The Energy Queensland Group Final Project Assessment Report For Energex

21 May 2021

Addressing reliability requirements in the North Stradbroke Island network area

Part of Energy Queensland

Notice of no non-network options

Executive summary

About Energex

Energex Limited (Energex) is a subsidiary of Energy Queensland Limited and manages the electricity distribution network in the growing region of South East Queensland which includes the major urban areas of Brisbane, Gold Coast, Sunshine Coast, Logan, Ipswich, Redlands and Moreton Bay. Our electricity distribution area runs from the NSW border north to Gympie and west to the base of the Great Dividing Range.

Our electricity network consists of approximately 54,200 kilometres of powerlines and 680,000 power poles, along with associated infrastructure such as major substations and power transformers.

Today, we provide distribution services to more than 1.4 million domestic and business connections, delivering electricity to a population base of around 3.4 million people.

Identified need

Stradbroke Island Zone Substation (SSSIS) provides electricity supply to approximately 2,200 predominantly residential customers in the Dunwich, Amity Point and Point Lookout areas on North Stradbroke Island. Approximately 90% of the total number of customers supplied from SSSIS are residential customers amounting to 55% of the total energy supplied. And 10% of the total number of customers supplied from SSSIS are commercial and industrial customers, amounting to 45% of the total energy supplied.

SSSIS is a 110/33kV bulk supply substation and 33/11kV zone substation with a 110kV feeder from Beenleigh Substation (SST108). It previously provided a 33kV supply to a mining company on North Stradbroke Island that has since ceased operations. SSSIS provides alternate supply to other parts of North Stradbroke Island as back-up for Ibis Bulk Supply Substation (SSIBS) and Herring Lagoon Zone Substation (SSHLG) via a 33kV network.

The Substation Condition Assessment Report (SCAR) identified some primary and secondary plant and equipment that are reaching or have reached retirement age. It was also identified that the steel structures of the 33kV outdoor air-insulated switchgear are structurally unsound due to heavy corrosion. The deterioration of these structures and primary system assets poses safety risks to staff working within the switchyard, and reliability risk to the customers supplied from SSSIS.

The oil containment system at SSSIS was also identified to be in very poor condition as per the Substation Condition Report – Civil. This poses environmental risks to North Stradbroke Island.

Based on a Condition Based Risk Management (CBRM) analysis, the following have been deemed to reach their retirement age:

- 33/11kV transformer TR3;
- 33kV circuit breakers (2);
- 33kV air break switches (5);

- Disconnect links (10);
- 11kV ring main unit;
- Audio Frequency Load Control (AFLC) coupling cell;
- Steel structures in the 33kV switchyard.

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). Energex has determined that network investment is essential in this case for it to continue to provide electricity to the consumers in the North Stradbroke Island supply area in a reliable, safe and cost-effective manner. Accordingly, this investment is subject to a RIT-D.

Energex published a Notice of no non-network options for the above described network constraint on 21 May 2021 to declare that there are no credible non-network options to the proposed works to meet the identified need of maintaining a safe, sufficient and reliable supply to customers at SSSIS when the 33/11kV transformer TR3, 33kV CBs and 33kV bus reaches retirement age in 2021/22. This determination was made under clause 5.17.4(c) of the NER and was published according to clause 5.17.4(d). In this regard, Energex did not publish a non-network options report for the proposed works at SSSIS.

Since the estimated project cost is below $11m, Energex is exempt from publishing a Draft Project Assessment Report, as per clause 5.17.4(n) of the NER.

This is a Final Project Assessment Report, where Energex provides both technical and economic information about possible solutions and has been prepared in accordance with the requirements of clause 5.17.4(o). Energex's preferred solution to address the identified need is to replace 33/11kV transformer TR3 and 33kV circuit breaker and rebuild 33kV bus.

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1.0 INTRODUCTION

This Final Project Assessment Report has been prepared by Energex in accordance with the requirements of clause 5.17.4(o) of the NER.

This report represents the final stage of the consultation process in relation to the application of the RIT-D on potential credible options to address the identified need for the North Stradbroke Island network area.

In preparing this RIT-D, Energex is required to consider reasonable future scenarios. With respect to major customer loads and generation, Energex has, in good faith, included as much detail as possible while maintaining necessary customer confidentiality. Potential large future connections that Energex 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 North Stradbroke Island network area.
- Identifies the need which Energex is seeking to address, together with the assumptions used in identifying and quantifying that need.
- Describes the credible options that are considered in this RIT-D assessment.
- Identifies the proposed preferred option, including detailed characteristics, estimated commissioning date, indicative costs, and noting that it satisfies the RIT-D.
- Provides contact details for queries on this RIT-D.

1.2 Dispute resolution process

In accordance with the provisions set out in clause 5.17.5(a) of the NER, Registered Participants or Interested Parties may, within 30 days after the publication of this report, dispute the conclusions made by Energex in this report with the Australian Energy Regulator. Accordingly, Registered Participants and Interested Parties who wish to dispute the conclusions outlined in this report based on a manifest error in the calculations or application of the RIT-D must do so within 30 days of the publication date of this report. Any parties raising a dispute are also required to notify Energex. Dispute notifications should be sent to demandmanagement@energex.com.au

If no formal dispute is raised, Energex will proceed with the preferred option to replace 33/11kV transformer TR3 and 33kV circuit breaker and rebuild 33kV bus.

1.3 Contact details

For further information and inquiries please contact:

E: demandmanagement@energex.com.au
P: 13 74 66

2.0 EXISTING NETWORK

2.1 Introduction

Stradbroke Island Zone Substation (SSSIS) provides electricity supply to approximately 2,200 predominantly residential customers in the Dunwich, Amity Point and Point Lookout areas on North Stradbroke Island. Approximately 90% of the total number of customers supplied from SSSIS are residential customers amounting to 55% of the total energy supplied. And 10% of the total number of customers supplied from SSSIS are commercial and industrial customers, amounting to 45% of the total energy supplied.

SSSIS is a 110/33kV bulk supply substation and 33/11kV zone substation with a 110kV feeder from Beenleigh Substation (SST108). It previously provided a 33kV supply to a mining company on North Stradbroke Island that has since ceased operations. SSSIS provides alternate supply to other parts of North Stradbroke Island as back-up for Ibis Bulk Supply Substation (SSIBS) and Herring Lagoon Zone Substation (SSHLG) via a 33kV network.

Geographic and schematic views of the network area under study are provided in Figure 1 and Figure 2.

Figure 1: Existing network (geographic view)

Final Project Assessment Report

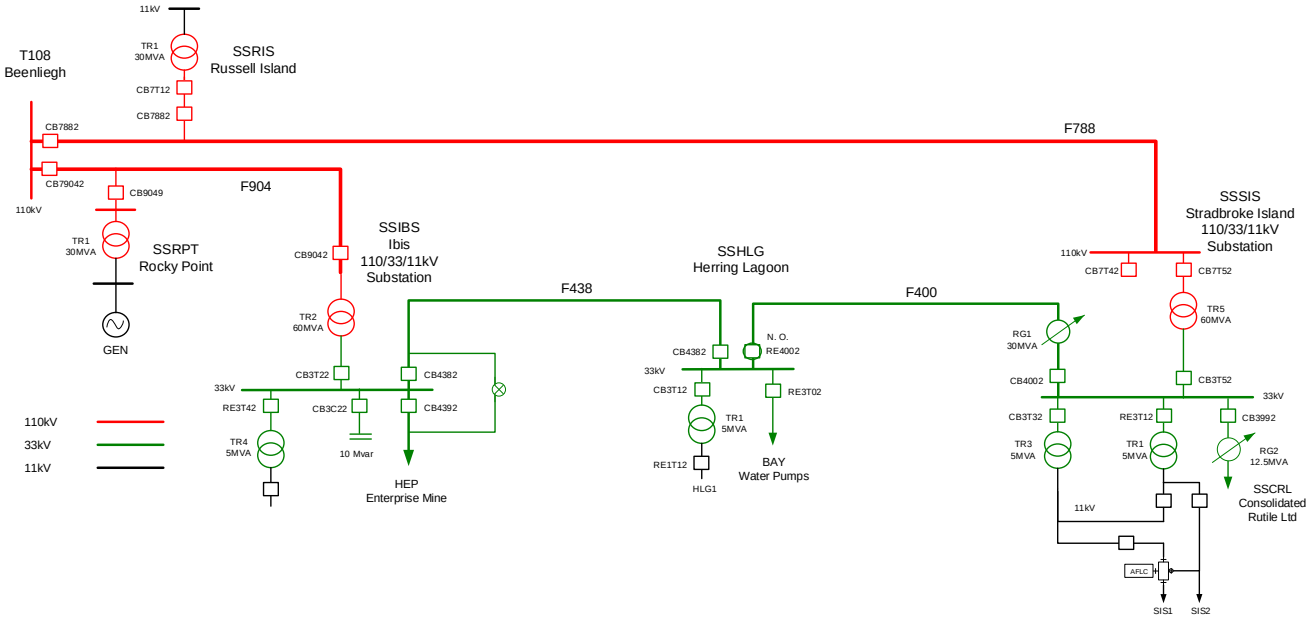


Figure 2: Existing network arrangement (schematic view)

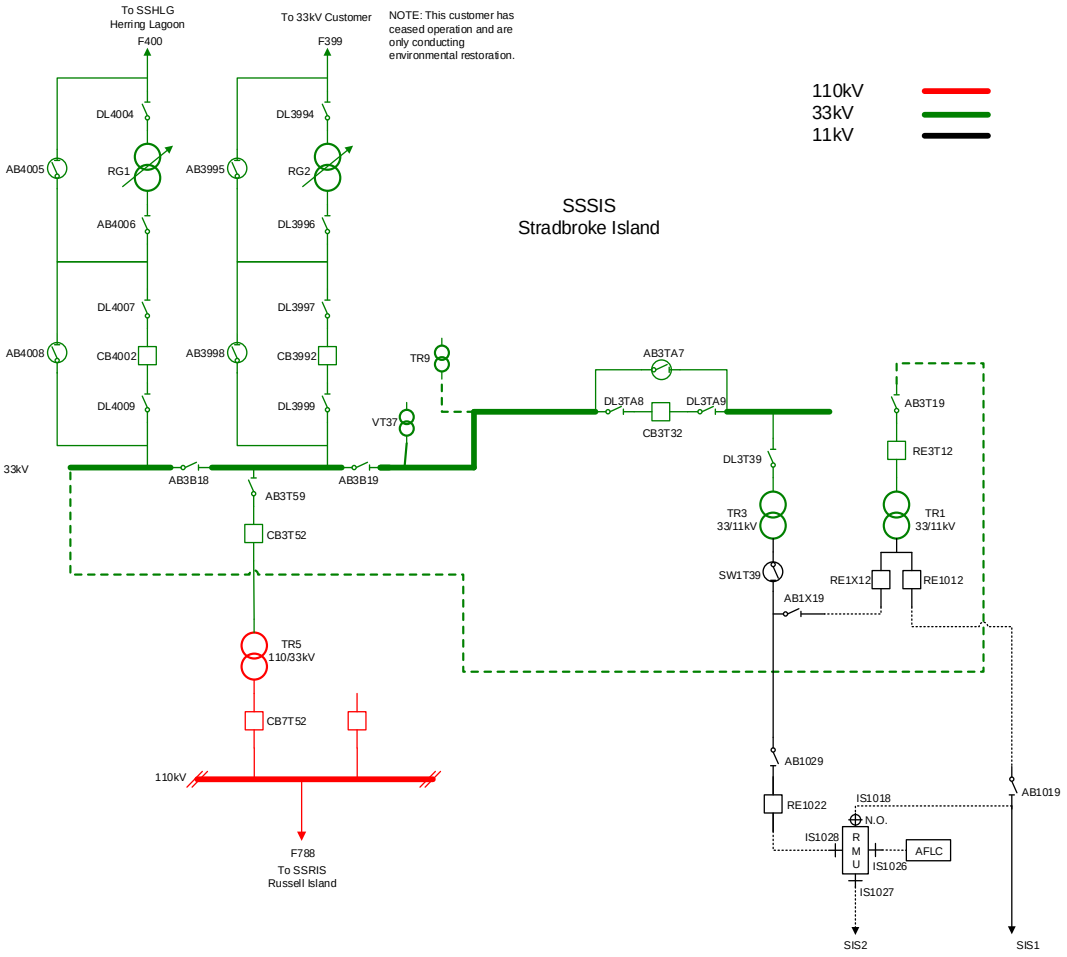


Figure 3: Existing substation network arrangement (schematic view)

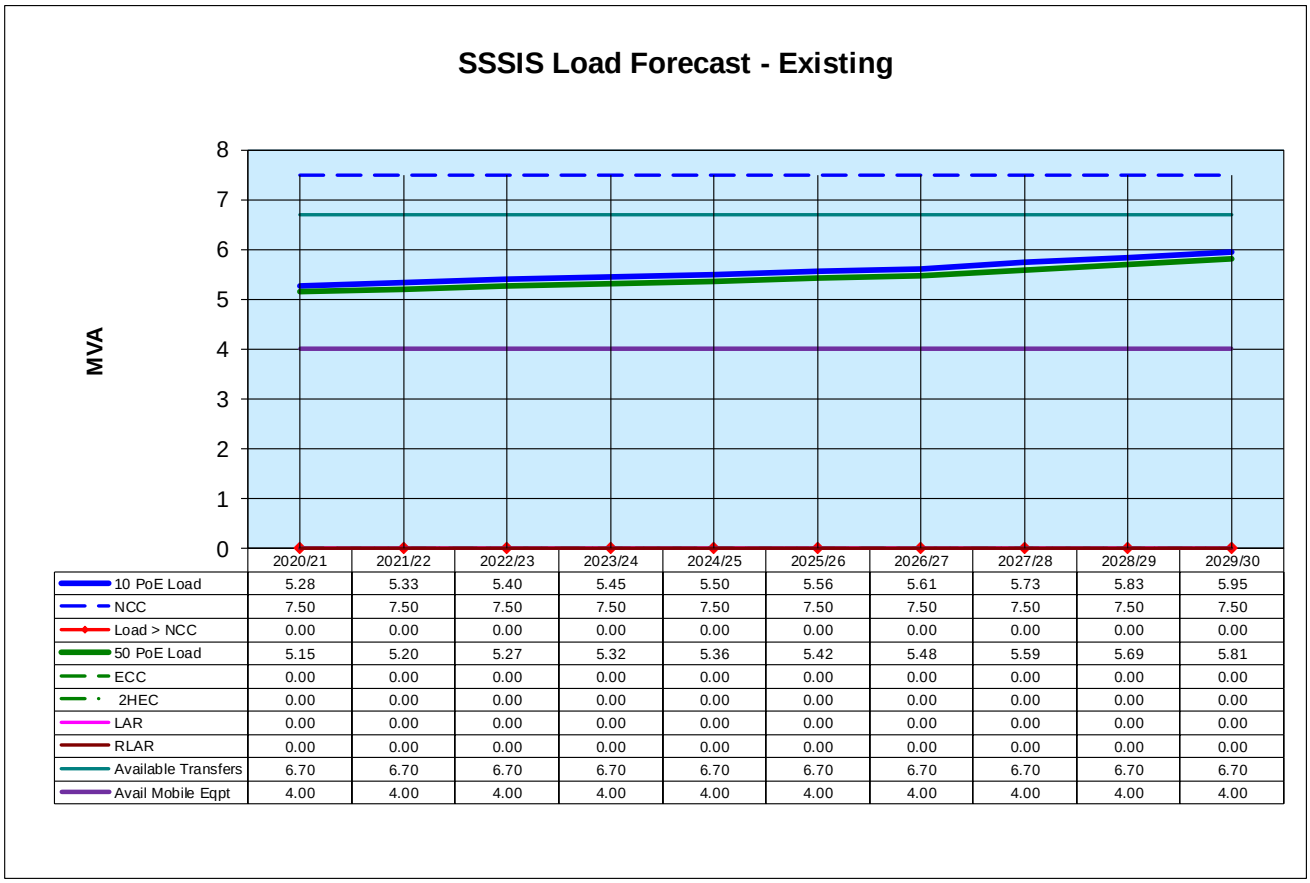
2.2 Identified need

To maintain a safe, sufficient and reliable electricity supply to over 2,200 predominantly residential customers, with an approximate total load of 5.2MVA, provided by SSSIS when the 33/11kV transformer TR3 and 33kV CB reaches retirement age in 2021/22.

2.3 Assessment of the existing network

2.3.1 Substation capacity

SSSIS Zone Substation is equipped with 1 x 5/6.5MVA (TR1) and 1 x 5MVA (TR3) 33/11kV transformers. The normal supply is provided via transformer TR1 with TR3 as hot standby. The substation capacity is limited by transformer TR1, providing a Normal Cyclic Capacity of 7.5MVA. The 10 year 10 PoE and 50 PoE load forecasts, and the existing Normal Cyclic Capacity (NCC), Emergency Cyclic Capacity (ECC), Two Hour Emergency Capacity (2HEC), Residual Load at Risk (RLAR), available transfers and available mobile equipment, are shown in Figure 4.



	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
10 PoE Load	5.28	5.33	5.40	5.45	5.50	5.56	5.61	5.73	5.83	5.95
NCC	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Load > NCC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50 PoE Load	5.15	5.20	5.27	5.32	5.36	5.42	5.48	5.59	5.69	5.81
ECC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2HEC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LAR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RLAR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Available Transfers	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70
Avail Mobile Eqpt	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00

Figure 4: Substation load forecast (existing network)

As outlined above there are no capacity limitations at SSSIS within the planning horizon. The available transfers in the graph is the emergency capacity of the hot standby transformer TR3, which can be remotely switched for a contingency of a failure of TR1.

There are also identified generation connection points on the 11kV network of SSSIS. However, deploying generation on Stradbroke Island would depend on the time they are required. Transporting the generator sets will be dependent on the availability of the ferry services to the island and the availability of the generator sets. It is also required to have a high tide in order to be able to transport the generators to Stradbroke Island. There is no guarantee that mobile generation can be deployed to Stradbroke Island within the requirements of the Customer Outcome Standards (COS) or Service Safety Net Targets as specified in the Distribution Authority issued to Energex.

2.3.2 Substation load

The actual load, load duration and peak day load curves for SSSIS for the 2020/21 period are shown in Figure 5, Figure 6 and Figure 7. Generally, the load peaks during the summer period since Stradbroke Island is a holiday destination and there are many holiday accommodations.

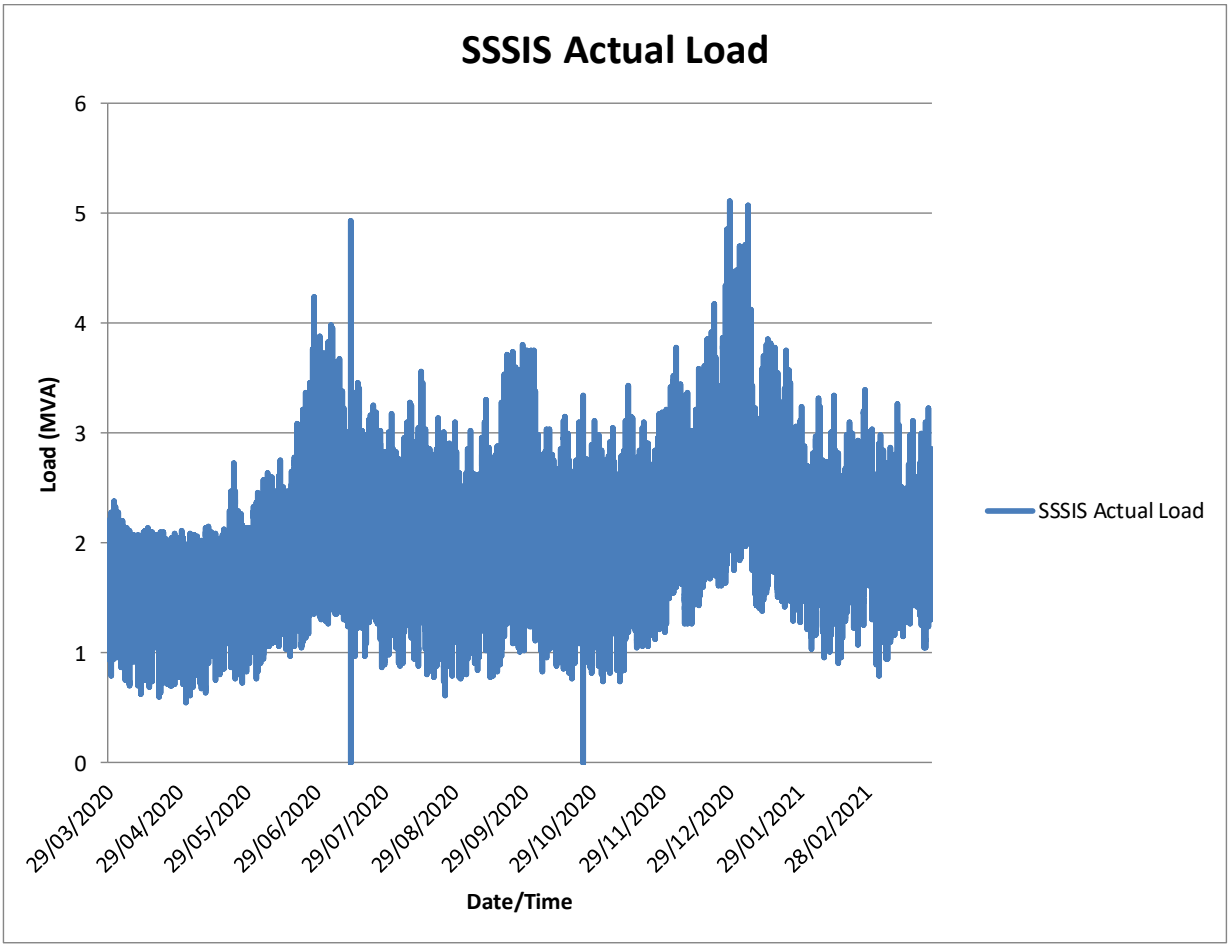


Figure 5: Substation actual load curve – SSSIS

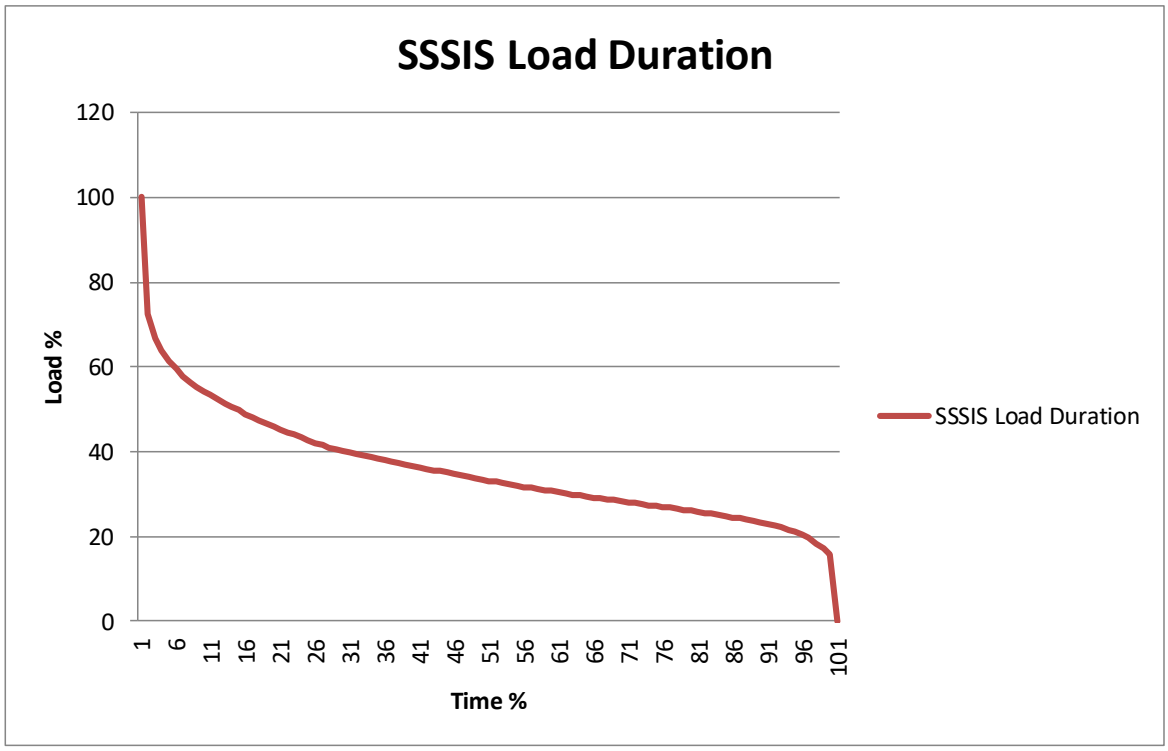


Figure 6: Substation load duration curve – SSSIS

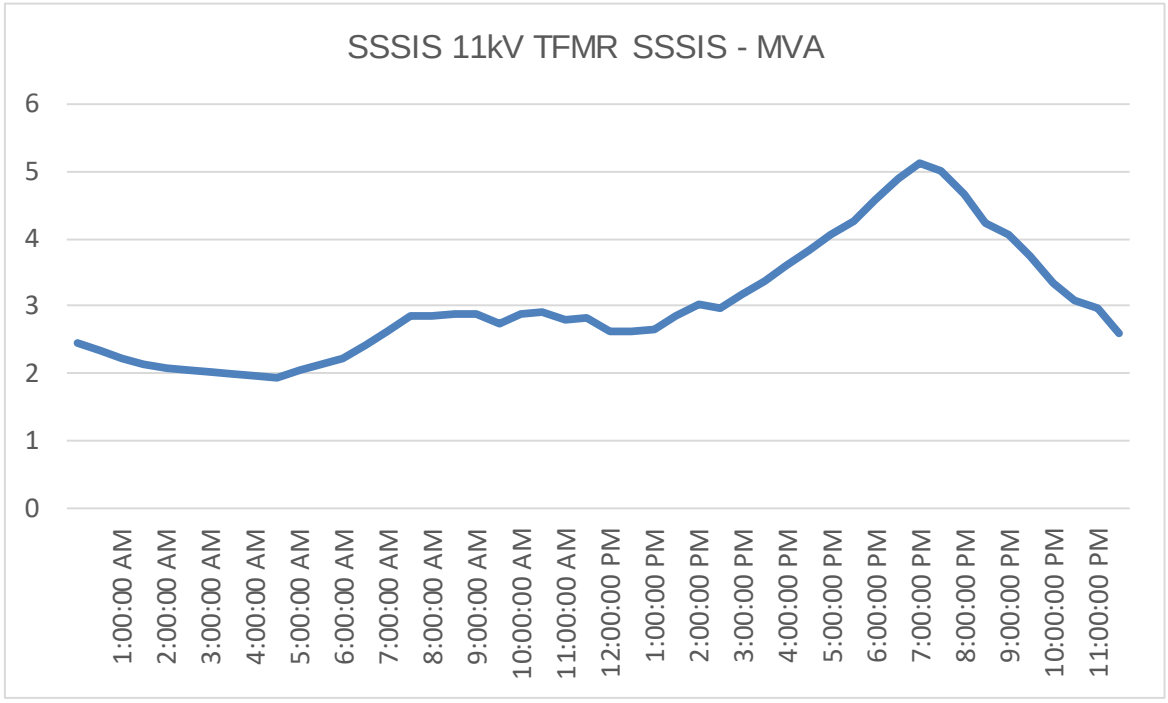


Figure 7: Peak day load curve – 29 Dec 2020 – SSSIS

2.3.3 Substation condition

Based on a Condition Based Risk Management (CBRM) analysis of the effect of current condition and ageing on the expected life of the asset, the following have been deemed to reach retirement age as follows:

- 33/11kV transformer TR3 by 2022 due to transformer condition;
- 33kV CB CB3T32 by 2021 due to potential bushing failures or being slow to operate for a fault on TR3 leading to catastrophic failure;
- 33kV CB CB3992 by 2021 due to failure to operate due to low gas pressure;
- 5 x 33kV and 1 x 11kV air break switches (ABS) by 2021;
- 11kV ring main unit by 2021;
- Audio Frequency Load Control (AFLC) coupling cell by 2021;
- Steel structures for the 33kV bus; and
- Oil-containment system.

33/11kV transformer

The 33/11kV transformer TR3 was manufactured by AEI in 1965. This transformer has had significant issues with the OLTC due to age and wear. It has been consistently in the 'moderately wet insulation' range and leaking oil. Evidence of multiple leaks and corrosion have been found on TR3.

An oil top-up was performed prior to 2006 which improved the Dissolved Gas Analysis (DGA) results. As per the CBRM analysis, TR3 has been deemed to reach retirement age in 2022.

33kV circuit breakers

The 33kV circuit breakers CB3T32 and CB3992 are AEI OCB (YOM 1962) and GECHED OX36 (YOM 1999).

Generally, oil circuit breakers are known to be slow to operate. Since CB3T32 is protecting transformer TR3, which has been deemed to reach retirement age, the risk of failure is greater. A slow operation of CB3T32 for a fault on TR3 may lead to a catastrophic failure of the transformer.

CB3992 is gas insulated. Although it is relatively young, it has been known to have issues with gas leaks leading to frequent call out for maintenance and gas top-ups. This CB has led to high maintenance costs, attributed to the logistics of travelling to the island to address the issues, and is expected to continue to do so.

Air-break switches and disconnect links

5 x 33kV and 1 x 11kV air-break switches have been identified to be braid-type. As per feedback from field crews, this type of ABS has been known to become faulty over time with strands of the braided conductors becoming brittle and eventually breaking, leading to failure.

A total of 10 x disconnect links have also been identified in the substation. This type of plant has been identified as problematic and are to be replaced whenever possible. This type of disconnector cannot be tagged and locked during switching for works within the substation. As such, it has been identified as a safety risk to staff.

Audio Frequency Load Control (AFLC)

The AFLC coupling cell at SSSIS is an outdoor unit, with evidence of poor condition of the enclosure due to corrosion. The asset strategy for AFLC is to replace on failure. However, considering the remoteness of SSSIS, exposure to high corrosive environment and the major substation upgrade project, it is recommended to replace the coupling cell with an indoor unit.

11kV ring main unit

The asset strategy for 11kV ring main units is to replace on failure. However, considering the remoteness of SSSIS, exposure to high corrosive environment and the major substation upgrade project, it is recommended to recover the RMU. There is evidence of corrosion and damage in the cable box and extension box with the risk of moisture ingress into the boxes that may lead to catastrophic failure. There is a motorised isolator retrofitted in the RMU that can be operated remotely. However, it was identified by field crews that there may be inconsistencies in the switch status. Thereby, making it unreliable as a remote close operation can fail.

33kV bus steel structure

As per the Substation Condition Assessment Report for Civil, the steel structures for the 33kV outdoor switchyard are assessed to be in very poor condition. Heavy corrosion on the vertical members of the structure are visible, with some sections having holes at the base. There are galvanised pipe endcaps and U-bolt connectors that are significantly corroded. There is evidence of treatments done by repainting some sections of the structures. As such, the level of corrosion underneath the paint cannot be determined. The steel structures are classified as for immediate attention due to the potential for failure.

Oil containment system

The oil-containment system for the transformers and voltage regulators has been assessed to be in very poor condition. Valve actuators are missing, and the remaining actuators are not functional.

2.4 Impact of doing nothing

The “do nothing” option is not acceptable as the following do not comply with the applied service standards:

- Greater than 5MVA of load is without supply for more than 12 hours following a contingency event of a failure of transformer TR1 at SSSIS. This poses an ongoing low-level risk to Energex customers due to the potential for in-service failure of TR1 and the time required for deploying mobile generation in the event of a transformer contingency scenario. This is with TR3 and CB3T32 being deemed as reaching retirement age and no longer fit to be used and motorised isolator on 11kV ring main unit unable to be switched remotely.

- Continuous operation of existing 33kV outdoor switchyard with steel structures that have been deemed to be in very poor condition at SSSIS poses an ongoing low-level risk to Energex personnel safety due to the potential for in-service failure of the assets.

- Continuous operation of existing 33kV circuit breakers that have been assessed to reach retirement age at SSSIS poses an ongoing low-level risk to Energex personnel safety due to the potential for in-service failure of the assets.

- Continuous operation of the existing oil-containment system that has been assessed as having very poor condition poses and ongoing low-level risk to the environment due to the potential for an in-service failure of a transformer or voltage regulator and the oil is discharged to the faulty oil-containment system.

2.5 Assumptions in relation to 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.

2.5.1 Forecast maximum demand

It has been assumed that forecast peak demand at SSSIS will be consistent with the base case forecast outlined in Section 2.3.1.

Factors that have been taken into account when the load 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); and

- forecast growth rates for organic growth.

2.5.2 Load Profile

Characteristic peak day load profiles shown in Section 2.3.2 are unlikely to change significantly from year to year and the shape of the load profile is assumed to remain virtually the same with increasing maximum demand.

2.6 Quantification of the identified need

2.6.1 Value of Customer Reliability (VCR)

With the existing network arrangement, Energex would meet the Safety Net obligations as outlined in its Distribution Authority. For the contingency event of a failure of the existing TR1, the load at SSSIS that have been interrupted may be restored by remotely switching the hot-standby transformer TR3.

However, since the existing transformer TR3 and CB3T32 have been identified as reaching retirement age, and the 11kV RMU has been flagged as having the potential to be unreliable for a remote close operation, there is a possibility that the customers at North Stradbroke Island experience prolonged interruption to supply. The VCR cost associated with a failure of TR1, and the inability of the hot-standby transformer TR3 to carry the load, can be seen in Figure 8.

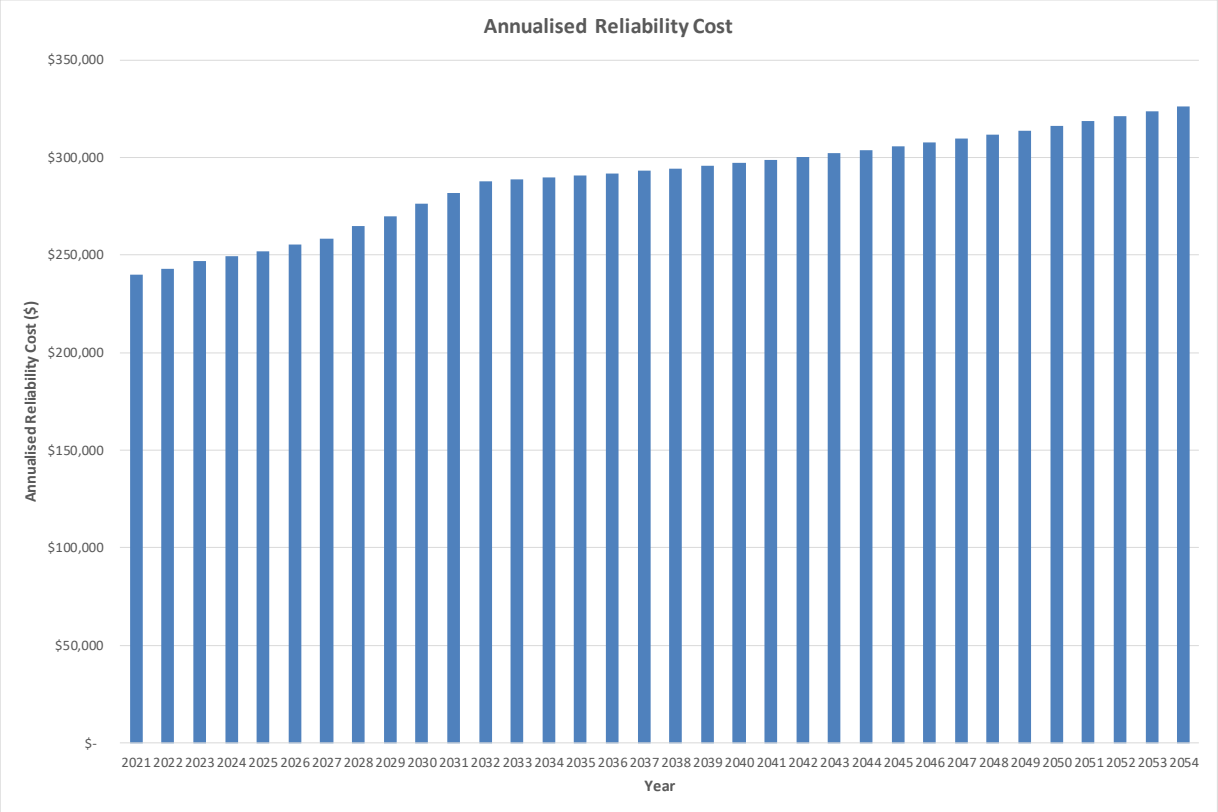


Figure 8: Annualized VCR for failure of TR1

The VCR calculations to derive the above figure has been modelled with the following assumptions:

- VCR rate = $32.82 – based on location-specific VCR for the mix of domestic and commercial customers supplied from SSSIS.

- Load restoration time – due to the remoteness of SSSIS, being on an island, there are no 11kV feeder ties on the SSSIS network. The time to restore the load by deploying 4 x 1MW mobile generation is assumed to be 24 hours. This is considering the worse case scenario that the failure of TR1 occurs in the early evening, after the last trip of the ferry into the island. Transporting the mobile generation into the island is to be done in several ferry trips due to high tide requirements.

- Repair/replacement time – the time to replace transformer TR1, should it fail, is assumed to be 90 days. This is based on the recent replacement of a failed transformer in the Energex network and also considering the logistics involved in replacing a transformer on North Stradbroke Island.

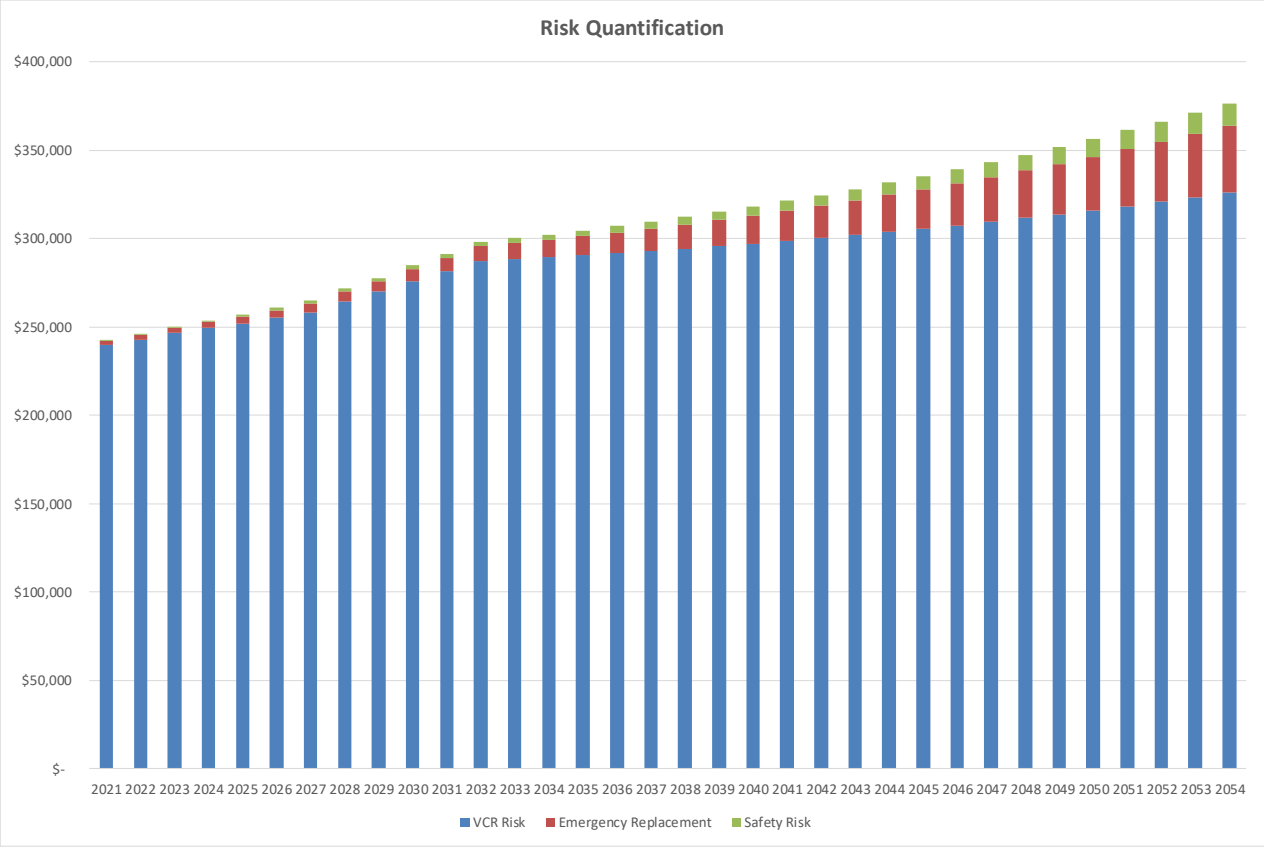


Figure 9: Annualized cost of risk

The graph in **Error! Reference source not found.** shows the annualized cost of the risk, i ncluding the costs associated with restoring the supply. This cost includes the replacement of the transformer and deployment of mobile generation to restore supply while the transformer is being replaced. It would cost approximately $668k to deploy

mobile generation to North Stradbroke Island and run it for the entire duration of the replacement of the failed transformer.

3.0 ASSESSMENT OF OPTIONS

3.1 Alternative options rejected

For clarity, the following alternative options were considered but rejected as they were not practicable alternatives for the reasons indicated in Table 1.

Alternative option	Reasons for being rejected
Do nothing	– The option of doing nothing is not acceptable since the risk of in-service failure of the transformer TR3, voltage regulators, 33kV circuit breakers and the 33kV bus impacts on the safety of staff and the reliability of supply to the customers at SSSIS. There is also an environmental risk to leave the TR3 and voltage regulators while the oil-containment system is found to be in very poor condition. – Leaving the plant and equipment that have been deemed to reach retirement age will also lead to unsupplied load for the contingency of a failure of TR1 and TR3 being unable to supply the load of SSSIS. This will lead to not satisfying the requirements of the Service Safety Net Targets as per the Energex Distribution Authority.
Recover 33/11kV transformer TR3 and other plant reaching retirement age	– Recovery of the assets reaching retirement age and leaving SSSIS as a single 33/11kV transformer substation does not satisfy the requirements of the Service Safety Net Targets as per the Energex Distribution Authority. A portion of the outdoor 33kV bus must be rebuilt to be able to maintain a configuration of having a main supply from the 110kV network as well as an alternate supply from the 33kV network.

Table 1: Alternative options rejected

3.2 Network options

The following option has been assessed as meeting the applied service standards, but no other practically feasible and economically equivalent option has been identified in this analysis.

3.2.1 Preferred option: Replace TR3 and upgrade 33kV bus at SSSIS

This option involves recovery of 33/11kV TR3, 33kV outdoor bus, 2 x 33kV CBs, voltage regulators RG1 and RG2, and AFLC coupling cell. It also involves installing a new 33/11kV transformer (to be named TR2), 2 x new 33kV CBs, rebuilding the outdoor 33kV

bus and installing a new masonry building for the 11kV ring main unit switchgear, protection and control panels, and AFLC coupling cell. It also involves installing vertical oil separation tanks and upgrading substation security by installing a perimeter intrusion detection system.

The estimated capital cost of the preferred option is $7.9 million ± 40%. The estimated operating cost per annum is $2,895. (NOTE: recent changes in overhead rates within the estimation system caused the drop in project cost since publication of the Notice).

Figure 10 provides schematic diagram for the preferred option.

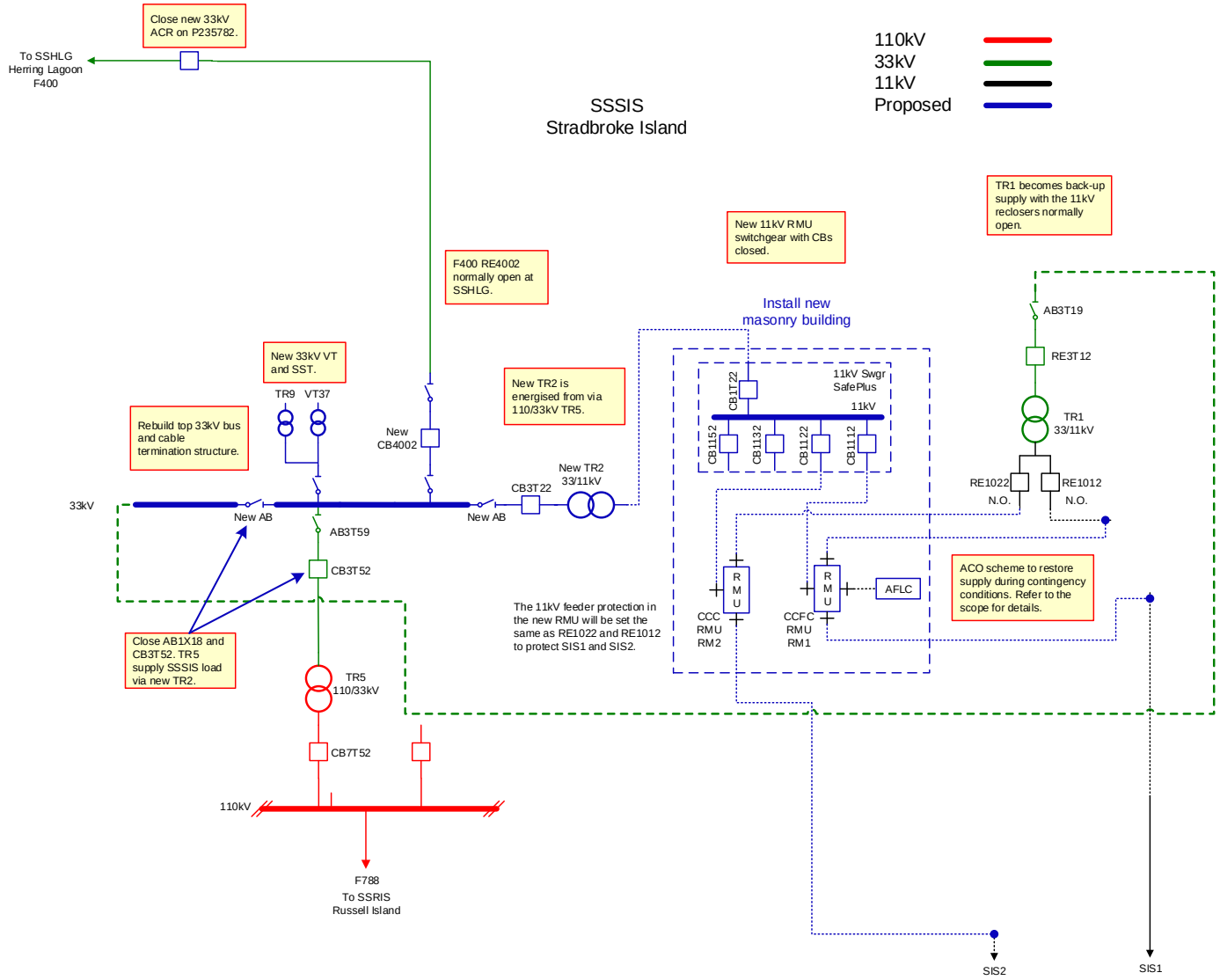


Figure 10: Proposed network arrangement (schematic view)

3.3 Non-network alternative options

Once the 33/11kV transformer TR3, 33kV CBs and 33kV outdoor bus at SSSIS reaches retirement age and can no longer be safely operated, the existing load must be supplied via a single transformer TR1. Subsequent contingency condition of an outage of TR1 must be managed via non-network alternative solutions while satisfying the COS or Service Safety Net Targets as specified in the Distribution Authority issued to Energex.

Demand & Energy Management (DEM), a team within Energex, has been engaged to conduct a screen test to investigate potential non-network alternative solutions to defer or eliminate the requirement to install a new 33/11kV transformer and 33kV bus at SSSIS, while addressing the identified need.

3.3.1 Potential non-network solutions considered

On-call demand reduction

a. Customer embedded generation

b. Customer demand response (commercial)

c. Customer demand response (residential)

3.3.2 Result of non-network options assessment

The load at risk will be the total load of SSSIS, which will be unsupplied when the 33/11kV transformer TR3, 33kV CBs and outdoor 33kV bus reaches retirement age and a fault occurs on the remaining TR1.

As confirmed by DEM, it is considered that no available demand management products or strategies can provide sufficient demand support at SSSIS to address the identified need. It is evident that an economically feasible non-network option would not be available to defer or eliminate the requirement to replace the 33/11kV transformer TR3, 33kV CBs and outdoor 33kV bus and continue to provide a safe, sufficient and reliable supply to customers at SSSIS.

4.0 RECOMMENDED DEVELOPMENT

4.1 Scope of proposed works

4.1.1 Description of works

To address the limitations at North Stradbroke Island, it is proposed to replace TR3 and rebuild the 33kV bus at SSSIS. Works include:

- recovering 33/11kV TR3, 33kV outdoor bus, 2 x 33kV CBs, voltage regulators RG1 and RG2, and AFLC coupling cell;

- installing a new 5/8MVA 33/11kV transformer (TR2);

- installing a new 33kV CB for the new transformer TR2;
- installing a new 33kV CB for F400;
- installing a new masonry building for a new 5-way SafePlus RMU, 4-way SafeLink RMU, 3-way SafeLink RMU, 33kV feeder protection panel, battery system, AFLC coupling cell, Security expander module, Comms panel, and 110V DC main/distribution board;
- operating the two 33/11kV transformers with TR1 as hot-standby and implementing an ACO scheme to restore supply for the loss of any one of the 33/11kV transformers;
- upgrading the protection system;
- installing new vertical oil separation tanks to address the oil containment system issues; and
- upgrading substation security by installing a perimeter intrusion detection system.

The new masonry building will be built to ultimate size to accommodate all the plant and equipment as part of the proposed works as well as provision for the protection and control panels contained in the existing control building 3 for when they reach retirement age.

4.2 VCR Implications

Following the replacement of the TR3, CB3T32 and the 33kV bus at SSSIS, Energex forecasts that there will be no prolonged unserved energy for the customers on North Stradbroke Island. There will be a new 33/11kV transformer and a hot-standby transformer with an auto-changeover scheme to automatically restore supply for a failure of the transformer.

5.0 MARKET BENEFIT ASSESSMENT

The identified need is to reduce the Safety Risk associated with the condition of the 33/11kV transformer TR3, 33kV circuit breaker CB3T32 and the 33kV bus, and the Environmental Risk to as low as reasonably practicable (ALARP). As such, the assessment methodology is a lowest cost process among the credible options that have been assessed to address the identified need, rather than a cost/benefit analysis based on market benefits. However, to ensure that the proposed solution provide continued reliability and security of supply to Energex's customers a VCR analysis has been undertaken to ensure the proposed solution to the limitation capture the market benefits.

6.0 DETAILED ECONOMIC ASSESSMENT

Since there were no other technically feasible options established to address the identified need, an NPV assessment was not conducted.

7.0 CONCLUSION

The Final Project Assessment Report (FPAR) represents the final stage of the consultation process in relation to the application of the RIT-D.

Energex intends to take steps to progress the proposed preferred option to ensure any statutory non-compliance is addressed and undertake appropriately justified network reliability improvements, as necessary.

It is recommended that Energex replace 33/11kV transformer TR3, CB3T32, and 33kV outdoor bus, and install new masonry control building for a total estimated cost of $7.9 million with an estimated annual operating cost of $2,895 at 2020/21 prices. (NOTE: recent changes in overhead rates within the estimation system caused the drop in project cost since publication of the Notice). The target completion date for the recommended development is September 2023.

The proposed preferred option satisfies the RIT-D. This statement is made on the basis of the detailed analysis set out in this report. The proposed option is the only credible option that has been identified.

8.0 STATEMENT OF COMPLIANCE

This Final Project Assessment complies to the requirements of NER section 5.17.4(j) as demonstrated below:

Requirement	Report Section
(1) a description of the identified need for investment;	2.2
(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);	2.3
(3) if applicable, a summary of, and commentary on, the submissions received on the DPAR;	N/A
(4) a description of each credible option assessed;	3.2
(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;	5
(6) a quantification of each applicable cost for each credible option, including a breakdown of operating and capital expenditure;	3.2
(7) a detailed description of the methodologies used in quantifying each class of costs or market benefit;	5
(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;	5
(9) the results of a NPV analysis of each credible option and accompanying explanatory statements regarding the results;	6
(10) the identification of the proposed preferred option;	3.2, 4.1
(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	3.2, 4.1, 7
(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