# Forecast Expenditure Summary

## Information, Communication and Technology

## 2015 to 2020

ERGON. ENERGY

# Contents

# REVISION HISTORY FOR INTERNAL DOCUMENT PREPARATION

| Version | Date | Summary of Changes |
|---|---|---|
| 1.0 | 14 July 2014 | First draft |
| 2.0 | 6 Aug 2014 | Final for approval |
| 3.0 | 5 Sep 2014 | Estimated Regulated only Financials |
| 4.0 | 22 Sep 2014 | EECL Financials |

# 1. Purpose

The purpose of this document is to:

- explain Ergon Energy's ICT arrangements
- explain Information and Communication Technology (ICT) performance in the current period and outline how this has impacted the forecast for the 2015-20 regulatory control period
- explain and justify Ergon Energy's methodology to ensure a prudent and efficient forecast
- explain and validate the forecast ICT expenditure and outcomes.

# 2. Introduction

## 2.1 Context

ICT services for Ergon Energy are provided by SPARQ Solutions (SPARQ). SPARQ is a jointly owned subsidiary between Ergon Energy and Energex. The motivation for forming SPARQ was to create economies of scale, resulting in an overall cost reduction for the provision of ICT capability.

Prior to explaining the current period performance and the forecast for the next period, it is important to explain the mechanism by which SPARQ charges Ergon Energy for the provision of ICT capability. Of particular importance is the mechanism by which Ergon Energy uses operating expenditure (including Asset Services fees) to recover SPARQ capital investment in ICT assets. Ergon Energy does however directly procure client devices used by both employees and contractors. Non system ICT capital expenditure incurred directly by Ergon Energy relates only to end user devices such as desktop computers, laptops, tablets, handheld devices, smartphones and printers.

SPARQ's operating and capital expenditure for the provision of ICT services is charged to Ergon Energy in the form of ICT service fees. The total ICT expenditure incurred by SPARQ associated with the provision of ICT services to Ergon Energy is treated as indirect operating expenditure and allocated to services consistent with Ergon Energy's approved CAM.

The capital and non-capital elements, and the way that they relate to Ergon Energy's ICT capability expenditure, are explained in the following sub-paragraphs.

### 2.1.1 Operational expenditure elements

This section explains the ICT expenditure and capability which Ergon Energy pays for. The elements that make up the operational expenditure are:

- Asset services fees
- Operational support
- Telecommunications pass-through
- Non-capital project costs.

#### Asset service fees

Asset Service Fees are an 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 Ergon Energy. The level of this expenditure is directly related to the value of ICT assets that 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. 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 for the benefit of Ergon Energy is provided by Ergon Energy, and carries a finance charge set at Ergon Energy'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 Ergon Energy for the financing of the underlying assets.

### Operational support

Operational support costs represent the recurrent expenditure of ongoing operation, support and maintenance of ICT Services defined in the Service Level Agreement (SLA) between Ergon Energy and SPARQ. 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). As SPARQ Solutions provides operational support services to both Ergon Energy and Energex, 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 20-25% of the recommended retail price for software and 15-20% of the recommended retail price for hardware. Escalation of these costs is 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 Ergon Energy requires a change in service levels. 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.

Ergon Energy have adopted a base-step-trend approach to calculating the baseline operational support costs for the 2015-20 regulatory period. Ergon Energy has selected FY 2012-13 as the base year for ICT Operational Support fees. Following the base step trend analysis, Ergon Energy have determined that their efficient base year is $33.5 million (real dollars, 2012-13).

### Telecommunications pass-through

Telecommunications services used by Ergon Energy include carrier, mobile, data, voice, video, and device management services and associated costs are considered recurrent operating expenses. These services are required for Contact Centres, Control Rooms and general business operations (including services required for Field Force Automation). SPARQ utilises Ergon Energy's internal telecommunications services where possible, and in addition, sources and manages telecommunication services on behalf of Ergon Energy under market-based contracts with Telstra and Optus. Costs incurred from these contracts are treated as 'pass-through' costs, with no SPARQ overhead applied. There are separate contracts in place for voice and data (carrier services) and for provision of managed contact centre services. The telecommunications contract management strategy incorporates a requirement 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.

#### Non-capital project costs

Non-Capital Project costs are non-recurrent operating expenses reflecting the ICT project specific expenses, which cannot be capitalised under Australian Accounting Standards. This cost is a direct result of the ICT Program of Work undertaken on behalf of Ergon Energy. Examples of such costs include business case development, initial scoping and conceptual design and decommissioning costs.

### 2.1.2 Capital expenditure

#### Ergon Energy owned ICT assets

The general principle applied to ICT asset ownership under the SPARQ operating model is that assets are held by SPARQ on behalf of Ergon Energy and Energex, in order to maximise economies of scale with respect to acquisition, licencing, and operations. Ergon Energy 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 Ergon Energy 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 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.

## 2.2 Scope

The scope of expenditure covered in this forecast overview includes:

- Asset services fees
- Operation support
- Telecommunications pass-through
- Non-capital project costs
- Ergon Energy ICT assets – the capital expenditure component.

Specifically excluded from this forecast overview are:

- ICT infrastructure costs related to any new Ergon Energy buildings or office fit outs; these costs are included in the Property submission
- Non System capital expenditure – SCADA and Other Control. This includes Distribution Management System and other operational technology related expenditure
- Non-regulated ICT expenditure.

# 3. Summary of forecast expenditure

## 3.1 Drivers linked to expenditure

Prior to explaining the forecast expenditure over the next regulatory control period, it is important to outline the key drivers that have been considered in developing the forecasts. The forecast

expenditure on the ICT capability is required to enable Ergon Energy to achieve its Distribution Network Service Provider (DNSP) obligations and strategic direction. ICT capabilities are key enablers for Ergon Energy's strategic objectives of 'Efficient and prudent service' and 'Effective market enablement'. In practical terms, the outcomes to be achieved through expenditure in ICT 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
- increased business productivity using emerging mobile technology enabled by appropriate security capabilities
- delivery of information analytics to provide insights and improve decision making

The three areas of expenditure that are used to achieve these specific outcomes are:

- **Replacement of existing systems** – The core systems of Enterprise Resource Planning (ERP), Enterprise Asset Management (EAM), Customer and Market Systems, and Network Planning and Forecasting, are approaching obsolescence during the next regulatory control period. Replacement of these core systems is fundamental to maintain risk at acceptable levels, sustain business capability, and support enablement of Ergon Energy's strategic direction.
- **Maintenance of existing systems** – Throughout the operational life cycle of ICT systems, investment is required to patch, upgrade, enhance and replace system components in order to maintain to optimal performance of systems in supporting expenditure objectives.
- **Introduction of new business capabilities (enabled by ICT)** – These initiatives are in response to Ergon Energy's strategic direction, changes in regulatory and statutory requirements and changes in the technology environment.

## 3.2 Forecast expenditure

Table 1 provides an estimation of EECL expenditure forecast for Ergon Energy ICT for the period 2015-20. The estimates have been produced by modelling financials in accordance with Ergon's Based Step Trend model. These costs will be allocated to SCS, ACS and non-regulated activities via the Ergon Energy Cost Allocation Model (CAM).

**Table 1: Estimated EECL expenditure forecast (2012-13 $ Real)**

| | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | FYs 2016-20 |
|---|---|---|---|---|---|---|
| | $M | $M | $M | $M | $M | $M |
| Asset Service Fees | 30.5 | 34.2 | 36.4 | 43.2 | 43.1 | 187.4 |
| Operational Support & Telecommunications | 52.0 | 52.4 | 52.7 | 53.1 | 53.4 | 263.6 |
| Non-Capital Project Costs | 3.5 | 6.2 | 5.8 | 3.7 | 1.5 | 20.7 |
| **Total Operational expenditure** | **86.0** | **92.8** | **94.9** | **100.0** | **98.0** | **471.7** |
| Capital Expenditure – Ergon Energy owned assets | **2.5** | **5.6** | **7.5** | **2.3** | **5.8** | **23.6** |

Each of these separate expenditure lines is based upon an individual forecast explained in more detail below.

### 3.2.3 Operational Expenditure elements

#### Asset service fees

The proposed ICT investment program for 2015-20 results in estimated EECL Asset Service Fees of $187.4M, of which $74.2M relates to 2015-20 proposed investments. $43.6M is due to extant assets purchased in current or prior regulatory control periods. $51.7M will be recognised in the 2015-20 regulatory control period resulting from inflight investments that will go into production in the final year of the current regulatory control period (2014-15). Breakdown of estimated EECL component of the total forecast Asset Service Fees (ASF) are provided in Table 2. EECL component of total ASFs is approximately 93.6% of total costs.

**Table 2: Breakdown of forecast EECL Asset Service Fees (ASF) (2012-13 $ Real)**

| | Forthcoming Regulatory Control Period | | | | | |
|---|---|---|---|---|---|---|
| | 2015-16 Forecast $M | 2016-17 Forecast $M | 2017-18 Forecast $M | 2018-19 Forecast $M | 2019-20 Forecast $M | Reg Period Forecast $M |
| On Opening Assets | 14.8 | 12.0 | 9.8 | 6.5 | 0.5 | 43.6 |
| On Assets Capitalised 2014-15 | 8.6 | 11.2 | 10.9 | 10.6 | 10.4 | 51.7 |
| Finance costs recovered | 6.4 | 5.5 | 3.5 | 1.9 | 0.6 | 17.8 |
| ASF – recovering costs of 2010-15 AER assets | 29.8 | 28.6 | 24.2 | 19.0 | 11.5 | 113.2 |
| On Assets Capitalised 2015-16 | 0.4 | 4.0 | 3.9 | 3.8 | 3.7 | 15.7 |
| On Assets Capitalised 2016-17 | - | 0.1 | 4.8 | 4.7 | 4.6 | 14.1 |
| On Assets Capitalised 2017-18 | - | - | 0.2 | 7.9 | 7.7 | 15.8 |
| On Assets Capitalised 2018-19 | - | - | - | 0.4 | 6.4 | 6.8 |
| On Assets Capitalised 2019-20 | - | - | - | - | 0.6 | 0.6 |
| Finance costs recovered | 0.2 | 1.4 | 3.2 | 7.5 | 8.9 | 21.1 |
| ASF – recovering costs of 2016-20 AER assets | 0.6 | 5.5 | 12.1 | 24.2 | 31.8 | 74.2 |
| **Asset Service Fees** | **30.4** | **34.1** | **36.3** | **43.2** | **43.4** | **187.4** |

## Operational support & Telecommunication charges

The estimated EECL expenditure forecast of $263.6M (real $2012-13) for operational support services and telecommunication charges are shown in Table 3.

**Table 3: EECL Operational support services expenditure forecast (2012-13 $ Real)**

| | Forthcoming Regulatory Control Period | | | | | |
|---|---|---|---|---|---|---|
| | 2015 -16 Forecast $M | 2016 -17 Forecast $M | 2017 -18 Forecast $M | 2018 -19 Forecast $M | 2019 -20 Forecast $M | Reg Period Forecast $M |
| **Operational Support & Telecommunications** | **52.0** | **52.4** | **52.7** | **53.1** | **53.4** | **263.6** |

Excluding impacts of new capability the baseline forecast proposes a downward expenditure trend for the period in real terms. This 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 model.

## Telecommunications

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 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.

## Non-capital project costs

The driver for the non-capital project costs for the 2015-20 regulatory control period is the proposed Capital Investment Program. Table 4 provides the forecast EECL related expenditure for non-capital project costs. The proposed capital program expenditure has been included for reference.

**Table 4: Non-capital project costs forecast EECL expenditure (2012-13 $ Real)**

| | Forthcoming Regulatory 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 | 40.8 | 53.7 | 61.5 | 33.8 | 35.8 | 225.6 |
| **Non-Capital Project Costs** | **3.5** | **6.2** | **5.8** | **3.7** | **1.5** | **20.7** |

## Capital expenditure

As part of the 2015-20 regulatory forecasting process, SPARQ Solutions have undertaken an activity to align each of the major ICT capital expenditure initiatives to the NER capital objectives. Per this analysis, SPARQ Solutions have determined that all 12 initiatives identified in Table 5 are primarily aligned to NER capital objective 6.5.7(a)(3) – Maintain Supply. This is due to SPARQ Solutions obligation to focus on supporting Ergon Energy's strategic objectives and direction, all while maintaining the current business risk profile for the forthcoming 2015-20 regulatory period.

Following is the capital expenditure program to be incurred on behalf of Ergon Energy and is provided as supporting information for the operating expenditure detailed above.

**Table 5: Capital expenditure program (2012-13 $ Real)**

| | | Forthcoming Regulatory Period | | | | | |
|---|---|---|---|---|---|---|---|
| **ICT Architecture Segment** | **Program** | 2015 -16 Forecast $M | 2016 -17 Forecast $M | 2017 -18 Forecast $M | 2018 -19 Forecast $M | 2019 -20 Forecast $M | Total Forecast $M |
| Network Asset Management | Enterprise Asset Management | - | 10.5 | 25.6 | 16.1 | - | 52.2 |
| Network Asset Management | Network Information Enablement | 4.3 | 0.9 | 1.6 | 0.8 | 3.1 | 10.6 |
| Network Operations | Distributed Workforce Automation | 0.3 | 0.3 | 1.5 | 1.5 | 0.3 | 4.1 |
| Corporate Services | Administrative ERP | 16.6 | 16.6 | - | - | - | 33.1 |
| Customer Services | Market System Modernisation | 4.3 | 4.3 | - | - | 10.4 | 19.0 |
| Enterprise Services | Business Analytics Renewal | - | 5.1 | 5.1 | - | - | 10.2 |
| Enterprise Services | Information Security Enhancements | 2.1 | - | - | - | 2.1 | 4.2 |
| Enterprise Services | Integration Platform Renewal | - | - | 10.8 | - | - | 10.8 |
| ICT Infrastructure | Desktop and Productivity Thin Client | - | - | 2.4 | 1.2 | - | 3.6 |
| ICT Infrastructure | Infrastructure | 6.9 | 6.6 | 3.1 | 8.1 | 10.4 | 35.1 |
| ALL | Applications Replacement and CI | 3.8 | 3.8 | 3.8 | 3.8 | 3.8 | 19.0 |
| ICT Infrastructure | End User Devices (Ergon Energy) | 2.5 | 5.6 | 7.5 | 2.3 | 5.8 | 23.7 |
| **Capital Expenditure proposed** | | **40.8** | **53.7** | **61.5** | **33.8** | **35.8** | **225.6** |

# 4. Customer outcomes

## 4.1 Benefits and risks to customers

The core systems of Enterprise Resource Planning (ERP), Enterprise Asset Management (EAM), Market Systems and Network Planning and Forecasting, are approaching obsolescence during the next regulatory control period. Replacement and /or upgrade of these core systems will enable alignment of systems with Ergon Energy's strategic direction, re-architecture for improved efficiency and maintain system risk at acceptable levels.

Investments in the following core ICT segments will maintain or enhance the customer experience as follows:

- Contemporary EAM capability is essential to support core business functions of asset management, outage management, and network forecasting and design, to ensure Ergon Energy meets its legislative obligations with respect to the efficient and safe operation of the electrical network. A well-managed network will manifest itself in the following positive customer outcomes – safe, reliable, least cost energy supply.
- Market system modernisation will ensure Ergon Energy can meet National Energy Customer Framework (NECF) obligations, ensure compliance with national electricity market requirements, and meet the forecast increases in meter data in line with retailer and customer expectations and requirements. Effective market systems will manifest itself in the following positive customer outcomes – accurate and reliable billing, support the achievement of national performance standards, and enable a sufficiently informed market place to allow market forces to derive competitive outcomes.
- Strengthening of information security will ensure the protection of the confidentiality, integrity and availability of information processing and information systems. Information security will manifest itself in the following positive customer outcomes – proactively manage threats and risks to critical information assets including customer information.

# 5. Current period outcomes

## 5.1 External factors

At the commencement of the current regulatory control period, SPARQ, in conjunction with Ergon Energy and Energex, undertook a comprehensive review of their ICT programs to validate the level of 'jointness' sought across the businesses ICT programs, and to optimise the sequencing accordingly for Ergon Energy and Energex.

Execution against the revised ICT investment program was paused pending outcomes from the Queensland Government's Inter-Departmental Committee (IDC) on Electricity Sector Reform. During this process, significant expenditure on major ICT investments that may have potentially limited the government's options for reform of the sector, was paused.

While these events have impacted execution against the plan, resulting in an under spend across the period, the core ICT program has been mobilised, but will now span regulatory periods. This includes:

- **Core Central Network Asset Model (CCNAM) and Network Model Integration (now Network Information Enablement program)** – Due to the envisaged changes in Queensland's Electricity Industry and being in the process of undergoing extensive

restructure in order to achieve business efficiencies, Ergon Energy decided in 2012 to defer the investment in CCNAM. The program has commenced in 2014-15 and will be delivered through an upgrade to the next generation of Ergon Energy's current Geographic Information System (Smallworld, upgrade to Electric Office).

- **Market Systems** – Ergon Energy has invested in Salesforce as an interim solution for some network customer management functions, while it developed the approach to replace the legacy FACOM CIS system. Replacement of FACOM is progressing in line with separation of the retailer, as proposed in the 2010-2015 Regulatory Proposal. This is expected to mostly be completed by the end of the period. In addition, investment was directed to achieving NECF compliance.
- **Data Centre Migration** – The Brisbane component of the Data Centre Migration is now completed with all Brisbane based services now hosted from the co-location Primary Data Centre facility with Disaster Recovery supported from the shared Energex Data Centre at Victoria Park. Migration from the Rockhampton Data Centres to Brisbane has commenced as ICT Asset Renewal or Upgrade projects minimise the cost and effort of relocation.
- **Distribution Management System (DMS)** – The program received board approval in August 2013 and will span the subsequent regulatory control period.
- **Energy Information Management (now Network Information Enablement program)** – Ergon Energy has implemented an EIM solution on the basis of the Itron IEE product suite.
- **Work Force Automation (now Distributed Workforce Automation)** – WFA is currently in delivery. By the end of the current regulatory control period Ergon Energy will have implemented WFA, based on Energex's existing ICT system and architecture, for customer service and unplanned works.

In addition to new capabilities there were major upgrades and maintenance actions undertaken, these included:

- Tactical response on ERP. The original intention was to upgrade the ERP in the current regulatory control period. This was rejected as costs were approaching replacement costs. Instead lower cost tactical initiatives were undertaken, whilst planning and preliminary design work for a complete ERP replacement in the 2015-20 regulatory control period has commenced as originally intended.

## 5.2 Review of operating expenditure

To allow meaningful comparison against the AER allowance, SPARQ operating expenditure needs to be adjusted for expenditure allocated to non-regulated Ergon Energy activities. At the aggregate level and using 2012-13 as a representative year, Ergon Energy apportions SPARQ operating expenditure in the proportion of 84.4% regulated and 15.6% non-regulated. On this basis, Table 6 provides estimated 'regulated related' SPARQ operating expenditure for the 2010-15 regulatory control period.

**Table 6: Estimated 'regulated related' SPARQ operating expenditure ($ Nominal)**

| | 2010/11 | | 2011/12 | | 2012/13 | | 2013/14 | | 2014/15 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Deter mination | Actual | Deter-mination | Actual | Deter-mination | Actual | Deter-mination | Actual | Deter-mination | Actual | Deter-mination | Actual |
| ASF | 35.6 | 23.2 | 49.2 | 25.9 | 59.6 | 26.6 | 66.6 | 27.3 | 64.4 | 28.6 | 275.5 | 131.6 |
| Operational Support & Telecommunications | 34.6 | 36.8 | 35.7 | 40.4 | 37.4 | 40.2 | 38.1 | 42.6 | 40.8 | 48.6 | 186.6 | 208.5 |
| Non capital project | 3.3 | - | 2.5 | 6.9 | 1.8 | 2.6 | 1.9 | 2.8 | 1.3 | 4.6 | 10.9 | 16.9 |
| | **73.5** | **60.0** | **87.4** | **73.3** | **98.8** | **69.3** | **106.7** | **72.7** | **106.5** | **81.8** | **473.0** | **357.1** |

Total 'regulated related' Asset Service Fee expenditure is forecast at $131.6M for the current regulatory control period, resulting in a total underspend of $143.8M against the AER determination for this expenditure line.

The 52% underspend can be attributed to deferring the following system investments:

- Distribution Management System($16.4M) – Expenditure incurred on the DMS project will be incurred directly by Ergon Energy and reflected in Ergon Energy's accounts.
- Work Force Automation ($22.8M) – Investment deferred initially due to government reviews and then to align with timing of FACOM replacement.
- Market Systems ($21.4M) – Investment deferral of FACOM replacement and satellite market systems to align with final decision on Ergon Energy Retail.
- ERP Upgrade ($15.7M) - Upgrades to existing ERP was deferred due to estimate approaching full replacement cost.
- Network Planning and Forecasting ($22.8M) - This program has commenced in 2014/15 and will be delivered through an upgrade to the next generation of Ergon Energy's current Geographic Information System (Smallworld, upgrade to Electric Office).
- Infrastructure ($22.3M) – Due to underspend of approximately $36M in infrastructure hardware and software renewal. A portion is due to deferral of system investments identified above.

Approximately $20-25M in Asset Service Fee underspend is as a consequence of overstatement of opening asset balances, timing of capital program expenditure, and incorrect capitalisation / depreciation assumptions. Significant improvements as a consequence of these experiences have been incorporated into forecasts prepared for the 2015-20 regulatory submission.

Total 'regulated related' Operational Support & telecommunication expenditure is forecast at $208.5M, resulting in an over spend of $21.9M. The transfer of OCIO and related functions (cost moved from Ergon Energy to SPARQ with net savings) at a cost of $19.6M over the RCP represents a significant portion of this overrun. Lower than expected support costs also reflects deferral of ICT

investment program and subsequent lower than expected uplift in ICT support for planned new applications.

Total 'regulated related' telecommunication costs is forecast at $46.3M resulting in an over spend of $4.3M. Over spend has been contained in later years due to favourable contract rate negotiations with external carriers.

Total 'regulated related' project operating expenditure is forecast at $16.9M resulting in an over spend of $6.1M. Significant Project Operating expenditure was incurred in 2011-12 predominately related to the planning for the Ellipse 8 (ERP) upgrade project and ICT Blueprinting.

### 5.3 Review of outcomes

The overriding outcome achieved by the ICT spend in this period has been the maintenance of an effective and efficient ICT environment that has enabled Ergon Energy to manage the business and network, while meeting the NER obligations. The extent to which this program has enabled business efficiencies and savings will predominately be reflected in the 2015-20 regulatory control period.

### 5.4 Impact on forecast

The forecasting methodology for ICT has been critically reviewed in light of the under-delivery of the ICT investment program in this regulatory control period. SPARQ has also reviewed the capacity to deliver capital programs and has not identified systemic delivery issues.

Programs were deliberately suspended pending outcomes from government reviews of the energy sector, or as a consequence of internal review and assessment processes prudently deferring investment.

Furthermore, SPARQ ensures that the requirements of Ergon Energy are understood and regularly revalidated during the process of preparing the forecast to ensure relevancy.

Delays in the current period have caused an increase in the program to be delivered in the next regulatory period. That is, projects that were (prudently) delayed still need to be delivered.

The forecasting methodology is considered valid.

## 6. Managing and forecasting ICT expenditure

### 6.1 Processes, practices and criteria used in the current period

The process that results in prudent and efficient expenditure on ICT assets for Ergon Energy is a collaborative undertaking between Ergon Energy and SPARQ. This process (described below) ensures alignment between the Ergon Energy ICT strategy and the overall business strategy.

The process used by SPARQ and Ergon Energy to ensure prudent and efficient expenditure on ICT has four main steps, three of which take place before the standard Ergon Energy capital governance process. The four main steps are:

- **Step 1** – Ensure there is strategic alignment between Ergon Energy and SPARQ.
- **Step 2** – Assess and categorise ICT systems (future /existing) using the Gartner PACE model.
- **Step 3** – Optimise the Renewal plan.

- **Step 4** – Submit individual projects through the Ergon Energy governance process for review and approval.

Each of these four stages is explained below in more detail.

### 6.1.1 Step 1 – Strategic alignment

The initial stage of the forecasting process (relevant for current and future periods) is to ensure that there is alignment between the needs of Ergon Energy and the strategy being pursued by SPARQ to maintain and enhance ICT capability and services.

Table 7 shows the alignment between the Ergon Energy strategic direction (*Strategic Direction – Towards 2020)* and the ICT Strategy. As can be seen, there are two pillars to the strategic direction: Efficient and prudent service, and Effective market enablement. Also shown in the table are the three main elements to the ICT strategy: Business aligned ICT change, IT as a service, and Managed information.

**Table 7: Alignment of strategic direction and ICT Strategy**

| | **Ergon Energy's *Strategic Direction – Towards 2020*** | |
|---|---|---|
| **ICT Strategy** | **Efficient and prudent service** | **Effective market enablement** |
| Business aligned ICT change | Sustain capabilities through upgrades<br>Replace obsolete systems<br>Implement contemporary solutions<br>ICT Asset Management | Replace obsolete systems<br>Implement contemporary solutions |
| IT as a service | A stable and efficient ICT operating environment<br>Project delivery panel | Leverage ICT commodity services<br>Maturing SaaS offerings<br>Commodity devices and services |
| Managed information | Deliver information and analytics | Deliver information and analytics |

### 6.1.2 Step 2 – Assessment and categorisation

With a strong degree of strategic alignment, the next step is to categorise the capabilities that must be delivered through ICT to Ergon Energy. The Gartner PACE model has been chosen by SPARQ as an aid to categorising these capabilities (and the systems that enable them).

Gartner developed the Pace Layered Application Strategy framework to enable ICT managers to plan and manage portfolios of systems and applications. The PACE model acknowledges that when managing complex portfolios of systems, it is not appropriate to manage all systems the same way. Better to manage these systems based on the value they add to the business and the probable rate of change. Using this approach, Gartner developed three systems categories, these are:

- Foundational systems
- Systems of differentiation
- Systems of innovation

Each of these three types (or layers) has different requirements and rates of change. As such, the PACE model prescribes unique governance approaches for each to enable the maximum flexibility.

The application of the Gartner PACE model has enabled SPARQ to significantly improve the management of the portfolio of systems by:

- better aligning ICT capability and delivery needs

- improving business engagement
- clarifying investment objectives
- prioritising the applications architecture and roadmap
- reducing business risk
- enabling a clear understanding and expectation regarding the lifespans and frequency of change of different applications.

As such, in this step SPARQ categorises all the systems in use by Ergon Energy. SPARQ also categorises those that are likely to be required by Ergon Energy. Examples of systems that have been categorised in each level include:

- Foundational systems
  - Administrative ERP functions (e.g. HR, Payroll)
- Systems of differentiation
  - Enterprise Asset management systems, Geographical Information System (GIS)
- Systems of innovation
  - Enhanced analytics and visualization capabilities.

### 6.1.3 Step 3 – Optimise

As a result of the first and second steps, there is an understanding of the strategic priorities and an assessment of the value and risk represented by each application and capability. The third step in the process involves SPARQ using the Asset Renewals Guidelines to optimise the cost and effectiveness of ICT infrastructure assets. The result of this stage is an age and obsolescence based management plan. This risk-based approach to ICT upgrade and replacement has three main drivers, these are:

- Technical obsolescence
- Financial obsolescence
- Asset obsolescence

### 6.1.4 Step 4 – Review and approve

As with all significant items of expenditure, Ergon Energy has a rigorous expenditure approval process. This process, culminating in a recommendation by the Investment Review Committee (IRC), is used to ensure that the proposed spend is the best option (prudent) and that the preferred option represents the lowest impact to consumers over the long term (efficient).

## 6.2 The process is designed to be prudent and efficient

Prudent expenditure is that which reflects the best course of action, considering available alternatives. Efficient expenditure results in the lowest cost to consumers over the long term. That is, prudent and efficient expenditure reflects the lowest long-term cost to consumers for the most appropriate investment or activity required to achieve the expenditure objectives.

### 6.2.1 Prudence

The process starts with an assessment of risk; expenditure is allocated (forecast) for those areas that are (or will become) the most significant risks.

### 6.2.2 Efficiency

ICT expenditure is typically difficult to forecast. This is not because the systems to be replaced (or augmented) are difficult to identify. Rather, the rate of change in underlying technology is such that the cost is difficult to forecast. As such, the process ensures that potential disruptions are considered and that SPARQ (Ergon Energy) achieves the best value for money when spending to address the most critical IT issues. The process is designed to be prudent and efficient.

Efficient delivery of the ICT investment program has been further enhanced with SPARQ Solutions 'New Delivery Model', to enable the prudent and cost effective sourcing of ICT projects. A key element of the new model has been creation of the Project Services Panel. The panel comprises five ICT delivery firms, who were selected through an open market procurement process. Each panel member offers a wide selection of delivery services, with a priority placed on the use of efficient project delivery approaches and specialist competency centres – including offshore centres based in India and the Philippines.

The New Delivery Model ensures optimal cost efficiency of ICT project delivery for Ergon Energy through the use of competitive market forces. Panellists bid competitively for individual project engagements and contract management is streamlined through the use of a standardised Master Services Agreement (MSA) framework. This framework requires the panellists to bid transparently for both fixed price and daily-rate work packages. It also prescribes a vendor management framework, which is used to ensure ongoing performance improvement.

## 6.3 The next period

### 6.3.1 Inputs

The inputs and assumptions that underpin the methodology (in the context of the actual processes, practices and criteria) were explained in the last section. Other key inputs are:

- customer profile
- severe events
- industry developments
- workforce profile
- property portfolio
- applications portfolio.

### 6.3.2 Assumptions

The main assumptions that have been used in the generation of the forecast for the next period are:

- **Assumption 1** – Energy generation, grid management and end-user technologies will continue to evolve. Technologies such as advanced metering, distributed energy systems and demand response management systems are expected to drive profound change in the business models. This will manifest itself in the following ways:
  - Information demand will continue to grow and will be used to drive innovation.
  - Consumerisation will be a driving force for energy and utility sector transformation.
  - Renewable energy will account for at least 20% of our electricity generation by 2020.
- **Assumption 2** – Regulatory changes will continue to be made with the intent of driving improved DNSP performance.

- The next decade will see continued pressure on prices, less certain demand outlook and changes in the way we generate and use energy as we transition to a clean energy future.

- **Assumption 3 –Independent of energy demand growth, investment in ICT will be essential to drive further efficiencies through automation, and support effective decision making in a more dynamic market environment:**
  - Headcount will remain essentially flat until 2020.

# 7. Outcomes and validation of the forecasting method

## 7.1 Outcomes (for the subcategory)

Key outcomes enabled through this ICT expenditure forecast include:

### ICT Capability: Modern Market systems by 2015

- **Why** – Government policy changes to allow retail competition within Ergon Energy's distribution area, reforms to network tariffs that provide pricing signals, and consumer desire to be active participants in the energy market will drive significant investment in market systems.
- **Customer Outcome** – Increased customer engagement and participation in an evolving energy market.

### ICT Capability: Enable consumers to make informed decisions on their use of electricity by 2017

- **Why** – The final report of the AEMC Power of choice review sets out a substantial reform package for the National Electricity Market. Providing households, businesses and industry with more opportunities to make informed choices about the way they use electricity and manage expenditure is a critical capability for the future.
- **Customer Outcome** – enable consumers to make informed decisions on their use of electricity.

### ICT Capability: Demand Response Management by 2018

- **Why** – The Queensland Government response to the Interdepartmental Committee on Electricity Sector Reform accepted a number of 'Demand Side Responses' that will be developed in conjunction with the 30-year electricity strategy. These include: cost effective demand-side measures as alternatives to network investment, annual demand management plans, and national reform measures.
- **Customer Outcome** – Provision of an electricity network attuned to changing customer expectations and levels of participation. Improved asset utilisation, leading to lower costs to customers.

### ICT Capability: ISO 55000 compliant Asset Management systems by 2020

- **Why** – Current Asset Management systems are out of date and at end of life. In addition, PAS 55 asset management standards, which Ergon Energy and Energex have been adopting, will be replaced by the new ISO 55000 series of standards for asset management in 2014.

- **Customer Outcome** – Contemporary asset maintenance regimes driving lower overall cost to customers.

### ICT Capability: Low-Voltage (LV) Network modelling and management by 2020

- **Why** – With the increasing impact of customer participation and technology on the distribution network, the inclusion of the LV network in network planning, forecasting and management is becoming essential for the safe and effective operation of the network.
- **Customer Outcome** – Improved asset utilization thereby lowering costs to customers and provision of a network more attuned to customer expectations.

### ICT Capability: Stable, supportable back office systems by 2017

- **Why** – Current back office systems are out of date and at end of life. Replacement offers the opportunity to transform the way information is used and restructures the total cost of ownership of the application architecture. Contemporary Enterprise Resource Planning system are a fundamental platform for the efficient operation of a DSNP.
- **Customer Outcome** – provision of core services and functions to ensure the ongoing operations of a DNSP.

### ICT Capability: Field access to all essential information from any approved device by 2020

- **Why** – Advances in mobile devices and applications will enable greater access to essential information and application capability for the field workers. This capability will improve operating efficiencies and provide enhanced customer service via interactive capabilities.
- **Customer Outcome** – provision of core services and functions to ensure the ongoing efficient operations of a DNSP

### ICT Capability: Capable Service Oriented Architecture in place by 2016

- **Why** – This will increase the agility of Ergon Energy in changing business applications thereby allowing efficient adaptation/adoption of systems to changing market place dynamics and customer preferences. This will also lower the total cost of ownership for ICT systems.
- **Customer Outcome** – Lower overall cost to customers.

## 7.2 Validation of forecast methodology and inputs

The forecast methodology is robust, as outlined in the preceding sections, and the key inputs used are justifiable, as outlined below.

## 7.3 Validation of expenditure forecasts

It is understood that the AER intends to conduct an assessment of the proposed forecast expenditure based on the following criteria, in relation to investment objectives as defined by Australian Energy Market Commission:

- The efficient costs of achieving the investment objectives.
- The costs that a prudent operator would require to achieve the investment objectives.
- A realistic expectation of the demand forecast and cost inputs to achieve the investment objectives.

In order to meet these requirements, the proposed ICT forecast expenditure was assessed through the following methods:

- **Industry benchmarking** – Benchmarking was undertaken to determine alignment of the overall ICT expenditure forecast with industry peers, cognisant of any mitigating circumstances to be identified.
- **Internal review** – The ICT Investment Framework, endorsed by the Ergon Energy and Energex Investment Review Committees, will be used as a basis for assessing the economic justification for high-level Business Cases for significant proposed ICT investments.
- **External review** – An independent organisation was appointed to provide a review of the overall ICT expenditure forecasts and undertake a critical analysis of major investments. This provides an independent check of expenditure forecasts.

An overview of the methodology applied to derive estimates for each source of expenditure is discussed in the Ergon Energy Forecasting Methodology and Approach document.

The proposed expenditure is in accordance with clauses 6.5.6 and 6.5.7 of the National Electricity Rules.

ICT capital expenditure will be aligned with the overall capital objectives of Ergon Energy. This will include:

- anticipated Regulatory changes
- maintenance and replacement/refurbishment of existing ICT services in support of the provision of standard control services.
- augmentation of existing ICT services in support of provision of standard control services
- replacement of legacy and end of life ICT assets.
- transformation investments

The *Cost Allocation Method* (CAM) ensures that ICT costs are allocated appropriately to ensure that ICT assets support the delivery of standard control services.

### Meeting capital expenditure criteria

Refer to *ICT Forecasting Method and Approach* document, Section 4:

ICT Investments will be supported by business cases that specifically demonstrate the principle of efficiency through options analysis; prudency through needs analysis and strategic alignment with realistic expectations on costs through Preferred Options Detail analysis and cost estimation methods.

### Meeting the capital expenditure factors

The capital expenditure factors relate to data and facts that provide the AER with specific direction in assessing whether the forecast meets the principles in the capital expenditure criteria. The factors either relate to:

- consideration of capital expenditure and operating expenditure substitution possibilities,
- validation of the outcomes of the forecast process with independent benchmarks and previous expenditure.

The points below provide a brief summary of how we have addressed the factors in the Rules, including reference to key evidence.

- Efficient costs of achieving the capital expenditure objective will be evidenced by options analysis in business cases.
- The costs that a prudent operator in the circumstances of the relevant Distribution Network Service Provider would require to achieve the capital expenditure objectives will be evidenced by benchmark data.

## 8. Summary and conclusion

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 Ergon to compile its Information and Communications Technology (ICT) expenditure forecast.

This ICT expenditure forecast supports the efficient delivery of standard and alternative control services in relation to the distribution network for the forthcoming regulatory control period 2015-20.

This expenditure covers the 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 Ergon. This ICT capital program is mostly driven by Ergon Energy's ICT investment strategies focusing on system replacement and maintenance of existing foundation and differentiation systems.

During the current regulatory control period Ergon Energy has maintained ICT infrastructure, including Next Generation desktop, a new Data Centre, improved reporting capabilities, and commenced new capabilities in Field Force Automation, Distribution Management System and replacement of the FACOM system.

Excluding the impacts of the SPARQ ICT capital program, the operational support 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 Ergon's achievement of their efficiency improvements, the ERP/EAM replacement program, which represents approximately 40% of the ICT capital program will provide significant efficiency opportunities, although this is not quantified at this time.

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 Ergon's ICT capability in support of achieving the NER objectives, Ergon's business strategies and customers' expectations.