



Supporting  
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# IT Investment Plan 2020-25

2020-2025  
Regulatory Proposal  
January 2019





**SA Power Networks**

# **IT Investment Plan 2020–25**



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January 2019

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## Executive summary

- ✓ Cost reductions to customers through business benefits of over \$190 million
- ✓ Forecast total IT investment per annum reduction of \$26.6 million
- ✓ One of the lowest IT opex costs per customer of the Australian DNSPs and our IT totex per customer will be below the average for the NEM

## Introduction

Information Technology (IT) is fundamental to enabling the effective and efficient delivery of low cost electricity distribution services to our customer. During the 2020-25 regulatory control period (RCP) the role of IT will increase as more elements of our services to the customer and the resilience of the network are enabled by, and rely on, IT systems. Efficiently managing our distribution asset risk and maintaining reliability on our ageing network, in a very dynamic environment, requires investment in our IT systems and in the quality of our data. These IT capabilities also provide the foundation for the delivery of the Future Network Strategy.

SA Power Networks is successfully delivering cost efficient, reliable, safe and secure services to our customers with one of the lowest IT operating costs of any of the Australian distribution network service providers (DNSPs)<sup>1</sup>.

This IT Investment Plan 2020–25 enables SA Power Networks to meet the National Electricity Regulation (NER) objectives and obligations by supporting the SA Power Networks Regulatory Proposal for the 2020–25 RCP. Along with the SA Power Networks Digital Strategy 2018–25, this Investment Plan outlines the proposed approach to enabling and supporting our organisation through a period of major industry, regulatory and market change. **We will enable the delivery of better outcomes for our customers at a lower price through secure and efficient IT services.**

Our IT investment objectives<sup>2</sup>, which are consistent with the NER expenditure objectives, are to:

- **Maintain compliance with existing and meet new regulatory obligations**, as they emerge in a dynamic market environment.
- **Maintain current levels of service and manage IT technology risk** through efficient, secure technology management services, and IT asset refresh and replacement cycles that maximise the useful life of our assets and optimise the outcomes for our customers.
- **Manage business and distribution network costs through the efficient use of data and digital technology.** We will build on the initial phases of our program to improve how we manage our distribution network assets (**Assets & Work Program**) which has already successfully enabled the efficient deferral of \$205 million<sup>3</sup> of distribution network asset replacement expenditure while managing risk and maintaining reliability and security of our network.

<sup>1</sup> KPMG Utilities IT Benchmarking: Technology Regulatory Benchmarks, January 2019. Based on bi-yearly IT benchmarking studies conducted by KPMG using publicly available yearly Regulatory Information Notification (RIN) reported data.

<sup>2</sup> Also called the IT Investment Plan objectives within this document.

<sup>3</sup> All figures in this IT Investment Plan are in Dec 2017 dollars.

## Proposed IT expenditure

To enable the delivery of the outcomes defined in the SA Power Networks Proposal for the 2020–25 RCP we require an IT investment total expenditure (**totex**) of \$391.7 million. This is less than the actual/estimated totex for the 2015–20 RCP of \$392.6 million. SA Power Networks considers that this investment is critical to achieving the opex and capex objectives in clauses 6.5.6(a) and 6.5.7(a) of the NER and is consistent with the requirements of clauses 6.5.6(c) and 6.5.7(c) of the NER<sup>4</sup>.

As Figure ES.1 shows, there is a significant *decrease* in the totex per annum (up to \$26.6 million per annum) as the large IT capital program, allowed for in the 2015–20 Regulatory Determination, is finalised in the 2020-25 period. As the large billing and customer systems replacement program is completed the capital expenditure (**capex**) will revert to per annum levels lower than those in 2015.

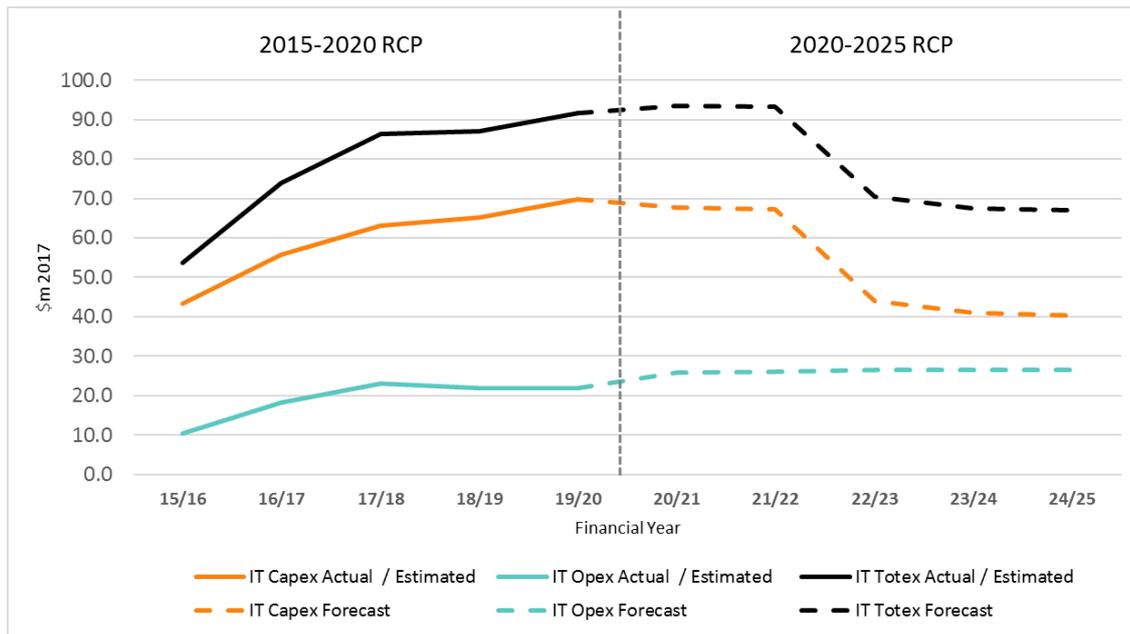


Figure ES.1: Actual/Estimated and Forecast IT totex, capex and opex across the 2015–20 and 2020–25 RCPs

As demonstrated in Table ES.1 (below), while we will enable the delivery of business efficiencies, the focus of our technology expenditure (72.6%) is very much on maintaining our ‘business as usual’ services and managing our IT risk through upgrades and refreshes while keeping our costs sustainable.

We are proposing a total forecast capex of \$260.5 million for the 2020–25 RCP. This is a reduction on both the capex actual/estimates (\$297.1 million) and the capex allowance (\$270.5 million) for the 2015–20 RCP.

We are proposing a total forecast operating expenditure (**opex**) of \$131.2 for the 2020–25 RCP including a step change of \$21.9 million<sup>5</sup> consisting of:

1. incremental subscription costs associated with transitioning to cloud-based IT infrastructure and applications (\$10.5 million), substituted efficiently for foregone recurrent capex of \$11.3 million because we have reduced our future capex on replacement hardware; and
2. an increase in our IT support and maintenance costs of \$11.4 million required to achieve compliance with the Critical Infrastructure Centre requirements under the *Security of Critical Infrastructure Act 2018* (Cth) and other related regulatory instruments.

<sup>4</sup> The NER rules define how the Australian Energy Regulator (AER) determines whether expenditure is necessary, prudent and efficient. Additional information about NER rules is provide n Section 1.1 and how we meet them in Section 4.6.

<sup>5</sup> Additional IT opex increases are expected to arise as a result of the overall IT program of work. However, these are expected to be offset by benefits arising within the business and therefore have not been included as proposed step changes.

**Table ES.1: Summary of capex, operating expenditure (opex) impacts and benefits forecast by IT Investment Plan objective (\$million, Dec \$2017)**

IT Investment Plan objectives	Capex total	% of capex	Opex step changes being sought from the AER	Benefits 2020–30
Maintain compliance with existing and meet new regulatory obligations	11.5	4.4%	11.4	0.6
Maintain current levels of service and manage IT technology risk	189.1	72.6%	10.5	60.3 <sup>6</sup>
Manage business and network costs through efficient use of data and digital technology	59.9	23.0%		131.3
<b>Total</b>	<b>260.5</b>		<b>21.9</b>	<b>192.3</b>

Note: Numbers may not add up due to rounding

## Benefits from the IT investment

Our customers will benefit from lower prices through efficient delivery of distribution services, and from the provision of timely information to enable them to make informed decisions about energy services. These benefits are enabled by investment in IT systems. The IT Investment delivers substantial tangible and intangible benefits to customers including:

**Maintain current levels of service, managing IT risks and maintaining compliance.** The primary benefits are risk minimisation and maintaining the considerable value of our existing IT investments which are fundamental to enabling the provision of distribution services to customers and the efficient and prudent operation of our organisation.

### **Manage business and network costs through efficient use of data and digital technology.**

Tangible benefits expected from the IT investment are estimated at \$192.3 million over the 2020–30 period. Almost 70% of the benefits (\$131.3 million) are expected to arise from the efficient deferral of network asset replacements and associated cost reductions enabled by the improved use of data and digital technology, supporting lower prices to customers.

Summary benefits details can be found in the sections below with the specific detail in each of the associated business cases.

## Comparison to other DNSPs

We aim to be at or below the National Electricity Market (NEM) average IT totex per customer for the majority of the time, while continuing to maintain safe, secure, reliable distribution services and deliver value. Our proposed IT investment fulfils this aim and enables a cost-efficient technology foundation while responding to emerging distribution service changes. By 2024-25 our forecast IT totex per customer will be 13.2% less than the NEM average (see Section 10).

<sup>6</sup> These benefits predominantly reflect avoided capex or opex and the forecast has been adjusted or not increased by the amount of the avoided costs. Cost avoidance benefits cannot be offset against the opex step change increases.

## 1. Purpose and scope

- ✓ Summarises our proposed IT expenditure
- ✓ Focuses on meeting NER objectives maintaining ‘business as usual’ regulated services and managing risk on our network
- ✓ Excludes costs for the Future Network Strategy and network operating technologies

### 1.1 Purpose

The IT Investment Plan provides the overview, rationale and portfolio summary of the proposed IT expenditure for the 2020–25 RCP<sup>7</sup> and supports our 2020-25 Regulatory Proposal.

SA Power Networks uses IT services to enable and support the efficient operation of its distribution network consistent with the National Electricity Rules (**NER**) expenditure objectives<sup>8</sup>, namely:

1. to meet and manage the expected demand for standard control services over the 2020-25 RCP;
2. to comply with all applicable regulatory obligations or requirements associated with the provision of standard control services;
3. to maintain the quality, reliability and security of supply of standard control services (where there are no applicable regulatory obligation or requirement); and
4. to maintain the safety of the distribution system through the supply of standard control services.

### 1.2 Scope

The scope of the technologies considered in the IT Investment Plan include capabilities associated with maintaining the existing corporate and enterprise IT systems, IT networks and developing new capability consistent with our Digital Strategy to meet service levels and improve services to reduce costs.

Technical capabilities associated with the running of the operational technologies (**OT**) and telecommunications networks such as SCADA, Advanced Distribution Management System (**ADMS**) and Low Voltage (**LV**) Management Strategy are not considered in the IT Investment Plan. Those technologies are covered in the 2020-25 Regulatory Proposal (see Attachment 5 – Capital Expenditure). We have also made sure that costs are not duplicated between the IT and OT technologies and initiatives.

IT services provided to SA Power Networks’ unregulated affiliated entity (Enerven) are not included in the IT Investment Plan.

### 1.3 Nomenclature

The terms ‘IT’ and ‘Digital’ can often be used interchangeably. In this IT Investment Plan ‘IT’ refers to the technology services provided to the organisation, particularly through the IT Department. ‘Digital’ is used to refer to the full range of technologies that are available to enable the provision of those services, particularly involving the use of data. Our strategy is called the ‘Digital Strategy’ as it encompasses a wide range of technologies and capabilities.

<sup>7</sup> The Regulatory Control Period from 1 July 2020 until 30 June 2025.

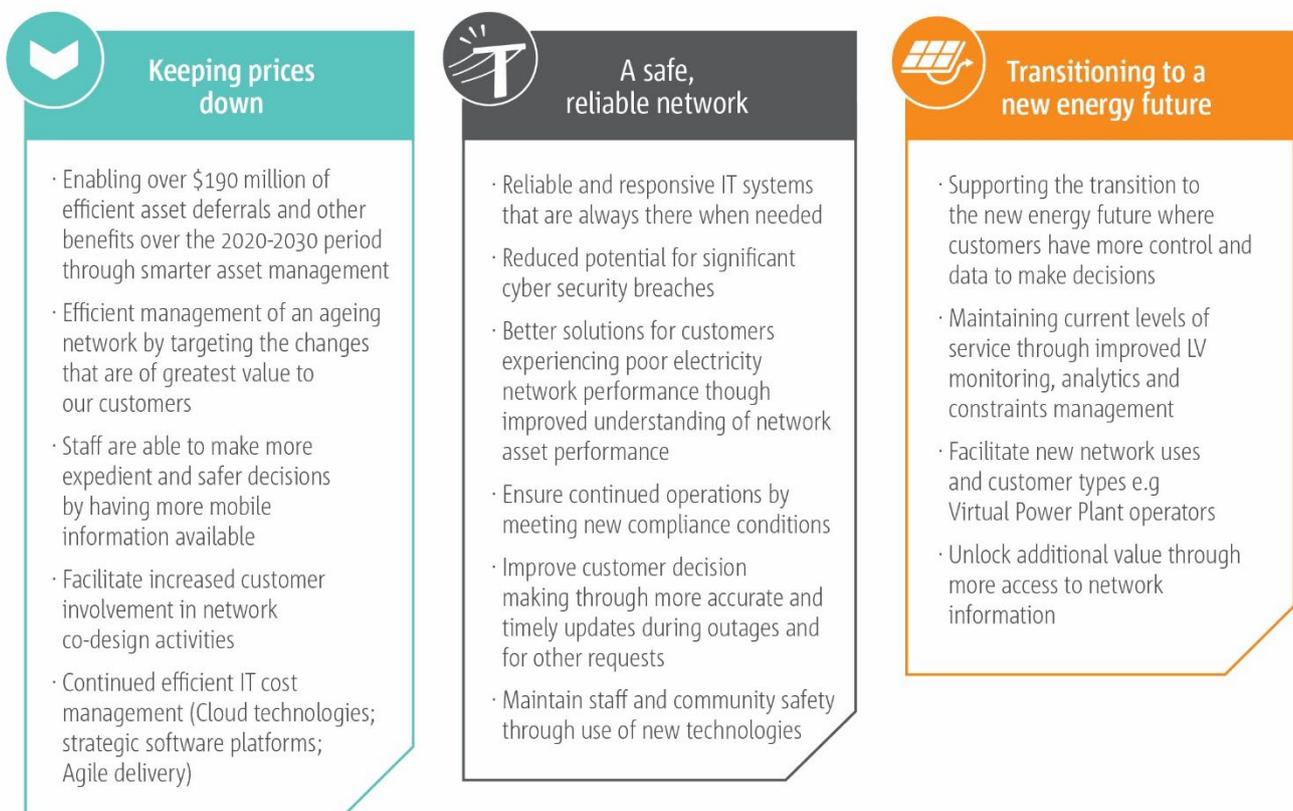
<sup>8</sup> The capex objectives set out in clause 6.5.7(a) of the NER and the opex objectives set out in clause 6.5.6(a) of the NER.

## 2. Benefits to our customers

- ✓ Reduce costs to customers through business benefits of over \$190 million
- ✓ Continue to enable the efficient delivery of distribution services
- ✓ Improved customer decision making through more timely and accurate information during outages

Our IT systems enable us to provide distribution services to our customers. The proposed investments detailed in the IT Investment Plan will ensure that our IT systems are fit for purpose, secure and reliable.

Figure 2.1 summarises the specific benefits to our customers of these investments against the three objectives most valued by our customers as identified in the course of our customer engagement program.



**Figure 2.1: Customer benefits of the IT Investment Plan programs of work categorised by the three areas valued by our customers<sup>9</sup>**

A more detailed list of general customer benefits enabled by our IT capabilities is detailed in Appendix A while Section 4.5.1 summarises the financial benefits.

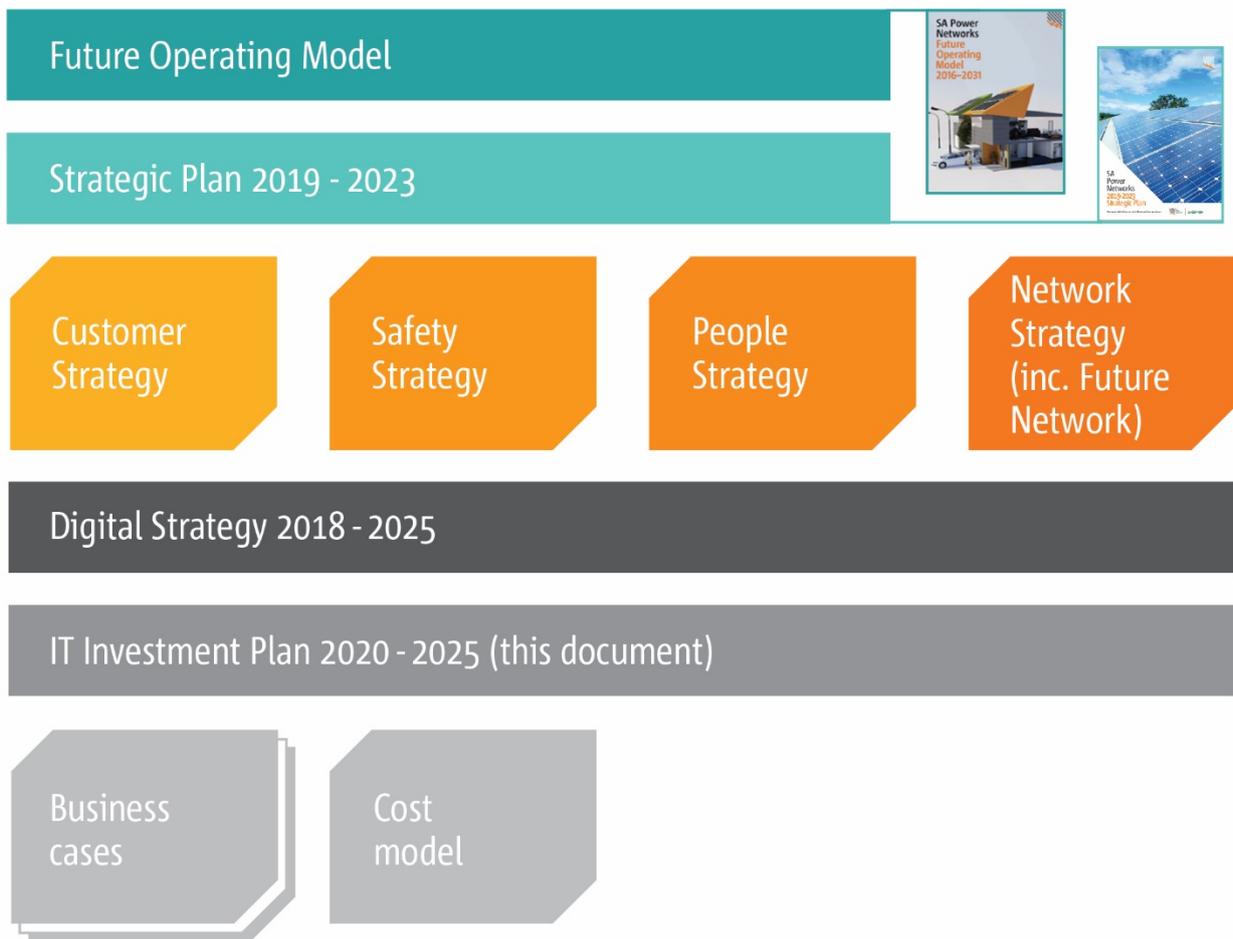
<sup>9</sup> Transitioning to a new energy future is not included in the IT Investment Plan. This capability is enabled by the LV Management Business Case.

### 3. IT strategic drivers and focus 2020–25

- ✓ Taking a customer focused approach to delivering distribution services
- ✓ Reducing costs to customers through more intelligent use of data and technology

#### 3.1 A strategic and structured approach

The electricity industry is undergoing profound change which is expected to continue for some time. SA Power Networks has developed and refined a mature, strategic and structured approach to navigating this change. Figure 3.1 outlines how this IT investment Plan forms part of our enterprise strategies.



**Figure 3.1: The IT Investment Plan context in the structure of our enterprise strategies**

This IT Investment Plan aligns to the strategies and summarises the IT portfolio of work required during the 2020–25 RCP to deliver on the strategic directions. The IT portfolio of work comprises a set of detailed investment business cases which address the IT Investment Plan objectives to enable our strategic directions in alignment with the NER expenditure objectives.

#### 3.2 Strategic drivers

Our rapidly evolving business and technology environments present both challenges and opportunities. These are described in detail in our strategic documents (identified in Figure 3.1 above). The following is a brief summary of the strategic drivers impacting on IT – classified as challenges and opportunities. More detail is provided in Appendix B.

## Challenges

### Rapidly changing energy market and customer preferences

- New types of customers and market players are emerging.
- Customer expectations continue to evolve.
- The move to a distributed energy world requires new, more data intensive, approaches to managing our distribution network.

### Our ageing network and changing workforce

- Our ageing distribution network infrastructure requires new asset management approaches and tools to contain costs while managing risk.
- The type of work we are doing on the network is changing to include a much larger number of small repairs to keep the network functioning – necessitating changes in how we schedule and deliver work.
- The workforce is undergoing a generational transition and we need to retain and share deep historical knowledge of the distribution network.

### Core IT needs to continue to evolve cost-efficiently

- IT is central to the efficient delivery of distribution services.
- We must respond to increasing cyber security risks and related regulatory obligations.
- Ageing and legacy IT systems are in need of upgrade or replacement.
- Cloud services are changing our traditional capex/opex approaches.
- Cloud services are reducing our control and choice over when we upgrade and update.

## Cost effective opportunities

- Increasingly intelligent automation will enable process improvement.
- Intelligent tools can collect and analyse larger volumes of data to help identify and manage risk and make better decisions.
- Cloud services are maturing which can enable improved cost management approaches.
- New digital technologies are evolving rapidly and offer new opportunities.

### 3.3 The Digital Strategy

In response to the industry changes and our organisational strategic directions, SA Power Networks developed a 'Digital Strategy 2018–25' to provide direction for efficient and appropriate investment in digital technologies. The Digital Strategy delineates the key focus areas which will enable the organisation to achieve its strategic outcomes and is outlined in Figure 3.2.

The objective of our Digital Strategy is to enable SA Power Networks to improve the way we manage the network and respond to customer needs in an increasingly digital world. This means understanding and making use of digital technology opportunities while continuing to maintain our existing levels of service and managing our strategic and operational risks. We will actively seek efficient means of helping our organisation to reduce costs to customers through more intelligent use of our data and technology.

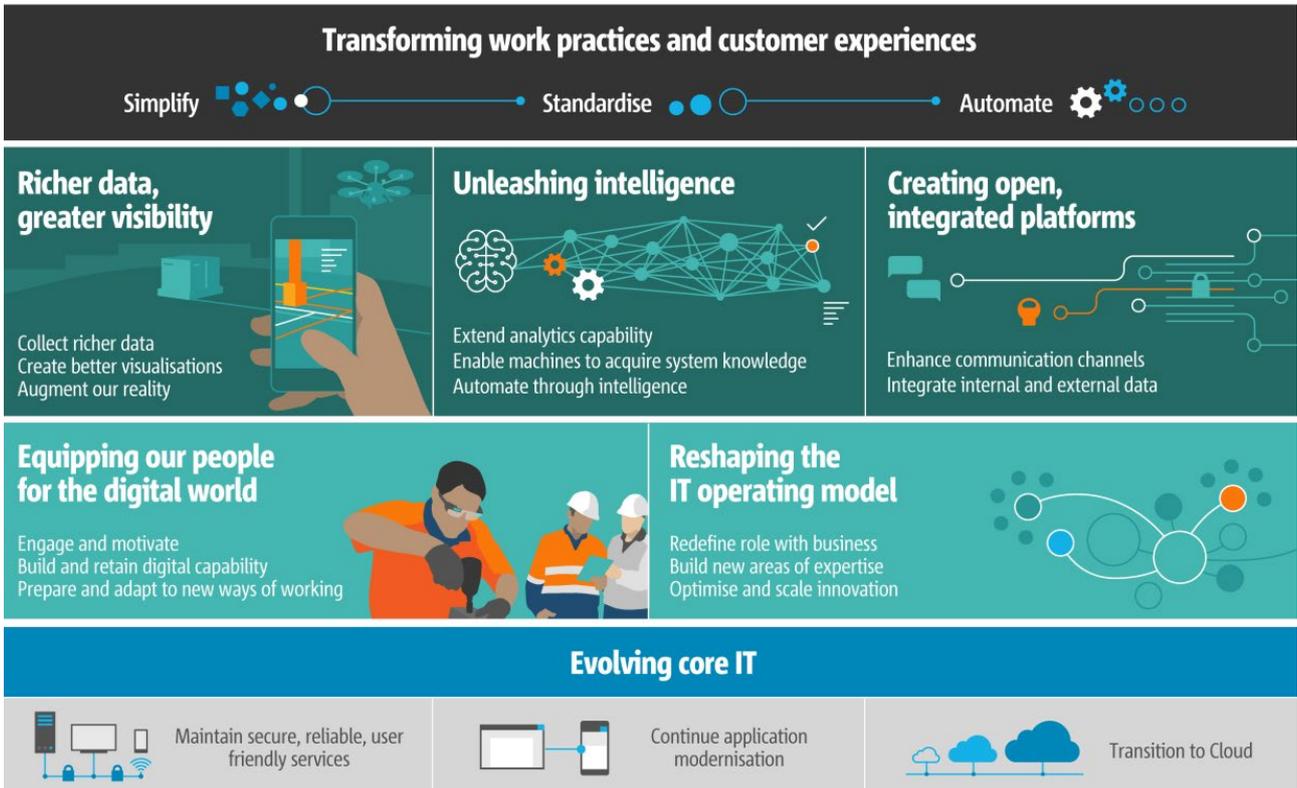


Figure 3.2: SA Power Networks Digital Strategy summary

See Appendix B for more detail on the IT strategic drivers and focus areas of the Digital Strategy 2018–2025.

## 4. Proposed 2020–25 IT investment

- ✓ Detailed business cases supporting \$260.5 million in capex investment and \$21.9 million in opex step changes
- ✓ \$36.6 million (12.3%) reduction in IT recurrent capex
- ✓ Our IT investment meets the NER expenditure objectives

### 4.1 IT Investment Plan objectives

SA Power Networks uses IT services to enable and support the efficient operation of its distribution network consistent with the National Electricity Rules (NER) expenditure objectives. The investment in IT services **enables the delivery of better customer and business outcomes at a lower price through secure and efficient IT services.**

The IT Investment Plan objectives employed to achieve this are:

- **Maintain compliance and meet new regulatory obligations, requirements and expectations**, which continue to evolve in a dynamic market environment. Specifically, in the 2020-25 RCP we will need to comply with new obligations arising out of the NEM Five Minute Settlement Rule change and the critical infrastructure legislation and related requirements. We also need to respond to other ongoing NEM changes and seek more cost-effective ways of complying with our ring-fencing and Regulatory Information Notification (RIN) obligations.
- **Maintain current levels of service and manage IT technology risks** through efficient technology asset management and refresh and replacement cycles. Reliance on IT services will continue to increase. We will continue to ensure reliable and secure services are available when customers and our business need them. We will sustainably maintain the existing value of our technology investments. We will ensure that the IT services are still compatible with emerging technologies and able to efficiently work with those technologies without exposing the distribution and IT services to unacceptable levels of risk. We will continue our focus on cost management through cloud services and consolidation of our strategic application platforms to create a cost-effective technology environment and we will continue to optimise our IT operating and procurement models.
- **Manage business and distribution network costs through efficient use of data and digital technology.** In line with our Digital Strategy, we will implement a set of strategic business initiatives focused on the data and digital technologies that will deliver the greatest value to our customers. We will build on the successful work undertaken in the 2015–20 RCP to:
  - extend and embed the new approaches to asset management to sustainably and efficiently defer asset replacement while managing asset risk;
  - facilitate an increased workload, and maintain safety, on ageing distribution network infrastructure with no increase in our workforce;
  - respond to the customer transition to distributed energy resources (DER) to enable customers to make informed decisions about their energy services; and
  - support solutions for managing network reliability and ongoing service risk on a DER saturated network.

### 4.2 Total proposed IT investment

Our proposed IT investment totex for the 2020–25 RCP is \$391.7 million as shown in Table 4.1. This is less than the actual/estimated (\$392.6 million) IT totex for the 2015–20 RCP and reduces by \$26.6 million over the 2020–25 RCP – from \$93.5 million to \$66.9 million per annum. This reflects a reduction in expenditure

as the large capital program allowed for and begun in the 2015–20 RCP is completed, and capex returns to lower levels (see also Figure ES.1).

Our 2015–20 RCP totex actual/estimate was \$37.9 million more than the allowance for the same period. This reflects the increased use of technology to meet the significant business and regulatory challenges and changes during the 2015–20 RCP, as well as the continued need to manage our operational and replacement risk (see Section 5).

**Table 4.1: Summary of IT totex forecast (\$million, Dec \$2017)<sup>10</sup>**

	2015–20 total allowance	2015–20 actual/ estimate	2020– 21	2021– 22	2022– 23	2023– 24	2024– 25	2020–25 total forecast	Change from 2015–20 actual /estimate
<b>Capital</b>	270.5	297.1	67.7	67.3	44.1	40.9	40.4	260.5	(12.3%)
<b>Operating</b>	84.2	95.4	25.8	26.0	26.4	26.5	26.5	131.2	37.5%
<b>Total</b>	<b>354.7</b>	<b>392.6</b>	<b>93.5</b>	<b>93.3</b>	<b>70.6</b>	<b>67.4</b>	<b>66.9</b>	<b>391.7</b>	(0.2%)

*Note: Numbers may not add up due to rounding*

Our proposed IT capex of \$260.5 million is a reduction of \$36.6 million or 12.3% on actual/estimate for the 2015–20 RCP. This proposed capital program is large but delivers significant benefits in terms of cost reductions to customers.

Our IT opex is forecast to increase for the 2020–25 RCP by \$35.8 million, to \$131.2 million. This reflects both forecast opex increases due to IT 2015–20 activity that are already in the 2018–19 base year plus an additional \$21.9 million in proposed opex step changes (see Section 7).

Our proposed IT investment has been developed using a rigorous internal standard business case and expenditure forecasting methodology (see Appendix C). This process includes significant customer and stakeholder group input (see Section 11 for a summary of key questions and responses). In response to this input, we have modified our proposal through reducing or removing certain initiatives and explored more options in some business cases.

The proposed IT investment is justified through detailed business cases, each of which covers:

1. alignment with the National Electricity Objective<sup>11</sup> and the NER capex and opex objectives<sup>12</sup>;
2. benefits to customers;
3. the demonstrated risk of continuing without the changes (the 'do nothing' option);
4. an assessment of available options with evidence-based cost estimates; and
5. selection of the most prudent and efficient option based on cost benefit analysis, NPV and measured risk.

We also conducted portfolio analysis including 'bottom up' and 'top-down' adjustments to ensure consideration of dependencies, deliverability, benefits realisation and no duplication of costs.

<sup>10</sup> The costs exclude escalators such as CPI.

<sup>11</sup> Section 7 of the National Electricity Law.

<sup>12</sup> NER, clause 6.5.6(a) and 6.5.7(a).

### 4.3 Investments by IT Investment Plan objective

The IT Investment Plan objective for the 2020–25 RCP with the greatest cost \$189.1m (72.6%) is **Maintain current levels of service and manage IT risks** (Table 4.2). This includes both recurrent and non-recurrent IT expenditure.

Recurrent IT expenditure accounts for \$136.2 million. This is the expenditure required to manage our ongoing technology risks, maintain our existing service levels and maintain our existing investment in technology through the regular refresh within every RCP, upgrades and replacements for client devices, applications, IT infrastructure and security systems. The proposed opex step change (\$10.5 million) is related to moving more of our infrastructure and applications to the Cloud, which creates the opportunity for an efficient capex/opex substitution.

Non-recurrent large upgrades and replacements comprise proposed expenditure of \$53.0 million and are related to large upgrades and replacements that only occur once every two or three RCPs.

**Table 4.2: Summary of 2020–2025 IT capex and opex required by IT Investment Plan objective (\$million, Dec \$2017)**

IT Investment Plan objective	Capital cost				Proposed opex step changes	Benefits	
	Recurrent	Non-recurrent	Capex total	Capex %		2020–25	2020–30
Maintain compliance with existing and meet new regulatory obligations		11.5	11.5	4.4%	11.4	0.3	0.6
Maintain current levels of service and manage risk	136.2	53.0	189.1	72.6%	10.5	26.7	60.3
Manage business and network costs through efficient use of data and digital technology		59.9	59.9	23.0%		70.5	131.3
<b>Total</b>	<b>136.2</b>	<b>124.3</b>	<b>260.5</b>	<b>100%</b>	<b>21.9</b>	<b>97.6</b>	<b>192.3</b>

Note: Numbers may not add up due to rounding

Initiatives to **Maintain compliance** account for only 4.4% of the capex but create the largest increase in opex (\$11.4 million) due to the new ongoing IT costs for complying with the requirements for the *Security of Critical Infrastructure Act 2018* (Cth).

Finally, the largest benefits (\$131.3 million) arise from initiatives aimed at **Managing business and network costs through efficient use of data and digital technology** (23.0% of the capex) and are discussed in Section 4.5 below. Any opex increases from these initiatives will be offset by benefits created by those initiatives (as well as reducing costs for our customers) hence we are not seeking step changes for these activities.

Figure 4.1 shows the proposed business cases categorised within IT expenditure categories (recurrent and non-recurrent) and the IT Investment Plan objectives. Each of these business cases is summarised in the sections below; complete costs and benefits are listed in Table 8.1.

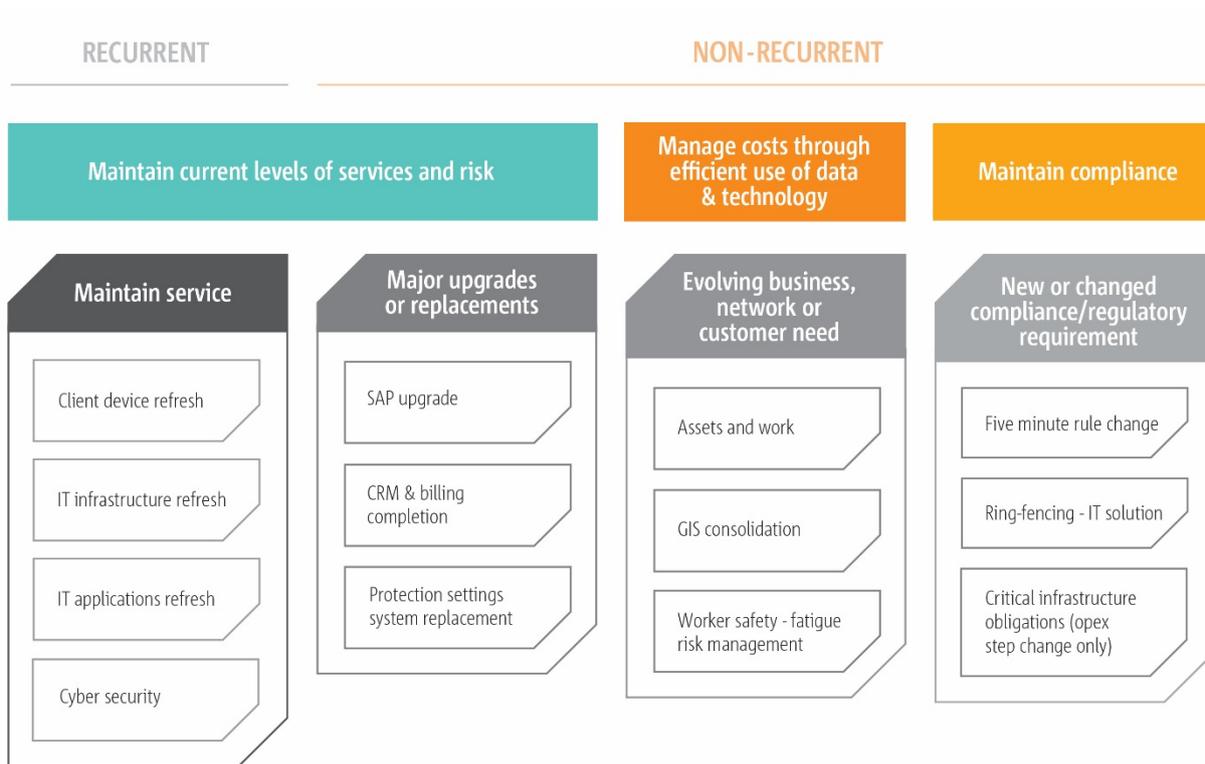
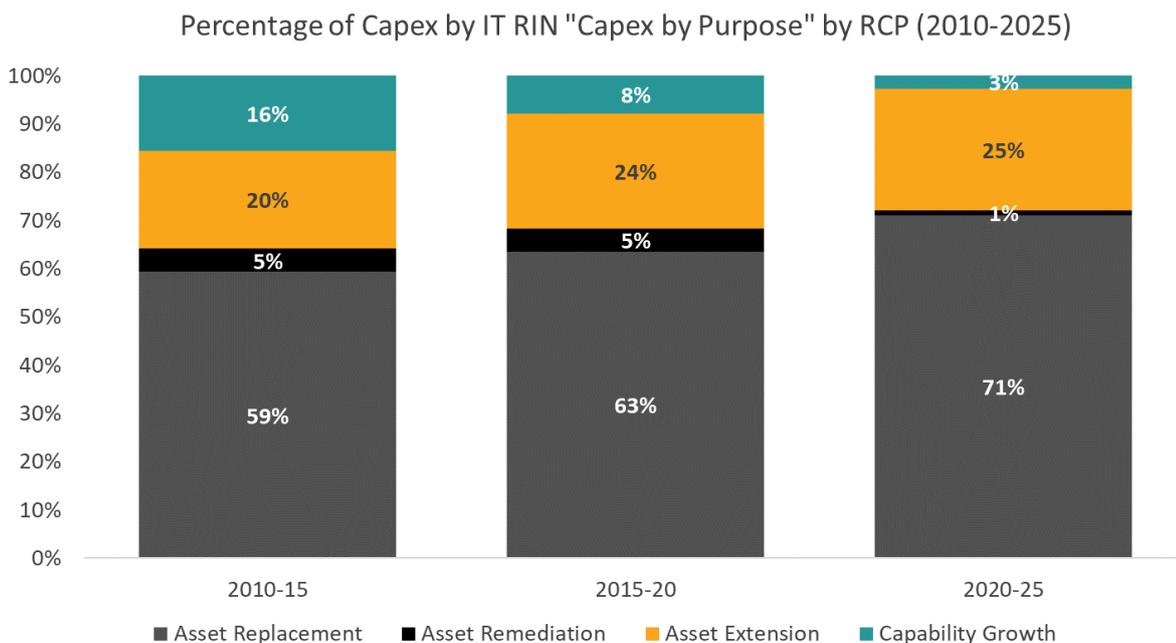


Figure 4.1: Business cases by IT Investment Plan objective and expenditure category <sup>13</sup>

#### 4.4 Trend analysis using AER IT capex RIN classifications

Figure 4.2 below shows that an increasing majority of IT capex has been or will be used for IT asset replacement across the 2010-15, 2015-20 & 2020-25 RCPs (59% to 71%). Lower proportions (16% down to 3%) are being spent on capability growth due to our increasing IT landscape, and to our preferred strategy to keep costs down and extend our existing platforms and toolsets to enable compliance with business and regulatory requirements (i.e. asset extension).



<sup>13</sup> SA Power Networks is currently compliant with ring-fencing obligations arising under the AER's Distribution Ring-Fencing Guideline using labour intensive workarounds.

**Figure 4.2: IT capex trend analysis using the Category Analysis RIN IT ‘Capex by Purpose’ expenditure categories by RCP**

IT capex categorisation by year for the 2010–25 period is provided in Appendix D.

## 4.5 Benefits

### 4.5.1 Financial benefits

The \$59.9 million in capex aimed at **Managing business and network costs through efficient use of data and digital technology** (Table 4.2) results in approximately \$70.5 million of tangible benefits in the 2020-25 period and lays the basis for a further \$60.8 million in benefits in the 2025-30 period<sup>14</sup>, totalling \$131.3 million. The majority of these benefits across the two periods (\$95 million) are associated with the efficient deferral of distribution network asset replacement, derived from changes in our asset management approach and enabled by the Assets & Work (A&W) Program. This network asset replacement expenditure deferral contributes to price reductions for our customers.

The expenditure on **Maintain current levels of service and manage IT risks** provides the technological foundation for the business to operate and deliver distribution services to customers. Additionally, the expenditure ensures that we continue to retain the value from our previous improvement projects and the existing long-term capital investment in our systems.

The benefits of **Maintain compliance and meet new regulatory obligations** are principally related to enabling SA Power Networks to meet the conditions of its distribution licence and the NER, and to continue to efficiently operate the network for the long-term interests of customers. Hence there are substantial unquantifiable benefits associated with this expenditure (with benefits explained in the individual business cases).

While the primary focus of the IT Investment Plan is on the activity and benefits that are undertaken and realised within the 2020–25 RCP our business case NPV calculations extend to the 2025–30 RCP to give a comprehensive view of the impacts over a longer period. Full details of the financial benefits appear in the individual business cases which also provide further details on a substantial list of intangible and risk management benefits.

Overall, an estimated **\$97.6 million** worth of quantifiable benefits are forecast to be delivered by the business cases detailed in the IT Investment Plan during the 2020–25 RCP with an additional **\$94.7 million** in benefits expected during the 2025–30 RCP (see Table 4.3).

**Table 4.3: Tangible benefits by category and RCP for the 2020–25 proposal (\$million, Dec \$2017)**

Benefits category <sup>15</sup>	Total value of benefits (2020–25)	Total value of benefits (2025–30)	Total benefits 2020–30
Cost reduction	6.8	24.7	31.6
Cost deferral and avoidance	90.7	70.0	160.8
<b>Total</b>	<b>97.6</b>	<b>94.7</b>	<b>192.3</b>

*Note: Numbers may not add up due to rounding*

<sup>14</sup> Realisation of the full \$60.6 million of benefits is dependent on additional funding of \$39.5 million during the 2025-30 RCP. Refer the A & W Program Business Case.

<sup>15</sup> Appendix E details the categories used for IT tangible benefits.

Section 9 details how the benefits arising in the 2020-2025 RCP are realised and applied in our Regulatory Proposal.

#### 4.5.2 Other outcomes and benefits from the IT investment

The proposed IT investment will:

- maintain compliance with existing and meet new regulatory obligations, including, by way of example
  - the Five-Minute Settlement Rule change, and
  - Critical Infrastructure Centre administered conditions under the *Security of Critical Infrastructure Act 2018* (Cth) and *Foreign Acquisitions and Takeovers Act 1975*.
- sustainably maintain current levels of IT service and manage IT technology risks and costs by:
  - maintaining secure, reliable and responsive IT services to enable the delivery of distribution services to customers;
  - managing the risks associated with ageing IT systems;
  - ensuring we sustainably maintain the existing value of our technology investments; and
  - maintaining an efficient IT operating and cost model;
- prudently maximise our use of data to manage business costs by:
  - providing efficient solutions for managing reliability and service risk on a dynamic distribution network;
  - maintaining safety while facilitating an increasing workload;
  - reducing our network asset replacement expenditure which contributes to customer price reductions; and
  - maintaining the levels of service and responsiveness that customers demand;

#### 4.6 Consistency with NER expenditure objectives

SA Power Networks considers that this operating and capital investment is critical to achieving the opex and capex objectives in clauses 6.5.6(a) and 6.5.7(a) of the NER. In particular, the expenditure is required to enable SA Power Networks to:

- **meet and manage the demand for network services** – by enabling the effective and efficient operation of SA Power Networks' IT systems, which, in turn, are critical for the effective and efficient operation of the network and meeting and managing the demand for network services;
- **maintain the reliability, security and safety of the distribution system** – by ensuring our IT systems:
  - are maintained within an acceptable level of risk;
  - are secure and minimise the chances and impact of a cyber-attack;
  - continue to respond to changing customer and network needs;
  - remain compatible and continue to support our business processes; and
  - have adequate funding for 'break-fix' services and remediation when required;
- **comply with applicable regulatory obligations and requirements** – while continuing to support customer and business needs; and
- **maintain the safety of the distribution system** – by ensuring our IT systems, that enable the safety and security of the distribution network, are maintained within acceptable levels of risk and are able to respond to network changes.

Consistent with the requirements of clauses 6.5.6(c) and 6.5.7(c) of the NER, SA Power Networks considers that the forecast opex and capex is:

1. **efficient** – because:
  - we are reducing our annual IT expenditure without significantly increasing our operational risks;
  - within each business case we have sought the option which costs the least or that has the best NPV, taking into consideration the risk and benefits; and

- the expected customer and other benefits from the IT investment have been considered as part of our IT Investment Plan and entire Proposal resulting in price reductions to customers.
2. **prudent** – because it:
- enables our distribution network asset risk profile to meet mandated and agreed levels despite having an aged infrastructure and a changing network environment;
  - addresses the significant IT operational risks posed by our IT devices, hardware and applications, and enables SA Power Networks to maintain its existing risk profile; and
  - addresses the risks associated with our need to maintain compliance with our regulatory obligations and requirements.
3. **a realistic expectation of the demand forecast and cost inputs** – because the costs of the options in the business cases are based on historical data and past experience from ourselves, our peers and other entities plus estimates from independent suppliers. Our forecasts have been created from the bottom up and then adjusted top down for dependence, resourcing and deliverability considerations (see Section 6.6 for adjustments).

High level alignment of the capital investment to the NER capital expenditure objectives is summarised in Table 4.4. Capital initiatives generally enable multiple NER objectives however for simplicity we have only summarised the primary objective for each business case.

**Table 4.4: Alignment to NER objectives, (\$million, Dec \$2017)**

Primary NER objective	Capital investment	% of capital
6.5.7(a)(1), 6.5.6(a)(1) – Demand	13.8	5.3%
6.5.7(a)(2), 6.5.6(a)(2) – Compliance/regulatory	11.5	4.4%
6.5.7(a)(3), 6.5.6(a)(3) – Maintain the quality, reliability and security of supply	232.3	89.2%
6.5.7(a)(4), 6.5.6(a)(4) – Safety	2.8	1.1%
<b>Total</b>	<b>260.5</b>	<b>100%</b>

*Note: Numbers may not add up due to rounding*



## 5. Our IT performance in the 2015–20 RCP

- ✓ Continue to be one of the lowest IT opex per customer of the Australian DNSPs
- ✓ Expecting to deliver \$259.7 million of benefits over the 2015-25 RCP
- ✓ Successfully delivered a large, risk focused, IT capital program (\$297.1 million)
- ✓ Responded effectively to evolving customer and market changes

### 5.1 Benchmarking

SA Power Networks IT function benchmarks as one of the most efficient in Australia. When measured in terms of the IT operating cost per customer we have been consistently well below the NEM average for at least the past decade, and the lowest in 3 of the past 4 years (Figure 5.1).

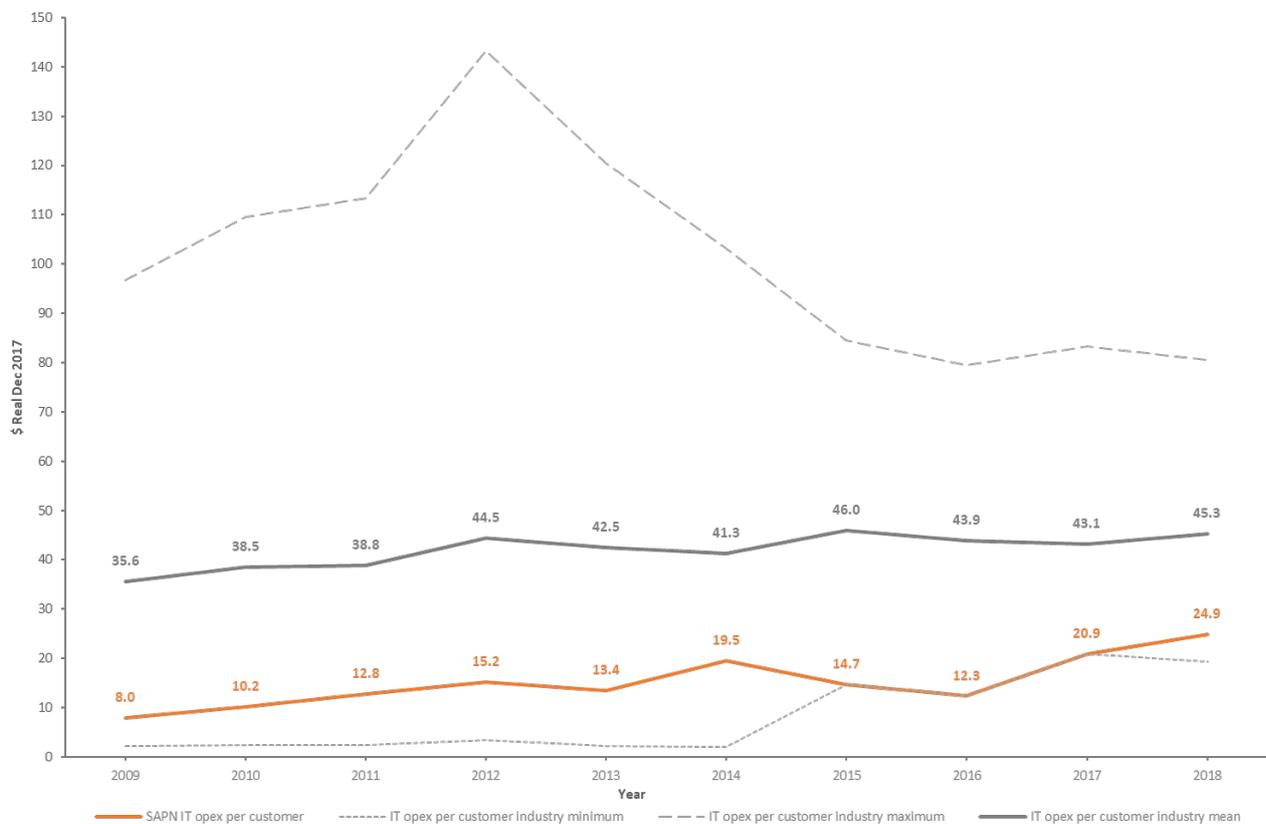


Figure 5.1: Utilities IT Benchmarking RIN Results – IT opex per customer<sup>16</sup>

When the IT totex per customer is considered (Figure 5.2), we can see that SA Power Networks has also been below the average for the NEM for the majority of the last decade reflecting our objective to keep our IT costs down. As the large-scale legacy system replacement program is completed the current upward trend will reverse and IT totex per customer will reduce to below the NEM average again (see Section 10).

<sup>16</sup> KPMG, 2018 Utilities IT Benchmarking: Technology Regulatory Benchmarks, January 2019, using RIN published data.

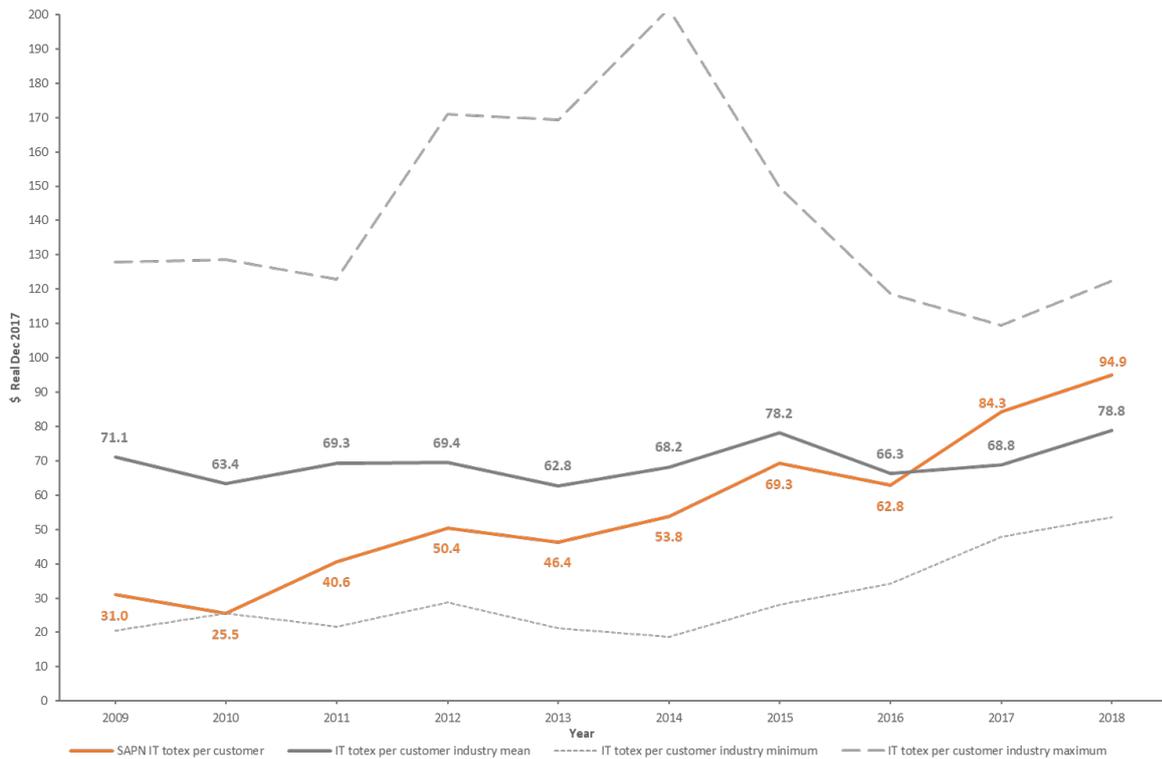


Figure 5.2: Utilities IT Benchmarking RIN Results – IT totex per customer<sup>17</sup>

## 5.2 IT capex performance summary

The IT capital investment allowance for the 2015–20 RCP provided for a significant uplift to undertake a very large portfolio of work in order to:

- maintain ‘business as usual’ services and manage our key system risks through a large technology refresh program including replacing the legacy customer and billing systems, a program that began in the 2015–20 RCP and will extend into the 2020–25 RCP;
- enable us to meet regulatory obligations and requirements, including RIN reporting improvements; and
- leverage these initiatives to deliver the highest priority strategic objectives. A large scale multi-period program to improve our end-to-end Assets & Work Management capabilities was proposed but only part of the funding was allowed for in the 2015–20 RCP.

The total IT capex for 2015–20 RCP is forecast as \$297.1 million. This exceeds the IT allowance approved by the AER in the 2015-20 Determination by \$26.6 million. Several key additions and changes to the 2015-20 work program are highlighted in Figure 5.3.

<sup>17</sup> KPMG, 2018 Utilities IT Benchmarking: Technology Regulatory Benchmarks, January 2019, using RIN published data.

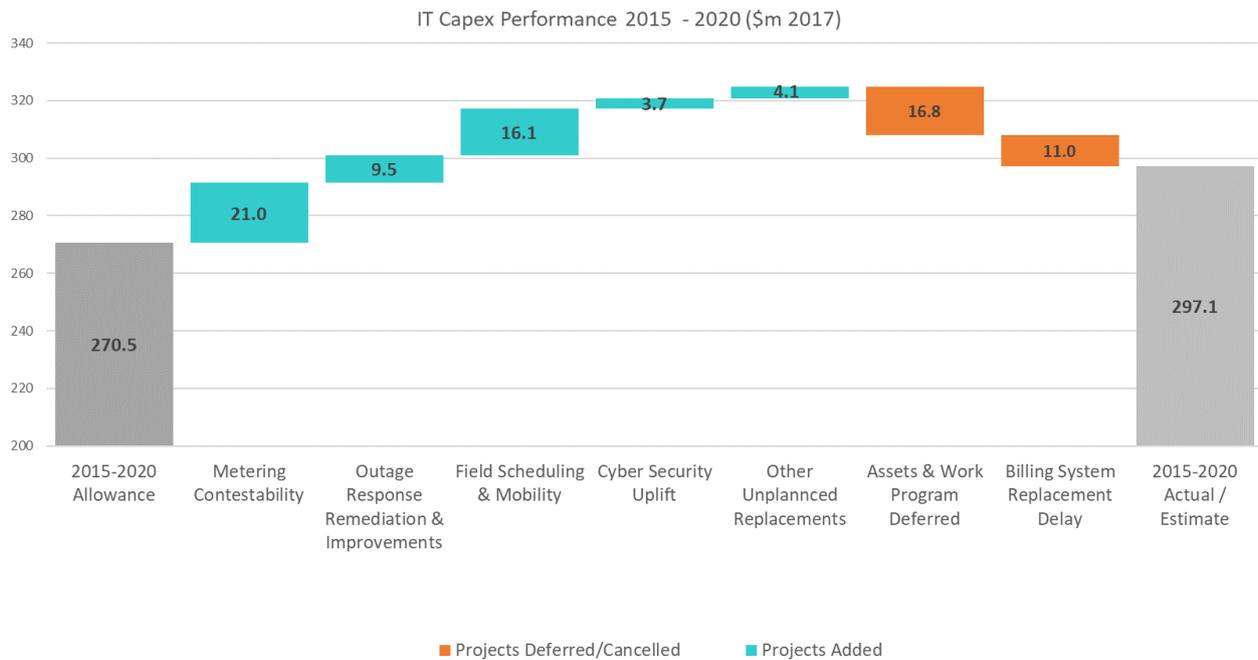


Figure 5.3: 2015–20 IT capital work program changes (\$million, Dec \$2017)

The most significant changes to the IT portfolio plan were as follows:

- Meter contestability implementation**– Implementing the ‘Power of Choice’ meter contestability requirements was proposed as part of the 2015-20 RCP IT submission. However, it was not funded as part of the allowance for the 2015-20 RCP as the Rule change was only in draft at the time of the Determination. The Rule change was made during the 2015-20 RCP and compliance was required by January 2018.
- Outage response remediation and improvements** – During the 2016 state-wide outages customer demand for timely, relevant and accurate information increased significantly. This was reinforced by a review by the Essential Services Commission of South Australia (**ESCoSA**)<sup>18</sup> which led to additional obligations. As a result, a number of our systems needed remediation, augmentation, replacement or increased integration to improve our responses to customers.
- Field scheduling and mobility** – Three factors drove higher than expected expenditure for field scheduling and mobility:
  - Customer demand for accurate and timely information, particularly during outages** – We needed to significantly increase the quantity and quality of the information flowing from field staff back to customers and this meant increasing our mobile capabilities (including more mobile devices) to enable staff to collect and provide information as they performed supply restoration.
  - Greater than expected risks identified on the network led to shifts in how we manage our work** – Our foundational asset data collection and analysis program led to the identification of a higher than anticipated asset risk and a resultant larger than expected number of defects that required remediation. To manage this risk as efficiently as possible we implemented improved work planning and mobile capabilities while starting to develop an improved scheduling system.
  - The Click field management and mobility software needed to be replaced** due to being out of support in 2020. However, the costs were higher than expected because the software is now only available in a cloud version and we needed to migrate to the new environment.

<sup>18</sup> ESCOSA, Distribution Licence Compliance Review – SA Power Networks 27-28 December 2016 severe weather event, June 2017. Following the December blackouts ESCOSA and SA Power Networks agreed to the implementation of a series of customer data improvements to enable the provision of accurate information to customers across all communication channels.

- **Cyber security** – The pilot and foundational implementation of the enterprise cybersecurity function carried out during the 2015-20 RCP identified increased and evolving cyber risks in our operating environment. Capability was raised to enable us to minimise this risk.
- **Other unplanned replacements** – Given the evolving environment a number of other small business systems needed replacement or significant remediation during the period including, for example, the public lighting system (to allow more flexible billing arrangements for LEDs and smart street lights) and the payroll system (to comply with the Australian Taxation Office Single Touch Payroll requirements).
- **Assets and work deferred**<sup>19</sup> – The program of work that was originally planned to be completed in the 2015-20 RCP was revised. When we started to collect more asset data, we realised that consolidating our geographic information systems (GIS) environment was integral to providing a manageable and scalable data foundation and this was unable to be completed in the 2015-20 RCP. As a result, we did not complete as much of this work as originally planned. Of the \$63.9 million allowance for Enterprise Asset Management, RIN Reporting and related projects in the 2015-20 RCP, we expect to have spent \$47.1 million before the commencement of the 2020-2025 RCP. The work completed in the 2015-20 RCP has contributed to the efficient deferral of approximately \$63 million in asset replacement expenditure in the 2015-20 RCP and an additional \$142 million to be realised in the 2020-25 RCP, resulting in significant savings for our customers. The work we did not complete is still an essential part of the overall Assets & Work Program and is included in this Investment Plan.
- **Billing systems replacement delay** – The start of the billing and customer replacement program, planned for completion in the 2020–25 RCP, was delayed by the impact of the simultaneous major outages, the large-scale customer systems remediation and required metering contestability changes. Additional work is thus required for completion in the 2020–25 RCP.

### 5.3 Delivering IT effectively

SA Power Networks is continually seeking to deliver technology services in cost effective, innovative and agile ways while keeping pace with the rapid changes in our market place and in customer use of digital technologies.

Our IT Improvement Program has been successfully driving changes in how we deliver and manage technological change (see Figure 5.4).

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<sup>19</sup> In the 2015-20 IT Submission, the initiatives that became the Assets & Work Program were previously under Enterprise Asset Management, Field Mobility, Design Management, Portfolio & Project Management and components of Financial Management. For efficient deliverability, they were combined into the one program.

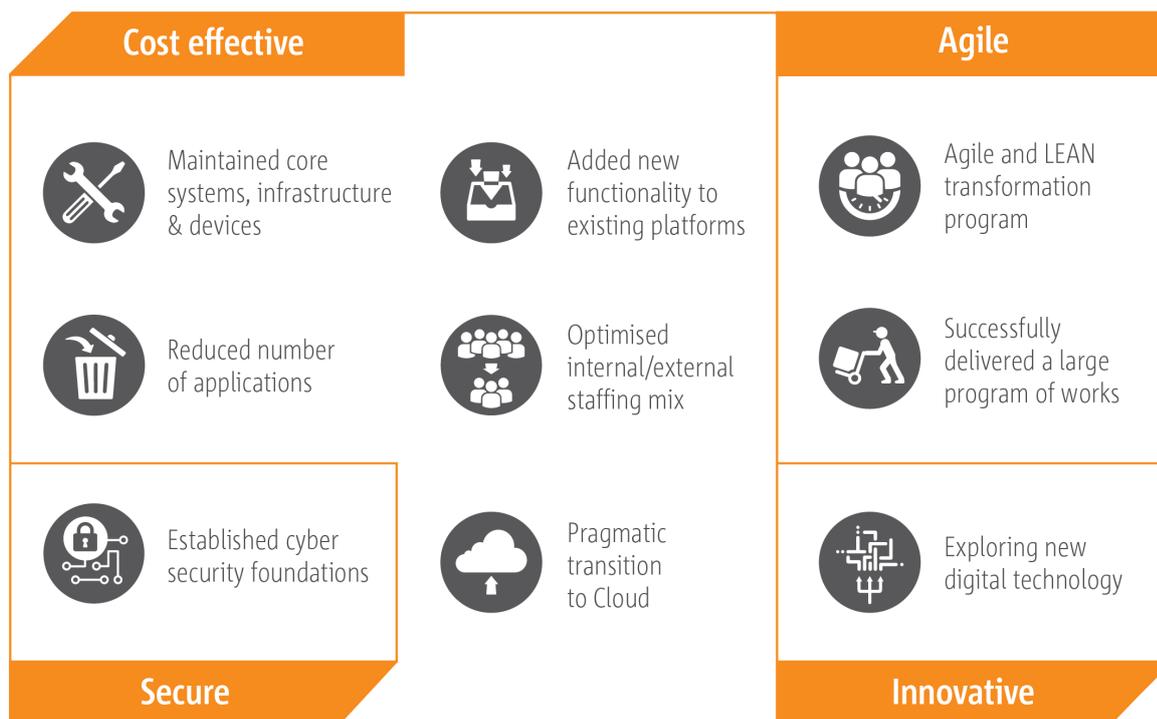


Figure 5.4: Key outcomes from the IT improvement program

Our agile delivery processes ensure that the focus is on delivering the ‘minimum viable and sustainable product’ each time and implementing the most cost-effective service outcome possible. These processes also facilitated a shift to a much more customer centric approach ensuring the customer is ‘front of mind’.

A centralised Corporate Portfolio Management Office (CPMO) has streamlined the governance process for organisational business improvement and IT projects to ensure that we are doing ‘the right projects’ and delivering the appropriate benefits.

Taken together these changes have enabled us to deliver the large 2015–20 program of works efficiently and effectively, and enabled the delivery of substantial outcomes and benefits to our customers.

### 5.3.1 Outcomes and benefits of the 2015–20 RCP IT Capital Program

Our IT investment proposal for the 2015-20 RCP was primarily focused on managing risk and compliance. The work also generated significant cost savings to customers, particularly through the efficient deferral of asset replacement expenditure. The benefits are categorised in Table 5.1. The total benefits from IT expenditure for the 2015-20 RCP are \$259.7 million over the 2015-20 and 2020-25 RCPs.

Table 5.1: Financial benefits from the 2015–20 IT expenditure (\$million, Dec \$2017)

Benefits category	2015–20 actuals/forecast	2020–25 estimates	2015–25 total
Cost avoidance and deferral	71.6	155.0	226.6
Cost reduction	9.8	23.3	33.1
<b>Total</b>	<b>81.4</b>	<b>178.4</b>	<b>259.7</b>

Note: Numbers may not add up due to rounding

### 5.3.2 Cost avoidance and deferral

Efficient use of improved data and technology has increased our understanding of our network assets, their condition, their risk profiles and their direct customer impact and allowed the selection of more tailored and appropriate repair and replacement strategies, while managing the asset risk level across the network.

Information about more than two million individual assets is being collected. This compares with recording information on 1500 feeders at an aggregate level in the 2010-15 RCP. We have efficiently deferred approximately \$63 million in network replacement expenditure in the 2015-20 RCP and an estimated \$142 million of deferrals will be realised in the 2020–25 RCP, keeping prices down for our customers. These benefits are the direct result of the improved Asset Planning and Assets & Work Program activities. Additional cost avoidance benefits (\$21.6 million) from other IT improvements implemented in the 2015-20 RCP will be realised during the 2020-25 RCP.

### 5.3.3 Cost reduction

Key cost reductions have come from implementing system improvements in a number of areas including:

- organisational risk and incident management process;
- human resources – staff on-boarding and training process;
- field scheduling – mobility improvements;
- finance, procurement, travel and expense management; and
- consolidating a number of applications and avoiding future IT upgrade costs.

The cost reductions totalled \$9.8 million in the 2015–20 RCP and are expected to grow to \$23.3 million in the 2020-25 RCP. These savings are reflected in the base year forecast for opex and across the capex work programs for the 2020-25 RCP.

### 5.3.4 Non-financial customer benefits

Some key non-financial benefits for customers being delivered in the 2015–20 RCP are:

- significantly improved outage reporting capabilities and more timely and accurate information to help customers make decisions during outages;
- reduced risk of cyber interference with the distribution network (and hence outages) or a privacy breach due to the implementation of our foundational cybersecurity capability;
- a foundation for rationalising a number of systems to reduce our IT environment complexity and hence our IT recurrent costs; and
- meter contestability related market changes to support “Power of Choice” for customers.

## 6. Our IT capital program 2020–25

- ✓ Forecast capex is lower than actuals/estimates and allowance for the 2015–20 RCP
- ✓ Maintains current customer and business service standards with acceptable levels of risk
- ✓ Delivers network asset deferrals and hence price reductions for customers
- ✓ Remains compliant with evolving regulatory obligations and requirements

### 6.1 Forecast IT capital program

Our proposed IT capital program for the 2020-25 RCP is \$260.5 million. This is \$36.6 million or 12.3% less than the actual/estimate capex for the 2015-20 RCP as shown in Table 6.1. Our forecast IT recurrent capex has reduced by \$22.3 million or 14.1% as we have consolidated systems, moved capability to cloud services and continued to improve IT services management. Large IT replacement and upgrades as well as compliance changes are anticipated to be lower in the 2020–25 RCP. The only increase in the capex forecast for the 2020-25 RCP over the 2015–20 actuals is the forecast for the key strategic improvements to continue to reduce the levels of network risk to those agreed with the Office of the Technical Regulator (OTR) and enable further price reductions for our customers.

High level summaries of the capex business cases underlying this forecast are outlined in this section. See Appendix E for additional detail on each business case. Key business cases are provided with the Regulatory Proposal.

**Table 6.1: Capital allowance, actuals/ estimates and forecast by IT capital expenditure category and IT Investment Plan objective (\$million, Dec \$2017)**

Capital expenditure category	2015–20 allowance	2015–20 actual/ estimate	2020–25 forecast	Change from 2015–20 actual / estimate
<b>IT recurrent</b>				
Maintain current levels of services and risk: maintain service	150.9	158.4	136.2	(14.1%)
<b>Total IT recurrent<sup>20</sup></b>	<b>150.9</b>	<b>158.4</b>	<b>136.2</b>	<b>(14.1%)</b>
<b>Non-recurrent</b>				
Maintain current levels of services and risk: major upgrades or replacements	51.6	63.2	53.0	(16.2%)
Maintain compliance	8.8	26.3	11.5	(56.5%)
Manage business and network costs through efficient use of data and digital technology <sup>21</sup>	59.2	49.1	59.9	21.9%
<b>Total non-recurrent</b>	<b>119.6</b>	<b>138.7</b>	<b>124.3</b>	<b>(10.4%)</b>
<b>Total capital expenditure</b>	<b>270.5</b>	<b>297.1</b>	<b>260.5</b>	<b>(12.3%)</b>

Note: Numbers may not add up due to rounding

<sup>20</sup> A number of items, relating to cyber security, hardware and data centre replacements, previously classified as non-recurrent in the 2015–2020 RCP IT capex allowance are now classified as recurrent due to the operational nature of the service or the changing nature of the technology. The initial 2015–2020 RCP IT recurrent allowance was \$132.97 million (\$2017) plus \$17.97 million associated with the reclassified items = \$150.9 million.

<sup>21</sup> Classified as strategic business improvement in the 2015-20 IT Submission

## 6.2 Maintain compliance

Meeting existing and new regulatory obligations and requirements is a key obligation for SA Power Networks to ensure we are able to comply with, and maintain, our distribution licence and registrations under the NER, and is a significant activity requiring regular IT investment (Table 6.2).

**Table 6.2: Maintaining compliance initiatives (\$million, Dec \$2017)**

<b>Initiative</b>	<b>Description</b>	<b>2020–25 forecast</b>
Five Minute Settlement Rule	Mandated energy market change to enable an increase in meter reading frequency (for automated meters) to 5 minutes	7.7
Ring-fencing compliance: IT solution	Ensure and enable ongoing compliance by SA Power Networks with ring-fencing obligations by implementing an appropriate IT compliance and reporting solution	3.8
<b>Total</b>		<b>11.5</b>

*Note: Numbers may not add up due to rounding*

### 6.2.1 Customer outcomes

#### Five Minute Settlement Rule

The key outcomes are:

- Customers are able to access 5-minute meter reads via the customer access to billing data portals.
- Consumption and electricity bills will be calculated using 5-minute meter reads.
- Customers will be able to take advantage of tariffs that are enabled by 5-minute meter reads.

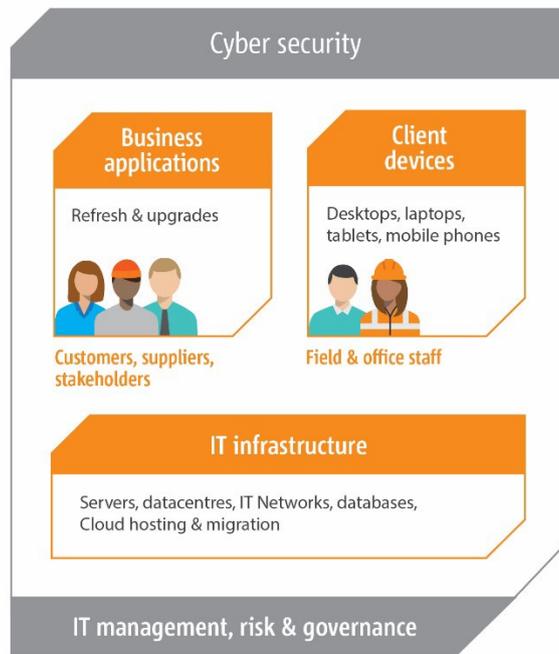
#### Ring-fencing compliance: IT solution

Customers are protected with the assurance:

- that the potential harm to competition that would result from non-compliance is addressed by SA Power Networks unregulated affiliated entities not obtaining an unfair advantage over other suppliers of electricity related services; and
- that all regulated funds are being spent on the provision of direct control services to them.

## 6.3 Maintain current levels of service and risk: IT recurrent capex

IT recurrent capex consists of five inter-related annual work streams designed to ensure secure and reliable IT services through systematic and regular replacement, upgrade and update of key IT assets. Our IT recurrent initiatives align with our key IT assets (refer Figure 6.1).



**Figure 6.1: IT Recurrent Initiatives context**

These IT assets include services and assets related to cyber security, client devices (also called end user computing), small to medium business application changes and IT infrastructure including data centre and networks. These IT assets enable the day-to-day functioning of all our distribution services including customer, network and business services.

Our IT asset and service portfolio has increased significantly during the 2015-20 RCP but IT has effectively used a number of cost management strategies to ensure we are continuing to provide the most efficient service possible (see Figure 6.2).

		Key trends in 2015-2020	Cost management approaches	Impact on recurrent 2020-2025 capex forecasts	
<b>Cyber security</b>	↑	373% increase in cyber threats requiring action since Jan 2017	Respond to new threats only as they emerge	Maintain approximate historical expenditure levels	→
<b>Client devices</b>	↑	20.3% increase in no. of mobile devices (enabling improved customer information and asset management)	Sweat assets; Rationalise devices; Seek cheaper devices	Forecast is \$11.5 million less than vendor recommended refresh cycles	↓
<b>Business applications</b>	↑	25+ new capabilities implemented	Build new capability on strategic platforms; Consolidate when possible	14% reduction compared to the previous allowance	↓
<b>IT infrastructure</b>	↑	Year-on-year increases of 30% for computing power and 70% for storage space	Migrate to Cloud infrastructure	\$1.1 million net totem reduction when migrated to Cloud	↓

**Figure 6.2: Key IT cost drivers and cost management approaches - impact on recurrent expenditure**

As shown in Table 6.3 below the forecast IT recurrent capex for the 2020–25 RCP is \$136.2 million, which is a **\$22.3 million (14.1%) reduction** on actual/estimated capex for the 2015–20 RCP as shown in Table 6.3. All categories of capex are forecast to reduce except for a slight increase for cyber security as cyber security risks, obligations and requirements continue to grow.

From an IT totex perspective the reductions for IT infrastructure and business applications are partially offset by opex increases due to cloud related capex/opex trade-offs totalling \$6.9 million and \$3.6 million respectively (see Section 7). The balance however is **still a net reduction of \$11.8 million** in IT recurrent totex.

**Table 6.3: Capital Investment –IT recurrent initiatives (\$million, Dec \$2017)**

Initiative	Description	2015–20 allowance	2015–20 actual/estimate	2020–25 forecast	Change from 2015–20 actual/estimate
Cyber security	Capability to proactively identify, protect, detect, respond to and recover from cyber security threats	6.8	10.5	11.5	9.4%
Client device refresh	Providing reliable client devices to enable and support business services and productivity	20.1	26.4	23.2	(12.1%)
IT Applications Refresh <sup>22</sup>	Small to medium patches and upgrades to the whole applications portfolio to ensure our core business applications are operational in a rapidly changing business environment and enable our organisation to maintain current levels of service to our customers	81.6	80.0	69.8	(12.7%)
IT infrastructure refresh	Technology infrastructure update, upgrade and replacement program	36.7	38.2	28.5	(25.5%)
IT management, risk and governance	IT technology roadmaps to underpin cost efficient future planning	5.7	3.2	3.1	(4.8%)
<b>Total</b>		<b>150.9</b>	<b>158.4</b>	<b>136.2</b>	<b>(14.1%)</b>

*Note: Numbers may not add up due to rounding*

### 6.3.1 Customer outcomes

The overall value these IT recurrent capex initiatives deliver needs to be considered as a whole as they act together to deliver significant ‘business as usual’ benefits to customers. For example, IT supports the business services that allow electricians to book appointments online, and the service for customers to report a street light not working though pinpointing it on an online map for us to resolve – with us notifying

<sup>22</sup> The IT Applications Refresh Business Case only includes small to medium updates, upgrades and replacements. The larger replacements are the subject of separate business cases under Major Upgrades and Replacements.

the customer when the light is fixed. These customer services require **all** of the IT capabilities (applications, client devices, infrastructure and cyber security) to be operating reliably together to deliver the service.

This IT recurrent investment will ensure that:

- current customer and business service levels will be maintained;
- our IT systems are reliable, secure and available – particularly during customer outages;
- we are able to continue to deliver efficient asset deferral savings to customers while managing our risk; and
- we will be able to respond to emerging cyber security threats in a timely manner.

Not continuing to fund these initiatives will expose the business to an increasing and unsustainable level of risk affecting the ability to deliver a reliable and safe service to our customers, as in these examples:

- The failure of customer, outage management and network finance systems exposes the business to significant financial, work health and safety, regulatory non-compliance and customer service risks.
- As a critical infrastructure provider we will be unable to maintain a responsive cyber security capability risking the confidentiality, integrity and availability of information assets, as well as risk the continuity of supply of distribution services.
- The stability of systems could be compromised when patches and upgrades are not applied in a timely manner. This includes vendors being unwilling to provide support/assistance until systems are at the latest patch version.
- Maintenance costs may be higher when implementing workarounds to issues resulting from unpatched systems where the issues have been addressed in current releases.
- Upgrade costs may be higher due to outdated systems requiring a more complex upgrade process.
- Less functionality is available from existing systems due to outdated software, providing lower value to customers and the business.

## 6.4 Maintain current levels of service and manage risk: Major upgrades and replacements

During the 2020–25 RCP a number of our core systems will be entering ‘end of support life’ and therefore in need of replacement to maintain current levels of service (Table 6.4).

**Table 6.4: Major business system upgrades and replacements (\$million, Dec \$2017)**

<b>Initiative</b>	<b>Description</b>	<b>2020–25 forecast</b>
SAP upgrade	The current version of our core business system reaches ‘end of support life’ in 2025, with no extended support available. We have planned a multi-year program to upgrade while maintaining ‘business as usual’ services	24.6
CRM & Billing Program completion	Complete the ‘in progress’ replacement of the legacy customer and billing systems to reduce technical risks and enable Power of Choice changes and flexible tariff arrangements	25.5
Protection Settings Management system	Replacing our business-critical distribution network protection settings management system	2.8
<b>Total</b>		<b>53.0</b>

*Note: Numbers may not add up due to rounding*

### 6.4.1 Customer outcomes

#### SAP upgrade

As SAP is our core enterprise customer, work and business system, not undertaking this upgrade in a timely manner will place core business services at significant risk.

Key benefits include:

- customers continuing to be able to log outage events and receive information on outages;
- customer connection changes continuing to be able to meet market and regulatory service levels;
- field work continuing to be managed and scheduled;
- information on assets continuing to be updated and managed; and
- staff continuing to be paid the correct wage.

#### CRM & Billing Program completion

Key benefits include:

- Customers will be able to continue to receive their electricity bills;
- Customer electricity bills will remain accurate;
- The new system will support the anticipated increases in tariff complexity; and
- Customers will have more control and be able to choose and enact different tariffs.

#### Protection Settings Management system

The replacement system will:

- maintain the safety of our people and the community when staff undertake network switching changes, which if not done correctly can cause significant network and/or personal damage;
- reduce the chance of an incorrect network switch setting disrupting a customer's supply; and
- reduce the chance of customer supply disruption due to incorrect hardware setting.

## 6.5 Manage business and network costs through efficient use of data and digital technology

The IT enabled strategic business improvements for the 2020–25 RCP (Table 6.5 next page) are predominantly built on the success of the foundational asset management improvements implemented during the 2015–20 RCP (A&W Program). These foundational improvements gave an improved picture of network asset risk allowing us to develop initial models and approaches to managing those assets, identifying their value to our customers and cost-efficiently reducing asset risk to levels agreed by the OTR. The 2020–25 RCP work program is aimed at maturing these models and approaches using improved data collection and management capabilities and embedding them into our daily business processes and systems.

### 6.5.1 Customer outcomes

#### Assets and Work Program

The objective of the A & W Program for the 2020-25 RCP is to enable SA Power Networks' Strategic Asset Management Plan and efficiently defer \$95 million of network replacement expenditure plus a further saving of \$32.7 million in other benefits (total benefits equals \$127.7 million) through better bundling and management of work over the 2020–30 period<sup>23</sup> (the totals for the 2020–25 RCP are \$65 million in deferral and \$4.2 million in other benefits). Implementing the 2020-25 A&W Program will enable us to deliver services our customers value and contribute to maintaining the quality, reliability and security of supply at a reduced price to customers.

Additional intangible benefits will include:

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<sup>23</sup> Realising the full \$127.7 million in benefits over the 2020-30 period is dependent on additional funding of \$39.5 million for A & W in the 2025-30 period.

- a better understanding of our assets to improve managing service levels to our customers;
- more timely, responsive and accurate communication with customers;
- improved forecasts and regulatory compliance by providing actuals for RIN reporting;
- improved lead times and efficiencies in end-to-end work delivery; and
- mitigated risks of changing the work mix from relatively few, large scale projects to smaller, higher volume maintenance work.

Table 6.5: Strategic business improvement initiatives (\$million, Dec \$2017)

Initiative	Description	2020–25 forecast capex
<b>Assets &amp; Work Program</b>	<b>Manage our network risks and costs through improved Assets and Work Management capabilities</b>	
Asset Data Optimisation	Extend and optimise the collection and storage of asset and condition data	10.6
Asset investment optimisation	Extend our risk quantification, value and visibility of work capabilities to (1) analyse, evaluate and prioritise work so we do the right work to maintain required risk levels in the network and (2) enable us to balance the cost and asset risk in delivering the services that customers value	11.0
Portfolio Planning Management	Implement a robust solution that integrates asset, work and finance information to enable the development of integrated asset management programs which will improve long term forecasting and RIN reporting	5.4
Work lifecycle standardisation	Standardise and streamline the work lifecycle to improve end-to-end work management and gain process efficiencies that will offset the increased volumes of work from our changing work mix	6.7
Service delivery optimisation	Deliver efficiencies in the scheduling and execution of field work required to handle the increased workload in order to maintain the quality, reliability and security of electricity supply	7.2
	<b>A&amp;W Program total</b>	<b>40.8</b>
<b>Worker safety: fatigue risk management</b>	Improve safety, in particular the increasing risk of fatigue, as the environment and workloads change (dependency for the A&W Program)	<b>5.3</b>
<b>GIS consolidation</b>	Consolidating our GIS systems to enable improved asset and work management (dependency for the A&W Program)	<b>13.8</b>
<b>Total</b>		<b>59.9</b>

Note: Numbers may not add up due to rounding

### Worker safety: Fatigue risk management

- Reduced likelihood of injury or death of our workers, contractors or the public due to a fatigued worker performing field work.

## GIS consolidation

- Minimise costs for the support and maintenance of our GIS technologies.
- Be able to derive greater benefits and therefore lower costs to customers from the A&W Program through:
  - better planning and scheduling for jobs by improved currency and use of spatial information; and
  - enabling improved risk-based asset management through more accurate location modelling of risk and opportunities.

## 6.6 IT capital portfolio review

The complete portfolio was reviewed to optimise deliverability and benefits. The review considered the dependencies, including resourcing, within and between business cases and initiatives. As a result, a number of changes were made to the order of the proposed initiatives. The complete Portfolio Diagram (Figure 4.3) reflects the results and the underlying cost models in individual business cases were also modified to reflect the changes.

The SAP Upgrade Business Case represents the largest IT change for the organisation and will require a change freeze on related systems during the core upgrade process. As this is scheduled for 2022-23 less other IT project activity is planned for that regulatory year. Costs for the recurrent work programs have been reduced accordingly during this period and other non-recurrent changes have been scheduled around it.

A number of other key dependencies were identified:

1. The SAP upgrade is dependent on the new cloud hosting infrastructure being secure and fully functional before implementation of the new version of SAP.
2. The existing data centre hardware will be maintained and sweated an additional two years to allow the cloud infrastructure setup to take place and avoid replacing both the existing datacentres.
3. Assets and work management is enabled by SAP hence the A&W Program is restricted in the changes that can be made during the change freeze. This essentially pushes out the timeline for completing the A&W Program initiatives.
4. The full benefits of the A&W Program are dependent on finalising the GIS consolidation. Having the GIS data in a single system enables accurate location-based asset management valuations and network load forecasting to underpin the relationship between our asset management prioritisation and the value of those assets to the specific customers impacted.

To avoid double counting of capex, any recurrent capex reductions resulting from the major SAP upgrade or replacement initiatives were taken out of the recurrent expenditure business cases and hence reduced the recurrent expenditure estimates. **Should the major SAP upgrade or replacement initiatives not be allowed by the AER, then those capex adjustments will need to be added back into the recurrent expenditure.**

## 7. IT opex step changes and capex–opex substitutions

- ✓ \$10.5 million efficient capex–opex substitution to migrate systems to the cloud
- ✓ \$11.4 million in step changes to meet critical infrastructure compliance obligations
- ✓ \$10.6 million in IT opex increases to be offset by IT program benefits

### 7.1 Overview

Table 7.1: Proposed IT opex step changes (\$million, Dec \$2017) summarises the expected changes in IT opex, relative to the 2018-19 base year, for the 2020–25 RCP (see Appendix G for a detailed breakdown of costs). These opex changes are driven by three factors:

- **capex to opex substitutions** associated with migrating our infrastructure and applications to subscription-based cloud services (\$10.5 million);
- **opex step changes to meet new regulatory obligations and requirements** related to the security of critical infrastructure (\$11.4 million); and
- **capital program opex increases** of approximately \$10.5 million which will be generated by the capital program changes and are expected to be offset by benefits from the overall IT Program if approved (see Section 8). We have validated \$6.8 million of benefits and we will not be seeking a step change for the remainder (\$3.8 million) as we will seek additional efficiencies in our services.

IT opex allowance step changes of \$21.9 million are being proposed as a result of the first two points above. These step changes cannot be offset and are aligned to the AER's Expenditure Forecast Assessment Guidelines. The balance of the changes relates to the capital program and increased opex associated with the proposed capex that meets the capex objectives and criteria.

**Table 7.1: Proposed IT opex step changes (\$million, Dec \$2017)**

Opex change	Driver	2020–25 opex increase	Proposed step change opex	Foregone capex
Cloud transition – infrastructure hosting	Capex/opex substitution	8.4	6.9	7.7
Cloud transition – work scheduling	Capex/opex substitution	5.3	3.6	3.6
Critical infrastructure compliance	Change in regulatory obligation – Foreign Acquisitions and Takeovers Act and Security of Critical Infrastructure Act	11.4	11.4	
Other 2020-25 Capital program impacts	A&W Program, Worker Safety, GIS consolidation, Protection Settings Management system, Ringfencing*	7.3		
<b>Total</b>		<b>32.4</b>	<b>21.9</b>	<b>11.3</b>
<i>IT opex increases to be offset by benefits*</i>		(10.5)		
<b>Opex increases being sought from the AER</b>		<b>21.9</b>		

\*If these initiatives are approved

*Note: Numbers may not add up due to rounding*

## 7.2 Transitioning our IT infrastructure and applications to cloud environments

### 7.2.1 Cloud transition – Infrastructure hosting

Increasing dependence on IT systems and the resultant expansion of our IT infrastructure can be managed most cost-effectively by systematically replacing IT assets in our third-party data centres with cloud hosting infrastructure. Cloud infrastructure is a subscription based opex cost. Accordingly, it results in ongoing capital costs associated with replacing IT assets being reduced but opex costs increasing. We have proposed this approach as it represents the lowest long-term cost to customers and is the most appropriate investment required to achieve both the capex and opex objectives. To facilitate this transition our forecast includes a substitution of \$7.7 million in foregone recurrent capex in exchange for an opex increase of \$6.9 million.

Refer to the IT Infrastructure Refresh Business Case for further details.

### 7.2.2 Cloud transition – Work scheduling

IT software applications are increasingly only available on cloud subscription services known as software-as-a-service (**SaaS**). This means they can no longer be installed locally and ‘owned’ per se. SaaS applications require a lower capital outlay during establishment and upgrades but more opex due to subscription licence costs.

Our enterprise system for field work scheduling and management (Click Software) reached the end of its life in 2018 and the replacement option is only available through a cloud service. The replacement of this software will not be complete until the end of 2019 and therefore the associated increase in costs to move to the cloud service will not be captured in our 2018-19 base year costs. The total opex increase associated with this replacement is \$5.3 million<sup>24</sup>, offset by a foregone opex of \$1.7, resulting in a net opex increase of \$3.6 million over the 2020-25 RCP. This is offset by approximately \$3.6 million in recurrent capex that will no longer be required for ‘on premises’ upgrades. Our forecast includes an opex step change of \$3.6 million as a substitution of \$3.6 million in foregone recurrent capex.

This replacement project will be completed at the end of 2015–20 RCP but the opex impacts begin in the 2020–25 RCP.

Refer to the IT Applications Refresh Business Case for further details.

## 7.3 Critical Infrastructure compliance

In 2017 a series of requirements were introduced to address the national security risks associated with foreign involvement (for example, through ownership, offshoring, outsourcing and supply chain arrangements) in relation to critical infrastructure (the **new critical infrastructure system and data control obligations**). SA Power Networks' distribution system is classified as high priority Australian critical infrastructure under the new critical infrastructure system and data control obligations. The specific conditions underpinning these obligations were developed by and are administered by the Commonwealth Government's Critical Infrastructure Centre (**CIC**) in support of its Critical Infrastructure Resilience Strategy<sup>25</sup>.

<sup>24</sup> The Click cloud pricing based on the current understanding of the subscription licensing arrangements is \$9.2 million. This pricing is included in the IT Applications Refresh business case. However, we believe there is scope to negotiate much better pricing and hence we are seeking only the capex-opex substitution for the current recurrent capex value. \$3.9 million has been removed from the opex increase to create a revised opex increase of \$5.3 million.

<sup>25</sup> Australian Government, Critical Infrastructure Resilience Strategy: Policy Statement, 2015: see <https://www.tisn.gov.au/Documents/CriticalInfrastructureResilienceStrategyPolicyStatement.PDF>

The CIC safeguards against national security risks by leveraging legislative and regulatory mechanisms, including through its role in:

- administration of the *Security of Critical Infrastructure Act 2018* (Cth) (**SCI Act**); and
- foreign investment assessments by the Treasury and the Foreign Investment Review Board (**FIRB**) under the *Foreign Acquisitions and Takeovers Act 1975* (Cth) (**FATA**).

Under these new obligations, SA Power Networks is constrained to using IT systems and support arrangements based in Australia where the data or hosting arrangements related to those systems meets specific criteria set out by the CIC. Prior to the imposition of these new obligations, SA Power Networks engaged overseas suppliers for support and hosting services for core systems because this was the most efficient option for accessing these types of services. Sourcing support overseas assisted in keeping the cost for IT services down.

To achieve compliance with the new critical infrastructure system and data control obligations, various changes will need to be made to our IT systems and services, including bringing affected services back onshore, or if that is not possible, to put in place controls such that support personnel accessing from overseas are overseen and monitored by someone in Australia from SA Power Networks. Bringing these services onshore and putting in place the capabilities to manage the overseas resources that do not need frequent access will require an opex step change of \$11.4 million in the 2020–25 RCP.

Refer to the Critical Infrastructure Obligations Business Case for further details.

## 8. Summary IT Investment Plan

Table 8.1 summarises the IT Investment Plan forecast capex and opex changes and benefits. For the summary of costs and benefits for each IT business case see Appendix H.

**Table 8.1: List of IT Investment Plan initiatives (business cases) (\$million, Dec \$2017)**

Capital expenditure category IT investment objective Business case	2020–25 capital forecast	2020–25 opex increase	Proposed step change opex	Tangible benefits 2020–25	Tangible benefits 2020–30
<b>IT recurrent: Maintain current levels of service</b>					
Client device refresh	23.2				
IT applications refresh	69.9	5.3	3.6	5.3	10.5
IT infrastructure refresh	28.5	8.4	6.9	9.3	23.3
Cyber security	11.5			5.5	11.1
IT management, risk and governance	3.1				
<b>Total IT recurrent</b>	<b>136.2</b>	<b>13.7</b>	<b>10.5</b>	<b>20.1</b>	<b>44.9</b>
<b>Non-recurrent</b>					
Maintain current levels of service: Major IT replacements and upgrades					
SAP upgrade	24.6			1.5	2.2
CRM & Billing completion	25.5			3.1	7.4
Protection Settings Management system	2.8	0.2		2.0	5.8
<b>Total major IT replacements and upgrades</b>	<b>53.0</b>	<b>0.2</b>		<b>6.6</b>	<b>15.4</b>
<b>Total maintain current levels of service</b>	<b>189.1</b>	<b>13.9</b>	<b>10.5</b>	<b>26.7</b>	<b>60.3</b>
Maintain compliance with existing and meet new regulatory obligations					
Five Minute Settlement Rule	7.7				
Ringfencing compliance: IT solution	3.8	0.1		0.3	0.6
Critical infrastructure obligations		11.4	11.4		
<b>Total maintain compliance</b>	<b>11.5</b>	<b>11.5</b>	<b>11.4</b>	<b>0.3</b>	<b>0.6</b>
Manage business and network costs through efficient use of data and digital technology					
Assets & Work Program	40.7	5.5		69.2	127.7
GIS consolidation	13.8	0.9		0.2	1.0
Worker safety: Fatigue risk management	5.3	0.5		1.1	2.6
<b>Total manage costs</b>	<b>59.9</b>	<b>7.0</b>		<b>70.5</b>	<b>131.3</b>
<b>Total non-recurrent</b>	<b>124.4</b>	<b>18.7</b>	<b>11.4</b>	<b>77.4</b>	<b>147.4</b>
<b>Total IT investment proposed</b>	<b>260.5</b>	<b>32.4</b>	<b>21.9</b>	<b>97.6</b>	<b>192.3</b>

Note: Numbers may not add up due to rounding

## 9. Benefits realisation/application

✓ \$97.6 million in quantified benefits in the 2020–25 RCP

Table 9.1 summarises the realisation/application of the tangible benefits arising from our IT Investment Plan within our Proposal. Only the benefits accruing within the 2020-25 RCP are considered.

The SA Power Networks network replacement expenditure forecast for the 2020–25 RCP has been reduced by \$65 million, assuming the A&W Program, GIS consolidation and Safety Business Cases are fully funded.

The changes proposed in the IT Investment Plan create reductions for the IT recurrent refresh capital forecasts totalling \$11.8 million and our capex forecast has been adjusted down to reflect this.

Approximately \$6.8 million of tangible realisable benefits (i.e. a cost reduction within the 2020-25 RCP) will be used to offset forecast IT opex increases (totalling \$10.5 million) arising from the capital program and associated initiatives. Accordingly, we have not proposed step changes for these IT opex increases.

Finally, a number of benefits (\$13.9 million) relate to avoiding an expected capex or opex increase. This means we have maintained the current opex and capex levels for the relevant functions in expectation that the work will be undertaken.

Taken together these benefits make a substantial contribution to the keeping our costs down for the 2020–25 RCP and we expect this impact to continue into the 2025–30 RCP (refer to Table 8.1). Appendix I provides the rationalisation for the benefits at the project level.

**Table 9.1: Benefits realisation/application arising from our IT Investment Plan in the 2020–25 RCP (\$million, Dec \$2017)**

Benefits realisation/application	Amount
Reduced network asset replacement expenditure forecast (deferral of network asset replacement costs)	65.0
Reduced IT recurrent capex proposal	11.8
Reductions in opex from the IT program	6.8
Avoided expected capex or opex increases	13.9
<b>Total</b>	<b>97.6</b>

*Note: Numbers may not add up due to rounding*

## 10. IT totex comparison to other DNSPs

- ✓ Our proposed IT costs are consistent with the number of customers we service when compared with other DNSPs in the NEM
- ✓ We will remain one of the most cost-efficient IT services in the long term

As noted previously (Section 5.1), SA Power Networks benchmarks as the lowest cost DNSP in the NEM in opex terms. However, our proposed capital program (\$260.5 million) appears large. This attracted some discussion from stakeholders during the Deep Dive workshops, who were particularly interested in how our costs compared to other DNSPs and over the long term.

Comparison of IT costs between DNSPs is made difficult because of the variety of factors that impact on capex and opex for a DNSP. Two key examples are the extent to which:

- regular cyclical software and hardware patches and upgrades are done within operational support contracts compared to capital delivery initiatives; and
- client devices and infrastructure are leased (giving rise to an opex cost) as compared to being purchased (giving rise to capex).

The lifecycle stage of the core technologies also determines the size of our expenditure. Currently we are in a period of high expenditure due to the need to replace large systems.

Hence, the most effective comparison is to consider all IT costs together (i.e. totex).

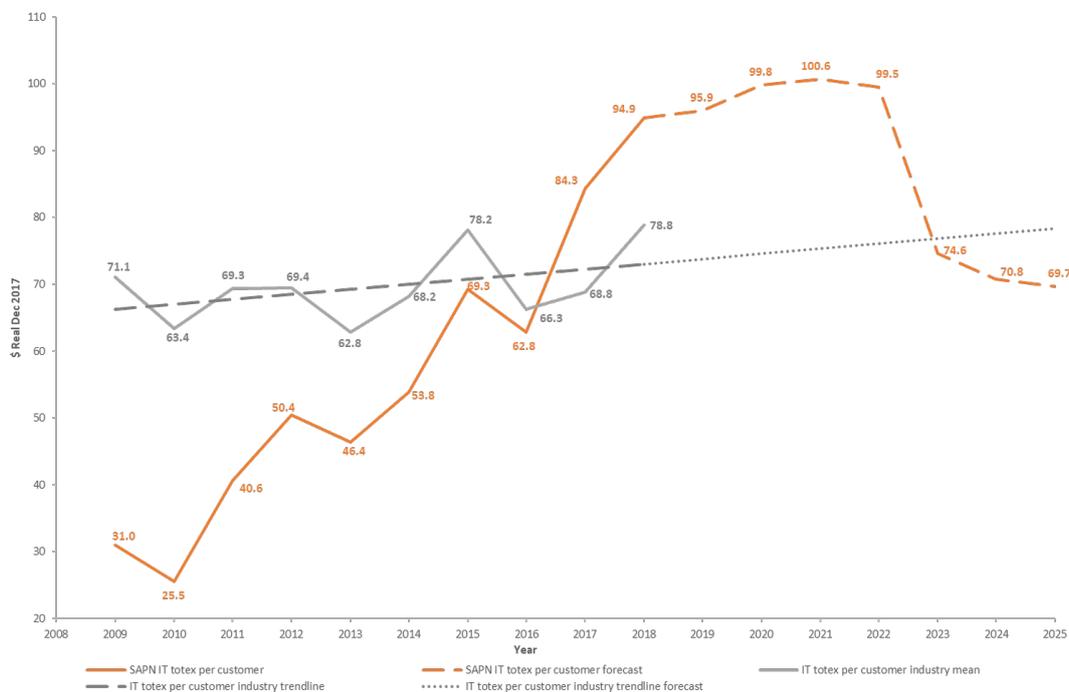


Figure 10.1: IT totex Per Customer Trend Analysis<sup>26</sup>

<sup>26</sup> Source: KPMG 2018 Utilities IT Benchmarking: Technology Regulatory Benchmarks, January 2019

Figure 10.1 summarises the IT Totex per Customer estimates out to 2024/25 based on the SA Power Network’s forecast IT expenditure and includes an extrapolated trendline for the average IT totex per customer for the NEM based on the RIN data as summarised in the 2018 KPMG Utilities IT Benchmarking (see Figure 5.2 for the actual graph). By 2024/25 our forecast IT totex/customer will be well below the average for the NEM (13.2% less) and even below the 2017-18 RIN reported actual average for the NEM (10.9% less). This reflects our aim to help keep costs down for customers by being at or below the average IT totex/customer for the NEM in the long time.

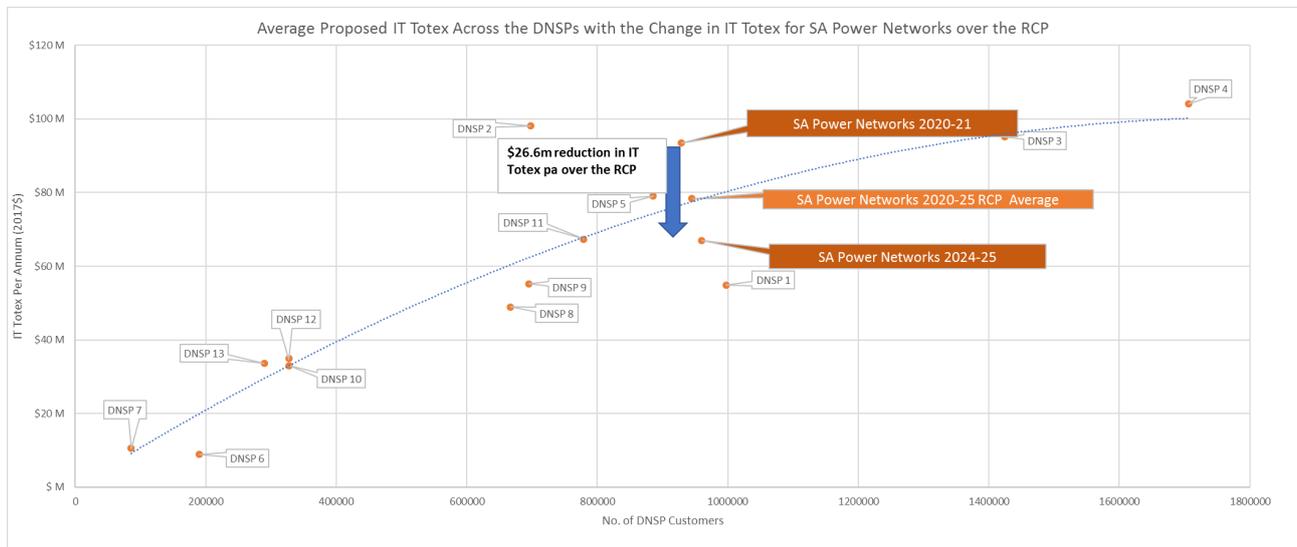


Figure 10.2: DNISP proposed (2019–25) average IT totex per annum by number of customers<sup>27</sup>

Figure 10.2 shows the average proposed IT totex per annum for the DNSPs, over the 2019-25 period in the NEM based on the number of customers serviced. These figures are based on DNISP regulatory proposals that have already been submitted to the AER or, where not yet submitted, the published RIN estimates for current expenditure levels. Our proposed IT totex per annum is consistent with the number of customers we service (relative to what is being proposed by the other DNSPs) and the downward trend reflects the completion of the current replacement cycle we are in.

The information presented here reinforces the view that SA Power Networks will continue to be one of the most cost-efficient IT services in the NEM over the long term. As expected our IT costs are larger than normal due to the large replacement programs. In addition, dependence on our IT services has increased, and will continue to increase, as we seek to use data and technology to more efficiently and securely manage our services and risk on the aging distribution network, while responding to the dynamic energy market changes. However, our focus on seeking the most cost efficient long-term solution and delivering the ‘minimum viable and sustainable product’ each time will ensure our IT costs continue to be tightly managed and focus on what our customer and our business needs and value.

<sup>27</sup> The information on this graph has been created by SA Power Networks. The trend line is the standard Microsoft Excel polynomial trendline. Uses the RIN data for submitted Regulatory Submission Category Analysis RINs or the 2016-17 Non-Network IT RIN reports if the Regulatory Submission CA RINs are not available.

## 11. External customer and stakeholder review and feedback

- ✓ Far greater customer engagement for the IT proposal than previous RCPs
- ✓ We have endeavoured to respond to customer and other stakeholder concerns where feasible to do so

Customer and other stakeholder input has been substantially higher than previous RCPs, contributing to the refinement of our IT business cases, messages and benefits.

As part of the preparation for our Proposal, ten ‘Deep Dive’ workshops were held to seek customer and stakeholder feedback and six of these discussed different components of the IT Investment Plan. These workshops are summarised in the on the SA Power Networks’ Talking Power website ([www.talkingpower.com.au](http://www.talkingpower.com.au)).

Components of the IT Investment Plan were presented at the Opex Workshop and the Network Repex Workshops. A full day IT Deep Dive workshop was dedicated purely to discussing this IT Investment Plan (see Supporting Document 0.15). Additional feedback was received through the customer and other stakeholder review and feedback mechanisms including responses to the Draft Plan.

The feedback and responses are highlighted in each of the relevant business cases. The high-level summary of items raised and our responses are presented in Table 11.1.

**Table 11.1: Summary of items raised through the customer workshops and stakeholder review**

Issue raised	Our response
Participants were appreciative of the amount of detail, the thoroughness of the information provided, and for the opportunity to comment	No response required
There is a large IT spend in the past few regulatory years and for the 2020-25 RCP – do customers really benefit from this?	While we acknowledge customer and stakeholder concerns about the level of investment in IT, the reality is that without IT, we simply could not meet customer needs and expectations or manage our business.  Customers and stakeholders have also told us it is important that we maintain our position as the most efficient distributor on a statewide basis. Investment in IT is key to achieving this.

<p>Why doesn't 100% of IT capex have an associated productivity benefit or opex reduction dividend?</p>	<p>Maintaining current customer and IT services is our first priority. Historically <b>60% - 70%</b> of our IT capex has related to replacement, updates and upgrades to our systems to maintain current levels of service. The key benefits are risk mitigation based (i.e. ensuring the services don't fail) and ensuring that the existing productivity benefits, gained over many years, are retained (e.g. through ensuring we do not revert to manual handling of information again). There are few tangible new productivity benefits associated with this capex. This is consistent with expenditure incurred by other DNSPs and our own history.</p> <p><b>5% – 10%</b> of our IT capex is for maintaining compliance and hence the benefits are not related to productivity.</p> <p>The remaining <b>20% - 30%</b> of IT capex does generate tangible efficiency, cost avoidance or deferral related benefits and these are detailed in the business cases.</p>
<p>Why isn't there a productivity benefit or opex cost reduction associated with the capex/opex substitutions?</p>	<p>Consistent with the AER definitions, the capex/opex substitutions described in the IT Investment Plan are primarily concerned with the reclassification or 'substitution' of expected expenditure from capex to opex because the assets are no longer available under capital purchasing arrangements. We are reducing our future capex but <i>increasing</i> our opex by a similar or lesser value. The benefits are in terms of future capex avoidance rather than productivity improvements or opex reductions.</p>
<p>Not enough options were considered in the business cases</p>	<p>The information provided at the deep dive workshops was, by nature high level and simplified to be able to present and discuss with a public audience. In addition, while the majority of the business cases are similar to those presented at the Deep Dive workshops many of the details have been revised as more information has become available and more detailed costing done since the workshops in June 2018. The final detailed business cases all consider at least 2 options and are available to be reviewed by the AER. We have considered additional options where possible and meaningful for the business cases. For example, we have considered alternative solutions in the SAP Upgrade Business Case as requested at the IT Deep Dive workshop.</p>
<p>The business cases that related to compliance were accepted in principle but subject to financial assessment by the AER</p>	<p>There are detailed business cases and cost models for the compliance initiatives (Five Minute Rule Change, CIC and Ring Fencing) which are available for the AER to review.</p>
<p>The Customer Engagement Business Case was only accepted in a reduced form and with no additional opex</p>	<p>Following the portfolio prioritisation process and additional customer feedback the Customer Engagement Business Case was removed from the IT Investment Plan.</p>

<p>The proposal required a stronger upfront definition of specific benefits to customers</p>	<p>In this IT Investment Plan and all business cases we have sought to emphasise the direct and indirect benefits to customers – whether that is at the very high level (Section 2) or the more detailed cost benefits level (Section 9). We have been much more explicit in the detailed business case to emphasise the customer benefits and the impact on the customer of inactivity should the work not go ahead.</p>
<p>Clearer descriptions of the assumptions underlying each scenario/option in the business cases</p>	<p>As noted, given the nature of the stakeholder workshops only limited information was provided on assumptions. Detailed assumption information is provided for each option in each business case and is available for AER review.</p>
<p>Concern was expressed about the perceived complexity of our application environment and customers sought to understand how IT is consolidating applications to help reduce costs</p>	<p>Application consolidation is a strategic practice to systematically reduce our IT costs. For example, we have proposed a GIS consolidation program in this IT Investment Plan. The CRM &amp; Billing Replacement Completion also consolidates a large number of legacy customer systems. We need to continue our application refresh program to facilitate ongoing consolidation.</p>
<p>Concern was expressed about ensuring the asset lifecycles were extended sufficiently (ie. are our IT assets ‘sweated’ enough)</p>	<p>As detailed in the IT Asset Management Plan, we do sweat assets to the extent that ‘sweating’ those assets does not create undue risk for the distribution services they enable. A very significant example is the plan to sweat the data centre infrastructure assets for two years beyond their vendor specified refresh dates using extended support services.</p> <p>Our upgrade and replacement initiatives are evaluated on the basis of criticality to the delivery of distribution services and risk and selecting the cheapest option for the asset class over a 10-year NPV period.</p>
<p>Have a clear indication of where the IT benefits are being used to reduce business costs</p>	<p>In Section 9 of the IT Investment Plan we have shown the financial benefits and where they will materialise. Adjustments have been made to the relevant costs in each business case.</p>
<p>Why aren’t SCADA, the ADMS/OMS and the Future Network costs included in the IT Investment Plan?</p>	<p>As per the AER definitions, there is a distinction between the corporate (IT) and operational (OT) networks and related technologies. These systems provide OT services and are treated separately to IT services.</p>
<p>While you benchmark with the lowest opex per customer among the DNSPs your capex appears to be high. How does your total IT spend compare with other DNSPs?</p>	<p>In Section 11 of the IT Investment Plan we show that our total IT forecast totex is entirely in line with, or better than, other DNSPs in the NEM. Our IT totex will also reduce significantly over the 2020-25 RCP as our large program of capital work is completed. We aim to remain one of the most cost-efficient IT functions in the NEM.</p>

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The proposal requires a strong IT narrative linked to cost minimisation for customers

This IT Investment Plan details the significant benefits that are being derived from our efficient and strategic use of IT to deliver distribution services and manage our network costs and risk. Across the 2015-30 period, we expect to deliver approximately \$450 million in benefits, including over \$300 million of asset replacement expenditure deferrals. (Sections 5 & 9). This contributes significantly to keeping costs down for our customers.

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## Abbreviations

<b>ADMS</b>	Advanced Distribution Management System
<b>AER</b>	Australian Energy Regulator
<b>A&amp;W</b>	Assets and Work
<b>BAU</b>	business as usual
<b>capex</b>	capital expenditure
<b>CPMO</b>	Corporate Portfolio Management Office
<b>DNSP</b>	distribution network service provider
<b>GIS</b>	geographic information systems
<b>LV</b>	low voltage
<b>NEM</b>	National Electricity Market
<b>NER</b>	National Electricity Rules
<b>NPV</b>	net present value
<b>opex</b>	operating expenditure
<b>OT</b>	operational technology
<b>OTR</b>	Office of the Technical Regulator
<b>PSS</b>	Protection Settings System
<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>SCADA</b>	supervisory control and data acquisition
<b>totex</b>	total expenditure (i.e. capex + opex)

## **Appendix A Benefits and outcomes to customers of the proposed investment in IT capabilities**

### **A.1 Keeping the power on**

Our IT systems ensure that electricity continues to flow seamlessly to customers' homes and businesses, helping prevent outages and then minimising the downtime once an outage occurs.

Our long-term planning and analytics systems will continue to minimise the chance of an outage through identifying the most 'at risk' and highest value assets, and schedule appropriate and cost-efficient changes to the asset.

Our short-term planning systems work to minimise the chance of an outage from our own network management activities. This involves detailed scenario modelling and understanding the impact on our customers so that only the customers who need to be impacted are.

This investment will also enable us to develop better solutions for customers experiencing poor electricity network performance through better understanding of the performance of our network assets.

### **A.2 Keeping prices down**

We will avoid cost increases and maintain lower prices without commensurate reductions in reliability and safety as we use improved data and digital technologies to manage our assets more effectively and defer changes where they are not needed at this point in time. We expect to deliver substantial asset deferrals due to smarter asset management.

IT services help us deliver our work efficiently and safely, and enable the improvements to be consistently applied across our enterprise, hence sustainably lowering our capex costs.

This investment will ensure we continue to evolve our IT operating environments, to contain our costs through consolidating our systems and taking advantage of more cost-efficient means of accessing technology capabilities such as cloud infrastructure and software. We will be able to continue to manage our costs as demand increases.

Costs will also be lowered through improved technology and data allowing us to standardise and share our designs effectively with suppliers and customers and minimise rework. Enabling co-design with customers will ensure that the assets are built to specification and appropriate standards.

### **A.3 Keeping customers informed and being easy to deal with**

Customers will continue to be able to view outages through Power@MyPlace and our outage map applications. They will be able to report faults and street lights that are not working and get accurate updates on the progress on outages, planned maintenance and other jobs. Changing expectations of the customer experience will also be met as our customer and web systems evolve.

Our scheduling systems will continue to evolve and ensure customer jobs are scheduled in an optimised manner and field workers will have access to the right information, the right tools and the right supplies they need – causing less disruption to customers.

Our crews will have more real-time information about our customers (e.g. in relation to the locations of life support customers) and be able to provide updates in real time to keep them informed.

Customers will continue to have access to accurate electricity usage data and billing information – even in the changing energy marketplace.

## Appendix B IT strategic drivers

### Challenge: Rapidly changing energy market and customer preferences

#### **New types of customers and market players are emerging**

Unlocking additional value in energy markets using new technologies is encouraging new customer types and market players such as virtual power plant operators to emerge. This also brings in new types of contracts and potentially tariffs. We can expect others to emerge over time. Our systems will need to be able to respond effectively to these developments as they emerge. We also expect an increase in the number of customer enquiries as complexity increases.

#### **Customer expectations continue to evolve**

Digital capabilities are transforming service experiences across all sectors. The baseline of what customers expect from DNSPs is steadily rising. As we learnt during the 2016 outages, customers do expect timely and accurate information to help them make reasonable decisions, and they expect us to gradually improve over time. We also need to continue to invest in our customer insight capabilities.

#### **The move to a distributed energy world requires new, more data intensive, approaches to managing our distribution network**

The continued increase in distributed energy resources, increased two-way energy flows and the increased number of devices connected to the network will present significant challenges to the ongoing management of the network, particularly as penetration increases and the network reaches capacity thresholds in the LV network. To maintain reliability, we will need to collect additional information from the LV network using a variety of sources, analyse this and respond in a timely manner to avoid quality and outage issues.

### Challenge: Our ageing network and changing workforce

#### **Our ageing distribution network infrastructure requires new asset management approaches and tools to contain costs while managing risk**

Our infrastructure is the oldest in the NEM. As it ages more defects are identified. We have begun to use digital technologies to create smarter asset management approaches and new ways to manage our costs, risks and level of service to customers. We will need to continue to develop these capabilities into the future to enable us to consistently do the 'right work', avoid or defer the work that does not need to be done now and keep the costs of service low over the long-term.

#### **The changing nature of our work**

The nature of work for our field operations is also changing with an increasing proportion involving smaller repair and replacement activities targeted at highest value work. This is driving changes in how we manage and monitor our portfolio as well as how we schedule our work. Our portfolio, work management and scheduling systems need to be able to support this change.

#### **The workforce transition**

Our workforce is transitioning from one generation to the next which will place pressure on us to retain, augment and share the skills and experiences of our older knowledgeable workforce. We have started using digital technologies to engender greater collaboration and sharing, and to build the corporate knowledge base to ensure knowledge is not completely lost. This will need to continue. The new generation also learns differently, more interactively, using digital technologies. Hence our training approaches need to adapt. Safety training will continue to be a key area of focus.

## Cost effective opportunities

### **Increasingly intelligent automation will enable process improvement**

As our systems are replaced and mature gradually over time the opportunity arises to improve our processes using technology. We will have better means to simplify, standardise and automate some of our tasks, which will allow us to move away from handling so much paper and focus on managing an increasingly diverse and aging distribution network environment. More intelligent systems will also help us identify and implement new workflow and interaction opportunities, enabling us to more effectively share information with customers who can make more relevant and timely decisions on their energy management.

### **Intelligent tools can collect and analyse larger volumes of data to help identify and manage risk and make better decisions**

The progression towards operating in an environment which encompasses more intelligent two-way electricity networks and smarter metering will result in an explosion of new data from a range of new data sources. The significant growth in data will result in the need to develop appropriate capabilities in enhanced data analysis, integration, management, collection and reporting. Core systems will need to evolve to handle this.

### **Cloud services are maturing which can enable improved cost management approaches**

Cloud-based services are steadily becoming the standard (and increasingly only) approach for purchasing and consuming IT services. Although not yet mature for all applications, cloud services provide opportunities to adopt more flexible, scalable and, usually, a more cost-effective approach to purchasing IT services.

### **New digital technologies are evolving rapidly and offer new opportunities**

Digital technologies will continue to evolve rapidly. As these technologies mature we will continue to seek opportunities to leverage them to maintain and manage our IT services more efficiently.

The **Digital Strategy 2018–25** is a response to these strategic challenges and opportunities and the key focus areas are detailed below:



**Transforming work practices and customer experiences**

To contain our costs while our business is changing, we need to work smarter. We need to continue to embed digital technologies into our business to create a more efficient & productive organisation, but always with the value to the customer and their experience in mind.

**Enabling us to do more while managing our risks, through improved use of data**

Improving customer management, asset management and the management of our electricity networks requires enhancing our capability to harness new data collections, smarter means of analysing the data as well as securely and effectively making it available to those parties who need to use it.

**Richer data, greater visibility**

While greater volumes of data are becoming available over time, prudently collecting the ‘right data’ and then making that available to be consumed, visualised and shared is at the heart of our improved approaches to asset, customer, work and operational network management.

**Unleashing intelligence**

Using the ‘right data’ more intelligently. Taking advantage of advances in data analytics and machine learning to enable us to identify issues and opportunities, model impacts and make decisions

**Creating open, integrated platforms**

With a more diverse ecosystem of customers, suppliers and energy market stakeholders (including new players like Virtual Power Plants (VPPs)), providing more open data and transparency on network functioning and assets will provide more opportunity to derive greater value from the network and services. Achieving the outcomes of the Future Network Strategy requires more open data sharing and communication channels.

**Key Enablers**

**Equipping our people for the digital world**

Establish an environment that incentivises and fosters new ways of working and ensures our staff continue to deliver effectively and make the most use of the available data and technology.

**Reshaping the IT operating model**

The role of IT in the business is changing. Technology is enabling more business services. We have developed new delivery and service models based on Agile and LEAN but we need to continue to adapt and optimise the IT operating model.

**Evolving core IT**

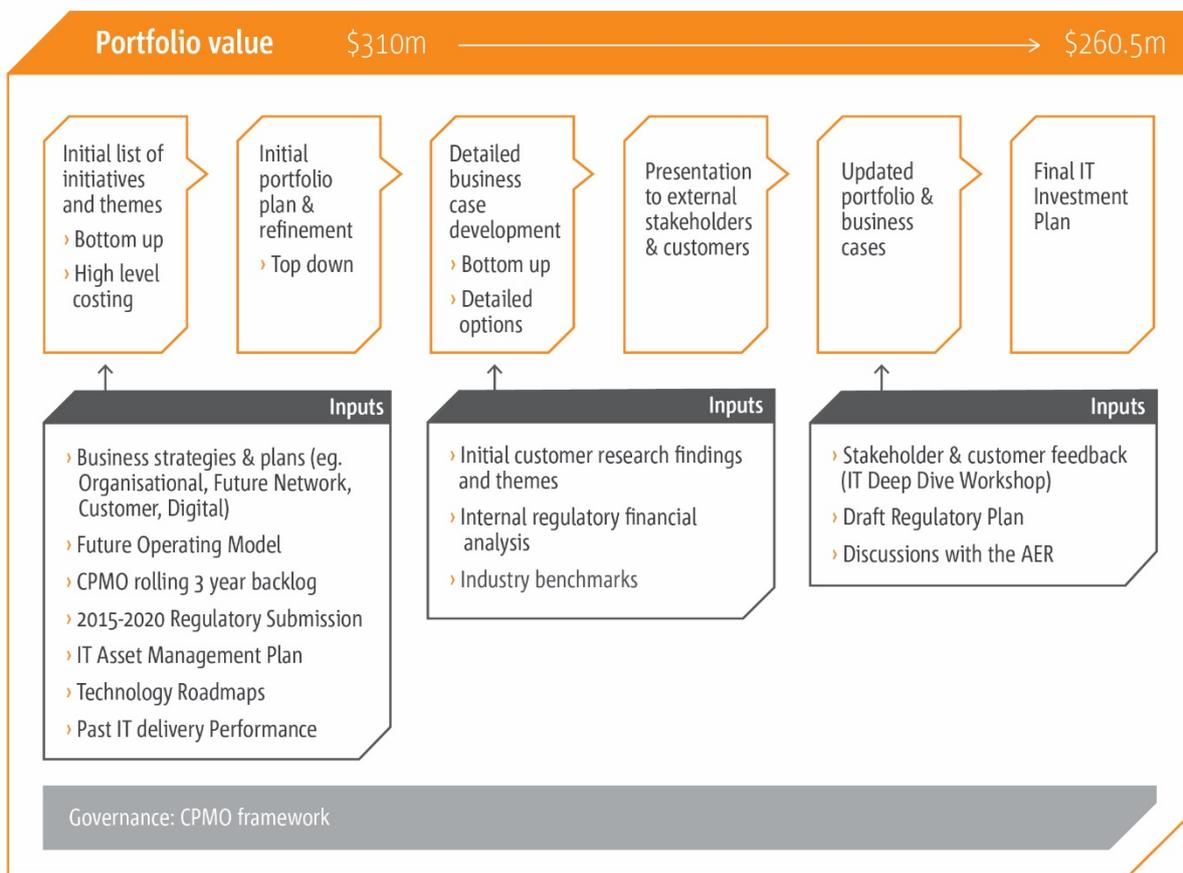
Our prime objective is to maintain the existing levels of service and risk in a secure, reliable and cost-efficient manner and we need to continue to seek more cost-efficient means of managing our technology assets. We need to continue to refresh our legacy applications as well as take new opportunities, such as the transition to Cloud, to ensure ongoing cost-efficient services.

## Appendix C Governance of IT and investment decisions

- ✓ Rigorous investment planning methodology following a standardised framework
- ✓ Evidence based business cases
- ✓ Customer centric and deliverable IT investment portfolio

### C.1 IT Investment Plan development approach

This IT Investment Plan has been developed by following a comprehensive investment planning and forecasting process as defined in the SA Power Networks’ Business Planning and Budgeting, and Capital Project Evaluation and Approval Procedures. The overall approach is detailed below and was subject to the standard Corporate Portfolio Management Office (CPMO) Framework for selecting the ‘Right Projects, Right Way and Right Value’. Figure C.1 shows a schematic of the development process.



**Figure C.1: IT Investment Plan development process**

The approach can be summarised as a bottom-up build-up of initiatives followed by a number of iterations to progressively refine the portfolio based on additional inputs from customer and stakeholder feedback, top down portfolio, dependency and deliverability analysis and detailed business case development. The result is a prioritised and costed set of business cases identifying the best customer benefits while managing risk to existing services.

The portfolio value is based on the final preferred option for each business case. Several business cases and initiatives from within business cases were deferred to the 2025–30 RCP as a result of the dependency and prioritisation analysis.

This portfolio refinement approach reduced the initial list of approximately \$310 million worth of initiatives down to **\$260.5 million** for our Proposal.

## C.2 IT Asset Management Plan

One of the key inputs to our investment planning process is our IT Asset Management Plan<sup>28</sup> which provides a framework for how we manage our IT Assets to deliver the most value for our customers and stakeholders through balancing risk and cost.

The framework aligns with the SA Power Networks Asset Management Policy and outlines our approach to managing IT Assets based on their criticality as it relates to operating the network and delivering distribution services. This helps us determine the most appropriate security patching, upgrade cycles and replacement cycles to ensure we get the best value from all our IT Assets. For example, a piece of IT hardware or an application that is critical to the continued operation of the network might have an upgrade cycle of every two years, where less critical hardware and applications might have a five-year (or greater) upgrade cycle.

As IT assets have significantly shorter lifecycles (typically two to seven years) compared to electricity assets, there is usually a need for investment in refreshing the critical components of our IT assets at least once each RCP.

## C.3 IT expenditure forecasting methodology and approach

All IT expenditure for the 2020–25 RCP is justified via business cases to demonstrate the investment is prudent, that all reasonable alternatives have been considered and that the most efficient option was selected when taking into account the NER expenditure objectives and criteria, customer requirements, strategic directions and risk.

### C.3.1 IT expenditure categorisation

IT expenditure is classified as recurrent expenditure and non-recurrent expenditure consistent with the AER Expenditure Forecast Assessment Guideline<sup>29</sup>. Table C.2 shows the high-level expenditure classification and examples.

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<sup>28</sup> IT Asset Management Plan 2019-2023

<sup>29</sup> AER, *Expenditure Forecast Assessment Guideline for Electricity Distribution*, November 2013, page 21.

Table C.2: IT high-level expenditure categorisation definitions

	Recurrent	Non-recurrent
<b>DEFINITIONS</b>	<ul style="list-style-type: none"> <li>The expenditure necessary to keep the existing IT systems and infrastructure operational and manage our risk during the 2020–25 RCP assuming the current level of services</li> <li>Expected to be reasonably consistent from RCP to RCP, taking into account changes in volume and unit cost drivers and changes in risk landscape</li> <li>Includes periodic upgrades with periods ≤ 5 years</li> </ul>	<ul style="list-style-type: none"> <li>Periodic expenditure with periods &gt; 5 years, eg end of life replacements or major upgrades of our core systems</li> <li>Projects that are one off and not ongoing in nature, that are undertaken to respond to: <ul style="list-style-type: none"> <li>a new identified business need or</li> <li>regulatory obligations or requirements</li> </ul> </li> </ul>
<b>EXAMPLES</b>	<ul style="list-style-type: none"> <li>Workstation replacements</li> <li>Windows upgrades</li> <li>Datacentre and cloud infrastructure</li> <li>Business application upgrades and minor enhancements (e.g. SAP, GIS, Click, Website)</li> <li>Security patches to IT infrastructure</li> <li>Remediation of existing systems</li> </ul>	<ul style="list-style-type: none"> <li>End of life replacement of the billing system</li> <li>Major upgrade of SAP</li> <li>Extensions and enhancements to IT systems to support network asset management</li> <li>Implementation of new capability fatigue management system</li> <li>Changes to systems to enable the Five-Minute Settlement Rule change</li> </ul>
<b>AER IT capex categories</b>	<ul style="list-style-type: none"> <li>Asset replacement or remediation</li> </ul>	<ul style="list-style-type: none"> <li>Asset Replacement</li> <li>Asset Extension</li> <li>Capability Growth</li> </ul>

### C.3.2 Business case options handling

All business cases contain detailed options assessment with at least **two** options per case – including cost estimates, assumptions, cost-benefit analysis and the justification for the most efficient and prudent option in line with the AER Expenditure Forecast Assessment Guideline.

When selecting business case options, we use the following definitions:

- Do nothing** – we do not respond to the business need/driver identified in the business case. Under the ‘do nothing’ scenario, we will not implement any of the other scenarios proposed in the business case.
- Business as usual** – for IT expenditure, continuing with the current level of IT service and the current IT asset maintenance lifecycle, taking into account changes in unit cost and volume inputs.
- Do something** – one or more alternative options other than ‘do nothing’ or ‘business as usual’.

Any of these may or may not be considered credible options depending on whether they:

- address the need identified in the business case;
- are commercially justified and technically feasible; and
- can be implemented in sufficient time to meet the identified need.

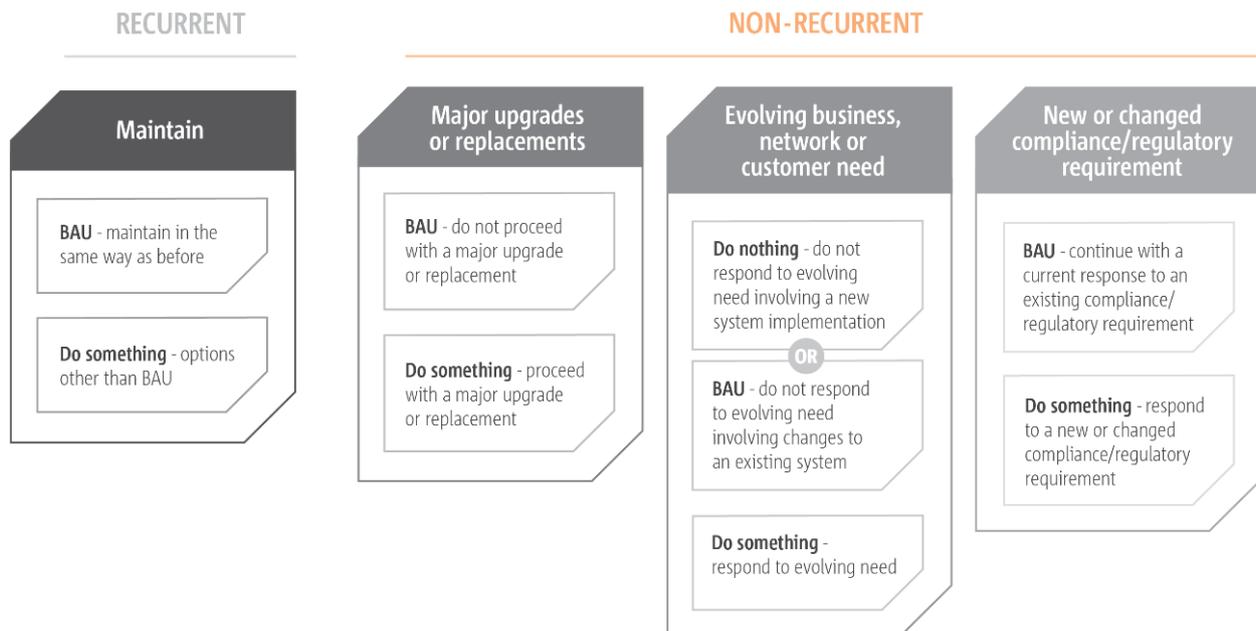


Figure C.2: Options selection for different types of IT expenditure (BAU: business as usual)

As detailed in Figure C.2, the treatment of the business case options varies depending on the expenditure categorisation, reflecting the inherently different objectives of the expenditure (e.g. risk management vs business improvement). The following is of note:

1. 'Do nothing' options are only relevant to the business cases that respond to a newly identified business need by implementing a new IT system or capability. The other expenditure categories either:
  - have pre-existing 'business as usual' costs that provided a baseline against which the alternative options were compared; or
  - cannot have 'do nothing' as a credible option as is the case for new regulatory obligations and requirements.
2. To ensure transparency of the different expenditure categories for RIN reporting purposes, the business cases for the major upgrades or replacements assume a baseline recurrent expenditure for the application and then costed the alternatives (up or down) on that baseline. In this way recurrent and non-recurrent expenditure is forecast and reported separately for the same application.
3. To avoid double counting of capex, any capex reductions identified in the major upgrade or replacement initiatives are fed back into the recurrent expenditure business cases as capex adjustments and hence reduce the recurrent expenditure estimates. **Should these major upgrade or replacements not be allowed by the AER, then those capex adjustments will need to be added back into the recurrent expenditure.**

### C.3.3 Cost estimating approach

The approach to developing the cost estimates for each business case option varies depending on the expenditure category as illustrated in Table C.3<sup>30</sup>.

<sup>30</sup> Additional RIN considerations

- Client device expenditure is identified separately.
- Full Retail Contestability Application Support expenditure is costed in the Applications Business Case.
- Licence costs were based on the 2018-19 system licence costs included in the IT budget.

**Table C.3: Forecast approach by IT expenditure category**

IT expenditure category	Forecast approach
Recurrent IT capex	<ul style="list-style-type: none"> <li>• Bottom-up individual ‘system by system’ or ‘device type by device type’ approach, then rationalised into initiatives and then into workstreams to minimise management costs through economies of scale and avoidance of duplication</li> <li>• Business cases are work stream based (e.g. client devices, applications)</li> <li>• Costings are based predominantly on historical expenditure and current vendor support agreements, taking into account the lifecycle stage of the assets, and adjusting for expected changes going forward plus ‘top-down’ adjustments to the portfolio to take into account dependencies and deliverability</li> <li>• Much more detailed analysis was undertaken where capital to operating cost shifts were expected (e.g. migrating IT infrastructure to cloud) This analysis included competitive ‘request for quote’ responses.</li> </ul>
Non-recurrent IT capital expenditure	<p>Bottom up and top down costing based on:</p> <ul style="list-style-type: none"> <li>• vendor and supplier quotes</li> <li>• experience of other distributors and entities</li> <li>• historical experience of making similar changes in the organisation</li> <li>• a project breakdown of resources by year and capital/operational category</li> </ul>
Operational expenditure changes	<ul style="list-style-type: none"> <li>• Detailed assessment of resource and licencing costs based on supplier and vendor quotes</li> <li>• Baselined on the 2018/19 opex base year for step changes (i.e. increases over and above the 2018/19 regulatory year opex costs)</li> </ul>

All cost estimates exclude corporate overheads and contingency unless otherwise stated and justified.

### C.3.4 Unit Costs and Rates

A bottom-up forecast methodology was used for the business cases utilising a standard estimation template and labour rates.

The internal and external labour unit costs (daily rates) were derived directly from our actual internal labour rates, competitively tendered IT preferred supplier panel rates or, in the case of in-flight projects, actual supplier rates.

To simplify the estimation process, we used a standard approach to consolidate effort into 5 different project activity categories or phases (Planning, Design, Build/Test, Training, Business SME). In cases where projects are in progress or it is necessary to estimate at a lower level of granularity in order to better understand or visualise the labour contribution to a project, effort estimates are undertaken at the more granular level and then consolidated into the above five project phases.

Figure C.3 provides an example project template showing the summarised costs for a project for one year

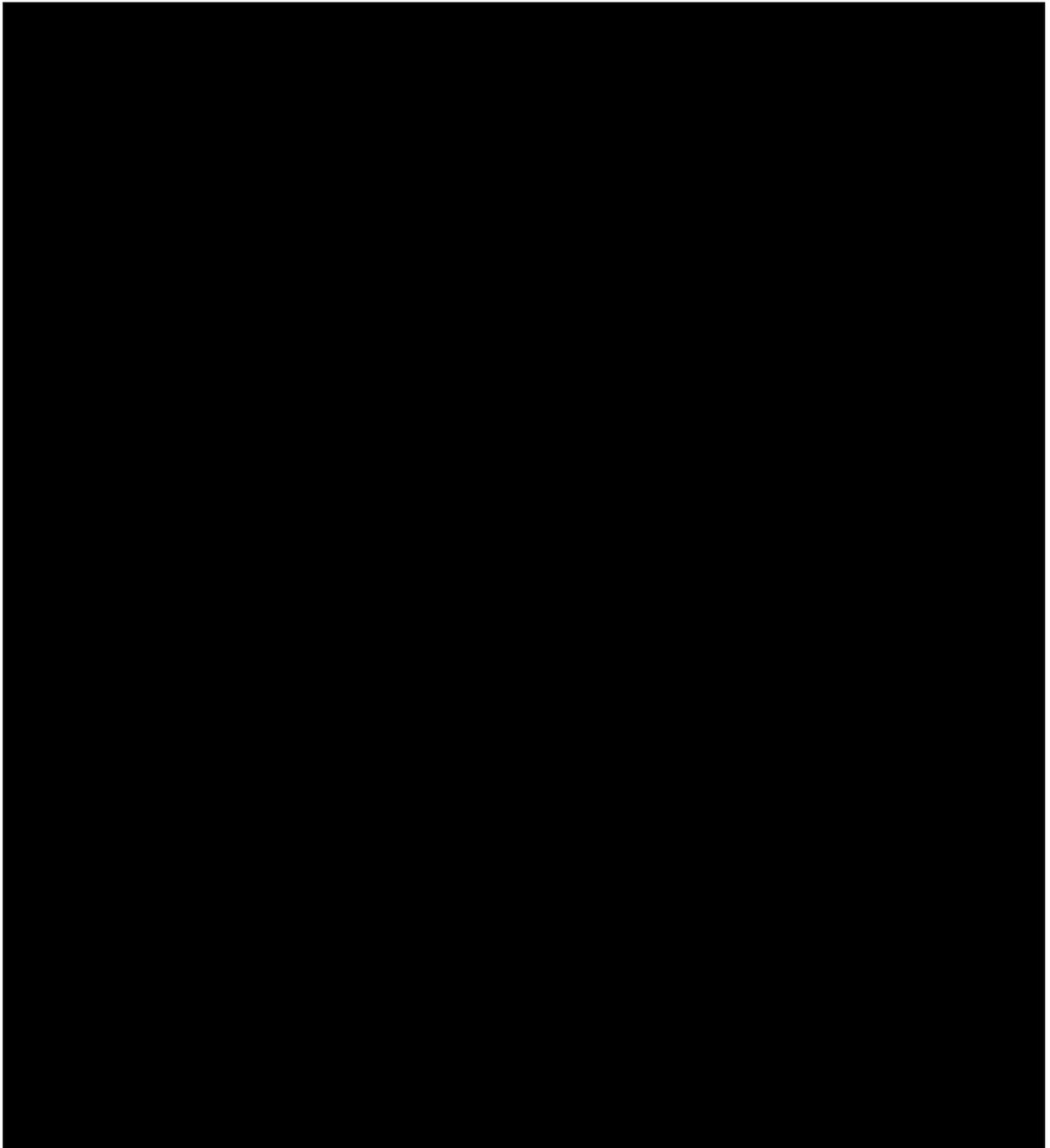


Figure C.3: Example Project Template

The key definitions are presented in Table C.4.

Table C.4: Forecast approach by IT expenditure category

Rates	Effort	Cost
Weighted average daily rate for all the resource types associated with the project phase	Total effort in days required for all resources working on this phase	Effort divided 80%/20% external/internal then multiplied by the rates Supplier Quotes for services or materials

Average labour rates were calculated for each project phase for the internal and external personnel working on that phase. This was calculated based on apportioning costs for each individual role across the different phases. For example, the project management and project coordinator roles are proportioned 100% to Planning, while the business analyst role is proportioned 20% to Planning, 20% to Design, 40% to Build/test and 20% to Training to reflect the distribution of a business analysts' effort across a typical project. This allowed us to create generic rates for internal and external personnel across all resources involved in each phase of the project.

In estimating project labour requirements, all labour is forecast as labour effort unless there was a supplier quotation for that project or a component of it. The forecast labour effort is then automatically distributed between internal labour and external services labour rates based on historical internal labour/ external services labour distribution of the IT Capital Program of the last three years, approximately 20% and 80% respectively. We do not expect our approach to delivering the IT Capital Portfolio to deviate from this given the level of maturity we have reached in managing our suppliers and internal staff in the delivery of our current capital program.

All forecasts include [REDACTED] of IT Business Unit overheads consistent with the IT Business Unit overhead rate applicable in 2017-18.

### **C.3.5 Risk quantification approach**

All business cases contain an analysis of the risk of not proceeding (inherent risks) and analysis of residual risks for each option. Risk rating was conducted with values based on the SA Power Networks Risk Management Framework.

### **C.3.6 Benefits handling**

Benefits are defined against initiatives within business cases and aggregated at the portfolio level and used to offset the relevant increases in opex costs except for the capex-opex substitutions and the changes driven by compliance with regulatory obligations or requirements.

### **C.3.7 Preferred option selection**

The business case option with the highest NPV was selected unless there was a substantial difference in the overall risk rating that distinctly favoured an option with a less favourable NPV.

Options with an extreme risk rating were discarded.

NPVs were calculated over at least 10 year periods to ensure consideration of the costs and benefits in the 2025-30 RCP. Although IT assets generally have short lifecycles between upgrades or replacement (i.e. 5 years or less), the benefits associated with the business capability delivered are returned over a period of more than 5 years.

### **C.3.8 The IT Investment Plan dependency, prioritisation and deliverability summation**

The preferred option for each business case was imported into the final costing model for the IT Investment Plan and then subjected to top down portfolio analysis to manage dependencies and deliverability considerations. Any changes resulting from this analysis were then reflected back in the underlying business case option costs.

## Appendix D IT capex 2010–25 by Category Analysis RIN IT ‘Capex by Purpose’ Expenditure Categories

Table E.1: IT capex 2010–25 by Category Analysis RIN IT ‘Capex by Purpose’ expenditure category (\$million, Dec 2017)

Expenditure category	10-11	11-12	12-13	13-14	14-15	Total	%	15-16	16-17	17-18	18-19	19-20	Total	%	20-21	21-22	22-23	23-24	24-25	Total	%
						2010–15	2010–15						2015–20	2015–20						2020–25	2020–25
Asset Replacement	14.4	16.2	14.2	19.7	29.1	<b>93.5</b>	<b>59%</b>	31.6	28.0	24.8	51.1	53.3	<b>188.7</b>	<b>63%</b>	50.3	47.5	39.4	24.8	23.0	185.0	<b>71%</b>
Asset Remediation	0.1	1.3	4.4	1.0	0.8	<b>7.6</b>	<b>5%</b>	1.9	4.4	2.6	2.5	2.8	<b>14.2</b>	<b>5%</b>	0.8	0.8	0.5	0.5	0.5	3.0	<b>1%</b>
Asset Extension	5.8	8.6	4.9	3.5	9.4	<b>32.1</b>	<b>20%</b>	6.5	11.8	27.7	11.2	13.6	<b>70.8</b>	<b>24%</b>	16.7	16.7	3.0	13.8	15.2	65.3	<b>25%</b>
Capability Growth	3.5	3.7	4.5	5.4	7.5	<b>24.5</b>	<b>16%</b>	3.2	11.7	8.1	0.4	-	<b>23.4</b>	<b>8%</b>	-	2.4	1.2	1.9	1.7	7.2	<b>3%</b>
<b>Total</b>	<b>23.8</b>	<b>29.7</b>	<b>28.0</b>	<b>29.6</b>	<b>46.7</b>	<b>157.7</b>		<b>43.2</b>	<b>55.8</b>	<b>63.1</b>	<b>65.2</b>	<b>69.8</b>	<b>297.1</b>		<b>67.7</b>	<b>67.3</b>	<b>44.1</b>	<b>40.9</b>	<b>40.4</b>	<b>260.5</b>	

Note: Numbers may not add up due to rounding

## Appendix E Benefits classification

A conservative approach has been used in defining benefits for use in the financial analysis. Tangible benefits were classified into three basic types (see Table D.1).

Benefits of a more indirect or intangible nature were removed from the overall benefit analysis. This includes cost avoidance benefits associated with managing risk, system failures, security breach impacts and possible fines. These benefits are highlighted in individual business cases and represent real cost increases during the 2020-25 RCP should particular conditions not be met. However, they are more probabilistic, subject to a degree of uncertainty and do not present a cost decrease or a concrete cost avoidance to the customers. The focus of the benefits analysis is on where IT expenditure can make a concrete difference to customer prices.

**Table D.1: High level benefit definitions**

Benefit	Definition
Cost reduction	A direct tangible benefit associated with reducing the cost of service as a result of the changes implemented.
Cost avoidance	A tangible benefit associated with avoiding increased costs of service driven by activity that is reasonably expected to happen or currently will happen without a change in approach or without the relevant funding.
Cost deferral	Deferring expenditure to a future RCP, which reduces the costs in the 2020-25 RCP; likely need to be undertaken in the future but may change to cost avoidance if future conditions determine it is no longer needed.

Cost avoidance and deferral are considered together. Deferral is a cost avoidance benefit from the perspective of an individual RCP but may or may not be a complete avoidance in subsequent RCPs.

## Appendix F Capital business cases and initiatives

### F.1 Maintain compliance and meet new regulatory and legislative compliance obligations

#### F.1.1 Five Minute Settlement Rule change implementation

The introduction of the *National Electricity Amendment (Five Minute Settlement) Rule 2017 No. 15* imposes a number of changes to the operation of NEM and the regulatory obligations of its participants, including SA Power Networks. As part of the mandate to reduce the time interval for financial settlement in the NEM from 30 minutes to five minutes, our IT market systems will need to be updated to capture, transact and store meter data at five-minute intervals. This Rule came into effect in 2017 with full operational commencement planned for 1 July 2021.

**Table F.1: Business case summary – 5 Minute Settlement Rule change implementation**

No. of options considered in the business case	4
RIN IT expenditure category	Asset Extension
Business case name	Five Minute Settlement Rule Business Case

#### F.1.2 Ring-fencing compliance: IT solution

DNSPs were required to comply with the AER's Electricity Distribution Ring-fencing Guideline by 1 January 2018. The objective of the guideline is to create transparency within DNSPs by placing new and significant separation requirements on DNSPs to ensure that its related electricity service providers are not unfairly advantaged over other suppliers of contestable electricity services.

During the 2015-20 RCP, SA Power Networks has absorbed the costs within its existing revenue allowances to make system and other changes to comply with these new changes. However, due to the limited time available to achieve compliance, interim and largely manually-based arrangements, were implemented to ensure compliance by 1 January 2018. Internal and external ring-fencing compliance audits have since recommended that stronger controls be implemented around separation and confidentiality of SA Power Networks information in order to reduce the risk of non-compliance with the Guideline requirements.

The driver of this business case is to:

- ensure ongoing compliance with its ring fencing obligations by efficiently implementing the prudent recommendations contained within the SA Power Networks ring fencing compliance audit reports;
- minimise non-compliance risk and the potential harm to competition that would result from non-compliance by implementing stronger ex ante automated system controls; and
- demonstrate the adequacy of compliance processes and procedures.

The option selected provides the most efficient and prudent way to demonstrate long-term compliance via annual reports and independently conducted annual assessments.

**Table F.2: Business case summary – Ringfencing implementation**

No. of options considered in the business case	2
RIN IT expenditure category	Asset Extension
Business case name	Ringfencing Compliance IT Solution Business Case

## F.2 Maintain current levels of service and risk: IT recurrent

### F.2.1 Cyber security

Cyber security is a fundamental necessity in the delivery of safe and reliable distribution services. The 2015-20 RCP has seen a significant escalation in threats to critical infrastructure, with State sponsored threat actors specifically targeting the energy sector. As an identified 'critical infrastructure provider', SA Power Networks is required to comply with the Critical Infrastructure Centre's (CIC) compliance requirements under the *Security of Critical Infrastructure Act 2018 (Cth) (SCI Act)*. We need to be able to effectively address and respond to cyber security threats as they evolve during the 2020-2025 RCP. An ongoing annual and prudent investment in cyber security is required to ensure the IT and OT systems that provide services to our customers are reliable, available and trustworthy, and meet these regulatory obligations and requirements.

We propose a slight increase on the current levels of investment in cyber security to allow risks to be managed in compliance with regulator obligations, requirements and expectations and good electricity industry practice.

**Table F.3: Business case summary – Cyber security**

No. of options considered in the business case	2
RIN IT expenditure category	Replacement, Remediation, Capability Growth
Business case name	Cyber Security Business Case

### F.2.2 Client device refresh

This ongoing program of work is providing reliable operational devices to enable existing business services. Client devices cover a very wide range of tools used by our staff for accessing applications and information on our IT and electrical control networks and updating customer information. They include desktops, mobile phones, laptops, meter readers, as well as collaboration and meeting room devices. Client devices provide critical services which underpin and enable all our customer service and business processes. For field staff, mobile devices also play a critical safety role.

The proposed option stretches the lifecycle of assets to an acceptable level of risk and seeks cheaper alternatives where possible to improve efficiency. This option defers an asset replacement cost of \$11.5 million compared to the vendor recommended approach – contributing to significant cost containment for customers.

#### Customer outcomes

Our mobile devices enable our field crews to:

- capture the status and completion of outage work and provide timely information to customers on expected outage restoration times;
- identify asset conditions in the field and plan for timely maintenance or replacement; and
- have specific customer and site information before attending a customer's property which enables efficient delivery of distribution services.

**Table F.4: Business case summary – Client device refresh**

No. of options considered in the business case	4
RIN IT expenditure category	Replacement, Remediation
Business case name	Client Devices Refresh Business Case

### F.2.3 IT application refresh

SA Power Networks’ business applications are an integrated portfolio of 80 IT applications and technology software platforms. The portfolio enables the delivery of distribution services and enterprise business services that are critical to the efficient and prudent operation and maintenance of our network, and the supply of timely and accurate information to customers (Figure F.2).

To balance risk and cost with the need to keep the IT applications portfolio fit for purpose we utilise a conservative approach to maintain supportability of, and compatibility between, IT application assets. This includes a focus on consolidating to a core set of applications, removing applications no longer required and considering appropriate support options including the use of cloud services. This strategy aligns with our IT Asset Management Plan and enables us to respond to continual demand for capabilities, small changes and remediation within the existing budgets.

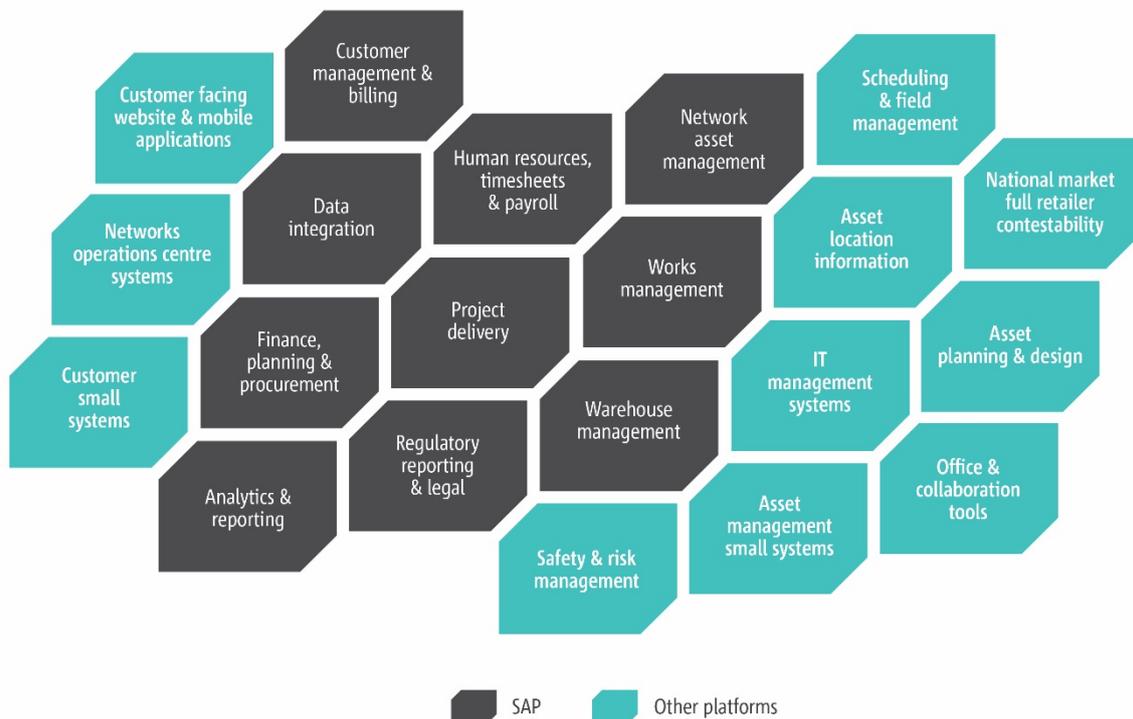


Figure F.1: Our applications portfolio enables all aspects of our business

This expenditure enables us to maintain our current levels of services to customers and meet our regulatory obligations through the ongoing regular patching, upgrades and where appropriate, replacements of our applications.

Costs were estimated ‘application by application’ and based on historical expenditure and adjusted ‘top down’ for dependencies and portfolio changes.

Finally, some applications are being migrated to cloud environments where this is the only option available to us. This presents a shift from capex to opex as support for cloud applications becomes embedded in an ongoing opex subscription cost. As specific example of this is the Click Schedule software. The current version is out of support and the new version is no longer available ‘on premises’. Thus, the only viable option is the alternative product offered by the vendor, Click Field Service Edge which is only offered as a SaaS product on a subscription basis.

### Customer outcomes

- Customers will continue to be able to view and log outages and make decisions on their own responses to outages based on timely and accurate communications from us, including for life support customers.
- We will be able to contain costs because we can manage assets more effectively using accurate data (collected via reliable mobile applications), integrated applications (to enable a holistic picture of issues and risks) and intelligence analytics (to model, prioritise and schedule work).
- Customer jobs will be scheduled and staff will have relevant information available to them when they undertake the job.
- Our current work impact modelling systems will continue to function effectively and minimise the number of customers impacted by planned outages.
- Field staff will have access to critical job safety information when they need it – to keep themselves and customers safe.
- Maintaining the current level of risk to cyber security incursion disrupting services by maintaining the current level of patching and upgrades.

**Table F.5: Business case summary – IT applications**

No. of options considered in the business case	2
RIN IT expenditure category	Replacement, Remediation
Business case name	IT Applications Refresh Business Case

#### F.2.4 IT infrastructure refresh

Reliable IT Infrastructure underpins the delivery of all IT services which are, in turn, critical to the effective operation and maintenance of the electricity network, management of network outages, and provision of distribution services to customers. IT Infrastructure includes hardware for servers, storage, IT networking equipment such as switches and routers, database and desktop presentation software systems and business continuity capability. A failure or outage of IT services has a direct impact on our ability to operate and maintain our network and deliver distribution services to customers.

Our annual investment program has been designed to efficiently and prudently refresh our IT infrastructure assets based on the risk, impact and cost of failure and degraded performance of particular asset classes/types.

During the 2015–20 RCP our server and storage capability increased to meet the increased demand for IT services. Customer demand during the state-wide network outages in 2016, drove increased requirements for real-time data as well as greater uptime and resiliency on our systems. Improved network asset management practices also drove an increase in demand for IT infrastructure. A major increase in data collection (including condition data) on our network assets was added to our IT storage systems as we sought means to more cost-efficiently maintaining the network and keeping our prices down while maintaining our risks. This growth is expected to continue as we collect data on more asset classes and their condition information is collected on a regular basis.

As part of our IT infrastructure refresh we need to respond to capacity growth, flexibility and cost effective scalability to meet peak demand for IT services. We propose to migrate most of our IT services to cloud hosting to provide a more efficient, prudent and flexible option for managing data centre infrastructure. However, this also requires a capex to opex substitution as cloud services use subscription model costing.

Our IT infrastructure model will be a hybrid cloud model because it represents the lowest long-term cost to consumers required to achieve the expenditure objectives and criteria and satisfy the drivers for this change.

**Customer outcomes**

- Our IT infrastructure model ensures IT infrastructure is current and operational to maintain service levels to customers by providing staff with access to reliable systems.
- Utilising cloud hosting will enable us to flexibility scale to be more responsive to peak customer needs by only paying for capacity when it is needed.
- Our IT infrastructure refresh minimises cyber security risks which minimises power system disruption, and threats to the security and privacy of personal information of our customers.

**Table F.6: Business case summary – IT infrastructure refresh**

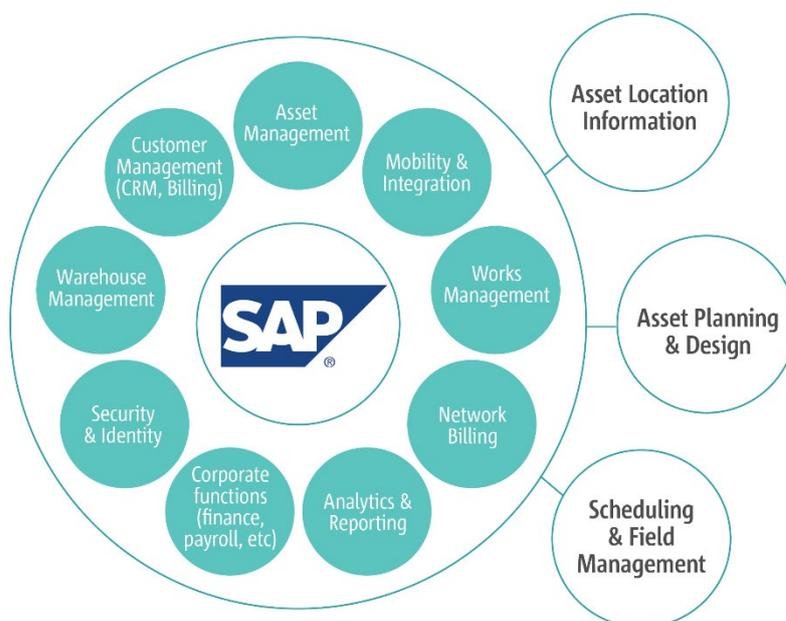
No. of options considered in the business case	7
RIN IT expenditure category	Replacement, Remediation
Business case name	IT Infrastructure Refresh

**F.3 Maintain current levels of service and risk: major upgrades and replacements**

**F.3.1 SAP upgrade**

SAP is the core enterprise business system for SA Power Networks (Figure F.3) and covers the:

- management of all network assets;
- work management including prioritising and executing both planned and supply restoration work for field crews;
- delivery of customer services including managing the connection, disconnection of customers and customer billing;
- management of safety of field staff and customers, including life support and critical customers;
- critical bushfire risk management processes;
- customer messaging alerts and restoration information;
- enterprise services including finance, planning, procurement, human resources, payroll, warehouse management and project delivery; and
- enabling technology services including security, mobility, integration, information management, reporting and analytics.



**Figure F.2: SAP is our core business system enabling many customer and business functions**

Development on the current version of SAP has already stopped and full support ceases in 2025. SAP Australia Pty Ltd has stated there will be no extended support arrangements beyond 2025. Investment is required to upgrade to the new version in the most efficient manner.

The most prudent and efficient option is for a gradual upgrade undertaken over three RCPs in order to minimise risk and cost while ensuring existing customer and business services remain operational. This option also maximises the considerable existing investment in the SAP system. \$4.16 million will be deferred into the 2025–30 RCP for activities which are necessary for the upgrade but not mandatory to ensure support by the end of 2025. This contributes to keeping the customer’s price down during the 2020–25 RCP.

**Table F.7: Business case summary – SAP upgrade**

No. of options considered in the business case	6
RIN IT expenditure category	Replacement
Business case name	SAP Upgrade Business Case

### F.3.2 CRM & billing completion

SA Power Networks is currently implementing a new CRM and billing system. The existing system is technically obsolete and repex was allowed by the AER in its 2015–20 Determination to commence the replacement. Due to delays created by the 2016 severe weather events and enabling the Power of Choice Rule changes (including cost reflective pricing and competition in metering) there will be a carry-over for the implementation of the final components of the billing system into the 2020–25 RCP.

In the 2015-20 submission, the forecast for the CRM and billing system replacement was \$66.0 million. The AER allowance for the 2015-20 RCP was \$51.6 million of which \$40.6 million is expected to be spent during the RCP. The forecast for the replacement of the system remains at \$66.0 million, with \$25.5 million required to complete the program in the 2020-25 RCP.

We need to complete the CRM and billing system replacement in the 2020–25 RCP because it

- manages the considerable risk to the reliability of service of the current system;
- recognises the value of the considerable investment made in implementing the billing system to date; and
- delivers an efficient and prudent outcome that meets the needs of customers and the business.

Ceasing a major project part way through is not a commercially viable proposition.

**Table F.8: Business case summary – CRM & billing system replacement completion**

No. of options considered in the business case	2
RIN IT expenditure category	Replacement
Business case name	CRM & Billing Completion Business Case

### F.3.3 Network protection settings system replacement

The Network Protection Settings System (**PSS**) is the core system for managing our network protection devices and settings. PSS is essential to maintaining the quality, reliability, security and safety of electricity distribution services. PSS was developed in-house in 1997 and has had a number of upgrades since that time. However, many of the underlying technologies are no longer supported. Investment is therefore needed to replace or remediate the system and reduce the risk of failure of the current system.

Our options analysis has identified the most prudent and efficient option is to remediate and extend the existing system for \$2.5 million.

**Table F.9: Business case summary – Protection Settings System replacement**

No. of options considered in the business case	3
RIN IT expenditure category	Replacement
Business case name	Protection Settings Management System Business Case

## F.4 Manage our business and network costs through efficient use of data and digital technology

### F.4.1 Assets and Work Program

In the lead-up to our 2015–2020 Regulatory Submission, SA Power Networks identified significant challenges with maintaining our aging distribution assets in a dynamic changing energy industry while responding to customers’ evolving expectations.

Part of our response to this challenge was to develop an Enterprise Asset Management (**EAM**) Blueprint with a focus on excellence in asset management. We are currently delivering the EAM and Regulatory Information Notice (**RIN**) capabilities through the A&W Program, a 10–15 year rolling program of change to our processes, data, people and systems designed to establish enterprise foundations and build capability to deliver services which can be extended to support our ability to maintain a safe and reliable network and deliver value to customers.

The A&W Program outcomes to date have improved our understanding of our assets, risks and work and directly contributed to:

- efficient deferral of \$63 million in asset replacement expenditure in the 2015–20 RCP with an additional \$142 million in efficient asset replacement expenditure and \$20 million in other benefits to be realised in the 2020–25 RCP, equating to significant savings for our customers (Table 5.1);
- commencing transition of asset management from high level management of 1,500 feeders and basing maintenance decisions on history, to identifying and managing more than two million individual assets and using current condition data to manage assets based on risk and value;
- improved focus on what our customers value, ‘doing the right work’;
- increased accuracy and timeliness of information given to customers; and
- improved the way we maintain our network assets by selecting more work that reduces the most risk for the same cost.

Our Strategic Asset Management Plan 2018 outlines our 2018–25 strategic direction and priorities for electricity distribution assets and articulates how these outcomes can be achieved through our A&W Program to deliver best value to customers, continue to maintain the quality, reliability and security of supply, and enable us to keep price down through the efficient deferral of network asset replacement expenditure.

The **2020–25 A&W Program** comprises five integrated initiatives which provide progressive capabilities across the asset management framework defined in the Strategic Asset Management Plan 2018. Each initiative has been costed and optioned separately before being rolled up to the program level and then the program options were assessed.

The A&W Program consists of the following capabilities:

1. Collect the data – optimising our asset data collection (**Asset Data Optimisation**);
2. Manage the work – how we invest in and monitor our work and resources (**Portfolio Planning Management**);
3. Select the work –identifying the right work (**Asset Investment Optimisation**);
4. Plan the work – standardising our work preparation processes (**Work Lifecycle Standardisation**);
5. Do the work – optimising our service delivery (**Service Delivery Optimisation**).

The A&W Program will be supported by the following two enabling initiatives that will also be delivered during the 2020–25 RCP but are considered as initiatives separate to the rest of the program:

1. Worker safety: Fatigue risk management – putting safety first for workers and the community (**Worker Safety**);
2. GIS consolidation – reducing duplication through one consistent GIS for asset location data (**GIS Consolidation**).

Figure F.3 presents an overview of the A&W Program initiatives.



Figure F.3: The 2020–25 Assets and Work Program initiatives

Table F.10 Business case summary – A&W Program summary

No. of options considered in the business case	4
RIN IT expenditure category	Capability growth
Business case name	Assets and Work Program Business Case

#### F.4.2 Worker safety: Fatigue risk management

Worker fatigue is now a well-documented safety risk which requires improved management. Worker fatigue arises from a number of factors including:

- climate change impacting on working conditions;
- increased volume of unplanned work;
- changes in electrical infrastructure and technology; and
- changes in the nature and intensity of the asset maintenance work.

New safety measures and an integrated fatigue risk management system are required to maintain worker and community safety as well as:

- enable the realisation of the A&W Program benefits; and
- ensure we remain compliant with the relevant regulatory obligations and requirements as our workloads change.

**Table F.11: Business case summary – Worker safety: Fatigue risk management**

No. of options considered in the business case	3
RIN IT expenditure category	Capability growth
Business case name	Worker Safety: Fatigue Risk Management Business Case

### F.4.3 GIS consolidation

The GIS provides geospatial capabilities which are fundamental for the efficient and effective operation and maintenance of our electricity distribution network. Understanding the location of the network assets allows us to understand the impact on the customer service of that asset. GIS underpins the delivery of customer, network and outage management services as well as the real-time capacity of the network.

Over the past decade, the need for GIS capabilities has grown dramatically. As a result, our GIS environment is currently very complex and consists two major GIS platforms (namely Hexagon G/Technology and ESRI ArcGIS) serving slightly different functions. The complexity results in delays in providing up-to-date geospatial information to our outage management and network asset management systems. This increases the risk of prolonged and more frequent outages as well as impacting on our ability to effectively locate and manage assets in real time. We need to consolidate on to a single platform (ESRI ArcGIS) in order to enable the continued extension of the work being undertaken in the A&W Program as well as to reduce the risk to our outage management responses and minimise the costs associated with double handling the data and inconsistency error risks.

**Table F.12: Business case summary – A&W: Worker safety**

No. of options considered in the business case	3
RIN IT expenditure category	Replacement
Business case name	GIS Consolidation Business Case

## Appendix G Opex step changes and substitutions

Table G.1: IT opex step changes and substitutions per annum (\$million, Dec \$2017)

Opex changes	2020–21	2021–22	2022–23	2023–24	2024–25	2020–25 total	Foregone capex
Move Click schedule to cloud	0.7	0.7	0.7	0.7	0.7	3.6	3.6
Move datacentres to cloud infrastructure hosting	0.9	1.1	1.6	1.6	1.7	6.9	7.7
<b>Total capex to opex substitutions for cloud</b>	<b>1.6</b>	<b>1.8</b>	<b>2.3</b>	<b>2.3</b>	<b>2.4</b>	<b>10.5</b>	<b>11.3</b>
CIC: Remote vendor access	0.2	0.2	0.2	0.2	0.2	1.0	-
CIC: On-shoring SAP support	2.1	2.1	2.1	2.1	2.1	10.4	-
<b>Total step change for CIC compliance</b>	<b>2.3</b>	<b>2.3</b>	<b>2.3</b>	<b>2.3</b>	<b>2.3</b>	<b>11.4</b>	<b>-</b>
<b>Total regulatory compensable opex changes</b>	<b>3.9</b>	<b>4.1</b>	<b>4.6</b>	<b>4.6</b>	<b>4.7</b>	<b>21.9</b>	

Note: Numbers may not add up due to rounding

## Appendix H Summary of costs and benefits by business case

The following table (H.1) details the capex, opex and benefits as it appears within each of the business cases and is used to calculate the NPVs, with a focus on the 2020-25 RCP. Additional costs are taken into account in each of the business cases when calculating the 10-year NPVs. Table 8.1 (above) summarises the contents with some variations as indicated in the footnotes to this table.

**Table H.1: Summary of costs and benefits for IT business cases for the 2020-25 RCP (\$million, Dec \$2017)**

IT Investment Plan objective	Business case	Costs			Benefits					
		2020-25			2020–25			2020–30		
		Capex	New IT Opex	Opex Step Changes	Cost reduction	Cost deferral & avoidance	Total benefits	Cost reduction	Cost deferral & avoidance	Total Benefits
Maintain Compliance	• Five Minute Settlement Rule	7.7								
	• Ringfencing: IT Solution	3.8	0.1		0.3		0.3	0.6	-	0.6
	• Critical Infrastructure obligations (opex only change)		11.4	11.4						
	<b>Total compliance</b>	<b>11.5</b>	<b>11.5</b>	<b>11.4</b>	<b>0.3</b>	<b>-</b>	<b>0.3</b>	<b>0.6</b>	<b>-</b>	<b>0.6</b>

IT Investment Plan objective	Business case	Costs			Benefits					
		2020-25			2020–25			2020–30		
		Capex	New IT Opex	Opex Step Changes	Cost reduction	Cost deferral & avoidance	Total benefits	Cost reduction	Cost deferral & avoidance	Total Benefits
Maintain current levels of service: Core IT recurrent	Cyber security	11.5	- <sup>31</sup>			5.5	5.5	-	11.1	11.1
	Client devices refresh	23.2								
	IT applications refresh	69.8	5.3 <sup>32</sup>	3.6	1.7	3.6	5.3	3.4	7.1	10.5
	IT infrastructure refresh	28.5	8.4	6.9	1.6	7.7	9.3	3.4	19.9	23.3
	IT management, risk and governance	3.1								
Maintain current levels of service:	SAP upgrade	24.6				1.5	1.5		2.2	2.2
	CRM & Billing completion	25.5				3.1	3.1		7.4	7.4

<sup>31</sup> The Cyber security opex increase of \$3.3 million is covered in the business case and will be in place before the end of the current RCP. We will not be seeking this increase as a step change.

<sup>32</sup> The Click cloud pricing based on the current understanding of the subscription licensing arrangements is \$9.2 million. However, we believe there is scope to negotiate much better pricing and hence we are seeking only the capex-opex substitution for the current recurrent capex value. \$3.9 million has been removed from the opex increase to create a revised opex increase of \$5.3 million.

IT Investment Plan objective	Business case	Costs			Benefits					
		2020-25			2020–25			2020–30		
		Capex	New IT Opex	Opex Step Changes	Cost reduction	Cost deferral & avoidance	Total benefits	Cost reduction	Cost deferral & avoidance	Total Benefits
Large upgrades & replacements	Protection Settings Management System	2.8	0.2		0.1	1.9	2.0	1.3	4.5	5.8
	<b>Total maintain current</b>	<b>189.1</b>	<b>13.9</b>	<b>10.4</b>	<b>3.4</b>	<b>23.3</b>	<b>26.7</b>	<b>8.1</b>	52.3	60.3
Manage business and network costs through efficient use of data and digital technology	Assets & Work Program									
	Asset data optimisation	10.6	3.3		0.4	0.4	0.8	2.1	3.0	5.1
	Portfolio planning management	5.4	0.1		0.1	0.1	0.2	0.1	0.5	0.7
	Asset investment optimisation	11.0	0.7		-	0.2	0.2	-	0.6	0.6
	Work lifecycle standardisation	6.7	1.1		0.5	1.0	1.5	2.8	8.2	10.9
	Service delivery optimisation	7.2	0.3		1.5	-	1.5	15.3	-	15.3
	A&W Program benefit					65.0	65.0		95.0	95.0

IT Investment Plan objective	Business case	Costs			Benefits					
		2020-25		2020–25			2020–30			
		Capex	New IT Opex	Opex Step Changes	Cost reduction	Cost deferral & avoidance	Total benefits	Cost reduction	Cost deferral & avoidance	Total Benefits
	<b>A&amp;W Program total</b>	40.8	5.5		2.4	66.8	69.2	20.3	107.4	127.7
	Worker safety: Fatigue Risk management	5.3	0.9		0.2		0.2	1.0		1.0
	GIS consolidation	13.8	0.5		0.5	0.6	1.1	1.5	1.1	2.6
	<b>Total</b>	<b>59.9</b>	<b>7.0</b>		<b>3.1</b>	<b>67.3</b>	<b>70.5</b>	<b>22.9</b>	<b>108.5</b>	<b>131.3</b>
<b>Total</b>		<b>260.5</b>	<b>32.4</b>	<b>21.9</b>	<b>6.8</b>	<b>90.7</b>	<b>97.6</b>	<b>31.6</b>	<b>160.8</b>	<b>192.3</b>

Note: Numbers may not add up due to rounding

## Appendix I Details of benefits realisation/application by business case

IT Investment Plan objective	Tangible benefits in 2020–25	Reduced Network Asset Replacement proposal	Reduced IT Capex proposal	Opex Reductions Used to Offset Opex Increases	Avoid Expected Capex or Opex Cost Increase (Maintain current levels)	Total
Business case						
<b>Maintain compliance</b>						
Ring-fencing compliance: IT solution	0.3			0.3		0.3
<b>Maintain current levels of service and manage risk</b>						-
IT applications refresh	5.3			1.7	3.6	5.3
IT infrastructure refresh	9.3		7.7	1.6		9.3
Cyber security	5.5				5.5	5.5
SAP upgrade	1.5		1.5			1.5
CRM & billing completion	3.1				3.1	3.1
Protection settings management system	2.0		1.9	0.1		2.0
<b>Manage our business and network costs through efficient use of data and digital technology</b>						
Assets & Work Program	69.2	65.0		2.4	1.8	69.2
GIS consolidation	1.1		0.6	0.5		1.1
Worker safety: Fatigue risk management	0.2			0.2		0.2
<b>Total IT investment proposal</b>	<b>97.6</b>	<b>65.0</b>	<b>11.8</b>	<b>6.8</b>	<b>13.9</b>	<b>97.6</b>

Note: Numbers may not add up due to rounding