Business case: Augex Environmental

2025-30 Regulatory Proposal

Supporting document [5.8.1]

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SA Power Networks

Empowering South Australia

Contents

Glossary

Acronym / term	Definition
Augex	Augmentation expenditure
Capex	Capital expenditure
EPA	Environmental Protection Authority
NEL	National Electricity Law
NER	National Electricity Rules
RCP	Regulatory Control Period
ppm	Parts per million

1 About this document

1.1 Purpose

This document provides a business case to support forecast expenditure for the 2025-30 Regulatory Control Period (**RCP**) for SA Power Networks' Environmental program, which comprises one input to our overall capital expenditure (**capex**) on network augmentation **(augex).** This environmental component includes works necessary to address environmental risks within the network to comply with Environmental Protection Authority (**EPA**) requirements. The following programs of work are included within the environmental related augex program:

- Substation Oil Containment Program

1.2 Expenditure category

- Network capex: Augmentation

1.3 Related documents

Ref	Title
5.4.1	Capacity Methodology Documents - Methodology
5.2.5	Resourcing Plan for Delivering the Network Program

2 Executive summary

This business case recommends $7.3 million[1] in environmental augex capex for the 2025-30 RCP.

SA Power Networks has an existing long term Substation Oil Containment Program in place to remediate oil containment systems of substations that do not meet current EPA standards. The *Environment Protection Act 1993* (SA) (**Environment Protection Act**) and the Environment Protection (Water Quality) Policy 2015 (SA) places a legal responsibility on SA Power Networks to not undertake any activity that pollutes, or has the potential to pollute, the environment unless we take all reasonable and practicable measures to prevent or minimise any resulting harm[2]. The policy places an onus on industry and business to take steps to avoid potential environmental harm[3], emphasising the need for us to continue our environmental management and substation oil containment programs in a prudent manner.

This business cases recommends spending $7.3 million to continue the Substation Oil Containment Program – this investment is consistent with expenditure in the 2020-25 RCP. This continued level of expenditure will complete the Substation Oil Containment Program at the end of the 2025-30 RCP.

1 Represents the capex in $ June 2022, direct costs - excluding corporate and network overheads.

2 Environment and Protection Act, section 25.

3 EPA, Information sheet titled *'The Environment Protection (Water Quality) Policy 2015: 'What's new in the policy''*.

3 Background

3.1 The scope of this business case

Our Substation Oil Containment Program is the only program of work that is included within the environmental related augex program.

We have an existing Substation Oil Containment Program in place to rectify the oil containment systems of substations that do not achieve current South Australian EPA standards. A continuation of this program in the 2025-30 RCP is proposed which will allow the program to be completed by the end of the RCP.

3.2 Background

Oil filled equipment is installed in almost all of SA Power Networks' zone substations. The total oil quantity at each site can vary from zero litres up to 120,000 litres (a typical metropolitan site contains approximately 35,000 litres). EPA 080/16 *'Liquid Storage Guidelines'* document[4] states that facilities requiring bunded areas includes electrical transformers containing oil. Furthermore AS2067:2016 states:

> *"Every indoor and outdoor high voltage installation containing equipment with more than 1000L of an insulating liquid such as transformer insulating oil shall have provision for containing the total volume of any possible leakage[5]."*

Historically, substations constructed prior to the late 1990's rarely had any form of oil containment installed. In 2003, we commenced a program to retrofit oil containment to all large substation transformers involving circa 400 substations across the network. The program will continue until all substations have compliant oil containment systems installed, with completion expected by 2030.

3.3 Our performance to date

The oil containment program initially involved installing a full concrete bund with an oil water separator (or SIPP unit). The SIPP unit continuously monitors oil content of the water in the bund and if it becomes greater than 10ppm, ceases discharge. This solution has an average unit cost of $400 thousand per site (depending on size and complexity). Around four to five sites were remediated annually.

In 2020, we trialled and then later introduced a new technology that involves installing a product called an "Oil Mat" that allows water to pass through the mat. When the oil interacts with the mat, the molecules in the mat react and effectively create an impenetrable seal that won't allow the oil to pass through. The cost of this solution ranges between $40-200k depending on the site.

Since 2020 we refined our construction methods for the installation of the oil mat, allowing 10 to 20 sites per year to be addressed (depending on site complexity) for the same annual budget, $1.4 million per annum. A total of 75 sites are expected to be completed in the current RCP, with the remaining 72 sites to be completed by 2030, concluding the program.

3.4 Drivers for change

By implementing an alternative bunding design (compared to historical bund types), we have increased the number of sites addressed each year from approximately four to (up to) 20. This will allow the substation oil containment program to achieve construction of compliant oil containment systems at all sites by 2030 with continued levels of expenditure. 72 sites are planned for completion in the period 2025–30.

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4 EPA, *Guidelines – Liquid Storage: Bunding and spill management*, May 2016.. Accessible on: [https://www.epa.sa.gov.au].

5 AS2067:2016 Section 6.8.1 – Oil Containment.

4 The identified need

All of the zone substations within our distribution network contain oil filled equipment. Oil filled equipment is a standard feature of assets within zone substations, this has been the case historically and will likely remain so. The ongoing action required with respect to oil filled equipment, is to ensure that reasonable steps are taken to avoid oil leaks leading to environmental pollution, in compliance with environmental regulations.

We considered the regulatory framework under the National Electricity Rules (**NER**) and the National Electricity Law (**NEL**) and in particular how the expenditure is required to achieve the capex objectives and reasonably reflects the capex criteria, having regard to relevant capex factors. We also considered our regulatory obligations and requirements under the NER, the NEL and jurisdictional instruments.

As a result of these considerations, the identified need is to ensure that we prudently and efficiently comply with all applicable regulatory obligations or requirements associated with the provision of Standard Control Services,[6] which in this case includes our obligations to reasonably avoid potential environmental damage from oil leaks arising under the Environment and Protection Act and the Environment Protection (Water Quality) Policy 2015 (SA). These instruments place a legal responsibility on us to not undertake any activity that pollutes, or has the potential to pollute, the environment unless we take all reasonable and practicable measures to prevent or minimise any resulting harm.[7]

In addressing this ongoing identified need, our practice has been to install bunding on oil filled equipment.

6 This is pursuant to section 6.5.7(2) of the NER.

7 Environmental Protection Act, section 25.

5 Approach to forecasting network environmental expenditure

To forecast network environmental related augex for the 2025-30 RCP, we use a historic method. The Historic method is used when historical expenditure has proven to be steady, and where this is not expected to change materially in the future - this capex need has a recurrent nature, whereby the forecast remains consistent with historical levels and individual projects (investment needs) are identified and rectified in a short timeframe.

Our detailed forecasting approach is outlined in **supporting Document 5.4.1 – Capacity Methodology Documents - Methodology.**

6 Comparison of Options

6.1 The options considered

Options have not been considered within this business case as the Substation Oil Containment Program will be complete within the 2025-30 RCP at the current levels of expenditure. This program is a continuation of the Substation Oil Containment Project included in the Australian Energy Regulator's total capex allowance as part of its 2020-25 Distribution Determination.

As discussed earlier in this business case, we have already progressed to a more efficient option to undertake oil containment using matting, and do not observe any other more efficient alternatives.

6.2 Costs

The Substation Oil Containment Program expenditure for the 2025-30 RCP has been forecast based on the historic expenditure noting that the unit rate to address each site has been substantially improved through a technological innovation, thereby resulting in more sites being addressed in less time for the same cost.

The historic expenditure of this program is based on the average annual spend for the last five years of approximately $1.4 million per annum ($ June 2022 excluding corporate and network overheads).

The unit cost per site ranges between $40-$200 thousand which has allowed up to 20 sites per year to be addressed.

6.3 Recommendation

Our recommendation is to spend $7.3 million to complete this Substation Oil Containment Program by 2030.

7 Alignment to consumer and stakeholder engagement

The identified need of this business case was not specifically deliberated on as part of our consumer and stakeholder engagement process on the basis that we, together with our Consumer Advisory Board (**CAB**), did not considered it to be priority topic for engagement.

However, throughout our engagement program, our customers were consistently concerned with the need for us to comply with regulatory obligations and to take reasonable steps to avoid environmental damage.

Further, the costs of this program were included in the total expenditure figures that were presented to consumers throughout each stage of our engagement program, so that customers understood the totality of the service and price outcomes that they were deliberating on.

Subsequent to our People's Panel process, we also published a Draft Proposal to play back how we have given effect to customer recommendations and to confirm that those recommendations remain valid given continued cost of living pressures and to obtain further input to refine our Regulatory Proposal. Submissions received on our Draft Proposal did not specifically comment on the investment needs addressed via this business case. However, the South Australian Council of Social Service outlined their support for us seeking expenditure to meet our obligations.[8]

[8] SACOSS, *South Australian Council of Social Service Submission on SA Power Networks' 2025-30 Draft Regulatory Proposal*, September 2023.

8 Deliverability

We have developed a plan to ensure that we can deliver the recommended project in this business case together with all of the increased volume of work reflected in the programs that comprise our total network expenditure forecast in our Regulatory Proposal. This plan considers the detailed implications of our proposed overall uplift in total network expenditure for our required workforce and supporting internal services of information technology, fleet, property and human resources.

We consider that our plan is realistic and achievable over the 2025-30 RCP. The details of our approach are set out in **supporting document 5.2.5 - Resourcing Plan for Delivering the Network Program.**