New Feeder from Pandoin to Farnborough

Business Case

17 January 2024

ERGON ENERGY NETWORK

Part of Energy Queensland

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DOCUMENT VERSION

Version Number	Change Detail	Date	Updated by
1.0	Review	08/12/2023	Principal Planning Engineer
2.0	Endorsed	08/12/2023	Manager Sub-Transmission Planning
3.0	Approved	13/12/2023	General Manager Grid Planning

RELATED DOCUMENTS

Document Date	Document Name	Document Type
20/05/2022	Safety Net Application Guideline	EQL Standard

1 SUMMARY

Title	New Feeder from Pandoin to Farnborough
DNSP	Ergon Energy - Network
Expenditure category	☐ Replacement ☒ Augmentation ☐ Connections ☐ Non-Network
Identified need	☒ Legislation ☒ Regulatory compliance ☒ Reliability ☐ CECV ☐ Safety ☐ Environment ☐ Financial ☐ Other The Capricorn Coast region in Central Queensland east of Rockhampton is supplied by Yeppoon (YEPPSS) 66/22/11kV substation and Tanby (TANBSS) 66/22kV substations and currently has over 16,000 premises with a combined peak load of approximately 39MVA. The population of the region is forecast to grow substantially over the coming decades, and feeder easements and land for a future bulk supply substation at Yeppoon have previously been strategically acquired. The capacity of the existing 66kV network supplying the area is 43MVA, and 24MVA following a single credible contingency resulting in a Safety Net compliance limitation of 40MVA. 10PoE and 50PoE peak load is forecast to exceed these limits in 2030/2031 and beyond. Without prudent and timely investment, continued operation of the existing network will results in inability to supply forecast load growth, increased organisational exposure to non-compliance with its Distribution Authority, and increased exposure of the Capricorn Coast community to prolonged and widespread outages.
Summary of preferred option	All feasible network options have been identified and assessed. NPV analysis with various sensitivities have been applied to identify the most cost-effective option. The proposed option is to construct a new 66kV feeder between Pandoin bulk supply substation (PANDBS) and Yeppoon zone substation (YEPPSS), constructed for future conversion to dual 132kV and utilising existing easements secured previously for this purpose.
Expenditure	(see table below)
Benefits	The primary benefit is the ability for the electricity network to support forecast load growth at the Capricorn Coast and remain compliant with minimum network security criteria stipulated in the Distribution Authority.

Year	Previous period	2025-26	2026-27	2027-28	2028-29	2029-30	2025-30
$, direct 2022-2023	$0m	0.165m	$0.398m	$1.235m	$4.175m	$7.375m	$13.347m

2 BACKGROUND

2.1 Community Supply and Network Arrangement

Yeppoon and the Capricorn Coast is a regional centre in the Capricornia Region of Queensland serviced by Yeppoon 66/22/11kV zone substation (YEPPSS) in the Yeppoon area to the north, and Tanby 66/22kV zone substation (TANBSS) in the Emu Park area to the south.

The local government area of Livingstone Shire Council has a population of 40,905 people and an annual economic output of more than $1.6 billion[1] in 2022. Substantial future residential, commercial and industrial development, including PV, and EV growth and EV fast charging is expected in the Capricorn Coast area in coming decade.

YEPPSS currently supplies 10,394 premises with a 2022 recorded summer evening peak load of 27.86MVA, and TANBSS supplies 5,866 premises with a 2022 recorded summer evening peak load of 12.40MVA.

YEPPSS and TANBSS are supplied from the meshed 66kV network in Rockhampton via a 72.5km ring arrangement between Parkhurst zone substation (PARKSS) and Lakes Creek zone substation (LACRSS).

The ring arrangement in YEPPSS is supplied by two 66kV feeders:

- F6051/F6082 (34km) timber pole line from PARKSS to YEPPSS
- F6298 (16.5km) timber pole line between YEPPSS and TANBSS
- F6074 (32km) concrete pole line from LACRSS to TANBSS.

Line easements have been acquired from Pandoin 132/66kV bulk supply (PANDBS) and a future 132/66/22kV bulk supply substation site KEPP at Yeppoon (Neils Rd) as part of strategic planning for long term growth in Capricorn Coast region. The line easement route is 28km long and of width suitable for dual 132kV line construction.

Geographic and schematic views of the network area are provided in

[1] Economic and Demographic Profile – Livingstone Shire Council

Figure 1 and Figure 2 below.

Figure 1: Existing network arrangement (geographic view)

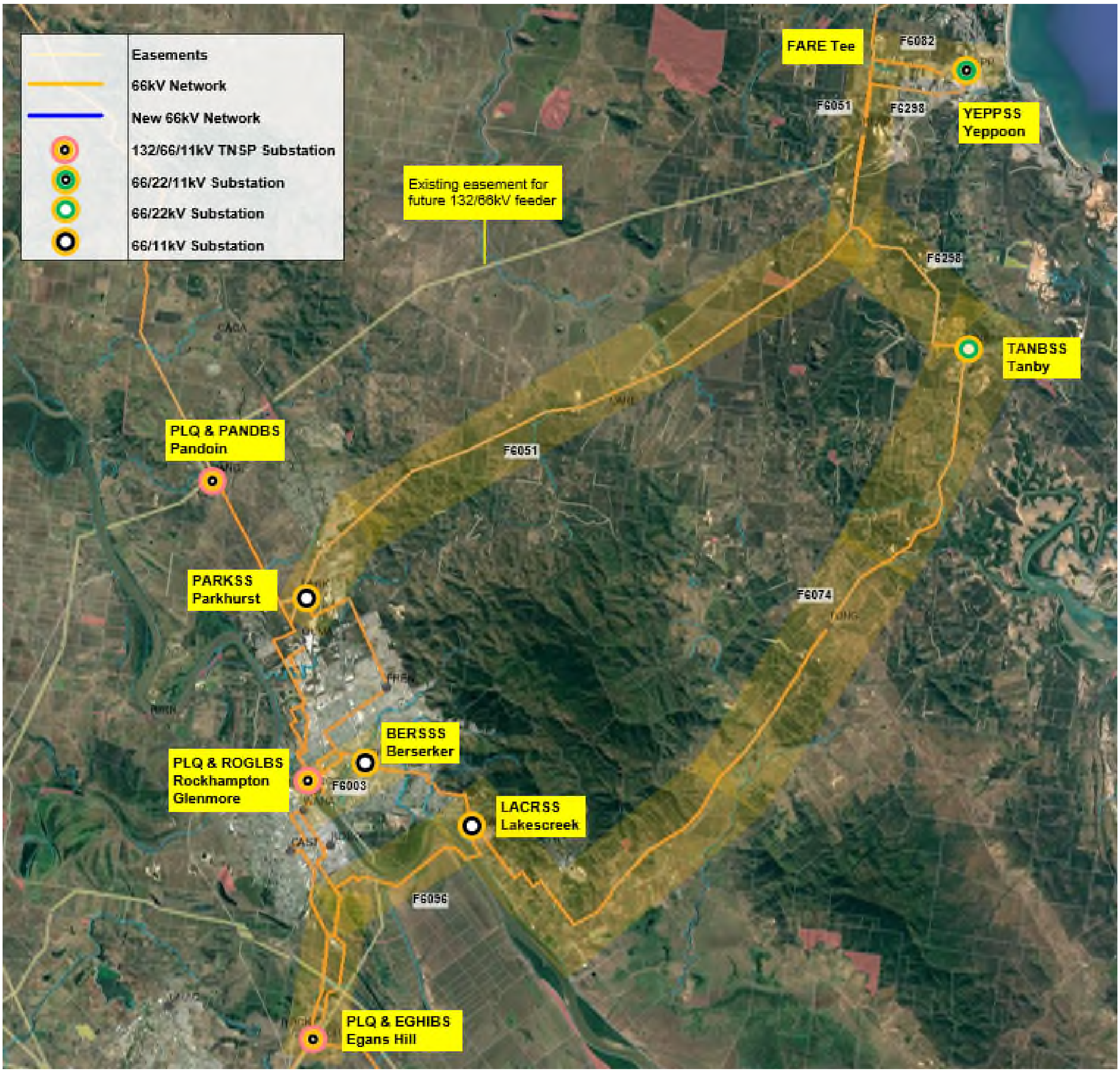
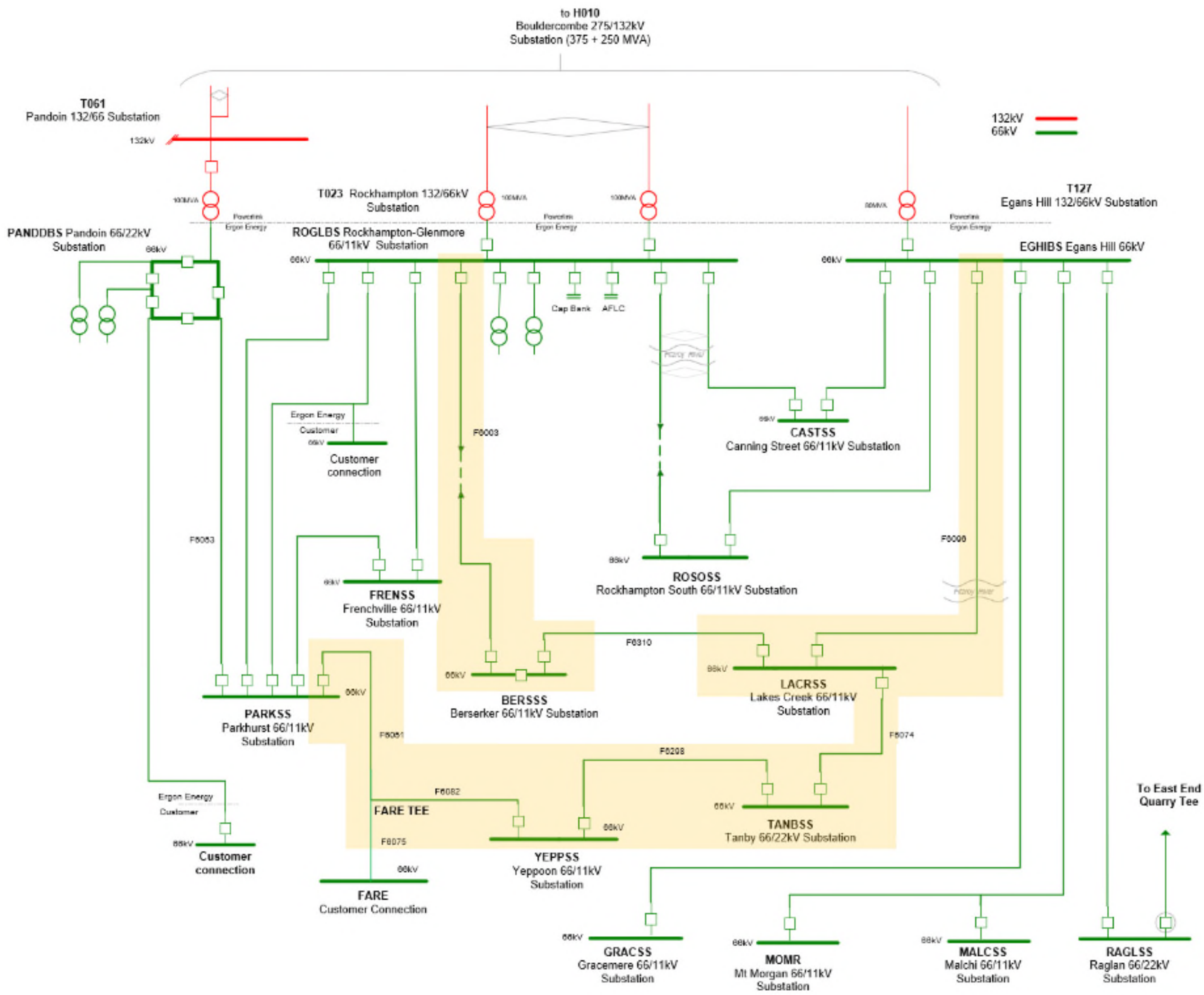


Figure 2: Existing network arrangement (schematic view)



3 IDENTIFIED NEED

The identified need for investment is inadequate network capacity to the Yeppoon and Emu park area to support expected load growth in both “system normal” network state and under a single network contingency.

There are three main network capacity limitations requiring augmentation to meet forecast load growth in the area.

1. System Normal supply capacity to Capricorn Coast area is exceeded from 2030 onwards when the 10PoE peak load is forecast to reach 43MVA
2. Contingent Supply Capacity fails to meet Safety Net criteria for the following single credible contingencies:
    a. a credible circuit breaker or pole hardware failure on subtransmission feeder F6074 supplying TANBSS from LACRSS from 2030 onwards when the Capricorn Coast area 50PoE peak load is forecast to reach 40MVA
    b. a credible circuit breaker or timber pole failure on subtransmission feeder F6051/F6082 between PARKSS and YEPPSS from 2033 onwards when the coastal area 50PoE peak load is forecast to reach 43.4MVA.

The timing necessary to meet the identified needs is practical completion in 2031.

3.1 Compliance Criteria

3.1.1 Normal Supply Capacity

Under clause 6.5.7 (a) (1) of the National Electricity Rules (refer Appendix 1) the DNSP is required to develop proposals to invest in an efficient and prudent manner to meet or manage the expected demand for standard control services.

Failing to invest to supply reasonable forecast load does not comply with requirements of the NER, could result in forced load shedding in peak load periods, and/or commercial and industrial developments not being able to connect to the network in a reasonable timeframe.

3.1.2 Contingent Supply Capacity

Under its Distribution Authority, Ergon Energy must adhere to the Safety Net standards which identify the principles that apply to the operation of network assets under network contingency conditions. System contingency related capability is assessed against available load transfers, emergency cyclic capacity (ECC), non-network response, mobile plant, mobile generators, and short-term ratings of plant and equipment, where available, using a 50% probability of exceedance (50PoE) forecast load.

Yeppoon and Tanby sub-transmission feeders are classified as a Regional Centre, with the following Safety Net criteria load not supplied must be:

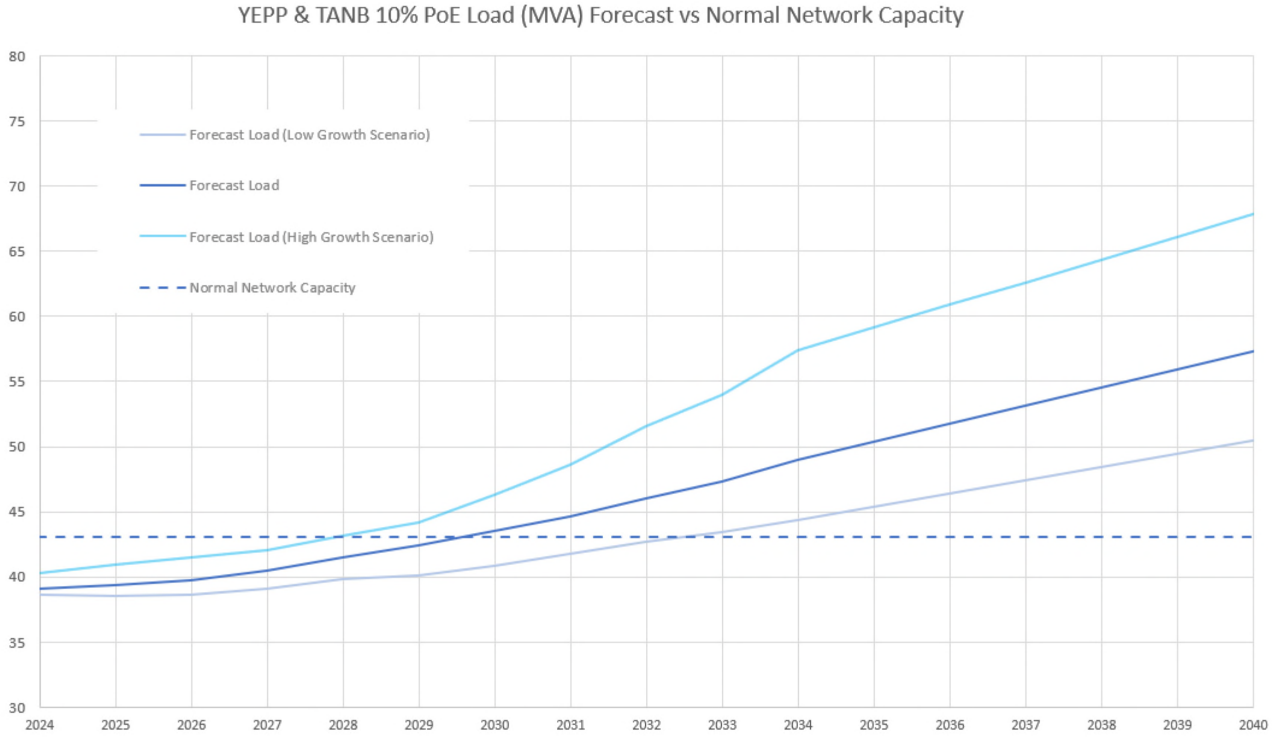
- Less than 20MVA (8000 customers) after 1 hour
- Less than 15MVA (6000 customers) after 6 hours
- Less than 5MVA (2000 customers) after 12 hours
- Fully restored within 24 hours.

(Note: Customer numbers shown are indicative only. Unsupplied load in MVA is the primary measure for Safety Net compliance)

3.2 Normal Supply Capacity

Combined supply capacity of 43MVA to YEPPSS and TANBSS is constrained by feeder F6082 summer day line rating of 24MVA. Forecast 10PoE peak load exceeds this constraint in 2030 as shown in Figure 3 below, with low and high forecast scenarios included for reference.

Figure 3: Forecast Load vs Network Constraint (System Normal)

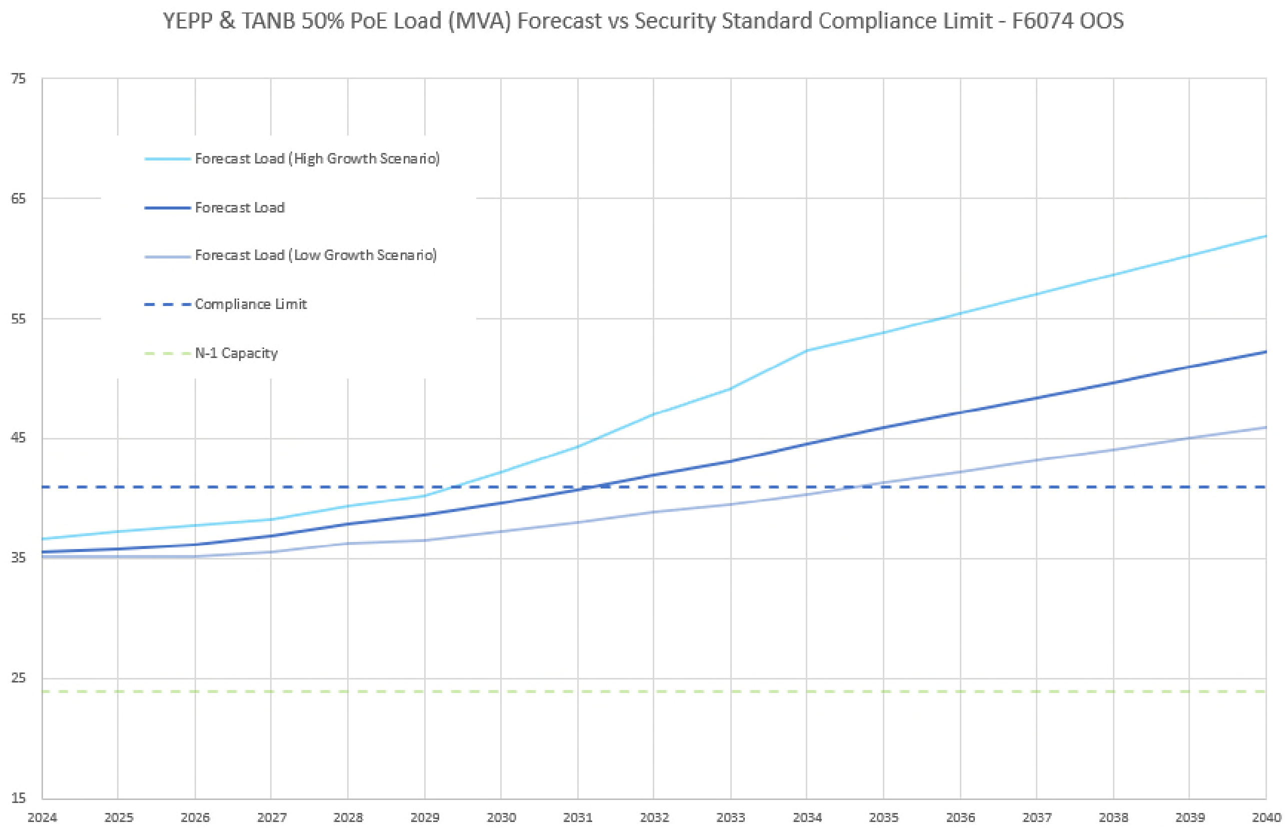


3.3 Credible Contingency to feeder F6074 LACRSS to TANBSS OOS

The minimum network security standard is forecast to be breached for a credible contingency on feeder F6074 between LACRSS and TANBSS. The N-1 network capacity is 24MVA, limited by the thermal rating of F6082 PARKSS TO YEPPSS. F6074 is of concrete pole construction with majority accessible poles, therefore a credible contingency of feeder F6074 is expected to be repaired in less than 12hrs. The minimum network security standard stipulates that not more than 15MVA of customer load can be unsupplied for this timeframe in a Regional Centre. There is negligible 11kV or 22kV transfer capability available. Up to 1MVA of emergency generation can be deployed within 12hrs in Yeppoon. The resulting security standard compliance limit for 50PoE forecast combined load at YEPPSS and TANBSS is 40MVA. Forecast 50PoE load exceeds this limit in 2031 as shown in

Figure 4 below, with low and high forecast scenarios included for reference.

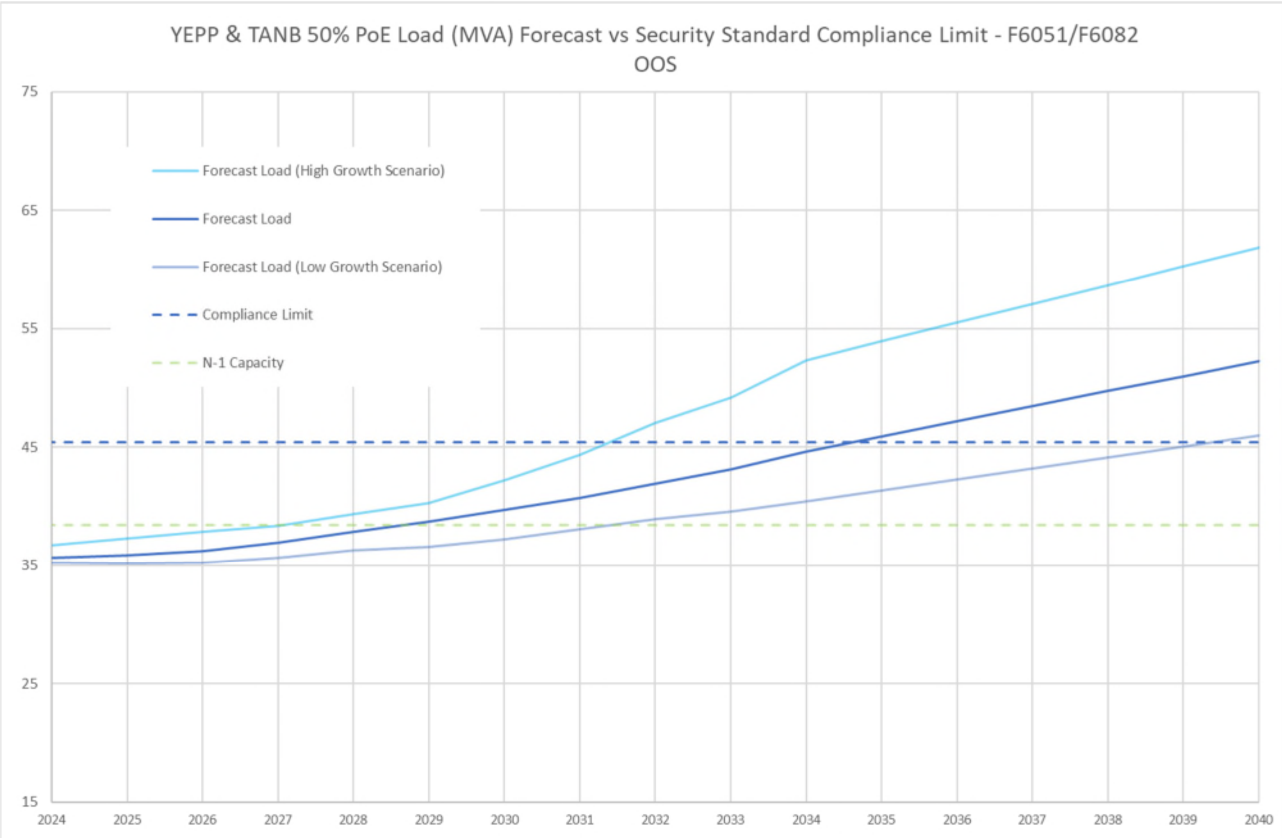
Figure 4: Forecast Load vs Compliance Constraint (F6074 LACRSS-TANBSS OOS)



3.4 Credible Contingency to feeder F6051/F6082 PARKSS to YEPPSS OOS

The minimum network security standard is forecast to be breached for a credible contingency on feeder F6051/F6082 between PARKSS and YEPPSS. The N-1 network capacity is 38.4MVA, limited by the thermal rating of F6074 LACRSS TO TANBSS. F6051/F6082 is of timber pole construction and a pole failure is credible and expected to be repaired in longer than 12hrs but less than 24hrs. The minimum network security standard stipulates that not more than 5MVA of customer load can be unsupplied for this timeframe in a Regional Centre. There is negligible 11kV or 22kV transfer capability available. Up to 2MVA of emergency generation can be deployed within 24hrs in Yeppoon. The resulting security standard compliance limit for 50PoE forecast combined load at YEPPSS and TANBSS is 45.4MVA. Forecast 50PoE load exceeds this limit in 2035 as shown in Figure 5 below, with low and high forecast scenarios included for reference.

Figure 5: Forecast Load vs Compliance Constraint (F6051/F6082 PARKSS-YEPPSS OOS)



4 OPTIONS IDENTIFICATION

Ergon Energy Network has sought to identify all technically feasible network options that could remove the identified limitations in a timely and efficient manner.

Options considered are:

Option 1 – New 66kV feeder from PANDBS to YEPPSS

Build a new 28km 66kV feeder from PANDBS to KEPP (constructed ready for future conversion to dual 132kV). Continuing the new feeder to YEPPSS rebuilding final 6.5km section of feeder F6082/6051 as dual circuit 66kV.

Option 2 – New 66kV feeder from PANDBS to KEPP, new switching station at KEPP, and uprate 6.5kms KEPP to YEPPSS:

Build a new 28km 66kV feeder from PANDBS to KEPP (constructed ready for future conversion to dual 132kV). Build a new 66kV five CB switching station at KEPP integrating with existing feeders F6298 from TANBSS. Uprate final 6.5km section of feeder F6082/6051 to YEPPSS.

Further options were considered and rejected as detailed in Section 0. Non-network options will be identified and evaluated through the RIT-D process.

4.1 Option 1 – New 66kV feeder 34.5km from PANDBS to YEPPSS

This option involves the following works:

- Build new 1x 66kV feeder from PANDSS to future KEPP site (28kms) in easements secured previously for the purpose, constructed suitable for future double circuit 132kV.
- Rebuild existing 66kV feeder F6082/6051 from KEPP to YEPPSS as double circuit (6.5kms) and continue the new 66kV feeder to YEPPSS via the second circuit.
- Build new 1x 66kV feeder bay at PANDSS.
- Build new 1x 66kV feeder bay at YEPPSS.

The total of the works is shown in

Figure 6 and Figure 7 below.

Figure 6: Option 1 network diagram

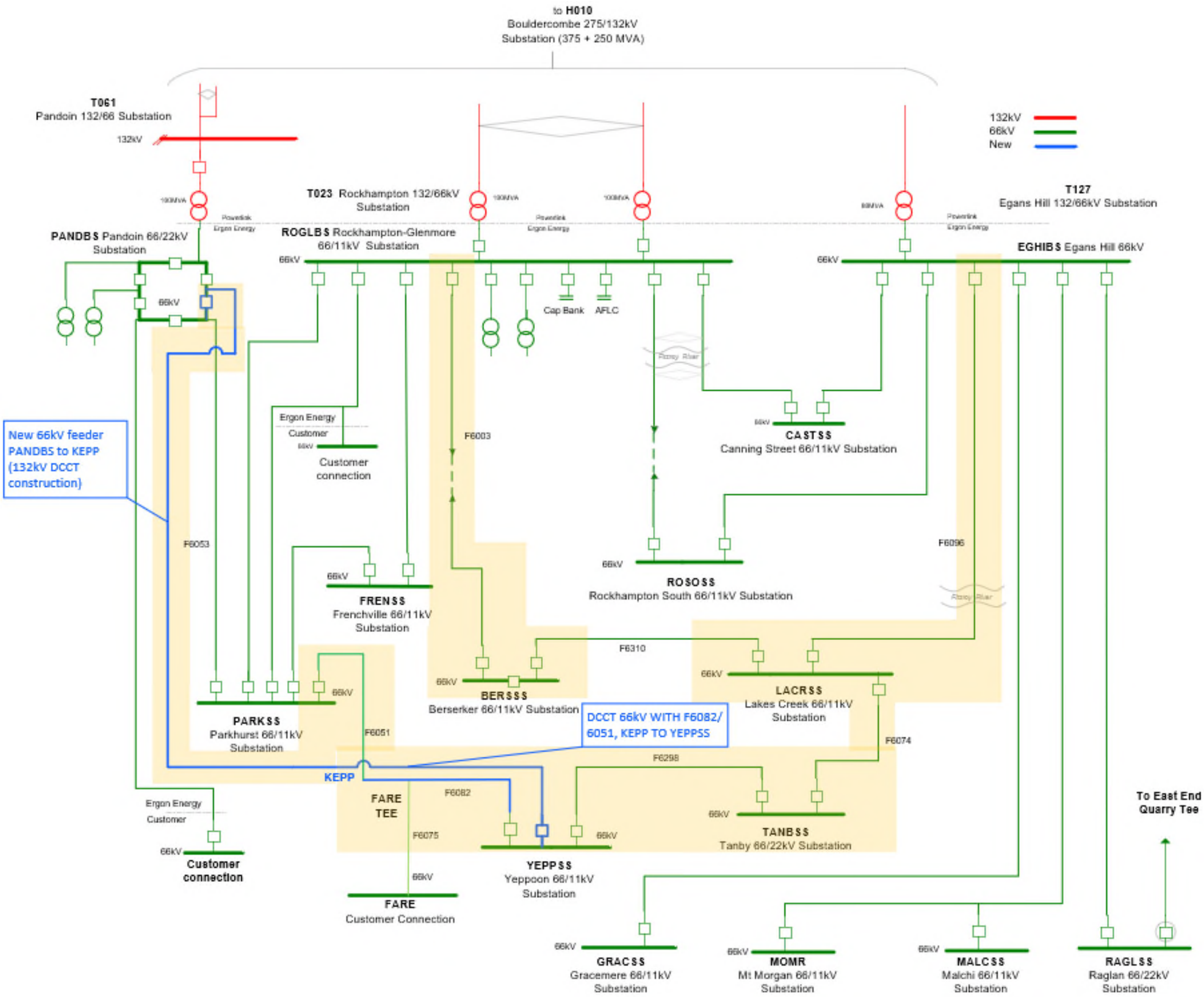
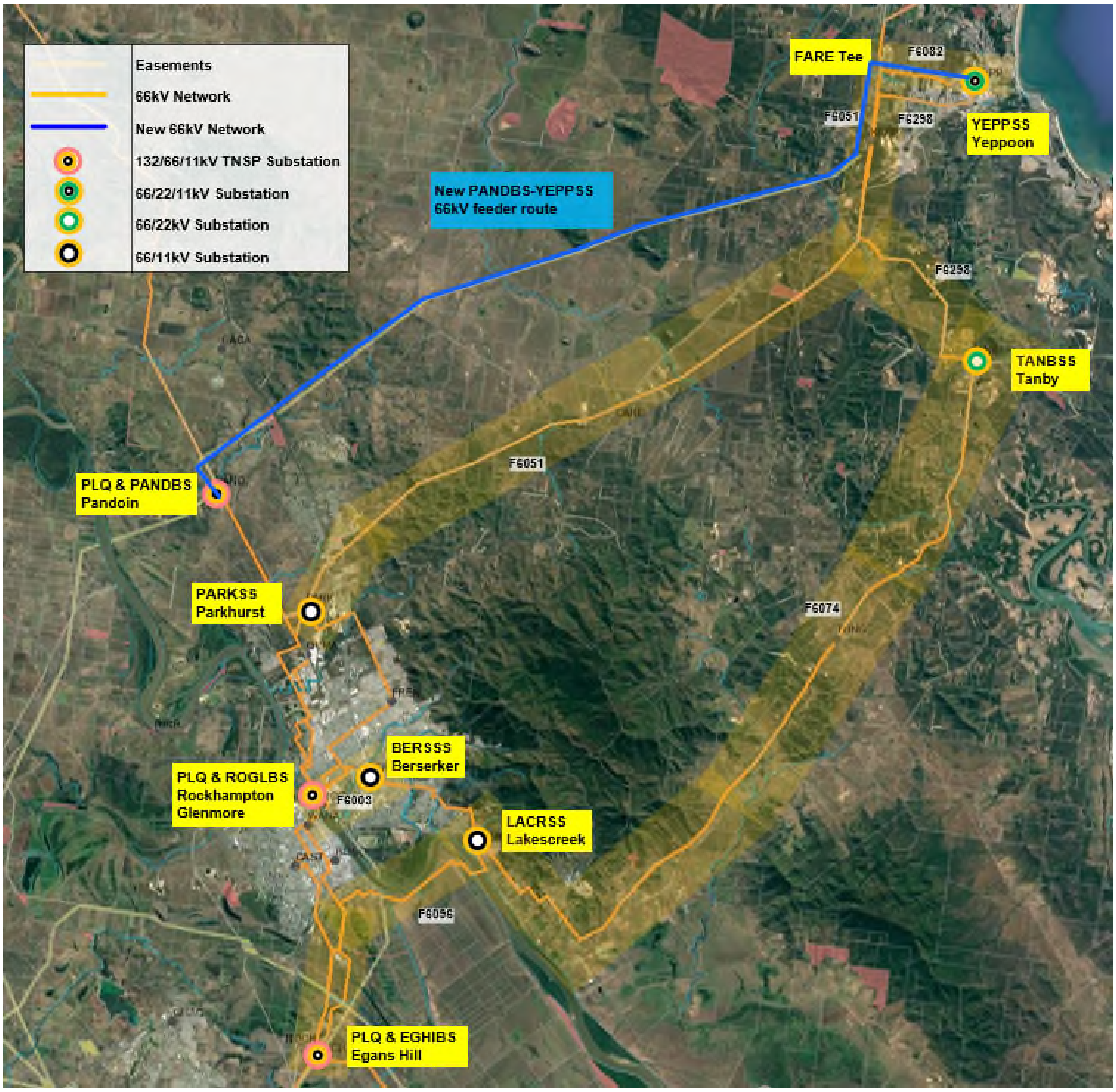


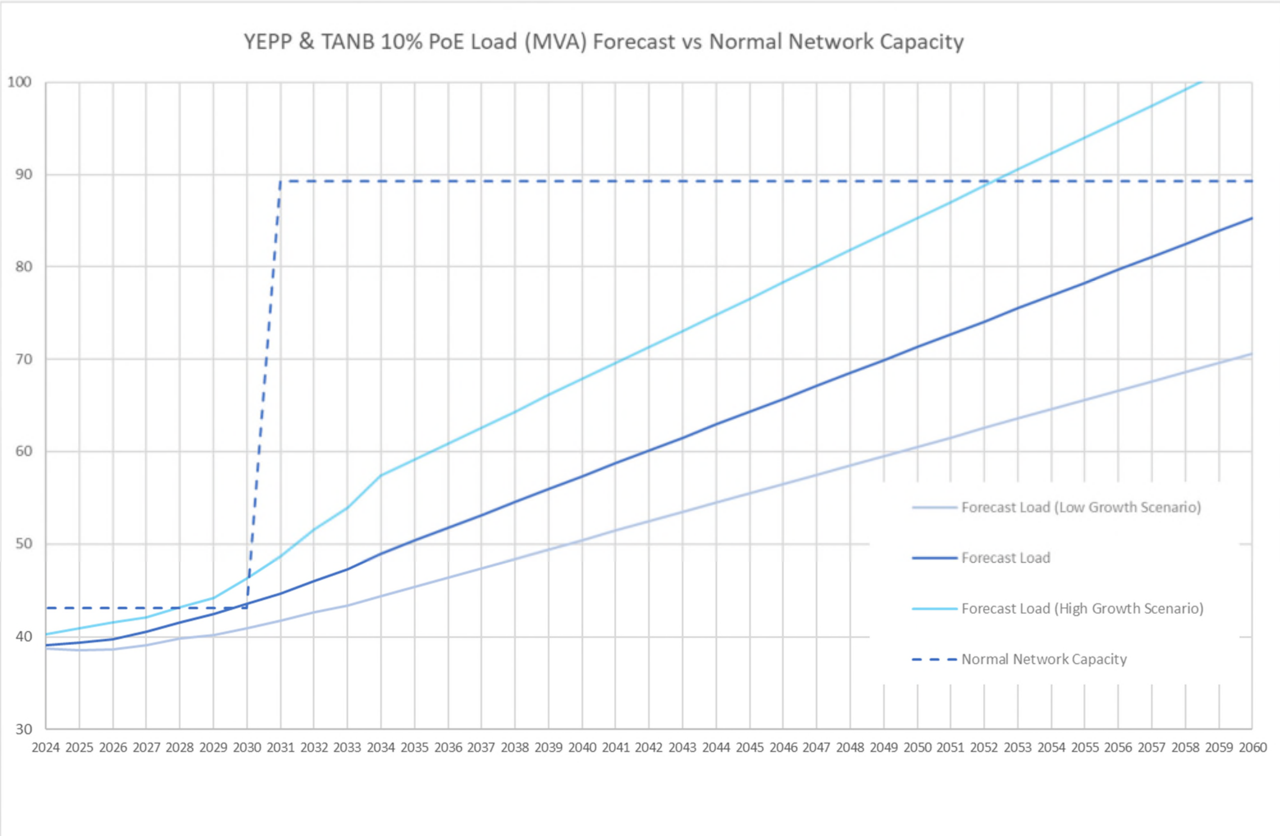
Figure 7: Option 1 network arrangement geographic



4.1.1 Normal Supply Capacity

Option 1 increases the combined system normal capacity of Yeppoon and Tanby from 43MVA to 89.3MVA. The timing and effect of Option 1 is shown in Figure 8 below along with high and low growth scenarios. (Note: This option accommodates future conversion to a bulk-supply arrangement at KEPP once this constraint and other constraints in the Rockhampton Mesh area exceeded.)

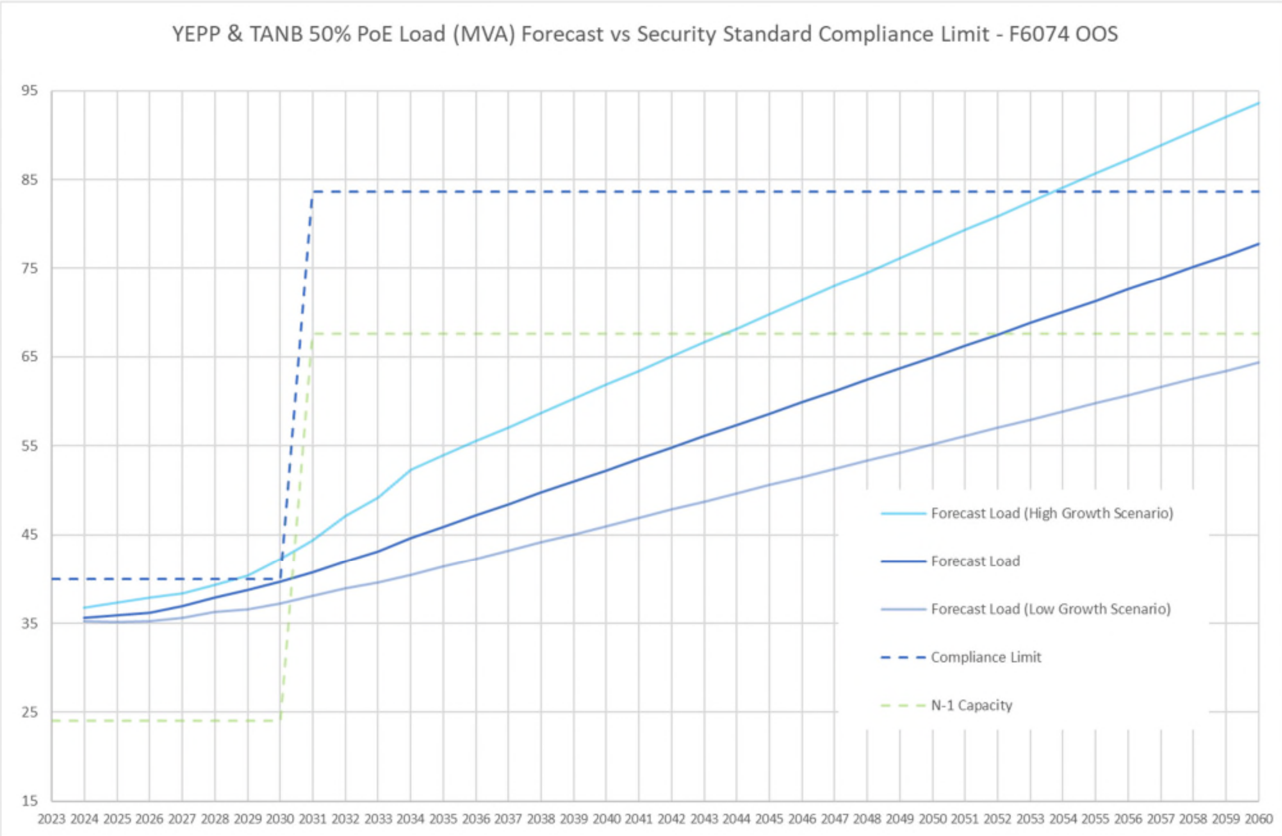
Figure 8: Forecast Load vs Network Constraint (System Normal) – Option 1



4.1.2 Credible Contingency to feeder F6074 LACRSS to TANBSS OOS

Under a credible contingency to feeder F6074, LACRSS to TANBSS, Option 1 increases the N-1 supply capacity from 24MVA to 67.6MVA and the resulting compliance limit from 40MVA to 83.6MVA. The timing and effect of Option 1 is shown in Figure 9 below along with high and low growth scenarios. (Note: This option accommodates future conversion to a bulk-supply arrangement at KEPP once this constraint and other constraints in the Rockhampton Mesh area exceeded.)

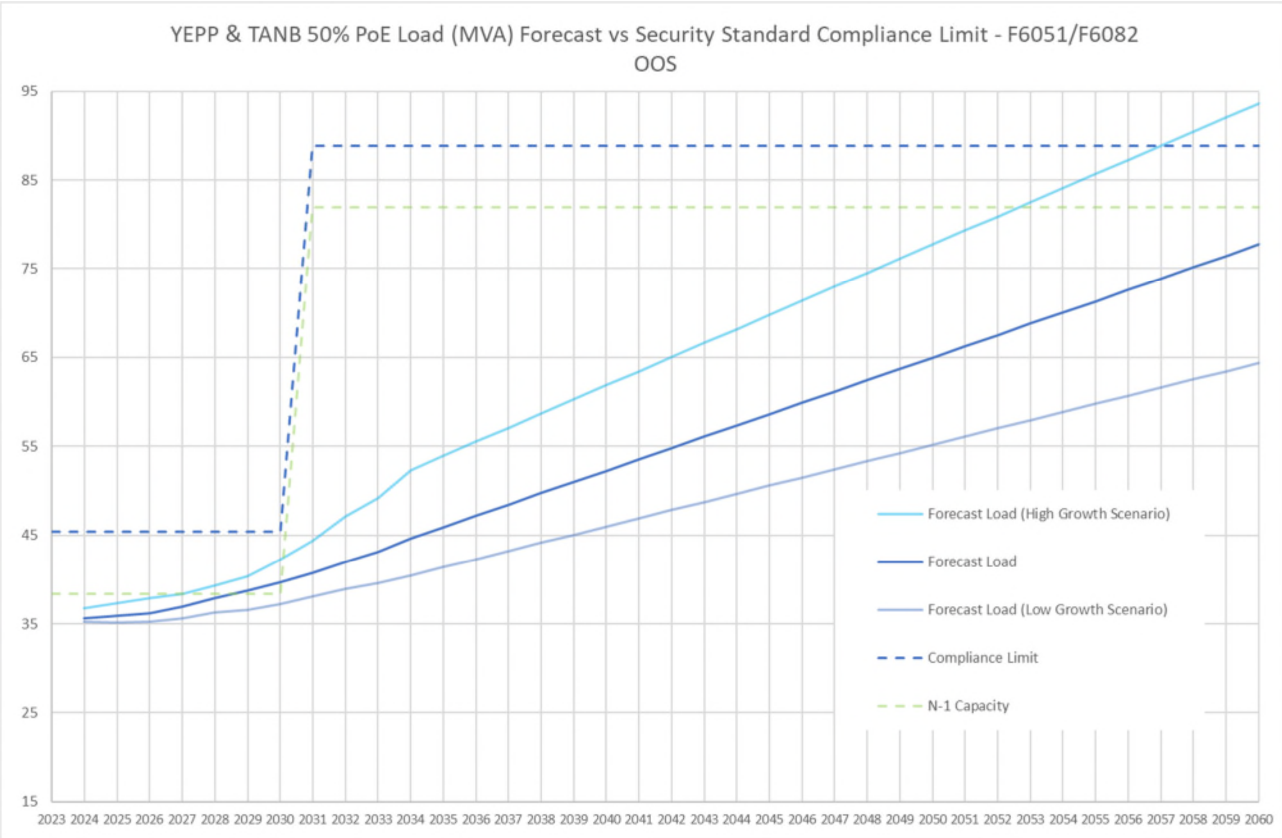
Figure 9: Forecast Load vs Compliance Constraint (F6074 LACRSS-TANBSS OOS) – Option 1



4.1.3 Credible Contingency to feeder F6051/F6082 PARKSS to YEPPSS OOS

Under a credible contingency to feeder F6051/F6082, PARKSS to YEPPSS, Option 1 increases the N-1 supply capacity from 38.4MVA to 81.9MVA and the resulting compliance limit from 45.4MVA to 88.9MVA. The timing and effect of Option 1 is shown in Figure 10 below along with high and low growth scenarios. Note: Option 1 scope accommodates future conversion to a bulk-supply arrangement at KEPP once constraints are exceeded.

Figure 10: Forecast Load vs Compliance Constraint (F6051/F6082 PARKSS-YEPPSS OOS) – Option 1



4.2 Option 2 – New 66kV feeder 28kms PANDBS to KEPP, new switching station at KEPP, uprate 6.5kms F6082 KEPP to YEPPSS

This option involves the following works:

- Build new 1x 66kV feeder from PANDSS to KEPP switching station (28kms) in easements secured previously for the purpose, constructed suitable for future double circuit 132kV.
- Build new 1x 66kV feeder bay at PANDSS.
- Build new 5x 66kV CB switching station at KEPP site (Neils Rd, Yeppoon) compatible with ultimate arrangement as 132/66/22kV bulk supply.
- Uprate 6.5kms of existing 66kV feeder (F6082) from KEPP to YEPPSS.

The total of the works is shown in

and Figure 12 below.

Figure 11: Option 2 network diagram

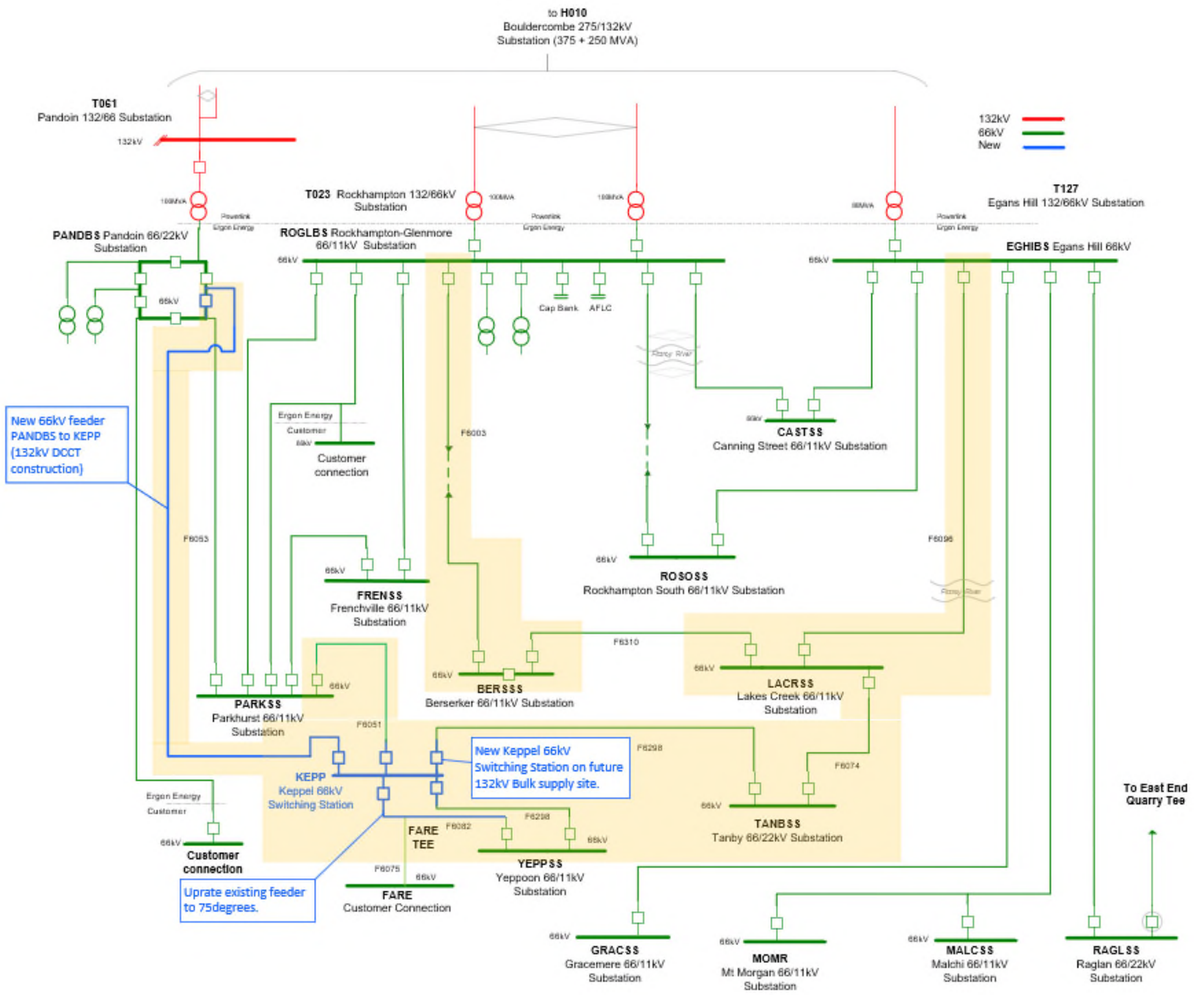
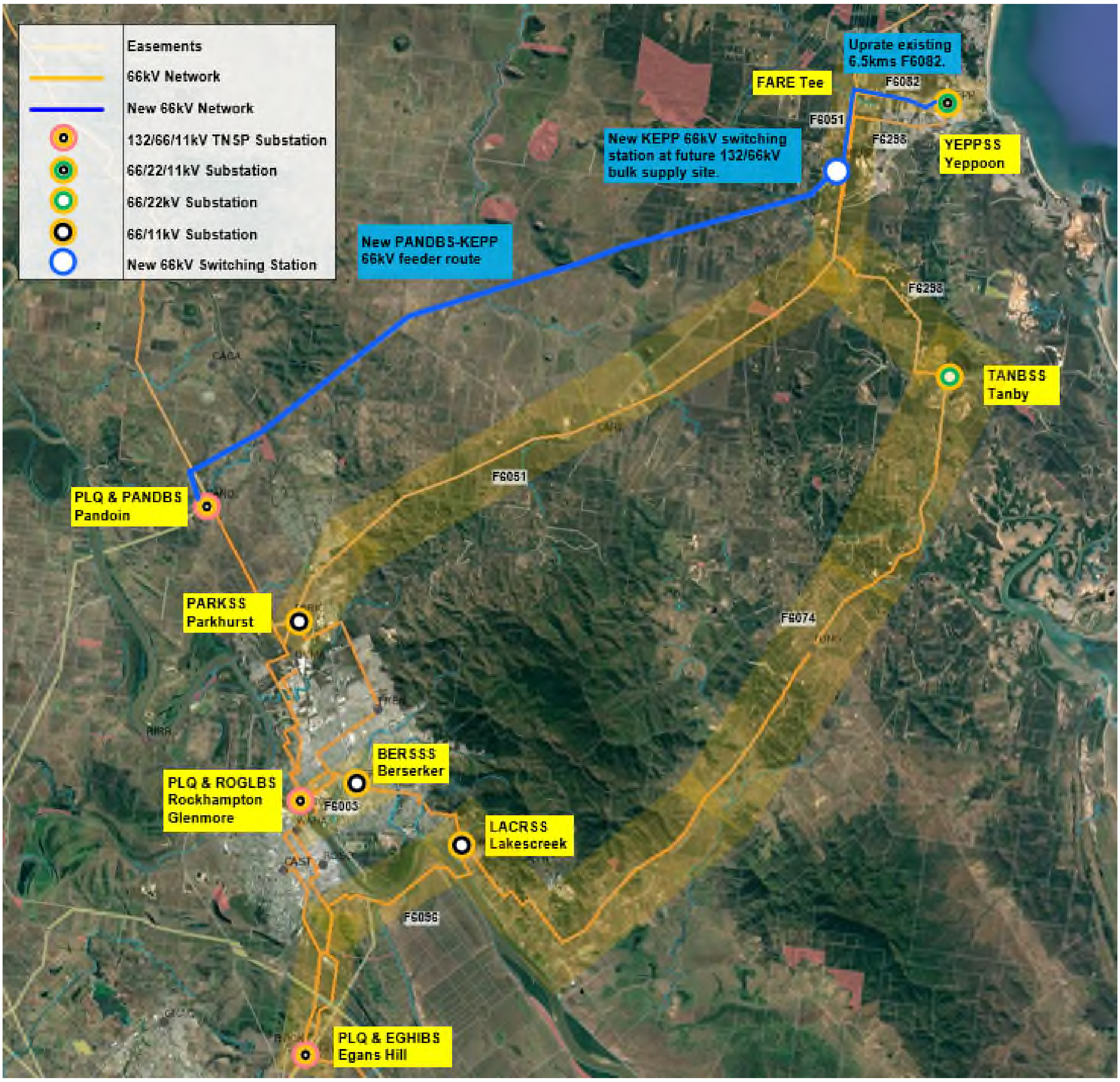


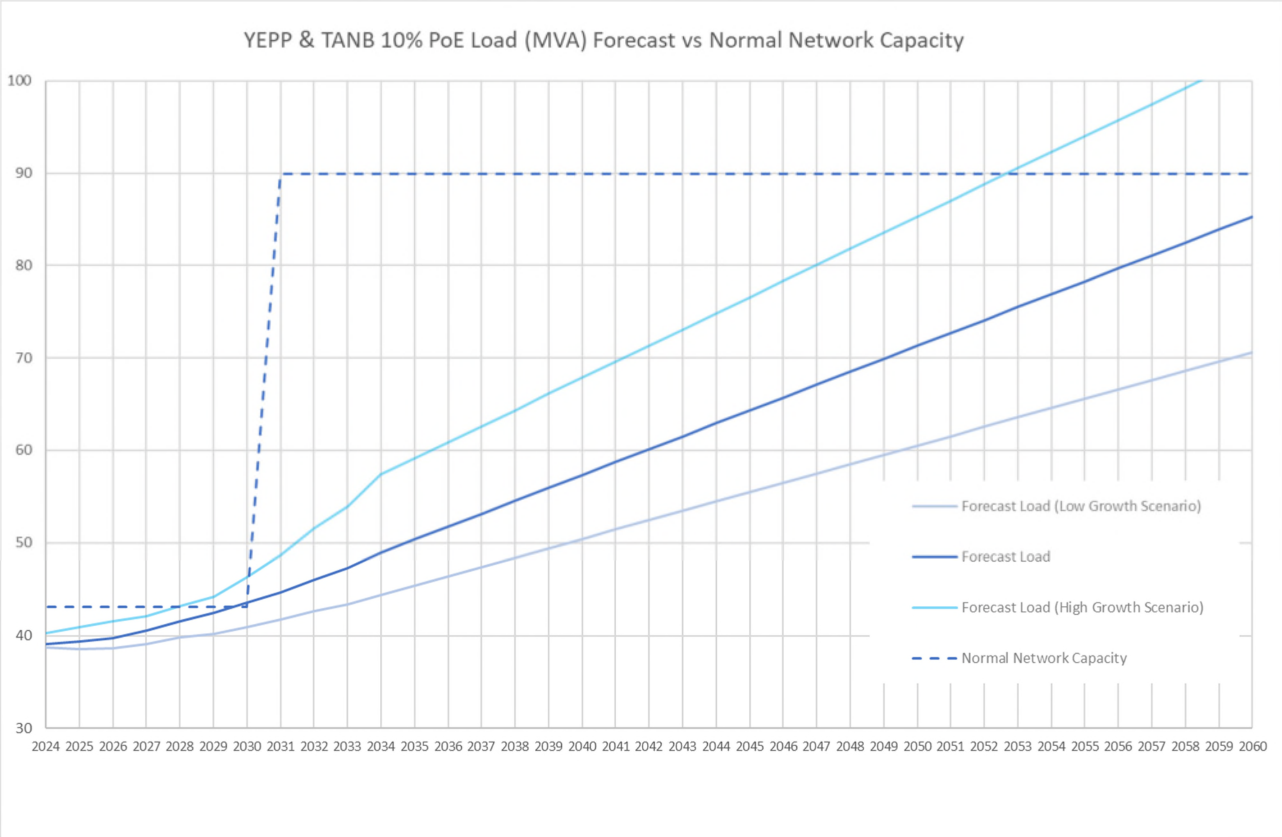
Figure 12: Option 2 network arrangement geographic



4.2.1 Normal Supply Capacity

Option 2 increases the combined system normal capacity of Yeppoon and Tanby from 43MVA to 89.9MVA. The timing and effect of Option 2 is shown in Figure 12 below along with high and low growth scenarios. (Note: This option accommodates future conversion to a bulk-supply arrangement at KEPP once this constraint and other constraints in the Rockhampton Mesh area exceeded.)

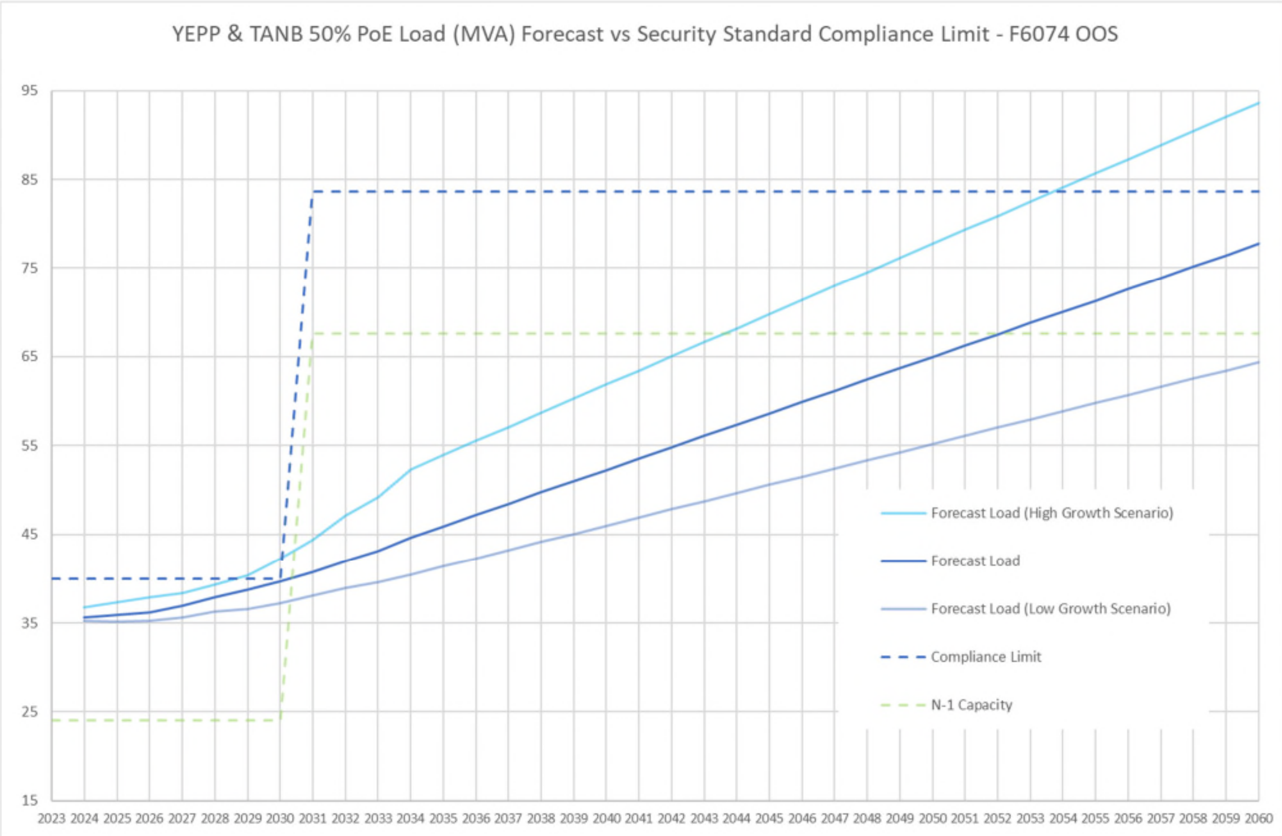
Figure 13: Forecast Load vs Network Constraint (System Normal) – Option 2



4.2.2 Credible Contingency to feeder F6074 LACRSS to TANBSS OOS

Under a credible contingency to feeder F6074, LACRSS to TANBSS, Option 2 increases the N-1 supply capacity from 24MVA to 67.6MVA and the resulting compliance limit from 39MVA to 73.6MVA. The timing and effect of Option 2 is shown in Figure 14 below along with high and low growth scenarios. (Note: This option accommodates more closely than Option 1 future conversion to a bulk-supply arrangement at KEPP once this constraint and other constraints in the Rockhampton Mesh area exceeded.)

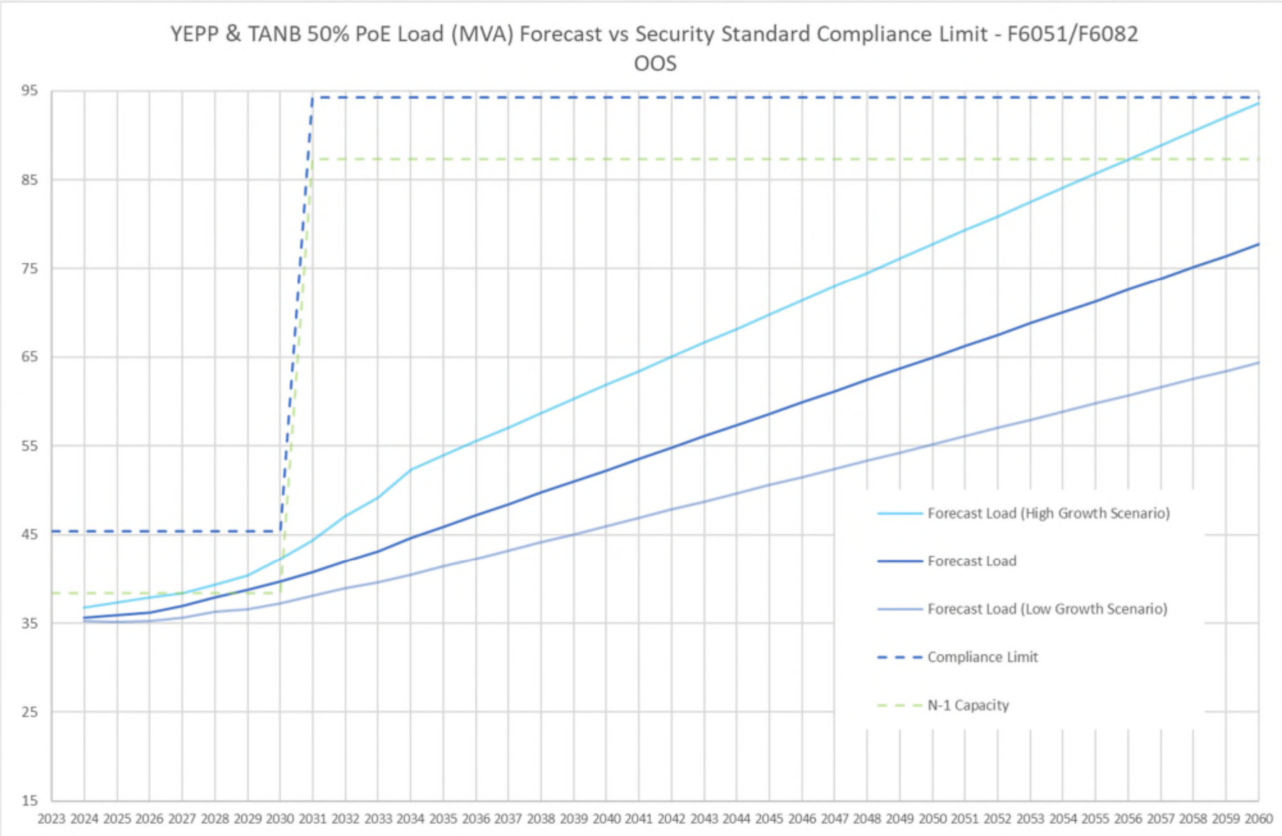
Figure 14: Forecast Load vs Compliance Constraint (F6074 LACRSS-TANBSS OOS) – Option 2



4.2.3 Credible Contingency to feeder F6051/F6082 PARKSS to YEPPSS OOS

Under a credible contingency to feeder F6051/F6082, PARKSS to YEPPSS, Option 2 increases the N-1 supply capacity from 38.4MVA to 87.3MVA and the resulting compliance limit from 45.4MVA to 94.3MVA. The timing and effect of Option 1 is shown in Figure 15 below along with high and low growth scenarios.

Figure 15: Forecast Load vs Compliance Constraint (F6051/F6082 PARKSS-YEPPSS OOS) – Option 2



4.3 Options considered and rejected

The following options were considered but rejected for the reasons listed:

a) Rebuild existing 66kV feeder from PARKSS to YEPPSS

   a. Investment to rebuild is substantial for limited additional capacity. Existing easements are not suitable to current standards.

   b. Feeder F6096 EGHISS to LACRSS becomes the next limitation. If F6096 is also rebuilt, Option 1 or 2 will still be required in 2038.

b) Second 66kV feeder LACRSS to TANBSS.

   a. Under this option, overloading occurs on 66kV feeders in Rockhampton region originating at PARKSS and EGHIBS. Options 1 and 2 take load off the meshed network in Rockhampton by establishing a strong direct feeder from Pandoin bulk supply substation to the north to the coastal region.

   b. New easements and/or widening of easements between LACRSS and TANBSS would be required for this option, whereas easements have already been strategically acquired between PANDBS and KEPP.

   c. Option 1 and 2 align with the longer-term strategic plan to establish a bulk supply for the coastal region at KEPP in Yeppoon.

5 OPTIONS ANALYSIS

5.1 Counterfactual Analysis

The options identified have been compared on a "best NPV" basis, with operational costs and quantified risks to the counterfactual.

The need for this project is compliance with a legislative requirement to meet the minimum network security criteria stipulated in the Distribution Authority for the Ergon Energy DNSP, therefore a negative NPV is acceptable.

NPV analysis is applied to determine the best value option to ensure ongoing compliance.

5.2 Risk Quantification Value Streams

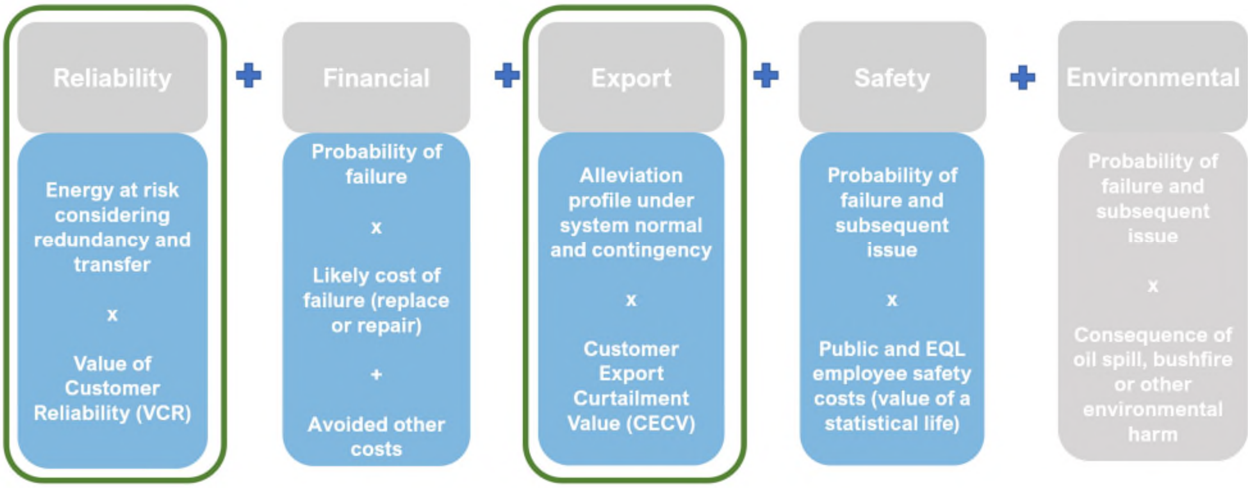
The risk quantification of the counterfactual has considered three primary value streams, *reliability*, *financial* and *safety,* as shown in Figure 16 and described in further detail below.

Reliability: Reliability risk in terms of potential unserved energy was quantified in the following outage scenarios:

- Failure of line F6051 from PARKSS to YEPPSS
- Failure of line F6074 from LACRSS to TANBSS
- Failure of new line from PANDBS to YEPPSS/KEPP
- Failure of incoming/outgoing circuit breakers at LACRSS, TANBSS, PARKSS, YEPPSS/KEPP, and PANDBS

Export: Minimum demand due to PV export is forecast to exceed system normal capacity for reverse flow. This is quantified using Customer Export Curtailment Value (CECV) multiplied by the forecast minimum demand load duration over the export constraint.

Figure 16: Value Streams for Investment



The counterfactual risks are the expected unserved energy, emergency replacement cost, and safety risks, during an equipment failure and associated unplanned supply outage. Figure 17 shows the quantified risk per annum increasing from 2030 to 2083.

In calculating the value streams the following assumptions are used:

- **Forced Outage Rate** – The CB outage rate is predicted using a Weibull distribution with a Shape Parameter (β) of 4 and a Characteristic Life (η) of 80 for 33kV CBs. A flat outage rate of 0.027 has been applied for the first 4 years to capture the increased risk of failure in the first years of a circuit breakers life.
- **Restoration** – it has been estimated that the average rectification time would be 48 hours for CB failures.
- **Transfers** – during a contingency affecting YEPPSS and TANBSS:
  - No customer load can be transferred via the 11kV or 22kV network.
- **VCR Rate** – a VCR rate of $38.03 / kWh has been used, with the mix of customers weighted towards domestic, commercial and industrial customers. The weighting applied to each customer type is shown in Table 1 below.
- **Emergency replacement Cost:** On failure of assets the plant will be replaced like-for-like with an additional 30% cost in comparison to the planned project.
- **Safety** – Considers forced outage rate of the asset with a conversion factor of 0.1% that a fatality to employee and/or injury to employee will occur.
- **Risk timeframe** – risks were calculated over a 60-year period, starting from 2030 to align with the investment year of Option 1 (see below).

Figure 17: Counterfactual Risk

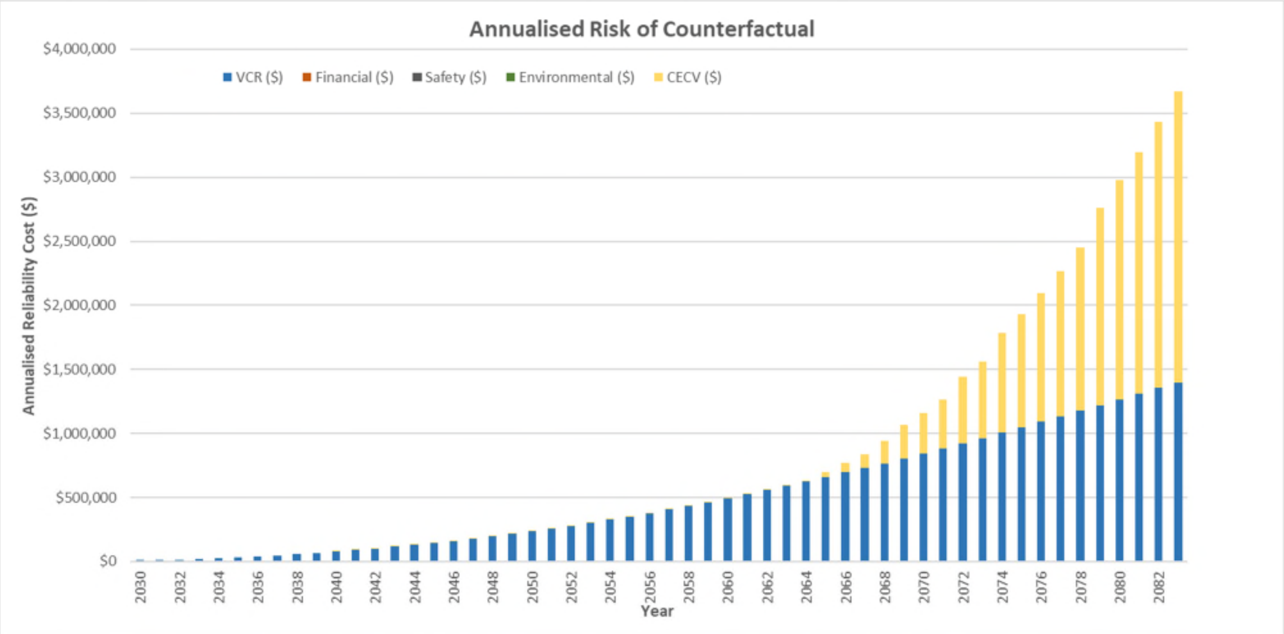


Table 1: VCR weighting applied to each customer type

Customer Segment	Postcode	Annual Consumption (kWH)	VCR
Domestic	4703	88,907,405	$28.44
Commercial		59,341,940	$49.54
Industrial		5,135,664	$70.97
Agricultural		281,521	$42.14
Large Cust. Services (>10MVA)			$11.73
Large Cust. Industrial (>10MVA)			$131.28
Large Cust. Metals (>10MVA)			$22.10
Large Cust. Mines (>10MVA)			$39.12
Total		153,666,530	**$38.03**

5.3 Capital Costs

The total estimated capital costs for Option 1 and Option 2 are listed in Table 2 below.

Table 2: Estimated Capital Costs

	Works Description	Estimated Cost (2023 $s)	Timing (Practical Completion)
Option 1	New 66kV feeder 28km from PANDBS to KEPP rebuild 6.5kms KEPP to YEPPSS as dual circuit 66kV. New 66kV feeder bays at P	34,147,000	2031
Option 2	New 66kV feeder 28km from PANDBS to KEPP, new switching station at KEPP, uprate 6.5kms F6082 KEPP to YEPPSS	37,901,000	2031

5.4 Operational Costs

Operational costs were added under each option relative to the counterfactual. An Opex cost of $4,078.83 per km was applied to lines and 1.5% of capital cost for substation equipment.

5.5 NPV analysis

Options were analysed on a scenario NPV basis with initial investments for each option in 2031 based on base, low and high load growth scenarios. Weightings of 60%, 20% and 20% were applied respectively to the load growth scenarios to obtain a "Net NPV". The results with the Capex, Opex and Benefits components are shown in Table 3. Sensitivity analysis was also applied to the discount rate used in the financial model. Table 4 shows the sensitivity to discount rate and growth scenarios.

The weighted average "Net NPV" was in favour of Option 1 and in all scenarios and sensitivities, Option 1 has the least NPV cost.

Table 3: Base Case NPV Analysis ($k) (3.5% Discount Rate)

Option	Rank	Net NPV [2]	Capex NPV	Opex NPV	Benefits NPV
Option 1 – New 66kV feeder 28km from PANDBS to KEPP rebuild 6.5kms KEPP to YEPPSS as dual circuit 66kV	**1**	**-22,347**	**-28,592**	**-3,147**	**9,392**
Option 2 – New 66kV feeder 28km from PANDBS to KEPP, new switching station at KEPP, uprate 6.5kms F6082 KEPP to YEPPSS	2	-26,164	-30,832	-4,733	9,401

[2] A negative NPV is acceptable in this case as this project is required to meet minimum legislative requirements

Table 4: NPV Sensitivity Analysis ($k)

Option	Discount rate		Growth scenario	
	2.5%	4.5%	Low	High
Option 1 – New 66kV feeder 28km from PANDBS to KEPP rebuild 6.5kms KEPP to YEPPSS as dual circuit 66kV	**-20,389**	**-22,787**	**-25,723**	**-18,062**
Option 2 – New 66kV feeder 28km from PANDBS to KEPP, new switching station at KEPP, uprate 6.5kms F6082 KEPP to YEPPSS	-24,844	-26,105	-29,555	-21,823

6 RECOMMENDATION

It is recommended to proceed with Option 1 scope to establish a third 66kV feeder to the Yeppoon coastal area. The timing necessary to meet the identified needs is practical completion in 2031.

Table 5 below summarises the options under consideration.

Table 5: Options Analysis Scorecard

Criteria	Option 1 – New 66kV feeder 28km from PANDBS to KEPP rebuild 6.5kms KEPP to YEPPSS as dual circuit 66kV	Option 2 – New 66kV feeder 28km from PANDBS to KEPP, new switching station at KEPP, uprate 6.5kms F6082 KEPP to YEPPSS
Net Present Value	-$22.347m	-$26.164m
Investment cost (TCO)	$34.147m (direct)	$37.901m (direct)
Investment Risk	Medium	Medium
Benefits	Compliance	Compliance
Delivery time	2031	2031
Detailed analysis – Benefits	Provides network capacity to Yeppoon coastal area in line with forecast load growth. Achieves compliance with Safety Net minimum security with the existing and forecast load growth at the Yeppoon coastal area	Provides network capacity to Yeppoon coastal area in line with forecast load growth. Achieves compliance with Safety Net minimum security with the existing and forecast load growth at the Yeppoon coastal area.
Detailed analysis – Risks	Load in the Yeppoon coastal area increases in line with the high growth scenario resulting in undersupply prior to the planned completion date.	Load in the Yeppoon coastal area increases in line with the high growth scenario resulting in undersupply prior to the planned completion date.
Detailed analysis - Advantages	This option results in an electricity supply to the Yeppoon coastal area that meets forecast load growth and complies with the security standard with the least NPV cost	This option results in an electricity supply to the Yeppoon coastal area that meets forecast load growth and complies with the security standard in a way that integrates more closely with longer term strategic establishment of a future bulk supply substation at Yeppoon

6.1 Cost summary 2025-30

The cost of Option 1 to establish a third 66kV feeder to the Capricorn Coast area has been estimated as $34.147m (direct). The forecast expenditure by year in the 2025-2030 period is shown in Table 6

Table 6: Cost summary 2025-30 2022-23 $

Option	2025-26	2026-27	2027-28	2028-29	2029-30	Total Direct 2025-30
Option 1 – New 66kV feeder 28km from PANDBS to KEPP rebuild 6.5kms KEPP to YEPPSS as dual circuit 66kV	$0.165m	$0.398m	$1.235m	$4.175m	$7.375m	$13.347m

Appendix 1: Alignment with the National Electricity Rules

Table 7: Recommended Option's Alignment with the National Electricity Rules

NER capital expenditure objectives	Rationale
A building block proposal must include the total forecast capital expenditure which the DNSP considers is required in order to achieve each of the following (the capital expenditure objectives):	
6.5.7 (a) (1) meet or manage the expected demand for standard control services over that period	Section 4
6.5.7 (a) (2) comply with all applicable regulatory obligations or requirements associated with the provision of standard control services;	Section 3, Section 4
6.5.7 (a) (3) to the extent that there is no applicable regulatory obligation or requirement in relation to: (i) the quality, reliability or security of supply of standard control services; or (ii) the reliability or security of the distribution system through the supply of standard control services, to the relevant extent: (iii) maintain the quality, reliability and security of supply of standard control services; and (iv) maintain the reliability and security of the distribution system through the supply of standard control services	Section 3, Section 4
6.5.7 (a) (4) maintain the safety of the distribution system through the supply of standard control services.	Section 3, Section 4
NER capital expenditure criteria	**Rationale**
The AER must be satisfied that the forecast capital expenditure reflects each of the following:	
6.5.7 (c) (1) (i) the efficient costs of achieving the capital expenditure objectives	Section 5
6.5.7 (c) (1) (ii) the costs that a prudent operator would require to achieve the capital expenditure objectives	Section 5
6.5.7 (c) (1) (iii) a realistic expectation of the demand forecast and cost inputs required to achieve the capital expenditure objectives	Section 2, Section 3, Section 5