Revised Proposal Attachment 5.19 ICT attachment PUBLIC

January 2019

Table of contents

1 Overview

1.1 Scope and purpose

To present Ausgrid's revised ICT capex proposal, including refined justifications in support for our planned program.

Note that this document adopts a targeted approach, by focusing on the additional information which we consider – once provided – supports the approval of our planned ICT program in full. The information set out below should be read in conjunction with related documentation, notably our initial non-network ICT capex proposal and the supporting business cases provided in April 2018.

1.2 Context

Ausgrid's ICT capabilities support the safe and reliable delivery of network services to our customers. Ausgrid must develop and implement a capex program that maintains these capabilities, while at the same time responding to a changing technology landscape and emerging risks.

In April 2018, Ausgrid submitted its initial non-network ICT capex proposal (the proposal) to the AER. The proposal sought $157 million (real FY19 dollars) to deliver Ausgrid's five-year Technology Plan for FY20-24. The Technology Plan (which outlines the current and future needs and requirements for the non-network ICT portfolio) was developed in line with Ausgrid's Business Plan and key business drivers, notably:

• **Comply –** Deploying technology solutions and processes to ensure compliance for both national and state based licencing and legislative obligations;

• **Protect** – Maintaining the safety of the distribution system through the provision of distribution network services and customer services;

• **Maintain** – Ensure technology solutions and processes are maintained to preserve the quality, reliability of supply, the security of the distribution network or the provision of distribution network services and customer services; and

• **Adapt** – Implementing technology systems, processes and people that enables Ausgrid to meet and manage expectations and demands from customers, legislative and regulatory requirements.

The AER accepted $134 million (15% reduction) of Ausgrid's initial non-network ICT proposal in its draft decision. Most of the expenditure accepted by the AER ($108 million or 80%) related to our application maintenance program – a business as usual investment which is needed to maintain stability of our ICT environment. Though the AER does not approve specific programs, our interpretation of its draft decision is that its substitute forecast was based on the inclusion of all programs supporting Ausgrid's Comply, Protect and Maintain business drivers. This has subsequently been confirmed with the AER.

A single, but critical, investment stream was not accepted by the AER in its draft decision. This stream, valued at $23 million, is known as our Adapt program. The AER's main reasons for not accepting any capital investment associated with this program are as follows:

- The associated business cases provided insufficient justification for investment given that they ranked the available options, principally, on a qualitative basis.
- It was unclear how Ausgrid had incorporated any efficiencies from the Adapt program into its overall expenditure forecast.

Since then, Ausgrid has worked to address the AER's findings and any other issues identified by its internal and external stakeholders relevant to its revised proposal. Note Appendix A provides a full summary of the concerns raised and how our revised proposal responds to these concerns.

1.3 Structure of our revised proposal

The remainder of this attachment to our revised proposal is structured as follows:

- Section 2 provides a high level summary of our revised ICT capex forecast.
- Section 3 provides justification for the changes to Ausgrid's revised ICT capex forecast with respect to the Adapt program. Notably, clarifying the purpose, spend and benefits related to the Information Management and Digital Transformation business cases to address concerns raised by the AER in its draft decision.
- Section 4 provides additional information about Ausgrid's ICT capex forecast with respect to our Maintain program.
- Section 5 provides additional information about Ausgrid's ICT capex forecast with respect to our Comply program
- Section 6 provides additional information about Ausgrid's ICT capex forecast with respect to our Protect program.
- Appendix A provides a detailed summary of the AER's key findings, any other issues related to the revised proposal and explains how the revised proposal responds to these concerns.
- Appendix B provides a high level summary of the additional quantitative cost-benefit analysis undertaken to support Ausgrid's revised ICT capex forecast.

2 Revised ICT capex forecast

2.1 Our revised ICT capex proposal

We propose a revised non-network ICT capex of $144.2 million (real FY19). The table below breaks down Ausgrid's revised ICT capex over the FY20-24 period in FY19 real values.

Table 1

Ausgrid's revised capex proposal FY20-24

DRIVER	BUSINESS CASE	FY20	FY21	FY22	FY23	FY24	TOTAL
Comply	Regulatory compliance & Licencing	0.9	0.9	0.9	1.0	1.0	4.7
	Technology Licencing Growth	0.2	0.2	0.3	0.3	0.3	1.3
Protect	ICT Security	7.5	2.9	2.2	4.0	3.3	19.9
Maintain	End of Life Application Upgrades	12.7	3.7	5.3	1.9	5.5	29.1
	Mandatory Patch & Release Management	2.8	2.5	2.7	2.8	2.5	13.3
	SAP Core Maintenance	11.0	14.3	4.2	3.9	4.6	38.1
	Infrastructure Capacity Maintenance	7.8	3.6	-	-	-	11.3
	Telecommunications Capacity & upgrades	4.6	2.9	2.3	2.2	1.8	13.8
	Workplace technology	0.5	0.9	0.9	1.1	1.2	4.6
Adapt	Information Management	0.5	0.7	1.1	0.7	0.8	3.7
	Digital Transformation	1.8	1.8	-	0.3	0.6	4.4
Total		50.3	34.4	20.0	18.1	21.5	144.2

2.2 How the revised capex forecast differs to that presented in the AER draft decision and our initial proposal

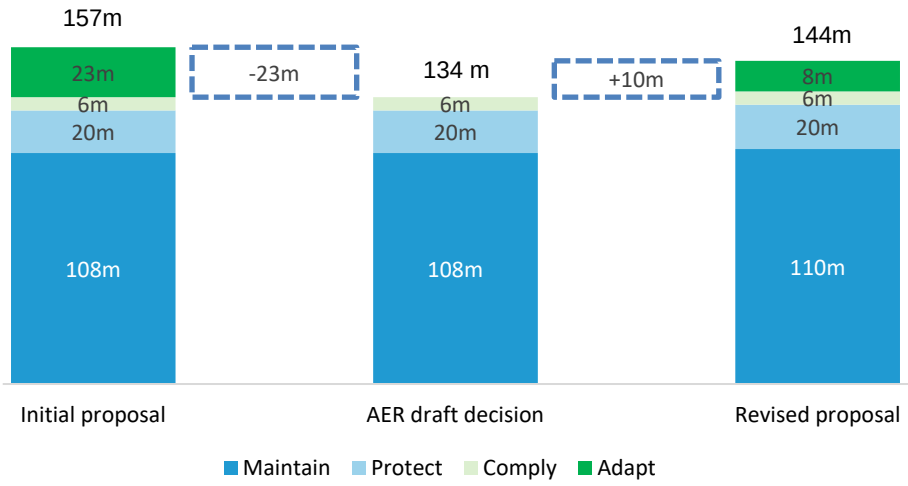
As per Figure [1], Ausgrid's revised capex forecast is largely unchanged from that presented in the AER's draft decision and our initial proposal. However the following changes are worth noting

- Ausgrid's revised capex forecast represents $12.8 million (real FY19) or eight per cent reduction from our initial ICT proposal
- $2.1 million of funding from the Adapt program has been reclassified as the program's objectives better align to the Maintain Program. This funding will be used to move the current data reporting platform to the cloud, which will reduce the operational costs of our storage requirements.
- In addition to the funding approved in the AER's draft decision, Ausgrid revised capex forecast seeks $8.1 million funding for the Adapt program – notably $3.7 million for the Information Management stream and $4.4 million for the Digital Transformation stream.

- The revised capex forecast has been re-phased to align to the current in flight ICT non-network program.

Figure 1

ICT capex forecast comparison ($ m, FY19)

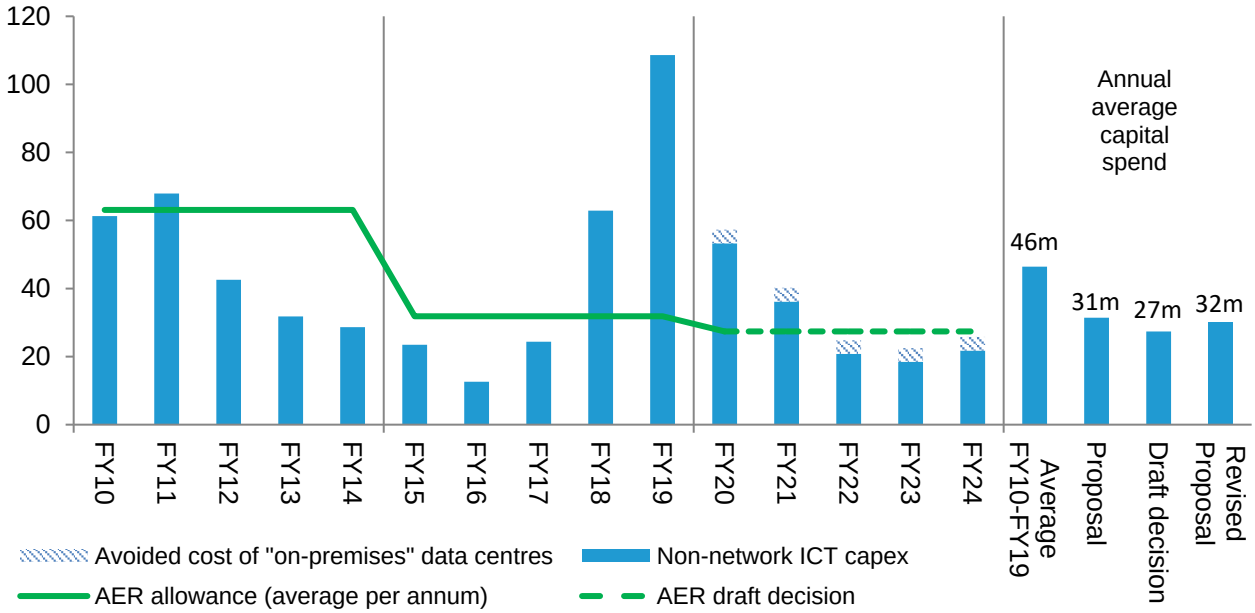


2.3 How our capex forecast compares to our historical spend

The figure below shows Ausgrid's actual ICT capex from FY10 to FY19 and forecast ICT capex from FY20 to FY24. It shows that Ausgrid's ICT capex has trended downwards over a decade and this reducing trend will continue into the next five years. On average, our forecast ICT capex program is equal to $36 million (real FY19) per annum. This is 34% lower than our actual capex in the last ten years, which has averaged $43 million (real FY19) since FY2010.

Figure 2

Ausgrid's non-network ICT capex FY10-24 ($ m, FY19)



2.4 How our revised capex forecast compares to other network businesses

The CCP10 made the following submission in response to our initial proposal:

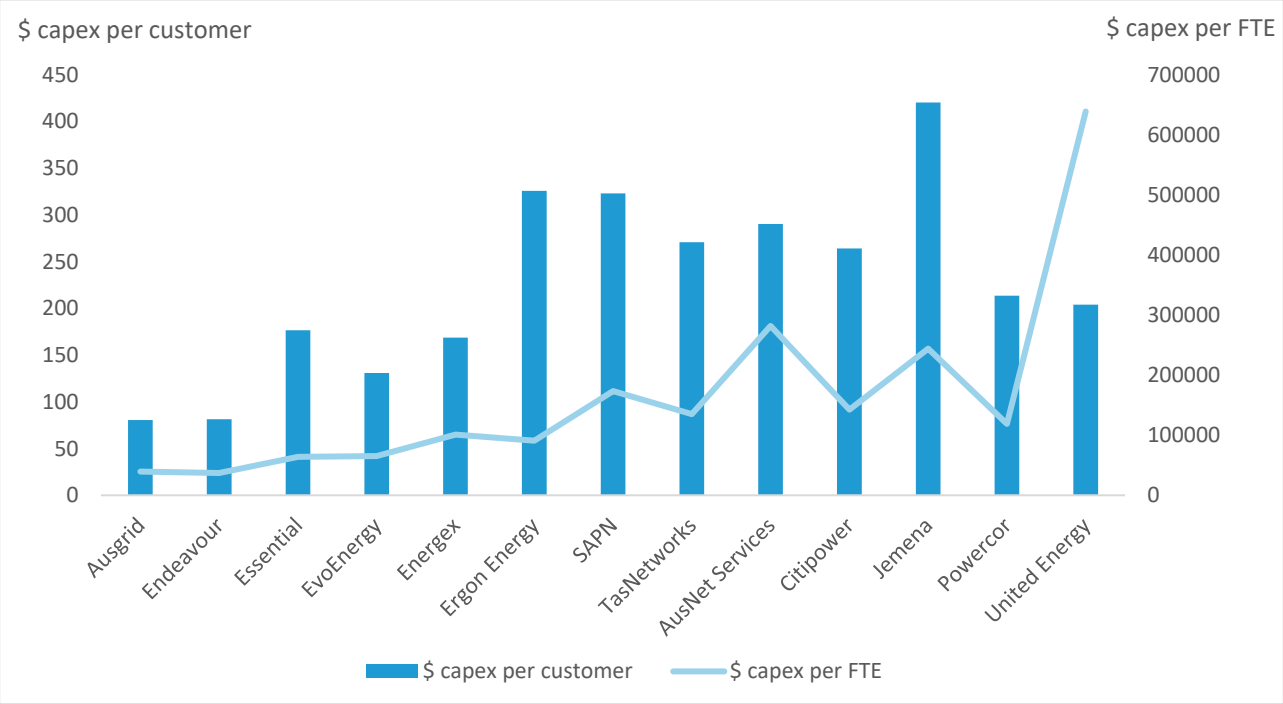
> It is an understatement to say that CCP10 are very uncomfortable with the level of IT spend being undertaken by not only Ausgrid, but also many other network businesses.[1]

We acknowledge that the level of ICT capital investment in the NEM is of concern to stakeholders. To test where our revised proposal compares against our peers, we benchmarked our five-year capital plan against what the AER has previously accepted as prudent and efficient for other businesses. In doing this, we normalised our results by benchmarking 'ICT capex per customer'. We consider this metric to be relevant to the concerns raised by the CCP10 and other stakeholders as it provides an indication of the customer impact of an ICT investment program. It is also unlikely that ICT costs are fully fixed and therefore capex is likely to vary with customer numbers.

Our benchmarking results are set out in figure 3 below. It shows that our Revised Proposal is equal to the lowest ICT capex per customer in the NEM (column graph). In our view, this provides a strong indication that the level of expenditure we have put forward for the 2019-24 period is in line with the costs of a prudent and efficient business.

Figure 3

Benchmarking our revised ICT capex proposal against our peers ($ FY19)



We shared our benchmarking analysis with stakeholders in the lead up to submitting our Revised Proposal. It was acknowledged that on a capex per customer basis Ausgrid performs strongly. Additional analysis was nonetheless sought on how our planned ICT capex program compares against other businesses on a capex per FTE basis.

This additional analysis is also shown above (line graph). It reveals that our revised ICT forecast benchmarks strongly on this metric too. Our forecast of $144 million equates to $39,441 per FTE. This is at the frontier of efficiency among all business within the NEM, along with Endeavour Energy ($37,069 per FTE).

[1] Consumer Challenge Panel, *CCP10 Response to AER Issues paper and revenue proposals for NEW Electricity Distribution Businesses 2019-24*, August 2018, p. 69-70.

3 The Adapt program

3.1 Overview of the Adapt program

The Adapt program consists of two streams: Information Management and Digital Transformation. These streams represent a targeted investment program which is both critical to our business and in the long term interests of our customers. Without the Adapt program, Ausgrid will be unable to:

1. Sustain efficiency savings already achieved in the FY15-19 regulatory period

In the current regulatory period, Ausgrid removed $100 million in annual recurrent operating expenses. This was predominately achieved through a reduction to our workforce of more than 2,200 full-time equivalent (FTE) staff since FY2015, many of whom were in administration and back office activities.

We have not yet put in place the full suite of tools required to sustain these efficiencies. With no regulatory certainty about our funding in the 2014-19 period, we were incentivised to deliver savings at a rapid pace. This was such that management resources were too constrained to remove costs from our business while simultaneously investing in the tools needed to sustain our efficiency gains.

The Adapt program has been developed to fill this gap in our capabilities. It builds on initiatives made in the 2014-19 period relating to eProcurement and payroll ('MyTime') by introducing further automation and information management tools. These investments will allow us to sustain the savings we have unlocked by removing emerging pressures to hire additional staff to perform administration and back office activities.

The net economic benefits are outlined in Appendix B. Our analysis finds that the Adapt program will allow us to sustain close to $25 million worth of savings achieved in the 2014-19 regulatory period. In this way, it will trade-off the re-emergence of these recurrent operating expenses with prudent one-off capital investments in information management and automation tools.[2]

2. Contribute to opex reduction built into the Ausgrid submission

Ausgrid holds the belief that the capital being requested will reduce the risk of the opex costs already reduced as described above re-emerging either in the form of FTE, contracted services or overtime. However, regardless of whether these opex costs are sustained, we still need to invest in tools to provide us the ability to find efficiencies to absorb the ICT additional opex which is above base-step-trend detailed in the next section.

In addition, Ausgrid has built in an opex reduction in the FY20 year of $8M and we believe this technology capital investment is one component which will help us reach the target base year that is being committed to in the proposal.

3. Offset ICT opex increases expected to be incurred over the FY20-24 regulatory period

The CCP10 made the following submission in response to our initial proposal:

> Investment in information technology is significant, both in past periods and in this proposal. We believe that Ausgrid can better articulate the options and alternatives available to the high investment in information technology, and demonstrate the return on the investment to consumers in the form of cost reductions emerging from improved business efficiency and service improvements valued by consumers.[3]

We have taken this feedback on board and have undertaken to better articulate the benefits of our ICT program in this revised proposal. In terms of the Adapt program, these benefits predominately relate to sustaining cost reductions already unlocked within our business (see above) as well as offsetting opex increases expected in the 2019-24 period. These ICT opex increases include:

[2] Substitution possibilities between opex and capex is a capital expenditure factor under clause 6.5.7(e)(7) of the NER.

[3] Consumer Challenge Panel, CCP10 Response to AER Issues paper and revenue proposals for NEW Electricity Distribution Businesses 2019-24, August 2018, p. 61.

- Increased ICT opex relating to subscription and licencing for cloud-based solutions as part of our prudent migration away from capital intensive “on-premises” data centres; and
- Increased licence costs for supplementary Data and Analytic tools to ensure we can benefit from the capabilities of our Big Data foundational investments made within the current regulatory period.

These increases have not been included in Ausgrid’s forecast opex requirement in the 2019-24 period as we anticipate that the capital investments within our Adapt program will provide us with the tools needed to absorb these operating cost pressures.

4. Opex increase required if the Adapt program does not progress

In the event that Ausgrid is unable to achieve regulatory funding for the Adapt program, we forecast that our allowed opex costs would need to increase by $30.3 million per year (real FY19) or an average of $17.80 per customer. This is in order to recover at least our efficient costs as required under the Revenue and Pricing Principles in the National Electricity Law.[4]

The following sections provide further information on the two streams within the Adapt program and how they will deliver net economic benefits to our customers. Further quantitative net-benefit analysis is available at Appendix B.

[4] National Electricity law, section 7A.

3.2 Adapt program stream: Information Management

	FY20	FY21	FY22	FY23	FY24	Total
ICT Capex (FY19 Real $million)	0.5	0.7	1.1	0.7	0.8	3.7

As discussed in Section 3.1, Ausgrid has significantly reduced its baseline operating expenses in the current regulatory period and is proposing additional opex reductions as part of the proposal.

Critically, this was done without providing our remaining workforce with the tools and processes to sustain our efficiency gains. Without investing in these tools and processes, it is likely that Ausgrid will rehire some of these resources to meet core service level expectations.

Furthermore, Ausgrid needs to sustain these efficiencies to offset the incremental subscription and licensing ICT opex expenses that will be incurred over the FY20-24 period. As noted earlier, Ausgrid has not included these costs in its ICT opex submission for the FY20-24 period. This is because these costs were expected to be sustained by the anticipated productivity benefits that will be delivered by various streams of the Adapt program.

The Information Management (IM) stream will deliver the efficiencies required to offset:

- $10.4 million of FTE costs annually that were removed in the last regulatory period; and
- $13.7 million of opex expected to be incurred over the FY20-24, specifically those related to Data & Analytics.

It also seeks to address some of the IM challenges facing the business (see box on right) to improve the Ausgrid's planning and maintenance decisions, particularly network capex productivity.

Information Management challenges at Ausgrid

Information Management (IM) capability is a critical to Ausgrid's vision to become a data-driven organisation and can deliver significant benefits to Ausgrid and its customers. Ausgrid's current IM maturity is very basic. The business continues to face a number of challenges with its foundational capabilities. At a high level, key issues include:

- Data Quality – While it varies by business area, Ausgrid has a number of challenges with data quality. Much of this stems from information still being in physical form and a lack of alignment and reconciliation between various insights and reports. Furthermore, there is often limited context what the data means or how it should be used.
- Accessibility – Areas of the business have indicated challenges in accessing data and reports required to make business decisions, particularly when relying on cross-functional analysis. IM capabilities are siloed throughout the business and there is no consistent process in place for business users to request the data they need.
- Skills and awareness– Many of Ausgrid's business areas suffer from a lack of awareness around Ausgrid's information management capabilities. This restricts Ausgrid from achieving the full value from its information systems and investments. Furthermore, many Ausgrid staff lack skills to use standardised information system tool. In particular, the level of analytics capabilities across the business is below peers and the wider industry level.

According to a recent research by McKinsey & Company[5], advanced analytics provides a "rich opportunity" to improve the ability of infrastructure owners to make better capital-planning decisions. The research cites investments in analytics by retail, financial and automotive industry, which have enabled productivity improvements and calls for other industries to follow suit. Ausgrid is seeking to leverage these benefits through its own advanced analytics program, with the expected benefits accounted for in our 10 per cent productivity target for the FY20-24 period.

There are two key investments within Ausgrid's IM stream that will enable us to realise these benefits. They are our:

- **Advanced analytics program** (total of $3.0 million)

  By the end of FY20, Ausgrid will establish an advanced analytics platform. Advanced analytics is the ability to generate valuable insights from large amounts of data, creating value when data and advanced algorithms are applied to business problems. Our platform will enable Ausgrid to better generate valuable insights from:

  - Volumes of data
  - Structured data (such as energy use, weather patterns, images of substations)

[5] McKinsey & Co, How advanced analytics can benefit infrastructure capital planning, April 2018: www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/how-advanced-analytics-can-benefit-infrastructure-capital-planning

- Unstructured data (such as complaints from customers)
- velocity (i.e. real time data).

Ausgrid will seek technical support from a small team of data scientists, platform engineers, and visualisation experts to help simplify the end user experience and enable Ausgrid to utilise, maintain and upgrade the platform without the need for long term support.

Our advanced analytics program is based on a proof of concept (POC) completed in the current regulatory period. The POC was based on actual Ausgrid data captured after the business reduced baseline operating expenses. It found that rolling out an advanced data and analytics program would sustain our smaller workforce.

- **Data Quality and Information Management Realignment program** (total of $0.7 million)

This investment will take place after the analytics deliver more systematic controls and practices to help develop the maturity of Ausgrid's foundational IM capabilities. Key areas of investment include:

- Information Governance – Establish a fit-for-purpose target operating model (TOM) information to meet Ausgrid's information governance needs.
- Enterprise Information Architecture – Establish a Utilities Industry Information Model to help improve visibility within the business around where information is generated, discovered, ingested, transferred and analysed.
- Data Quality Management – Establish processes and guidelines for realignment of data from systems, to consolidating, simplifying and making one source of the truth
- Data Catalogue – Establish a catalogue of services and resources to help business users know what's available.

In summary, Ausgrid has quantified the total financial benefit of delivering the above IM program at $65.7 million (or $38.7 per customer). This includes:

- Contribute toward the achievement of the opex reduction included in the overall proposal
- $52 million to sustain efficiency savings already achieved in the FY15-19 regulatory period
- $13.7 million to offset ICT opex increases expected to be incurred over the FY20-24, specifically those related to Data & Analytics

Ausgrid has also refined the costs for the IM program in the following way:

- $2.1 million has been reclassified to the Maintain program
- $5 million has been reduced from the original proposal

3.3 Adapt program stream: Digital Transformation

	FY20	FY21	FY22	FY23	FY24	Total
ICT Capex (FY19 Real $million)	1.8	1.8	-	0.3	0.6	4.4

The total revised ICT Capex for the Digital Transformation stream is $4.4 million (real, FY19). This is spread over three programs:

- Process Digitalisation and Automation (total of $2.1 million);
- Single View of Customer (total of $1.4 million); and
- Wearable Technology Strategy, POC and Pilot (total of $0.9 million).

Note that Ausgrid has decided to defer the Wearable Technology stream implementation and the full Intelligent Network stream presented in its initial ICT capex proposal. The rationale for these deferrals is contained within the summary description and justification for our revised Digital Transformation program below.

3.3.1 Process Digitisation and Automation

	FY20	FY21	FY22	FY23	FY24	Total
ICT Capex (FY19 Real $million)	1.1	1.0	-	-	-	2.1

As discussed in Section 3.1, Ausgrid has significantly reduced its baseline operating expenses in the current regulatory period.

Critically, this was done without providing our remaining workforce with the tools and processes to sustain expected productivity levels. Without making investments to improve the efficiency of the business, it is likely that Ausgrid would have to rehire some of these resources to meet core service level expectations.

Furthermore, Ausgrid needs to sustain these efficiencies to offset the incremental subscription and licensing ICT opex expenses that will be incurred over the FY20-24 period. As noted earlier, Ausgrid has not included these costs in its ICT opex submission for the FY20-24 period. This is because these costs were expected to be sustained by the anticipated productivity benefits that will be deliver by streams of the Adapt program.

The Process Digitalisation and Automation stream will deliver the efficiencies required to offset:

- $12.1 million of FTE costs annually that were removed in the last regulatory period; and
- $30.3 million of increased opex expected to be incurred over the FY20-24, specifically subscription and licensing costs related to cloud-based solutions.

To do so it will use Robotic Process Automation (RPA), to automate many of the manual processes that our remaining workforce currently rely on. The following table describes which business areas Ausgrid intends to automate and the dollar value of the efficiencies that will be sustained in each.

Service area	Sustained efficiency savings (real, FY19)	Expected RPA improvements
Field Services	$4.9 million	Currently many of our key field services require manual integration with our backend systems, creating an administrative burden. We will introduce greater automation to: • Integrate field service form data from multiple sources • Better translate scheduling and people data with dispatch in SAP • Improve training and depot activities.
Asset Management	$2.1 million	Ausgrid intends to automate its key asset management processes, specifically condition based standards, its dispatch of work and review and approval of GIS data maintenance.
Finance	$1.0 million	Ausgrid has identified opportunities to automate workflows that facilitate end of month and end of year reporting. This includes automating handoff points and data validation that currently require multiple people to review and amalgamate multiple sources of data.
People & Culture	$0.3 million	Ausgrid intends to automate a number of workflow processes and systems related to its HR services. This includes : • Automating links between its FTE reporting systems and databases • Automating input and updating of employee details for superannuation and payroll.
Other Functional Areas	$3.8 million	Ausgrid intends to automate a number of workflow processes and systems related to its Procurement and Safety services. This includes: • Automating links and workflow between procurement data sources • Automating input and updating of details for safety interactions and reporting.

Ausgrid has refined its Process Digitalisation and Automation stream so that it delivers the value for money with respect to the above benefits. As a result, the total funding allocated to this stream has been reduced from $3.6 million to $2.1 million.

Note that Ausgrid expects that the above solution will require the use of external contracting services and investment in RPA software.

3.3.2 Single view of the customer

	FY20	FY21	FY22	FY23	FY24	Total
ICT Capex (FY19 Real $million)	0.7	0.7	0	0	0	1.4

Ausgrid's new Customer Relationship Management (CRM) platform is expected to go live before the end of the FY15-19 regulatory period. The platform will provide a single point of access for customers to engage with us. Our Single View of Customer program, within our Digital Transformation stream, intends to build on the existing CRM platform by delivering improvements that will simultaneously:

- Offset $2.1 million of FTE costs annually that were removed in the last regulatory period without providing those staff remaining without the tools to meet core service level expectations.
- Deliver service quality levels expected by our customers (specifically around efficient case resolution, and access to accurate and timely information).

Ausgrid has refined its Single View of Customer' program so that it delivers the value for money with respect to the above benefits. As a result, the total funding allocated to this program has been reduced from $3.9 million to $1.4 million.

The key components of this program in our revised proposal:

- **Customer 'chatbots'** – Chatbots redirect enquiries to digital channels and capture data that may not be otherwise collected due to the time consuming nature of other customer engagement methods i.e. online forms. Online communication, compared to the telephone, is also the preferred method of engaging with large service providers like Ausgrid, for many of our customers.
- **Customer Complaint Module** –This investment will seek to automate processing and resolution of customer complaints through our existing investment in the CRM platform. This will improve customer experience and productivity in the contact centre by ensuring customer needs are understood and complaints are efficiently managed. Ausgrid expects this automation will reduce error rates by improving timeliness and quality of data available and help sustain FTE reductions made in our customer management division. The investment is also essential to Ausgrid's trial of a new customer service metric for the Service Target Performance Incentive Scheme (STPIS) in the FY20-24 period, based on complaint handling.
- **Enhancements to our Social Media Platform** – This investment will help address key constraints impacting our social media platform. This is by developing automated systems that will inform our customers of outages as and when they happen. This will remove the need for manual reporting processes and reduce the load peak experienced on our website.
- **Bushfire Module** – Currently our bushfire management process is labour intensive. Ausgrid manually shares information with rural fire services and regularly updates effected customers via postal mail drops. This investment will use software to automate information sharing between Ausgrid and the rural fire services and will digitalise communications with effected customers, particularly those whose properties require vegetation management.

3.3.3 Wearable Technology Strategy, POC and Pilot

	FY20	FY21	FY22	FY23	FY24	Total
ICT Capex (FY19 Real $million)	-	-	-	0.3	0.6	0.9

Ausgrid's initial ICT capex proposed an investment in wearable technology. However having given further consideration to this, Ausgrid consider that a more prudent approach would be to first invest in a Wearable Technology Strategy, proof of concept (POC) and wearable technology pilot. There are two reasons for this:

- Ausgrid has found that wearable technologies are developing at a rapid rate. As a result further work is required to determine what a prudent and efficient wearable technology investment would look like for Ausgrid.

- Ausgrid expects its advanced distribution management system (ADMS) will bring with it some technological efficiencies similar to some wearable technology. Therefore we want to see the impact of this before making an investment in wearable technology.

Having said this, it is worth acknowledging that wearable technology has the potential to deliver significant benefits to Ausgrid's customers and employees. For example:

- live video headsets have the potential to provide real time feedback to our control room, enabling Ausgrid to more efficiently and effectively respond to storm events and deliver cost savings to our customers
- virtual reality training technology could enable our apprentice [technicians] to train in a controlled environment, rather than in a live sub-station, significantly reducing training costs and workplace safety.

With these benefits in mind, Ausgrid's revised ICT capex proposal considers it prudent and efficient to invest in:

- A Wearable Technology Strategy and POC (total of $0.3 million) – Completed in the FY23 and will seek to further develop our evidence base for investment in wearable technology.
- A Wearable Technology Pilot (total of $0.6 million) – This pilot is expected to be delivered in one of Ausgrid's regional areas by the end of FY24 and will be designed with potential for future scalability. Benefits to our customers will be evaluated in subsequent year (i.e. the FY25-29 regulatory period).

Ausgrid has refined its Wearable Technology program so that it delivers the value for money with respect to the above benefits. As a result, the total funding allocated to this program has been reduced from $4.7 million to $0.9 million.

3.3.4 Intelligent network

	FY20	FY21	FY22	FY23	FY24	Total
ICT Capex (FY19 Real $million)	-	-	-	-	-	0

Ausgrid's initial ICT capex proposed an investment in an Enterprise Internet of Things (EIoT) POC. Ausgrid has since identified that there is potential for an overlap in benefits between this the EIoT POC and its ADMS. As a result, Ausgrid's revised ICT capex proposal has deferred this investment until the FY25-29 regulatory period. As a result, the total funding allocated to this program has been reduced from $2.1 million to $0 million.

In summary, Ausgrid has quantified the total financial benefit of delivering the above Digital Transformation program at $101.4 million (or $59.6 per customer). This includes:

- Contribute toward the achievement of the opex reduction included in the overall proposal
- $71.1 million to sustain efficiency savings already achieved in the FY15-19 regulatory period
- $30.3 million to offset ICT opex increases expected to be incurred over the FY20-24, specifically those related to ICT Opex for Cloud

Ausgrid has also refined the costs for the Digital Transformation program in the following way:

4 The Maintain program

4.1 Overview of the Maintain program

The Maintain program consists of three streams: Application Maintenance, Infrastructure & Telco Maintenance and Workplace Technology. These streams represent a targeted investment program which is both critical to our business and in the long-term interests of our customers. Without the Maintain program, Ausgrid will be unable to:

1. Offset ICT opex increases expected to be incurred over the FY20-24 regulatory period

The CCP10 made the following submission in response to our initial proposal:

> Investment in information technology is significant, both in past periods and in this proposal. We believe that Ausgrid can better articulate the options and alternatives available to the high investment in information technology, and demonstrate the return on the investment to consumers in the form of cost reductions emerging from improved business efficiency and service improvements valued by consumers.[6]

We have taken this feedback on board and have undertaken to better articulate the benefits of our ICT program in this revised proposal. In terms of the Maintain program, these benefits predominately relate to offsetting opex increases expected in the 2019-24 period. These ICT opex increases include:

- $20.8 million increased cyber security software and support costs as a result of new regulatory obligations to comply with:
    - the requirements stipulated in our Distributor Licence Conditions
    - the Critical Infrastructure and Security of Critical Infrastructure Act 2018[7];
- $12.8 million increased SAP maintenance costs as a result of Ausgrid upgrading to S/4HANA in parallel to SAP ERP, as proposed in our Maintain Program.[8]

This $33.6 million increase has not been included in Ausgrid's forecast opex requirement in the 2019-24 period as we anticipate that the capital investments within our Maintain program will provide us with the tools needed to absorb these operating cost pressures. In the event that Ausgrid is unable to achieve regulatory funding for the Maintain program, we forecast that our allowed operational costs would need to increase by $20.8 million of the $33.6 million per year (real FY19) or an average of $12.2 per customer. This is in order to recover at least our efficient costs as required under the Revenue and Pricing Principles in the National Electricity Law.[9]

2. Comply with our Distributor Licence Conditions and the Security of Critical Infrastructure Act 2018

The Licence conditions state that Ausgrid must use *best industry practice* to ensure operation and control of its distribution system, *including all associated ICT infrastructure*, can be accessed, operated and controlled only from within Australia. Violation of a condition could result in an enforceable undertaking to bring Ausgrid back into compliance. In addition, we have to report as required by the Security of Critical Infrastructure Act 2018.

Compliance with best industry practice for associated ICT infrastructure requires Ausgrid to keep our applications and their supporting environments maintained to vendor supported levels. This requires application of updates supplied for

[6] Consumer Challenge Panel, CCP10 Response to AER Issues paper and revenue proposals for NEW Electricity Distribution Businesses 2019-24, August 2018, p. 61.

[7] In December 2016, the Distributor's Licence Conditions were imposed on Ausgrid, requiring adherence to specific requirements relating to maintenance and operational control of a distribution business and critical data sets which resulted in Ausgrid's need to improve security controls. In July 2018, the Security of Critical Infrastructure Act 2018 came into effect resulting in Ausgrid's need to have appropriate security controls in place to manage risks to national security.

[8] Running these programs side by side will unlock benefits for the FY24-29 regulatory period. Further explanation is provided in our initial ICT capex proposal.

[9] National Electricity law, section 7A.

security patches. If this is not done, then we have an increased risk of failure in operating those systems which our field staff rely on to provide service to our customers.

An economic value has not been directly attributed to these activities, however, the investment in the Maintain program supports the underlying cyber risk buy down explained in section 6 of this document.

3. Achieve capital reductions included over the FY20-24 regulatory period

Ausgrid currently relies on on-premise data centres. The relatively short technical life of these assets requires them to be replaced regularly, making ownership capital intensive. Over the FY20-24 period Ausgrid is migrating its core ICT infrastructure to cloud based 'Infrastructure as a Service' (IaaS) and 'Platform as a Service' (PaaS) arrangements.

As a result of this prudent migration, we will no longer have to own, operate, maintain and replace these assets. Instead the cloud will enable Ausgrid to 'consume' computer resources, such as data storage and ICT applications, in a similar way to how our customers consume the energy we deliver to their home or business

Once implemented, this shift from capex to opex based service offerings will achieve a total cost of service reduction that will be ongoing, while also increasing the flexibility of our operations. The costs included in Ausgrid's ICT capex submissions for the FY20-24 period assume completion of the migration to cloud based services.

In the event, Ausgrid does not receive funding for this stream, Ausgrid would need to re-consider its ICT capex forecasts proposed for the FY20-24 regulatory period. Ausgrid anticipates $20 million (real FY19) in capex to the 'Infrastructure Capacity and Maintenance' program (within the Maintain program). This is because Ausgrid would be required to continue its data center asset maintenance program; continuing to replace current on premise data centers with like for like systems.

The following sections provide further information on the three streams within the Maintain program and how they will deliver net economic benefits to our customers. Further quantitative net-benefit analysis is available at Appendix B.

4.2 Maintain program stream: Application Maintenance

	FY20	FY21	FY22	FY23	FY24	Total
ICT Capex (FY19 Real $million)	26.6	20.5	12.2	8.6	12.6	80.5

IT applications have an expected useful lifespan of between four and seven years, meaning that there will be a need to 'refresh' systems periodically, so that systems operate in supportable conditions and continue to underpin the processes supporting Ausgrid's business and services. Periodic refresh is in line with good industry practice and necessary for Ausgrid to operate the distribution network in a manner consistent with the NER and be able to meet our network operating licence requirements and corporate obligations in the most efficient way. Retaining systems beyond their useful lives without upgrading or replacing will result in increasing reliability risks, additional maintenance costs and adversely impacting on efficiency and resilience.

The total revised ICT Capex for the Application Maintenance stream is $80.5 million (real, FY19). This is spread over three programs, which will allow Ausgrid to continue to deliver safe, reliable and affordable customer service and business operations:

- End of Life Application Upgrades (total of $29.1 million);
- Mandatory Patch & Release Management (total of $13.3 million); and
- SAP Core Maintenance (total of $38.1 million).

If we do not undertake this stream, which covers the majority of the mission and business critical systems, Ausgrid will face increasing risks, including non-compliance with licence conditions, legal and regulatory obligations; out of line with industry systems changes; and threats from cyber security breaches. This would also introduce inefficient ways of working, increased operational spend, requiring Ausgrid staff to perform alternate support through manual processes, with potential non-compliance with regulatory requirements. Additionally, there are safety considerations to customers, including life support customers, hospitals, schools and transport if services are impacted.

4.3 Maintain program stream: Infrastructure & Telco Maintenance

	FY20	FY21	FY22	FY23	FY24	Total
ICT Capex (FY19 Real $million)	12.4	6.5	2.3	2.2	1.7	25.1

The program seeks to complete the migration of Ausgrid's core IT infrastructure services to cloud based offerings in line with good industry practice and maintain or refresh elements of Ausgrid's telecommunications infrastructure that are reaching the end of their technical life. Maintenance of mission and business critical applications relies on this program to deliver safe, reliable and affordable customer service and business operations.

The total revised ICT Capex for the Infrastructure & Telco Maintenance stream is $25.1 million (real, FY19). This is spread over two programs:

- Infrastructure Capacity & Upgrades (total of $11.3 million); and
- Telecommunication Capacity & Upgrades (total of $13.8 million).

In the review undertaken, $2.1 million has been reclassified to the Maintain program from the Adapt program as this program objectives to move the current data reporting platform to the cloud, is required for the complete transition of the applications from the on-premise data centres. If this data reporting platform is not moved, then the operational cost savings associated with exiting the data centres cannot be achieved.

In addition, as mentioned in section 4.1, the capex proposed does not include a continuation of the on-premise solutions which would require an additional $20 million in capex funding. If we do not undertake this stream, we will require this additional funding and will Ausgrid will face increasing risks, including non-compliance with licence conditions, legal and regulatory obligations; out of line with industry systems changes; threats from cyber security breaches, as the majority of the mission and business critical systems rely on the infrastructure and are "connected" via telecommunications. Business operations and services to our customers will be adversely impacted as result of systems disruptions.

4.4 Maintain program stream: Workplace Technology

	FY20	FY21	FY22	FY23	FY24	Total
ICT Capex (FY19 Real $million)	0.5	0.9	0.9	1.1	1.2	4.6

The total revised ICT Capex for the Workplace Technology stream is $4.6 million (real, FY19). The stream seeks to ensure that Ausgrid as an organisation has the tools required to be an efficient and productive workplace. This requires that existing workplace technology tools remain useful and current to allow staff access to the organisation's key business applications and corporate data repositories. During FY15-19, Ausgrid undertook targeted foundational investments for workplace technologies, including migrating to Office 365. The planned investments for the FY20-24 period look to further leverage these foundational investments to ensure Ausgrid can maximise the benefits for our customers.

In summary, Ausgrid has quantified the total financial benefit of delivering the above Maintain program at $53.6 million (or $31.5 per customer). This includes:

- $20 million reduced capital investment as a result of the completing the migration to cloud from on-premise data centres.
- $33.6 million to offset ICT opex increases expected to be incurred over the FY20-24, specifically those related to Cyber Security and S/4HANA.

Ausgrid has also refined the costs for the IM program in the following way:

- $2.1 million has been reclassified from the Adapt program

5 The Comply program

5.1 Overview of the Comply program

The Comply program consists of two streams: Regulatory Obligations & Licensing and Technology Licence Growth. These streams represent a targeted investment program which is critical to our business by ensuring we are complying with regulatory and commercial licensing obligations.

5.2 Comply program stream: Regulatory Obligations & Licensing

	FY20	FY21	FY22	FY23	FY24	Total
ICT Capex (FY19 Real $million)	0.9	0.9	0.9	1.0	1.0	4.7

Ausgrid utilises bespoke and commercial off the shelf (COTS) applications to support mission critical Network and Customer Management business processes. These systems are required to operate and comply with several regulatory and legislative requirements including Australian Energy Market Operator (AEMO) and National Electricity Market (NEM) regulations; National Energy Customer Framework (NECF); Commonwealth Taxation Law; and the National Electricity Rules (NER) frameworks. To maintain compliance with the above, its supporting systems are required to be updated to comply to the new requirements placed on Ausgrid (e.g. AEMO issues change requirements to Market systems at least twice a year).

If we do not undertake this stream, Ausgrid will face increasing risks, including non-compliance with licence conditions, legal and regulatory obligations.

5.3 Comply program stream: Technology Licence Growth

	FY20	FY21	FY22	FY23	FY24	Total
ICT Capex (FY19 Real $million)	0.2	0.2	0.3	0.3	0.3	1.3

Ausgrid has forecasted expected growth in the number of network connections for the FY20-24 period, which requires compliance with commercial agreements with vendors, and a need to invest in additional licences for impacted application packages. If we do not undertake this stream, Ausgrid is exposing itself to non-compliance with commercial licensing terms & conditions, which could lead to potential legal implications and increased licence maintenance costs.

The benefits achieved from this project are intangible including:

- Maintain compliance to meet regulatory and statutory obligations to the Market and in accordance with Commonwealth law
- Maintain compliance with software licensing agreements

6 The Protect program

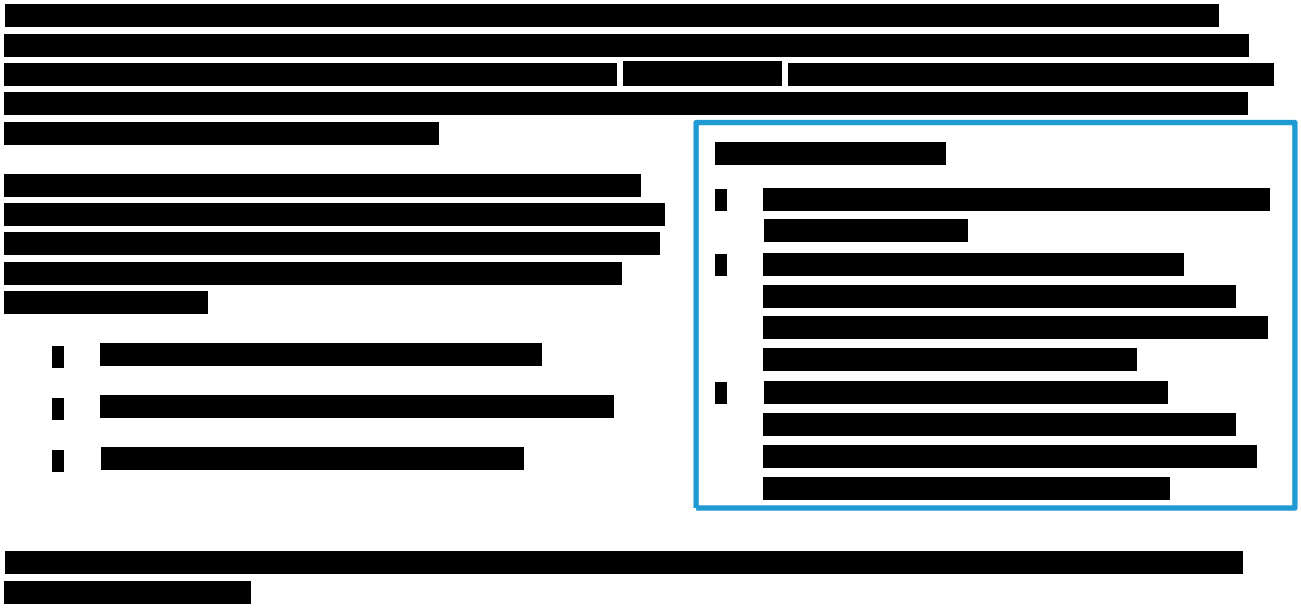
6.1 Overview of the Protect program

The Protect program consists of one stream related to the cyber security investment which is critical to out business by ensuring our assets are protected.

The following section provides further detail about Ausgrid's past and proposed cyber security ICT capex investment. This information is provided to set expectations around Ausgrid's ability to meet current and future cyber security standards with the funding approved by the AER in its draft decision. Note that the below does not include an additional $20 million in cyber security capex which we have allocated to our OTI expenditure proposal.

	FY20	FY21	FY22	FY23	FY24	Total
ICT Capex (FY19 Real $million)	7.5	2.9	2.2	4.0	3.3	19.9

6.2 Current cyber security maturity



6.3 Adequacy of proposed cyber security capex (FY20-24)

Ausgrid is the sole distributor to 20 per cent of Australia's GDP and 15 per cent of Australia's population. As a result, Ausgrid is uniquely critical to the infrastructure of Australia. This critical infrastructure is currently facing a number of pressures driving the need for investment in Ausgrid's cyber security program. This includes

1. An increase in frequency and complexity of cyber-attacks targeting energy and utilities
2. Greater enforcement of increasingly stricter compliance regulations.

By addressing these pressures Ausgrid is ultimately seeking to reduce the risk of outages for our customers.

[10] The purpose of the APM domain is to establish and maintain plans, procedures, and technologies to manage personal identifiable information through its lifecycle - collection, storage, use and disclosure, and disposal (including de-identification) by reduce privacy related risks, and respond to personal information data breaches.

Ausgrid has determined the level of risk it wishes to 'buy down' to provide assurance to its customers that power outages will not occur as a result of a cyber security breach. To do so, it quantified the cyber security risk of two scenarios, a do-nothing scenario where the current level of risk is maintained, and a proposed investment scenario where the level of risk falls to the target level of risk as expressed qualitatively in existing documents and reports underpinning the Cyber Security program. The difference between these two scenario risk values enabled us to determine the total risk reduction at $1.75 billion.

With this in mind our initial ICT capex proposal put forward a total cyber security investment of $20 million (real FY19 dollars), which was approved by the AER in its draft decision.

Ausgrid subsequently commissioned EY to complete a Cyber Security Investment Review (the Review). The Review found that our $20 million capex investment (and $7.6 million opex investment) in cyber security to be prudent and efficient to meet current standards.

However, the Review also found that the cyber security investment approved for the FY20-24 will likely:

- [redacted]
- [redacted]

As a result, the Review calculated that an investment of $39.8 million capex and $9.3 million opex over the FY20-24 would be prudent and efficient [redacted]

We have included the additional cyber security capex in our OTI capex forecast. The efficiency of these costs will not be subject to the capital expenditure sharing scheme (CESS). Before making the additional cyber investment, we will also engage with relevant stakeholders, including our Network Innovation Advisory Committee (NIAC). The EY report supporting the likelihood of a regulatory change event requiring Ausgrid to invest in additional cyber security protection has been provided, on a confidential basis, to the AER with our Revised Proposal.

In summary, Ausgrid has quantified the total financial risk reduction of delivering the above Comply program at $1.75 billion (or up to $1,000 per customer). This investment is aligned to the current AEMO maturity level requirements.

Appendix A: Alignment with AER findings and stakeholder concerns

Summary of AER draft findings/stakeholder submissions and how our revised proposal responds

	AER DRAFT FINDING / STAKEHOLDER SUBMISSIONS	HOW OUR REVISED PROPOSAL RESPONDS	ATTACHMENT CROSS-REFERENCE
1. Economic evidence	ICT business cases provided insufficient justification for investment given that they ranked the available options, principally, on a qualitative basis.	Additional quantitative cost-benefit analysis has been undertaken. The analysis attributes these costs and benefits to each individual program, providing justification for how the Adapt program will deliver net economic benefits to our customers and why our revised forecast is prudent and efficient.	Section 3, 4, 5, 6 and Appendix B
2. Benefit incorporation	Both the AER and stakeholders (CCP10) found that it was unclear how Ausgrid had incorporated any efficiencies from our ICT program into our overall expenditure forecast.	Ausgrid has clarified: • what efficiencies will be realised • how they will be realised; and • a summary of how it determined the net-benefit of these efficiencies. Ultimately, without the Adapt and Maintain programs Ausgrid will be unable to: • Sustain $123.1 million efficiency savings already achieved in the FY15-19 regulatory period. • Offset $77.5 million ICT opex increases expected to be incurred over the FY20-24 regulatory period.	Section 3, 4, 5, 6 and Appendix B
3. Cyber security	AER accepted our initial forecast for cyber security capex based on independent advice from Hakluyt Cyber, EY and our communication with the Federal Government.	Ausgrid provides further information to set expectations around Ausgrid's ability to meet current and future cyber security standards with the funding approved by the AER in its draft decision.	Section 6
4. Deferrals	EMCa observed that there is likely scope for project deferrals within our ICT capex program.	We have rebalanced our capex program. This resulted in a significant portion of our Digital Transformation stream being deferred beyond the 2019-24 period.	Section 3
5. Benefits of ICT Full Proposal	Stakeholders requested information on benefits of the full ICT program	We have outlined each area of our capex program. This includes a summary of benefits at the end of each section. This includes tangible, intangible and risk benefits.	Section 3, 4, 5, 6

Appendix B: Summary of net-benefit analysis

Net Present Value Analysis for Information Management

DO NOTHING _ OPTION 1						
Net Benefits Analysis Adapt Program				**$M**		
	FY20	**FY21**	**FY22**	**FY23**	**FY24**	**Total**
19. Information Management						
Costs						
Unable to Sustain Opex Reduction	10.4	10.4	10.4	10.4	10.4	52.0
Benefits						
	-	-	-	-	-	-
	-	-	-	-	-	-
Information Management Total Benefits	-	-	-	-	-	-
Net Benefit Information Management	**- 10.4**	**- 10.4**	**- 10.4**	**- 10.4**	**- 10.4**	**- 52.0**

Net present value **-46.6**

PREFERRED _ OPTION 2						
Net Benefits Analysis Adapt Program				**$M**		
	FY20	**FY21**	**FY22**	**FY23**	**FY24**	**Total**
19. Information Management						
Costs						
Information Management Total Costs	0.6	0.8	1.4	0.8	1.0	4.6
Benefits						
Sustain Opex Reduction Achieved	10.4	10.4	10.4	10.4	10.4	52.0
Absorb ICT Opex Data & Analytics	2.4	2.5	2.7	2.9	3.1	13.7
Information Management Total Benefits	12.8	12.9	13.1	13.3	13.5	65.7
Net Benefit Information Management	**12.2**	**12.1**	**11.8**	**12.5**	**12.5**	**61.1**

Net present value **54.7**

Net Present Value Analysis for Digital Transformation

DO NOTHING _ OPTION 1						
Net Benefits Analysis Adapt Program			$M			
	FY20	**FY21**	**FY22**	**FY23**	**FY24**	**Total**
20. Digital Transformation						
Costs						
Unable to Sustain Opex Reduction	14.2	14.2	14.2	14.2	14.2	71.1
Unable to Absorb ICT Cloud Opex	4.0	6.8	7.6	5.9	5.9	30.3
Data and Digital Enablement Total Costs	18.2	21.1	21.8	20.2	20.2	101.4
Benefits						
						-
						-
Data and Digital Enablement Total Beneftis	-	-	-	-	-	-
Net Benefit Data and Digital Enablement	**- 18.2**	**- 21.1**	**- 21.8**	**- 20.2**	**- 20.2**	**- 101.4**

Net present value	**-90.7**
Net benefit	**-137.3**

PREFERRED _ OPTION 2						
Net Benefits Analysis Adapt Program			$M			
	FY20	**FY21**	**FY22**	**FY23**	**FY24**	**Total**
20. Data and Digital Enablement						
Costs						
Data and Digital Enablement Total Costs	2.2	2.2	-	0.3	0.8	5.5
Benefits						
Sustain Opex Reduction Achieved	14.2	14.2	14.2	14.2	14.2	71.1
Absorb ICT Opex Cloud	4.0	6.8	7.6	5.9	5.9	30.3
Data and Digital Enablement Total Beneftis	18.2	21.1	21.8	20.2	20.2	101.4
Net Benefit Data and Digital Enablement	**16.0**	**18.9**	**21.8**	**19.8**	**19.4**	**95.9**

Net present value	**85.6**
Net benefit	**140.3**

Net Present Value Analysis for Maintain Program

Maintain Program PREFERRED _ OPTION						
Net Benefits Analysis Maintain Program			$M			
	FY20	**FY21**	**FY22**	**FY23**	**FY24**	**Total**
Costs						
Application Maintenance Program						
End of Life Application Upgrades Total Costs	12.7	3.7	5.3	1.9	5.5	29.1
Mandatory Patch & Release Management Total Costs	2.8	2.5	2.7	2.8	2.5	13.3
SAP Core Maintenance Total Costs	11.0	14.3	4.2	3.9	4.6	38.1
Total Application Maintenance Costs	26.5	20.5	12.2	8.6	12.6	80.5
Infrastructure and Telco Maintenance						
Infrastructure Capacity & Upgrades Total Costs	7.8	3.6	-	-	-	11.3
Telecommunication Capacity & Upgrades Total Costs	4.6	2.9	2.3	2.2	1.8	13.8
Total Infrastructure and Telco Maintenance Costs	12.4	6.5	2.3	2.2	1.8	25.1
Workplace Technology						
Workplace Technology Total Costs	0.5	0.9	0.9	1.1	1.2	4.6
Application Maintenance Program Total Costs	**39.4**	**27.9**	**15.4**	**11.9**	**15.5**	**110.2**
Benefits						
Capital Investment Reduction/Avoidance	6.0	5.0	3.0	3.0	3.0	20.0
Absorb ICT Opex SAP Maintenance	4.5	4.1	3.0	3.0	- 1.8	12.8
Absorb ICT Opex Cyber Security	4.2	4.2	4.2	4.2	4.2	20.8
Information Management Total Benefits	14.6	13.3	10.2	10.2	5.3	53.5
Net Benefit Maintain Program	**- 24.8**	**- 14.6**	**- 5.3**	**- 1.8**	**- 10.2**	**- 56.7**

Net present value	**-52.2**

Summary of $25M Operational Savings Related to Technology Investments - Totals are by Sub-Program where investment will sustain the savings

Sub-Program to Sustain Savings	Ausgrid Functional Area	Initative Title	Organisation Wide FY18 Opex Savings ($M)	Portion of Savings related to Technology Annually ($M)
Advanced Analytics	Asset Management & Operations	3.07 Optimise preventative maintenance	$ 10.4	**$ 10.4**
Digital Transformation - Customer	Customer	5.02 Optimise contact centre	$ 1.2	$ 1.0
		5.04 Connections Structure FY18	$ 2.2	$ 1.1
Digital Transformation - Customer Total			$ 3.4	**$ 2.1**
Digital Transformation - Process Automation	Asset Management & Operations	3.01 Reorganise and rationalise Asset Management - FY18	$ 4.6	$ 0.9
		3.08 Review corrective maintenance practices	$ 10.8	$ 1.1
		3.14 FY18 GIS Transformation	$ 0.4	$ 0.1
	Asset Management & Operations Total		$ 15.8	$ 2.1
	Field Services	2.01 Reorganise and rationalise Network Services - FY18	$ 6.7	$ 1.3
		2.02 Standardise jobs and work practices	$ 2.5	$ 0.3
		2.03 Drive performance with data and enabled leaders	$ 2.5	$ 0.8
		2.04 Develop and implement a scheduling and dispatch process	$ 1.2	$ 1.0
		2.05 Optimise access to the network	$ 0.7	$ 0.4
		2.06 Maximise time on tools	$ 2.4	$ 1.2
	Field Services Total		$ 16.0	$ 4.9
	Finance	6.01 Streamline property management operations	$ 1.3	$ 0.1
		6.02 Financial control	$ 0.6	$ 0.2
		6.04 Streamline order to cash	$ -	$ -
		6.05 Streamline purchase to pay	$ 0.1	$ -
		6.06 Commercial services	$ 0.6	$ 0.2
		6.07 Financial operations	$ 0.5	$ 0.5
	Finance Total		$ 3.1	$ 1.0
	People & Culture	7.01 People strategy	$ 0.5	$ 0.1
		7.02 People services	$ 0.4	$ 0.2
	People & Culture Total		$ 0.9	$ 0.3
	Across Functional Areas	8.01 Review governance policies & rationalise CoSec	$ 0.6	$ 0.2
		10.01 Commercial procurement of corporate goods/services	$ 12.8	$ 2.6
		11.01 IT: FY18 initiatives	$ 5.5	$ 1.1
	Across Functional Areas		$ 18.9	$ 3.9
Digital Transformation - Process Automation Total			$ 54.7	**$ 12.1**
Savings Achieved - No Portion of Technology is Required to Sustain these savings			$ 30.5	$ -
Total			$ 99.0	**$ 24.6**
% of Savings Achieved which require Technology to Sustain				**25%**

ICT Related Opex Costs to Absorb for AER FY20-24 from base year FY18

				$M								
Driver	Program	Project	Type of Opex Expense	FY19	FY20	FY21	FY22	FY23	FY24	Total FY20-24	Program Total	Sub-Program to Absorb
Protect	2: Cyber Security	Cyber Program	Licences	0.48	0.48	0.48	0.48	0.48	0.48	2.4		
		Cyber Program	Labour	1.33	2.43	2.43	2.43	2.43	2.43	12.17		
		Cyber Program	Contracted Services	0.45	1.24	1.24	1.24	1.24	1.24	6.22		
		Change Management	Labour	0	0	0	0	0	0	0	20.8	Maintain Program
Maintain	3: Application Maintenance	S4 HANA parallel run system	Licences	0.28	1.96	2.44	2.42	2.42	-2.42	6.83		
		Change Management	Labour	0.43	2.5	1.67	0.59	0.59	0.59	5.93	12.8	Maintain Program
	4: Infrastructure & Telco Maintenance	Cloud Implementation	Subscription Costs	2.04	3.56	6.43	7.61	5.93	5.93	29.45		
		Change Management	Labour	0.2	0.41	0.41	0	0	0	0.82	30.3	Digital Transformation
Adapt	6: Digital and Workplace Enablement	Data & Analytics	Contracted Services	0	0.31	0.62	0.62	0.62	0.62	2.78		
		Data & Analytics	Licences	0	1.4	1.5	1.7	1.9	2.1	8.6		
		Change Management	Labour	0	0.65	0.41	0.41	0.41	0.41	2.29	13.7	Information Management
		Total		**5.22**	**14.94**	**17.64**	**17.5**	**16.02**	**11.38**	**77.49**	**77.5**	

Note Decrease in Cloud from FY23 as we move out of data centres
Note Reduction in SAP parallel run in FY24 when S4 HANA implementation completes
Based on high level estimates only for Cloud
Assumes Base Year is FY18, therefore include FY19 incremental
Based on Cyber Opex Year 1 and Year 2 Business Case @ 09/11/18

Benefits associated to sub-programs

13.7 Information Management
30.3 Data and Digital Enablement - RPA
43.9 Adapt Program

33.6 Maintain Program

30.3 Opex increase if Adapt Program not endorsed