Regulatory Investment Test for Distribution

Reliable Provision of Electricity to the Point Vernon (Hervey Bay) area

Draft Project Assessment Report

This document describes the *identified need* for investment in the Point Vernon area and the preferred option for addressing the identified need.

Publication date: 24 May 2021

Consultation Period Starts: 24 May 2021

Consultation Period Closes: 09 July 2021

Executive Summary

ABOUT ERGON ENERGY

Ergon Energy Corporation Limited (Ergon Energy) is part of the Energy Queensland Group and manages an electricity distribution network which supplies electricity to more than 740,000 customers. Our vast operating area covers over one million square kilometres – around 97% of the state of Queensland – from the expanding coastal and rural population centres to the remote communities of outback Queensland and the Torres Strait.

Our electricity network consists of approximately 160,000 kilometres of powerlines and one million power poles, along with associated infrastructure such as major substations and power transformers.

We also own and operate 33 stand-alone power stations that provide supply to isolated communities across Queensland which are not connected to the main electricity grid.

IDENTIFIED NEED

A review of Safety Net compliance at Point Vernon 66/11kV Zone Substation (POVE) has identified that a credible failure would result in total loss of supply to the substation which is unable to be restored within Safety Net timeframes. Credible failures include the loss of the 66kV bus or bus section at Pialba, pole failure on the 66kV Point Vernon feeder (M023), or loss of the Point Vernon substation 66kV circuit breaker or bus section.

As a condition of its Distribution Authority (DA) Ergon Energy must ensure, to the extent reasonably practicable, that it achieves the Safety Net restoration targets as specified in the DA. The purpose of the Safety Net is to seek to effectively mitigate the risk of low probability high consequence network outages to avoid unexpected customer hardship and/or significant community or economic disruption.

The purpose of this project is to address compliance with the Safety Net provisions of Ergon Energy's DA.

APPROACH

The National Electricity Rules (NER) require that, subject to certain exclusion criteria, network business investments for meeting service standards for a distribution business are subject to a Regulatory Investment Test for Distribution (RIT-D). Ergon Energy has determined that network investment is essential in this case for it to continue to provide electricity to the consumers in the Hervey Bay supply area in a reliable, safe and cost-effective manner.

Ergon Energy published a Notice of No Non-network Options (Notice) for the above described network constraint on 10 June 2020. An internal assessment had determined that no non-network solutions can potentially meet the identified need or form a significant part of the solution.

This is a Draft Project Assessment Report (DPAR), where Ergon Energy provides both technical and economic information about the internal options in accordance with the requirements of clause 5.17.4(i). Ergon Energy's preferred solution to address the identified need is to extend a new 66kV

feeder to POVE from the existing 66kV network and install the necessary equipment to energise the feeder. The preferred solution cost is estimated to be $15.8M including overheads and capitalised interest.

Interested parties are invited to make submissions or any comments on the findings of this report for addressing the identified need in the Hervey Bay area.

Submissions in writing are due by 09 July 2021 by 4:00 PM and should be lodged to Ergon Energy's Demand Management Inbox below.

Any inquiries about this RIT-D may also be sent to:

E: demandmanagement@ergon.com.au

P: 13 74 66

Table of Contents

List of Figures and Tables

1 Introduction

This DPAR has been prepared by Ergon Energy in accordance with the requirements of clause 5.17.4(i) of the NER.

This report represents the second stage of the consultation process in relation to the application of the RIT-D on potential credible options to address the identified need for POVE.

In preparing this RIT-D, Ergon Energy is required to consider reasonable future scenarios. With respect to major customer loads and generation, Ergon Energy has, in good faith, included as much detail as possible while maintaining necessary customer confidentiality. Potential large future connections that Ergon Energy is aware of are in different stages of progress and are subject to change (including outcomes where none or all proceed). These and other customer activity can occur over the consultation period and may change the timing and/or scope of any proposed solutions.

1.1. Structure of the report

This report:

- Provides background information on the network capability limitations of the distribution network supplying the Point Vernon area.
- Identifies the need which Ergon Energy is seeking to address, together with the assumptions used in identifying and quantifying that need.
- Describes the credible options that Ergon Energy currently considers may address the identified need, including for each:
  - Its technical definitions;
  - The estimated commissioning date; and
  - The total indicative cost (including capital and operating costs)
- Quantifies costs and classes of material market benefits for the credible option.
- In case of multiple options, this report provides the results of a comparative Net Present Value (NPV) analysis and accompanying explanatory statements regarding the results.

1.2. Contact Details

For further information, inquiries and submissions:

E: demandmanagement@ergon.com.au

P: 13 74 66

2 Background

POVE supplies 10,700 customers. POVE is energised radially from Pialba 66/11kV Zone Substation (PIAL) via a 5.1km single circuit concrete pole 66kV feeder (M023). Load at POVE peaked at 21MVA in February 2020 and is forecast to increase to approximately 23MVA by 2032. Proposed residential and commercial developments in the suburbs of Dundowran, Craignish, Toogoom and Eli Waters are continuing and may result in load growth in excess of the forecast.

The 11kV network from POVE is supplied through seven 11kV feeders which supply a mix of residential, commercial, and light industrial developments in Hervey Bay. Four feeders run towards the central area of Hervey Bay and supply major CBD loads such as several shopping centres, the university campus, and the main industrial zoned area. The remaining feeders supply mainly residential developments, including a significant area zoned as emerging community and currently under development.

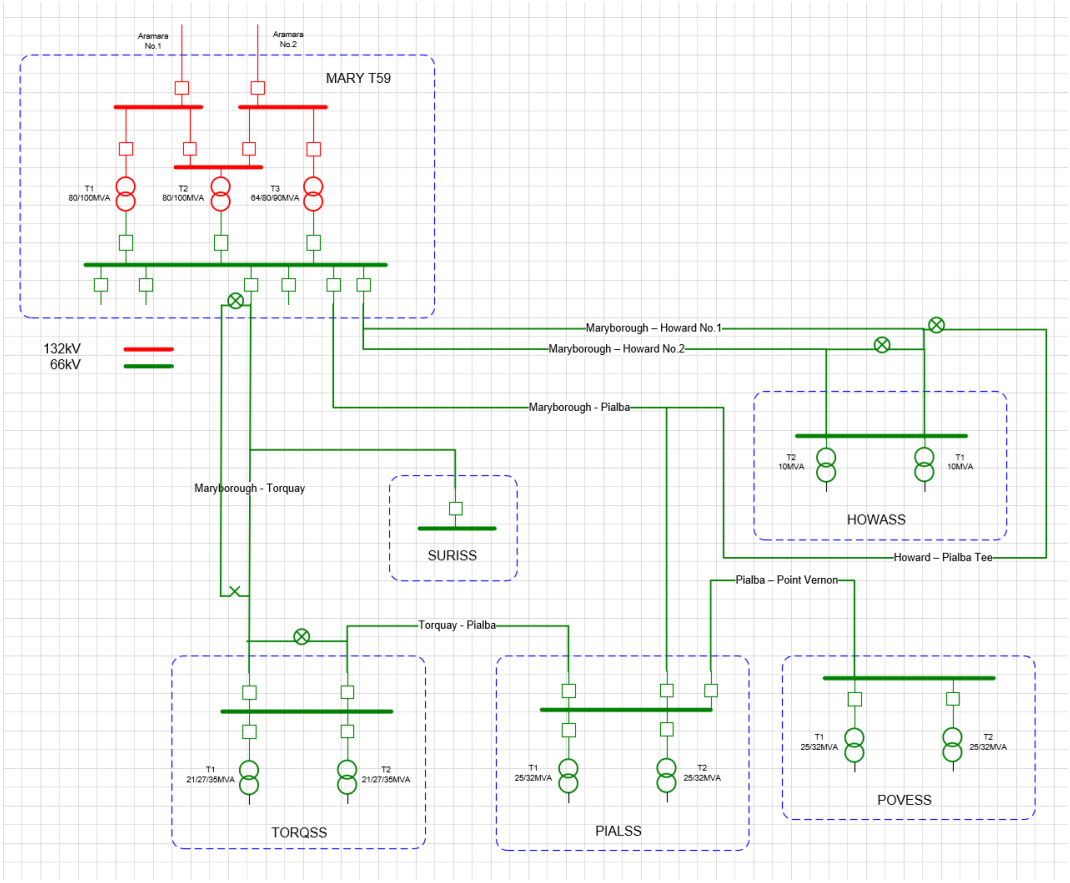


Figure 1 - Hervey Bay area Subtransmission Network

2.1. Substation Operational Constraints

POVE 66/11kV substation is equipped with two 32MVA (ONAF) 66/11kV transformers providing ample capacity to supply additional load from this site. The single incoming 66kV Feeder (M023) is constructed with Neon at 75 degrees with a minimum rating (Summer Night Morning) rating of 547A (62.5MVA).

As detailed in Figure 2 there are no incoming 66kV feeder breakers or bus section breakers at POVE with only 66kV transformer breakers at this site. Given the radial arrangement and to allow the POVE circuit breaker at PIAL to be maintained and risk to be managed, a temporary SKID 66kV isolator has been installed at PIAL. POVE was constructed to allow for a new 66kV feeder bay to be installed.

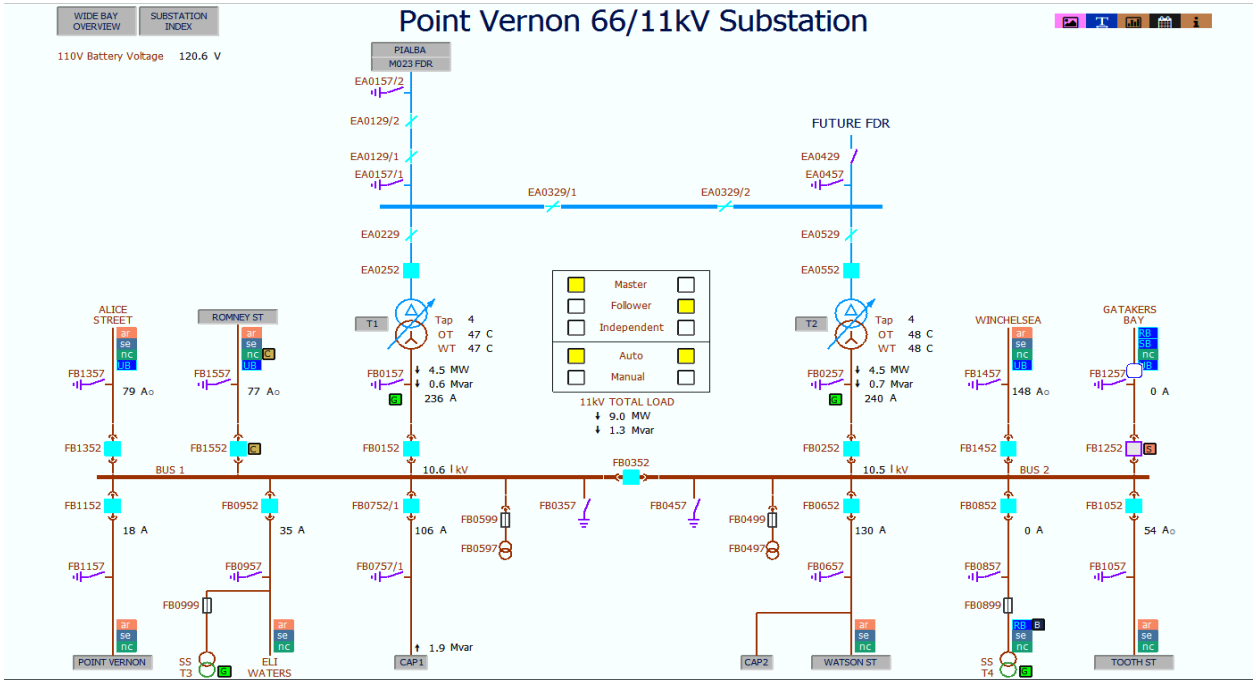


Figure 2 – POVE single line drawing

2.2. Load Profile / Forecasts

As illustrated in Figure 3, in recent years loading at POVE has been steadily increasing. The record load peak on POVE of 20.8MVA occurred mid-afternoon on the 13/2/2017 and was caused by cloud coverage reducing residential and commercial solar panel output.

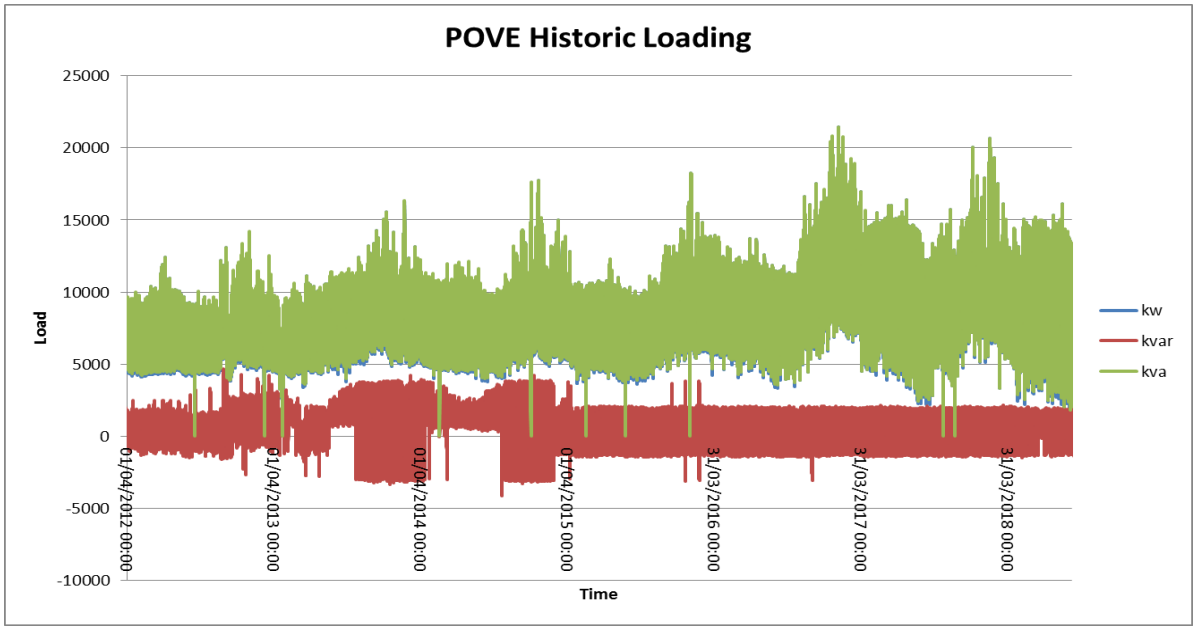


Figure 3 – POVE historic loading 2014 - 2018

As shown in Table 1 it is expected POVE load will continue to grow over the coming years increasing the consequence and associated risk of running the substation on a single radial 66kV feeder. 50POE load is expected to exceed 23MVA in 2032 corresponding to a growth rate of approximately 1.4%.

Table 1 - POVE 50POE reconciled forecast (SIFT 2020 Base Forecast Run 47)

	Summer Day				Summer Night			
YEAR	MVA	MW	MVAR	Comp	MVA	MW	MVAR	Comp
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2021	21.22	21.22	-0.25	5.00	21.04	21.03	-0.69	5.00
2022	21.14	21.13	-0.27	5.00	20.96	20.95	-0.70	5.00
2023	21.07	21.07	-0.28	5.00	20.90	20.89	-0.72	5.00
2024	21.09	21.09	-0.28	5.00	20.92	20.91	-0.71	5.00
2025	21.06	21.06	-0.29	5.00	20.89	20.88	-0.72	5.00
2026	21.20	21.20	-0.25	5.00	21.03	21.01	-0.69	5.00
2027	21.37	21.37	-0.21	5.00	21.20	21.19	-0.65	5.00
2028	21.62	21.62	-0.16	5.00	21.45	21.44	-0.60	5.00
2029	21.84	21.84	-0.11	5.00	21.66	21.65	-0.56	5.00
2030	22.22	22.22	-0.03	5.00	22.03	22.03	-0.48	5.00
2031	22.76	22.76	0.10	5.00	22.57	22.57	-0.37	5.00
2032	23.39	23.39	0.24	5.00	23.19	23.19	-0.24	5.00

3 Identified Need

3.1. Reliability

As a condition of its DA Ergon Energy must ensure, to the extent reasonably practicable, that it achieves the Safety Net restoration targets as specified in the DA. The purpose of the Safety Net is to seek to effectively mitigate the risk of low probability high consequence network outages to avoid unexpected customer hardship and/or significant community or economic disruption.

A review of POVE against Safety Net compliance has identified that in the event of loss of 66kV supply, restoration targets will not be met. Loss of 66kV supply can occur as a result of several credible events, including failures on the PIAL or POVE 66kV bus, or the 66kV PIAL-POVE feeder (M023).

Of greatest concern is the failure of a concrete pole on the 66kV feeder. Several poles have been identified as being within the clear zone of an adjacent roadway greatly increasing the possibility of vehicle assisted failure. A contingency management plan for Point Vernon developed in conjunction with Field Delivery has determined that a realistic restoration time following a concrete pole failure will exceed 20 hours and would result in a breach of legislated Safety Net requirements. This scenario is illustrated in Figure 4.

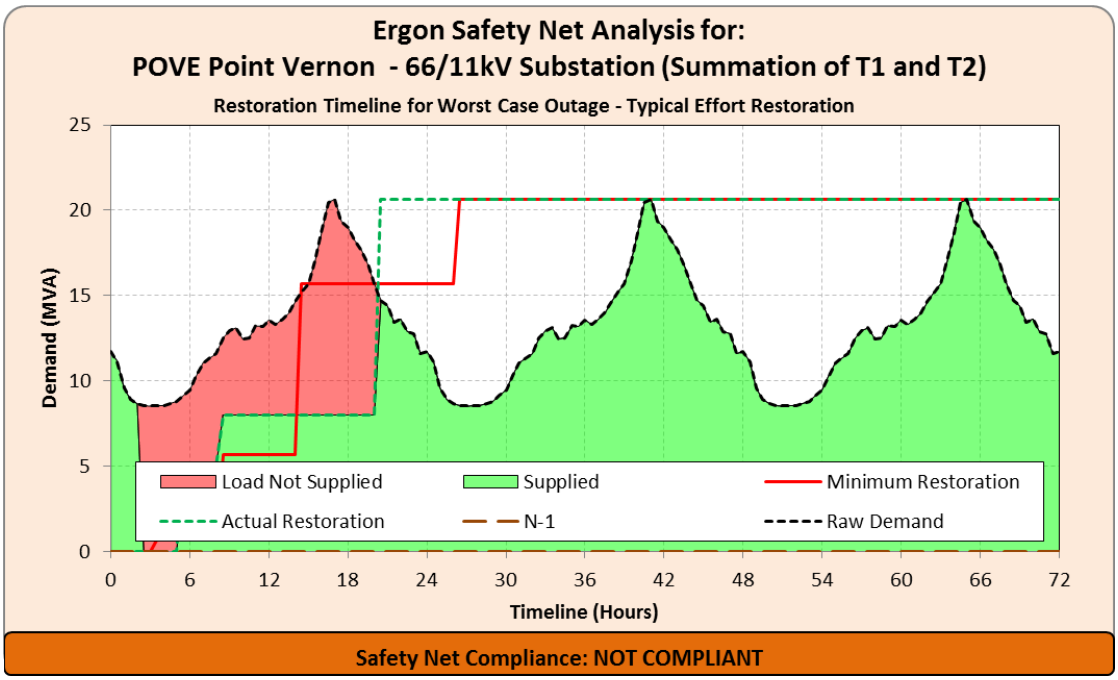


Figure 4 - POVE Safety Net Analysis

3.2. Quantification of the Identified Need

- **Safety Net non-compliance**

The primary objective of this investment is to address the Safety Net non-compliance. Please refer to Appendix 2 – Safety Net Compliance, for details on the applied service standards and the safety net security criteria.

In the event of a credible pole failure on the 66kV M023 feeder, 5MVA of load transfers are available within 6 hours on the 11kV network. The unsupplied load is expected to exceed 15MVA. A realistic return to service for M023 feeder following the failure of concrete pole is 18 – 36 hours. This exceeds the Safety Net restoration threshold by 12 – 30 hours for 15MVA of unsupplied load. If no steps are taken to reduce this risk, Network Planning estimates the unserved energy at risk under this contingency scenario to be approximately 96MWh by 2023/24 increasing to over 105MWh by 2038/39.

3.3. Assumptions in relation to the Identified Need

Below is a summary of key assumptions that have been made when the identified need has been analysed and quantified. It is recognised that the below assumptions may prove to have various levels of correctness, and they merely represent a 'best endeavours' approach to predict the future identified need.

- **Load Profile**

Characteristic peak day load profiles are unlikely to change significantly from year to year, i.e. the shape of the load profile will remain virtually the same with increasing maximum demand.

- **Forecast Maximum Demand**

It has been assumed that peak demand at POVE will grow as per the base case load forecast.

Factors that have been considered when the demand forecast has been developed include the following:

  - load history
  - known future developments (new major customers, network augmentation, etc.)
  - temperature corrected start values (historical peak demands)
  - forecast growth rates for organic growth

- **System Capability – Transformer capacity**

Transformer ratings are normally specified by a continuous rating, supplied by the manufacturer on the nameplate. This corresponds to the load that will cause the oil and winding temperature rise to meet the specified limit, assuming a constant temperature and a constant rated load.

Cyclic ratings in excess of nameplate ratings are possible because the typical load cycle is not

continuous, nor is the daily temperature cycle. Each transformer also has a typical thermal time constant of a few hours. All these factors are combined to enable cyclic loading of a transformer in excess of the nameplate rating before the temperature limits are reached.

Each transformer has two cyclic ratings for both summer and winter, based on the load profile and the ambient temperature for that transformer location.

- **System Capability – Transfer Capacity**

In times of contingency, for example when one transformer is faulty, load may be transferred to another substation via the distribution network. The distribution network transfer capability is largely determined by the capacity of the powerlines to carry the transferred load as well as their ability to maintain system voltages.

4 Market Benefits

The purpose of the RIT-D is to identify the option that maximises the present value of net market benefits to all those who produce, consume and transport electricity in the National Electricity Market (NEM). Consistent with NER clause 5.17.1(c)(4), Ergon Energy has considered the following classes of market benefits:

- Changes in voluntary load curtailment;
- Changes in involuntary load shedding and customer interruptions caused by network outages using a reasonable forecast of the value of electricity to customers;
- Changes in costs for parties other than the RIT-D proponent due to differences in the timing of new plant, capital costs, and operating and maintenance costs;
- Differences in the timing of expenditure;
- Changes in load transfer capacity and the capacity of embedded generators to take up load;
- Any additional option value (where this value has not already been included in the other classes of market benefits) gained or foregone from implementing the credible option with respect to the likely future investment needs of the NEM;
- Changes in electrical energy losses.

4.1. Changes in Voluntary Load Curtailment

None of the options considered in this RIT-D include any voluntary load curtailment. There are no customers on such arrangements in the Point Vernon area at the moment. Any market benefits associated with changes in voluntary load curtailment have been considered but not included.

4.2. Changes in Involuntary Load Shedding

A reduction in involuntary load shedding is expected from all the credible options presented in this report. The benefits from changes in involuntary load shedding have not been quantified

and considered in this report because the credible options will all tend to present a similar financial benefit through either providing a second 66kV supply at POVE or by reducing the loading at POVE.

4.3. Changes in costs to Other Parties

Ergon Energy does not anticipate that any of the credible options included in this RIT-D assessment will affect costs incurred by other parties.

4.4. Differences in Timing of Expenditure

The credible option included in this RIT-D assessment is not expected to affect the timing of other distribution investments for unrelated identified needs.

4.5. Changes in Load Transfer Capacity

The credible option identified in this RIT-D assessment is not expected to affect the load transfer capacity in the Point Vernon area.

4.6. Option Value

The AER's view is that option value is likely to arise where there is uncertainty regarding future outcomes, the information that is available in the future is likely to change, and the credible options considered by the RIT-D proponent are sufficiently flexible to respond to that change.

Ergon Energy does not consider that the identified need for the options included in this RIT-D would be affected by uncertain factors about which there may be more clarity in the future.

4.7. Changes in Network Losses

Ergon Energy does not anticipate that any of the credible options included in the RIT-D assessment will lead to any significant change in network losses.

5 Non-Network Alternatives

Non-network option providers are encouraged to propose non-network alternatives and generation options individually or jointly with network options that may constitute a credible option. A credible option may constitute various measures to form an integrated solution to the identified need. The non-network option may either completely replace the network option, or it may enable Ergon Energy to defer capital investment in the network option by a number of years.

It is the responsibility of the proponent of the non-network option to provide enough technical details of their solution(s) to enable Ergon Energy to make a determination about its credibility. Similarly, sufficient financial information must be also be provided in order for Ergon Energy to compare different options using the Net Present Value method. These requirements are discussed in more detail in Section 5.2: Financial considerations.

Following are the key characteristics which are used in determining the suitability of non-network alternatives for addressing the identified need:

- The non-network option to a network option or a generation option must address the identified need as detailed in Section 3: Identified Need.
- The non-network alternative or a generation option must be technically feasible. It cannot be an unproven solution or untested technology.
- The non-network solution or a generation option must be economically comparable and commercially competitive to the network solutions proposed.
- The non-network solution must remain available for service when called upon in contingencies, similar to network solutions, e.g., a generator that cannot support the network because it is partially or wholly supporting some other function at the time of a contingency may not be a suitable solution to address the identified need.
- The non-network solution provider is also expected to meet the commercial requirements (such as connection applications fees, community consultation, land and easements etc.) that may be required for implementing the non-network solution.
- The non-network option or a generation option must be able to be implemented in sufficient time to meet the identified need.

Ergon Energy welcomes innovative solutions that could either replace or defer the proposed network solution. The above list is to guide the prospective proponents in including the necessary details in their submissions.

5.1. Technical parameters

In addition to meeting the requirements under Section 3: Identified Need, the non-network solution proponents are also expected to meet the following general technical parameters. This is a guide only, as additional performance parameters and technical requirements will apply depending on the type/size of the plant and technology used in the non-network option.

5.1.1. Connection to Ergon Energy's Network

A renewable generation solution connected to Ergon Energy's HV network will be expected to meet Ergon Energy Standard STNW1175 (Standard for Connection of Embedded Generating Systems to a Distributor's HV Network). The non-network solution proponent must also provide all equipment and services required to connect to the connection point e.g., switchgear, cables/wires, protection systems, and include all construction and commissioning costs.

5.1.2. Availability

The non-network solution must have technically comparable availability and reliability parameters as the network options. For example, a battery storage system must always be charged and available for dispatch (>99% availability). Since this is a reliability-driven project, a battery-based non-network option must be a fully dedicated resource capable of meeting the energy-requirements provided in Section 3: Identified Need.

As stated earlier, this is not a comprehensive list of the technical performance parameters. Depending on the non-network solution, further parameters may also apply in determining the suitability of the proposed non-network to address the identified need, such as:

- Stability
- Redundancy
- Ride-through capability
- Capability for future expansion
- Annual downtime

5.2. Financial considerations

The proponents of non-network solutions need to consider the following costs as part of their financial proposal:

- Cost of land
- Construction, connection and commissioning costs
- Operating and maintenance costs over the life of the proposed non-network solution
- Cost of complying with laws, regulations and applicable administrative requirements

The above list is not exhaustive because costs are dependent on the type of non-network solution proposed e.g., demand management options would include annual contractual payments to large electricity consumers.

Ergon Energy uses the NPV methodology to rank network options and compare them with non-network options. The network option costs provided in this report are capital costs inclusive of operational costs, capitalised interest and overheads. These options are compared over a 20-year study period.

There are several ways proponents of non-network solutions may choose to submit their financial proposals at this stage. However, it is preferable for non-network solution providers to

submit their financial proposals in the form of an annual network support payment calculated over a 10-year period. This will assist both Ergon Energy and the non-network solution proponent in comparing the annualised costs of the network option versus the non-network options.

Submissions from equipment vendors that include only capital costs for their equipment are likely to be rejected unless they can provide a turnkey solution aimed at meeting the identified need. The submission must include a financial proposal that includes, at the very least, operational, maintenance, construction, connection and commissioning costs.

5.3. Non-network options for Point Vernon area

Ergon Energy has determined that in this case, there is no non-network alternative that would be technically viable and economically feasible to address the network risk associated with the Safety Net non-compliance.

The following non–network solutions have been assessed for either deferring or replacing the network investment required in the Point Vernon supply area:

- Demand Management (Demand Reduction) such as power factor correction, energy efficiency, load control.
- Demand Response through customer embedded generation, call off load and load curtailment contracts.

The above have been assessed as not technically viable as they will not address the network risk associated with Safety Net non-compliance.

While the Notice published on 10 June 2020 determined that no non-network solutions can potentially meet the identified need or a significant part of the solution, Ergon Energy did receive a submission from an interested party for providing a non-network solution. This option has been reviewed with the information available at hand. The proposed battery energy storage solution inadequately addresses the identified need and is not considered economically feasible in comparison to the network solutions.

6 Network Options Considered

Ergon Energy has considered and evaluated four network options for addressing the identified need at POVE. These options are described below in brief.

Option 1: New 66kV wood pole line from Nikenbah (NIKE) to POVE

Option 2: New 66kV wood pole line from NIKE - POVE with 66kV feeder bay at Howard substation (HOWA) and two 66kV feeder bays at POVE

Option 3: New 66kV single circuit concrete pole line (SCCP) from NIKE – POVE

Option 4: Build new 66/11kV substation at Dundowran (DUND) and a new 66kV SCCP line from NIKE - DUND. Build 11kV feeders from DUND to allow load transfers from POVE to meet Safety Net.

6.1. Option 1: New 66kV wood pole line from Nikenbah (NIKE) to POVE

Option 1 involves the following scope of works:

- Build approximately 14km of new 66kV feeder from NIKE to POVE. Approximately 13km is expected to be overhead wood pole 66kV with the remaining 1km length to be underground.
- All overhead 66kV circuits are to be constructued with a minimium of NEON to achieve a summer day rating of 69.2MVA.
- Underground Cable studies will be required to determine appropriate cables sizes. Underground cables must at a minimum, be designed and installed to match overhead cable ratings. i.e. a minimum of 69.2MVA.
- Install 66kV feeder bay at HOWA including associated relays CTs, CBs, and protection schemes as required.
- Install incoming feeder CTs at POVE. A new isolator will also need to be installed on the incoming feeder bay for the new feeder.
- Install 66kV bus section breaker at POVE.
- Review position of 66kV isolator 2018 on the M021 HOWA-PIAL feeder. Possibly this may need to be relocated or an additional isolator installed.

The estimated option cost is $15.8M (including overheads and capitalised interest). The network option is proposed to be implemented by June 2026.

6.2. Option 2: New 66kV wood pole line from NIKE - POVE with 66kV feeder bay at Howard substation and two 66kV feeder bays at POVE

This option involves building with wood pole 66kV line from NIKE to approximately the location of DUND after which it is expected underground will need to be constructed for the majority of the length into POVE due to council and public expectations within the Urban footprint and entrance into Hervey Bay. 66kV feeder bays with associated CBs will be installed at POVE and HOWA. A 66kV bus section breaker will also need to be installed at POVE to allow Safety Net to be met. It is proposed that the new feeder will be energise and run in parallel with the existing M023 feeder such that if supply is lost on M023, the 10,200 customers currently supplied from Point Vernon substation would not see an outage. With this option Safety Net targets will be met.

The project includes the design, construction, and commissioning.

- Build approximately 14km of new 66kV feeder from NIKE to POVE. Approximately 13km is expected to be overhead wood pole 66kV with the remaining 1km length to be underground.
- All overhead 66kV circuits are to be constructued with a minimium of NEON to achieve a summer day rating of 69.2MVA.
- Underground cable studies will be required to determine appropriate cables sizes. Underground cables must at a minimum, be designed and installed to match overhead cable ratings. i.e. a minimum of 69.2MVA.
- Install 66kV feeder bay at HOWA including associated relays CTs, CBs, and protection schemes as required.
- Install two incoming 66kV feeder bays at POVE including associated relays CTs, CBs, and protection schemes as required.
- Install new 66kV bus section breaker at POVE.
- Review position of 66kV isolator 2018 on the M021 HOWA-PIAL feeder. Possibly this may need to be relocated or an additional isolator installed.

This option has been estimated at $17.98M including overheads and capitalised interest.

6.3. Option 3: New 66kV single circuit concrete pole line (SCCP) from NIKE – POVE

The scope of works for Option 3 is as follows:

- Build approximately 14km of new 66kV feeder from NIKE to POVE. Approximately 13km is expected to be predominantly single circuit concrete pole (SCCP) with the remaining 1km length to be underground.
- All overhead 66kV circuits are to be constructued with a minimium of NEON to achieve a summer day rating of 69.2MVA.

- Underground cable studies will be required to determine appropriate cables sizes. Underground cables must at a minimum be designed and installed to match overhead cable ratings. i.e., a minimum of 69.2MVA.
- Install 66kV feeder bay at HOWA including associated relays CTs, CBs, and protection schemes as required.
- Install two incoming 66kV feeder bays at POVE including associated relays CTs, CBs, and protection schemes as required.
- Install new 66kV bus section breaker at POVE.
- Review position of 66kV isolator 2018 on the M021 HOWA-PIAL feeder. Possibly this may need to be relocated or an additional isolator installed.

Option 3 has been estimated at $20.14M including overheads and capitalised interest.

6.4. Option 4: Build new 66/11kV substation at Dundowran and a new 66kV SCCP line from NIKE - DUND. Build 11kV feeders from DUND to allow load transfers from POVE to meet Safety Net

This option involves the following works:

- Construct new 8.7km 66kV SCCP feeder from NIKE to DUND.
- All overhead 66kV circuits are to be constructued with a minimium of NEON to achieve a summer day rating of 69.2MVA.
- Install 66kV feeder bay at HOWA including associated relays CTs, CBs, and protection schemes as required.
- Build new 20MVA single transformer ended substation at DUND on land at the Dundowran Depot. 66kV feeder bay required.
- Develop extensive/strong distribution network to allow load to be transferred off POVE to meet Safety Net.
- Review position of 66kV isolator 2018 on the M021 HOWA-PIAL feeder. Possibly this may need to be relocated or an additional isolator installed.

This option is the most expensive option at $29.63M including overheads and capitalised interest.

6.5. Preferred Internal Option

The preferred network option is Option 1, extend a new 66kV wood pole feeder to POVE from the existing 66kV network and install the necessary equipment to energise the feeder.

All proposed network options above have been scoped with the aim of meeting the identified need i.e., safety net non-compliance in the event of the loss of the radial 66kV PIAL – POVE feeder M023. Option 1 addresses this need by building a second 66kV feeder to POVE using a

wood pole construction. The incoming feeders at POVE will need new CTs for remote feeder protection and a bus coupler will be added as well. Option 1 achieves the desired reliability benefit at POVE by using fewer circuit breakers at POVE and constructing the 66kV line with wood poles.

The estimated preferred project cost is $15.8M including overheads and capitalised interest.

6.6. Potential Deferral Charges

Ergon Energy has estimated the capital cost of the network options to within ± 40% of estimation accuracy. Using these costs as a guide, a deferral of the preferred network option by 5 years represents a deferral saving of approximately $380,000 per annum, assuming the same reliability outcomes are maintained as with the preferred network option. While this should not be considered as the precise deferral cost available to a non-network proponent, it serves as a guide for interested parties to determine the viability of their proposal.

6.7. Financial Analysis

Net Present Values of the four network options are presented in Table 2 below. The NPV analysis demonstrates that Option 1 has the lowest Net Present Cost.

Table 2 – Net Present Value Analysis

WEIGHTED AVERAGE RESULT ACROSS ALL SCENARIOS					
AVERAGE Option	Option Name	Rank	Net NPV	Capex NPV	Opex NPV
1	13km of wood pole 66kV, 1km of 66kV underground, bus section breaker, in	1	**-11,840**	-9,741	-2,099
2	13km of wood pole 66kV, 1km of 66kV underground, bus section breaker, 2	2	**-12,015**	-9,916	-2,099
3	13km of concrete pole 66kV, 1km of 66kV underground, POVE bus section b	3	**-12,555**	-10,949	-1,607
4	Establish DUND 1x20MVA fed by 8.7km concrete 66kV, dist works	4	**-18,822**	-16,101	-2,721

7 Submissions and Next Steps

The internal investigations undertaken on the feasibility of the non-network solutions revealed that it is unlikely to find a complete non-network solution or a hybrid (combined network and non-network) solution to provide the magnitude of network support required in the Point Vernon area to address the identified need.

The preferred network option is to build a second 66kV wood pole line to POVE.

7.1. Request for Submissions

Ergon Energy invites written submissions on this report from registered participants and interested parties to address the identified need.

Ergon Energy will not be legally bound in any way or otherwise obligated to any person who may receive this RIT-D report or to any person who may submit a proposal. At no time will Ergon Energy be liable for any costs incurred by a proponent in the assessment of this RIT-D report, any site visits, obtainment of further information from Ergon Energy or the preparation by a proponent of a proposal to address the identified need specified in this RIT-D report.

7.2. Next Steps

Following Ergon Energy's consideration of the submissions, the preferred option, and a summary of and commentary on any submissions received in response to this report, will be included as part of the Final Project Assessment Report (FPAR). The FPAR represents the final stage of the consultation process in relation to the application of the RIT-D.

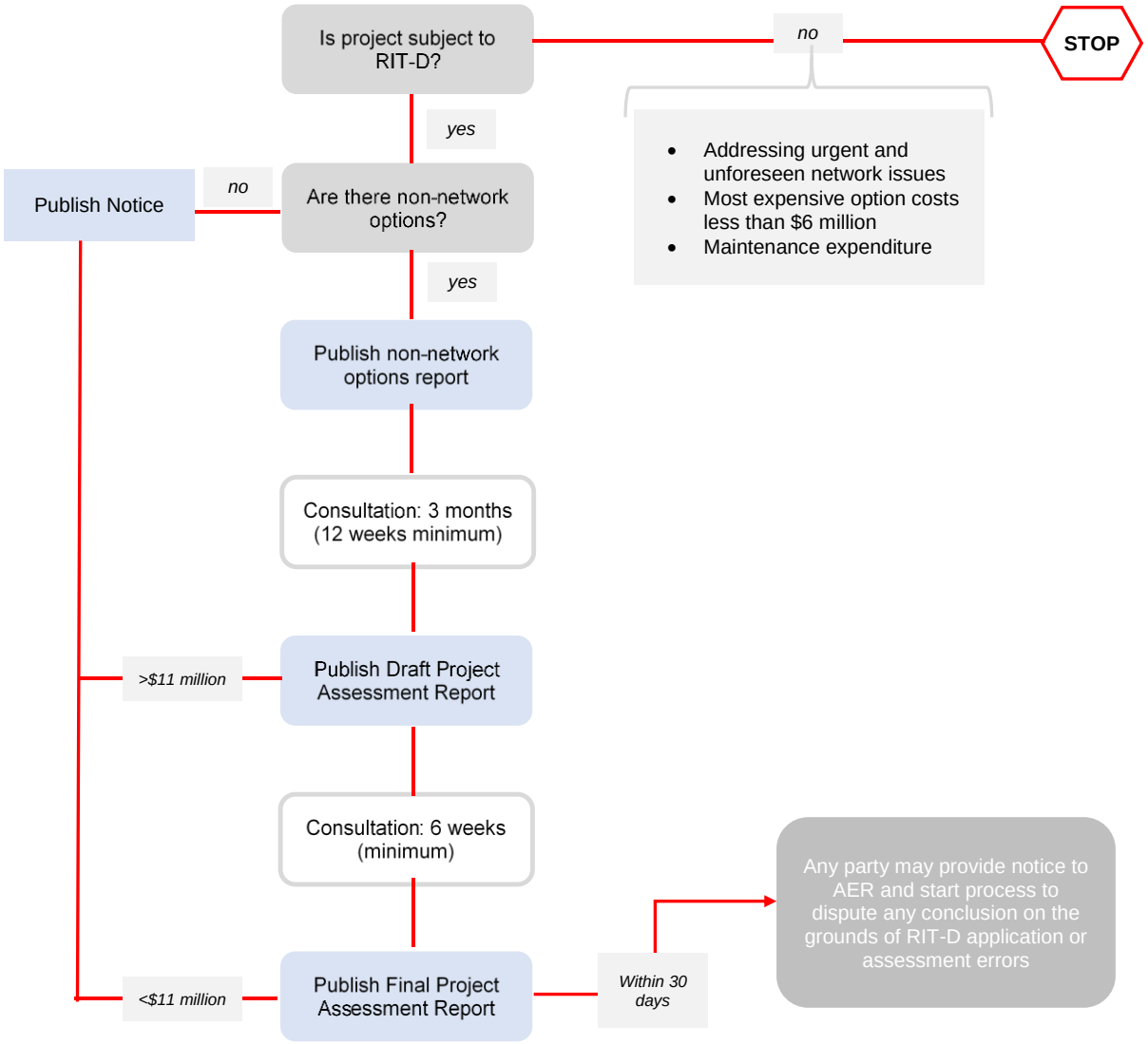
Ergon Energy intends to publish the FPAR no later than 30 July 2021.

8 Compliance Statement

This Draft Project Assessment Report complies with the requirements of NER section 5.17.4(j) as demonstrated below:

Requirement	Report Section
(1) a description of the identified need for investment;	3
(2) the assumptions used in identifying the identified need (including, in the case of proposed reliability corrective action, why the RIT-D proponent considers reliability corrective action is necessary);	3.3
(3) if applicable, a summary of, and commentary on, the submissions received on the NNOR;	N/A
(4) a description of each credible option assessed	6
(5) where a *Distribution Network Service Provider* has quantified market benefits in accordance with clause 5.17.1(d), a quantification of each applicable market benefit of each credible option	4
(6) a quantification of each applicable cost for each credible option, including a breakdown of operating and capital expenditure	6
(7) a detailed description of the methodologies used in quantifying each class of costs or market benefit	4
(8) where relevant, the reasons why the RIT-D proponent has determined that a class or classes of market benefits or costs do not apply to a credible option	4
(9) the results of an NPV analysis of each credible option and accompanying explanatory statements regarding the results	6.6
(10) the identification of the proposed preferred option	6.5
(11) for the proposed preferred option, the RIT-D proponent must provide: (i) details of the technical characteristics; (ii) the estimated construction timetable and commissioning date (where relevant); (ii) the indicative capital and operating costs (where relevant); (iv) a statement and accompanying analysis that the proposed preferred option satisfied the RIT-D; and (v) if the proposed preferred option is for reliability corrective action and that option has a proponent, the name of the proponent	6, 6.1, 6.3, 6.5
(12) contact details for a suitably qualified staff member of the RIT-D proponent to whom queries on the draft report may be directed.	1.2

Appendix 1 – The RIT-D Process



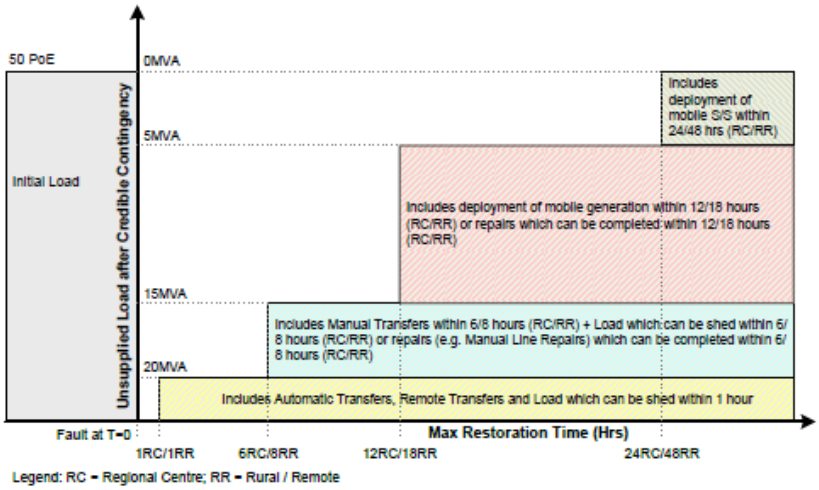
Source: AEMC, *Rule determination: National Electricity Amendment (Replacement expenditure planning arrangements) Rule 2017*, July 2017, p. 64.

Appendix 2 – Safety Net Compliance

Applied Service Standards

The applicable service standard for this planning proposal is Safety Net[1] which is "a strategy to avoid unexpected customer hardship and/or significant community or economic disruption by mitigating the effects of credible contingencies largely on the sub-transmission network, which have a low probability of occurring and result in high consequence network outages and loss of supply to many customers. Safety Net provides a 'base-case' security level to cater for Low-Probability High Impact events". It is included in Ergon Energy's Distribution Authority and is therefore a mandatory business requirement.

The following table shows the applied service standards for Ergon Energy's sub-transmission network.



Safety net requirements

Safety Net Security Criteria

To address the low probability high impact risk for feeder outage contingencies, the Safety Net Security Criteria is applied to restore supply within the allowable timeframe. The safety net criteria are classified into Regional Centre and Rural Area, each with a different timeline as follows:

[1] *Safety Net Application, Evaluation and Economic Investment Manual*, purpose of Safety Net, p.6.