

APPENDIX 32

ICT strategic plan



Information and Communications Technology Plan 2015-16 to 2019-20

Executive Summary

SPARQ Solutions (SPARQ) is a jointly owned subsidiary of Energex and Ergon Energy (Ergon) with each business holding a 50 per cent share. SPARQ operates as Energex and Ergon's CIO function, as well as providing ICT services to both businesses with the view to deliver greater efficiencies through economies of scale, and integration and co-ordination of ICT services to both distribution businesses. SPARQ is considered a related party under the National Electricity Law (NEL), and its Constitution requires that it operate on a not-for-profit basis. As its CIO and ICT Service provider, SPARQ has worked with Energex to compile its Information and Communications Technology (ICT) expenditure forecast.

During the 2015-20 regulatory control period, Energex's total ICT expenditure requirement is forecast at \$536.4M (\$ 2014-15) in operating and \$22.25M (\$ 2014-15) in capital expenditure. This ICT expenditure supports Energex in meeting its NER expenditure objectives for delivery of standard and alternative control services to customers in South East Queensland, and Energex's vision of delivering energy services for a sustainable future. The ICT strategic vision is to create an information enabled enterprise that will efficiently support, through prudent ICT investment, the business transformation to a sustainable and intelligent distribution network that empowers customer choice in energy products and services.

| Forecast Expenditure (\$M 2014-15) | | | | | | 2015/16 to |
|--|--------------|--------------|--------------|--------------|--------------|--------------|
| | 15/16 | 16/17 | 17/18 | 18/19 | 19/20 | 2019/20 |
| ICT Indirect Operating Expenditure | | | | | | |
| Asset Service Fees | 52.7 | 47.4 | 43.5 | 48.8 | 50.5 | 242.8 |
| Operational Support | 46.4 | 45.9 | 45.7 | 46.3 | 46.0 | 230.3 |
| Telecommunications Pass-through | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 37.0 |
| Non-Capital Project Costs | 4.4 | 7.8 | 7.3 | 5.0 | 1.8 | 26.3 |
| Total | <u>110.9</u> | <u>108.5</u> | <u>103.9</u> | <u>107.5</u> | <u>105.7</u> | <u>536.4</u> |
| Capital Expenditure - Energex ICT Assets | 2.3 | 6.8 | 7.3 | 2.7 | 3.3 | 22.3 |
| Total | | | | | | <u>558.7</u> |

Summary ICT Expenditure Forecast (\$ 2014-15)

SPARQ in consultation with Energex has developed this *Information and Communications Technology Plan 2015-16 to 2019-20* (ICT Plan) which sets out the strategic objectives and principles underpinning Energex's proposed ICT program of work. The proposed ICT program for the 2015-20 regulatory control period will allow Energex to deliver a structured ICT renewal program, sustain prudent ICT asset management, and mitigate high to extreme ICT and related business risks. It also positions Energex to respond to key external ICT drivers that will impact Energex's electricity network into the forthcoming regulatory control period including:

- Rapid development in technologies and the management of increasing complexity;
- Growth in commodity IT and Cloud Technology; and
- Emerging technologies including big data, mobility and social media.

Energex's total operating expenditure performance against the AER's 2010-15 regulatory control period determination of \$448.47M (\$ nominal) is forecast to be 8.87% over spent at the close of the current regulatory control period. This position is attributed to overly aggressive forecasts of operational support efficiency reductions associated with ICT asset upgrade/replacement projects, increased operational support costs associated with new ICT capabilities, including NECF compliance, the Distribution Management System (DMS) and the Enterprise Performance Management system. However, the latter are offset by savings in the business beyond ICT.

The \$536.4M (\$ 2014-15) total operating expenditure forecast for the 2015-20 regulatory control reflects the recovery of expenditure incurred by SPARQ associated with the provision of ICT services to Energex, and is treated as indirect operating expenditure. This expenditure covers the combined ICT operational support costs, telecommunication costs, non-capital project costs, and asset service fees associated with the ICT capital investment program in SPARQ on behalf of Energex. Asset service fees constitute 45% of the overall operating expenditure forecast, with the increase in the forthcoming regulatory control period related to current period investments and the ICT capital expenditure (equivalent) investment by SPARQ for Energex of \$218.12M (\$ 2014-15) during the 2015-20 regulatory control period.

Energex's capital expenditure performance against the AER's 2010-15 regulatory control period allowance of \$13.82M (\$ nominal) for end user devices is forecast to be 3.43% under spent at the close of the current regulatory control period. The forecast capital expenditure for the 2015-20 regulatory control period of \$22.25M (\$ 2014-15) for end user devices reflects the cost of prudent ICT asset life cycle management of existing devices, and the increased usage of IT devices to support further workforce mobility and productivity in the forthcoming regulatory control period.

Energex's ICT expenditure forecast for the 2015-20 regulatory control period has been prepared cognisant of learnings from current period performance, and in accordance with the *ICT Forecasting Method and Approach*¹.

Excluding the impacts of the ICT capital program in SPARQ, operational support expenditure has been held flat in nominal terms across the forthcoming regulatory period, representing a reduction in real terms. While the overall ICT investment program will contribute to Energex's achievement of their general efficiency savings, the ERP/EAM replacement program, which represents approximately 36% of the ICT capital program, is proposed to support additional savings. Though not quantified at this time, it is proposed that this replacement program will support Energex in the delivery of some \$2M to \$5M per annum in savings with the uptake of contemporary business processes and practices driven by this program.

It is considered that the ICT operating and capital expenditure proposed for the 2015-20 regulatory control period represents both prudent and efficient ICT expenditure to manage the concurrent operation and change of Energex's ICT capability in support of achieving the NER objectives, Energex's business strategies and customer outcomes.

¹ SPARQ Solutions, 2013, "ICT Forecasting Method and Approach", version 1.5.

Contents

| | | |
|----------|--|-----------|
| 1 | Introduction | 6 |
| | 1.1 Energex ICT Services..... | 6 |
| | 1.2 Purpose | 6 |
| | 1.3 Scope | 6 |
| | 1.4 Document Overview | 7 |
| | 1.5 Related documents..... | 8 |
| 2 | Strategic Approach | 9 |
| | 2.1 Overview..... | 9 |
| | 2.2 Energex Business Strategy | 9 |
| | 2.3 ICT Strategy | 9 |
| | 2.4 ICT Plan Outcomes | 10 |
| | 2.5 ICT Plan Approach | 11 |
| | 2.6 ICT Strategy and Plan Alignment to Business Strategy | 11 |
| 3 | ICT Expenditure Forecast and Current Period Performance | 12 |
| | 3.1 ICT Expenditure Forecast..... | 12 |
| | 3.2 Current Regulatory Control Period Performance..... | 20 |
| | 3.3 Telecommunications..... | 22 |
| | 3.4 Benchmark Performance..... | 23 |
| 4 | ICT current state and Program of Work 2015-16 to 2019-20 | 25 |
| | 4.1 Overview..... | 25 |
| | 4.2 Network Asset Management Segment | 26 |
| | 4.3 Network Operations Segment | 28 |
| | 4.4 Corporate Services Segment | 29 |
| | 4.5 Customer Services Segment..... | 30 |
| | 4.6 Enterprise Services Segment..... | 31 |
| | 4.7 ICT Infrastructure..... | 32 |
| 5 | ICT Governance & Asset Management | 33 |
| | 5.1 ICT Governance | 33 |
| | 5.2 ICT Asset Management..... | 35 |
| | Appendix A: Applications Current State and Transition State Diagrams..... | 38 |
| | Appendix B: Funding Arrangements | 40 |

Revision History

| Version | Reason for Update | Date Issued |
|---------|--------------------------|-----------------|
| 1.0 | Final for AER submission | 13 October 2014 |

1 Introduction

1.1 Energex ICT Services

SPARQ Solutions (SPARQ) is the jointly owned ICT services provider to its shareholders Energex and Ergon Energy. Each shareholding company holds a 50 per cent share. The company was established to achieve economies of scale in ICT service delivery, facilitate the sharing of ICT investments and provide a capability beyond the capacity of each company if it were to operate an in-house ICT delivery service.

Energex and Ergon Energy have also positioned their CIO functions within SPARQ, with the SPARQ Chief Executive Office acting as their Chief Information Officer (CIO). SPARQ is considered a related party under the National Electricity Law (NEL), and operates on a no profit basis, with cost recovery charging to Energex and Ergon Energy.

ICT expenditure incurred by SPARQ comprises expenditure directly attributable to ICT assets, including replacement, installation, operation, maintenance, licensing and leasing costs. SPARQ in consultation with Energex has developed the ICT Plan 2015-16 to 2019-20 (ICT Plan) which sets out the strategic objectives and principles underpinning Energex's proposed ICT program of work for the 2015-20 regulatory control period.

SPARQ's expenditure for the provision of ICT services is charged to Energex, with these fees treated as indirect operating expenditure, allocated to services consistent with Energex's approved cost allocation methodology (CAM).

A summary of the ICT governance arrangements is provided in section 5. The funding arrangements are detailed in Appendix B: Funding Arrangements.

1.2 Purpose

This document is the strategic ICT Plan for Energex. It defines the approach for the provision of ICT systems and services in support of Energex's business and ICT strategies.

The ICT Plan serves as the overview document for the Non-System ICT component of the operational and capital expenditure forecast of Energex's regulatory proposal. It summarises

- the approach to developing the ICT proposal for the 2015 – 2020 regulatory period
- the expenditure forecast (operational and capital), for inclusion in Energex's regulatory forecast
- the proposed ICT program, including objectives, risks and benefits
- a comparison of the forecast with the plans and performance for the current regulatory control period

This document will undergo annual review and update, serving as a rolling 2+5 (7) year strategic ICT Plan for Energex.

1.3 Scope

This plan specifies the ICT programs and services required in support of Energex achieving the expenditure objectives, as required in the National Electricity Rules (NER) clauses 6.5.6(a) and 6.5.7(a), to

- Meet or manage the expected demand for standard DNSP services
- Comply with all applicable regulatory obligations
- Maintain the quality, reliability and security of standard DNSP services
- Maintain the safety of the system

Energex shares certain ICT services with Ergon Energy, however, this ICT plan only contains Energex's portion of the forecast.

Excluded from the scope of the current version of this ICT plan are:

- ICT infrastructure (network data cabling etc) required for new facilities contained within the Energex Property Plan;
- Intelligent Electronic Devices connected to the power network, as well as related telecommunications infrastructure - system components covered by Energex's *Operational Technology Plan*;
- ICT systems and services supporting business services that are not subject to the regulatory proposal submitted to the AER; and
- New ICT capabilities, the resulting benefits of which have been factored into supporting overall reductions in the operational expenditure forecast of Energex's regulatory proposal.

1.4 Document Overview

This ICT Plan is structured as follows:

- Introduction - purpose, scope and content of the ICT Plan, related documents, overview over SPARQ Solutions (section 1)
- Strategic Approach - Business and ICT Strategy and strategic drivers, ICT plan objectives, planning approach (section 2)
- ICT Expenditure Forecast and Current Period Performance - overview of the operational and capital expenditure forecasts, financial performance and ICT plans for the current regulatory control period (section 3)
- ICT current State and Program of Work (current state, ICT activities in the current regulatory control period, proposed Program of Work for the forthcoming regulatory period (section 0)
- ICT Asset Management and Governance - ICT governance approach and framework, ICT Asset Management approach for applications and infrastructure (section 5)

Two appendices provide supplementary information:

- Appendix A – High-level architectural diagrams, showing the current state of applications by business area, the planned future state for 2020, as well as indicating the change activity expected to have occurred by 2020.
- Appendix B – Explains the funding arrangements between Energex and SPARQ Solutions

1.5 Related documents

A suite of interrelated documents has been developed in support of the expenditure forecast outlined in this ICT plan (see Figure 1). These documents cover the following subject areas:

- Governance:
 - Guides development of plans and portfolio in alignment with Business and ICT Strategy
 - Ensures prudence and efficiency of the proposed ICT program and services
- Planning:
 - 2020 target ICT architecture(s), roadmap and plan, developed to support Business and ICT Strategy
- Portfolio:
 - Expenditure forecast and investment justification
 - Review of the current regulatory control period

Figure 1 below, “ICT Documentation Overview”² provides a graphical overview of the supporting documentation suite to assist in navigating the support material.

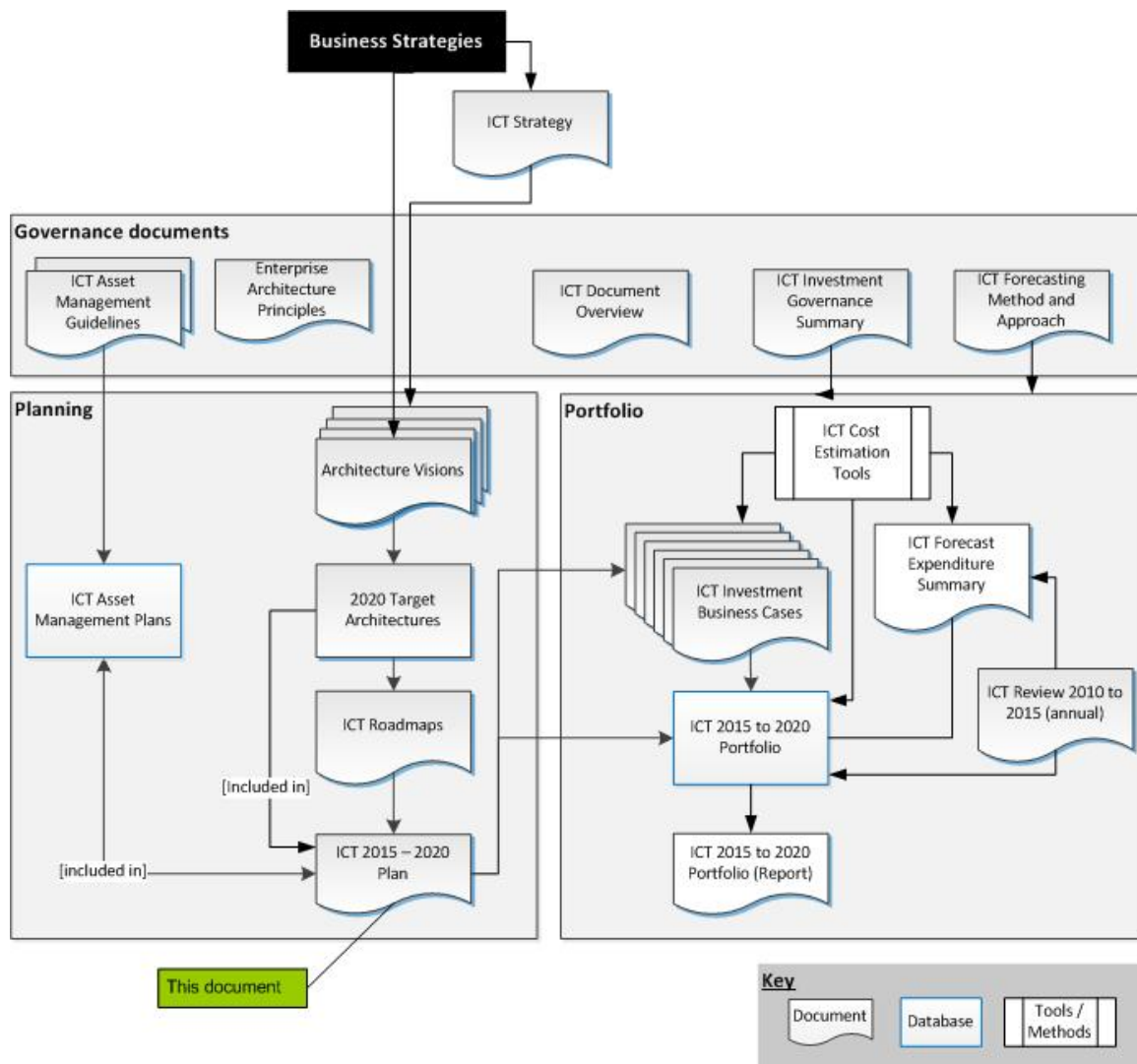


Figure 1 Documentation Overview

(Including document interrelationships, supporting the ICT component of Energex’s regulatory proposal for the 2015 to 2020 regulatory control period)

² The *ICT Documentation Overview* document is located in the set of documents provided with this plan.

2 Strategic Approach

2.1 Overview

The ICT Plan is developed to support the objectives of the NER, the Energex Business and aligned ICT Strategy. The ICT Strategy has been developed to support the objectives of Energex's business strategy through change and operations of the ICT environment. The following section provides a summary of the Energex Business Strategy, the ICT Strategy and its alignment to the business strategy, as well as the high level outcomes of the ICT Plan in support of the ICT Strategy.

2.2 Energex Business Strategy

Energex's 5 Year Corporate Plan³ provides guidance on the business environment and corresponding strategic responses. The pace of change in the energy industry continues to accelerate, providing both opportunities and challenges for Energex.

The significant drivers influencing the Energex Business Strategy include:

- Electricity price pressures
- Government policy and regulation
- Changing customer behaviour and expectations
- Evolving electricity supply chain
- Technology innovation

Energex's strategic response to these drivers over the 2015-20 regulatory control period will focus on the five key target areas of:

- Maintaining operational performance
- Queensland energy market reform
- Revenue, asset value and shareholder value
- Business efficiency and optimising network utilisation
- Future network capability

2.3 ICT Strategy

The ICT Strategy has been defined to support achieving the strategic goals and objectives of Energex. The strategy focuses on utilising contemporary Information and Communications Technology to enable business capability, efficient performance and optimise information based decision making.

The ICT strategy encompasses the following strategic objectives:

1. **Business-Aligned ICT Change:** Ensure that planning and development of ICT programs support business change programs, while optimising system efficiency and effectiveness. This strategic objective responds to the rapid development in technology and the need to manage complexity in order to minimise cost and risk in the future.
2. **IT as a Service:** Drive greater use of commodity ICT services, alternate sourcing approaches and modernisation of the applications portfolio. This strategic objective responds to the growth and maturity in commodity devices and services, including Cloud based services.

³ 'Summary of Energex's 5 Year Corporate Plan', June 2014, Energex, Brisbane

3. **Managed Information:** Drive operational efficiency through technology and information enablement, unlocking further value through broad access to secure information. This strategic objective responds to emerging technologies including big data, mobility and social media.

The significant drivers that influence the ICT Strategy and supporting ICT Plan are:

- Achievement of the NER Expenditure Objectives⁴:
 - meet and manage the expected demand for regulated services over the regulatory control period;
 - comply with all applicable regulatory obligations or requirements associated with the provision of standard control services;
 - maintain the quality, reliability and security of supply of standard control services and
 - maintain the reliability, safety and security of the distribution system through the supply of standard control services.
- Support of the five key target areas of the Energex Business Strategy (see section 2.2):
 - Maintaining operation performance
 - Queensland energy market reform
 - Revenue, asset value and shareholder value
 - Business efficiency and optimising network utilisation
 - Future network capability
- Addressing business risks arising from legacy systems that are approaching obsolescence during the next regulatory period (see section 5.2.2)
- Managing and optimising the value of ICT assets throughout their lifecycles based on industry information and published vendor data
- Ensuring that ICT investments are prudent, through the adoption of utility industry best practice ICT strategies
- Leveraging emerging technologies such as Social, Mobility, Big Data and Cloud⁵ where appropriate in support of Energex meeting the NER Expenditure Objectives⁶

2.4 ICT Plan Outcomes

The ICT Plan consists of a planned group of investments targeted at managing the ICT assets in accordance to ICT asset management guidelines (see section 5.2.2) and achieving business objectives. The planned outcomes of this ICT plan are:

- A stable and efficient ICT environment to support business operations
- Sustain and enhance existing capabilities through upgrades that leverage the flexibility and extensibility of incumbent systems
- Risk mitigation through replacement of obsolete systems. These include:
 - Administrative ERP system
 - Enterprise Asset Management system
 - Market systems
- Increased business productivity through emerging mobile device technology, enabled by appropriate security capabilities

⁴ National Electricity Rules, version 62, chapter 6

⁵ Gartner *Nexus of Forces* (<http://www.gartner.com-it-glossary-nexus-of-forces>)

⁶ NER Clauses 6.5.6(c) and 6.5.7 (c)

- An ICT architecture that is sufficiently flexible to efficiently adapt to the evolving electricity industry and market, such as:
 - Improved accuracy, visibility and management of the Low Voltage network
 - Deliver information and analytics to provide insights and improve decision making and processes

2.5 ICT Plan Approach

The approach to achieving the ICT Plan outcomes is to:

- Leverage ICT commodity services
 - Maturing cloud computing services
 - Commodity consumer grade devices and services
- Implement contemporary solutions
 - Commercial-Off-The-Shelf solutions configured to business requirements, versus bespoke systems customised to the business
- Optimise ICT change planning and governance through an Enterprise Architecture framework and enhanced ICT Asset management practices (see section 5.1.1)
- Utilise SPARQ's recently established project service panel arrangements with external ICT Service Providers to implement change initiatives efficiently and effectively

2.6 ICT Strategy and Plan Alignment to Business Strategy

The following table illustrates the alignment of the ICT Strategy and Plan in supporting the delivery of Energex's Business Strategy over the coming regulatory control period.

| Energex Business Strategy – Key Target Areas | | | |
|--|---|--|---|
| ICT Strategy | Maintaining operational performance Revenue, asset value and shareholder value | Business efficiency and optimising network utilisation | Queensland energy market reform Future network capability |
| Business Aligned ICT Change | Sustain capabilities through upgrades Implement contemporary solutions Replace obsolete systems | Improved visibility and management of the Low Voltage network Implement contemporary solutions Improved field productivity through emerging mobile device technology ICT Asset Management | Replace obsolete systems Implement contemporary solutions |
| IT as a Service | A stable and efficient ICT operating environment | Leverage ICT commodity services Project delivery panel | Maturing Software As A Service (SaaS) offerings Commodity devices and services |
| Managed Information | Deliver information and analytics | Deliver information and analytics | Deliver information and analytics |

Table 1 Alignment of Business and ICT Strategy

3 ICT Expenditure Forecast and Current Period Performance

3.1 ICT Expenditure Forecast

This section provides an overview of the Operating and Capital Expenditure forecast for Information Technology and Communications (ICT) Services which form part of Energex's indirect operating expenditure (Opex), and Non-systems ICT capital expenditure for 2015-20. The ICT expenditure is an input to the approved Energex Cost Allocation Method (CAM) to ensure appropriate allocation of ICT expenditure across the regulated and non-regulated business activities.

The expenditure forecast has been prepared according to the *ICT Forecasting Method and Approach*⁷ provided. Total ICT expenditure (\$ 2014-15) of \$536.4M operating and \$22.25M capital is proposed for the 2015-20 regulatory control period to support the expenditure objectives⁸ of

1. Meeting or managing the expected demand for regulated services over regulatory control period. This is achieved through operating and maintaining supporting ICT systems over their life cycle and prudent replacement of obsolete systems.
2. Maintain compliance with all applicable regulatory obligations or requirements associated with the provision of regulated services. This is achieved through operating and maintaining ICT systems in accordance with regulatory and statutory requirements and prudent replacement of obsolete systems to maintain compliance with regulatory and statutory requirements.
3. Maintain the quality, reliability and security of regulated services. This is achieved through operating and maintaining ICT systems that impact the ability of Energex in delivery of quality, reliability and security of regulated services.
4. Maintain the safety of the distribution system. This is achieved through operating and maintaining ICT systems that support the safety of the distribution system.

ICT expenditure is defined as all non-network expenditure directly attributable to ICT assets in scope of this ICT Plan (see section 1.3), including: installation, operation, maintenance, replacement, licensing and leasing costs.

A summary breakdown of Energex's total ICT Expenditure Forecast for the 2015-20 regulatory control period is detailed in Table 2 below. The expenditure elements that make up these forecasts are described in the subsequent sections of this chapter.

| Forecast Expenditure (\$M 2014-15) | | | | | | 2015/16 to |
|--|--------------|--------------|--------------|--------------|--------------|--------------|
| | 15/16 | 16/17 | 17/18 | 18/19 | 19/20 | 2019/20 |
| ICT Indirect Operating Expenditure | | | | | | |
| Asset Service Fees | 52.7 | 47.4 | 43.5 | 48.8 | 50.5 | 242.8 |
| Operational Support | 46.4 | 45.9 | 45.7 | 46.3 | 46.0 | 230.3 |
| Telecommunications Pass-through | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 37.0 |
| Non-Capital Project Costs | 4.4 | 7.8 | 7.3 | 5.0 | 1.8 | 26.3 |
| Total | 110.9 | 108.5 | 103.9 | 107.5 | 105.7 | 536.4 |
| Capital Expenditure - Energex ICT Assets | 2.3 | 6.8 | 7.3 | 2.7 | 3.3 | 22.3 |
| Total | | | | | | 558.7 |

Table 2: Summary ICT Expenditure Forecast (\$ 2014-15)

⁷ SPARQ Solutions, 2013, "ICT Forecasting Method and Approach"

⁸ NER Clauses 6.5.6(a) and 6.5.7(a)

3.1.1 Asset Service Fees

Asset Service Fees are operating expenditure reflecting the recovery of ICT asset depreciation (for tangible assets such as hardware), amortisation (for intangible assets such as software) and related financing costs of the ICT assets held by SPARQ solutions on behalf of Energex.

The level of this expenditure is directly related to the value of ICT assets, which in turn is driven by past and proposed ICT investment programs. The execution of the ICT investment program therefore leads to variations in the annual Asset Service Fee requirements. Details of the governance mechanisms in place to ensure investments are made on a prudent and economic basis are set out in section 5.1.

The 2015-20 regulatory period forecast for Asset Service fees is \$242.84M (\$ 2014-15) as detailed in Table 3. This is comprised of \$153.27M (\$ 2014-15) in asset service fees resulting from historic and current regulatory period ICT investments, and \$89.57M (\$ 2014-15) associated with SPARQ's proposed ICT capital investment program for the 2015-20 regulatory control period. Details of the proposed ICT program are set out in the SPARQ ICT capital expenditure forecast described in section 3.1.6 and section 4.

| Asset Service Fees | | 2015-2020 Regulatory Control Period | | | | | |
|--|---------|-------------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|--------------------------|
| | | 2015/16 Forecast \$M | 2016/17 Forecast \$M | 2017/18 Forecast \$M | 2018/19 Forecast \$M | 2019/20 Forecast \$M | Total Forecast \$M |
| On Opening Assets | | 36.44 | 26.07 | 17.47 | 10.46 | 4.91 | 95.35 |
| On Assets Capitalised | 2014/15 | 6.16 | 8.01 | 7.82 | 7.63 | 7.42 | 37.04 |
| Finance costs recovered | | 8.54 | 6.15 | 3.64 | 1.93 | 0.62 | 20.87 |
| ASF - recovering costs of 2010-15 AER assets | | 51.15 | 40.23 | 28.93 | 20.01 | 12.95 | 153.27 |
| On Assets Capitalised | 2015/16 | 1.10 | 5.33 | 5.20 | 5.08 | 4.97 | 21.69 |
| On Assets Capitalised | 2016/17 | | 0.02 | 5.60 | 5.46 | 5.32 | 16.40 |
| On Assets Capitalised | 2017/18 | | | 0.03 | 9.32 | 9.08 | 18.43 |
| On Assets Capitalised | 2018/19 | | | | 0.52 | 7.90 | 8.42 |
| On Assets Capitalised | 2019/20 | | | | | 0.31 | 0.31 |
| Finance costs recovered | | 0.41 | 1.79 | 3.72 | 8.45 | 9.96 | 24.32 |
| ASF - recovering costs of 2016-20 AER assets | | 1.51 | 7.14 | 14.55 | 28.83 | 37.55 | 89.57 |
| Asset Service Fees | | 52.65 | 47.37 | 43.48 | 48.84 | 50.49 | 242.84 |

Table 3: Asset Service Fees Expenditure Forecast (\$ 2014-15)

The ICT depreciation and amortisation are calculated based on the capitalised value of the ICT asset and scheduled over the useful life of the asset. The useful life of the ICT asset is defined in the ICT Application Asset Management and ICT Infrastructure Asset Management guidelines.

Financing for the acquisition of ICT assets to be held by SPARQ Solutions for the benefit of Energex is provided by Energex and carries a finance charge set at Energex's Regulatory Rate of Return (RoR). The effect of this is that the finance cost component of the Asset Service fee is offset by the cost of debt paid to Energex for the financing of the underlying assets. For the purposes of the Plan, the RoR is as used by Energex in its overall submission to the AER for the 2015-20 regulatory control period.

3.1.2 Operational Support

Operational support expenditure represents the recurrent cost of the ongoing operation, support and maintenance of ICT Services defined in the Service Level Agreement (SLA) between Energex and SPARQ Solutions. These services include end-user services, business applications services and ICT infrastructure services. Cost elements include labour (internal and external), software and hardware licence and maintenance, SPARQ property, training and a portion of SPARQ overhead costs (i.e. HR, Finance, Contracts and office of the CEO). The expenditure forecast for operational support services is \$230.32M (\$ 2014-15) as detailed in Table 4.

| Operational Support | | 2015-2020 Regulatory Control Period | | | | | Total Forecast \$M |
|---------------------------------|---------|-------------------------------------|----------------------|----------------------|----------------------|----------------------|--------------------|
| | | 2015/16 Forecast \$M | 2016/17 Forecast \$M | 2017/18 Forecast \$M | 2018/19 Forecast \$M | 2019/20 Forecast \$M | |
| Operational Support Costs | | 40.41 | 39.40 | 38.42 | 37.45 | 36.52 | 192.20 |
| Attributable to Program of Work | 2014/15 | 5.88 | 5.73 | 5.59 | 5.45 | 5.31 | 27.95 |
| Attributable to Program of Work | 2015/16 | 0.12 | 0.12 | 0.12 | 0.11 | 0.11 | 0.58 |
| Attributable to Program of Work | 2016/17 | | 0.62 | 0.61 | 0.59 | 0.58 | 2.40 |
| Attributable to Program of Work | 2017/18 | | | 1.02 | 0.99 | 0.97 | 2.98 |
| Attributable to Program of Work | 2018/19 | | | | 1.74 | 1.70 | 3.44 |
| Attributable to Program of Work | 2019/20 | | | | | 0.78 | 0.78 |
| Operational Support Costs | | 46.41 | 45.87 | 45.74 | 46.34 | 45.96 | 230.32 |

Table 4: Operational Support Expenditure Forecast (\$ 2014-15)

As SPARQ Solutions provides operational support services to both Energex and Ergon Energy, an activity costing system is used to capture and cost actual time spent performing the various support activities required by each client.

Software and hardware licence fees and maintenance fees arise either when contractually required by a vendor as part of an ICT asset acquisition or as a support requirement when a business system is determined to be, at a minimum level, an “Essential System” in the SLA. These costs are typically 20% to 25% of the recommended retail price for software and 15% to 20% of the recommended retail price for hardware. Escalation of these costs are determined as part of the licence agreement and underlying contract, usually at rates linked to CPI increases.

Step changes in operational support expenditure occur when new ICT capability is delivered or where a change in service levels is required by Energex. Costs of such changes are determined and approved using ICT Industry processes for Service Level Variations, and when driven by new ICT capability, form part of the business case considered in the Investment Governance process.

Consequently, the expenditure forecast separates the baseline operational support services at commencement of the next regulatory control period from adjustments proposed as a consequence of executing the ICT capital program during the period. The baseline forecast proposes a downward expenditure trend for the period in real terms as demonstrated in Figure 2.

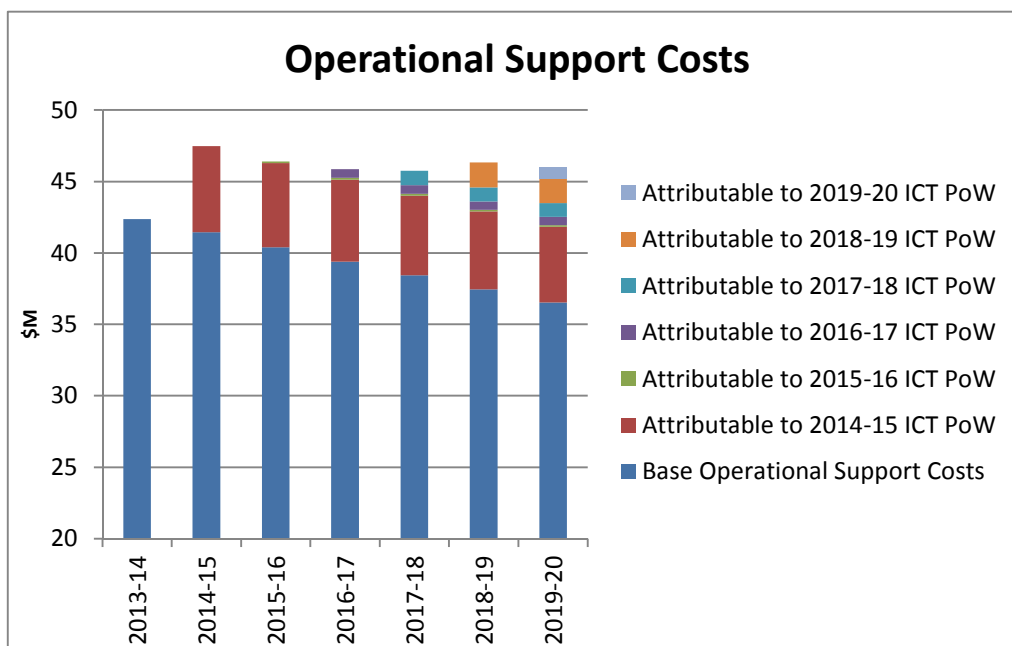


Figure 2: Operational Support Expenditure Actual and Forecast (\$ 2014-15)

This downward expenditure trend will be achieved through:

- Consolidation of applications as part of the more significant ICT replacement initiatives, such as ERP/EAM, to achieve lower ongoing costs in comparison to the aggregate support costs of multiple applications.
- Adopting an economic and risk based approach to renewal of license maintenance and support. This includes terminating licence maintenance and adopting support only arrangements. Additionally, where products are mature, stable and not subject to ongoing change, termination of both licence maintenance and support will be considered. This approach also assesses the future impact of license reacquisition, factoring the benefit of discounted pricing.
- Review of alternate support models over the existing internal support models.

3.1.3 Telecommunications

Telecommunications services used by Energex include carrier, mobile, data, voice, video, and device management services and associated costs are consider recurrent operating expenses. These services are required for Contact Centres, Control Rooms and general business operations (including services required for field force automation). The expenditure forecast for telecommunications services is \$37.16M (\$ 2014-15) as detailed in Table 5.

| Telecommunications & Passthrough | 2015-20 Regulatory Control Period | | | | | |
|--|-----------------------------------|---------------------|---------------------|---------------------|---------------------|-------------------|
| | 2015/16 Forecast | 2016/17 Forecast | 2017/18 Forecast | 2018/19 Forecast | 2019/20 Forecast | Total Forecast |
| | \$M | \$M | \$M | \$M | \$M | \$M |
| Carrier - voice and data - services | 5.18 | 5.18 | 5.18 | 5.18 | 5.18 | 25.92 |
| Managed contact centre services | 2.05 | 2.05 | 2.05 | 2.05 | 2.05 | 10.25 |
| Un-capitalised financed for work in progress | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.98 |
| Telecommunications costs | 7.43 | 7.43 | 7.43 | 7.43 | 7.43 | 37.16 |

Table 5: Telecommunication and Pass through Expenditure Forecast (\$ 2014-15)

SPARQ sources and manages telecommunication services on behalf of Energex under market based contracts with Telstra and Optus, supplemented with some internal Energex services. Costs incurred from these contracts are treated as a “pass-through” cost, in that no SPARQ overhead is applied. There are separate contracts in place for voice and data (carrier services) and for provision of managed contact centre services.

Usage of Telecommunication services is expected to increase across the next regulatory control period, driven by increasing requirements for user mobility and infield computing. However, the forecast proposes a flat lining of expenditure trend in real terms. This will be achieved through:

- Expanding or transitioning services to the distributor’s communications network where prudent and efficient.
- Execution of contract provisions for periodic price reviews and resets based on independent benchmarking of the telecommunications industry. This facilitates increased telecommunications bandwidth and usage at similar prices or better. These provisions have been established in line with the Telecommunications contract management strategy.

3.1.4 Non-Capital Project Expenditure

Non-Capital Project expenditure is the non-recurrent operating expenses reflecting the ICT project specific expenses which cannot be capitalised under Australian Accounting Standards. This expenditure is a direct result of the ICT Program of Work; examples include business case development, initial scoping and conceptual design, decommissioning costs and implementation costs. Therefore the driver of forecast expenditure for the 2015-20 regulatory control period is the proposed ICT capital investment program. The non-capital project expenditure forecast is \$26.32M (\$ 2014-15) as detailed in Table 6.

| Forward Program of Work Expenditure | 2015-20 Regulatory Control Period | | | | | |
|-------------------------------------|-----------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|--------------------------|
| | 2015/16 Forecast \$M | 2016/17 Forecast \$M | 2017/18 Forecast \$M | 2018/19 Forecast \$M | 2019/20 Forecast \$M | Total Forecast \$M |
| Capital Expenditure proposed | 47.06 | 58.53 | 65.84 | 38.31 | 30.63 | 240.37 |
| Non-Capital Project Costs | 4.36 | 7.84 | 7.34 | 4.95 | 1.83 | 26.32 |

Table 6: Non-Capital Project Expenditure Forecast (\$ 2014-15)

This expenditure is included in the Investment business cases considered under Energex's Investment Governance Process described in section 5.1.

3.1.5 Capital Expenditure - Energex owned assets

The general principle applied to ICT asset ownership under the SPARQ Solutions operating model is that assets are held by SPARQ Solutions on behalf of Energex and Ergon Energy, in order to facilitate sharing, manage licencing and facilitate economies of scale with purchasing. However, Energex maintains asset ownership of client devices used by its employees and contractors, with SPARQ managing this procurement process.

This ICT asset expenditure is considered recurrent capital expenditure, associated with the procurement and replacement of client devices used by Energex employees and contractors. This expenditure includes hardware devices that access services made available by a server, such as desktop computers, laptops, tablets, handheld devices, smartphones and printers. The capital expenditure forecast for end user devices is \$22.25M (\$ 2014-15) as detailed in Table 7.

| Energex ICT Assets | 2015-20 Regulatory Control Period | | | | | |
|--------------------|-----------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|--------------------------|
| | 2015/16 Forecast \$M | 2016/17 Forecast \$M | 2017/18 Forecast \$M | 2018/19 Forecast \$M | 2019/20 Forecast \$M | Total Forecast \$M |
| End user devices | 2.3 | 6.8 | 7.3 | 2.7 | 3.3 | 22.25 |

Table 7: End User Device Expenditure Forecast (\$ 2014-15)

The timing for these investments is driven by the age of individual devices and the ICT Infrastructure Asset Renewal Guidelines. The volume is determined by the existing fleet of client devices and projected increases or decreases in headcount or other drivers.

3.1.6 SPARQ Solutions ICT Capital Forecast

ICT assets held by SPARQ Solutions on behalf of Energex are allocated to Energex as an Asset Service Fee (see section 3.1.1). The ICT capital expenditure program proposed to be undertaken by SPARQ on behalf of Energex is \$240.37M (\$ 2014-15) for the 2015-20 regulatory control period and is detailed below. \$218.12M of these assets will be held by SPARQ Solutions, with the balance of \$22.25M (\$ 2014-15) to be held by Energex and used for client devices (see section 3.1.5).

| Energex - Summary of Capital Investment Program for items in the ICT Portfolio | | | | | | | | Real 2014/15 |
|--|--------------------------------------|-------------|--------------|--------------|--------------|--------------|--------------|---|
| ICT Architecture Segment | Initiative | 14/15 (\$M) | 15/16 (\$M) | 16/17 (\$M) | 17/18 (\$M) | 18/19 (\$M) | 19/20 (\$M) | Total (\$M) Forthcoming Regulatory Control Period |
| 1. Network Asset Management | Enterprise Asset Management | | | 11.10 | 26.10 | 15.20 | | 52.40 |
| 1. Network Asset Management | Network Information Enablement | | 10.92 | | | 1.60 | 3.00 | 15.52 |
| 2. Network Operations | Advanced Distribution Management | | | 3.00 | 5.30 | 3.20 | | 11.50 |
| 2. Network Operations | Distributed Workforce Automation | | 0.40 | 0.40 | 1.65 | 1.65 | 0.40 | 4.50 |
| 3. Corporate Services | Administrative ERP | | 17.45 | 17.45 | | | | 34.90 |
| 4. Customer Services | Market Systems Modernisation | | 4.55 | 4.55 | | | 10.90 | 20.00 |
| 5. Enterprise Services | Business Analytics Renewal | | | 5.45 | 5.45 | | | 10.90 |
| 5. Enterprise Services | Information Security Enhancement | | 2.20 | | | | 2.20 | 4.40 |
| 5. Enterprise Services | Integration Platform Renewal | | | | 11.40 | | | 11.40 |
| 6. ICT Infrastructure | Desktop and Productivity thin client | | | | 2.53 | 1.27 | | 3.80 |
| 6. ICT Infrastructure | End User Devices | | 2.25 | 6.84 | 7.25 | 2.66 | 3.25 | 22.25 |
| 6. ICT Infrastructure | Infrastructure | | 5.29 | 5.74 | 2.16 | 8.73 | 6.88 | 28.80 |
| ALL | Applications Replacement and CI | | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 20.00 |
| | TOTAL | | 47.06 | 58.53 | 65.84 | 38.31 | 30.63 | 240.37 |

Table 8: ICT Capital Expenditure Forecast (\$ 2014-15)

The four key drivers of the SPARQ Solutions ICT capital forecast for the FY 2015-16 to FY 2019-20 regulatory control period are:

1. **Support lifecycle** of individual ICT assets that drive a recurrent cycle of patches, minor enhancements, system upgrades and infrastructure replacements as described in the ICT asset management guidelines. "Appendix A: Applications Current State and Transition State Diagrams" identifies those systems to be upgraded by this plan.
2. **Obsolescence** of ICT assets that drives replacement of systems, this expenditure is considered a non-recurrent expenditure due to the low frequency of the expenditure, typically 10 to 15 years for foundation systems and 7 to 10 years for systems of differentiation. "Appendix A: Applications Current State and Transition State Diagrams" identifies obsolete systems, and those systems to be replaced by this plan.
3. Energex **business strategy** and Business Enablement Program (BEP).
4. Change in regulatory and statutory **compliance** requirements.

The current determination included a total ICT capital expenditure program of \$224.64 (\$ nominal). The proposed ICT capital expenditure forecast for the 2015-20 regulatory control period is higher than last determination, driven significantly by the need to replace the ERP/EAM systems and sustain new capabilities introduced in the current period. These include the Distribution Management System (DMS), the Enterprise Performance Management (EPM) and system investments to support compliance with the National Energy Customer Framework.

While the overall ICT investment program will contribute to Energex's achievement of their general efficiency savings, the ERP/EAM replacement program, which represents approximately 36% of the ICT capital program, is proposed to support additional savings. Though not quantified at this time, it is proposed that this replacement program will support the Energex in the delivery of some \$2M to \$5M per annum in savings with the uptake of contemporary business processes and practices driven by this program.

ICT Capital Optimisation

The ICT capital expenditure forecast is the result of an assessment of business priorities and sustainment requirements of existing ICT assets identified through the ICT planning process. The assessment also moderated the aggregate effect of forecasting at an individual initiative level, as well as opportunities for portfolio level synergies. This resulted in a reduction of the original ICT capital plan from \$287M to \$240.37M (\$ 2014-15). The criteria applied for prioritisation were:

- **Benefits:** New ICT capabilities justified through speculative operational benefits, which were unable to be incorporated into reductions of Energex's operational forecasts, have been excluded from the ICT capital forecast. These may be reviewed in the course of the forthcoming period, but would be subject to further business case analysis and investment assessment, with formal financial approval at the time of the investment.
- **Risk:** A high level risk assessment of "do nothing - deferral" of system upgrades - renewals to inform the prioritisation process, and a moderate ICT risk position for Energex's ICT has been adopted. System upgrades - renewals that aimed at achieving lower risk levels were deferred (e.g. a renewal of the Content Management system)⁹.
- **Applications Life Cycle Management:** ICT Systems comprise a complex environment of interrelated software and hardware, provided by different vendors with different patching and upgrade requirements. It is prudent to maintain ICT systems to ensure reliable operation. The ICT Asset Management Guidelines (see section 5.2) have been applied to produce the forecast for ICT system upgrades.
- **Interdependencies with other programs** in the 2014-15 ICT program of work or within the 2015-20 regulatory control period.
- **Business change impact:** sequencing of the ICT program of work to accommodate business change capacity and key resource risks (e.g. phased approach to Ellipse 5 replacement, with the Administrative ERP replacement leading the Asset Management implementation, to enable focus of the GIS/NFM replacement).
- **External influences** (e.g. predicted uptake of demand management through Energex's customer base, driven by Power of Choice).
- **Moderating or smoothing capital cash flow fluctuations** across the 2015–20 regulatory period has been used to reflect efficient delivery of ICT investments.

The three investment strategies shaping the ICT capital forecast are:

System Replacement:

The core foundation systems of Enterprise Resource Planning (ERP), Enterprise Asset Management (EAM) and Market Systems are approaching obsolescence during the next regulatory control period. Replacement of core foundation system will enable re-alignment of systems with changes in Energex's business strategy, re-architecture for improved operational efficiency and mitigate system risk. Replacement investments include

- Enterprise Asset Management
- Administrative ERP
- Market Systems Modernisation

⁹ Manual 0559 Network Risk Based Assessment Framework Manual

System Maintenance:

Throughout the operational life-cycle of ICT systems, investment is required to patch, upgrade, enhance and replace system components in order to maintain optimal performance of systems in supporting expenditure objectives. Maintenance investments include

- ICT Infrastructure
- Application replacement and continuous improvement (CI)
- Integration Platform renewal
- Business Analytics Platform renewal
- Distribution Workforce Automation

New Systems Capabilities:

These initiatives are in response to Energex's business strategy, changes in regulatory and statutory requirements and changes in the technology environment. New capabilities investment include

- Information Security enhancements required to support emerging use of consumer devices

Additional ICT investment opportunities have been identified with the potential to deliver further operational efficiency benefits during the next regulatory control period. These investments and subsequent expenditure forecasts have not been included in the Regulatory Proposal due to the low level of maturity of these investment proposals. While they may be reviewed in the course of the forthcoming period, progression of any initiative would be subject to further business case analysis and investment assessment, with formal financial approval at the time of the investment based on a positive business case.

3.2 Current Regulatory Control Period Performance

3.2.1 Overview

The Energex determination for ICT indirect operating expenditure (Opex) in the 2010-15 regulatory control period was \$414.55M (\$ 2009-10)¹⁰, or \$448.47M (\$ nominal). As described in section 3.1, this expenditure includes asset service fees and non-capital project expenditure related to the execution of the ICT capital program for assets held by SPARQ on behalf of Energex, as well as telecommunications and operational support expenditure necessary to operate and maintain existing ICT capabilities. Table 9 provides a breakdown of this expenditure allowance and forecast for the end of this regulatory control period. While performance against the regulated allowance has been strong across three of the four expenditure areas, Operational Support expenditure is significantly higher than was forecast.

| Expenditure type | Determination | Forecast Actuals |
|---------------------------------|---------------|------------------|
| Asset Service Fees | \$261.79M | \$263.35M |
| Non-capital project expenditure | \$19.45M | \$19.16M |
| Operational Support | \$130.47M | \$183.36M |
| Telecommunications | \$36.76M | \$37.50M |

Table 9: Energex ICT indirect expenditure, 2010-11 to 2014-15¹¹ (\$ nominal)

3.2.2 Asset Service Fees (relating to SPARQ ICT Capital expenditure)

The ICT capital expenditure for the 2010-15 regulatory control period included a program of asset management life cycle upgrades and replacements, as well as a number of new capability ICT initiatives detailed in 2010-15 ICT plan¹². The total capital expenditure for the period is forecast to be \$256.57M (\$ nominal) against \$224.62M (\$ nominal) in relation to the 2010-15 ICT plan. This is forecast to result in asset service fees of \$263.35M (\$ nominal) against an allowance of \$261.79M (\$ nominal).

| Financial Year | Determination | Actuals |
|----------------|---------------|---------------|
| 2010-11 | 41.96 | 37.40 |
| 2011-12 | 52.73 | 46.17 |
| 2012-13 | 58.19 | 55.63 |
| 2013-14 | 55.90 | 64.56 |
| 2014-15 | 53.00 | 59.59 |
| Total | 261.79 | 263.35 |

Table 10: ICT Asset Service Fees (\$ nominal)

This increase in capital expenditure is primarily driven by investments in a Distribution Monitoring System (DMS), an Enterprise Performance Management system (EPM), and systems investments to support the compliance requirements of the National Energy Customer Framework (NECF). The following list details key achievements for the period:

- Distribution Management System (Completed)
- DINIS, PSS-U and DMS Integration (Deferred until 2014-15)
- Holistic long term forecasting (Deferred pending availability of COTS)
- Core Central Network Asset Model (included in NFM-GIS replacement)
- Energy Information Management Foundation and Enterprise Integration (Replaced by Distribution Monitoring and Analytics project)

¹⁰ Final decision Queensland distribution determination 2010-11 to 2014-15

¹² Parsons Brinckerhoff Australia: "Review of Energex regulatory proposal for the period July 2010 – June 2015 for Australian Energy Regulator", pg. 60 (<https://www.aer.gov.au/sites/default/files/PBreport-ReviewofEnergexregulatoryproposal2010-11to2014-15.pdf>)

- Protection Design and Analysis (Completed, replaced by IPS RELEX and CAPE)
- Civil Design Work (Deferred pending GIS solution used in NFM-GIS replacement)
- External Data Integration (Included in NFM-GIS replacement)
- Enterprise Performance Management (and Upgrade) (Completed)
- Operational Report Development (Completed under EPM)

3.2.3 Non-capital Project Expenditure

This expenditure supports the “up front” business case development activities and non-capital activities within projects including decommissioning activities. While there have been some annual variations, the overall performance for the regulatory control period has tracked to the forecast.

| Financial Year | Determination | Actuals |
|----------------|---------------|--------------|
| 2010–11 | 3.63 | 1.84 |
| 2011–12 | 3.72 | 7.98 |
| 2012–13 | 3.86 | 3.41 |
| 2013–14 | 4.03 | 2.78 |
| 2014–15 | 4.21 | 3.16 |
| Total | 19.45 | 19.16 |

Table 11: ICT Non-capital Project Expenditure (\$ nominal)

3.2.4 ICT Operational Expenditure

ICT Operational expenditure is comprised of support labour, and licence maintenance and support costs for both software and hardware. Performance across the current regulatory control period has not tracked to the determination allowance, with a forecast over spend of \$52.89M (\$ nominal) at the close of the current regulatory period. This represents an 8.87% over spend, excluding the transfer of costs between Energex and SPARQ for the transfer of the CIO and MCCA described below. While recognising this over spend, benchmark performance for operating expenditure for the 2012 and 2013 years remains below the industry mean for a range of ICT metrics as described in section 3.4.

| Financial Year | Determination | Actuals |
|----------------|---------------|---------------|
| 2010–11 | 24.38 | 28.08 |
| 2011–12 | 24.81 | 31.87 |
| 2012–13 | 25.85 | 36.48 |
| 2013–14 | 26.78 | 40.88 |
| 2014–15 | 28.65 | 46.05 |
| Total | 130.47 | 183.36 |

Table 12: ICT Operational Expenditure (\$ nominal)

The over spend in ICT operational expenditure is attributed to a range of factors, including:

- **CIO Transfer** – In July 2009, the CIO functions of Energex and Ergon Energy were consolidated into a single function in SPARQ. This netted synergy savings to Energex and Ergon Energy, with a resultant transfer of costs into SPARQ, which was not represented in the ICT operating expenditure of 2010-15 Regulatory proposal. This does not represent an increased cost, but a consolidation of these costs within SPARQ.
- **Managed Contact Centre Agreement (MCCA)** – This agreement provides outsourced Contact Centre telephony and IVR services supporting the DNSP, including avalanche IVR services to manage significant outage events. The provision for the MCCA was forecast by Energex. However, in January 2011 this contract was novated to SPARQ Solutions to manage in concert with the other Telecommunications services. This does not represent an increased cost, but a consolidation of telecommunications costs within SPARQ.

- **Data Centre** – Energex’s primary data centre was located “on-premise” with the business in its Brisbane CBD offices. With Energex’s re-location to Newstead offices, the data centre also required re-location. An options analysis confirmed that leasing of commercial data centre services had a lower total cost of ownership than a “build/own/operate” model. However, the cost of contemporary data centre services has proven more than those of an aged 20 year old data centre.
- **2010/11 commencement year** – The 2010-15 regulatory proposal forecast a lower commencement position than was achieved, having a cumulative impact across the period. This was a consequence of overly aggressive savings forecasts associated with ongoing support costs subsequent to ICT asset upgrades/renewals (labour, and licence maintenance and support reductions), and optimistic forecasting of the starting position for the 2010-15 regulatory control period with respect to the impacts of the ICT capital program from the last two years of the 2005-10 regulatory control period.
- **Capital program impacts** – The 2010-15 Regulatory proposal for ICT was underpinned by an aggressive approach to the forecasting of labour, and licence and maintenance costs for operational support impacts arising from both upgrade and replacement projects. The net position as a result of this approach was an effective CPI only increase on the 2010-11 commencement year. This has not been borne out across the regulatory control period, with fewer systems being decommissioned and the requirement of higher levels of systems availability across a broader range of applications to support business operations. In the case of replacement projects, the uptake of additional functionality has led to further operational support costs.
- **New systems capability** – Introduction of new capability, such as DMS and EPM, has introduced additional support requirements both at a labour, and licence maintenance and support level. While these ICT costs are reported as an over spend in relation to the ICT component of the determination, they are offset by business benefit savings beyond ICT as factored into their respective business cases.
- **Compliance** – The introduction of the National Energy Customer Framework (NECF) has required the enhancement of existing systems and the introduction of new systems capability to meet both the operational and reporting requirements of the framework. This has resulted in increased labour support costs and additional licence maintenance and support costs that were unknown in constructing the proposal for the 2010-15 regulatory control period.
- **Property program** – The ongoing ICT impacts of the Energex property program were not specifically identified and forecast in the 2010-2015 Regulatory proposal.

3.3 Telecommunications

Telecommunications expenditure is primarily comprised of carrier, mobile, data, voice, video, and device management services. The price reset points in existing carrier service arrangements have been leveraged to deliver additional capacity for the same or lower prices. While there have been some annual variations, the overall performance for the regulatory control period has tracked to the forecast.

| Financial Year | Determination | Actuals |
|----------------|---------------|--------------|
| 2010–11 | 6.86 | 8.14 |
| 2011–12 | 7.03 | 7.85 |
| 2012–13 | 7.29 | 7.45 |
| 2013–14 | 7.62 | 6.91 |
| 2014–15 | 7.96 | 7.15 |
| Total | 36.76 | 37.50 |

Table 13: Telecommunications Expenditure (\$ nominal)

3.4 Benchmark Performance

3.4.1 KPMG Benchmark

SPARQ Solutions has been participating in a biennial KPMG benchmark survey of Australian electricity and gas utilities since its inception in 2004. Participation provides insights into ICT performance relative to industry peers, identifying potential opportunity areas and approaches to drive further efficiencies.

The 2013 survey showed that the ICT expenditures of Energex were generally lower than the mean of the survey group of nine electricity distributors and one gas distributor.

| ICT Metric | 2012 | | 2013 | |
|---|----------------|---------|----------------|---------|
| | Benchmark Mean | Energex | Benchmark Mean | Energex |
| Operational Expenditure | | | | |
| ICT operating expenditure ¹ as a % of corporate revenue | 4.25% | 3.77% | 4.21% | 3.63% |
| ICT operating expenditure ¹ as a % of annual operating expenditure | 6.59% | 5.93% | 6.91% | 5.91 |
| ICT operating expenditure ² per user | \$11,041 | \$9,859 | \$11.657 | \$8,191 |
| Capital Expenditure | | | | |
| ICT capital expenditure as a % of corporate capital expenditure | 5.65% | 7.5% | 4.48% | 6.91% |
| ICT total expenditure as a % of corporate total expenditure | 2.83% | 5.78% | 4.89% | 5.05% |
| ICT total expenditure per customer | \$85 | \$82 | \$74 | \$73 |

Table 14: KPMG Benchmark

Note: 1 – Includes depreciation
2 – Excludes depreciation

3.4.2 Gartner Benchmark

Gartner benchmarks have not been used previously due to the total expenditure (TOTEX) approach adopted by Gartner and a lack of detail on the split of operating and capital expenditure needed to align with the SPARQ Solutions business model. However, the Gartner survey has been referenced in recent times by both Ernst & Young (in its review of SPARQ Solutions for the IRP in 2012) and PricewaterhouseCoopers (as part of its reviews of Ergon Energy and Energex in 2013).

The Gartner survey group of 94 excludes Ergon Energy and Energex and predominantly comprises North American and European utilities. The nature of these utilities core businesses is different from Australian utilities in terms of climatic conditions, population density and scale of business. Gartner now provides operating and capital expenditure splits and SPARQ management have modelled SPARQ Solutions operational expenditure and found that these expenditure levels are consistent with Gartner’s international benchmarks for the Utilities industry.

Gartner suggests use of triangulation of several measured outcomes. On this basis SPARQ have extracted three measures giving broad comparability of relative expenditure against corporate revenue, corporate expenditure and employee/ user numbers. It is not possible to reconcile Gartner results with those of KPMG, as their measures use different methods of determining numerators and denominators.

| 2013/2014 | Benchmark mean | Energex |
|-----------------------|-----------------------|----------------|
| Revenue | | |
| KPMG | 2.40% | 1.58% |
| *Gartner | 1.99% | 2.13% |
| Opex | | |
| KPMG | 5.25% | 3.44% |
| Gartner | 2.63% | 2.75% |
| Employee/ User | | |
| KPMG | \$13,630 | \$13,254 |
| Gartner | \$11,657 | \$8,191 |

Table 15: Gartner Benchmark

4 ICT current state and Program of Work 2015-16 to 2019-20

4.1 Overview

This section is structured in alignment with the Enterprise Architecture Segments (see 4.1.1). For each segment it illustrates the current state, ICT activities in the current regulatory control period and provides an overview of the ICT Program of Work for the forthcoming period. The detailed asset renewal schedules for each segment are located in the *ICT Asset Management Plans*.

Some of the programs detailed below are planned to be delivered on common systems with Ergon Energy, taking into consideration timings and other intra-organizational priorities. Common systems provide efficiencies in ICT support which are already reflected in SPARQ’s operational costs. While Energex shares certain ICT services with Ergon Energy, this ICT plan only contains Energex’s portion of the forecast.

4.1.1 Enterprise Architecture Segments

To manage complexity, a segmented, enterprise architecture has been adopted to provide an organising framework¹³. The enterprise architecture is segmented to reflect Energex’s operating model and is based on the *Energy Industry Model*¹⁴.

The enterprise architecture comprises 5 segments. To assist with planning the technology domain is also included as a separate element of the plan and is illustrated in figure 9 below.

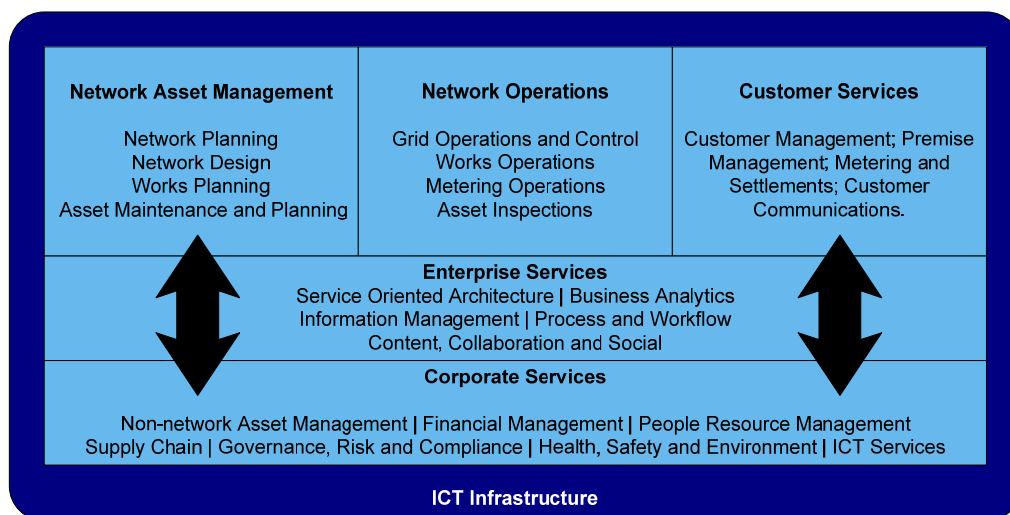


Figure 2: Energex Enterprise Architecture

¹³ Note that the Enterprise Architecture Segments replace the set of work streams into which the ICT Programs were organised in the previous ICT Plan.

¹⁴ AEMO, 2011, “Energy Industry Model”, version 1.0

4.2 Network Asset Management Segment

4.2.1 Network Information Enablement

The scope of the Network Information Enablement program in this regulatory proposal comprises the following initiatives:

- Complete the **replacement of the legacy Geographic Information System (GIS)**, network connectivity model and peripheral applications (part of NFM application suite), started in 2014-15;
- **Minor GIS upgrade** in 2019-20;
- **Replacement of the distribution planning application NETPLAN** which has reached asset obsolescence, creating an increasing risk for Energex in the forthcoming 2015-20 regulatory control period; and
- **Replacement of bespoke substation forecasting application SIFT**, which will reach the end of its technical life towards the end of the forthcoming 2015-20 regulatory period.

The following paragraphs explain the need for the proposed initiatives.

Since 1995, Energex has been building and maintaining a bespoke suite of systems, grouped together as Network Facilities Management (NFM) which was tailored to meet the majority of Energex's network information needs, including the main Asset Register of Energex, the network connectivity model, associated electrical data, as well as the spatial information layers (since 2001) feeding the Geographic Information System (GIS). The last major physical platform upgrade of NFM and the GIS was conducted in 2011.

Whilst a long-term need for replacing NFM was recognised historically, the investment and large business change related to it was deferred, in order to progress other significant investments (e.g. the Distribution Management System - DMS). This also allowed alignment with the forecast Enterprise Asset Management system replacement.

In FY 2013-14 Energex commenced the analysis and planning for the replacement of NFM and GIS. With the support of Capgemini, an optimal replacement approach has been defined, starting with the renewal of the GIS and the components of NFM which master the power network connectivity model. This will commence in FY 2014-15, and continue into the forthcoming regulatory control period (followed by the Enterprise Asset Management system renewal - refer to section 4.2.2). The NFM-GIS renewal will introduce a contemporary GIS that provide the Single Source of Truth for the connectivity model and cater for utility specific information needs (e.g. associating electrical characteristics to the model). A minor upgrade for this new GIS is scheduled for the end of the forthcoming 2015-2020 regulatory control period.

Energex has also developed two bespoke systems for Substation Investment Forecasting (SIFT, a joint system with Ergon Energy) and Distribution Planning and Forecasting (NETPLAN). These systems have been adequate in the past; however they will not meet the increasing requirements of analytical, forecasting and planning capabilities facing the DNSP, as a consequence of the growth and impact of Distributed Energy Resources (DER), and regulatory reporting requirements. The frequency and complexity of change is increasing, and the incremental approach to continuous improvement of these bespoke systems has become an obstacle to Energex's ability to adjust - modernise processes and systems. Energex proposes the replacement of these forecasting systems, using commercial-of-the-shelf (COTS) products leveraging the proposed information infrastructure platform (see section 4.6.1). This will facilitate ongoing commercial maintenance and support, along with product extensibility.

Energex will consider further investments in further Network Information Enablement capability where they can be justified through financial benefits. The following opportunities have been identified:

- Extending GIS capability to cater for design, telecommunications and requirements of the mobile - distributed work force
- Extending the use of the existing analytics platform, in order to support more cost-effective approaches to asset management, such as improved understanding of the Low Voltage network or improved forecasting and planning results,

4.2.2 Enterprise Asset Management

Three functional areas are in scope for the Enterprise Asset Management program:

- **Core Enterprise Asset Management (EAM):** This functional area is currently supported by the Ventyx Ellipse 5 system, the highly complex bespoke application suite Network Facilities Management (NFM), as well as a number of auxiliary systems. Ellipse 5 also supports the current core Enterprise Resource Planning (ERP) functionality (addressed in section 4.4.1) and is a common system with Ergon Energy. NFM supports many other processes in network management.
- **Works Management:** Currently provided through Ellipse 5 and Primavera. It is planned to upgrade Primavera by the end of this regulatory period.
- **Asset Inspections:** Currently provided by a custom developed module of Ellipse 5.

In the current 2010-15 regulatory control period, it was planned that there would be two significant upgrades of the Ellipse system, followed by a renewal in 2015-16. After detailed analysis of the cost and organisational impact of upgrading Ellipse 5 to the latest version (Ellipse 8), it was determined that it would be prudent to defer the upgrades until the planned renewal in 2015-16. Consequently Energex conducted a program of maintenance investments on Ellipse 5, NFM and related applications to respond to external and organisational changes and incrementally deliver operational efficiencies.

EAM-ERP renewal is planned for the next regulatory period, as Ellipse 5 will become both technically and asset obsolete by June 2015. This will present an increasing risk for Energex's core functions of asset management and asset inspection.

In addition, contemporary EAM systems provide Program - Works management solutions. This presents Energex with an opportunity to consolidate these functions into the core EAM footprint, rather than conduct individual ICT asset renewals.

The investment in an Enterprise Asset Management solution will also consider the decision on the future consolidated platform for Asset Inspections as either the existing Field Force Automation (FFA) or a mobile solution extending the Enterprise Asset Management system.

An additional investment in data capture and-or analytical capability, improving asset management maturity (condition based - reliability centred) may also be undertaken during the forthcoming regulatory control period, following a future value assessment of benefits through the internal planning and governance processes at the time.

Details on the Enterprise Asset Management program are documented in the "Enterprise Asset Management" business case.

4.3 Network Operations Segment

4.3.1 Advanced Distribution Management

The Advanced Distribution Management Program covers two distinct areas of investment:

- The **Distribution Management System** and peripheral applications, for which a major upgrade and a system renewal of the legacy, in-house-developed Application for Switching (A4S) are proposed; and
- **Demand Management**, for which only minor investment in preparation for an expected increase in uptake of demand-side participation in the subsequent regulatory control period is proposed.

Distribution Management System

In the current regulatory control period, Energex has undertaken a major project to implement a Distribution Management System (DMS), in conjunction with an Outage Management System (OMS). The DMS-OMS have profoundly changed the way operations of the Energex distribution network are being planned and executed. The DMS is supplemented by a bespoke legacy “Application for Switching” (A4S) system, that supports the switching process, including requesting switching, propagating planned switching to interfacing systems and managing site access.

For the forthcoming 2015-20 regulatory control period, Energex has included an upgrade to the next major version of the DMS product, as the vendor support of the current version will end in 2018. In addition, Energex will conduct ICT asset renewal on the legacy A4S system, seeking to consolidate its functionality into the DMS-OMS, if possible.

Energex may undertake further investments in Advanced Distribution Management during the forthcoming 2015-20 regulatory control period, if these can be justified through a cost benefits analysis at the time.

Further detail regarding Energex’s proposed DMS investments is documented in the “Advanced Distribution Management” business case.

Demand Management

Non-network alternatives are being increasingly sought to reduce the need for capital expenditure on the network. In support of this, Energex has developed and implemented a Demand Management program. Energex does not forecast any significant ICT investments in this area within the forthcoming regulatory control period, outside of standard maintenance upgrades. However, it acknowledges the intent of the AER to encourage more Demand-Side Participation (DSP), so as to improve “the efficiency of the electricity market” (“Power of Choice”). In order to be able to meet an uptake of DSP options in the subsequent 2020-2025 regulatory control period, Energex has included some preparatory measures in its regulatory proposal to the AER. These include ensuring that demand management contract and network related data are managed in and available to the relevant ICT systems, as well as a planning and architecture initiative, the results of which will inform the 2020-25 regulatory proposal.

4.3.2 Distributed Workforce Automation

Energex’s major system for Distributed Workforce Automation is “Field Force Automation” (FFA) based on the Ventyx Service Suite product, first rolled out in 2007. In the current 2010-15 regulatory control period, Energex has undertaken one major upgrade and otherwise incremental improvements of field work type coverage, system robustness, security and minor functions. With the decision of Ergon Energy to adopt Energex’s FFA solution, Energex now intends to pursue future changes, upgrades and product renewals on FFA jointly with Ergon Energy.

In accordance with ICT Asset Management guidelines, FFA, which is classified as a “Foundational System” will undergo one joint upgrade in the forthcoming regulatory control period. A minor allowance for incremental enhancements to cater for ongoing extensions to field work type coverage and regulatory changes is also included in the regulatory proposal.

Towards the end of the forthcoming regulatory control period planning will commence on the refresh (major upgrade or replacement, dependent on the viability of each option) of the FFA platform. The current proposal is that capital expenditure will likely start until early in the subsequent regulatory control period (2020-2025).

For more information please refer to the “Distributed Workforce Automation” business case.

4.4 Corporate Services Segment

4.4.1 Administrative Enterprise Resource Planning

The Scope of the Administrative Enterprise Resource Planning (ERP) includes:

- **Replacement of the Administrative ERP** functionality, currently provided by the existing legacy Ventyx Ellipse 5 ERP, with a contemporary system.
- **Replacement of satellite applications within the ERP footprint** into a consolidated Administrative ERP, where feasible and prudent.

Energex’s current administrative business processes are supported by the Ellipse 5 system and supplemented by a range of third party satellite applications. Ellipse 5 also supports the current core Enterprise Asset Management functions (addressed separately) and is a common system with Ergon Energy.

In the current 2010-15 regulatory control period, it was planned that there would be two upgrades of the ERP. After detailed analysis of the cost and organisational impact of upgrading Ellipse 5 to the latest version (Ellipse 8), it was determined that the functional scope was unchanged and the upgrade cost was approaching replacement.

Accordingly, it was considered more prudent to defer the upgrades and undertake the planned renewal of the Administrative ERP in 2015-16. A program of continuous improvement investments in the ERP footprint was undertaken to respond to external and organisational changes to support incremental increases in efficiency.

Ellipse 5 will become both technically and asset obsolete in 2015-16 and will present an increasing risk for Energex’s core administrative functions (e.g. finance, human resources, safety, supply chain). Renewal of this system with a contemporary Administrative ERP system will provide an opportunity for Energex to consolidate disparate satellite applications and migrate administrative business processes to accepted industry standards. The Administrative ERP renewal will also provide the opportunity to evaluate a component that extends Human Resources and Supply Chain capability.

Details on the Administrative ERP program are documented in the “Administrative ERP” business case.

4.5 Customer Services Segment

4.5.1 Market Systems Modernisation

The scope of the Market Systems Modernisation program in the regulatory proposal comprises the following initiatives:

- **Replacement of the Market Gateway and MDM functionality.** This functionality is provided by two legacy applications, NEMLink and TOHT. The NEMLink application facilitates B2B and CATS interactions with the National Electricity Market (NEM), while TOHT provides Local Network Service Provided (LNSP) meter data management capability. They are planned to be replaced with commercial-off-the-shelf (COTS) contemporary solutions.
- **Replacement planning for Customer Information and Network Billing functionality.** This functionality is provided in the Hansen Peace system, encompassing LNSP standing data management, customer management, customer transfer, service order management, meter reading-route management and network billing.

Energex's current Customer and Market systems are supplemented by a number of satellite applications to address functionality gaps in the core systems.

In the current 2010-15 regulatory control period, it was planned that the Customer and Market systems would be upgraded, and that new capability for greater efficiency of interactions with customers would be implemented, including an upgrade to the Contact Centre Telephony.

This has been largely completed with a program of continuous improvement investments in the Customer and Market systems footprint to respond to external and organisational changes, prepare for storm season and incrementally increase efficiency. A Service Interactions portal has been implemented to support further Customer and Retailer interactions, including support for NECF compliance obligations. The Contact Centre Systems (Interactive Voice Recorder and telephony) are also in the process of being renewed as planned.

The market systems components (Nemlink and Toht) are legacy custom-developed market gateway and meter data management solutions. They will be technically and asset obsolete early in the forthcoming 2015-20 regulatory control period. It is proposed that these be renewed in the forthcoming regulatory control period, to mitigate increasing risk to Energex's market obligations.

The Customer systems component (Peace) will reach both technical and financial obsolescence towards the end of the forthcoming regulatory control period. These issues will present an increasing risk to Energex's ability to evolve effectively in response to changes in the electricity market, including Demand Side Participation.

Renewal of the Customer and Market systems with a contemporary Customer and Market Systems platform will provide an opportunity for Energex to consolidate applications and implement a platform that is more adaptable to industry change. This renewal is proposed to be achieved through the Market Systems Modernisation program.

Details on the Market Systems Modernisation program are documented in the "Market Systems Modernisation" Business Case.

Energex will consider further investments in the Customer Services segment where they can be justified through cost benefit analysis. The following opportunity has been identified:

- **Customer Service Transformation**
Initiatives such as Power of Choice and the National Electricity Customer Framework (NECF) are driving greater customer engagement in energy supply and network planning. Over the past five years Energex has seen a move towards the adoption of new engagement channels such as social media and away from more traditional telecommunications channels. Further investment in customer engagement capability has potential to assist Energex in transitioning its operations to be more intelligent, capable and connective to meet customer engagement expectations

4.6 Enterprise Services Segment

4.6.1 Information Infrastructure

There are four functional areas in scope for the Information Infrastructure program:

- **Business Analytics Platform Renewal:** The Business Analytics platform is critical to the delivery of operational and performance management across Energex. The current Business Analytics platform will be due for renewal during the 2015-20 regulatory control period.
- **Integration Platform Renewal:** The integration platform is critical to the operation of the overall ICT architecture. This capability provides the mechanism to move information between systems. The current integration platform will be due for renewal during the 2015-20 regulatory control period.
- **Information Security Enhancement:** Due to the increasing information volumes, cyber threats and mobile devices, there is a need for enhanced information security. This project will protect information in transit and at rest, regardless of the device it is accessed from. It will also provide capability to identify and respond to increasingly sophisticated cyber-attacks.
- **Content Management Renewal:** Energex's content management systems will be due for renewal and potential consolidation. As part of the overall ICT Program optimisation, the Content Management Renewal has been withdrawn from the overall ICT Program, but will be re-examined annually to determine if entry criteria change for the Content Management Renewal.

Energex's Information Infrastructure provides the delivery of quality, integrated and contextualised information to the Workforce, Customers and other Industry Participants. A number of platforms are used by Energex to provide Business Analytics, Content Management and Integration across the entire ICT architecture.

Energex's core Information Infrastructure platforms are SAP Business Objects (Business Analytics), SharePoint 2010 (Content Management), Oracle SOA Suite (Integration) and IBM Information Server (Information Management). These platforms are common with Ergon Energy except for IBM Information Server. The Information Infrastructure is supplemented by a number of satellite applications.

In the current 2010-15 regulatory control period, Energex has invested in a core Business Analytics platform to consolidate reporting and increase efficiency in the provision of management and regulatory information. This was supported by a program of continuous improvement investments in the Information Infrastructure to maintain capability and respond to external trends, organisational changes and incrementally increase efficiency.

Components of the Information Infrastructure will become both technical and asset obsolete during the next 2015-20 regulatory control period and will need to be renewed in line with Energex's ICT Application Asset Management Guidelines, and to minimize the risk profile with the broad scale use of these capabilities in supporting business operations.

In addition, due to the increasing information volumes, cyber threats and mobile devices in operation, there is a need for enhance information security. Renewal of the core Information Infrastructure platforms with the current vendor supported versions will provide an opportunity for Energex to consolidate some disparate satellite applications and maintain capability across the entire ICT architecture.

Details on the Information Infrastructure program are documented in the Information Infrastructure business case.

4.7 ICT Infrastructure

4.7.1 ICT Infrastructure Asset Renewal

The purpose of this program is to renew ICT Infrastructure assets in accordance to the ICT Infrastructure Asset Renewal Guidelines.

Assets covered by the program include PC fleet (Desktops, Laptops), Windows Server equipment, Unix Server equipment, Corporate Data Network equipment, Server Storage infrastructure renewal and growth and ICT Peripheral equipment including Printers and Mobile phones.

Infrastructure software renewal of ICT Technologies such as Email, integration technologies, and database environments is also in scope to maintain ICT technologies at a level that delivers the lowest total cost of ownership aligned to the service level agreements and acceptable risk profiles.

4.7.2 Desktop Productivity Renewal

This proposed initiative is to upgrade the PC desktop operating system and the Office suite (Desktop Productivity tools) to versions that sustain vendor support. The current corporate desktop environment is based on the Microsoft Windows 7 Operating System with Microsoft Office 2010 as the personal productivity toolset. These products will lose vendor support in 2019-20, ending the development and release of vulnerability and security patches for these products. In addition to the security risks posed by an unsupported operating system, compatibility with new hardware devices, file formats and features will also deteriorate.

The primary role of the corporate desktop environment is to provision user access to a large number of business applications. Sociability and compatibility of this application portfolio entails significant complexities in the configuration of the corporate desktop environment. To sustain reliable access to and use of corporate systems, the underpinning technologies must be maintained at a vendor supported version. This will require an upgrade of the desktop operating system and compatibility testing and remediation of desktop applications.

5 ICT Governance & Asset Management

5.1 ICT Governance

ICT governance is based on the Energex Investment Governance Framework, with the Investment Review Committee (IRC) the peak governance body in Energex. Governance spans the life of the ICT investment including:

- Strategy and Planning
- Annual Business Planning (ICT Program of work)
- Program-Project initiation
- Performance Monitoring and Reporting

The diagram below provides a visual overview of ICT governance, with further information detailed in the *ICT Investment Governance Summary*.

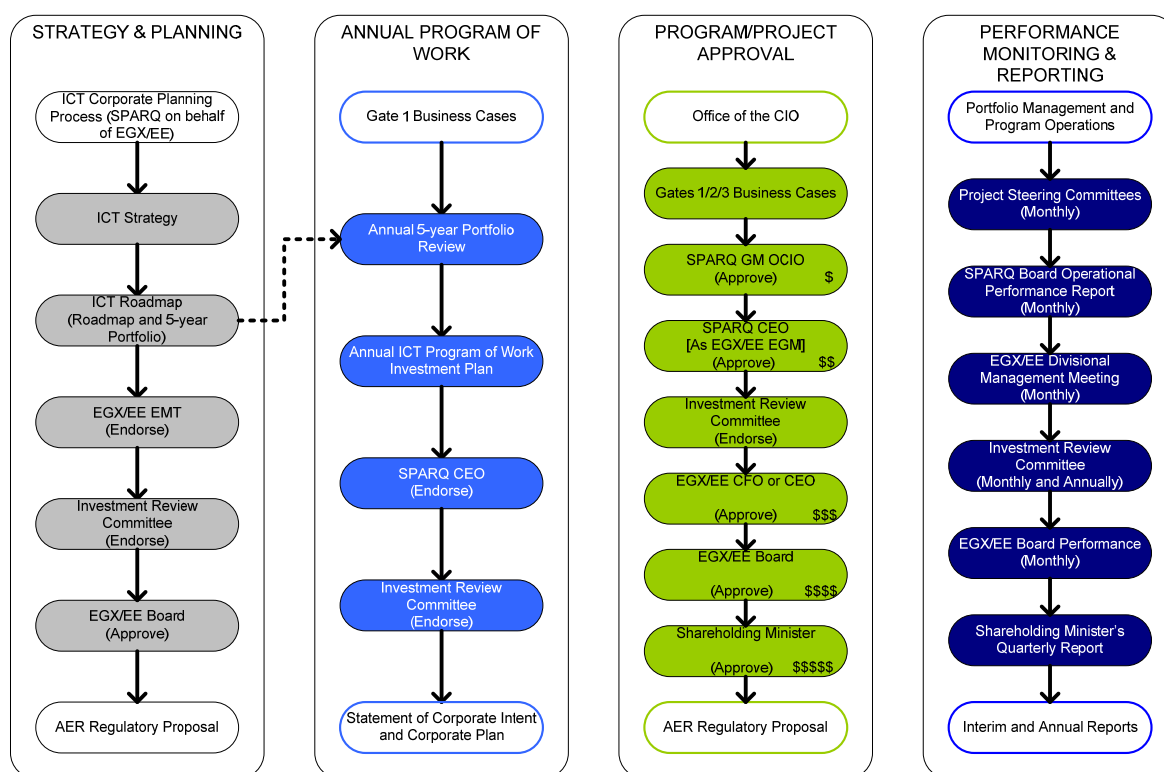


Figure 3: Non-network Capex program governance (ICT) Flow Chart

This ICT Plan and all other information provided in support of the ICT component of Energex’s regulatory proposal for the 2015–20 regulatory control period (see section 0) have been assessed via Strategy and Planning governance.

5.1.1 Enterprise Architecture Governance

Energex, through SPARQ Solutions, has adopted and are maturing an Enterprise Architecture process based on *The Open Group Architecture Framework (TOGAF)*. TOGAF defines Architecture as

“The structure of components, their inter-relationships, and the principles and guidelines governing their design and evolution over time”

This Enterprise Architecture framework plays an important part in Energex’s ICT governance as it:

- Organises Energex’s complex ICT landscape into manageable segments.

- Ensures that all aspects of the architecture (business, information, application and technology), as well as organisational impacts of a proposed change are considered.
- Sets *Enterprise Architecture Principles* that guide ICT investments towards building ICT capability in full support of Energex's approved strategic plans.
- Puts processes in place to ensure consistent architectural decision making and compliance with the Enterprise Architecture Principles.

The *Enterprise Architecture Principles*, provided as part of the supporting suite of documents for this regulatory proposal (see section 0), guide the development of ICT investment plans, including this ICT Plan. The assessment of each ICT investment against these principles forms part of the established ICT governance processes in Energex. The *Enterprise Architecture Forum* is responsible for undertaking assessment of ICT projects, and resides in the Office of the CIO.

The Enterprise Architecture Principles are:

- **Maximise Benefits** Maximise benefits by managing the ICT asset through its lifecycle and investing appropriately.
- **Flexible Architecture** The Enterprise Architecture must have the flexibility to adapt to business, technology and regulatory change.
- **Minimise Obsolescence** Solutions should be selected and managed as to avoid premature obsolescence (Technical, Financial or Asset).
- **Optimise Information** Information must be managed throughout its lifecycle.
- **Maximise Reuse** Maximise reuse of architecture components across the enterprise.
- **Effective User Experience** The user experience should enable effective user operation regardless of location and device.
- **Procure Proven Solutions** Procure proven solutions to minimise implementation risk and maximise business benefit.
- **Business Assurance** The architecture must support business assurance through provision of appropriate ICT security and resilience capability.
- **Business Change** Appropriate range of business change activities must accompany any ICT Solution change.

5.2 ICT Asset Management

5.2.1 Approach

To ensure prudent and efficient management of ICT assets, assets are categorised as either application assets or infrastructure assets and managed in accordance with published guidelines. The *Applications Renewal Guidelines* and the *ICT Infrastructure Asset Renewal Guidelines* specify upgrade and replacement cycles for the various asset classes. These guidelines are provided in the suite of supporting documents for this regulatory proposal (see section 0).

The three primary drivers behind ICT Asset Management are technical, financial and asset obsolescence. These are characterised as follows:

- **Technical Obsolescence:** The asset is still functional, but lack of continued ability to support underlying infrastructure prompts an upgrade or replacement.
- **Financial Obsolescence:** The cost of maintaining the asset outweighs the value derived from its use or it is considered more expensive to continue maintaining the existing asset than to replace it with an alternate solution.
- **Asset Obsolescence:** The asset has reached its reasonable functional life. This is indicated by an increasing rate of failure, changed business requirements not able to be accommodated in the system, and difficulty in finding parts or services to conduct maintenance. This typically occurs when ICT assets are termed *end of life* or *unsupported* by the vendor.

The following sections detail Energex's approaches to ICT application versus ICT infrastructure asset management.

5.2.2 ICT Application Asset Management

Energex has adopted a modified version of Gartner's *Pace-Layered Application Strategy* (shown in Figure 11 below)¹⁵ to classify applications and manage them through their life cycle. The Pace-Layered model is based on business process volatility and information integrity requirements. In accordance with their function and state, applications are classified in the following categories:

- **Foundational System:** Applications supporting stable, well understood business processes. Usually require high level of data integrity and don't change frequently.
- **Systems of Differentiation:** Applications supporting well-understood but dynamic business processes. May have moderate data integrity requirements and change more frequently than foundational systems.
- **Systems of Innovation:** Applications supporting emerging business requirements, with limited data integrity requirements and not designed for long-term use or large scale.
- **Connective Technologies:** Applications managing information flows either between applications, between devices or between applications and human consumption.

¹⁵ Pace-Layered Application Strategy is a Gartner term describing "a methodology for categorizing, selecting, managing and governing applications to support business change, differentiation and innovation." (<http://www.gartner.com-it-glossary-pace-layered-application-strategy>)

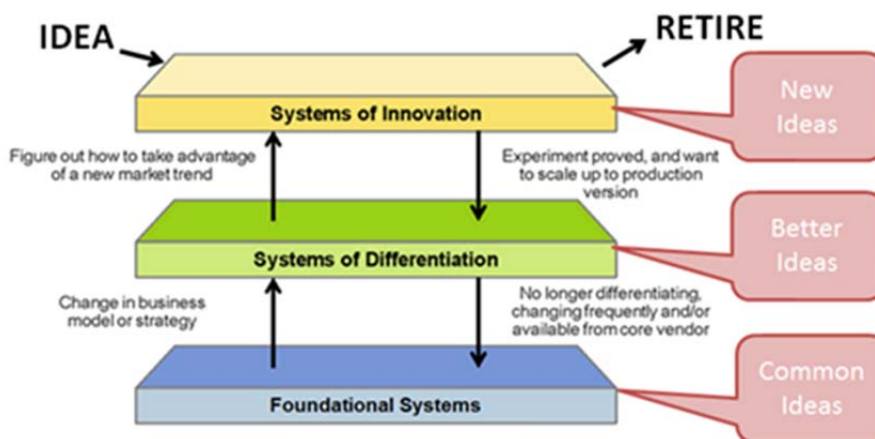


Figure 4: Gartner Pace-Layered Applications Approach – how applications may transition between layers

Discipline in managing applications according to their Pace classification ensures that ICT changes (and investments) are aligned to business strategy and business volatility. It will prevent situations of premature asset or financial obsolescence¹⁶ and provides better visibility and management of application-related risks for the business, and thereby reduce long-term application management cost.

Energex’s applications have been classified to the Pace-Layered model. Each of the applications is then managed through its classification’s life cycle, as in the *Application Asset Management Guidelines* and summarised in Table 16 below.

| PACE Application Classification | Foundational Systems | Systems of Differentiation | Systems of Innovation | Connective Technologies |
|---------------------------------|--|--|--|--|
| Initial Implementation | <ul style="list-style-type: none"> • Selection for long term (10-15 years) • Development of services to expose data and business rules to other systems and processes | <ul style="list-style-type: none"> • Selection for medium term (7-10 years) • High level of utilisation of services exposed by Foundational Systems | <ul style="list-style-type: none"> • Selection for short term (6-12 months) • Assemble composite application, build or buy and customise | <ul style="list-style-type: none"> • Selection for long term (10-15 years) • Facilitate reuse and connection between layers |
| Upgrades | <ul style="list-style-type: none"> • Upgrade after 5-7 years • Version upgrade to maintain supportability • Take advantage of new features • Incorporate new functionality from vendor that was previously in System of Differentiation. | <ul style="list-style-type: none"> • Upgrade after 2-3 years • Review after 5 years for movement to Foundational System • Take advantage of new features • Incorporate new functionality from vendor | <ul style="list-style-type: none"> • No upgrades; just go (to different asset category) or stop (retire idea) | <ul style="list-style-type: none"> • Implement service packs into sandpit environment as soon as available • Validate business benefit of new features • Release as appropriate |

¹⁶ Different types of obsolescence are defined in the *ICT Application Asset Management Guidelines*.

| PACE Application Classification | Foundational Systems | Systems of Differentiation | Systems of Innovation | Connective Technologies |
|---------------------------------|---|--|---|---|
| Incremental Changes | <ul style="list-style-type: none"> Patches and bug fixes Develop new information services required by Systems of Differentiation. | <ul style="list-style-type: none"> Patches and bug fixes Utilise new services. Develop Composite Applications | <ul style="list-style-type: none"> Continual updates and refinements as requirements become known. | <ul style="list-style-type: none"> Continual development of new services, reports and process orchestration. |

Table 16: Gartner Pace-Layered Application Approach – application life cycle per class of applications

5.2.3 ICT Infrastructure Asset Management

The focus of ICT Infrastructure Asset Management is to optimise the cost and effectiveness of ICT Infrastructure assets. This is achieved through a combined age and obsolescence based asset management plan detailed in the *ICT Infrastructure Asset Renewal Guidelines*. These guidelines are provided in the suite of supporting documents for this regulatory proposal (see section 0).

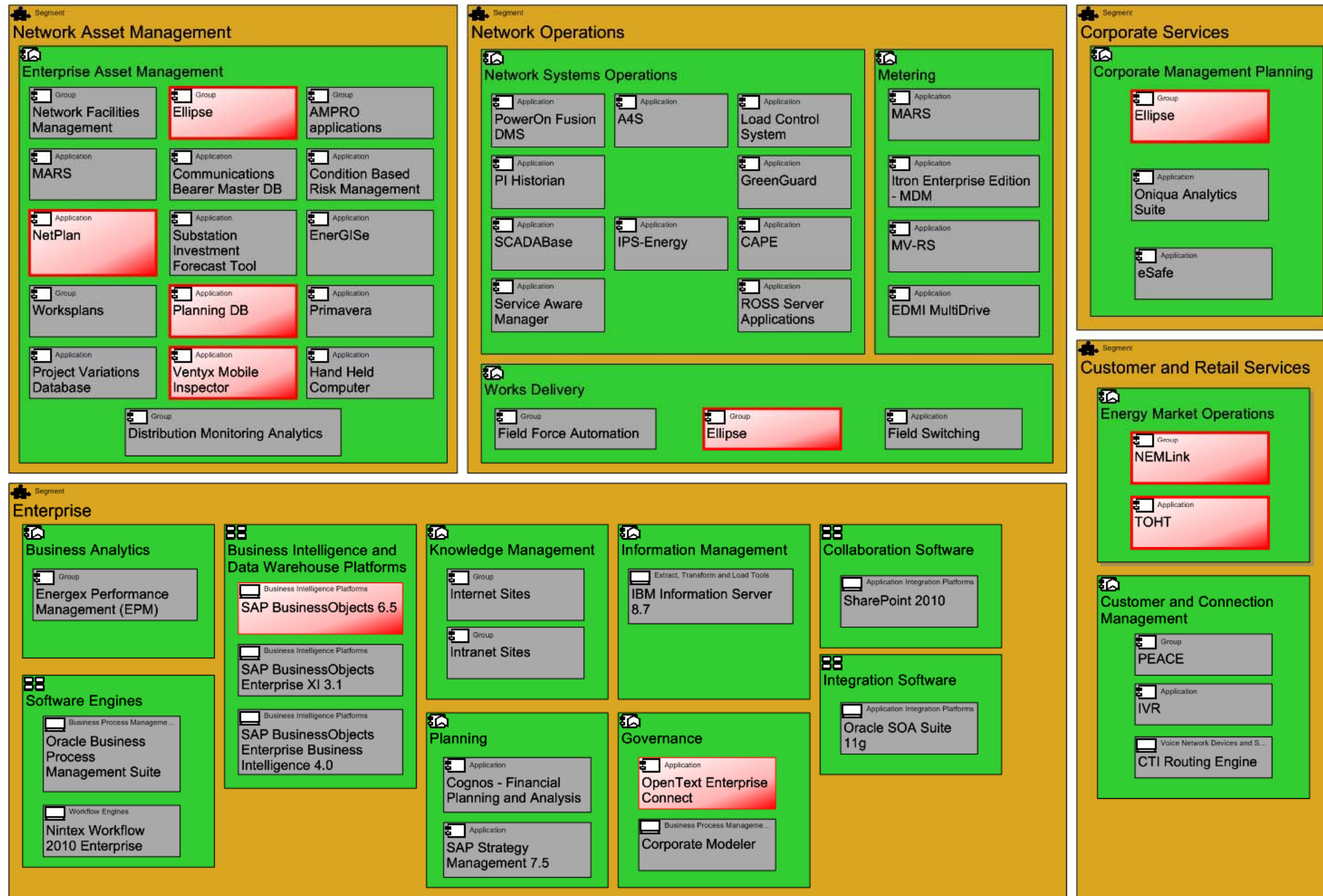
Investments within these programs are funded through two models, being Energex-held ICT Assets and SPARQ Solutions-held ICT Assets. The split is as follows:

| Program | Components | Funding Model |
|----------------------------------|--|---------------------------------|
| ICT Infrastructure Asset Renewal | End User Devices (Energex) | Energex-held ICT Assets |
| | End User Devices (SPARQ) | SPARQ Solutions-held ICT Assets |
| | ICT Infrastructure (Server, Storage, Data Network, Technologies) | SPARQ Solutions-held ICT Assets |
| Desktop Productivity Renewal | Desktop Productivity Renewal | SPARQ Solutions-held ICT Assets |

Table 17: ICT Infrastructure investment split

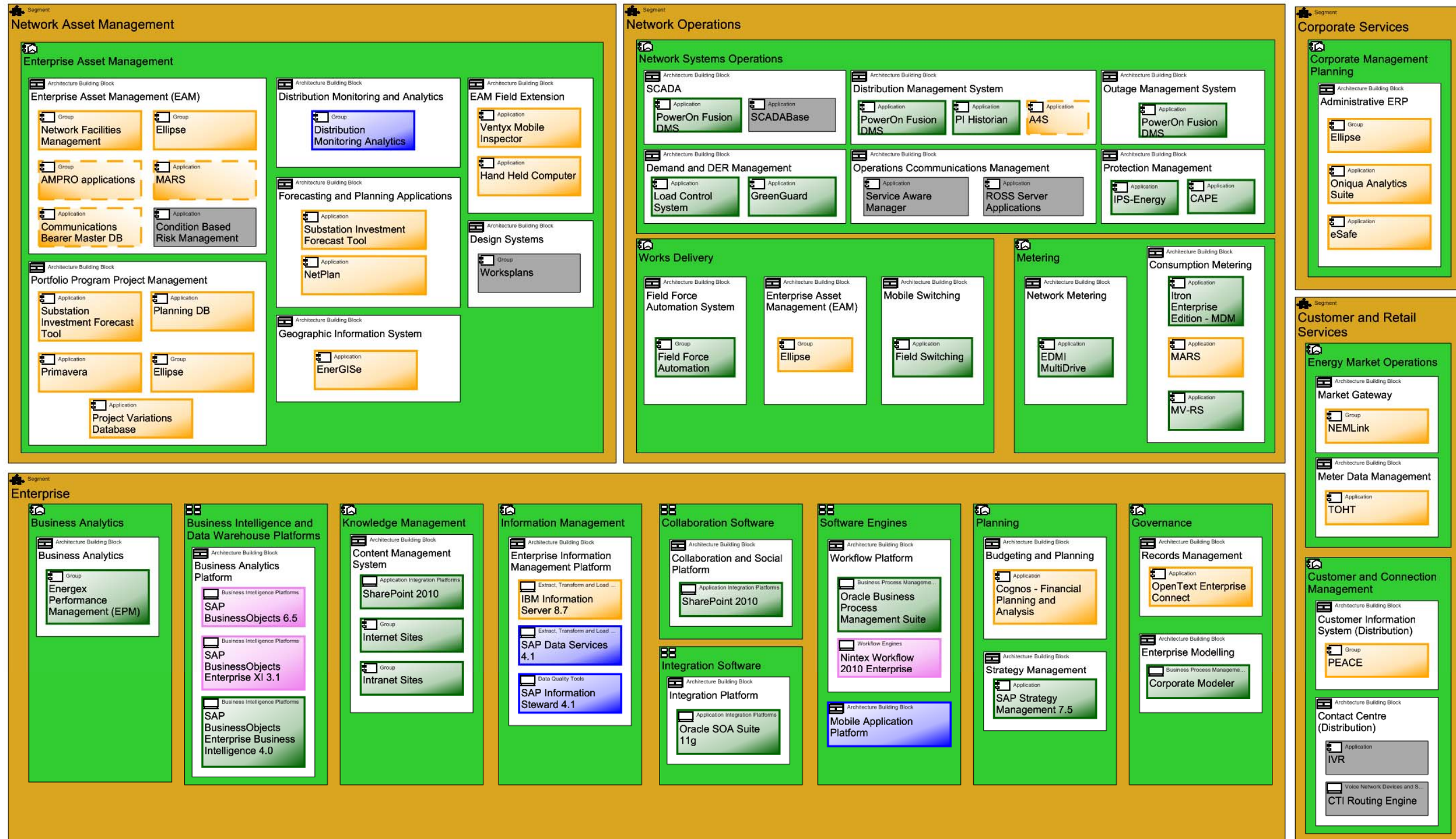
Appendix A: Applications Current State and Transition State Diagrams

AER 2015-2020 - Energex - Current State Diagram



Model Name: Enterprise Architecture Model
 Name: AER 2015 - Energex - Current State - Copy - Can be deleted
 Update Date: 30/04/2014 3:24:59 PM
 Updated by: SMERDON Brett (SPARQ)

AER 2015-2020 - Energex - Transition Diagram



Model Name: Enterprise Architecture Model
 Name: AER 2015 - Energex - Transition State - Copy - Can be deleted
 Update Date: 30/04/2014 3:28:32 PM
 Updated by: SMERDON BREV (SPARQ)

| | | | | | | |
|---------|-------------------|------------------------------------|--|---------|----------------|---------------------|
| Segment | ICT Functionality | Major System Suite desired to have | Major Application / Technology Software currently fulfilling ICT Functionality | Upgrade | New Capability | Partial Replacement |
| | | | | Replace | Decommission | |

Appendix B: Funding Arrangements

Cost Allocation Model

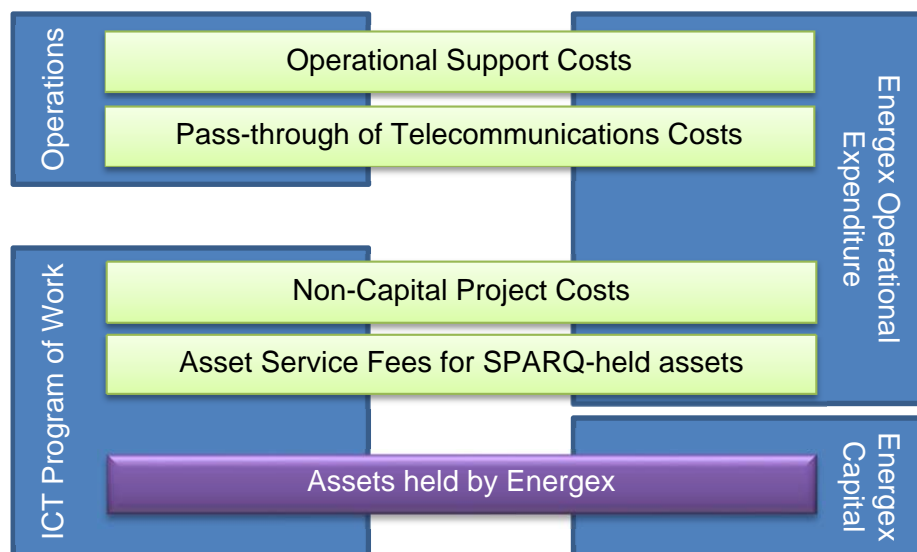
Energex incurs ICT costs as a result of the following activities in SPARQ Solutions:

- Operations
 - Operational support costs (including labour, licence and maintenance agreements)
 - Pass-through of telecommunications carrier costs
- Program of Work
 - Replacement of obsolete ICT assets or services
 - Maintenance of current ICT capability and-or capacity
 - ICT-enabled business enhancement-transformation

The above categorisation does not delineate operating and capital expenditure. In particular, the Program of Work results in both capital and operating expenditure.

ICT assets are generally capitalised within SPARQ Solution (with the exception of client devices such as personal computers, mobile phones and field devices, and a small number of legacy business systems). Depreciation, amortisation and finance costs associated with assets capitalised by SPARQ Solutions are charged to Energex and Ergon Energy as operational Asset Service Fees (ASFs), along with operational support costs, pass-through and non-capital costs incurred in relation to delivering the Program of Work.

The resultant cost allocation model is shown below:



Drivers for ICT Operations Expenditure

SPARQ Solutions charges Energex for ICT operational expenses related to support costs and telecommunications pass-through costs. These categories are characterised as follows:

- **Operational Support Costs** - Service Level Agreement (SLA) charges incurred by SPARQ Solutions in support of Energex's ICT capabilities:
 - End-user services (Help Desk, Desktop Services, etc.)
 - Business application support (Application system support)
 - Infrastructure and telecommunications support

Operational support costs incurred by SPARQ include:

- Operational staffing costs (internal and external)
 - Recurrent licence and maintenance costs payable to external vendors
 - SPARQ Solutions property costs
 - Travel costs
 - Training costs
 - Other overheads (HR services, contract management, management office, etc.)
- **Telecommunication Pass-Through** - Telecommunications costs incurred by SPARQ Solutions on behalf of Energex for charges payable under telecommunications contracts, including:
 - Telecommunications carrier costs
 - Nexium corporate and operational expenses
 - Contact Centre Telephony costs (IVR, Call recording, etc.)

Forecast expenditure for operational support and telecommunication pass-through are based on the actual 2012-13 expenditure, with step changes applied for variations arising from the delivery of the ICT Program of Work.

Drivers for ICT Program of Work Expenditure

Expenditure for the delivery of the ICT Program of Work consists of operating expenditure for non-capital project costs and asset service fees, and capital expenditure for Energex-held ICT assets. These categories are characterised as follows:

1. **Non-capital Project Related Costs** – Expenditure incurred by SPARQ Solutions in relation to delivering the ICT Program of Work that are not capital in nature. Such costs include the following:
 - Pre-approval costs to develop Business Cases, undertake feasibility studies, prototype-proof of concept systems, etc.
 - Reconfiguration of existing assets not altering core code or infrastructure
 - Decommissioning and disposal of obsolete assets
 - Some aspects of change management
2. **Asset Service Fees** – Charges for usage of assets held by SPARQ Solutions to recover the following costs:
 - Depreciation and amortisation of assets
 - Finance charges on borrowings to fund ICT assets

The financial forecasts for asset service fees have been based on the closing Asset Register and work in progress as at 30 June 2012. Charges have been calculated using the depreciation profile recorded in the register. In the case of work in progress, a five year average depreciation life has been assumed. Asset charges for future investments have been based on the forecast investments in this ICT plan.

3. **Energex-held ICT Assets** – Costs associated with ICT assets held by Energex, including the following:
 - Client Devices
 - Personal Computers
 - Field computing devices
 - Mobile telephones
 - Printers, fax machines and other office equipment
 - Legacy systems not transferred to SPARQ Solutions