AusNet Electricity Services Pty Ltd

Electricity Distribution Price Review 2022-26

Revised Regulatory Proposal

Appendix 4C - Addendum - ICT Cloud Capex Opex Trade Off

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PUBLIC

ICT Capex/Opex Trade-off – CIM and OM: Response to the Draft Decision

1. Background

The purpose of this document is to demonstrate the avoided capex arising from the proposed $2.6M[1] ICT opex step change rejected by the Australian Energy Regulator (AER) in its draft decision related the roll out of the Customer Information Management (CIM) and Outage Management (OM) system.[2]

In our EDPR proposal, we included a step change increase of $2.6M in ICT costs on the base opex to recover cloud transition costs related to the roll-out of CIM and OM systems. This opex step change is a portion of the total costs for the programs of work that enable us to:

- implement systems that will address new and more substantial regulatory obligations.
- provide improved services for our growing customer base; and
- enable more sophisticated uses of data in the form of advanced customer and network data analytics that, for example, can enable and support future DER based services.

In designing and assessing solutions to meet these requirements, we adhered to the AER's Expenditure Forecasting Guidelines,[3] by choosing investment options that returned the highest Net Present Value (NPV) to reflect the most prudent and efficient investment for the customer.

Draft decision

In its draft decision, the AER rejected Ausnet Services proposed opex step change amount, including as a result of advice from consulting firm EMCa, who were engaged to assess ICT expenditure. In their assessment, EMCa concluded that the options Ausnet Services had chosen were likely to be the best approaches to achieve the required functionality.

As a result, the proposed capex associated with the roll-out of the CIM and OM systems was approved without reduction, while the associated opex step change was not deemed prudent and efficient. EMCa reasoned that the cost-benefit analyses undertaken to choose the proposed options did not demonstrate an avoided capital cost that would satisfy the capex/opex trade-off criterion for an opex step change in accordance with the Expenditure Forecast Assessment Guidelines.

Revised proposal analysis

To address this requirement, we have undertaken further analysis to demonstrate the increased capex and program opex that would be incurred if the Option 2 opex step change is not implemented. This is done through considering capex-driven solutions (Option 4) to implement the same CIM and Outage Management functionalities as proposed by Option 2.

As evidenced in the table below, our analysis shows that the recommended opex step change expenditure for a subscription-based cloud solution remains the most prudent and efficient option to support the recommended CIM and Outage Management programs for Ausnet Services' customers. The opex step-changes required to implement these solutions under Option 2 are less than the alternative capex-driven solutions to implement the same functionality. In this way the AER's required capex/opex trade-off is established.

[1] All amounts in $, real 2021

[2] Australian Energy Regulator, Draft decision, AusNet Services 2021–26: Attachment 6: Operating expenditure.

[3] Australian Energy Regulator, Expenditure Forecast Assessment Guideline for Electricity Distribution

Table.1: Summary of analysis to support Capex/Opex trade-off ($, real 2021)

$M ($, real 2021)	Category	CRM	OM
Opex Step Change Option 2 – *recommended solution*	**NPV**	**$7.61**	**$0.15**
	Costs	$5.48	$11.87
	Benefits	$12.72	$13.95
New Capex Option 4 – *avoided cost solution*	**NPV**	**-$25.14**	**$0.13**
	Costs	$41.44	$11.92
	Benefits	$13.25	$13.95
Incremental Benefit (Option 2 minus Option 4)		**$32.75**	**$0.01**

Note: costs include capex and opex

The sections below describe in detail our alternative solutions to address the AER draft decision.

2. Customer Information System

The CIM program is designed to improve the interactions between AusNet Services, our customers, and external stakeholders. This is achieved by enabling us to visualise our customer's behaviour from their energy usage and to remain compliant with increasingly sophisticated regulatory rule changes enhancing our current ability to collect, store and present customer information. The requirements for this program have come about as the industry has evolves given the growing expectation of the impact from demand management in the network and other DER based services.

Additionally, the Customer Forum highlighted the need for maintaining active engagement with the critical customers, particularly those requiring life support. This program provides us with the capability to deliver on these.

As described in our Customer Information Systems (CIM) program brief, the development of this program compares the three original options:

- Option 1 – Continue managing our requirements and obligations with existing systems, making incremental improvements where required over time.
- Option 2 – Centralised CIM with enhanced customer communications that delivers enhanced benefits but at a lower cost through the utilisation of a subscription-based cloud solution. - Recommended
- Option 3 – Fully integrated CIM that delivers the desired enhanced functionality but not the entire suite of benefits without incurring large capex.

To address the concerns raised in the AER's draft decision, a new option (Option 4) has been developed to describe a centralised/on-premises CRM solution with enhanced customer communications. This is primarily a capex driven solution totalling $46M, that also includes project related opex of $9.25M. In this way the solution highlights the avoided-cost associated to replace the disallowed $450,000 per annum step change requested as part of the recommend solution in our EDPR for a subscription cloud-based CRM.

Option 4: Fully integrated CRM – On Premise

This option would integrate key customer information, such as service management, case management, engagement management and other customer communications. This central database can be used not only for AusNet Services' multi-channel engagement with customers, but also to

inform decisions on asset and infrastructure investment decisions related to risks of outages or DER connection rates.

The proposed solution is considered to provide standard customer information management functionality, including:

- Customer service management capabilities.
- Customer service for faults and outage management.
- Consolidation of disparate customer data sources.
- Maintenance of sensitive customer information.
- Consolidation of customer communications history.
- Applications and payments for products and services.

Being an on-premises solution in an evolving regulatory and business environment, this would also require some customisations and integrations to ensure it meets current and future business requirements. As such, this option also ensures that AusNet Services can respond to data access requirements from upcoming regulatory changes and scale to other compliance obligations when and where necessary.

As the latest product offerings for CRM across the spectrum move to cloud, considering an on-premises solution in such an environment provides us with limited options to review. An on-premises solution would address AusNet Services' needs in the short to medium term. Being an "off-the-shelf" design, this solution will also limit the of services provided by a traditional CRM unless the full suite of capabilities is built into the solution. This option does come with the risk of the on-premises CRM becoming obsolete in the medium- to long-term, pushed forward by the pandemic response where a cloud version is required for employees to work from home.

Costs

The cost of Option 4 represents a fully integrated on-premises CRM, costs associated with creating an omni-channel experience with customers and meeting third-party access related regulatory rule changes and DER initiatives.

The investment required to complete this program would be $46M in capex and $9.25M in opex, for a total cost of $55.25M over the regulatory control period.

The costs are further broken down as: -

Capex:

$39.5M – reflective of the capex in Option 3 of our program brief referenced earlier.

$6.5M - an estimate based on hardware provisioning within the data centre with disaster recovery capabilities and includes production and non-production environments.

Opex:

$1.85M annual opex uplift in Digital division only (does not include business impacts) that includes the maintenance of the CRM product, licencing cost and support team uplift requirements.

As per the cost allocation in our EDPR proposal for the recommended Option 2, electricity distribution has proposed a cost allocation of 75% for this program of work. The table below provides a breakdown of the expected costs of Option 4.

Table.2: Costs of CRM – Option 4

$M ($, real 2021)	2022	2023	2024	2025	2026	Total
Capex	$6.90	$6.90	$6.90	$6.90	$6.90	$34.54
Opex	$1.39	$1.39	$1.39	$1.39	$1.39	$6.94
Electricity distribution cost	**$8.29**	**$8.29**	**$8.29**	**$8.29**	**$8.29**	**$41.44**
Total program cost	$11.05	$11.05	$11.05	$11.05	$11.05	$55.25

Benefits

The benefits of this option are the same as the those in Option 2 and Option 3 of the brief. The substitution of a cloud-based CRM for an on-premise solution would mean the implementation of a fully integrated CRM system that allows us to gain a better understanding of our customers and different customer segments. This centralised and integrated information can be used to improve not only interactions with customers but also improve other services we manage such as outage management and asset management. The other benefits of such an approach include:

- Cost reductions for employees as implementation enterprise-wide CRM system reduces that amount of time spent on manual processes and/or existing separate information management systems.
- Customers can obtain additional information from AusNet Services (or resolve issues) via the web portal, rather than over the phone or via the mail. This decreases AusNet Services' call centre costs and customers' time required to obtain information from AusNet Services or the time required for resolution of issues.
- As AusNet Services has an increasingly integrated view of customers and visibility of key customer information, this can assist in reducing the number of safety incidents e.g. around violent customers or dog on premises.
- AusNet Services is well placed to meet increasingly sophisticated, regulatory driven data requirements. AusNet Services has a central repository of information that it can utilise in engagements with customers to enhance customers' satisfaction, including historic customer satisfaction information.
- Customers can seamlessly engage with AusNet Services through multiple channels with an omni-channel experience, increasing their satisfaction.

Risks

The risks associated to this approach include:

- The increasing to cloud based solution by credible vendors of their product offerings precludes organisations from accessing a solution that in the long term will enable a more up to date technological service being provided.
- As this shift in the market occurs, there can be an increase in costs associated to the maintenance of these legacy systems that would eventually require to be replaced in the long run.
- Life-cycle costs for an on-prem solution are higher as the updates and patches are updated manually and managed, where they are applied automatically in a subscription-based service without the same level of client investment.

Net Present Value (NPV) analysis

Table.3: NPV analysis of the CRM options.

$M ($, real 2021)	Option 1	Option 2 (Recommended)	Option 3	Option 4
Capex	$4.50	$6.11	$27.65	$41.4
Opex	$0.00	$1.62	$0.00	$6.94

$M ($, real 2021)	Option 1	Option 2 (Recommended)	Option 3	Option 4
Opex Step Change	$0.00	$2.25	$2.25	$0.00
NPV	-$4.18	$7.61	-$9.28	-37.10

As seen in the table above, Option 4 does not present the most prudent and efficient investment for the customer.

3. Outage Management

Our cost estimate is based on vendor estimates to conduct this surveillance regime. This does not include expenditure to rectify any issues subsequently identified from the regime.

The Outage Management program is designed to minimise the impact of planned outages on customers, by using advanced analytics and automation across the workflow to improve process efficiency for the network's planned works.

The development of the program has been undertaken by comparing three original options:

- Option 1 – Data Quality Improvement
- Option 2 – Process Automation - Cloud
- Option 3 – Intelligent Automation (Integrated Solution)

The new Option 4 builds on the recommended Option 2 and describes an approach that would require physical infrastructure built on premise, to deliver the same cognitive/machine learning capabilities, that would otherwise have been provided in a cloud-based solution.

Option 4 – Process Automation (on premise)

This option provides the same capabilities as described in Option 2 but as an on-premises capex solution without a subscription to cloud. The costs that make up this option relate to additional machine learning servers, cost to implement the option and ongoing maintenance and support. The outcomes of this program will improve AusNet Services' ongoing and future capability of delivering on customer needs and outcomes:

- Significant improvements in customer data quality, and an ongoing solution to accommodate data received from the field.
- An ability to visualise the assets in spatial and schematic views and utilise asset performance data for analytics.
- An ability to perform predictive analysis to optimise works planning and scheduling, improving network related works; and
- Significant uptake of automation across the workflow creating process efficiency and reducing risk of manual error.

We consider that this program of work will be relevant to most of these customer outcomes, by ensuring maintenance is completed where required and reducing the potential for unplanned outages. Secondly, this program will remove limitations of the current systems around correct customer notification, notification of unmetered sites and predicting accurate estimated time to restore figures.

This option also intends to deliver advanced modelling and forecasting capability, in addition to enhancing the capture of field data and process automation. It builds on a foundation of improved data quality and the linking of datasets to deliver improved customer notification and asset management. The Cognitive Automation feature of this option will lead to automation of processes, faster processing times and improved outcomes for customers.

Costs

Option 4 is also designed to deliver functionality that was described in the recommended option except in this scenario, AusNet Services would need to invest in on-premises physical infrastructure to deliver the same cognitive/machine learning capabilities. The resulting capex would be $9.03M and program opex of $2.89M, with no opex step change required.

Table.4: Costs of OM – Option 4

$M ($, real 2021)	2022	2023	2024	2025	2026	Total
Capex	$2.85	$2.65	$1.77	$0.88	$0.88	$9.03
Opex	$0.86	$0.86	$0.58	$0.30	$0.30	$2.89
Electricity distribution cost	**$3.70**	**$3.51**	**$2.34**	**$1.18**	**$1.18**	**$11.92**
Total program cost	$3.70	$3.51	$2.34	$1.18	$1.18	$11.92

Benefits

The benefits identified in Option 4 are the same as those in Option 2. They include but are not limited to:

- Reduced unplanned outages through improved asset management and outage planning
- Improved customer satisfaction through asset, network and service reliability and accurate notification and progress of work update
- Improved insights into unplanned outages, so that AusNet Services can reduce the number and impact of future unplanned outages, increasing customer satisfaction
- Improved insights into reasons jobs are cancelled
- Increased oversight and monitoring of asset performance, giving AusNet Services the ability to maintain assets based on real time information and provide customers with accurate real-time updates
- Improved asset utilisation and increased asset life, due to optimised maintenance schedules, reducing AusNet Services' costs
- Improve accuracy and safety for both Life Support and Sensitive customers through improved notification capability

Risks

The risks associated to this approach include:

- The increasing to cloud based solution by credible vendors of their product offerings precludes organisations from accessing a solution that in the long term will enable a more up to date technological service being provided.
- As this shift in the market occurs, there can be an increase in costs associated to the maintenance of these legacy systems that would eventually require to be replaced in the long run.
- Life-cycle costs for an on-prem solution are higher as the updates and patches are updated manually and managed, where they are applied automatically in a subscription-based service without the same level of client investment.
- Cloud solution prevents non-critical systems from being housed in the same environment as critical systems.

Net Present Value

Table.5 – NPV of analysis of the OM options.

$M ($, real 2021)	Option 1	Option 2 (Recommended)	Option 3	Option 4
Capex	$6.84	$8.83	$9.25	$9.03
Opex	$2.93	$2.79	$3.97	$2.93
Opex Step Change	$0.00	$0.25	$0.25	n/a
NPV	**-$2.26**	**$0.15**	**-$0.36**	**$0.13**

As seen in the table above, Option 4 does not present the most prudent and efficient investment for the customer.

4. Conclusion

Both investment briefs were presented and discussed as part of the Customer Forum negotiation process where the Customer Forum agreed that the investment would deliver the desired outcomes for customers.

In the options presented, we have considered alternative solutions that could fulfill the system requirements of capex and totex expenditure. As demonstrated in both instances of CIM and Outage Management, we have chosen the most prudent option, whereby the opex required to implement the solution through the cloud is less than a corresponding capex-driven solution to implement the same functionality. In this way the AER's required capex/opex trade-off is established.