methodology and assumptions

Projects have been identified where capital expenditure has been deferred or made unnecessary in the foreseeable future through a given non-network project. Projects have been excluded where they were initiated without a plan to defer capital expenditure, such as to improve reliability or as an alternative to capital expenditure where it would not have been possible to implement the capital expenditure soon enough.

For each project the current load forecast has been used to advise the projected year in which the augmentation would be again required, even with the non-network solution in place. The year of this future augmentation is taken as the end of the project life. For projects where the load has since reduced, and augmentation and the non-network solution is no longer required, it has been assumed that the project life ends during the year that the non-network solution is no longer required.

Bruny Island Cable upgrade deferral project

Projects have been identified where capital expenditure has been deferred or made unnecessary in the foreseeable future through a given non-network project. Projects have been excluded where they were initiated without a plan to defer capital expenditure; such as to improve reliability or as an alternative to capital expenditure where it would not have been possible to implement the capital expenditure soon enough.

For each project the current load forecast has been used to advise the projected year in which the augmentation would be again required, even with the non-network solution in place. For projects where the load has since reduced, and augmentation and the non-network solution is no longer required, it has been assumed that the project life ends during the year that the non-network solution is no longer required.

The cost to implement the network-based augmentation option has been taken from a high level quote received by an external contractor and includes internal costs provided by the Network Planning team.

Two cable options were costed by an internal designer. Of these, option 1 was the preferred option based on lowest cost including contingency costs due to implementation risks of the project (i.e. environmental impacts and issues associated with laying cable on seabed and burying cable).

The network option is required to meet both capacity and voltage limitations on Bruny Island. Therefore the estimated network costs include both the installation of a new submarine cable and one voltage regulator.

Network deferral will require the use of mobile generator(s) to meet the demand and the forecast fuel costs and maintenance have been included in the financial analysis. The operating cost for the mobile generator used was assumed $500/MWh.

Impact on Demand in the current year

The demand impact was determined by considering the amount of real power injected by the mobile generator during peak periods to avoid network constraints. It should be noted that the projects for the current reporting period has been reported with an Impact on Demand of 0.25 MW.

Impact on Demand for the life of the project

The impact on demand over the life of the project has been determined by considering the amount of real power injected by the mobile generator during peak periods to avoid network constraints. The 2036/2037 has been reported with an Impact on Demand of 0.97 MW.

Deferred capital cost for the life of the project

The deferred capital cost for the whole of project life was determined by taking the difference between the NPV cost to install a network-based augmentation project at the time it was originally needed (in year 2017), and completing the augmentation at the end of the project life (in real dollars) in year 2036. The assumed WACC of 3.80 % was used for the entire 20-year period as it is the proposed discount rate for future regulatory periods.

6b. Operating activities - Margin

Table 1 Operating charges and costs
Table 2 Explanation of material difference
Table 3 Operating costs - Other standard control services
Table 4 Operating Expenditure - Non-Recurrent network operating costs

(a) Compliance with the requirements of the RIN

TasNetworks is required to disclose any profit margins or management fees (opex margins) paid directly or indirectly to related party contractors during the current reporting period regulatory year which were not an actual incurred cost of the related party contractor.

TasNetworks does not have any related parties with which it has dealings and, therefore, did not pay any margins or management fees during the current reporting period.

7. Avoided cost payments

(a) Compliance with the requirements of the RIN

The information provided in Template 7 regarding Avoided Cost Payments is consistent with the requirements of the Annual Reporting RIN, in that:

- all relevant input cells in the template have been populated
- the data has been gathered from reliable and objective data sources which are used in the normal course of TasNetworks' business

(b) Information sources

The expenditure data reported has been sourced from TasNetworks' financial systems.

(c) Methodology and assumptions

Avoided cost payments have been calculated in accordance with Tas Networks' Avoided TUoS Policy using metering data.

7. Demand Management Incentive Allowance

7.1 Current DMIA Projects

emPOWERing You Trial (formally known as the Tariff Trial)

Network tariff reform is required to deliver on our business strategy of predictable and sustainable pricing. However, we will not be able to successfully deliver on our network tariff strategy without the support of our customers. Therefore the objectives of the emPOWERing You trial include both technical and customer impact aspects. The objectives include:

- Utilise advanced meters and real demand based network tariffs to analyse customer behaviour and customer charge impacts resulting from tariff reform
- Provide sufficient data to support robust analysis which will underpin future refining of the network tariff strategy and network tariff development
- Demonstrate that TasNetworks can effectively support its customers through tariff reform, by providing a platform to consider communication, technologies and to test customer understanding of network tariff offerings
- Demonstrate that customers can be empowered to reduce bills in the short and long term, and that effective tariff choices can help customers make optimal investment decisions in emerging technologies

Battery storage on Bruny Island

The purpose of this project is to prove that distributed energy storage can be used to defer network investment. It involves the installation of customer energy storage systems on Bruny Island to manage peak load on the cable and reduce the use of diesel. It will also provide validation on the parameters of distributed storage as a solution to network issues.

The trial also includes a significant research component that will provide information and strategies that can be used to improve future use of battery storage.

The outcomes of this project are:

- Validated information on the cost and reliability of distributed energy storage for network support
- A strategy for integrating increasing portions of solar and energy storage into the electricity network
- Information on the network support payments required for this solution to be applied to other parts of the network

Demonstration energy storage system

This project aims to trial the network interface and control of a distributed energy storage system.

It involves installing a residential scale energy storage device on a TasNetworks facility (with a solar system) and trialling dispatch on a device that TasNetworks owns.

Demand management processes

This work package aims to develop the internal systems required to use demand management to solve network constraints. The aim of this work is to:

- Use network support to resolve network issues
- Determine the internal costs for using demand management

- Investigate different levels of automation and type of network support

7.2 Explanatory material regarding demand management projects and programmes

TasNetworks notes the AER's advice that that the information provided below is intended to satisfy TasNetworks' annual reporting obligations for the purposes of paragraph 3.1.4.1 of the AER's *Demand management incentives scheme for the current regulatory control period*.

7.2(a)(i) Compliance with DMIS section 3.1.3 criteria

emPOWERing You Trial

The emPOWERing You Trial complies with the DMIA criteria detailed in section 3.1.3 of the demand management incentive scheme in that:

1. The purpose of this project is to both shift and reduce the demand for standard control services through a non-network alternative
2. This project is broad based and not targeted at a particular network user
3. This project is designed to build demand management capability in TasNetworks and provide a new potentially efficient demand management mechanism
4. This project is tariff based
5. The cost to TasNetworks cannot be recovered through any state or federal scheme. Although a contribution is sought from ARENA this cannot cover the entire cost. This project is not included in forecast capital or operating expenditure
6. This is operating expenditure. There will be no TasNetworks owned asset generated in this project

Bruny Island distributed energy storage trial

The Bruny Island Distributed Energy Storage trial complies with the DMIA criteria detailed in section 3.1.3 of the demand management incentive scheme in that:

1. The purpose of this project is to both shift and reduce the demand for standard control services through a non-network alternative
2. This project is broad based and not targeted at a particular network user
3. This project is designed to build demand management capability in TasNetworks and provide a new potentially efficient demand management mechanism
4. This project is not tariff based
5. The cost to TasNetworks cannot be recovered through any state or federal scheme. Although a contribution is sought from ARENA this cannot cover the entire cost. This project is not included in forecast capital or operating expenditure
6. This is operating expenditure. There will be no TasNetworks owned asset generated in this project

Demonstration energy storage system

The Demonstration energy storage system complies with the DMIA criteria detailed in section 3.1.3 of the demand management incentive scheme in that:

1. The purpose of this project is to both shift and reduce the demand for standard control services through a non-network alternative
2. This project is broad based and not targeted at a particular network user
3. This project is designed to build demand management capability in TasNetworks and provide a new potentially efficient demand management mechanism
4. This project is not tariff based
5. The cost to TasNetworks cannot be recovered through any state or federal scheme. This project is not included in forecast capital or operating expenditure
6. This is operating expenditure

Demand management processes

The demand management priocesses work complies with the DMIA criteria detailed in section 3.1.3 of the demand management incentive scheme in that:

1. The purpose of this project is to both shift and reduce the demand for standard control services through a non-network alternative
2. This project is broad based and not targeted at a particular network user
3. This project is designed to build demand management capability in TasNetworks
4. This project is not tariff based
5. The cost to TasNetworks cannot be recovered through any state or federal scheme. This project is not included in forecast capital or operating expenditure
6. This is operating expenditure

7.2(a)(ii) Nature and scope of demand management projects

emPOWERing You Trial

The scope of this project is to:

- Gather data on customer usage patterns to improve models and planning
- Determine customer's response to new tariff designs and the effect it has on the load they place on the network

Bruny Island distributed energy storage trial

The scope of this project is to:

- Determine the parameters for distributed energy storage as a solution to network issues
- Define the operating model for future applications of this sort of technology
- Determine what actions TasNetworks should take to ensure customers install technology in a way that may be used in the future to manage the network

Demonstration energy storage system

The scope of this project is to install an energy storage system that may be used to demonstrate the TasNetworks-Reposit interface. Without customer interactions the risk of adverse impacts are lower when installed in a TasNetworks facility.

Demand management processes

The scope of this project is to develop suitable tools and processes to manage demand management as a soluton to network problems. This will include:

- Resourcing to dispatch the resources as required; and
- Tools to do the dispatching and gather data.

7.2(a)(iii) Project aims and expectations

emPOWERing You Trial

The outcomes of this project are better models of customer behaviour with and without new tariff designs.

Bruny Island distributed energy storage trial

The outcomes of this project are intended to be:

- A business case for future use of distributed energy storage for network issues

- A list of critical issues and factors to consider in future use of this type of solution

Demonstration energy storage system

The outcome of this project is a demonstration of the TasNetworks/Reposit interface.

Demand management processes

The outcome of this project is appropriate tools and processes for managing demand management.

7.2(a)(iv) Project selection

emPOWERing You Trial

This project was selected because of the lack of data available on customer energy usage and the feedback we have received from customers that they need more information in order to support network tariff reform. This project will rectify this issue and test the effect of new tariff designs on network demand.

This was the only option which provided the required data.

Bruny Island distributed energy storage trial

Energy storage is predicted to increasingly be installed by customers to manage their own energy use. Energy storage is a promising method of rectifying network constraints at a much lower cost than traditional network solutions. If energy storage is to be used in this capacity however it is critical that TasNetworks understands the parameters of energy storage as a solution. The key outcomes of this trial are expected to be:

- Understand the future use case for distributed energy storage
- Determine what actions TasNetworks could take to enable a future where this form of support could be used

This project was selected after considering a network owned battery on Bruny Island. The distributed storage had greater promise because:

- The customers can receive benefit from their batteries when they are not required for network purposes
- Customers are already installing batteries themselves. With the appropriate conditions TasNetworks may simply be able to harness existing customer-installed batteries to resolve network issues

The trial is designed in two stages:

- An initial subsidy to create an area where there enough batteries to make a meaningful difference to the network
- Ongoing payments to customers as their batteries are used to manage the network

The ongoing payments are designed to be similar in design and magnitude to what would be economic to continue in the future.

Demonstration energy storage system

This project was selected because as a low risk way of trialling the TasNetworks/Reposit interface.

Demand management processes

This project was selected after we determined that we didn't have the appropriate internal tools and processes in place to use demand management. Thes resources will increasingly be used in the future to manage our network

7.2(a)(v) Project implementation

emPOWERing You Trial

This project is being implemented internally.

Bruny Island distributed energy storage trial

This project is being implemented through an ARENA funded multi party project.

Demonstration energy storage system

This project is being implemented internally.

Demand management processes

This project is being implemented internally.

7.2(a)(vi) Implementation costs

emPOWERing You Trial

The cost in the last financial; year for this is shown in the following table:

emPOWERing You Trial actual spend

Expenditure profile	current reporting period
Actual spend	$1,296,729.94

Bruny Island distributed energy storage trial

The cost in the last financial; year for this is shown in the following table:

Bruny Island Battery Trial actual spend

Expenditure profile	current reporting period
Actual spend (net of ARENA funding)	$341,510.32

Demonstration energy storage system

Expenditure profile	current reporting period
Actual spend	$20,082.00

Demand management processes

Expenditure profile	current reporting period
Actual spend	$743.56

7.2(a)(vi) Identifiable benefits

emPOWERing You Trial

This project will assist TasNetworks in modelling customer behaviour and the effect of new tariff designs o network demand.

Bruny Island distributed energy storage trial

This project will provide TasNetworks with sufficient experience and information to determine which network issues may be resolved by distributed storage. The batteries are not currently installed and thus there is no data on their usage yet.

Demonstration energy storage system

This trial will assist TasNetworks in operating distributed network storage better. It will build comfort for the control room operators for how energy storage acts in various situations.

Demand management processes

This project will enable us to use demand management operationally to resolve network issues.

7.2(b)(i) Cost recovery under jurisdictional incentive schemes

7.2(b)(ii) Cost recovery under other Commonwealth or State Government schemes

7.2(b)(iii) Exclusion from approved capital and operating expenditure

The costs associated with the aforementioned DMIS/DMIA programmes are not:

(i) recoverable under any other jurisdictional incentive scheme;

(ii) recoverable under any other Commonwealth/State Government Scheme; or

(iii) included as part of the forecast capital expenditure or forecast operating expenditure included in the current Distribution Determination or any other incentive scheme applied by the current Distribution Determination.

7.2(c) DMIA spending in the current reporting period

The total expenditure in the Current Regulatory Period attributable to the Demand Management Innovation Allowance is $2,360,959.

Budgeted expenditure (excluding GST)	$443,251
Actual costs incurred for 2012-13	$26,056
Actual costs incurred for 2013-14	$9,717
Actual costs incurred for 2014-15	$90,952
Project costs invoiced in 2015-16	$237,000
Actual costs incurred for 2016-17	$1,659,066
Final total project costs	**$2,022,791**