



# Business Case ICT Non-Recurrent: Assets & Work Phase 3 (Asset Management Transformation Program)

2025-30 Regulatory Proposal

Supporting document [5.12.15]

January 2024

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## Glossary

Acronym / term	Definition
<b>A&amp;W</b>	Assets and Work
<b>AEMO</b>	Australian Energy Market Operator
<b>AER</b>	Australian Energy Regulator
<b>AMTP</b>	Asset Management Transformation Program
<b>Augex</b>	Augmentation Expenditure
<b>Capex</b>	Capital Expenditure
<b>CBRM</b>	Condition Based Risk Modelling
<b>CER</b>	Customer Energy Resources
<b>CSIRO</b>	Commonwealth Scientific and Industrial Research Organisation
<b>DNSP</b>	Distribution Network Service Provider
<b>DER</b>	Distributed Energy Resources
<b>EAM</b>	Enterprise Asset Management
<b>GIS</b>	Geographic Information Systems
<b>GW</b>	Gigawatt
<b>ICT</b>	Information and Communication Technology
<b>IT</b>	Information Technology
<b>LiDAR</b>	Light Detection and Ranging
<b>LV</b>	Low Voltage
<b>NER</b>	National Electricity Rules
<b>NPO</b>	Network planning officer
<b>NPV</b>	Net Present Value
<b>Opex</b>	Operating Expenditure
<b>PLEC</b>	Power Line Environment Committee
<b>RCP</b>	Regulatory Control Period
<b>Repex</b>	Replacement Expenditure
<b>RIN</b>	Regulatory Information Notice
<b>SaaS</b>	Software as a Service
<b>SAMP</b>	Strategic Asset Management Plan
<b>UI</b>	User Interface
<b>V &amp; V</b>	Valuing and Visibility

# 1. About this document

## 1.1 Purpose

This business case provides our justification for an investment in Information and Communications Technology (ICT) systems and processes to improve our asset management and work delivery capabilities, in order to derive net benefits for consumers by way of cost efficiencies.

The recommended investment is to continue a program that SA Power Networks has been undertaking since 2015 to improve its asset management capability, previously referred to as the Assets and Work (A&W) Program. This program has to date underpinned our ability to continue to deliver service outcomes to customers despite a growing number of assets reaching the end of their economic life. Continued investment in these capabilities in the 2025-30 Regulatory Control Period (RCP) will deliver a net benefit to customers.

## 1.2 Expenditure category

- Non-network ICT capital expenditure (**capex**): Non-recurrent – New or Expanded Capability
- Non-network ICT operating expenditure (**opex**): Base year adjustment – Software as a Service (SaaS)

## 1.3 Related documents

**Table 1: Related documents**

<b>Title</b>	<b>Author</b>	<b>Version / date</b>
5.2.2 - Strategic Asset Management Plan (SAMP)	SA Power Networks	January 2024
5.2.5 - Resourcing Plan for Delivering the Network Program	SA Power Networks	January 2024
5.1.1 - AER Standardised Capex model	SA Power Networks	January 2024
5.12.10 - Click Replacement - Business case	SA Power Networks	January 2024
5.12.11 - Enterprise Data Warehouse Replacement & Consolidation - Business case	SA Power Networks	January 2024
5.12.1 - IT Investment Plan 2025-30 - Asset Plan	SA Power Networks	January 2024

## 2. Executive summary

This business case recommends **\$30.2 million** in non-recurrent ICT capex and **\$10.1 million** of non-recurrent opex to support continued investment in our asset management systems to:

- ensure our systems align with industry best practice (including ISO55001); and
- deliver distribution network services cost effectively, particularly with an increasing number of assets reaching the end of their economic life.

SA Power Networks has been investing in asset management systems through a long-term strategic program, Assets and Work:

- The asset management improvement roadmap was first established in 2014, developed in consultation with the global asset management specialist firm Vesta, aligning with ISO55001:2014. This first stage of the A&W program was reviewed and included by the Australian Energy Regulator (AER) in its total expenditure allowances as part of its 2015-20 Distribution Determination. Development during 2015-20 focused on foundational elements including asset data as well as an initial move to a value versus cost approach to network investment.
- The second stage of the A&W program was reviewed and included by the AER in its total expenditure allowances as part of its 2020-25 Determination. This stage focused on improving our approach to economic valuation of network investment (ie. by monetising effects on customer service) and ensuring network expenditure aligns with this approach.
- Investment in our asset management systems via the A&W program to date has underpinned our ability to continue to deliver good service outcomes to customers despite a growing number of assets reaching the end of their economic life. This is by better understanding the risk our assets pose to customer service outcomes and where best to invest network replacement expenditure.

Recognising the need to refresh the roadmap first developed in 2014, we comprehensively assessed our asset management practices and systems in 2023 with asset management specialist AMCL. This assessment formed the foundation of a revised roadmap to 2035 to be delivered via our Asset Management Transformation Program (AMTP). The AMTP program effectively continues the A&W program, delivering on an updated roadmap.

This business case recommends continued investment in our asset management systems through the AMTP. The total expenditure for this preferred option is **\$40.3 million**. The 2025-30 RCP forecast is **\$30.2 million of non-recurrent capex and \$10.1 million of non-recurrent opex**. The Net Present Value (NPV) over the 10-year analysis period is **\$29.4 million** and the overall residual risk rating is Medium (See Table 2).

Other options considered were:

- *maintaining the existing systems and services as is*: this option would see no further investment in our Asset Management capabilities and provide no efficiency benefits with a risk rating of High; and
- *defer investment in the A&W program to the 2030-35 RCP*: this option would delay the efficiency gains of the A&W program to 2030. The NPV over the 10-year analysis period is -\$0.9m and the overall residual risk rating is High.

The preferred option was selected because it:

- improves our existing systems to align with industry best practice including ISO55001;
- delivers **\$38.8m** of tangible benefits of reduced network capex achieved through efficiency gains in the 2025-30 RCP and **\$49.8m** in the 2030-35 RCP; and
- the reduction in network capex forecast generates a reduction in costs for our Resourcing Plan for Delivering the Network Program.

Table 2: Options assessment summary, \$million, June 2022

Option	Total Program Costs			2025-30 Costs			Program or 10 Year Estimates		Residual Risk Rating
	Capex	Opex	Totex	Capex	Opex	Totex	Benefits	NPV	
<b>0. Base-case (do nothing): Discontinue A&amp;W Program</b>	-	-	-	-	-	-	-	-	High
<b>1. Continue A&amp;W Program in 2025-30 (Recommended)</b>	30.2	17.6	47.8	30.2	10.1	40.3	88.7	29.4	Medium
<b>2. Defer further A&amp;W investment until 2030-35</b>	30.2	10.1	40.3	-	-	-	39.8	-0.9	High

### 3. Background

We face significant challenges in maintaining the service performance and safety of our ageing distribution system while keeping prices down for customers. With more of our network assets approaching the end of their economic service life in the coming decades, we must find ways to prudently manage increased requirements for asset replacement and refurbishment through efficiency improvements and better asset management practices. This challenge is compounded by the forecast increase in demand for services including the uptake of Electric Vehicles and household electrification.

Our Strategic Asset Management Plan (**SAMP**)<sup>1</sup> recognises these challenges and outlines our response strategies, which includes improvements in our asset management capabilities.

Our long running A&W program supports the SAMP via a roadmap of capability improvements that encompass changes to our processes, data, people and systems:

- the roadmap, originally referred to as an Enterprise Asset Management Blueprint, was developed in 2014 in consultation with the global asset management specialist firm, Vesta and in alignment with the international standard in asset management, ISO 55000:2014;
- the A&W Program was established to better manage safety, network performance, achieve regulatory obligations and minimise cost impacts on customers in a challenging operating environment. The objective was to improve asset management via a standardised, lifecycle and risk-based approach to managing a significantly ageing asset base and improve delivery of services via an integrated work management system to deliver more work with the same resources. The Program also supported our Regulatory Information Notice (**RIN**) compliance obligations;
- the AER's 2015-20 Determination recognised the value of the A&W Program, the risks it addressed and the need to collect and manage asset data by including a non-recurrent capex forecast of \$31.0 million for Enterprise Asset Management (**EAM**) in its capex allowance;
- the AER 2020-25 Determination included \$42.9 million in its expenditure allowances, to continue the A&W Program on the basis this would enable us to defer, prioritise and target our replacement program more efficiently over the forecast period; and
- in 2023 we undertook an external review of its Asset Management capabilities and developed an updated roadmap. We have established a dedicated Asset Management Transformation Program to coordinate the ongoing program delivery.

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<sup>1</sup> 5.2.2 - Strategic Asset Management Plan (SAMP).



### 3.1 The scope of this business case

Since 2014, our Asset Management capability has matured allowing us to maintain service outcomes for customers and the community while limiting the increase in network investment required. This increase in capability has been achieved through ongoing investment in our systems, processes and data.

The 2015-20 phase of the A&W Program focused largely on foundational aspects of our Asset Management capabilities, with key achievements included:

- creating and populating asset data structures in SAP (e.g. poles);
- aligning our Geographic Information System (**GIS**) and Enterprise Resource Planning (SAP) systems;
- creating condition-based risk modelling (**CBRM**) and work valuing tools; and
- completing a major scheduling system upgrade.

The 2020-25 phase of the A&W Program has focused on our ability to quantify risk to enable a benefit versus cost approach in network investment (effectiveness), with key achievements including:

- creating systems for field crews to collect asset failure information;
- creating a data analytics platform to enable sophisticated risk modelling and automated RIN reporting;
- creating a Risk Cost Model to quantify and forecast monetised risk for discrete assets;
- upgraded our work valuing system to leverage this sophisticated risk modelling; and
- completing a major inspection system replacement.

While we have made progress towards a higher level of maturity, more effort is required to fully align with ISO55001 and to improve the efficiency of our network capital program. This business case considers the additional uplift in capability and corresponding investment required in the 2025-30 RCP to leverage the existing A&W investment to date and increase efficiency.

#### ***Exclusions***

This business case excludes:

- replacement of our work scheduling system, which is included in 5.12.10 - Click Replacement business case;
- replacement of our data analytics infrastructure which is included in 5.12.11 - Enterprise Data Warehouse Replacement & Consolidation business case; and
- replacement and enhancement to our customer facing systems, which is covered by our 5.12.17 through 5.12.22 - Customer Program business cases.

Further, there is no overlap between expenditure that is included in this business case and expenditure included within other business cases.

### 3.2 Our performance to date

Over the 2020-25 RCP, we have been investing in the A&W via a continually refined sequence of investment initiatives that significantly improved our asset management capability, improving the data underpinning our decision making and improving our modelling of risk and replacement expenditure. We expect that by the end of this RCP we will have delivered on our promises and incurred expenditure and achieved consumer benefits aligned to those set out in our business case which was approved in the AER’s 2020-25 Determination.

The investments we have made in 2020-25 are set out in Figure 1.

Figure 1. A&W Roadmap as at 2019

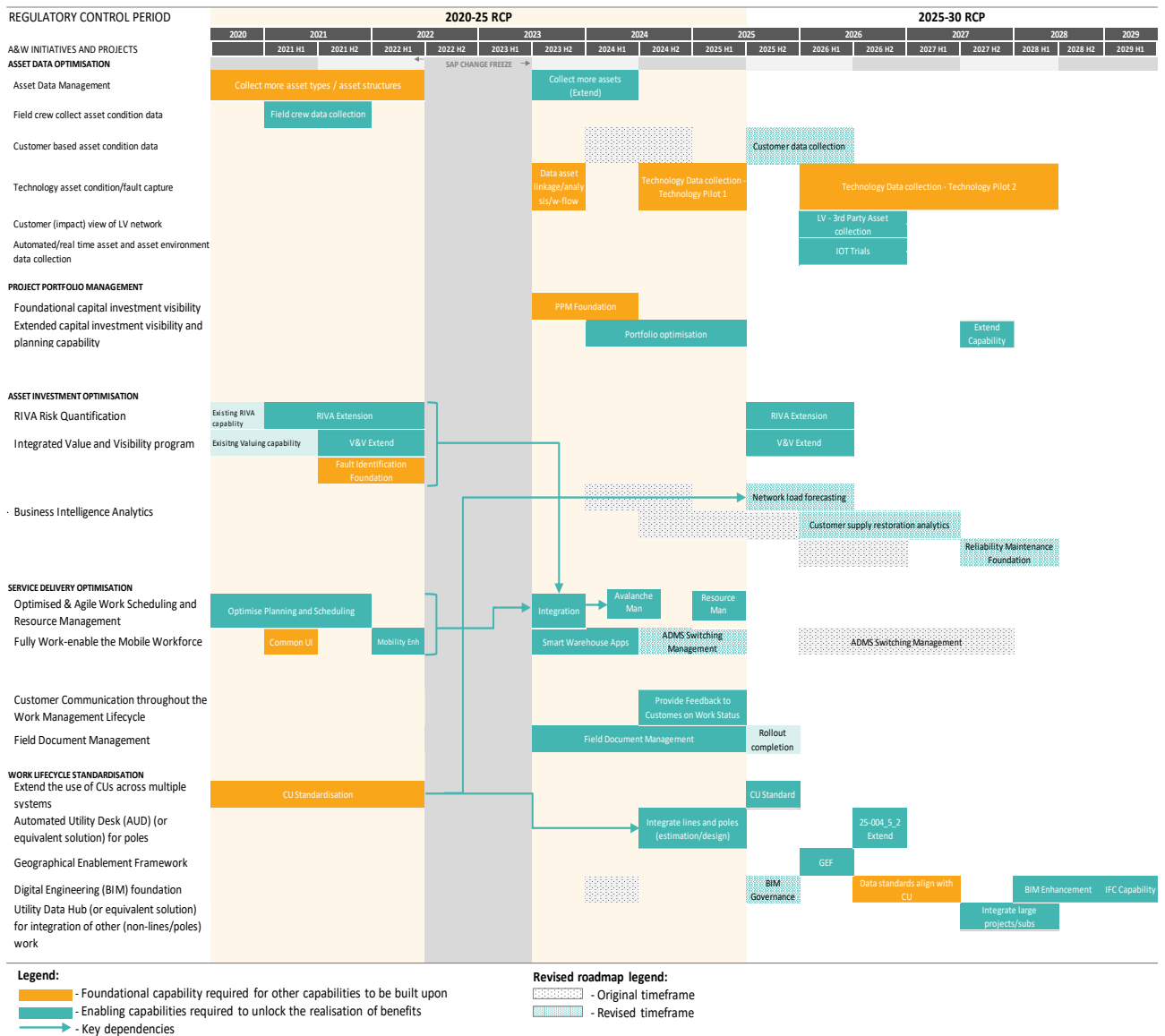


Table 3 summarises the key investments undertaken to date during the 2020-25 RCP.

**Table 3 Outcomes delivered to date in the 2020-25 RCP**

<b>Workstream</b>	<b>2020-25 RCP Changes</b>
Asset Data Optimisation	<ul style="list-style-type: none"> <li>▪ Implemented a new asset inspection tool. This platform improved our asset condition data collection in the field and replaced an end-of-life application (SAP Work Manager), therefore reducing operational risk.</li> <li>▪ Implemented an asset condition/fault capture tool improving field crew data collection to improve our understanding of asset failures.</li> </ul>
Asset Investment Optimisation	<ul style="list-style-type: none"> <li>▪ Developed a new Risk Cost Model, extending on the knowledge gained through our Riva risk modelling. This model allows us to quantify and forecast the monetised risk associated with assets.</li> <li>▪ Extended our Valuing &amp; Visibility (V&amp;V) work valuing system to make use of our improved Risk Cost modelling.</li> </ul>
Project Portfolio Management	<ul style="list-style-type: none"> <li>▪ Implemented a capability to link work completed on assets to projects, giving greater understanding of how our projects contribute to risk reduction and cost.</li> </ul>
Service Delivery Optimisation	<ul style="list-style-type: none"> <li>▪ Undertook a proof of concept of optimised work scheduling and automated work bundling.</li> <li>▪ Developed and rolled out a new field-based tool to geo-enable key customer, asset, hazard and risk information for field crews. This tool improves access to critical information in the field and reduces the risk of health and safety incidents occurring.</li> </ul>

Table 4 summaries our expenditure to date and forecast expenditure in the 2020-25 RCP.

**Table 4: A&W Program Expenditure 2020-25, \$000s, June 2022**

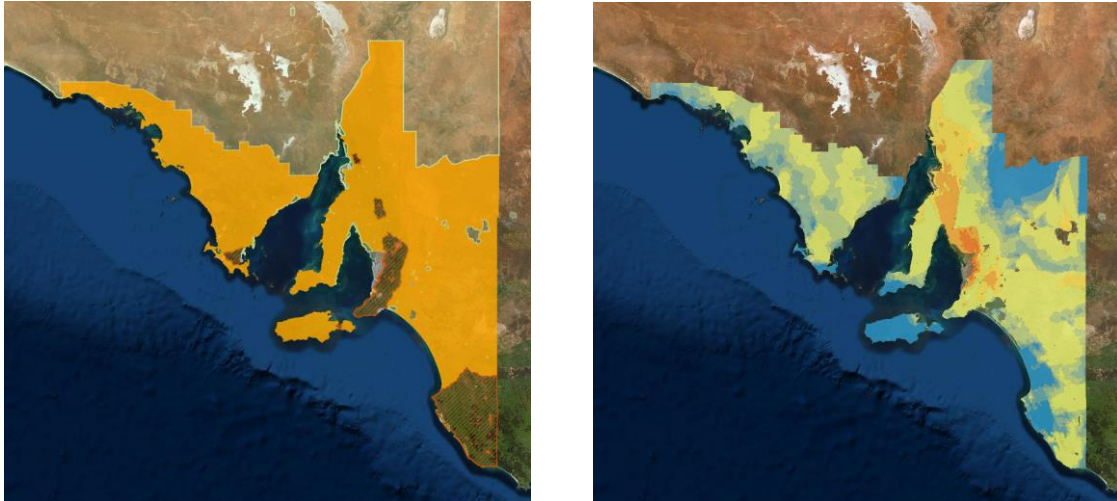
	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>TOTAL</b>
<b>AER allowance</b>	7,380	10,551	0	12,108	12,878	<b>42,917</b>
<b>Actual / Forecast<sup>2</sup></b>	5,872	10,966	7,368	4,897	8,635	<b>37,737</b>

The initiatives delivered via the A&W Program this period have improved our approach to modelling monetised risk associated with our assets in poor condition and we have now applied this to our work valuation system. This modelling is underpinned by improved condition data and fault data capture as well as improved risk quantification from consultants such as bushfire modelling from the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

In the case of bushfire risk, our previous approach to replacement investment prioritisation used a coarse 'high/medium/low' bushfire consequence based on bushfire risk zone. With the application of CSIRO bushfire risk modelling which considers the unique location of each asset, the likely fire footprints under various weather conditions and the resultant loss we are much better able to target our investment to manage risk.

<sup>2</sup> Forecast values for 2023/24 and 2024/25.

Figure 2 Bushfire Risk quantification in our work valuation system in 2020 vs 2023



Similarly, our fault capture data has allowed us to determine which asset types are more likely to fail and impact on customer service outcomes. This has further improved our risk cost modelling – allowing us to understand which assets are most likely to fail and which assets upon failing would have the largest impact on service outcomes.

These improvements culminated in the revaluation of over 150,000 identified replacement tasks in our V&V system across our network in July 2023.

We prudently reduced expenditure on the Assets and Works Program in 2024 in order to reassess and reprioritise the work delivery improvements, given the large uplift in required network expenditure that has been identified as a result of the previous stages of the Assets and Work Program.

In our business case for 2020-25, we expected consumer benefits of \$49.3 million in deferral of network asset replacement expenditure and \$0.2m in cost avoidance benefits. Our initial estimates are that we now will defer approximately **\$21.1 million** of network asset replacement expenditure in 2023/2024 and achieve an additional cost avoidance of **\$4.7 million** while still achieving the same risk/service level outcomes, and that we expect a similar deferral to be achieved in 2024/25. From this performance so far, we expect that the benefits forecast in our 2020-25 proposal will be met and likely exceeded over our current regulatory period.

### 3.3 Drivers for change

Our SAMP outlines the challenges and our response strategies, which includes improvements in our asset management capabilities.

#### **Ageing infrastructure**

We have one of the oldest electricity distribution networks in Australia with a large proportion of our network constructed in the 1950s and 1960s. Much of this network will reach the end of its life in the coming decades.

As the network deteriorates, we risk electricity assets failing in-service resulting in power outages, safety incidents and bushfires. This risk will be made worse in coming decades by climate change.

While the assets were relatively young the level of sophistication required for our asset replacement planning was rudimentary. In recent years we have made a step change in our understanding of our asset condition and risk, however further advancements will likely be required to ensure we can manage the safety and reliability of our ageing fleet at lowest cost.

#### **Increasing demand and a more dynamic energy system**

In the coming decade the demand on our network will gradually increase via increased electrification. The Australian Energy Market Operator (**AEMO**) notes in its latest forecast for electricity demand that while we can expect strong growth in rooftop solar PV systems, demand will increase through the take up of electric vehicles and the shift from gas to electricity.

While peak demand growth is not new (the network experienced significant growth in the 1990s and 2000s driven by the adoption of reverse cycle air conditioning), the nature of the electricity flows on the network will be dramatically different. As at October 2023 almost 350,000 homes and businesses have installed rooftop solar, more than one in three premises, with a combined panel capacity of 2.5 GW, making rooftop solar by far the biggest generator in the state. During spring and summer there are times when more than 90% of the entire electricity needs of the state are supplied by rooftop solar alone. In October 2021 the net load on our distribution network fell below zero for the first time and we now regularly experience reverse power flows across large areas of the network during sunny conditions. No other large-scale electricity network in the world is operating in this way.

While batteries help soak up surplus daytime solar and reduce evening peak demand, the ability of batteries and Virtual Power Plants to switch between exporting and importing substantial amounts of energy in a very dynamic manner creates unique challenges for the distribution network.

The coming growth in demand will be a more complex challenge than the growth in previous decades driven by a relatively predictable steady growth in summer peak demand. In the coming decade the electrical flow on the network will peak in different locations at various times of the year. Given the capacity of the network also changes through the year this more dynamic flow and changing capacity will require additional sophistication in our approach to demand forecasting and capacity planning.

### **The risk from climate change is increasing**

While we have robust business-as-usual practices to manage the bushfire risk each season (including pre-bushfire season powerline patrols, inspections and vegetation management), faults on our network can still result in fires. During the bushfire season, any one of these fires can result in a major bushfire that can result in significant losses to the South Australian community. Climate change will likely contribute to more frequent and severe high bushfire risk conditions increasing the risk to the community.

Our understanding of bushfire risk has improved dramatically via modelling by the CSIRO based on historical weather, however we need to consider the impact of climate change on this (and other) risks going forward.

### **The volume of work on our network is increasing**

In addressing these challenges, the investment in our network is expected to continue increasing, particularly in network asset replacement and augmentation. Processes, systems and tools that were appropriate for delivering smaller volumes of large-scale projects will need to adapt to larger volumes of work to ensure we can plan and deliver our work as efficiently as possible.

## **3.4 Industry practice**

The AER Better Resets Handbook states that: *“We consider alignment with industry standards on good asset and risk management demonstrates prudent and efficient decision-making. We expect network businesses to provide evidence that their asset and risk management are consistent with well-established relevant Australian industry standards (such as ISO 55000 and ISO 31000).”* Alignment with ISO55001 is one of the guiding principles of our Assets & Work program.

We observe that a number of other Distribution Network Service Providers (**DNSPs**) are, similar to the objectives of our A&W and AMTP, undertaking investments in their systems and processes to improve their asset management capability.

### **TasNetworks**

TasNetworks’ Asset Management Improvement Program is a permanent part of their asset management system framework, with a primary objective to continually uplift the maturity and performance of their asset management system in alignment with ISO 55001:2014. It is an ongoing program designed to continuously improve processes, people, data, systems, and technology, to more effectively and efficiently deliver on their Program of Work.

The majority of TasNetworks’ asset management activities are managed at an asset category level, however notable investments in the assets and works space are \$6.7 million in their Asset Management Information Systems Improvement Program, \$8.3 million in their Works Management Tool Replacement and ongoing investment in their Data and Analytics Program.

### **Evoenergy**

Evoenergy considers sound asset management and governance frameworks essential for prudent investment, achieving reliability standards and enabling efficient delivery of network services. For the 2024-2029 period their Asset Management Strategy underpins a structured and systemic approach to asset management which leads to development and implementation of investment programs, demand management and network planning.

Evoenergy’s Asset Replacement and Renewal program takes a risk-based approach, aiming to optimise investment over the lifecycle of the assets. Their Technology Plan proposes ongoing investment in key

systems supporting asset management and organisational governance activities to inform and support asset management.

### **Endeavour**

Endeavour Energy have proposed a 15.3% decrease in operating expenditure for the 2024-29 period from \$1.74 billion (2019-24) to \$1.48 billion as well as a 7.9% decrease in capital expenditure (\$2.04 billion to \$1.88 billion) for the same period. A key component of this cost saving can be attributed to the \$129 million investment in ICT and corporate digital investments, which aims to reduce operating expenditure by \$70 per customer between 2024 and 2029.

## 4. The identified need

We forecast that in at least the next two RCPs that there will be an increasing volume of work on our distribution network, as we need to increase network capacity to respond to increasing demand for service (load and export), and the need to retire and replace assets due to their age and deteriorating condition. Meeting and managing demand for service, complying with regulatory requirements and otherwise maintaining reliability, safety, security and quality of supply<sup>3</sup> will in coming years require increases in our overall network expenditure relative to our current expenditure levels.

This business case responds to this challenge, by seeking to minimise the costs of delivering this increased volume of work in coming years. Through our experience in delivering the A&W program to date we have seen the potential for new ICT technology systems to drive improvements in asset management practice. This business case aims to identify if investing in these systems and processes over the 2025-30 RCP can serve to drive cost efficiencies and therefore tangible net benefits to consumers.

This business case also seeks to address the concerns of our customers as expressed through our engagement program,<sup>4</sup> that we invest to continue improving our asset management practices and processes to ensure that we are making use of new technologies to drive reductions in the cost of delivering network activities in the field. This was an explicit recommendation of our customers, as reflected in the recommendations of the People's Panel.

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<sup>3</sup> This is pursuant to the expenditure objectives in section 6.5.7(a) of the National Electricity Rules (NER).

<sup>4</sup> This is pursuant to the expenditure 6.5.7(e)(5A) of the NER.



## 5. Comparison of options

### 5.1 The options considered

Table 5: Summary of options considered

Option	Description
<b>0. Base-case (do nothing): Discontinue A&amp;W Program</b>	Option 0 discontinues the A&W program with no further improvement in our Asset Management capabilities.
<b>1. Continue A&amp;W Program in 2025-30</b>	Option 1 proposes to continue the A&W program within the 2025-30 RCP with a comparable investment to that made in 2020-25.
<b>2. Defer further A&amp;W investment until 2030-35</b>	Option 2 proposes to continue the A&W program but delayed until 2030-35 RCP with a comparable investment to that made in 2020-25.

### 5.2 Options investigated but deemed non-credible

In developing our revised A&W roadmap, a larger program plan was considered however experience to date has shown a program of larger size than our 2020-25 Phase 2 program would present deliverability challenges.

### 5.3 Analysis summary and recommended option

To inform the comparison of the options under consideration we undertook a quantitative 10-year NPV analysis of costs and benefits over the period from 2025 to 2035.

#### 5.3.1 Options assessment results

Table 6: Costs, benefits and risks of alternative options relative to the base case (\$m Jun 2022 real).

Option	10 Year Program/ Project Costs			2025-30 Program/ Project Costs			10 Year Benefits <sup>5</sup>	10 Year NPV <sup>6</sup>	Overall Risk Rating	Ranking
	Capex	Opex	Totex	Capex	Opex	Totex				
<b>Option 0 – base case (do-nothing): Discontinue A&amp;W</b>	-	-	-	-	-	-	-	-	High	2
<b>Option 1 – Continue A&amp;W Program in 2025-30 (Recommended)</b>	30.2	17.6	47.8	30.2	10.1	40.3	88.7	29.4	Medium	1
<b>Option 2 – Defer further A&amp;W investment until 2030-35</b>	30.2	10.1	40.3	-	-	-	39.8	-0.9	High	3

A full risk assessment is listed in Appendix A and a full NPV Calculation in Appendix D.

<sup>5</sup> Represents the total capital and operating benefits, including any quantified risk reduction/management benefits, over the 5-year cash flow period from 1 July 2025 to 30 June 2030 expected across the organisation as a result of implementing the proposed option.

<sup>6</sup> NPV of the proposal over 10-year cash flow period from 1 July 2025 to 30 June 2030, based on discount rate of 4.05%.

## ***Assumptions***

Our work scheduling system will be replaced under the 5.12.10 - Click Replacement business case.

The underlying data analytics platform supporting our models will be delivered by the 5.12.11 - Enterprise Data Warehouse Replacement & Consolidation business case.

### **5.3.2 Recommended option**

The increasing average age of our network assets, coupled with increasing demand (and complexity in usage) on our network drive the importance of uplifting our Asset Management capability. An increase in asset management capability will ensure that network investment best targets outcomes and work is delivered efficiently.

Without significant added investment in our Asset Management capability, there would be higher network investment to address the drivers discussed in section 0 with:

- ageing infrastructure leading to increased risk;
- increasing and changing electricity demand; and
- increasing volumes of network investment.

The recommended solution is to continue a comprehensive Asset Management Transformation program (A&W phase 3), which will improve our asset management maturity. The program will take a strategic approach to asset management maturity informed by our Asset Management vision.

The implementation of the Asset Management transformation program will provide the following benefits:

- a more systematic approach to our asset management activities aligned with ISO55001;
- improved risk quantification supporting value-based decision-making; and
- reduced network investment costs through efficiency gains.

Option 0 fails to address the emerging challenges identified in section 3, leading to increased risk to customers & the community and/or increased network investment required to maintain current risk/service levels.

Option 1 will continue our Asset Management transformation, reducing the cost of network replacement and network augmentation. This efficiency gain provides a quantified net benefit to customers.

Option 2 defers any further investment in our Asset Management system until the 2030-35 RCP. Any efficiency gains are deferred to beyond 2030.

## 5.4 Scenario and sensitivity analysis

### 5.5 Option 0 – Do Nothing – Discontinue A&W

#### 5.5.1 Description

Option 0 involves making no investment above recurrent expenditure.

It therefore does not address any of the drivers discussed in section 0, including:

- the increasing risk from assets failing in-service including outages and safety or environmental risks;
- limited ability to effectively plan the capacity of the network as demand increases;
- the increasing risk from climate change including outages and safety or environmental risks; and
- the need to improve work delivery efficiency as the volume of work required on the network grows.

#### 5.5.2 Costs

There are no upfront capital or operating costs associated with Option 0. However, we would not achieve any improvement in work delivery efficiency.

#### 5.5.3 Risks

Table 7: Risk assessment summary

Risk consequence category	Current risk level <sup>7</sup>
Safety – Harm to a worker, contractor or member of the public	High
Customers – Failure to deliver on customer expectations	High
Performance and Growth – Financial	High
Overall risk level	High

#### 5.5.4 Quantified benefits

There are no quantified benefits associated with this option.

#### 5.5.5 Unquantified benefits

There are no unquantified benefits associated with this option.

<sup>7</sup> The level of risk post current controls (ie after considering what we currently do to mitigate the risk).

## 5.6 Option 1: Continue A&W Program in 2025-30 (Phase 3- Asset Management Transformation Program)

### 5.6.1 Description

Option 1 continues the A&W program (**AMTP**). The elements of the 2025-30 roadmap and benefits include:

- extension of the capability of our **portfolio management** systems to better plan the network capital program – leading to efficiency in delivery of work;
- improvement in our **asset failure data** and data collection technology including field mobility to improve our understanding of condition/failure risks – further refining our Risk Cost Model – while reducing the time, and therefore cost, to collect this data in the field;
- extension of our **Risk Cost Modelling** for use in network upgrades / augmentation in relation to reliability and bushfire risk management, which currently rely on manual processes. This enables more efficient risk analysis building on work undertaken to improve our asset replacement planning;
- development of a new **demand forecasting** and capacity planning system that can account for demand peaks occurring at various times of the year, and in both forward and reverse directions. Changing network demand trends also require improved demand forecasting capabilities to allow us to continue to efficiently identify the appropriate network augmentation;
- implementation of a **Digital twin**, a digital model of the physical assets that make up our distribution network enabling a reduction in labour costs associated with site visits and scoping;
- **digital engineering**, which improves engineering design systems and processes, reducing labour costs associated with design and update of our geographic information system; and
- implementation of enhanced **asset information capture**, bringing capture of asset data upstream into our work delivery processes thereby reducing the need for manual data entry in the field.

### 5.6.2 Costs

Option 1 costs were forecast on a bottom-up basis. Total expenditure for 2025-30 RCP is \$40.3 million, including \$30.2 million of capex and \$10.1 million of non-recurrent opex. As a conservative estimate for our NPV calculation, we retain \$1.5 million per year of recurrent opex for the remainder of the NPV period (10 years). The expenditure breakdown is provided below in Table 8, program costs are broken down in Appendix B.

Table 8: Option 1 Costs by Cost Type (\$m Jun 2022 Real)

Cost Type	2025-	2026-	2027-	2028-	2029-	Total	2030-	2031-	2032-	2033-	2034-	Total
	26	27	28	29	30	2025 – 30	31	32	33	34	35	2030-35
<b>Recurrent</b>												
Capex	-	-	-	-	-	-	-	-	-	-	-	-
Opex	-	-	-	-	-	-	1.5	1.5	1.5	1.5	1.5	7.5
<b>Recurrent Total</b>	-	-	-	-	-	-	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>7.5</b>
<b>Non-Recurrent</b>												
Capex	4.6	7.5	7.8	6.2	4.1	<b>30.2</b>	-	-	-	-	-	-
Opex	2.0	2.0	2.0	2.0	2.0	<b>10.1</b>	-	-	-	-	-	-
<b>Non-Recurrent Total</b>	<b>6.6</b>	<b>9.5</b>	<b>9.8</b>	<b>8.2</b>	<b>6.1</b>	<b>40.3</b>	-	-	-	-	-	-
<b>Total Capex</b>	4.6	7.5	7.8	6.2	4.1	<b>30.2</b>	-	-	-	-	-	-
<b>Total Opex</b>	2.0	2.0	2.0	2.0	2.0	<b>10.1</b>	1.5	1.5	1.5	1.5	1.5	<b>7.5</b>
<b>TOTAL COST</b>	<b>6.6</b>	<b>9.5</b>	<b>9.8</b>	<b>8.2</b>	<b>6.1</b>	<b>40.3</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>7.5</b>

### 5.6.3 Risks

Table 9: Risk assessment summary

Risk consequence category	Current risk level <sup>8</sup> (Option 0)	Residual risk level <sup>9</sup> (Option 1)
<b>Safety</b> – Harm to a worker, contractor or member of the public	High	Low
<b>Customers</b> – Failure to deliver on customer expectations	High	Low
<b>Performance and Growth</b> – Financial	High	Medium
<b>Overall risk level</b>	High	Medium

### 5.6.4 Quantified benefits

Investing in our asset management systems through the A&W Program has enabled us to maintain service outcomes to customers, despite a rising number of assets reaching the end of their economic life. In previous business cases for the program, improved work selection allowed us to increase asset lives and defer repex costs. Moving into Phase 3 of the program, we can build on our improved capability to identify and complete the right work, to then improve our overall efficiency, carrying out work at a lower cost.

This allows us to move from our primary benefit being a deferral in repex, as was the case in the Phase 2 A&W business case, to an efficiency benefit from the labour component of network capex. This benefit reflects efficiency gained across network expenditure through the projects detailed in section 5.6.1. The primary benefit arising from these projects is saved labour time eliminating unnecessary and inefficient work and continuing to improve work selection and scheduling.

Powerline Environment Committee (**PLEC**) (legislated undergrounding program), and Customer Connections are excluded from the benefit given its distant relation to the asset management cycle.

These benefits increase over time starting at 0 in H2 of 2025 and up to 8.75% of labour expenditure<sup>10</sup> in the first half of 2027. Over the 2025-30 RCP, this is a \$38.8m reduction in our network capex. For the purposes of our NPV analysis we presume the benefit in the last year of the 2025-30 RCP is maintained through to 2035.

To demonstrate how this program will drive this efficiency gain we generated a series of discrete case studies that explore our current practices and explain how the program will enable us to achieve our outcomes at a lower investment cost.

<sup>8</sup> The level of risk post current controls (ie after considering what we currently do to mitigate the risk).

<sup>9</sup> The future level of risk once treatments proposed in this option have been implemented.

<sup>10</sup> Labour expenditure derived from 5.1.1 - AER Standardised Capex model.

### Case Study One: Digital Engineering and Digital Twin

Digital engineering and digital twin systems have been harnessed by other networks to overhaul their drafting and design practices. SA Power Networks have trialled software packages and will seek to roll out this program in the 2025-30 RCP.

To implement these programs there is key foundational work required:

- **Light Detection and Ranging (LiDAR)** scanning of the network, which can be conducted concurrently with network fly over inspections; and
- implementation of **standardised building units**. These units will have standard drawings and known interactions with other units in our network planning system.

Currently a network augmentation, depending on the size and scope of the job, may require the following steps:

1. a network planning officer (**NPO**) will take a design request, draft a design, and generate a quote for the customer;
2. once accepted, a field services planner will redraw 'for construction' design;
3. field services then build the solution and generate an 'as constructed' design; and
4. the 'as constructed' drawing is then manually re-drawn for our GIS systems.

This process has notable overlaps in effort with the re-drawing of the same design, often using different formats and software. Changes between drawings are often caused by compliance issues or reflecting environmental factors that the previous designer did not have knowledge of. With a digital engineering software package, coupled with standard building units and LiDAR, we will be able to simplify the process, saving time and reducing risk. A new process would involve:

1. a network planning officer using the digital engineering software to design a solution for costing. This will be directly integrated with our digital twin network model and can be generated as a 'for construction' Computer Aided Design and GIS drawing. The LiDAR model will give the NPO greater understanding of the environment, and the software will have guard rails to make sure the design is compliant;
2. once the quote is accepted, field services will receive a higher quality drawing and will be able to make tweaks on the same software package. This will be passed onto field services for construction design;
3. Field Services will be able to make amendments to reflect the 'as constructed' design, in the digital engineering software; and
4. The 'for construction' drawing will automatically be transferred to the GIS System once constructed.

This program offers dramatic time savings at every stage of the design process and allow us to produce a greater number of high-quality designs with the same labour input.

## Case Study Two: Asset Information Capture

Transforming our asset information capture systems will improve the workflow for multiple teams throughout the organisation, allow us to plan work better, understand risk and reduce the amount of subsequent scoping work.

Field workers are expected to use 15 apps using 12 User Interfaces (UIs) to complete all processes of field work. This volume of apps and UIs is a result of an incremental increase in business capabilities driving field processes, rather than applications built around what is best and most efficient practice. From organisational observations most staff tend to only deploy 8 of these apps to complete most work, the minimum required to meet their compulsory steps. This means we underutilise our technological capabilities in the field and do not capture enough data during planned and unplanned work.

Field crews currently complete 5+ minute “field closeouts” on a tablet, committing events and materials from the job to memory. Under a new process, teams could populate data fields as the job progresses, entering more data, accurately, in cumulatively less time. It will also decrease the need for future scoping work as the final data is more accurate.

An increased data capability would include an overhaul of the user experience for field workers and drive a greater use of our already available systems. Linking multiple software packages together, using APIs from our backend systems we will develop a holistic field/mobile software package, with an overall aim of efficient data capture and communication from the field.

Increased data quality and availability will have an impact on the work of several other teams, including:

- **Operational Asset Management**
  - Increased data quality and availability can allow the team to identify potential risks and trends with our assets so we can actively mitigate and reduce risk/liability on the network.
- **Network Reliability**
  - Increased visibility on what caused an incident and what the crew did in response, will allow the team to identify ways to save costs from unnecessary truck rolls and improve reliability/safety in the network.
- **Works Prep and Scheduling**
  - For unplanned work, understanding what work was done on an asset to restore power, as well as what work is left to be done to completely rectify the asset involved, enables staff to confidently and efficiently value and prepare the remaining work for scheduling.

Quality data unlocks a greater understanding of our assets and risks across the organisation, data capture and its flow on uses will drive our increased efficiency in the upcoming RCP.

### Case Study Three: Strategic Work Optimisation (Utilising Portfolio Management and Risk Cost Model)

Over the current RCP, we have grown in our ability to make automated, tactical scheduling decisions for day-to-day operations (bundling). As we refine our processes, we expect to continue deriving further benefits from this practice. In the upcoming period, we will shift our focus to medium term planning using our risk cost model and portfolio management in order to have greater visibility on upcoming works and plan our resourcing accordingly.

Our portfolio management system increases our visibility of what work is necessary and allows us to properly optimise work for risk and efficiency. This understanding, underpinned by our risk cost model, can be utilised in our deployment of field crews, and can drive a reduction in the amount of work required and the time spent in transit for jobs.

A clear, discrete scenario demonstrating this is how we plan work on the further reaches of our network. Currently, when we plan work in regions not served by a local depot, we do not have quality cross organisational line of sight of other potential upcoming work on the same or adjacent feeders. This means we can in some cases send crews out to remote sites on multiple occasions where a singular, multi day trip may be more efficient.

An enhanced portfolio management system will provide us with a consolidated understanding of risk and our upcoming replacement jobs and we will be able to efficiently schedule this behaviour and save on travel time for field crews.

We have accounted for this benefit in our Regulatory Proposal by including this as a separate ‘efficiency benefit’ line identified within our total capex forecast for 2025-30 – that is, each network expenditure line (e.g. repex, augex, etc and their respective business cases) has been proposed exclusive of this benefit, but our total capex forecast is reduced by the amount of this expected benefit. A full breakdown of the efficiency is included in Appendix C.

**Table 10: Option 1 Benefits by Expenditure Type (\$m 2022 Real)**

Benefit Type	2025-26	2026-27	2027-28	2028-29	2029-30	Total 2025 - 30	Total 2030-35
Reduced Repex	0.9	4.7	6.3	5.7	5.8	23.3	28.9
Reduced Augex	0.5	2.7	3.3	3.4	3.9	13.8	19.3
Reduced CER	0.2	0.4	0.5	0.3	0.3	1.7	1.6
<b>Total reduction to capital expenditure forecast</b>	<b>1.6</b>	<b>7.7</b>	<b>10.1</b>	<b>9.4</b>	<b>10.0</b>	<b>38.8</b>	<b>49.8</b>

In addition to the benefits outlined above, the efficiency reduction to our network capex results in a reduction of costs for our Resourcing Plan for Delivering the Network Program as we model requiring a smaller increase in FTE to support the proposal. The impact of the AMTP efficiency is quantified in 5.2.5 - Resourcing Plan for Delivering the Network Program. It is not considered in this case’s NPV analysis.

#### 5.6.5 Unquantified benefits

The program is also expected to improve safety outcomes for staff with reduced driving required for both scoping and delivery of work.



## 5.7 Option 2: Defer further A&W investment until the 2030-35 RCP

### 5.7.1 Description

Option 2 proposes deferring the implementation of A&W phase 3 until the 2030-35 RCP.

### 5.7.2 Costs

There are no costs associated with option 2 in the 2025-30 RCP. The expenditure associated from option 1 are deferred to 2030-35. The expenditure breakdown is provided below in Table 11.

Table 11: Option 2 Costs by Cost Type (\$m Jun 2022 Real)

Cost Type	Total 2025 – 30	2030-31	2031-32	2032-33	2033-34	2034-35	Total 2030-35
<b>Recurrent</b>							
Recurrent Total	-	-	-	-	-	-	-
<b>Non-Recurrent</b>							
Capex	-	4.6	7.5	7.8	6.2	4.1	30.2
Opex	-	2.0	2.0	2.0	2.0	2.0	10.1
Non-Recurrent Total	-	6.6	9.5	9.8	8.2	6.1	40.3
Total Capex	-	4.6	7.5	7.8	6.2	4.1	30.2
Total Opex	-	2.0	2.0	2.0	2.0	2.0	10.1
TOTAL COST	-	6.6	9.5	9.8	8.2	6.1	40.3

### 5.7.3 Risks

Table 12: Risk assessment summary

Risk consequence category	Current risk level <sup>11</sup> (Option 0)	Residual risk level <sup>12</sup> (Option 2)
Safety – Harm to a worker, contractor or member of the public	High	High
Customers – Failure to deliver on customer expectations	High	High
Performance and Growth – Financial	High	High
Overall risk level	High	High

<sup>11</sup> The level of risk post current controls (ie after considering what we currently do to mitigate the risk).

<sup>12</sup> The future level of risk once treatments proposed in this option have been implemented.

### 5.7.4 Quantified benefits

For our benefits calculation, we presume our network capex in 2030-35 will be consistent, with the yearly expenditure equalling the expenditure in the 2029/30 regulatory year. We derive our benefit from this expenditure, with the same ramp up and final efficiency rate (8.75%) as option 1.

**Table 13: Option 2 Benefits by Expenditure Type (\$m 2022 Real)**

Benefit Type	Total 2025-30	2030-31	2031-32	2032-33	2033-34	2034-35	Total 2030 - 35
Reduced Repex	-	1.0	4.8	5.8	5.8	5.8	<b>23.1</b>
Reduced Augex	-	0.6	3.2	3.9	3.9	3.9	<b>15.4</b>
Reduced CER	-	0.1	0.3	0.3	0.3	0.3	<b>1.3</b>
<b>TOTAL</b>	-	<b>1.7</b>	<b>8.3</b>	<b>10.0</b>	<b>10.0</b>	<b>10.0</b>	<b>39.8</b>

### 5.7.5 Unquantified benefits

In addition to the quantified benefits outlined above, the program is expected to improve safety outcomes for staff with reduced driving required for both scoping and delivery of work.

## 6. Deliverability of recommended option

Within the current RCP, we have been delivering the A&W program (phase 2). The experience gained from implementing A&W Phase 1 (2015-20) and A&W Phase 2 (2020-25) has helped inform the development of future projects and initiatives, including this business case. The proposed scope and scale of the A&W roadmap for 2025-30 is smaller to the 2020-25 program already being delivered.

A dedicated program team has been established to manage the program in addition to support of dedicated subject matter experts. The program will leverage a combination of consultants and internal staff and the program has supporting governance structures in place. The Program and related Projects will follow the established Project Delivery Governance model and guidelines as specified by the Strategic Portfolio Management Office.

External consultancy AMCL have been engaged to support the AMTP team with establishing an Asset Management Vision to 2035 and a revised roadmap of delivery. These artefacts have been co-designed with our employees with supporting personas acknowledging the key shifts required and benefits of change for SA Power Networks and our customers.

The timing of delivery for change implementation such IT solutions, process change, or key mindset shifts in work is planned and performed will be done in consideration to other strategic programs of work.

## 7. How the recommended option aligns with our engagement

### 7.1 Alignment to customer expectations

The total of the investment in our Assets and Work program proposed in this document, is aligned to achieve outcomes that were directly supported by our customers, as ultimately reflected in the recommendations of the People’s Panel. This is noting that:

- the topic of service reliability and safety was a key focus of our consumer and stakeholder engagement program. One of the four key themes that have framed our engagement under a desire to ‘focus on what matters’ to our customers has been the theme of a ‘reliable, resilient, and safe electricity network’;
- in engaging on this theme, we undertook a series of deep-dive workshops called ‘Focussed Conversations’ with a broad range of consumer, industry and government and regulatory body representatives. In these Focussed Conversations we sought recommendations on the service outcomes that customers prefer and expect<sup>13</sup>;
- with particular regard to the management of reliability and bushfire safety through network asset replacement, we engaged on the identified need by outlining:
  1. improvements we have made in managing these outcomes by investing in our A&W program to date;
  2. the anticipated benefit of ongoing investment in our Asset Management systems.
- in the Focused Conversations we then posed two scenarios of how we could respond to the needs, and expected outcomes for customers, these included:
  1. ‘Don’t Continue’ – a counterfactual where we choose to not continue investment in our asset management systems through an A&W program, with no further benefits;
  2. ‘Continue’ – a scenario where we continue to invest in the A&W program, providing an efficiency gain in Network investment required to manage the reliability and safety of our network.
- While our customers and stakeholders were consistently mindful of energy affordability concerns, the Focused Conversations arrived at a clear consensus recommendation to the People’s Panel:
  - stakeholders felt that we have been behind other industry sectors in adopting IT solutions to better manage the business over the last 5-10 years; and
  - there was support for any program if the trade-offs / benefits from the IT investment can demonstrate reduced expenditure over time and improved efficiencies.
- ultimately, the People’s Panel<sup>14</sup> deliberated on and affirmed the recommendation of the Focused Conversations by formally recommending that SA Power Networks continue to invest in the A&W program – we have committed to taking this recommendation forward as reflected in the overall recommendation reflected in this business case; and
- since conducting the People’s Panel process, we 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 suggest that the recommendations of the People’s Panel remain valid with respect to the investment in the A&W program proposed in this business case, noting that:

<sup>13</sup> <https://www.talkingpower.com.au/it-focussed-conversation>

<sup>14</sup> <https://www.talkingpower.com.au/peoples-panel>

- members of the People’s Panel affirmed that their recommendations, including in respect of A&W expenditure as set out in this business case, remain current;<sup>15</sup>
- while some parties such as that from South Australian Council of Social Service<sup>16</sup> and the Department of Energy and Mining<sup>17</sup> urged further consideration of the overall magnitude of our forecast capital expenditure across in totality, no other submissions have suggested a realignment of the overall service and price balance of our proposal, and
- the A&W program was specifically commented on and endorsed by the Small Business Commissioner for South Australia, on the basis that we should be pursuing means of improving works scheduling to minimise impacts on businesses.<sup>18</sup>

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<sup>15</sup> DemocracyCo, *Submission: SA Power Networks Draft Regulatory Proposal 2025-30*, 30 August 2023.

<sup>16</sup> SACOSS, *South Australian Council of Social Service Submission on SA Power Networks’ 2025-30 Draft Regulatory Proposal*, September 2023.

<sup>17</sup> DEM, *South Australian Department of Energy and Mining – Submission*, October 2023.

<sup>18</sup> SBCSA, *Small Business Commissioner South Australia – Consultation on SA Power Networks 2025-30 Draft Regulatory Proposal*, September 2023.

## 8. Alignment with our vision and strategy

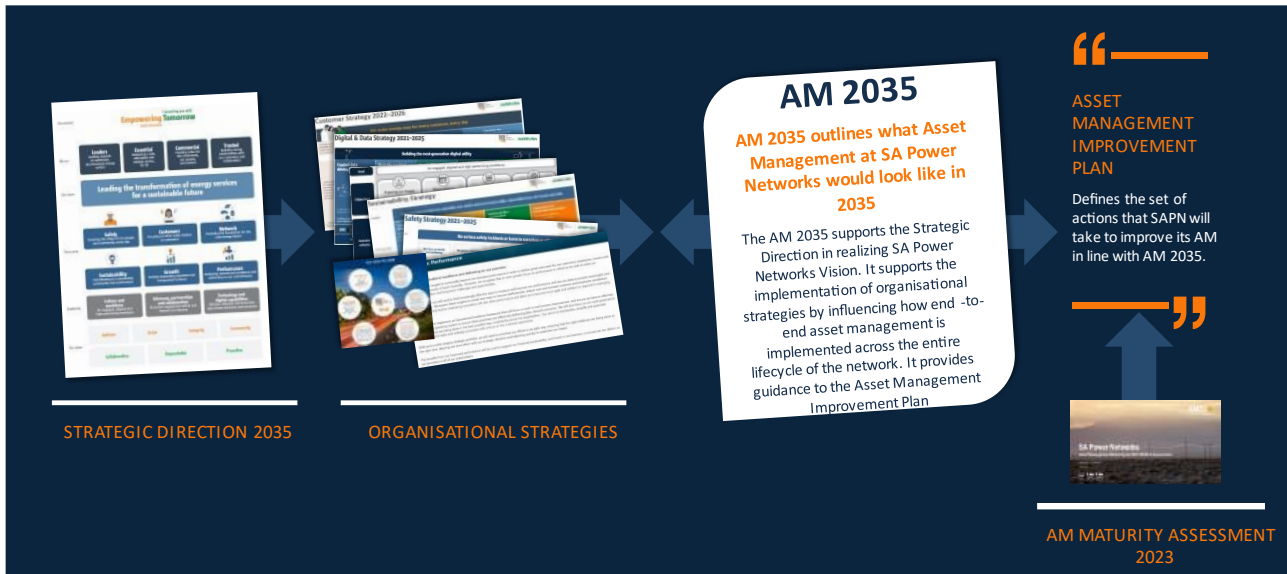


Figure 3: Asset Management Vision development

Our Asset Management is informed by our recently developed Asset Management 2035 Vision aligned with our corporate Strategic Directions 2035 and other organisational strategies.

First, we **focus** on what our **customers and stakeholders** value. The **outcomes** we seek to deliver through our assets reflect the needs of our customers and stakeholders. We combine this with **evidence-based decision making** to inform our response and develop **optimal works planning and delivery**. We achieve this through **an aligned organisation** and by **continually innovating and adapting** how we do things by empowering our people, investing in our asset management system, and piloting and trialling new technologies and concepts. Our Asset Management Vision guides our Assets Management Transformation Program.



Figure 4 SA Power Networks Asset Management Vision

## **9. Reasonableness of input assumptions and cost estimates**

Benefits have been based on a labour efficiency achieved accounting for the labour component of our forecast network capital expenditure outlined in Appendix C.

Costs have been estimated based on:

1. bottom-up estimates leveraging our experience in delivering A&W phases 1 and 2 in the 2015-20 and 2020-25 RCP respectively;
2. the levels of activity to refresh and enable these systems are based on past experience of those systems as well as the estimates based on similar complexity systems for those newer systems.

## A. Appendix A – Risk assessment

ID	Risk scenario	Consequence description	Consequence category	Current risk (Option 0 – Do nothing)			Residual Risk (Option 1 – Continue Program 2025-30)			Residual Risk (Option 2 – Defer to 2030-35)		
				Consequence	Likelihood	Risk Level	Consequence	Likelihood	Risk Level	Consequence	Likelihood	Risk Level
1	Lack of coordination across work program results in multiple visits to a location for different jobs	Safety impact – workers are required to travel more than necessary, resulting in excess time spent driving.	<b>Safety</b> – Harm to a worker, contractor or member of the public	Moderate (3)	Possible (3)	<b>Medium (6)</b>	Moderate (3)	Unlikely (2)	<b>Low (5)</b>	Moderate (3)	Possible (3)	<b>Medium (6)</b>
		Financial impact – additional costs incurred due to do additional switching programs and travel time, caused by inefficient works program	<b>Performance and Growth</b> – Financial	Minor (2)	Almost Certain (5)	<b>High (7)</b>	Minimal (1)	Likely (4)	<b>Low (5)</b>	Minor (2)	Almost Certain (5)	<b>High (7)</b>
		Customer impact – customers are turned off multiple times for different jobs	<b>Customer</b> – Failure to deliver on Customer Expectations	Moderate (4)	Possible (3)	<b>High (7)</b>	Minor (2)	Unlikely (2)	<b>Low (4)</b>	Moderate (4)	Possible (3)	<b>High (7)</b>
2	Poor asset failure data quality leads to incorrect or inefficient investment decision making.	Safety – Inaccurate assessment of safety risks resulting in highest risk/cost investments not being made.	<b>Safety</b> – Harm to a worker, contractor or member of the public	Moderate (3)	Almost Certain (4)	<b>High (7)</b>	Minimal (3)	Rare (2)	<b>Low (4)</b>	Moderate (3)	Almost Certain (4)	<b>High (7)</b>



		Financial – Costs are incurred in replacing or refurbishing assets that could be better spent on higher value investments.	<b>Performance and Growth – Financial</b>	Moderate (3)	Likely (4)	<b>High (7)</b>	Moderate (3)	Unlikely (2)	<b>Low (5)</b>	Moderate (3)	Likely (4)	<b>High (7)</b>
3	Inadequate demand forecasting leads to overload of network assets	Financial – Assets damaged or fail due to overloads and require replacing	<b>Performance and Growth – Financial</b>	Moderate (3)	Likely (4)	<b>High (7)</b>	Minor (3)	Possible (3)	<b>Medium (6)</b>	Moderate (3)	Likely (4)	<b>High (7)</b>
		Customer experience – More deteriorated assets due to being overloaded, resulting in low voltages experienced by customers.	<b>Customer – Failure to deliver on Customer Expectations</b>	Minor (2)	Likely (4)	<b>Medium (6)</b>	Minor (2)	Unlikely (2)	<b>Low (4)</b>	Minor (2)	Likely (4)	<b>Medium (6)</b>
4	Staff are required to visit site to undergo scoping exercises.	Safety – Driving to site for scoping, that could otherwise be performed as a desktop exercise with the appropriate tools.	<b>Safety – Harm to a worker, contractor or member of the public</b>	Moderate (3)	Possible (3)	<b>Medium (6)</b>	Moderate (3)	Unlikely (1)	<b>Low (4)</b>	Moderate (3)	Possible (3)	<b>Medium (6)</b>
		Financial – Costs associated with site based scoping exercises.	<b>Performance and Growth – Financial</b>	Moderate (3)	Almost Certain (5)	<b>High (8)</b>	Minimal (1)	Likely (4)	<b>Low (5)</b>	Moderate (3)	Almost Certain (5)	<b>High (8)</b>
			<b>Overall Risk Level<sup>19</sup></b>			<b>High</b>			<b>Medium</b>			<b>High</b>

<sup>19</sup> For each option, the overall risk level is the highest of the individual risk levels.

## B. Appendix B – Project costs by regulatory year

<b>Capex</b>	<b>2025-26</b>	<b>2026-27</b>	<b>2027-28</b>	<b>2028-29</b>	<b>2029-30</b>
Asset Information Capture	2.0	-	-	-	-
Field mobility/data capture	-	2.7	2.6	2.3	1.4
Demand forecasting/capacity	2.0	1.1	-	-	-
Scheduling/portfolio management	0.6	1.1	2.6	0.5	-
Digital engineering/digital twin	-	2.7	2.6	2.3	1.4
Operational enhancements	-	-	-	1.0	1.4
<b>Sub-total</b>	<b>4.6</b>	<b>7.5</b>	<b>7.8</b>	<b>6.2</b>	<b>4.1</b>
<b>Opex (Non-recurrent)</b>	<b>2025-26</b>	<b>2026-27</b>	<b>2027-28</b>	<b>2028-29</b>	<b>2029-30</b>
Asset Information Capture	-	-	-	-	-
Field mobility/data capture	-	-	-	-	-
Demand forecasting/capacity	1.5	0.5	0.5	0.5	0.5
Scheduling/portfolio management	0.5	0.5	0.5	0.5	0.5
Digital engineering/digital twin	-	1.0	1.0	1.0	1.0
Operational enhancements	-	-	-	-	-
<b>Sub-total</b>	<b>2.0</b>	<b>2.0</b>	<b>2.0</b>	<b>2.0</b>	<b>2.0</b>
<b>Total Cost</b>	<b>6.6</b>	<b>9.5</b>	<b>9.8</b>	<b>8.2</b>	<b>6.1</b>

## C. Appendix C – Efficiency benefit breakdown

Table 15: Option 1 benefit calculation (\$m Jun 2022 Real)

NB: 2030-35 is not broken down into regulatory half years as the benefits are split evenly across the period.

Benefit Type	H2 2025	H1 2026	H2 2026	H1 2027	H2 2027	H1 2028	H2 2028	H1 2029	H2 2029	H1 2030	Total 2025 - 30	Total 2030-35
Total Applicable Capex	128.2	128.2	125.5	125.5	136.3	136.3	130.9	130.9	136.6	136.6	1,314.9	1365.7
% Reduction of Labour	-	2.9	5.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	7.0	8.8
% Reduction of Total	-	1.2	2.5	3.7	3.7	3.7	3.6	3.6	3.6	3.6	2.9	3.6
Reduced Repex	-	0.9	1.9	2.8	3.1	3.1	2.8	2.8	2.9	2.9	23.3	28.9
Reduced Augex	-	0.5	1.1	1.6	1.7	1.7	1.7	1.7	1.9	1.9	13.8	19.3
Reduced CER	-	0.2	0.1	0.2	0.3	0.3	0.1	0.1	0.2	0.2	1.7	1.6
<b>TOTAL</b>	-	1.6	3.1	4.6	5.0	5.0	4.7	4.7	5.0	5.0	38.8	49.8

Table 16: Option 2 benefits calculation (\$m Jun 2022 Real)

Benefit Type	H2 2030	H1 2031	H2 2031	H1 2032	H2 2032	H1 2033	H2 2033	H1 2034	H2 2035	H1 2035	Total 2030-35
Total Applicable Capex	136.6	136.6	136.6	136.6	136.6	136.6	136.6	136.6	136.6	136.6	1365.7
% Reduction of Labour	-	2.9	5.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	7.0
% Reduction of Total	-	1.2	2.4	3.6	3.6	3.6	3.6	3.6	3.6	3.6	2.9
Reduced Repex	0.0	1.0	1.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	23.1
Reduced Augex	0.0	0.6	1.3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	15.4
Reduced CER	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.3
<b>TOTAL</b>	0.0	1.7	3.3	5.0	5.0	5.0	5.0	5.0	5.0	5.0	39.8

## D. Appendix D – NPV calculations

Table 17: Option 1 Net Present Value calculation (\$m Jun 2022 Real)

Category	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	Total 2025 - 35
Total Capital Costs	4.6	7.5	7.8	6.2	4.1	-	-	-	-	-	30.2
Total New Opex	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	17.6
Total Costs	6.6	9.5	9.8	8.2	6.1	1.5	1.5	1.5	1.5	1.5	47.8
Total Benefit	1.6	7.7	10.1	9.4	10.0	10.0	10.0	10.0	10.0	10.0	88.7
Net Cashflow	-5.0	-1.8	0.2	1.2	3.9	8.5	8.5	8.5	8.5	8.5	40.9
Rolling NPV – 4.05% Discount Rate	-4.9	-6.6	-6.4	-5.3	-2.1	4.7	11.3	17.6	23.6	29.4	10Y NPV = 29.4

Table 18: Option 2 Net Present Value calculation (\$m Jun 2022 Real)

Category	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	Total 2025 - 35
Total Capital Costs	-	-	-	-	-	4.6	7.5	7.8	6.2	4.1	30.2
Total New Opex	-	-	-	-	-	2.0	2.0	2.0	2.0	2.0	10.1
Total Costs	-	-	-	-	-	6.6	9.5	9.8	8.2	6.1	40.3
Total Benefit	-	-	-	-	-	1.7	8.3	10.0	10.0	10.0	39.8
Net Cashflow	-	-	-	-	-	-4.9	-1.2	0.1	1.7	3.9	-0.4
Rolling NPV – 4.05% Discount Rate	-	-	-	-	-	-4.0	-4.9	-4.8	-3.6	-0.9	10Y NPV = -0.9