ActewAGL Distribution ICT Expenditure Proposal Summary

May 2014

ActewAGL for you

Document Authorisation

Authorisation	Signature Date 2/6/14
Name	Michael Costello
Position	Chief Executive Officer

Authorisation	Signature Date 2/6/14
Name	John Barriga
Position	Chief Information Officer

Authorisation	Signature Date 2/6/14
Name	Steve Skourakis
Position	Chief Financial Officer

Contents

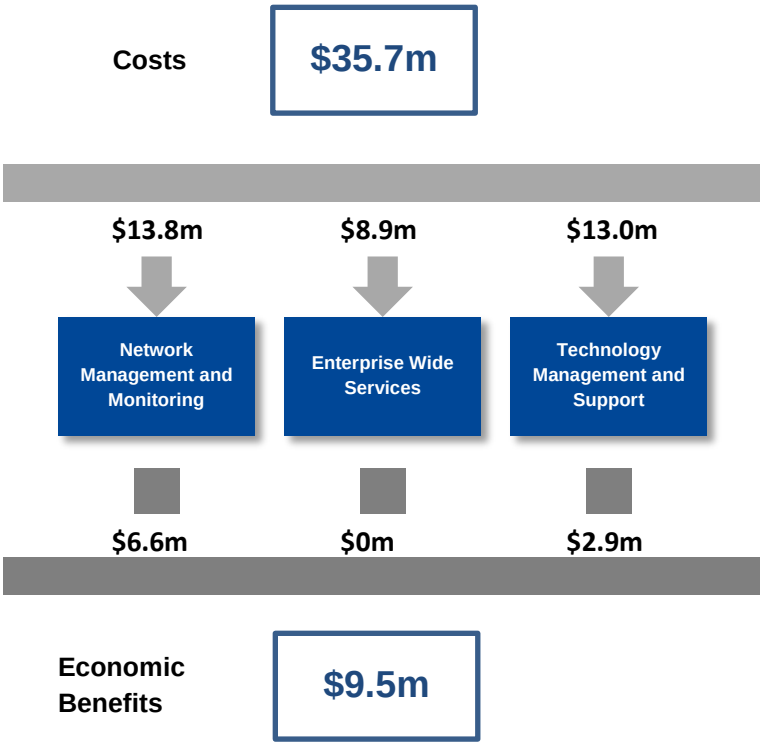
Executive Summary

This document has been prepared to provide a summary of ActewAGL Distribution's planned ICT investment during the next Regulatory Control Period (2014-2019). This includes expenditure referred to in the subsequent regulatory proposal as Network Operational Technology (OT) Systems capital expenditure and Information and Communication Technology (ICT) expenditure within Corporate Services Business Support capital expenditure.

ActewAGL total ICT capital expenditure

In the current regulatory control period ActewAGL Distribution invested prudently on both operational and other information and communications technologies (ICT); most notably to refresh core operational and corporate systems. Over the period 2014-19 ActewAGL plans to invest $35.7 million in ICT, of which there is $22.4m included in the ActewAGL Distribution regulatory submission for the period 2014-2019. This investment includes extending core systems, establishing new business capabilities, and the replacement of out-dated or obsolete assets. The investment is across three core initiatives: *Network Management and Monitoring*, *Enterprise Wide Services* and *Technology Management & Support* as shown below.

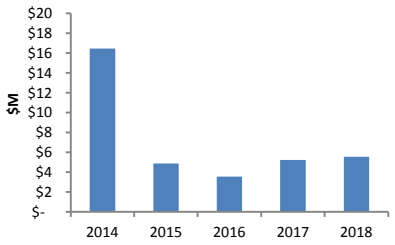
Figure 1 – ActewAGL ICT investment from 2014-2019 (in 2013/14 dollars)



Costs

The investment profile for ICT is high in the early years due to a range of extension projects that logically follow the major Operational Systems Replacement (OSR) and Core Systems Replacement (CSR) programs of work completed in the 2009-2014 regulatory period. The plan provides for ongoing investment into extension projects to leverage ActewAGL Distribution's investment and develop its mobility capability. In the outer years costs include projects to replace/refresh ICT assets as they reach their anticipated useful life.

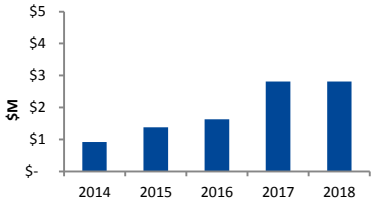
Figure 2 – Spread of ActewAGL ICT investment from 2014-2019 (in 2013/14 dollars)



Economic Benefits

The benefit from the investment grows steadily over the period. These benefits are considered to be economic as they avoid future cost increases associated with maintenance and support of old ICT assets.

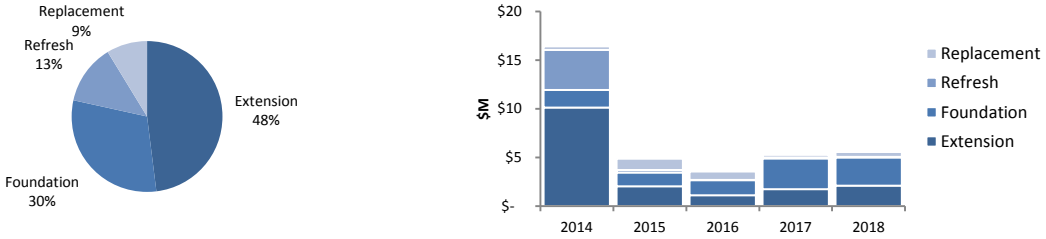
Figure 3 – Spread of benefits resulting from ActewAGL investment in ICT from 2014-2019



Nature of the investment

The quantum of the ICT investment is distributed through four investment types: *Foundational*, *Replacement*, *Refresh* and *Extension*. The distribution reflects the reality of ActewAGL Distribution's current ICT state and demonstrates the stabilisation of ICT investment from a period of large foundational investment. The next regulatory control period investment represents a logical and prudent extension. In alignment with business and ICT strategies, ongoing investment in foundational ICT capabilities is planned to enable the optimisation of business operations.

Figure 4 - Nature of ActewAGL ICT investment from 2014-2019 (in 2013/14 dollars)



On an annualised basis, there is a heavy bias towards extension investment in the first year, reflective of current ICT investment, followed by a bias toward foundation projects in the earlier years with more refreshment and replacement projects in the outer years as the ICT investments depreciate.

Alignment of ICT projections with Australian Electricity Regulator (AER) Categories

To facilitate ease of reference, the ICT capex forecast initiatives have been aligned to the Australian Energy Regulator expenditure categories consistent with the reset Regulatory Information Notice Guidelines.

Table 1 - Alignment of ActewAGL ICT initiatives with AER categories

ICT Initiative	AER Category
Network Management and Monitoring	SCADA and Network Control
Enterprise Wide Services	Non-Network IT and Communications
Technology Management and Support	Non-Network IT and Communications

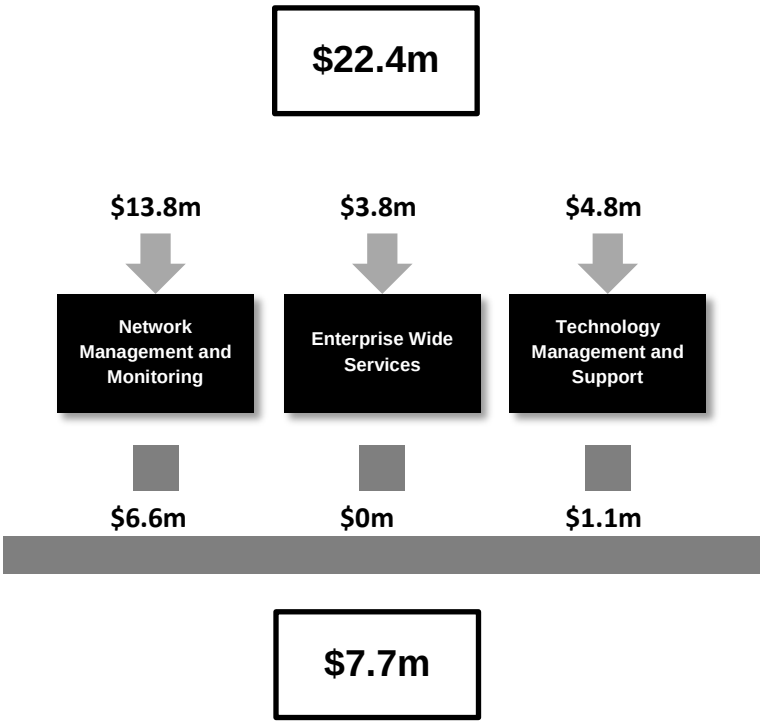
Allocated costs for the 2014-19 regulatory period

ActewAGL Distribution is a multi-utility regulated business incorporating Electricity and Gas Distribution. As a result it is cost effective and efficient for ActewAGL to leverage ICT systems and resources across these utility businesses. Accordingly, expenditure in ICT systems and resources must be appropriately allocated to reflect as accurately as possible the consumption of shared ICT services across the organisation.

The cost allocation methodology has been approved by the AER and is based on the mix of ActewAGL operations. Applying these allocation factors to the proposed investment results in the following allocated cost and benefits to be included as part of the Regulatory Asset Based (RAB) for the ActewAGL Distribution Electricity Network's division.

The costs included as part of the Networks regulatory proposal are summarised in the figure below:

Figure 5- Allocated Costs included in the regulatory proposal (in 2013/14 dollars)



About this Document

This expenditure summary aims to:

- articulate the key ICT investment initiatives in relation to the Distribution Network investment program for the next regulatory period;
- outline ICT investment in terms of capital costs and associated business benefits;
- align with the ActewAGL ICT strategy for the next five years; and
- define the linkages of the ActewAGL Distribution ICT investment to the regulatory asset base.

1 Introduction

1.1 Foreword

ActewAGL Distribution is a unique partnership that builds, owns and maintains a combination of electricity and gas assets. ActewAGL Distribution is the licensed, regulated operator of the Australian Capital Territory (ACT) electricity distribution network. The network comprises the poles, wires and transformers used for transporting electricity to homes and businesses. As the distribution network service provider (Distributor) it designs, constructs, operates and maintains distribution networks for ACT electricity consumers.

The current five-year distribution regulatory control period concludes on 30 June 2014. Recent changes to the Australian energy regulatory regime established a one year transitional control period, commencing 1 July 2014 and ending 30 June 2015, with the subsequent four year regulatory period, from 1 July 2015 to 30 June 2019[1].

1.2 Purpose

The ActewAGL Distribution ICT Expenditure Proposal summary is one of several documents developed and maintained for the management of ActewAGL's Distribution Network.

This expenditure summary has the following objectives:

- To articulate the key ICT investment initiatives in relation to the Distribution Network investment program for the next regulatory period;
- To outline of the ICT investment in terms of capital costs and associated business benefits;
- Alignment with the ActewAGL ICT strategy for the next five years ; and
- Defines the linkages of the ActewAGL Distribution ICT investment to the regulatory asset base.

1.3 Scope

The scope of this ICT Expenditure Proposal summary is focused on the necessary ICT components in support of ActewAGL Distribution's 2014-2109 Regulatory proposal. It is focussed on the solutions required to support ActewAGL Distribution's current and future business environment, including investment from a Network Information Technology, supporting business service and technology infrastructure perspective.

[1] *Note: the subsequent regulatory proposal applies to the entire period 2014-19, i.e. there will be a 'true up' of 2014/15 outcomes during the subsequent proposal determination process.*

The document aligns the ICT investment with the ActewAGL's Strategic direction and ICT Principles. As part of the investment is to form part of the Distribution RAB, it has been assessed to ensure compliance with the requirements of the National Electricity Rules (the Rules) and the AER.

The ICT investment projects considered include:

- Dedicated Technology ICT systems used to maintain and service the distribution network (SCADA and Network Control Expenditure);
- Supporting Business Service Technology ICT systems used to support the day to day operations of the enterprise (Non-Network IT Communications expenditure); and
- Shared ICT systems and infrastructure used by the distribution network and other components of the ActewAGL network (Non-Network IT Communications expenditure) with costs allocated in accordance with the cost allocation methodology (CAM) as approved by the AER.

1.4 Approach

The ICT Expenditure Proposal summary has two main parts. Part A, provides the context to the underlying ActewAGL internal investment. Part B, summarises the investment initiatives proposed for the 2014-19 regulatory period to be included in the Regulatory Asset Base.

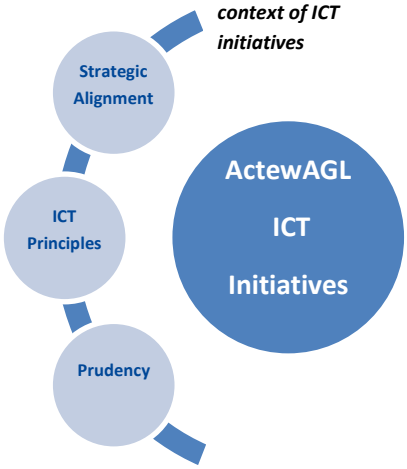


Figure 6 –Strategic context of ICT initiatives

PART A:

- **ActewAGL Strategic Context**: This section identifies ActewAGL's ICT guiding principles and key business strategies that have an impact on investments for the organisation as a whole, these set the direction and focus of investment. It also provides a list of the strategic themes from which investment is assessed.

- **ICT Landscape and Direction**: Outlines the ICT strategic direction for future investment in technology and application solutions. It also provides an overview of the current state of ActewAGL's application and technology environments outlining the current challenges and opportunities. In assessing ICT investment there are a number of ICT principles that need to be considered to ensure that the investment is aligned to the future ICT landscape.

- **Program of Work:** This section provides context of the ICT investment, it outlines the current state of ICT investment within ActewAGL and details the various types of ICT investment and the related ICT drivers. This section provides an investment nature table which illustrates the impact of different types of investment and how this may influence the investment analysis that is the benefit versus risk trade off. It also aligns the proposed investment with the relevant business capability within ActewAGL.

PART B:

- **ICT Investment Program**: This section provides an overall summary of the investment for the regulatory period taking into consideration the nature of ActewAGL Distribution's ICT investment relative to its alignment with the regulatory objectives and ICT roadmap.

- **Initiative Detail**: This section describes the proposed investment initiatives in detail including the background, scope, investment details timeframe and strategic alignment.

1.5 Forecasting Methodology

The Rules require ActewAGL Distribution to notify the AER of the methodology it proposes to use when forecasting capital and operating expenditure for its regulatory proposal.[2] ActewAGL Distribution submitted its proposed expenditure forecasting methodology to the AER in November 2013.

This section sets out ActewAGL's ICT expenditure forecasting methodology for the purpose of:

- Clarifying the AER's understanding of the approach used in forecasting capital expenditure as part of ICT costs included in ActewAGL Distribution's regulatory proposal; and
- Demonstrating that our approach to forecasting expenditure meets the capital and operating expenditure objectives[3] and can satisfy the AER that the forecasts reasonably reflect the capital and operating expenditure criteria[4], having regard to the expenditure factors outlined in the Rules.

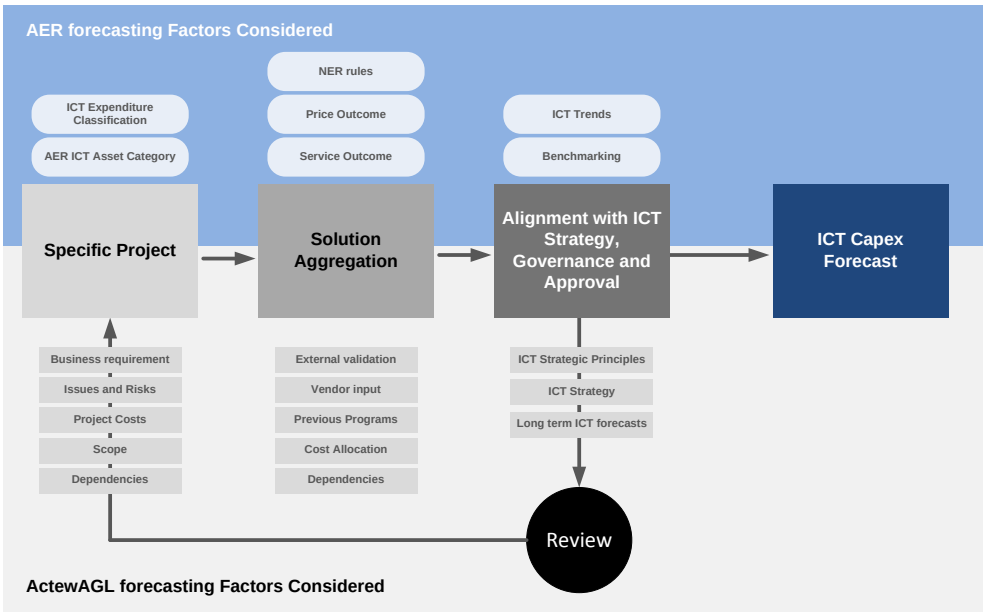
ActewAGL Distribution notes that the methodology represents current expectation of the approach used. While we do not anticipate any changes to this approach, there may be circumstances which require modifications to the forecast methodology adopted.

2 NER, clause 6.8.1A

3 NER, clauses 6.5.6(a) and 6.5.7(a)

4 NER, clauses 6.5.6(c) and 6.5.7(c)

Figure 7 - Summary of approach to forecasting capital expenditure



ActewAGL's approach to forecasting ICT capital expenditure requirements can be explained across a number of dimensions:

- **Specific project -** various estimation processes and methodologies employed for developing ICT forecasts at the project level for specific ICT solutions;
- **Solution consolidation -** process of consolidating these estimates at an initiative level so as to maximise the investment return to ActewAGL and ensure that programs of work are cost effective and at scale;
- **Strategic process -** for alignment of ICT initiatives consistent with the broader organisation ICT strategy and establishing a five year ICT capital expenditure forecast for the next regulatory control period consistent with requirements of the Rules; and
- **Executive governance -** decision making processes that influence short-term and long-term forecasts. The process of review and refinement will occur at various stages leading up to the final submitted regulatory proposal.

The process for forecasting ICT capital expenditure requirements begins with a bottom up project level forecast developed by business units within ActewAGL. The investment driver usually determines the ICT capital expenditure forecast category and, in some cases, the asset type will determine the forecasting approach.

Specific Project Estimates

The forecasting of specific ICT projects is centred on business requirements, ICT asset useful life assessment and any specific regulatory requirements. Individual project estimates adopt a business case approach to capital forecasts using ActewAGL's standard ICT business case template, which includes an assessment of each of the following:

- Strategic context
- Current Situation
- Issues and Risks
- Scope of investment
- Benefits of investment
- Issues and risks addressed
- Economic Benefits
- Costs of the investment (capital and operational expenditure)
- Cash flow analysis
- Dependencies

Solution Consolidation

Aggregation of specific projects into solution and or program level components begins to develop a comprehensive capital expenditure forecast, this is done to ensure that business requirements of the ICT investment are meet and that maximum benefit is obtained from the investment. The aggregation of investments ensures the efficient allocation of capital expenditure.

ActewAGL Distribution undertook an iterative process of refining the forecasts provided at the solution level, using among other things:

- Independent verification of the expenditure forecasting methodology, assumptions and cost inputs;
- Analysis of historical and ICT trends on emerging technologies; and
- Assessment of previous ICT projects.

These techniques allow ActewAGL Distribution to internally scrutinise ICT expenditure into solution level forecasts.

Alignment with strategy and governance

ActewAGL's ICT forecasts take a 10 year view with respect to both capital and operational expenditure. Forecasts are embodied in the corporate plan, relying on extrapolation of historical expenditure levels, essentially a top down forecast with updates applied annually. In addition capital expenditure 10 year plans, are supported by business cases, with increased level of analysis of the likelihood, timing and costs for addressing the triggers (input forecasts) of the investment, essentially a bottom up process covering projects and programs ranging from less than one year to multi year.

ActewAGL adopts a gated approach to its ICT investment governance process. The ICT strategy and ICT principles are applied to investment cases, this analysis provides alignment and facilitates a feedback loop between the plans and input forecasts and the annual forecast budgets, while also continuously testing the rigour of business cases for ICT investment.

Uncertainty is reduced over time as proposed investments and business cases pass through governance gates where the need is re-assessed, assumptions are replaced or re-tested, and

estimates updated with current unit rates. This process results in an ongoing testing of the prudency and efficiency of any investment and the overall budgets.

1.6 Benchmarking

According to an independent benchmarking survey, ActewAGL Distribution's corporate services ICT capital expenditures have consistently performed well below the Australian utilities industry average across various key metrics. This indicates ActewAGL Distribution's relative efficiency and also a level of underinvestment in critical ICT assets compared with industry peers.

1.7 Recurrent v Non Recurrent

Of the total regulatory funded expenditure of $22.4m over the next five year period, non-recurrent expenditure accounts for $15.1m, which is primarily driven by the investment in foundational initiatives to embed mobility and business intelligence capabilities into the business.

Recurrent expenditure of $7.3m provides for the replacement/refresh of ICT assets as they reach their anticipated useful life.

1.8 Current Period Corporate ICT CAPEX

During 2009-14, ActewAGL Distribution expended $14.3m on corporate ICT capex primarily to address the under investment in ICT from previous periods and consolidate the complex ICT environment of disparate, internally developed, heavily customised, unsupported and ageing systems. The investment in core system replacement will enable ActewAGL Distribution to deliver benefits during the next regulatory period and maintain the provision of standard control services to customers through continued ICT reliability and performance.

Actual/forecast corporate ICT expenditure v AER Allowance

Table 2 – Corporate ICT capex from 2010-2014 ($m nominal)

Current Regulatory Period	2009/10	2010/11	2011/12	2012/13	2013/14	Total	Avg
Actual expenditure	1.30	0.40	1.64	3.25	7.67	**14.27**	2.85

The main driver for the additional expenditure in ICT capex during the 2009-2014 regulatory period, than what was anticipated at the time of ActewAGL Distribution's 2008 regulatory proposal, is the major investment in the Core System Replacement Program (CSRP) after an extended period of underinvestment in technology at ActewAGL.

Core System Replacement Program (CSRP) overview

The CSRP is a large business and ICT transformation program, established to mitigate significant technical and operational risks and enable the business to fulfil its strategic objectives.

The CSRP focuses on delivering off the shelf/standardised products that provide ActewAGL with fit for purpose, contemporary ICT environment for its core applications, that is comparable with its industry peers. The CSRP includes:

- Replacement and consolidation of ageing applications for Finance (Oracle) and Billing (Gentrack);
- Upgrade of the HR system (Aurion) and incorporate additional business functionality; and
- Transactional reporting tool (Oracle).

In addition, the program will enable cost efficiencies in hardware, licensing, support and removal of manual processes.

Background and evidence of the need

ActewAGL requires ICT systems to manage its critical operations, address rapid industry change and the changing regulatory environment. ActewAGL's ability to respond to these influences ensures its ongoing success.

However, ActewAGL's ICT investment over the last decade has been minimal. Systems have been maintained within budgetary constraints, leading to a complex ICT environment with disparate, internally built, heavily customised, out of support and ageing systems.

Alignment to objectives of the Rules

Table 3 – Alignment of CSRP to Rules'

CSRP Objectives	Alignment to the NER expenditure objectives
• Accurately report consumption data to retailers	• Meet or manage the expected demand for standard control services over that period;
• Maintain compliance with increasing regulatory and statutory requirements	• Comply with all applicable regulatory obligations or requirements associated with the provision of standard control services;
• Mitigate major risks throughout the business • Manage stability of the ICT environment • Upgrade or implement new solutions without being impeded by out-dated systems	• Maintain the quality, reliability and security of supply of standard control services; and maintain the reliability and security of the distribution system through the supply of standard control services;
• Consistent management of qualifications that will assist the matching of resources to scheduled work and as a result improving safety management	• Maintain the safety of the distribution system through the supply of standard control services.

Non-network ICT is usually a stable cost, but significant underspend in previous regulatory periods requires additional capex to enable the existing environment to function within the AER objectives. Spending in Non-System ICT can lead to productivity and efficiency improvements in the delivery of business services. Therefore a sustainable level of capex (and its related opex), must be maintained to ensure the systems and software are available at an acceptable level of risk so efficiencies are available to the business overall.

Key risks and issues

ActewAGL also faced increasing operational and reputational risk as heavy customisation and inefficient processes, coupled with limited vendor support, continued to impede the ability to modify systems to meet new and emerging business requirements. Consequently, the gap between systems capability and business requirements continued to widen. Many of the architects of internally built systems were no longer employed by ActewAGL, which led to increased business continuity risk.

In summary the key core systems issues in the current environment were:

- Complexity, cost and difficulty to update systems and dependent business processes to meet security patch requirements, business change requirements and integration with new technologies;
- Development software used to customise the core systems is no longer available and it is difficult to source and retain ICT resources with the required technical skills; and
- Core ActewAGL data is fragmented across legacy systems making it difficult to manage the central source of truth and guarantee data integrity.

2 ActewAGL Strategic Context

Historically, Australia's energy sector has been characterised by a stable operating environment. More recently, however, increased regulation, rapid technology change, competition and heightened consumer attention have brought significant changes to the industry. Left unchecked, these social, political and economic influences will continue to present considerable challenges to the sector's ongoing operational and financial performance.

Since the inception of the Joint Venture in 2000, ActewAGL has provided Australia's most reliable network, cheapest electricity prices and the highest customer satisfaction ratings.

Maintaining these significant achievements over the next ten years remains a continuing priority, coupled with embedding a strong safety culture throughout the organisation and ensuring that ActewAGL is strategically placed to meet its future operational challenges and regulatory requirements efficiently and effectively.

2.1 Strategic Outlook

ActewAGL has operated its regulated network businesses and its retail operations very successfully. These existing businesses will continue to be the main focus of ActewAGL over the next ten years. But they will not operate in a "business as usual" manner. The energy business in particular will experience unprecedented change which will inevitably affect the day-to-day operations of ActewAGL's core business and will challenge many of the established work practices.

New opportunities will emerge during this period of uncertainty and volatility, some being opportunities of choice, others being opportunities of necessity driven by the need to defend existing businesses.

As a result, ActewAGL will be a different organisation in ten years' time.

ActewAGL has the following objectives for the current strategic planning horizon:

- ActewAGL to continue to perform its core energy supply business in the ACT and Capital Region to generate acceptable returns to the owners;
- To move into new products and services (on a prioritised basis) in the ACT and Capital Regions that have a synergy with existing operations and capability to ensure that ActewAGL holds a position in any product or service necessary to defend its core business;
- To be agile to up-scale these products and services if they can evolve into a material new line of business with acceptable risk verse reward;
- To further consider what corporate vehicle/structure could be used to generate joint growth opportunities between the respective ActewAGL partnerships; and
- ActewAGL's ICT strategy aligns with the organisations strategic direction as technology plays a major role in supporting the business operations. To meet the emerging challenges and regulatory requirements will require greater adoption and integration of technology into ActewAGL's operations. Accordingly, future ICT investment must be planned, considered and appropriate for the business as a whole.

2.2 Key Strategic Themes

The ActewAGL Board endorsed Strategic Outlook sets out ActewAGL's objectives for the 10-year period and in particular, identifies priorities for the initial planning horizon (to 2015). ActewAGL's initial priorities include embedding an effective safety culture throughout the organisation, finalising a series of internal restructures and improved information management systems, ensuring the business is well-positioned to respond to competition and procuring satisfactory outcomes in upcoming regulatory reviews. [5]

Table 4 - Key Strategic Themes

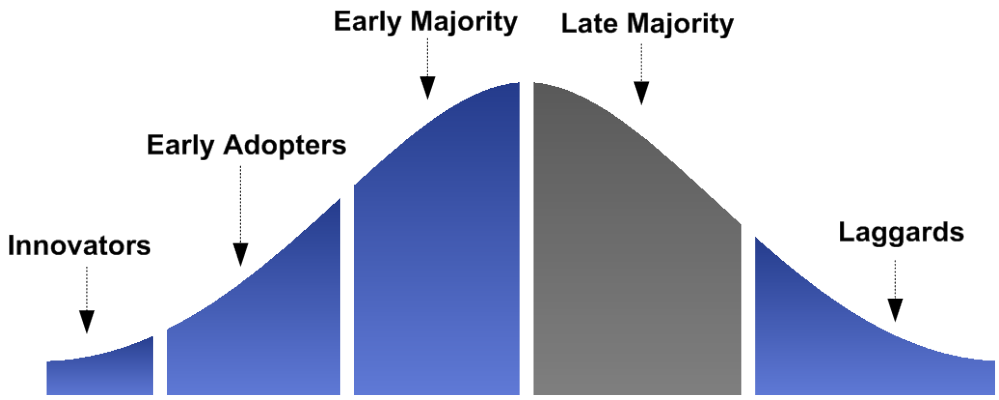
Strategy	Rationale
Stay Number One	Ensure the business is well-positioned to respond to increasing competition in the retail market and changed customer service requirements.
Agility	Finalise and implement the internal organisational restructures and replacement of legacy information management systems necessary to ensure the business is equipped to operate effectively and efficiently in the future.
Safe Workplace	Embed an effective safety culture throughout the business and completing the implementation of a comprehensive environment, health, safety and quality strategy.
Regulatory Compliance	Achieve regulatory review outcomes that meet business needs.

2.3 Strategic Approach to Investment

ActewAGL's approach to adopting new technologies needs to be appropriate for an industry where ICT is not a competitive differentiator at this point in time. That is, currently while technology may improve productivity and safety of the business it does not provide competitive differentiation at this point in time. Obviously this situation could change and change rapidly in which case this ICT strategy and ActewAGL's ICT investment approach will be revised.

[5] Source ActewAGL Annual Report 2011-12

Figure 8 – Strategic approach to investment



Presently ActewAGL needs to find the 'sweet spot' to avoid the cost of early adoption but keep up with customer and staff expectations. This spot is essentially the "Late Majority" on the technology adoption curve. Earlier on the curve would require greater IT investment, quick decision making and increased risk which would be inconsistent with the size, market and joint venture structure of ActewAGL. Later on the curve may expose ActewAGL as it would lag behind the industry and may fail to meet customer expectations.

Consistent with its size, market and ownership structure ActewAGL will follow a conservative "Late Majority" path to technology adoption where technology does not offer a strategic competitive advantage.

3 ICT Landscape and Direction

3.1 ICT at ActewAGL

ICT is a key part of how ActewAGL meets it core purpose of providing energy services to customers. It is used, in concert with people and processes, to provide a comprehensive, efficient and effective integrated set of business capabilities. ICT encompasses both the technology managed and owned centrally by the Business Systems Division (BSD) and the technology managed directly by the distribution network to meet specific business requirements.

Table 5 - Key areas of current and future landscape

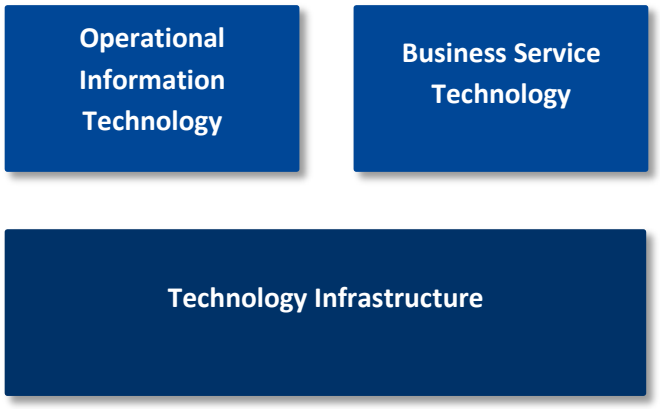
Current Landscape – 1 July 2014	Future Landscape – 1 July 2019
• More than 100 specialist technology staff across the enterprise. • More than 451[6] business applications and supporting applications. • Communications infrastructure including Wi-Fi, radios and microwave. • A range of mobile and desktop computing technologies including desktop processors, Smart Phones, Tough Books, standard laptops and tablets. • Two data centres –Fyshwick and Greenway. • A Crisis Management facility. • A network including five main work sites and over 320 remote sites across the network. • An internal information and document repository enabled through an intranet.	• Consolidate and streamline the number of specialist technology staff across the enterprise. • A reduction in legacy business and supporting applications. • Communications infrastructure including Wi-Fi, radios and microwave. • A range of mobile and desktop computing technologies including desktop processors, Smart Phones, Tough Books, standard laptops and tablets. • Increased mobility capabilities for the organisation. • Three data centres – Fyshwick, Greenway and Civic. • A Crisis Management facility. • A network including five main work sites and over 320 remote sites across the network. • An internal information and document repository enabled through an intranet. • Business Intelligence capabilities. • Refresh of IT hardware and technologies (such as virtualisation).

[6] Application Rationalisation Review (June 2013) – PricewaterhouseCoopers)

3.2 ICT Domains

ActewAGL loosely divides ICT into three main domains: Operational Information Technology, Business Services Technology, and Technology Infrastructure.

Figure 9 – ICT domains



Operational Information Technology domain covers the ICT assets used in the maintenance, operation, reporting, planning, design and augmentation of the ActewAGL distribution network.

Business Service Technology domain covers the ICT assets used to support ActewAGL's business operations. This includes the finance, human resources and reporting functionality.

Technology Infrastructure domain covers the underpinning ICT infrastructure. This includes the desktops, operating systems, networks, servers and communications.

3.3 Current Applications

ActewAGL's full application landscape consists of 451 applications with 216 in-house developed applications and 153 purchased server-based applications, 22 online, 26 Windows based utilities and 30 applications specific to ActewAGL[7].

The significant applications in the distribution landscape are listed in the following table:

Table 6 – Current Core Applications

Domain	Core Applications
Operational Information Technology	Riva DS GIS/ArcFM/Designer Schneider-Electric ADMS Azteca Cityworks Gentrack Velocity Advanced Metering Infrastructure Engagement & Information Portal WASP
Business Service Technology	Oracle Business Suite TM1 Oniqua Analytics Solution Aurion Payroll Aurion Web Recruitment
Technology Infrastructure	Microsoft Windows Microsoft Office ActewAGL Internet [www.actewagl.com.au] Citrix SharePoint Servers Networks Databases Desktops

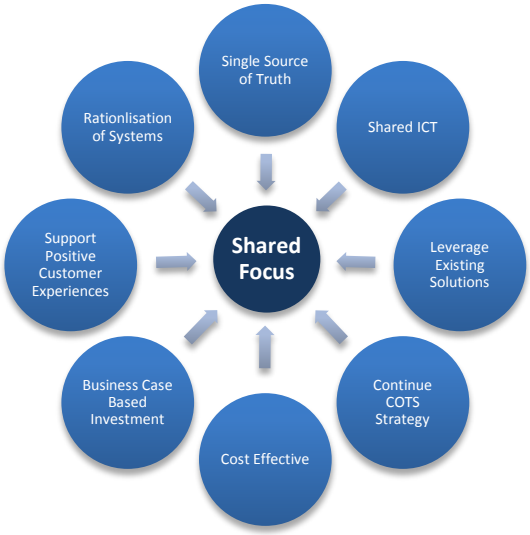
These applications support the core business functions of ActewAGL Distribution. Due to the ICT investment history and organic growth of the business, a level of duplication and the lack of integration exists. This results in a landscape that is poorly suited to supporting new business initiatives such as process efficiency and simplification of systems. This environment also places significant challenges on the implementation of solutions such as field force effectiveness, customer information and analytics due to the fragmented data model and the shortcomings in data integrity.

[7] PwC | ActewAGL – Application Rationalisation Review (June 2013)

3.4 ICT Strategic Principles

ActewAGL's business divisions have identified eight common themes that together form a shared ICT focus for ActewAGL. The aim of this shared focus is to ensure that ICT investment and decisions are in the best interest of the joint venture, avoid duplication, make best use of existing services and are aligned to common standards. The focus reflects that we are building a technology platform to support future growth, but not pursuing expensive 'best of breed' or 'leading edge' solutions.

Figure 10 –ActewAGL ICT strategic principles



Single Source of Truth

Capture data once and then make it available where needed.

Shared ICT

Shared ICT assets, solutions and services should be managed in accordance with the relevant and applicable standards and other legislative and regulatory requirements so they can be shared across the business. This enables ICT to be adopted across the business to realise benefits at minimal incremental cost.

Rationalisation of Systems

Where possible use single solutions across the entire business rather than duplicating functionality in each area of the business to reduce technology complexity and deliver associated benefits, savings and efficiencies.

Cost Effective

While considering appropriate levels of risk, make cost effective choices for the delivery and support of ICT solutions. Where possible consolidate and centralise ICT service delivery to achieve economies of scale and other synergies.

Support Positive Customer Experiences

ICT solutions and services should be delivered with a customer centric focus to ensure a positive customer experience.

Business Case Based Investment

All ICT investments need to be supported by a business case. Business cases for all ICT investment are to include initial and full-cycle costs including support and maintenance.

Leverage Existing Solutions

Look for ways to leverage and expand the use of existing systems to drive value from ActewAGL's existing ICT investment.

COTS Strategy

Where re-use of existing solutions are not practical, buy COTS and only build custom solutions as a last resort.

In developing the ICT expenditure proposal, the ICT strategic principles were refined to make the choice between valid alternatives. In assessing the ICT investment for the next regulatory period all projects were assessed to ensure that the investments aligned to ActewAGL's ICT direction. This refinement is outlined in the table below:

Table 7 – Refined ICT Principles for Regulatory ICT Investment

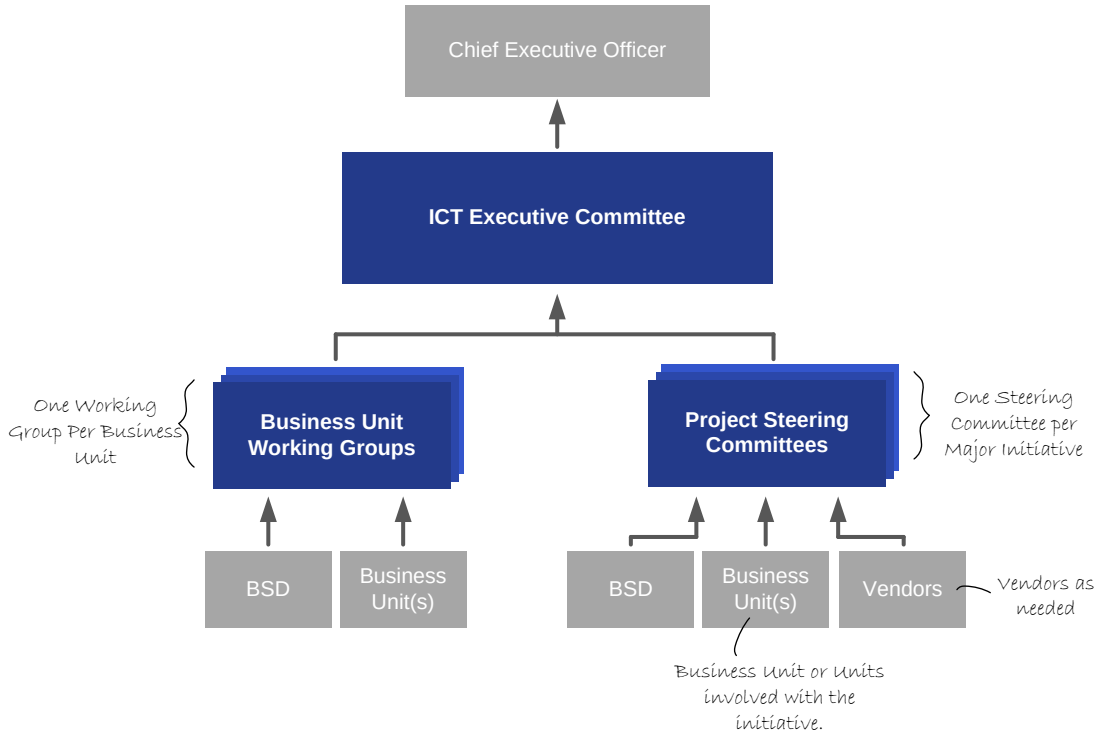
ICT Principles	Rationale
Best fit solutions rather than best of breed	The principle specifies that where possible a vendor-supported software package is selected, designed to be configured and extended by ActewAGL i.e. COTS, with minimum levels of development/customisation. This is driven by the associated benefits of reduced ongoing operational requirements/resources for system maintenance and support, ongoing development via future system upgrades. The COTS principle also extends to aligning business processes with COTS solutions, rather than customising software to meet existing business practices and processes.
Reduce ICT environment complexity	Consistent with good industry practices, the less is more principle introduces a focus on strategic relationships with core solution providers to establish "platforms" that address multiple business and / or technical requirements. This enables common platforms to be deployed for ActewAGL. The platform approach leads to increased agility and lower costs as it simplifies the process to address identified requirements (by adopting and extending the use of the established platform) rather than entering an extended options analysis phase for each initiative and purchasing additional software and infrastructure for new business requirements. Other benefits include fewer vendors for ActewAGL to manage, a simplified overall support environment and decreased solution complexity.

ICT Principles	Rationale
Capture data once	The principle of capture data once is focussed on minimising the multiple handling of data related to a business event or transaction. When a business event takes place (for example, a field service is performed), data about the event should be captured at the point where and when it occurred, and information about a business object (for example an asset) should be captured at the same point. The data for both events and objects does not need to be re-captured and/or re-entered. Capture data once leads to increased business efficiency through reduced data handling and by placing the right information in the right person's hands at the right time. It also supports improved data integrity through a consistent view of data about a business object or event. This ensures safety and integrity of networks.
Consolidated, Effective and Integrated Systems	The principle advocates an environment where duplication of functionality and data will be reduced, information will have a 'single source of truth'. This will increase operational efficiency in maintaining the integrity of network data and enhance the accessibility of information. Appropriate levels of systems integration will provide productivity improvements; automate processes and remove data double handling.
Geospatially-Centric	Given the nature of electricity distribution, a geospatially-centric operational platform provides the most effective method for tracking distributed assets, customers and service deliverables. A geospatial operational environment also enables location intelligence and network connectivity to be accurately maintained, providing end-to-end visibility of the distribution network.

3.5 ICT Governance

The ActewAGL ICT governance structure is designed to provide a basis to manage and deliver ICT solutions. The governance structure is intended to reduce complexity in decision making, whilst putting in place the necessary controls to reduce ICT risk across ActewAGL.

Figure 11 – ActewAGL ICT governance framework

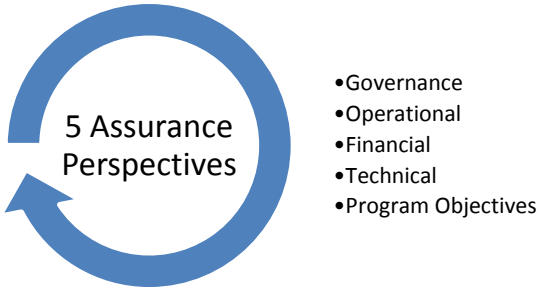


This governance arrangement serves a dual purpose to set the future direction of ICT and resolve issues that may arise from business as usual operations as well as monitor and oversee the delivery of major ICT initiatives. To be effective the ICT governance framework needs to be applied to all ActewAGL ICT Systems.

Assurance Mechanisms

ActewAGL has a number of safeguards in place for the assurance of the ICT investment. The below five assurance perspectives are broadly applicable to transformation projects (whether ICT-centric or otherwise) and are designed to cover the program lifecycle from initiation to go live and subsequent implementation support.

Figure 12 – ActewAGL assurance mechanisms for ICT investment



Assurance Perspective	Perspective Overview
Governance	Tracking that the appropriate program controls and governance framework are in place and effective.
Operational	Tracking that the appropriate business process changes are being addressed and that user needs are being met.
Financial	Tracking that the processes adopted to manage program costs are robust and accurate.
Technical	Tracking that the solution is technically appropriate - translation of business needs into working technical solutions.
Program Objectives	Tracking that the project remains viable and in line with core objectives.

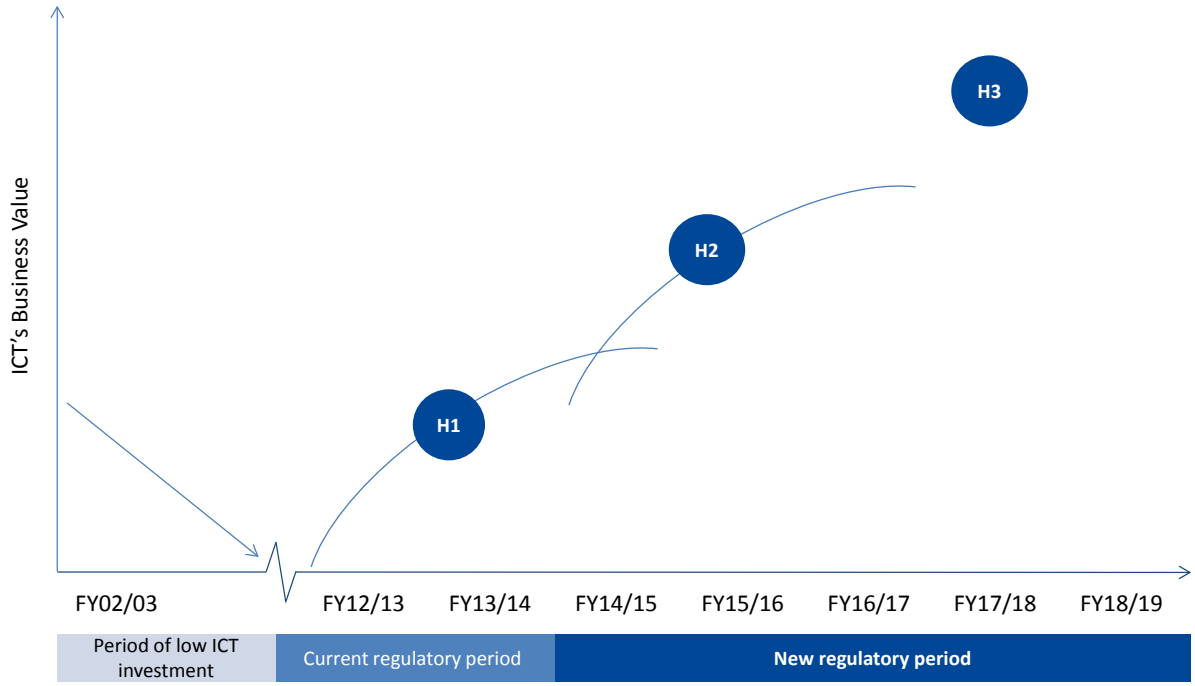
4 Program of Work

ActewAGL's Ten Year Strategic Outlook adopts three planning horizons. These phases are Regeneration (years 1 - 3), Consolidation (years 4 – 7) and Growth and Innovation (year 8 and beyond). Initiatives undertaken within these horizons respectively focus on; stay in business activities, realising the regeneration benefits and pursuing new business opportunities.

Figure 13 – ActewAGL strategic planning horizons

4.1 ActewAGLs ICT Future Direction

Figure 14 – ActewAGLs ICT Future Direction



Period of low ICT investment

Over the last decade there has been low investment in ICT (with the exception of the last two years of the current (2009-14) regulatory period). As a result the value of ActewAGL's previous ICT investments steadily declined during this period with systems being "optimised" within allocated budgetary constraints, resulting in an overly complex patchwork of disparate, internally built, heavily customised, out of support and ageing systems.

After a decade of low investment, ActewAGL was beginning to suffer from reduced business efficiency and faced increasing risks associated with system sustainability and limited flexibility to adequately adapt to concurrent industry and operational change. As a result and during the current regulatory period ActewAGL focused on the value of a modern ICT capability for the effective operation of its business and has invested accordingly. In particular ActewAGL has realised that its core systems could no longer be expected to meet future business requirements which, coupled with the general state of the IT environment, posed significant risks. Based on this recognition, ActewAGL took action through a new program of ICT investment.

H1

Foundation – The first horizon of the current ICT investment has been to renew core systems through the Corporate and Operations Systems Replacement Programs:

- **OSRP**– a transformational initiative designed to equip ActewAGL Distribution with a modern network management capability based on a new SCADA system (Telvent), a new maintenance planning system (RIVA) and works management system (Cityworks).
- **CSRP** – a transformational initiative to replace and consolidate systems for business critical functions. These solutions are for ActewAGL Distribution Billing, Financial Information Management System (FIMS) and the Human Resources Management Information System (HRMIS).

The foundational programs will:

- **Establish & consolidate core systems**, via replacement of obsolete business systems to establish a foundation of business systems in terms of authoritative data source and primary process enablers.
- **Integrate business systems** to further automate business process execution and maintain data quality of critical transmission asset and network information.
- **Prevent increases in the cost to support**, by provisioning for continuous functional improvement, system and infrastructure upgrades and replacements.

H2

Extension and exploration – The second horizon focuses on extending refreshed core systems to automate more business functions and to start building integrated capability to further reduce costs and improve safety and efficiency. This will be done within business functions and across functions. During this period ActewAGL will trial new mobility solutions to verify their value and fit.

H3

Optimise – The third horizon will see ActewAGL optimise its ICT investment by embracing the application of new suite of technologies to unlock new business efficiencies and to meet customer's high service expectations.

4.2 Nature of Investment

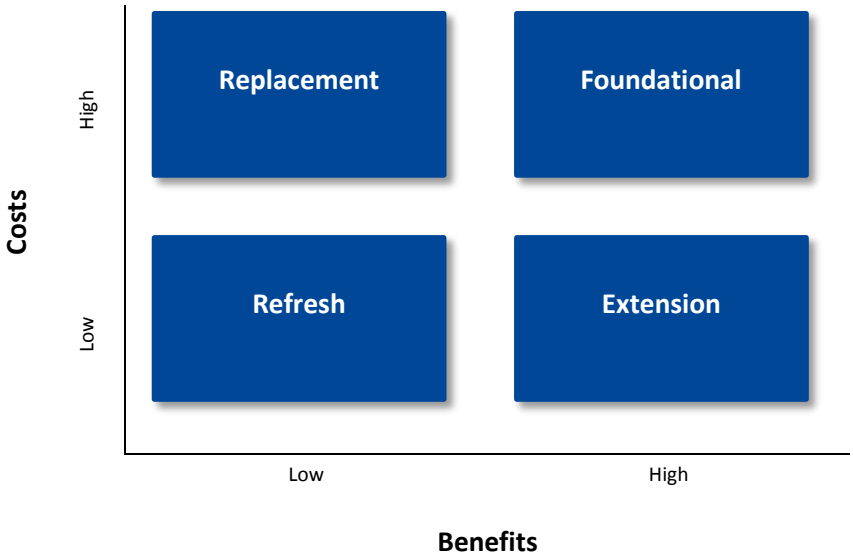
Over the next regulatory period ActewAGL Distribution's ICT investment will span a range of investment types driven by a combination of external and internal factors, and the relevant horizon that the organisation may be in. The following table provides a brief description of the different types of investment, the outcomes sought and the impact on economic benefits.

Table 9 - Investment Nature

Investment Nature	Description
Foundation	This phase of ICT investment typically establishes the core ICT capability and sets up the enterprise for future expansion. Typically these projects involve the adoption of Enterprise Resource Planning core capability which meets core business needs. In addition foundational projects take advantage of new technology which can add value to the enterprise via future opex reductions and or enable process re-engineering.
Extension	The extension phase of investment is where the core solutions are expanded and integrated, this is usually to drive information consolidation and integrate systems to improve access to data throughout the enterprise and optimise end to end process design. Whilst counter intuitive, extension projects also seek to consolidate the systems footprint within the enterprise typically leveraging core solutions to execute business processes within the same solution set to reduce future opex and systems maintenance costs.
Refresh	The refresh investment phase ensures that the ICT asset base remains contemporary and supported. Ongoing solution development and contemporary solutions are undertaken by software vendors; the value to the organisation is that the research and development cost is spread over a number of organisations. Whilst a required form of investment the benefits associated with this type of investment is seen as a future cost avoidance investment, often driven through the expiration of support and maintenance arrangements.
Replacement	Enterprise ICT software has a useful life of typically 5 years. The replacement investment phase acknowledges asset updates where the asset itself is near or past its reasonable functional life. This is indicated by an increasing rate of failure, or difficulty finding parts or services. As this is typically a like for like replacement often the benefits are incremental or future cost avoidance. The risk of failing to replace assets is often a key investment driver.

The impact on the different elements is summarised in the figure below.

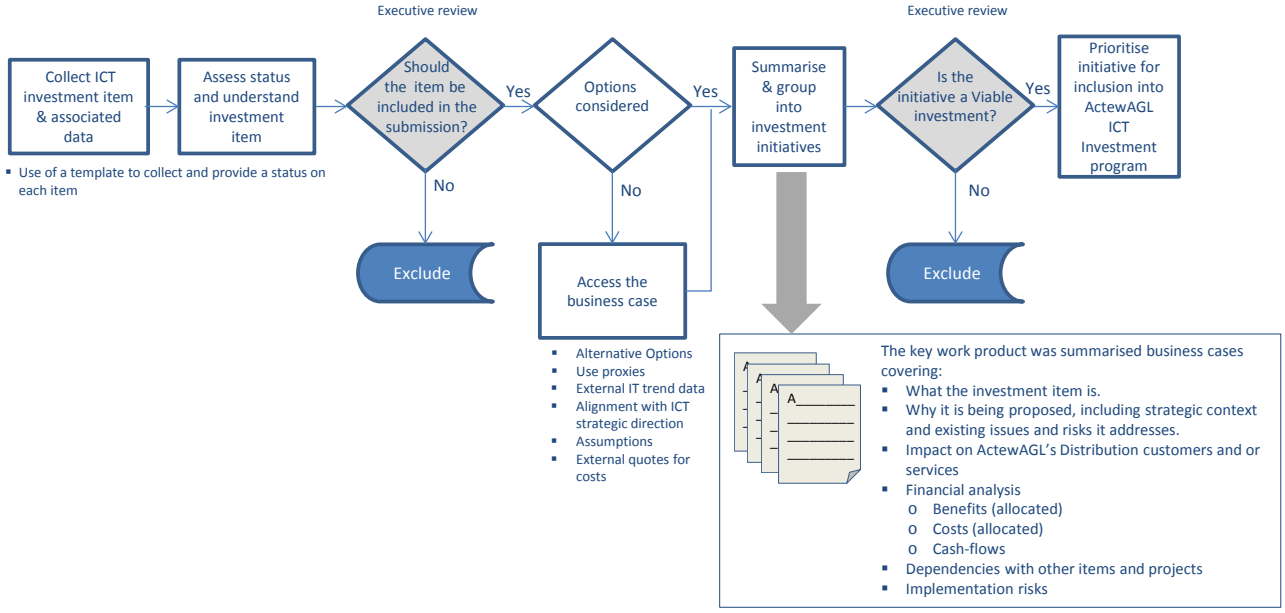
Figure 15 – Correlation between investment nature, costs and benefits



4.3 Process for making investment decisions

ActewAGL has adopted a structured approach to determine the ICT expenditure included in its 5 year ICT investment roadmap. In developing the ICT capital expenditure summaries ActewAGL Distribution has ensured that proposed expenditure meets the business needs and is in accordance the NER rules.

Figure 16 – Process for developing capital expenditure summaries for ICT projects



5 ICT Investment Program

Whilst the ICT investment is ultimately made of many smaller projects the aim is to not invest in piecemeal standalone projects that do not deliver the intended benefits. While this approach may have worked in the past when implementing individual solutions, it results in patchy disparate systems with poor interoperability. ICT investments that are underpinned by enterprise resource planning solutions must support each other, must integrate and must enable ActewAGL Distribution to better serve its customers. By focusing on COTS-based solutions the planned set of initiatives provide a comprehensive program of ICT works which interoperate, are prudent and align with the ActewAGL strategic outlook, the ActewAGL Distribution Strategy and the ICT strategy.

5.1 Core Regulatory ICT Initiatives

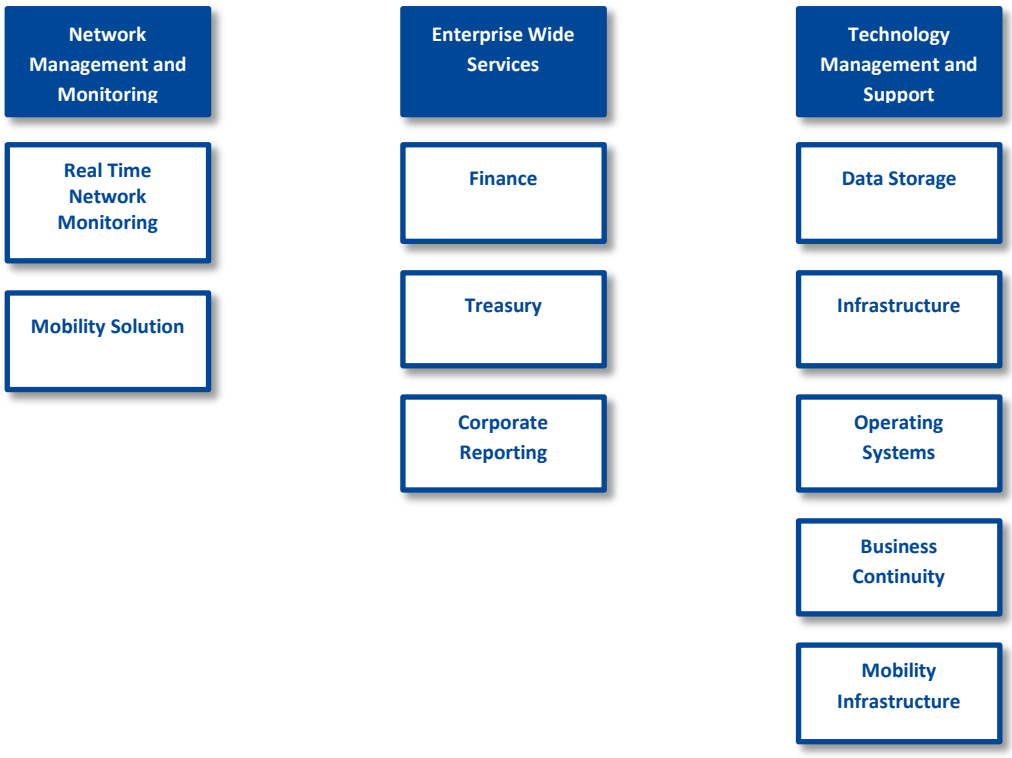
ActewAGL Distribution has grouped its regulatory ICT investment into three core initiatives. Each initiative combines a series of dependant and related projects together under one umbrella to deliver, extend and improve core business capabilities. The initiatives are:

- Network Management and Monitoring;
- Enterprise Wide Services; and
- Technology Management and Support.

Business Capabilities

Each initiative will deliver, extend and improve a range of business capabilities.

Figure 17 – Summary of ICT initiatives and associated business capabilities



Note: Only business capabilities impacted by planned ICT investments have been included.

Network Management and Monitoring

The networks management and monitoring initiative covers ICT projects that support the maintenance, operation, reporting, planning, design and augmentation of the ActewAGL Distribution network.

The systems that form this initiative support distribution network operational information technology domain; and are used in the distribution network environment. They seek to extend the past foundational ICT investment to integrate the network business capability. The future state under this initiative is for a completely integrated system providing an end-to-end, geospatially-enabled platform for controlling the network, managing assets, designing and augmenting the network and delivering services to customers.

A single platform will provide organisation-wide visibility of the distribution network, asset information and customer experiences to support the ActewAGL Distribution Strategy. In addition the introduction of field force mobility is designed to enhance the efficiency and effectiveness at mobile locations via a mobility solution.

Enterprise Wide Services

The enterprise wide services initiative spans ICT Systems that support the administrative, back office functions within ActewAGL, such as Finance and Treasury Management. The ICT investment projects ensure that the systems are better integrated consistent with the overall ICT principles of reduced complexity and enterprise architecture footprint.

Technology Management and Support

The technology management and support initiative includes the enterprise wide ICT infrastructure and the set of specialised solutions associated with ICT network monitoring, development, maintenance planning, tasking and work documentation.

The ICT investment projects are largely centred on adopting ICT trends and emerging technology. Consistent with the core ICT principles and strategic focus, the projects are centred on reducing the total number of applications and adopting an enterprise approach to optimise the utilisation of ICT investment. For example the introduction of a secure and effective mobility infrastructure that can be leveraged to support a range of mobile business processes such as enabling a more effective networks field force.

Consistent with effective asset lifecycle management the initiative also includes provision for replacement of aged infrastructure and ensuring capacity will meet future demands on the infrastructure.

5.2 Alignment with Regulatory Objectives

The National Electricity Rules (NER) sections 6.5.6 and 6.5.7 describe the objectives, criteria and factors of the economic regulatory assessments on operating and capital expenditures for electricity distribution services. ActewAGL Distribution has used these rules in determining the appropriateness of each investment initiative for inclusion in its regulatory submission.

Figure 18 – Expenditure objectives

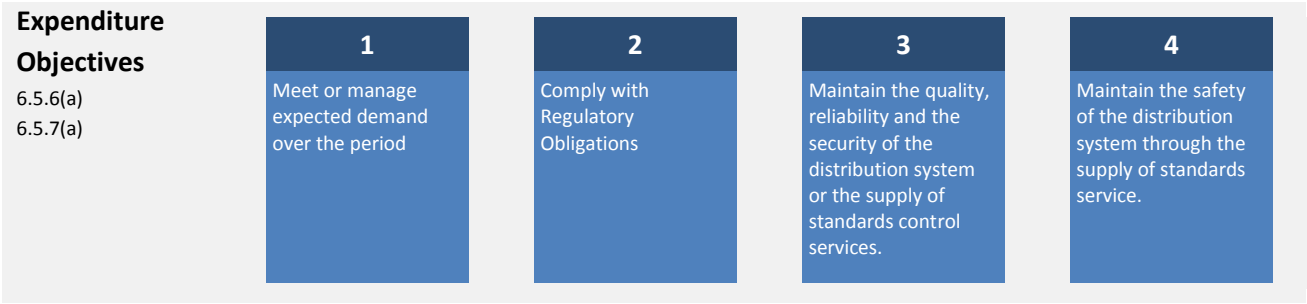


Table 10 – Alignment of ICT initiatives to expenditure objectives

ICT Initiative	AER Category	Expenditure Objectives	Criteria
Network Management and Monitoring	SCADA and Network Control	(3) Maintain the quality, reliability and the security of the distribution system or the supply of standards control services. (4) Maintain the safety of the distribution system through the supply of standards service.	• Consistent with ActewAGL Distribution's approach to asset management the implementation of High and Low voltage monitoring systems (SCADA) are considered to be the most cost effective means of meeting regulatory requirement of reliable and safe supply. • The costs associated with SCADA are considered to be prudent and in accordance with the wider distribution industry. • Cost estimates have applied the ActewAGL forecasting methodology and have been validated using vendor provided costing's.

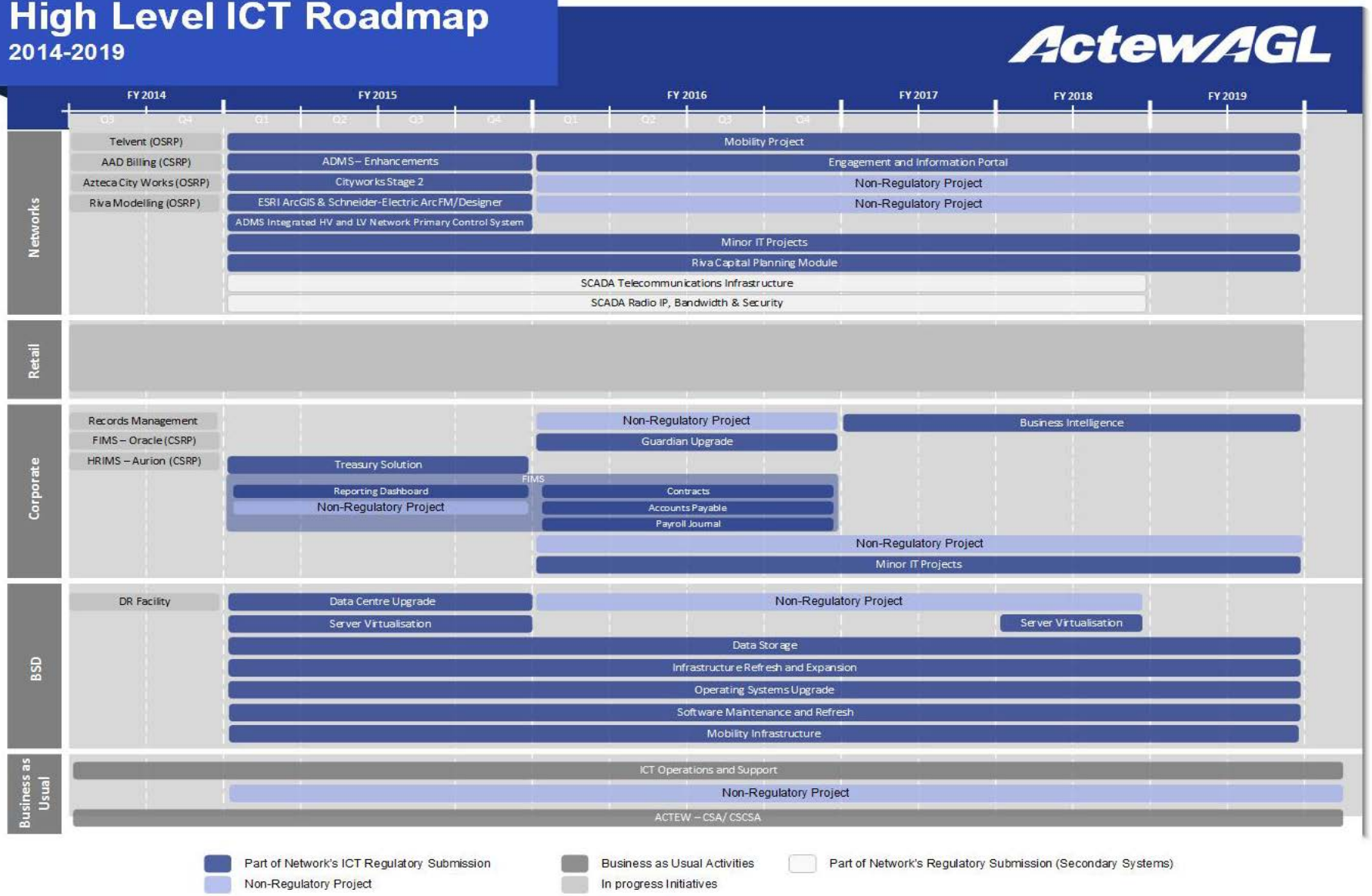
ICT Initiative	AER Category	Expenditure Objectives	Criteria
Enterprise Wide Services	Non-Network IT and Communications	(3) Maintain the quality, reliability and the security of the distribution system or the supply of standards control services.	• ActewAGL's data and information management will be facilitated by introduction of business intelligence and the maintenance of contemporary back office systems (Finance and HR). This is required to ensure that customer and corporate information can be efficiently accessed and that data is protected in a cost effective manner. • The costs associated with enterprise wide solutions are considered to be prudent and in accordance with industry norms. • The estimates for enterprise wide services have been developed using data from ActewAGL's recent ICT implementations and validated using system integrators indicative costing as a means of independent validation.
Technology Management and Support	Non-Network IT and Communications	(3) Maintain the quality, reliability and the security of the distribution system or the supply of standards control services.	• ActewAGL's ICT infrastructure and strategy of adopting COTS solutions provides a long term efficient mechanism to manage ICT throughout the organisation. The planned program of solution rationalisation and infrastructure is an efficient and effective means of data processing and secure storage. • The costs associated with ICT infrastructure refresh are considered prudent given the previous capital expenditure. • The estimates for ICT infrastructure refresh have been developed using ActewAGL current vendor information and infrastructure choices.

5.3 ICT Investment Roadmap

A technology roadmap has been developed that includes both the regulatory and non - regulatory ICT investment for the next five years.

Figure 19 – High level ICT roadmap (overpage)

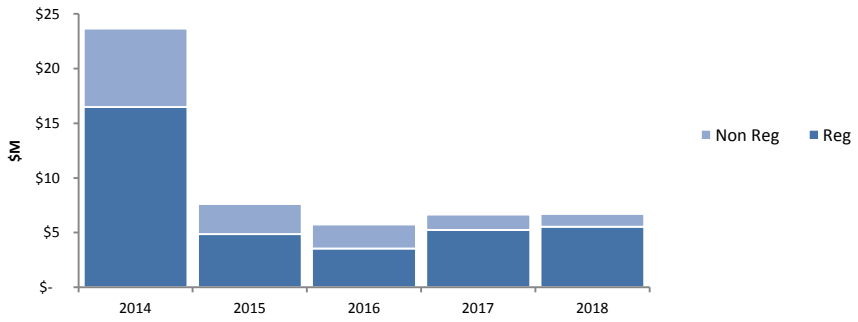
High Level ICT Roadmap
2014-2019



5.4 Total ICT Investment

Combining all ICT investment, ActewAGL has developed a five year ICT capex.

Figure 20 – ICT investment for next 5 years (reg and non reg funded)



ActewAGL Distribution's ICT investment is skewed to the initial years of the next regulatory period. This is direct result of the need to ensure a smooth transition from the major OSR and CSR programs of work.

With team structures and governance processes already well established, this planned ICT investment is a logical extension to current work as this will allow ActewAGL to utilise existing vendor contracts and retain resourcing levels with the in-depth knowledge of the new systems gained throughout the OSR and CSR journey.

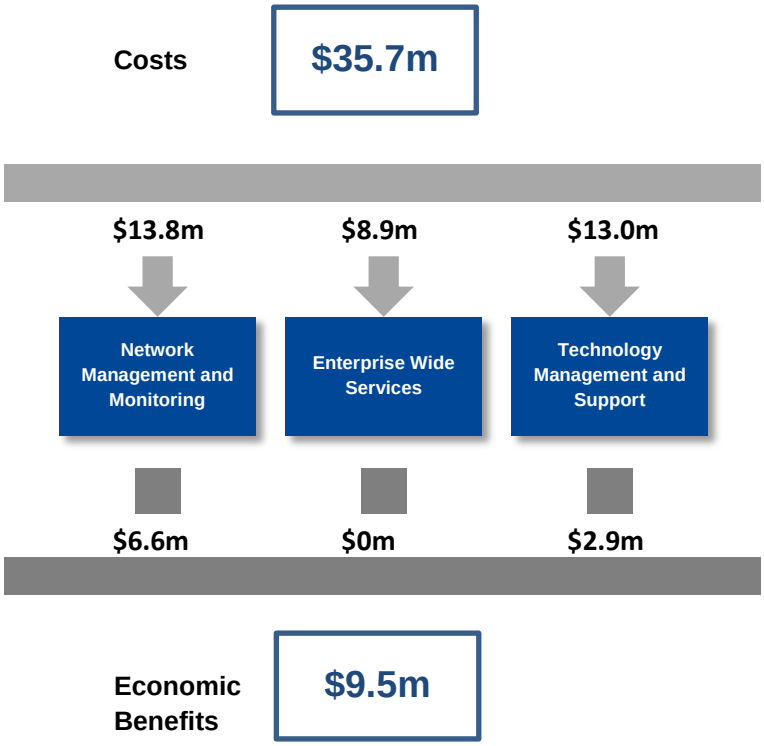
The initial year also contains a number of infrastructure projects which are as a direct result of the OSR and CSR programs including a refresh of the primary data centre to provide disaster recovery capabilities to ensure reliable and stable systems. These infrastructure projects by their nature are capital intensive.

The ICT expenditure stabilises in year two and provides for the ongoing maintenance of the established IT environment.

6 Initiative Detail

ActewAGL Distribution plans to invest $35.7 million into the ICT asset base for the 2014-2019 regulatory period. This investment ranges from the establishment of new business capabilities through to the replacement of out dated assets. The investment is across three core initiatives of Network Management and Monitoring, Enterprise Wide Services, Technology Management and Support.

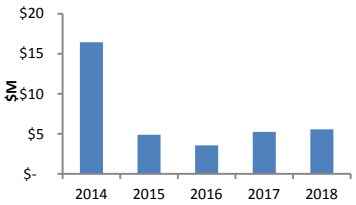
Figure 21 – ActewAGL ICT investment from 2014-2019 (in 2013/14 dollars)



Costs

The investment profile for ICT is higher in the early years due to a range of extension projects that logically follow the major OSR and CSR programs of work completed in the current (2009-2014) regulatory period. The ICT strategy provides for ongoing investment into new foundation projects to increase ActewAGL Distribution's mobility and business information capabilities. In the outer years costs include projects to refresh ICT assets as they reach their anticipated useful life.

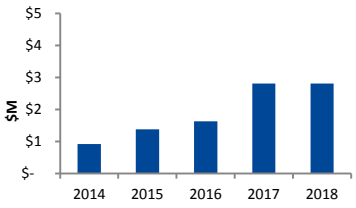
Figure 22 – Spread of ActewAGL ICT investment from 2014-2019 (in 2013/14 dollars)



Economic Benefits

The benefit from the investment grows steadily over the period. These benefits are predominantly considered to be economic as they avoid future cost increases associated with maintenance and support of old ICT assets.

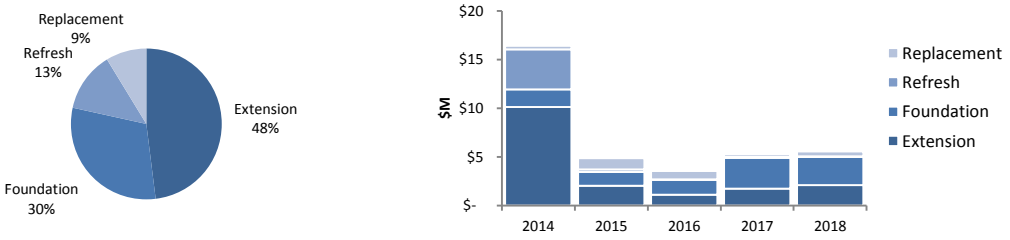
Figure 23 – Spread of benefits resulting from ActewAGL investment in ICT from 2014-2019



Nature of the investment

The quantum of the ICT investment is distributed through the various types: *Foundational*, *Replacement*, *Refresh* and *Extension*. The distribution reflects the reality of ActewAGL Distribution's current ICT state and demonstrates the stabilisation of ICT investment following a period of large replacement and foundational investment. In alignment with business and ICT strategies, ActewAGL continues to invest in foundational ICT capabilities to further add value or enable the optimisation of the efficiency of business operations.

Figure 24 - Nature of ActewAGL ICT investment from 2014-2019 (in 2013/14 dollars)



On an annualised basis, there is a heavy bias towards extension investment in the first year, reflective of where ActewAGL Distribution is at with its core systems upgrades, followed by a bias toward foundation projects in the earlier years with more refreshment and replacement projects in the outer years as COTS investments depreciate.

Recurrent v Non Recurrent

Of the total regulatory funded expenditure of $22.3m over the next five year period, non-recurrent expenditure accounts for $15.1m, which is primarily driven by the investment in foundational initiatives to embed mobility and business intelligence capabilities into the business. Recurrent expenditure of $7.2m provides for the replacement/refresh of ICT assets as they reach their anticipated useful life.

Regulatory Expenditure Overview

During 2009-14, ActewAGL Distribution expended $14.3m on corporate ICT capex primarily to address the under investment in ICT from previous periods and consolidate their complex ICT environment of disparate, internally developed, heavily customised, unsupported and ageing systems. The investment in core system replacement will enable ActewAGL Distribution to deliver benefits during the next regulatory period and maintain the provision of standard control services to

customers through continued ICT reliability and performance.

Base case ("Do nothing" option)

ActewAGL Distribution's base for its core systems would be to maintain the then existing environment with increased opex and risk of not meeting the expenditure objectives Listed below are the issues and associated risks that were identified in the then existing environment as well as the alignment to the NER Expenditure Objectives that were at risk of not being met.

Table 11 – Risk of "Do nothing"

Current State	Risk / Impact	Business / ICT Impact	Project affected	NER Expenditure Objective
Inefficient compliance and control	• Manual processes and workarounds for daily operational billing tasks • Compilation of regulatory submission is labour intensive	Business	Billing	Maintain compliance
Disparate systems and limited integration	• Disparate data sources increases risk of non-compliance with statutory requirements • Manual processes increase risk in addressing market rule changes • High costs to meet regulatory reporting obligations	Business / ICT	Billing	Maintain compliance Meet demand Maintain quality
Limited application Support	• Unstable IT platform due to fragmented landscape with manual workarounds • Increased inability to source support staff	ICT	All	Meet demand Maintain quality
Limited capability	• Limited ability to undertake procurement functions and analysis	Business	Finance	Meet demand
Limited Integration	• Manual processes developed to meet business needs • Lack of integration with other systems	Business/ ICT	Finance / HR	Meet demand Maintain quality
Unsupported application	• Unsupported platform • Inability to upgrade and decommission a significant number of other applications • Increasing inability to interface with other applications	ICT	Finance	Maintain Quality
Heavily customised	• Expensive and difficult to upgrade • High support and maintenance costs • Increased Complexity	ICT	Finance	Meet demand; Maintain quality
Current modules underutilised	• Disparate data sources result in inconsistent data management of contractors and employee training records • No visibility of contractors and employee training data to meet compliance obligations • Multiple manual processes result in higher costs to support • External tools used to produce standard reports	Business/ ICT	HR	Maintain, Compliance; Maintain Safety

Initiative Summaries

For each of the four initiatives a summary has been prepared that provides:

- **Background and Objectives** of the initiative including why it is important and objectives that ActewAGL Distribution aims to achieve.
- **Scope** describes the investment projects that will be delivered by the initiative.
- **Investment Analysis**
- **Nature of the Investment** describes the specific nature of the investment including how much of the investment creates a new foundation capability, how much extends an existing investment, how much maintains an ICT asset currency and how much of the investment is for the replacement of ICT assets.
- **Alignment to ActewAGL corporate Strategy and ICT direction** detailing how the initiative aligns to ActewAGL corporate direction.
- **Cost and Benefits** of the initiatives over the (2014-2019) regulatory period.
- **Prudency Test** describes how the investment achieves the prudency objectives of the regulator.

The summaries provide the key information that articulate ActewAGL Distribution's ICT investment strategy over the next 5 years.

6.1 Networks Management and Monitoring

The Networks management and monitoring initiative covers ICT infrastructure projects that support the maintenance, operation, reporting, planning, design and augmentation of the ActewAGL Distribution network.

Initiative Investment:

$13.8M

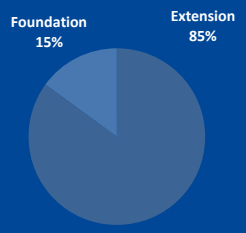
Anticipated Benefits:

$6.6M

Business Capabilities:

- **Asset Management**
- **Works Management**
- **Demand Management**
- **Real-Time Network Monitoring**
- **Mobility Solutions**

Investment Nature:



Background

This initiative provides a comprehensive set of investments in projects in OT systems which encompass a collection of decision support systems tools for the management of the distribution asset base. The central themes of this investment is that it will facilitate integration of systems and thus enable streamlined processes to adequately respond to current and emerging challenges of ActewAGL Distribution.

Effective asset and works management improves asset use, ensures equipment readiness and safety, and increases productivity. The failure rates of deteriorating assets and their consequent replacements impose a commercial risk if not managed effectively. Effective management of network assets is core to ActewAGL Distribution's business. As network assets grow in line with customer and demand growth, effective operational systems are required to enable safety and customer service to be maintained without commensurate increases in relative business costs.

Objective

The core objective of the new Network Management initiative for this regulatory period is to extend and integrate the core OT investment made in the previous regulatory period. This integration will enable ActewAGL Distribution to continue to maintain high asset availability and reliability that not only meets but seeks to exceed customer expectations.

The ICT investment enables proactive monitoring of network assets to improve their reliability and maximise their asset life. In order to meet this business requirement, ongoing investment is needed which progressively increases the size of the OT capital asset base and associated ICT costs.

The real time networks operation element seeks to augment the data integrity, planning and scheduling of outage management by referencing single source of truth asset and work maintenance data and integrating them into a centralised enterprise outage management platform.

The Network monitoring and management program seeks to also implement cost effective tools to optimise efficient good industry practice management of the network, provide ability to manage high activity periods, and reduce requirements for physical resources to operate the network.

Scope

The scope of the Networks Management and Monitoring investment spans a number of network facing solutions and associated business capabilities. The foundational aspects of these core OT systems have been initiated as part of the OSR program (implemented as part of the 2009-14 regulatory period), this planned OT extension investment is logical as the new core solutions are bedded down.

Figure 25- Networks Management & Monitoring: Planned investment strategies and impacted business capabilities

Networks Management and Monitoring	Efficient and effective asset management is a core capability of the Distribution business. The use of OT systems and solutions to actively manage, maintain and monitor the network is critical to network operations. Integration of this information across ICT platforms enables end to end business processes to be executed both more efficiently and effectively due to integrated data.
Real Time Network Monitoring	This investment will provide Real-time network operations management. As a large, dynamic and critical piece of infrastructure the distribution network must be effectively managed to deliver cores services to consumers. The real-time network operations component will support the distribution network and will be used to operate and track its real-time state, as well as providing detailed reporting on historical network performance and event analysis. This provides a robust platform for proper management of network assets and public safety. Investment will: • **Enable coordinating network operation** activities and network automation, as well as providing real-time analysis functionality; • **Identify critical locations** in the network where power quality and network automation devices would yield the most benefit; and • **Manage detailed historical data** on network topology, events, loading and performance which will be leveraged by decision support systems and network engineers.
Networks Field force Mobility	The mobility solution will include purchase of the required software and hardware, as well as any required development or configuration and ongoing support costs, to enable the access by distribution field teams to business applications and document libraries. The purchase of software licenses and a small number of the mobile devices (i.e. one per truck/crew) as well as the implementation of all relevant systems on these devices is included as part of the project. The initial and ongoing training users and support staff are also within scope.

Investment Commentary

The investment in Networks Management and Monitoring represents an extension of the previous ICT investment and a further investment in business capability.

Investment:

$13.8M

Opex (5yrs):

$19.8M

Benefits:

$6.6M

The investment includes economic benefits which will result in future opex growth being below indexation or inflation. The benefits are largely due to process efficiency, removal of double entry of information and a reduction in legacy system maintenance costs. Specifically reduced opex is enabled by :

- The implementation of an integrated end-to-end operational environment which will greatly improve productivity by centralising network information as well as reducing double handling of information;
- Implementation of network automation along with the advanced distribution management system will streamline the location and repair of network faults, which will allow for reduced reactive expenditure;
- Improvements in the quality of asset information will allow for condition based maintenance which will minimise asset failures and hence the associated expenditure for reactive work; and
- The implementation of asset-based works management and reporting will enable visibility of all maintenance work and ensure that maintenance activities are tied to asset management plans.

The investment also provisions for further regulatory requirements, as the integration of systems will enable access to a greater level of data to meet future consumer level data reporting requirements.

Nature of the Investment

In the next regulatory period ActewAGL plans to make the following investments across Networks management and monitoring. The nature of this investment initiative is 85% in extension type projects that seek to leverage past investment and integrate core operational systems across all of the networks business capabilities.

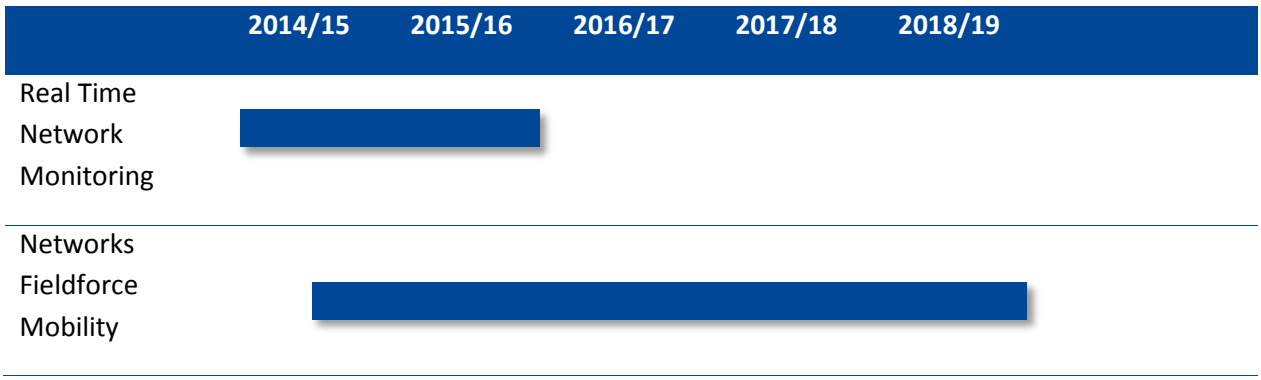
Table 12 - Networks Management & Monitoring: Investment Nature Breakdown

Foundation	Extension	Refresh	Replacement
• ActewAGL will mobilise its existing investment in key technologies such as SharePoint (for information management), Cityworks, RiVA and Gaurdian, to include mobile device friendly user interfaces	• GEO Spatial systems (GIS/ArcFM) will provide the single source of truth for the asset register and network topology. • Schneider -ADMS will be used to provide network simulation and network scenario analysis as well as historical network performance data to Riva.		
15%	**85%**	**0%**	**0%**

Timeframe

ActewAGL will commence this work in the first quarter of FY14/15 after the finalisation of the current OSR program. The extension work is planned to be undertaken over the next regulatory period, and is scheduled to be completed by FY18/19.

Figure 26 - Networks Management & Monitoring: Timeframe



Alignment to ActewAGL Strategy

A critical component in the investment assessment framework is to ensure that ICT investments are aligned with the ActewAGL corporate strategy, and assist in the realisation of the corporate business objectives. The enterprise wide services initiative is closely aligned in a number of areas as follows:

Table 13 - Networks Management & Monitoring: Alignment to ActewAGL Strategy

Strategy	Alignment
Stay Number One	✓ Contemporary network operational systems are important to ensure that the operations are cost effective and support future business decision making. ✓ Improved monitoring and maintenance of the network will ensure that distribution assets operate to ensure reliability and cost effective supply. ✓ Decommissioning end of life network systems will reduce ongoing system maintenance costs and allow for enterprise systems to be introduced. ✓ Minimising travel to and from the depot. ✓ Preventing data double handling in information recording activities. ✓ Improving productivity and efficiency will ensure that required inspections and maintenance remain on schedule, reducing the risk of outages. ✓ Improving the quality of data will result in more accurate network and scenario modelling.
Agility	✓ Extension to core operational systems that will improve the effectiveness of end to end business processes to build, operate and maintain distribution based assets. ✓ Integrated data in core systems will enable distribution functions to respond to customer enquires in a quick and nimble manner. ✓ A mobile equipped field force means that ActewAGL is able to be more responsive to emerging network issues.
Safe Workplace	✓ Better data on assets ensures that field based staff can execute work in a safe and effective manner.
Regulatory Compliance	✓ Investment in data monitoring systems will provide ActewAGL with the capability to meet regulatory driven consumer level data requirements. In addition this investment will underpin ActewAGL's consumer engagement strategy.

Alignment to ICT Direction

In order to achieve more efficient and effective ICT operations as a whole, ActewAGL has adopted a number of ICT principles that are designed to make a choice between valid alternatives. In assessing the ICT investment for the next regulatory period all projects were assessed to ensure that the investments aligned to the ICT direction and ultimately enable success of the ICT strategy.

Table 14 - Networks Management & Monitoring: Alignment to ICT Direction

ICT Principles	Alignment
Best fit solutions rather than best of breed	✓ Core OT systems introduced as part of work completed are distribution based COTS solutions. ✓ Extension and integration of the OT suite of systems is designed to improve data integration between COTS.
Reduce ICT environment complexity	✓ The replacement of end of life bespoke OT systems with core industry based COTS functionality, substantially reduces complexity and improves the effectiveness of application to support and other related ICT costs.
Capture data once	✓ Better integration of core solutions reduces redundant duplicated data entry and the process inefficiency of lag between systems. The introduction of interfaces will ensure consistency of data capture and a single source of truth. ✓ The deployment of mobile solutions will mean that current data double handling in information recording activities can be rationalised.
Consolidate, Effective and Integrated Systems	✓ Core OT systems such as ArcFM, SCADA (Televant) are being effectively integrated to facilitate information flow within core distribution business processes. ✓ The deployment of mobile solutions will enable applications to be integrated and accessed from the mobile platform facilitating end to end process integration.
Geospatially - Centric	✓ Integration of ArcFM will provide geospatial information to assist with asset monitoring and management. ✓ The deployment of mobile data facilitates tracking of assets using

Forecast Costs

Table 15 – Networks Management and Monitoring: Forecast Capital Expenditure (REAL FY 2013/14 $000)

Business Capability	FY14/15	FY15/16	FY16/17	FY17/18	FY18/19	Total
Real Time Network Monitoring	$8.479	$715	$665	$575	$1,345	$11,779
Networks Fieldforce Mobility	$870	$700	$275	$90	$80	$2,015
Total	**$9,349**	**$1,415**	**$940**	**$665**	**$1,425**	**$13,794**

Forecast operating expenditure associated with the IT Services that support and maintain the IT Asset and Works Management systems and infrastructure are forecast to continue consistent with actual costs in the current regulatory control period.

Business Benefits and Implications

The benefits that ActewAGL expects to realise following the delivery of this program include:

- Provides improved facilities to support the efficient management of transmission assets, avoids other business costs associated with the management of a larger asset based request to support growth over the period;
- Operating expenditure efficiency to minimise any future increases in requirements for future spends;
- Facilitate work safety for office and field staff;
- Improved accuracy of data quality;
- Enhance information displays in order to aid reactive network management processes;
- Improve collaboration through capture of geographical information and integration of that information to provide an up-to-date and accurate asset mapping, allowing for greater cost efficient asset allocation and crew assignment;
- Enable advanced spatial estimation and planning and coordination; and
- Improved effectiveness of capital investment in asset replacement and maintenance works, due to better asset usage and planning data.

Table 16 – Networks Management and Monitoring: Forecast Benefits (REAL FY 2013/14 $000)

Business Capability	FY14/15	FY15/16	FY16/17	FY17/18	FY18/19	Total
Real Time Network Monitoring	$65	$865	$1,116	$2,290	$2,290	**$6,626**
Networks Fieldforce Mobility	-	-	-	-	-	-
Total	**$65**	**$865**	**$1,116**	**$2,290**	**$2,290**	**$6,626**

Table 17 – Networks Management and Monitoring: Prudency Test

Key Element	Prudency Test 1	Prudency Test 2	Prudency Test 3
	justifiable need for the investment.	***most efficient investment to meet that need***	***Optimal Option 'good industry practice'***
Real Time Networks Operation	✓ A single integrated platform will extend the functionality of GIS/ArcFM/Designer deployed as part of the initial investment. ✓ Designer workflow improves the integration of asset design to ensure consistency and eliminates double entry. ✓ Integrates with other OT systems such as SCADA. ✓ Recently introduced HV & LV Network primary control system implementation, now requires integration with Cityworks maintenance systems to provide updated information on asset performance	✓ Leverages past ICT in expenditure in Operational Technology COTS. ✓ Integration of data across the distribution business simplifies data entry, integrates business processes and improves efficiency.	✓ Consistent with Industry trend is to move towards an enterprise architecture framework. ✓ Leverages past ICT in expenditure in Operational Technology COTS. ✓ Core operational systems are better integrated. ✓ Real-time monitoring and management via ADMS a primary network operations and analysis tool, is critical to network operations.
Networks Fieldforce Mobility	✓ There is a clear business efficiency and effectiveness benefit from the investment in mobile technology.	✓ Leverages existing licences (in part) to proceed with the solution. ✓ Leverages COTS Vendors for major applications to get their quickly.	✓ Leverages past ICT in expenditure in COTS. ✓ Is consistent with the direction of other utilities industry and other similar industry cost control and business efficiency programs.

6.2 Enterprise-Wide Services

The Enterprise wide initiative covers the critical back office support functions required to ensure ongoing business operations. The underlying business capabilities include Finance, Treasury and corporate governance reporting. These core functions are required to ensure that ActewAGL Distribution operations meet its regulatory and statutory obligations.

Initiative Investment:

$8.9M

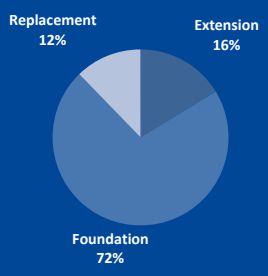
Anticipated Benefits:

$0M

Business Capabilities:

- **Finance**
- **Treasury**
- **Corporate Reporting**
- **Business Intelligence**

Investment Nature:



Background

ActewAGL currently employs a number of applications to support the business requirements of corporate operations. The applications being utilised today range from major packaged software such as Oracle and Aurion to a multitude of smaller systems. Each of the applications has a different useful life, with some applications having been recently implemented and others beyond useful life. This legacy of disparate systems results in a number of challenges and introduces inherent inefficiency in the day to day operation, for example each application has a different look-and-feel, processes, sign-on, support / maintenance arrangement, master data, transactional data, data model and integration requirements.

This investment initiative ensures that ActewAGL enterprise systems remain contemporary and at the same time leverage past investments to ensure that maximum value and benefit is derived. In addition this initiative aligns with the corporate ICT direction, core principles and is consistent with industry trends in the area of enterprise systems management.

Objectives

This initiative **focuses on extending ActewAGL's enterprise capability** to enable richer and more comprehensive functionality, a greater level of information integration, more efficient business processes, an improved ability to share information across lines of business and supporting systems (facilitating an improvement in business efficiency and safety), and a reduction in information systems under management. This investment enables ActewAGL to:

- **Consolidate enterprise application portfolio** through integration of key functionality into a smaller number of applications; and
- **Replace end-of-life-applications** to better achieve value for money, avoid costs and meet current and future business demands.

Scope

The scope of the Enterprise-Wide Services investment spans a number of corporate business capabilities. As initiated by the Core Systems Replacement program (implemented as part of the 2009-14 regulatory period), this planned ICT investment is a logical extension of this core capability, as existing systems reach the end of their useful life it is both prudent and commercially sensible to rationalise the technological landscape with the core solution. Accordingly, the scope of investment for the forthcoming regulatory period is centred on the extension of the new and rationalisation of the old.

Figure 27- Enterprise Wide Services - Planned investment strategies and impacted business capabilities

Enterprise Wide Services	Efficient and effective back office support functions are essential to ensure ongoing business operations. The benefits from this initiative are two fold, it will support a reduction in system maintenance costs into the future due to COTS based benefits and a reduction in the corporate operation costs due to more efficient "end to end" processing facilitated through integrated processes and data. Consistent with an industry based COTS software strategy the initiative provides for technical upgrades to the core solutions to ensure that solutions remain contemporary and supported.
Finance	These investment projects extend the core finance systems to deliver greater integration in a number of finance processes such as lease management, integrated accounts payable and asset management. This will enable the de-commissioning of a several end-of-life legacy applications.
Treasury	This investment will provide for the replacement of end-of-life Treasury Management systems. As current banking arrangements are due to expire and will not be renewed, investment in the core treasury solution and associated banking platform will be required as part of the transition to new a new provider.
Corporate Reporting	This (opex based) investment item provides periodic upgrades to statutory reporting software for each of the next five years. This software is used to facilitate compliance with statutory reporting obligation is in accordance with most recent legislative changes is a critical finance function. On-going upgrades and integration with core financial systems is critical in meeting business needs. These integration costs have been included under the finance set of projects.
Business Intelligence	This investment item will provide a centralised business intelligence and analytics solution to enable business function and cross business function data analysis. ActewAGL has already commenced investment in Business Intelligence through the recent CSR Program and through the procurement of the Oracle BI tool. This item completes our investment in core business intelligence capability by enabling the broader application of our BI capabilities across our core enterprise-wide data.

Investment:

$8.9M

Opex (5yrs):

$1.4M

Benefits:

$0M

Investment Commentary

The investment in Enterprise-Wide services represents ActewAGL's extension of the previous CSR program. The ICT cost of $8.9m represents a series of extension / replacement and foundation projects all aligned with the common goal of maximising corporate business requirements with a reduced systems footprint.

Nature of the Investment

In the next regulatory period ActewAGL plans to make the following investments across the Enterprise Wide Service business capabilities.

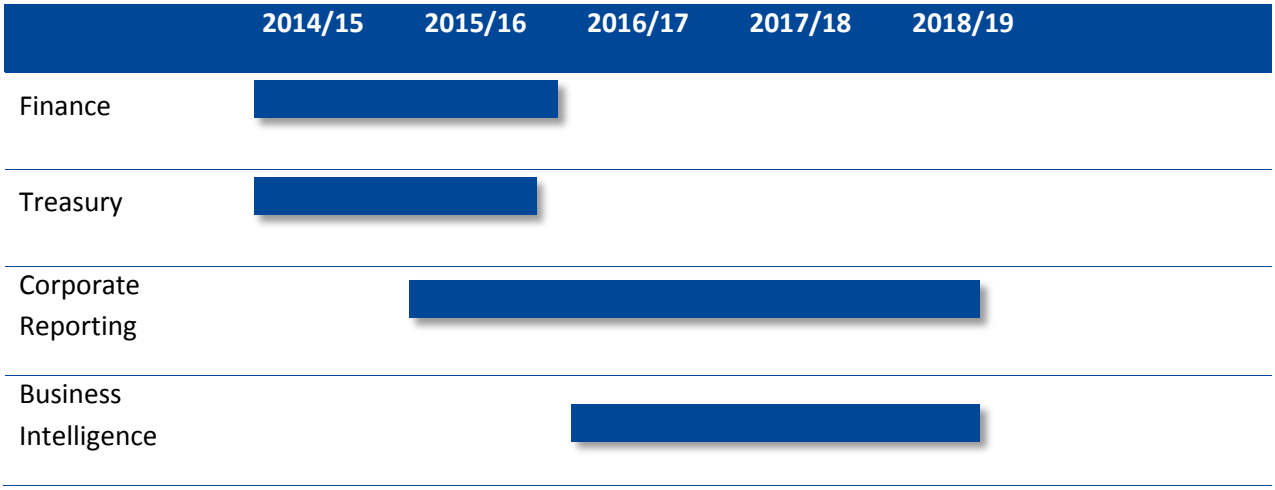
Table 18 – Enterprise Wide Services: Investment Nature Breakdown

Foundation	Extension	Refresh	Replacement
• ActewAGL does not currently have a centralised business intelligence capability, and as such has limited capability for cross business areas analytical insight. This investment is therefore a foundational investment in building a business intelligence capability within ActewAGL to enable enterprise-wide data analysis.	• Integration of Finance system to accommodate new modules and further integrate end-to-end business processes Additional Employment Health Safety and Quality functionality to assist OHS management		• Decommission several legacy end-of-life finance systems that are to be integrated into core system such as: • Leasing • Management reporting
72%	**16%**	**0%**	**12%**

Timeframe

ActewAGL will commence this work in the first quarter of FY14/15 after the finalisation of the current CSR Program. The work is planned to be undertaken over the next regulatory period, and is scheduled to be completed FY18/19.

Figure 28 – Enterprise Wide Services: Timeframe



Alignment to ActewAGL Strategy

A critical component in the investment assessment framework is to ensure that ICT investments are aligned with the ActewAGL corporate strategy, and assist in the realisation of the corporate business objectives. The enterprise wide services initiative is closely aligned in a number of areas as follows:

Table 19 – Enterprise Wide Services: Alignment to ActewAGL Strategy

Strategy	Alignment
Stay Number One	✓ Contemporary financial systems are important to ensure that financial information is maintained in a cost effective manner and support business decision making. ✓ Decommissioning legacy systems to reduce ongoing system maintenance costs.
Agility	✓ Extension to core systems that will improve the integration of data to improve the effectiveness of end to end business processes. ✓ Single source of data in core systems will enable corporate and network functions to respond to customer enquires in a quick and nimble manner.
Safe Workplace	Not applicable
Regulatory Compliance	✓ Maintains a number of enterprise systems such as statutory reporting that are compliant with legislative and regulatory changes.

Alignment to ICT Direction

In order to achieve more efficient and effective ICT operations across the organisation, ActewAGL has adopted a number of ICT principles that assist with the achievement of ICT strategy. In assessing the projects included in this initiative alignment with these principles was a core consideration to ensure alignment with the ICT direction and ultimately enable success of the ICT strategy.

Table 20 – Enterprise Wide Services: Alignment to ICT Direction

ICT Principles	Alignment
Best fit solutions rather than best of breed	✓ The increased integrated (Oracle) financial system footprint via several extension projects to the core enterprise wide systems with the intent of applying a consistent technology to address finance business requirements.
Reduce ICT environment complexity	✓ The replacement of several end of life systems with core Oracle functionality, substantially reduces complexity and improves the effectiveness of application to support and other related ICT costs.
Capture data once	✓ Better integration of core solutions reduces redundant interfaces and the requirement to either capture or in some instances store the same information in multiple locations.
Consolidate, Effective and Integrated Systems	✓ The increased footprint of core financial systems (Oracle) and stronger integration are key projects included as part of this investment
Geospatially - Centric	Not applicable

Forecast Costs

Table 21 – Enterprise Wide Services: Forecast Capital Expenditure (REAL FY 2013/14 $000)

Business Capability	FY14/15	FY15/16	FY16/17	FY17/18	FY18/19	Total
Finance	$750	$700	-	-	-	**$1,450**
Treasury	$220	-	-	-	-	**$220**
Business Intelligence	-	-	$900	$2850	$2600	**$6,350**
Corporate reporting	-	$420	$150	$150	$150	**$870**
Total	**$970**	**$1,120**	**$1,050**	**$3,000**	**$2,750**	**$8,890**

Business Benefits

The benefits that ActewAGL expects to realise following the delivery of this initiative include:

- Improved business efficiency associated with finance management;
- Better information integration allowing for contemporary data to be used for real-time business decisions, allowing ActewAGL to better manage operational performance and safety;
- Better compliance with legal, regulatory and generally-accepted business obligations;
- Reduced operational costs with improved process efficiency enabled through technology investment;
- Replacement of software to single common architecture;
- ICT support cost reduction due to fewer interfaces; and
- Optimisation of Corporate workforce end to end business processes.

Table 22 – Enterprise Wide Services: Prudency Test

Capability	Prudency Test 1	Prudency Test 2	Prudency Test 3
	Justifiable need for the investment.	*Most efficient investment to meet that need*	*Optimal Option 'good industry practice'*
Finance	✓ FI modules are at the end of useful life. ✓ Needed to support consolidation of systems to reduce future support costs. ✓ Required to maintain currency with COTs solutions provided by software vendor.	✓ Leverages past ICT in expenditure in Oracle COTS. ✓ Simplification of finance systems by increasing functionality in one solution.	✓ Consistent with Industry trend is to move towards an enterprise architecture framework. ✓ Leverages past ICT in expenditure in COTS. ✓ Stability of core systems as legacy systems are progressively replaced. ✓ Enables significant benefits in future support costs and aligns replacement. ✓ Promotes a safety orientated culture and assists with implementation of efficient and effective EHSQ.
Treasury	✓ Systems are at the end of useful life. ✓ Current banking provider agreement will not be renewed.	✓ Investment is timely with the introduction of new banking provider. ✓ Avoids unnecessary interim solutions and aligns with future banking solution.	✓ Stability and alignment of banking systems with future banking providers.
Corporate reporting	✓ Systems require ongoing enhancement to ensure legislative compliance.	✓ Maintenance of existing solutions.	✓ Remaining contemporary with legislative changes.

6.3 Technology Management and Support

ActewAGL maintains a core set of technologies to meet the ICT operational needs of the distribution network. This core set of ICT applications and infrastructure are broad in scope and inclusive of specialised infrastructure based solutions associated with ICT network monitoring, network development and maintenance planning, tasking and work documentation, that underpin core distribution applications and supporting capabilities such as distribution billing, human resource management, finance management.

Background

To meet business requirements, ActewAGL operates more than 450 business and support applications, two data centres – a primary data centre in Fyshwick, a second centre at Greenway, and a contingency back-up capability. Communications infrastructure including wi-fi, radios and microwave communications, a range of mobile and desktop computing technologies, including smart phones, tough books, laptops, tablets, all of which is connected via a wide area network incorporating five main work sites and over 320 remote sites across the Australian Capital Territory (ACT).

Providing this critical capability requires ongoing investment both in maintaining and extending the technology base. During the current regulatory control period, ActewAGL has invested to refresh, maintain, extend and upgrade its technologies to ensure resilience, flexibility and meeting the distribution business needs. In the next regulatory period ActewAGL plans to continue to undertake prudent investment to replace end-of-life technologies, establish and operate requisite processing and data storage capabilities, extend, maintain and operate the ICT network and devices, to provide resilience and redundancy as appropriate for the distribution network.

Objectives

This ICT investment initiative has three objectives:

- Continued provision of a reliable and resilient operational ICT capability to meet the needs of ActewAGL;
- Improved disaster recovery and crisis management; and
- ICT opex cost reduction and containment.

Initiative Investment:

$13.0M

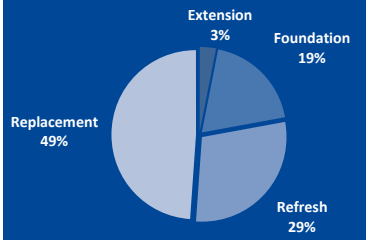
Anticipated Benefits:

$2.9M

Business Capabilities:

- **Data Storage**
- **Infrastructure**
- **Operating Systems**
- **Business Continuity Management**
- **Applications**
- **Mobility Infrastructure**

Investment Nature:



Scope

Included in the Initiative scope are a series of ICT investment projects designed to:

- Maintain core capacity through:
  - A refreshed data centre capability to meet anticipated demand for processing and data storage.
  - Orderly refresh of infrastructure, operating systems and business applications that have reached end-of-life.
- Reducing operational costs and containment of future growth in infrastructure while meeting increased demands for processing and storage via :
  - A greater use of server virtualisation;
  - Rationalisation of portfolio of business applications; and
  - Increased utilisation of the Storage Area Network (SAN).
- Improve our ability to manage in the event of outages and crises, including:
  - Establishment of a back-up network operations centre; and
  - Remediation of limited back-up capability.

The technology management and support initiative investment is aligned with five core ICT business capabilities.

Figure 29- Technology Management and Support - Planned investment strategies and impacted business capabilities

Technology Management and Support	Maintenance of a resilient ICT backbone that supports of the critical business applications is essential to ensure ongoing business operations. Efficient and effective investment is required to ensure that future demands can be supported, while at the same time containing the growth in operational cost via that adoption of emerging technologies and contemporary infrastructure. As the core platform from which front and back office ICT applications are installed, a critical risk management and mitigation regime is necessary via investment in a resilient disaster recovery and back up capability.
Data Storage	A series of investment projects that: • The primary data centre will be at capacity within the next two years. The planned refresh is designed to provide capacity to meet anticipated demands for processing and data storage for the next five years. The project provides for a refreshed fit-out, contemporary equipment, asset cooling systems, and associated power to meet future requirements; and • Provide for greater use of a Storage Disk Area (SAN) array reducing costs and containing infrastructure growth.

Infrastructure	A group of projects designed to provide and refresh ICT infrastructure to contain opex cost growth. These include: • Orderly replacement of infrastructure assets (eg. Servers, Routers, etc), in alignment with asset management life cycles; and • Deployment of server virtualisation technology to achieve a reduced (than otherwise) level of server infrastructure.
Operating Systems	A project to provide an orderly refresh of the operating system assets as these reach the end of their economic lives, also the introduction of additional capability to support the emerging operating requirements associated with the deployment of new business applications and / or hardware from other initiatives.
Business continuity	A group of projects to improve business continuity capability, including: • Upgrade of the existing disaster recovery facility and remediation of existing air conditioning problems; • Establishment of a back-up distribution management control room facility; and • Refresh to the crisis management facility at Fyshwick.
Applications	A number of projects that simplifies the applications portfolio and environment, including: • Rationalisation of the application portfolio; • Enablement of service oriented middleware applications; and • Orderly upgrade to remaining software assets as they reach end of economic life.
Mobility Infrastructure	There are three core enabling technologies that need to be put into place. These include: • Changes to the ActewAGL Wide Area Network (WAN); • Development of a mobile device standard operating environment (SOE) for those devices provided by ActewAGL, Virtual Desktop Infrastructure (VDI) and Mobile Device Management (MDM) capabilities; and • Development of security protocols and supporting technologies. It is envisaged that these elements will be developed with the intent to support: • End-user computing from devices owned by ActewAGL; • End-use computing with devices not-owned by ActewAGL i.e. bring your own device (BYOD); and • Support the delivery of business applications for ActewAGL employees, customers and suppliers.

Investment Commentary

The investment in technology and management services is predictably centred on refreshing and or replacing ICT infrastructure assets approx. This sequence of investment projects provides for contemporary capabilities to meet the infrastructure demands of processing bandwidth, data storage and connectivity arising from emerging business requirements. The underlying rationale for undertaking this investment is to avoid future unplanned maintenance and associated opex escalation that would be incurred if investment does not proceed.

The initiative is not just replacing and refreshing assets, evidenced by investment projects to take advantage of emerging technology such as server virtualisation and SAN storage, the objective is to slow the growth of new infrastructure thereby reducing opex costs and also extending the life of capacity constrained assets. Likewise the project to consolidate and reduce the number of business applications will also reduce opex and complexity over time. Finally, investment in middleware will allow for a reduction in the amount of "code" developed and facilitate a transition towards enterprise-wide services that integrate back-office and front-office systems to drive the ICT strategic agenda.

Investment:

$13.0M

Opex (5yrs):

$1.8M

Benefits:

$2.9M

The investment projects derive a positive cashflow from year 2 and a payback period of 5.4 year just beyond the regulatory period. These investment hurdles appear attractive given that the bulk of the investment is on replacement and refresh projects which typically generate lower benefit levels.

Nature of the Investment

In the next regulatory period ActewAGL plans to make the following investments across the Technology Management and support business capabilities.

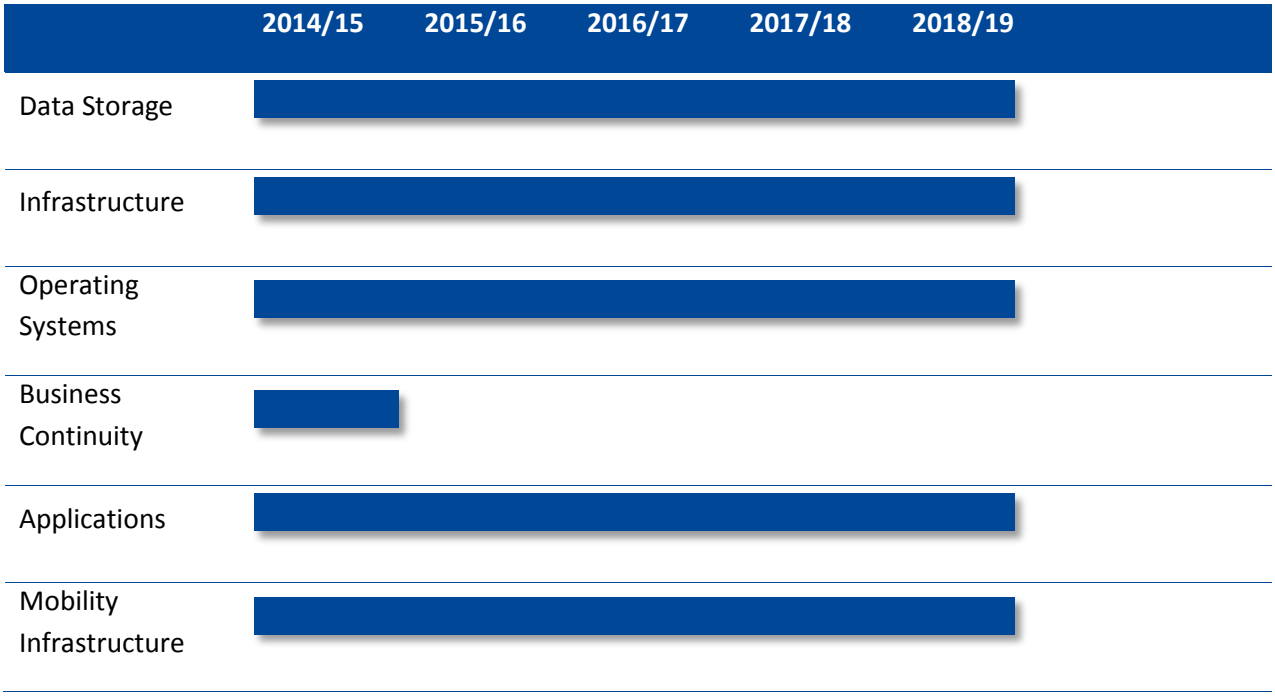
Table 23 – Technology Management and Support: Investment Nature Breakdown

Foundation	Extension	Refresh	Replacement
• ActewAGL operates rudimentary mobile access to non-mobile friendly web, intranet sites and email. This investment is therefore a foundational investment in adopting mobility as a part of how ActewAGL.	• Server virtualisation. • SAN Data storage. • Network (ADMS) disaster recovery.	• Business software refreshment. • Operating systems refreshment.	• Disaster recovery upgrade. • Operating systems.
19%	**3%**	**29%**	**49%**

Timeframe

The nature of this initiative requires that the investment is spread across the five years of the regulatory period, the only exception being business continuity which is scheduled for completion in the first year.

Figure 30- Technology Management and Support - Timeframe



Alignment to ActewAGL Strategy

A critical component in the investment assessment framework is to ensure that ICT investments are aligned with the ActewAGL corporate strategy, and assist in the realisation of the corporate business objectives. The enterprise wide services initiative is closely aligned in a number of areas as follows:

Table 24 – Technology Management and Support - Alignment to ActewAGL Strategy

Strategy	Alignment
Stay Number One	✓ In order to retain its market position, ActewAGL must maintain and provide a flexible, reliable and contemporary ICT capability that supports core business functions and facilitates customer engagement. ✓ In the unlikely event of ICT related disasters, ActewAGL needs to meet community expectations in relation to their impact on core service delivery. ✓ Maintaining current market position also requires investment in cost effective technologies that improve existing asset utilisation and reduce opex cost. ✓ Contemporary business applications and mobile computing environment allowing ActewAGL to respond to the changing expectation of customers and staff. ✓ Providing additional communication tools.
Agility	✓ An orderly program to provide contemporary ICT services and solutions means that ActewAGL is availing itself of innovation in these products. ✓ Rationalisation of the number of applications will improve the efficient and effectiveness of core applications, simplify the technology landscape for staff as common technology is deployed across the organisation. ✓ Investment in server virtualisation and SAN storage allows ActewAGL to reduce the complexity and scale of its data centre operations. ✓ Advanced application architecture investment will enable a greater agility through containment of change (hence reduced testing and assurance activities) surrounding. ✓ Improving the availability of information – works will not be delayed by a lack of necessary information in the field.
Safe Workplace	✓ Enabling other capabilities that promote and support workplace safety. ✓ Enabling access to core systems means that field staff will have quick access to new information (including information pushed to them) as needed and without the need to return to a depot.
Regulatory Compliance	Not Applicable.

Alignment to ICT Direction

In order to achieve efficient and effective ICT operations, ActewAGL has adopted a number of ICT principles designed to state a choice between valid alternatives, and are cognisant of the broader ActewAGL ICT environment. In assessing all ICT investment options for the next regulatory period ActewAGL has ensured that the investments align to the ICT direction and ultimately enable success of the ICT strategy.

Table 25 – Technology Management and Support - Alignment to ICT Direction

ICT Principles	Alignment
Best fit solutions rather than best of breed	✓ Investment in projects to consolidate and reduce the number of applications in the portfolio. In particular, the retirement of aged bespoke applications and replacement with COTS based functionality in the portfolio where practical. ✓ ActewAGL intends to deploy infrastructure that enables mobile services based on COTS products that will "fit" the needs of the whole organisation's mobility requirements rather than just those to meet the needs of the enabling the network field staff.
Reduce ICT environment complexity	✓ Investment to consolidate and reduce the number of business applications in the portfolio of applications will reduce the complexity of the ICT environment. This project will seek to consolidate on modern and less complex solutions. ✓ Investment in the orderly refreshment of infrastructure, applications and operating systems is designed to maximise the benefits of enterprise based architecture which will simplify the landscape and rationalise the amount of bespoke development required. ✓ Investment in middleware services associated with advanced application architecture will reduce complexity and facilitate cost effective application refresh. ✓ The development of a mobile infrastructure separate to the planned mobile computing for the network field staff. This will provide ActewAGL with a core capability that can be extend to support mobility for all potential users; be they other ActewAGL staff or customers. This prudent approach avoids duplication of infrastructure and overall cost of the capability.
Capture data once	✓ Investment in advanced application architecture will, over time, reduce duplication in data entry and capture through enablement of capabilities such as single-sign on.
Consolidate, Effective and	✓ Investment which will result in applications and infrastructure being rationalised, consolidated and where practical integrated is a core

ICT Principles	Alignment
Integrated Systems	theme to all of the investment cases included in this initiative.
Geospatially - Centric	✓ The core infrastructure upgrades have been centred on improving communications and supporting geospatial requirements of applications in the operational technology domain.

Forecast Costs

Table 26 – Technology Management and Support Forecast: Capital Expenditure (REAL FY 2013/14 $000)

Capability	FY14/15	FY15/16	FY16/17	FY17/18	FY18/19	Total
Data Storage	$48	$72	$35	$212	$35	$402
Infrastructure	$133	$723	$695	$108	$355	**$2,014**
Operating Systems	$43	$44	$45	$51	$53	**$236**
Business Continuity Mgt	$4,055	$220	-	$57	-	**$4,332**
Applications	$900	$562	$413	$938	$712	**$3,525**
Mobility Infrastructure	$950	$710	$370	$220	$220	**$2,470**
Total	**$6,129**	**$2,331**	**$1,558**	**$1,586**	**$1,375**	**$12,979**

Business Benefits and Implications

This investment initiative provides ActewAGL with substantial business benefits, including:

- Better business continuity and disaster recovery capabilities provided by the remediation of the DR processing capability, and the implementation of a failover disaster recover capability of the networks management and monitoring systems;
- A stable data centre capability with adequate capacity to meet the data processing and storage requirements for the organisation for at least the next five years;
- Reduced cost and growth in opex associated with the management and support of technologies through a reduction in the number of business applications under

management, investment in advanced application architecture, and the further roll out of server virtualisation and SAN storage; and

- Access to contemporary business applications and hardware innovations (including reduced opex) through the orderly refreshment and replacement of software, operating systems and hardware.

Table 27 – Technology Management and Support: Forecast Benefits (REAL FY 2013/14 $000)

Capability	FY14/15	FY15/16	FY16/17	FY17/18	FY18/19	Total
Data Storage	$850	$510	$510	$520	$520	$2,910
Infrastructure	-	-	-	-	-	-
Operating Systems	-	-	-	-	-	-
Business Continuity Mgt	-	-	-	-	-	-
Applications	-	-	-	-	-	-
Mobility Infrastructure	-	-	-	-	-	-
Total	**$850**	**$510**	**$510**	**$520**	**$520**	**$2,910**

Table 28 – Technology Management and Support: Prudency Test

Capability	Prudency Test 1	Prudency Test 2	Prudency Test 3
	justifiable need for the investment.	***most efficient investment to meet that need***	***Optimal Option 'good industry practice'***
Data Storage	✓ ActewAGL has modelled future processing and data storage requirements and independently determined that existing capability will not meet the business needs beyond the next two years. ✓ Other ICT investment has a demonstrated need for more data storage.	✓ ActewAGL has assessed the five-year total costs between upgrading its data centre and outsourcing. The results of this analysis were marginal with the refresh option being the most prudent and risk adverse option given the amount of ICT change in progress. ✓ It is considered that retaining services in house until requirements are clearly understood was the most prudent choice. ✓ Utilisation of SAN storage is the most cost effective may to meet the demand for more data storage.	✓ Consistent with similar sized organisations and other utility providers the decision to retain insourced data centre is aligned with industry practice. ✓ SAN storage is an ICT industry standard, well regarded, and efficient solution.
Infrastructure	✓ ICT infrastructure requires orderly replacement at the end of its economic life. Unless replaced ActewAGL faces increasing support costs due to unplanned maintenance and reduced environment reliability.	✓ Server virtualisation is a proven approach to improving the capital efficiency, asset utilisation in the provision of server infrastructure.	✓ Server virtualisation is an ICT industry standard, well regarded, and efficient solution to manage servers.
Operating Systems	✓ Similar to infrastructure operating systems need to be periodically	✓ This investment item is a "like for like" refreshment project at the end of the	✓ The operating systems refresh plan is consistent with good practice and ICT

Capability	Prudency Test 1	Prudency Test 2	Prudency Test 3
	refreshed (to contemporary versions) in order to remain under supplier warranties and support contracts. It is a cost effective was to access new innovations from hardware and business applications that are reliant on newer operating system features.	economic life of the physical assets.	management.
Business Continuity Mgt	✓ ActewAGL has identified deficiencies in current disaster recovery capabilities.	✓ ActewAGL's approach is to re-use existing facilities and assets, as far as possible, in enhancing business continuity arrangements to ensure compliance with standards and risk mitigation.	✓ Taking appropriate steps to bring capabilities up to what we believe is a consistent level with other industry organisations.
Applications	✓ Periodic refreshment of applications (to newer versions) is required to maintain warranty and support arrangements, access new innovations, and to avoid compatibility problems with refreshed operating systems and hardware. ✓ ActewAGL has received independent external advice which recommends consolidation of its application portfolio to reduce costs and complexity. ✓ The growth of ICT environment due to additional functional requirements, it is both prudent and necessary to integrate back office and front-office	✓ The investment in advanced application architectures (using COTS products) is designed to reduce ICT opex costs. ✓ The periodic refresh of business applications (to newer versions) is required to maintain warranty and support arrangements, avail ActewAGL of new innovations, and to avoid compatibility problems with refreshed operating systems and hardware.	✓ The operating systems refresh plan that is consistent good industry practice and ICT management.

Capability	Prudency Test 1	Prudency Test 2	Prudency Test 3
	information to improve operational efficiency and safety, the case to invest in advanced application architecture has emerged as a way to achieve this.		
Mobility Infrastructure	✓ But intent to make investment in a manner that is mindful of the future value for the organisation in enabling mobile capability for other staff and customers.	✓ Seeks to build the enabling elements in a manner that will support multiple business areas utilise mobile computing or support mobile enabled channels and products. This is the most efficient approach as will reduce proliferation of "point" solutions over time.	✓ Consistent with Industry trend is to move towards an enterprise architecture framework. ✓ Enables significant benefits while minimising support costs ✓ Promotes a safety orientated culture.