ICT Strategy

Power and Water Corporation Standard

CONTROLLED DOCUMENT

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1   Executive Summary

Power and Water Corporation, like many utilities in Australia and throughout the world, is in the process of responding to the introduction of new technology that has the potential to disrupt existing business models. Renewable energy, battery storage, electric vehicles and enhanced energy efficiency are just a few of the factors impacting energy usage throughout the Northern Territory.

Information and communication technologies (ICT) are also undergoing rapid changes. Power and Water recognises that there is a general trend among tech-savvy business users demanding more from their ICT department. Cloud-based technologies have enabled business users the ability to implement solutions with little or minimal ICT support. The acquisition, evaluation and storage of massive amounts of data is also having a major impact on existing ICT systems and facilities.

Power and Water considers technology to be a strategic enabler that should be exploited to drive business performance where benefits exceed the corresponding costs. Technology investments are expected to continue to unlock opportunities to improve business outcomes such as:

- Integrating business processes to improve productivity;

- Understanding asset risk;

- Increasing asset utilisation and extending asset life;

- Optimising safety and reliability of the electrical network; and

- Modernising connections with consumers.

In order to continue to align ICT with business needs, Power and Water's ICT Strategy for the next ten years is built on four key objectives:

1	*Enhance the return on investment for existing ICT systems.*
2	*Develop common applications for whole-of-enterprise challenges to support needs such as mobile computing.*
3	*Implement supplementary business applications as necessary to support individual business units.*
4	*Continue to leverage Northern Territory Government for ICT foundation services (such as desktop, data centre, telephony)*

These objectives underpin the ICT governance framework, the ICT operating model, and the future ICT enterprise architecture.

From a cost perspective, total ICT Capex has ranged from $2.4 to $3.7 million (in 2017/18 dollars) with **an average of $2.9 million per year for the historical six-year period 2011/12 to 2016/17**. Significant increases in ICT Capex to **an average of $4.1 million per year are forecast for FY 2017/18 and FY 2018/19** in preparation for major ICT asset replacement programs and implementation of enhanced ICT capabilities to comply with new regulations. The primary drivers of these increases are complying with regulations, enhancing business efficiency, and meeting customer expectations. For comparison purposes, Power and Water's ICT Capex forecast of $35.8 million which averages to **$6.5 million per year for the five year period FY 2019/20 to FY 2023/24,** with the increase primarily due to major ICT projects to upgrade or replace core enterprise systems.

2 Introduction

2.1 Purpose of this Document

The purpose of this document is to set out Power and Water Corporation's Information and Communications Technology (ICT) strategy for the ten-year period starting 1 July 2017. This period encompasses Power and Water's first Regulatory Control Period under the Australian Energy Regulator (AER), which will run from 1 July 2019 to 30 June 2024.

2.2 Background

Power and Water is a Northern Territory Government Owned Corporation (GOC) operating under the Government Owned Corporations Act 2001 (GOC Act).

As a 'multi-utility' it provides a range of electricity, gas, water and sewerage services to the Community of the NT. The business model encompasses water management, network distribution, remote services operation, environment and regulatory services and corporate

administration. The services it provides are delivered to urban, rural, regional and remote communities and to a diversified demographic customer base.

Power and Water is one of the largest businesses in the Northern Territory with more than 80,000 customers, including about 55,000 domestic consumers and about 120 major commercial accounts. Power and Water supplies essential services to customers in regional and remote NT communities.

In 2002 Power and Water was corporatised as a response to the National Competition Policy reforms which had a primary objective of improving the competitiveness and productivity of the utilities sector. Subsequent to 2002 further initiatives have been undertaken to improve competition in the NT energy section including the structural separation from Power and Water of generation (Territory Generation) and retail (Jacana Energy) both of who now operate as Government Owned Corporations in their own right.

3 Business Context

3.1 Power and Water Business Environment

Power and Water is responsible for providing electricity distribution, gas supply, water and sewerage services to customers across the Northern Territory, as well as electricity generation in five minor centres. Power and Water's not-for profit subsidiary Indigenous Essential Services Pty Ltd (IES Pty Ltd) provides power, water and sewerage services to 72 remote Indigenous communities and 66 outstations. Power and Water provides electricity and water services to approximately 85,000 customers.

The corporation is structured along five business lines supported by the Business Services group.

3.1.1 Power Networks

Power Networks is responsible for planning, building and maintaining reliable electricity networks to transmit electricity between electricity generators and electricity consumers in the Northern Territory. Power Networks operates both regulated and non-regulated networks. Regulated electricity is distributed to an estimated 243,700 people across an area of 1.3 million square kilometres. Electricity network services are still subject to the regulatory regime of the 2014 Network Price Determination but since 1 July 2015, the responsible regulator of that regime transferred from the Utilities Commission to the Australian Energy Regulator. This change forms part of the Northern Territory electricity market reform agenda that involves the phased adoption of the National Electricity Rules by 1 July 2019.

3.1.2 Water Services

Water Services provides water supply and sewerage treatment services in the Northern Territory's five major centres. Water is also supplied in 13 minor centres and sewerage

services in five minor centres. These services are provided under monopoly licenses. Water Services also plan for the long-term security of water supply for the Northern Territory including delivering water demand management initiatives.

3.1.3   Remote Operations

Remote Operations is responsible for providing electricity, water and sewerage services to 72 geographically isolated and dispersed remote Indigenous communities and 66 outstations and generating electricity in five minor centres. These services are delivered through IES Pty Ltd, a wholly owned not-for-profit subsidiary of Power and Water, under an agreement with the Department of Local Government and Community Services. Power and Water uses an Essential Service Operator (ESO) delivery model to maximise opportunities for local and Indigenous employment and training.

3.1.4   System Control

System Control has a statutory role in monitoring and controlling the operation of the power systems in the Northern Territory and is responsible for overseeing the safe, secure and reliable operation of the regulated power systems. The System Control Licence, which is issued by the Utilities Commission, determines Power and Water's statutory obligations. Since 27 May 2015, System Control has been performing the trading and dispatch functions of the Interim Northern Territory Electricity Market and will continue to provide these functions along with other market operator functions upon commencement of the Northern Territory Electricity Market.

3.1.5   Gas Supply

Gas Supply is responsible for the management of long-term gas acquisition, sales and pipeline haulage contracts to ensure quality gas is delivered to electricity generators and other major gas customers in a timely manner. It is also focused on seeking new gas market opportunities and maximising the use of pipeline transmission capacity including the new Northern Gas Pipeline project.

3.1.6   Business Services

Business Services provides business support across the corporation encompassing customer services, people and culture, information technology, finance, communications, governance, risk and compliance services.

3.2   Power and Water Goals

Power and Water will continue to deliver on its purpose of providing safe and reliable services to its customers, while maintaining a focus on commercial sustainability. The strategic framework was reset in 2014-15 and has continued to evolve.

In its Statement of Corporate Intent (SCI) 2017 – 2018, Power and Water identified its corporate vision and its corporate goals as follows:

Our vision is to be a best practice, commercially focused and customer centric multi-utility respected by the community for its contribution to the Northern Territory economy and its pursuit of the long-term interests of consumers.

Power and Water Corporate Goals

Key Result Area	Goals
Health and Safety	A proactive safety culture across the corporation based on accountability, trust and ethical behaviour.
People and Culture	A high performing, diverse workforce that has the capability to drive business effectiveness.
Financial Performance	A financially robust and commercially sustainable organisation with a strong capital discipline framework and delivering appropriate returns to our shareholders.
Operational Performance	An efficient provider of services supported by strong asset management, governance and protection of the environment.
Customer	A customer centric organisation achieving the respect and trust of all our customers and stakeholders across all parts of the business in delivering our services.

A key focus for Power and Water is to support the Northern Territory Government to achieve its goals under the Framing the Future strategic plan where it relates to Power and Water, including working with the government to implement the Northern Territory Electricity Market Reform Program. On 1 July 2016, application of the relevant provisions of the National Energy Law and Rules commenced in the Northern Territory as part of the phased adoption of the full suite of regulation under the Australian Energy Regulator from 1 July 2019.

4 Technology Context

4.1 Power and Water's Existing Technology Environment

Although Power and Water is independent of the NT Government as a GOC, it is required to be aware of and comply with the applicable policies, standards and guidelines that apply to all ICT systems design, development and operation across NT Government Agencies.

Within Power and Water, the Business Systems and Information Management Branch (BSIM) provide a 'centralised service' for ICT, focusing on support and enhancement for business applications, architecture, system design and operational management. Many of its services (and resources) are provided through outsourcing contracts either at a whole of government level or directly managed by Power and Water.

Currently, Power and Water field operations are generally paper-based and delivered predominantly via manual processes. The field workforce is equipped with limited automated toolkits especially in the deployment of mobility solutions and in the take-up of emerging technologies when compared with other Australian and international utilities.

In addition, Power and Water has limited capabilities for customer relationship management (CRM) using the existing IT systems. The current CRM function is conducted using a version of Gentrack software which has limited ability for integration. This system only allows for simple customer management and relies on manually-entered, free-text memos to track customer interactions. As such, the system doesn't allow for true stakeholder management nor provide a single source of truth for each relationship that a capable, dedicated CRM system would provide.

4.2   General Technology Trends

The consumerisation and ubiquity of technology has shifted expectations of business users of technology and ICT departments. Current and emerging technologies (cloud, web based applications) give tech-savvy business users the ability to implement solutions with zero or minimal ICT support. Managed poorly, this empowerment could result in new security threats, weakened standards, compliance risks, proliferation of 'point solutions' and 'out of control' technology costs for an enterprise. However, managed well these enabling technologies would create new opportunities for ICT organisations to empower the business lines they support; true business innovation occurs the closer technology is to the business.

The explosion of data has expanded the computing, storage, and analytical needs of enterprise ICT. Faced with these developments, ICT departments are struggling to match capacity with demand, often implementing disparate technologies to support their needs. Though these issues can be addressed through other means, cloud-based solutions will continue to provide increased opportunities to provide enhanced efficiencies through fluid scaling of capacity, reduced capital investments, and quick-to-deploy capabilities. The appeal of cloud solutions is the speed with which teams can begin leveraging data as opposed to building infrastructure.

Marketplace demands, financial pressures, and the consumerisation of ICT are driving the realisation by business units and ICT departments that they can no longer operate in silos – a combination of collaboration and convergence is essential. This new technology environment is blurring the lines between business and ICT with increasing intensity, and if properly managed could lead to unprecedented innovation.

4.3   Utility Industry ICT Trends

There are a number of ICT trends which are influencing the nature of how products and services are delivered within the Utilities sector.

Power and Water is aware of, and is responding to, many of these which include:

- Managing compliance with the (ever changing) regulatory environment;

- Achieving 'sustainability' in all areas of business operations;
- Seeking internal efficiencies to manage the increasing costs associated with providing power and water services;
- Reengineering field operation processes and workflow through the take-up of mobility and other productivity enabling technologies;
- Leveraging the digital transformation capabilities provided through 'Smart' technologies to improve customer satisfaction levels, enhance information availability (IT/OT Convergence) and redesign organisational processes. Such enhanced capabilities also create new opportunities in network optimisation across different distributed electricity sources. The result is a high level of utilisation of connected devices which maximises the benefit of network assets, and minimise the need for further augmentation to support higher peak loads;
- Artificial intelligence and machine learning enabling automation and self-healing systems as well as the deployment of predictive maintenance systems.

In addition to the trends listed above, the Network Transformation Roadmap released by the ENA and the CSIRO in April 2017 highlights that the electricity system supporting Australia's economy and lifestyle, is experiencing transformation on an unprecedented scale. The Roadmap presented the following drivers for change which are expected to impact customer engagement models in the short to medium term future of the electricity industry:

- Increasingly diverse customer energy use and engagement;

- Growing trends for consumers to invest in alterative supply options and reduce traditional energy consumption patterns;

- New technology enabling multi-direction energy flows and the capability to turn consumers into producers of electricity;

- Uncertainty caused by reforms impacting the traditional electricity market supply chain; and

- Growth and uptake of digital platforms by consumers (web, mobile and enhanced collaboration) showing a gradual change in preferred communication channels.

As a result of the above factors, the Network Transformation Roadmap identified the following key network findings:

- The need for network service providers to enhance relationships with customers built on improved network data analytics capabilities and a deeper understanding of increasingly diverse customer needs;

- The need for networks to expand information services to enhance interactions with customers; and

- The need for networks to support the delivery and connection of an expanding range of innovative products and services to customers.

4.4 Role of Technology at Power and Water

Power and Water considers technology to be a strategic enabler that should be exploited to drive business performance where benefits exceed the corresponding costs. Technology investments are expected to continue to unlock opportunities to improve business outcomes such as:

- Integrating business processes to improve productivity;

- Understanding asset risk;

- Increasing asset utilisation and extending asset life;

- Optimising safety and reliability of the electrical network; and

- Modernising connections with consumers.

Further details on the role of technology as it applies to specific business initiatives at Power and Water are explained in the following sections:

4.4.1 Business Transformation Program

Driven by the need to develop the best operating model for the future, Power and Water has implemented a major transformation. This transformation was initiated with the structural separation of Territory Generation and Jacana Energy from 1 July 2014. Now that Jacana Energy and Territory Generation have established as standalone entities, the transformation program will facilitate Power and Water to refocus on its primary business functions.

The transformation of Power and Water will facilitate changes across all business units to ensure a stronger commercial position. This will require the redefinition of the approach to customers, stakeholders, safety, environment, commercial sustainability, asset management, internal service provision and most importantly Power and Water's people.

Analysis of the IT systems has identified opportunities to respond to the identified factors that will impact the ability to deliver against its objectives and meet the operational and

financial requirements. The Business Transformation Program will involve a strategic, top-down approach that is planned and implemented in a formal, structured manner. Many existing projects and initiatives, such as the Financial Management Improvement Program, the Asset Management Capability Program and delivery of the IT Strategy will be managed under the Business Transformation Program.

4.4.2   Regulatory Changes

Power Networks is the business unit responsible for the planning, building and maintaining of cost effective electricity networks to transmit electricity between generators and electricity consumers in the Northern Territory. Under the Northern Territory Electricity Market reform program, Power Networks will face significant regulatory change as key networks come under the jurisdiction of the AER and the Australian Energy Market Commission. The AER revenue determination process will also provide an opportunity to identify ICT enhancements that can support improvements to workforce capability and operations. Power and Water is currently preparing its first regulatory submission to the AER for the five year period commencing 1 July 2019.

4.4.3   Customer Service Demands

There is a recognition that customer demands are changing in response to prices, climatic conditions, the introduction of new technologies and new value chain participants. Power and Water acknowledges the trend that customers will move towards taking greater control of their utilities services and manage these services more efficiently than they do today. In response, there is a need to become a customer-centric business in which Power and Water fully understand their customer needs and expectations. Correspondingly, there will be a responsibility for providing a positive customer experience alongside customer solutions.

5   Key Business Principles and Strategic Themes for ICT

5.1   Key Business Principles for ICT

Power and Water Corporation's Board of Directors agreed on the following key business principles to guide the development of the ICT Strategy:

1. WHERE POSSIBLE, LEVERAGE POWER AND WATER'S INVESTMENT TO DATE IN TECHNOLOGY – REUSE BEFORE BUY, BEFORE BUILD

2. CHANGE BUSINESS PROCESS BEFORE CUSTOMIZATION

3. TO MINIMISE RISK TO BUSINESS CONTINUITY ALL CORE BUSINESS SYSTEMS (E.G. MAXIMO, RMS, FMS), CONSIDERATION WILL BE GIVEN TO UPGRADING AND MAINTAINING SUPPORTED RELEASE VERSIONS.

4. A SINGLE SOURCE OF TRUTH WILL EXIST FOR CRITICAL DATA COMPONENTS (E.G. ASSET, FINANCE, CUSTOMER)

5. OUTSOURCE TO SPECIALIST PROVIDERS IF NOT A CORE COMPETENCY

6.   EXISTING BUSINESS UNITS WILL CONTINUE TO UTILISE POWER AND WATER-WIDE CORE ENTERPRISE SYSTEMS REGARDLESS OF FUTURE OPERATING MODELS, TO LIMIT REDUNDANT LICENSING COSTS AND UNREALISED CAPITAL INVESTMENT EXPENSES UP UNTIL JULY 2018 OR FOR A PERIOD OTHERWISE INFORMED BY THE ICT BUSINESS SOLUTIONS STRATEGY

7.   WHEN BUSINESS UNITS REQUIRE CORE ENTERPRISE SYSTEM DEVELOPMENT THE BUSINESS UNIT DRIVING THE ICT DEVELOPMENT I.E. THE PRIMARY SPONSOR, WILL FUND THE DEVELOPMENT UNLESS OTHER BUSINESS UNITS LEVERAGE THE ADDITIONAL FUNCTIONALITY.

5.2   ICT Strategic Themes

Based on the principles in Section 5.1 above, Power and Water has developed the following Strategic Themes:

1	*Enhance the return on investment for existing ICT systems.*
2	*Develop common applications for whole-of-enterprise challenges to support needs such as mobile computing.*
3	*Implement supplementary business applications as necessary to support individual business units.*
4	*Continue to leverage Northern Territory Government for ICT foundation services (such as desktop, data centre, telephony)*

6   ICT Architecture Overview

6.1   General

Power and Water Corporation has adopted a series of guiding principles for the ICT Architecture:

- Maximize Benefit to the Enterprise – Information management decisions are made to provide maximum benefit to Power and Water as a whole.

- Simplify Before Automation – Power and Water will simplify, rationalize and consolidate business process prior to automation where possible. ICT solutions will only be considered after there is clarity on the business operating model and direction.

- Common Use Applications – In general, Power and Water will implement applications that can be used across the enterprise rather than applications which will be provided to only a particular part of the business.

- Total Cost of Ownership – Consideration of all costs associated with a system over its entire life span results in more cost effective planning and decision-making processes.

- Business Responsibility for Business Outcomes – Business units are responsible to achieve planned business outcomes from information systems that are delivered in accordance with their business needs and requirements.

6.2 Application Architecture

6.2.1 Current Application Architecture

The following table lists the primary ICT systems by business area together with the key additional supporting ICT systems currently in-use:

Business Area	ICT System(s)	
Corporate (Human Resources, Finance, Procurement, etc.)	• Oracle Enterprise Suite (Financial Management) • IBM Cognos TM1 (Budgeting) • Northern Territory Government PIPS (Personnel and Payroll)	• SAP Business Objects (Data Warehouse and Reporting) • HP Records Manager (Electronic Document Management) • Contract and Procurement Services (CAPS)
Asset & Works Management	• IBM Maximo • ESRI	• OSI PI
Revenue Management	• Gentrack Retail Management System	
Meter Management	• MV-90	• MV-RS
Data Management / Business Intelligence	• Cognos TMO • Business Intelligence and Reporting Tools (BIRT)	• • SAP Business Objects
Operations	• Areva SCADA	• Citect SCADA
Communications	• Whispir • Q-Master	• Avalanche

6.2.2 Application Architecture Strategy

6.2.2.1 Application Strategy related to Strategic Theme 1: Enhance the return on investment for core ICT systems through the Remediate the Core Program.

Power and Water invested significantly in technology to support its core business systems, Maximo, ESRI, Gentrack and Oracle Enterprise Suite over the past 6 years. Maximo in particular was heavily customised during initial implementation in 2012.

For various reasons, Power and Water has encountered major issues with data accuracy and integrity concerning these major systems. These issues, combined with process enablement deficiencies, have severely impacted Power and Water and reduced its ability to operate efficiently and achieve all the desired benefits from its technology investments.

Power and Water has comprehensively assessed the current situation and identified a program of work called 'Remediate the Core' to improve the accuracy/integrity of its data and systems. The Remediate the Core program includes the following activities:

Strategic Theme 1: Ensure the Return on Investment for Existing ICT Systems *(by Application):*	
Application	**Strategy**
Maximo	Upgrade and Reduce Customisations
ESRI	Upgrade
Gentrack Retail Management System	Upgrade or replace the Gentrack application and implement self-service capability
Oracle Enterprise Suite	Upgrade and Restore Core Functionality

6.2.2.2 Application Strategy related to Strategic Theme 2: Develop common platforms for whole-of-enterprise challenges to support needs such as mobile computing.

Power and Water believes that although business needs may vary slightly between business units, often ICT applications can be implemented that satisfy the requirements of multiple business units across the enterprise. Implementing common ICT applications is generally found to be more efficient to the enterprise and reduces complexity and associated capital and operating costs.

The following table lists the strategy for ICT Applications that are expected to be implemented to support multiple Power and Water business units:

Strategic Theme 2: Common applications for whole-of-enterprise challenges *(by Application):*	
Application	**Strategy**
Business Intelligence	Continue to develop and enhance
Intranet	Continue to maintain and enhance

Middleware	Continue to develop and enhance
Mobility	Implement mobility solution for works management
Outage Management System	Implement new system
Web and Mobile Applications	Continue to develop and enhance the Smartphone App and Power and Water website
Meter Data Management System	Upgrade or replace existing system depending on metering requirements
SCADA	Consolidate systems and upgrade
OSI Soft PI	Enhance and maintain

6.2.2.3 Application Strategy related to Strategic Theme 3: Implement supplementary business applications as necessary to support individual business units.

Individual business units may identify ICT needs that are unique to their organisation. When an enterprise solution is not necessary or cost-effective, ICT will work with the business unit to identify and implement a specialised application for use by that business unit.

The following table lists the strategy for ICT Applications that are expected to be implemented to support a particular Power and Water business unit or unit(s) rather than the entire enterprise:

Strategic Theme 3: Supplementary business applications *(by Application):*		
Business Unit	**Application**	**Strategy**
Gas	**Gas Data Acquisition & Display**	Implement new system
Customer / Corporate	**QMaster**	Implement add-on modules for enhanced capabilities
Corporate	**Procurement**	
Water / Remotes	**Water Quality**	Implement new application
Water	**Database for trade waste and backflow prevention**	Implement new capability
Water	**CRM**	Implement new customer system

6.2.2.4 Application Strategy related to Strategic Theme 4: Continue to leverage Northern Territory Government for ICT foundation services (such as desktop, data centre, telephony).

The strategy for applications provided by the Northern Territory Government such as HP Records Manager, Payroll and HR is to continue to use and maintain these applications as part of the whole-of-government strategy.

The following table lists the strategy for ICT Applications that are provided by the Northern Territory Government:

Strategic Theme 4: ICT Foundation Services *(by Application):*	
Application	**Strategy**
myHR /PIPS	Continue to use and upgrade in accordance with NT Government plans
Productivity Tools (e.g. MS Office, etc.)	Continue to use and upgrade in accordance with NT Government plans

6.3　　ICT Infrastructure Architecture

6.3.1　Current ICT Infrastructure Architecture

Power and Water utilises a blended outsourced model for its ICT Infrastructure needs. Because it is owned by the Northern Territory Government, Power and Water is able to use Whole of Government systems and also is able to participate in 'managed service' contracts for infrastructure, desktop and telecommunication services.

For Power and Water-specific business systems not supplied by the Northern Territory Government, Power and Water generally procures the software licenses and supporting ICT infrastructure. Operation and maintenance of the server hardware has been contracted to Litech and database management to Business Systems as a subcontractor of Litech.

A high-level breakdown of the outsourced services are provided in the table below:

ICT Services provided to Power and Water by the Northern Territory Government through a Whole-of-Government outsource contract:	
• Desktop	• Email System and Services
• Standard Operating Environment	• Productivity Tools (e.g. MS Office, etc.)
• Local Area Network / Wide Area Network	• Document Management System (RM8)
• Telephony (VOIP)	• HR Systems
• Data Centre Facility	• Payroll System
• Internet Gateway & Firewalls	

ICT Services outsourced by Power and Water directly:
• Operation and Maintenance of server hardware for Power and Water-specific business applications
• Database management services for Power and Water-specific business applications

Additional details of the ICT Infrastructure environment are as follows:

- The NT Government provides a fleet of approximately 1150 workstations, 65 printers, and 1150 phones to Power and Water.

- Power and Water maintains a collection of HP servers and storage devices for business applications as follows:

  - 134 Physical Servers;

  - 73 Virtual Servers;

  - 3 Storage Area Networks (SAN's).

6.3.2   ICT Infrastructure Strategy

The scale and scope of capabilities delivered by Northern Territory Government by the Department of Corporate and Information Systems (DCIS) to Power and Water is extensive. Previous exercises have been undertaken to assess if Power and Water should bring in-house or establish separate sourcing arrangements for services provided by Northern Territory Government. The outcomes of those investigations showed that it would be more expensive for Power and Water to go outside of the whole of government sourcing arrangements. This situation will not have changed since and hence considering alternative sourcing arrangements remains not cost effective.

ICT Infrastructure supporting the Power and Water-specific business applications is generally updated on a time-basis (typically 4 to 5 years), depending on failure risk.

6.4   ICT Data Architecture

6.4.1   Current ICT Data Architecture

Power and Water operates a number of ICT systems as part of its multi-utility service function. Over the life of Power and Water, the range and quantity of data collected has increased significantly. This has resulted in an increasingly complex requirement to both manage this data and maximise the return on investment.

Power and Water relies on data and information for business needs ranging from operational activities, information discovery, and predictive analytics through to executive

and external stakeholder reporting. The information architecture recognises six core Enterprise Systems as the principle systems of record:

- IBM Maximo – Asset Management;

- ESRI – GIS and mapping;

- Oracle Enterprise Suite – Financial Management;

- Gentrack Retail Management System – Customer and billing;

- Oracle APEX – number of small systems; and

- Northern Territory Government PIPS – Personnel and Payroll.

These systems provide real-time repositories of data that can be accessed through various reports and queries. Additionally, the Data Warehouse provides a subject-orientated copy of selected data and HP Records Manager provides functionality for electronic document management.

6.4.2 ICT Data Strategy

Power and Water's data architecture strategy is to provide access to data and subsequent information to support better decision-making to the extent possible within good data security parameters. This will be accomplished through the following activities:

- Conduct a Data Cleansing Initiative;

- Implement a Data Governance Program;

- Improve visibility of the available data assets, with support from Master Data Management and Data Quality frameworks that will ensure consistent use and interpretation of data and information;

- Leverage existing tools to provide access to information, and where there are gaps, implement new tools and practices to make data accessible, while secure, so that information is shared and collaboration is fostered;

- Establish operational data integration to minimise the semantic conflict between applications and processes.

7 ICT Operating Model & Capabilities

Power and Water's ICT Operating model is depicted in the following diagram:
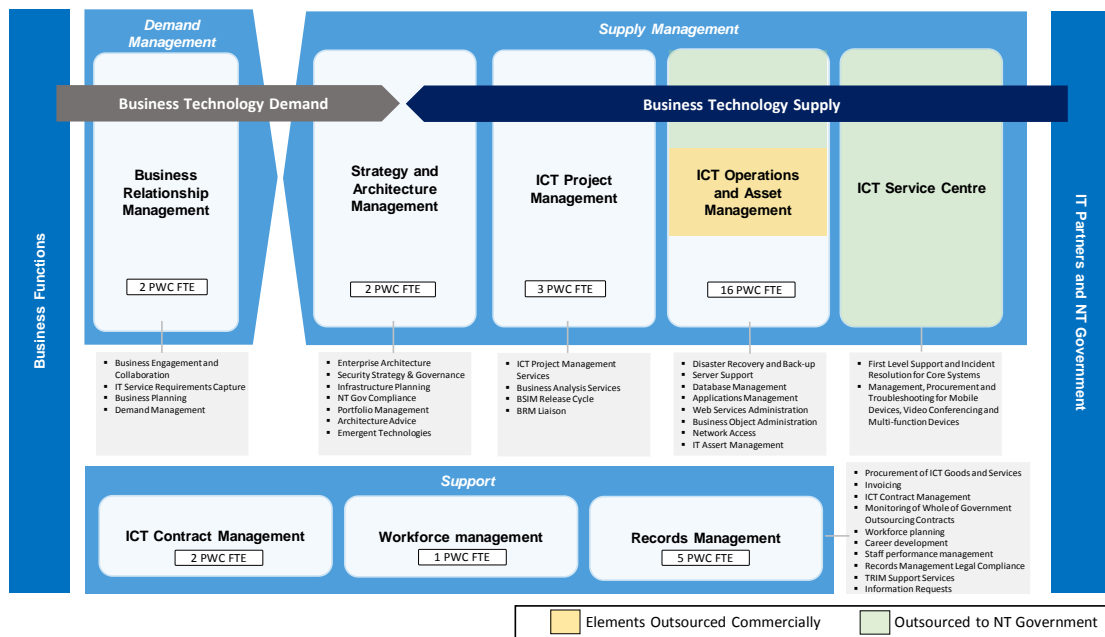
The ICT operating model will enable the achievement of the Power and Water strategic goals and delivery against the ICT strategic themes by ensuring effective supply of ICT services to meet the business need. Continued implementation of an effective ICT operating model based on the Plan, Build and Run value chain supported by Supplier Management, supports this. Each phase will align with the Power and Water ICT Principles:

- **Plan** – Ensure ICT plans leverage current ICT investments and utilise Power and Water-wide core enterprise systems to limit redundant licencing costs and realise capital investment.

- **Build** – Minimise customisation and maximise the value from technology investments.

- **Run** – Deliver 'fit-for-purpose' operations and adapt processes to support outsourcing.

- **Supplier Management** -- Effectively partnering with providers when not a Power and Water core competency.

Power and Water Corporation will enhance the delivery of ICT services by exploring further dimensions of the IT operating model. Key focus areas will be:

- **Processes** – build maturity of processes across the ICT lifecycle, with a focus on standardisation, quality and risk.

- **Performance** – improved identification of performance measures to drive business value from ICT investment.

- **Organisation and People** – ensure ongoing investment in skills and capability to deliver to Power and Water Corporation's current and future ICT needs. Attract and retain

people with wider skills in business management, vendor management and information management, rather than pure technology skills.

8 Governance Framework

8.1   Key governance attributes and mechanisms

The key attributes for governance of Power and Water ICT are:

• It is aligned to the Power and Water's business strategy and priorities

• It enables and facilitates the ICT operating model within the business

• There is formal and disciplined ICT investment planning

• There is clear ownership and accountability

• It adopts and follows good practice risk management discipline, and

• The business operating units will influence direction and prioritisation of ICT spend.

8.2   ICT Decision-Making and Approvals

Power and Water has comprehensive governance policies and processes covering business planning, investment management and ICT. Each of the decision making bodies from the Power and Water Board through to the individual Business System Steering Committees maintain appropriate charters and terms of reference to ensure transparent and effective governance.
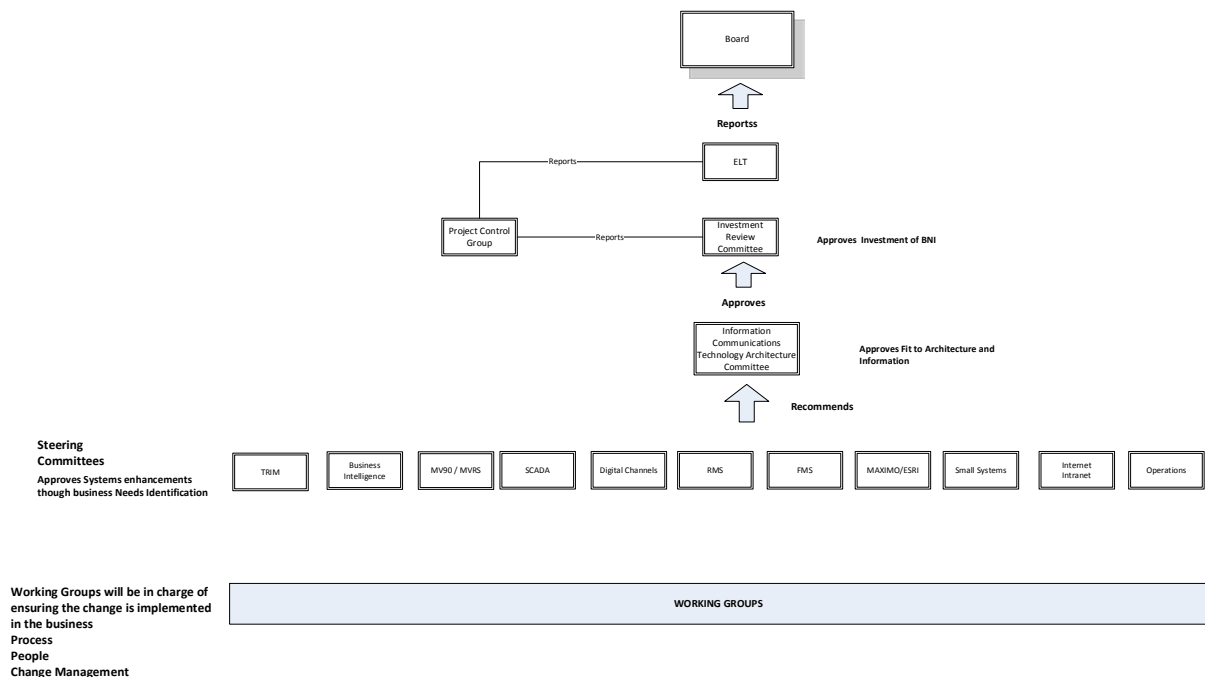
Key decisions and approvals for ICT are performed as follows:

- **The ICT Strategy** is submitted for approval at Executive Leadership Team.

- **ICT Investment Program** is submitted for approval to GM Shared Services for subsequent inclusion into the Shared Services Expenditure Plan.

- **ICT investments (Capex) required to support business initiatives** are identified and proposed by the Business System Owner and submitted for approval to the Investment Review Committee.

- **Investments (Capex) required for ICT Assets** (servers, pc's, etc.) are requested by ICT using a lifecycle management approach (risk-based) and approved through the annual budget process.

- **ICT Opex** is part of the wider Shared Services expenditure plan and is submitted and approved through the annual budget process.

9 Sourcing & Delivery Model

This section describes how Power and Water currently sources and intends to source the future ICT services and components, i.e. which items are or should be outsourced. This section also discusses delivery model considerations.

9.1 Sourcing

9.1.1 Current Sourcing Model

The principles of ICT Sourcing model are that Power and Water will:

- 'Right source' to balance efficiency, flexibility and delivery, based on the long-term view of demand;

- Use supplier partners for technology leadership, expert advice and innovative solutions to ensure Power and Water maintains leading industry technologies;

- Use Whole-of-Government partner arrangements, where possible, to ensure efficiencies in service delivery.

In practice, these principles mean that Power and Water will:

- Use a balance of in-house resources, fixed-term contractors and external suppliers depending on cost, availability and urgency;

- Keep core ICT capabilities (planning, architecture and supplier management) in-house;

- Outsource third level application support for enterprise systems, however, first and second level support is generally provided in-house;

- Source networking, desktop support and telecommunications services through whole of government contracts.

9.1.2 Sourcing Strategy

Power and Water's strategy for ICT sourcing is:

- Further outsourcing of ICT application support and infrastructure to leverage external suppliers, reduce costs and increase performance. This will likely include greater use of global delivery models;

- Leverage 'As a Service' where this is possible, to increase flexibility;

- Leverage external suppliers to provide Services Integration, reducing the number of internal resources required to manage external service provision over time and enabling greater flexibility to respond to a variable workload.

9.2 Delivery

9.2.1 Current Delivery Model

Currently, Power and Water uses a combination of internal and external resources to deliver ICT projects. Projects are delivered using a waterfall methodology aligned to PRINCE2

Power and Water's operational service delivery is aligned to the industry standard ITIL framework.

9.2.2 Delivery Strategy

Power and Water's strategy for ICT delivery is:

- When using external suppliers, the scope of services will be bundled to allow for adequate risk and reward trade-offs.

- ICT projects are predominantly managed using internal resources.

- When Project Teams are required to be augmented by external project managers, they are to be independent of the supplier selected to deliver the services

- Master Services Agreements and external service provider panels will be utilised to rationalise the number of suppliers and reduce vendor management activities and related costs.

Power and Water is confident that it has the capacity to deliver the forecasted ICT projects as the magnitude and intensity of change projects is expected to decrease from current levels.

10 Overview of ICT financials

Total ICT Capex has ranged from $2.4 to $3.7 million per year (in FY 2017/18 dollars) with an average of $2.9 million per year for the historical six-year period FY 2011/12 to FY 2016/17. As shown in the chart below, an increase in ICT Capex was required in FY 2013/14 to support the separation of Jacana Energy and Territory Generation from Power and Water and again in FY 2016/17 to begin implementation of various asset extension projects. Significant increases in ICT Capex to an average of $4.1 million per year are forecast for FY 2017/18 and FY 2018/19 as shown in the chart below:
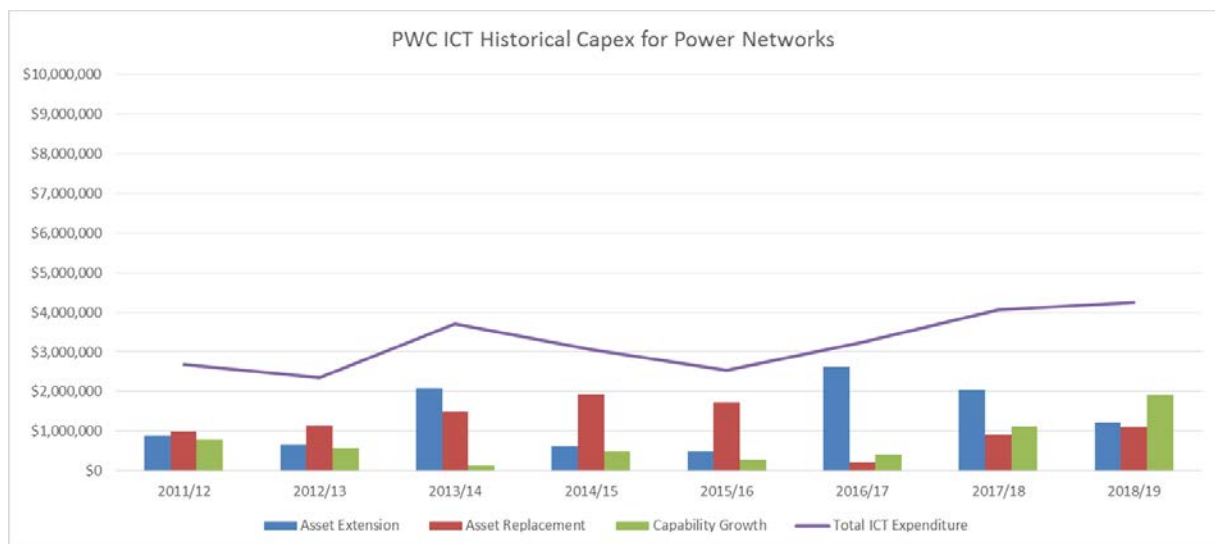
The primary drivers of these increases are complying with regulations, enhancing business efficiency, and meeting customer expectations. ICT Capex is required to prepare for major ICT asset replacement programs (in particular changes to Maximo, Gentrack and Oracle) and implementation of enhanced ICT capabilities for meter data management and outage management to comply with new regulations.

Power and Water has forecast a non-network ICT capital expenditure of $35.808 million for the five year period FY 2019/20 to FY 2023/24 (RCP1). For comparison purposes, Power and Water's ICT Capex forecast of $35.808 million averages to about $7 million per year for the five year period FY 2019/20 to FY 2023/24, with the increase primarily due to major ICT projects to upgrade or replace core enterprise systems:

PWC ICT Historical and Forecast Capex for Power Networks
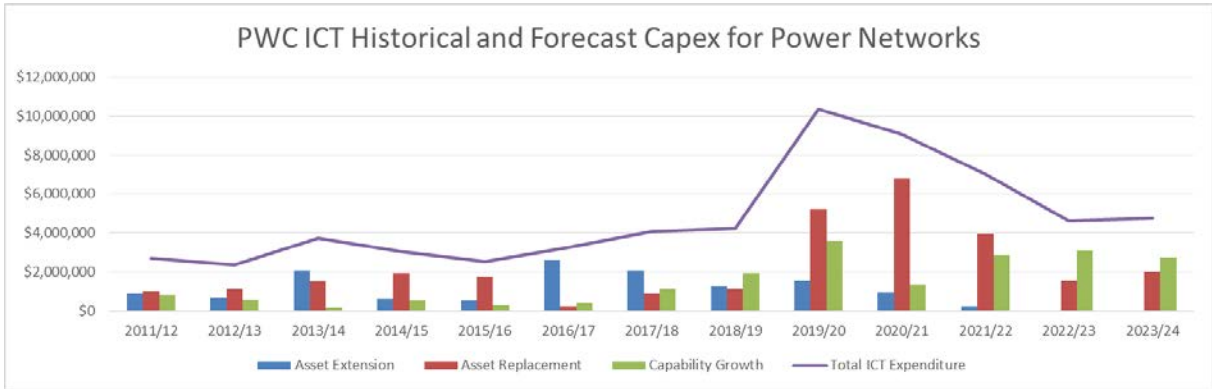
11 Review

This strategy will be reviewed, at a minimum, every year or in the event of any significant change in system or process.