Forecast Expenditure Summary

Property Services

2015 to 2020

ERGON ENERGY

Contents

Purpose

The purpose of this document is to:

- Outline the expenditure we require to deliver operationally efficient, fit-for-purpose and resilient buildings based on prudent and efficient forecasts and appropriate construction and maintenance standards.
- Explain recent trends in expenditure and outcomes for Property compared to forecasts and the circumstances that will drive investment in the next regulatory control period.
- Outline the approach to forecasting Property, including the inputs, assumptions and methodology that underlie the expenditure forecasts.
- Explain and validate the outcomes in 2015-20 by applying the forecasting approach.
- Summarise the outcomes for customers in the next period.

Introduction

This document pertains to the Ergon Energy Property category that aligns to the following Non-Network RIN categories:

- Buildings
- Land and easements (where related to Non-Network assets)
- Land improvements (where related to Non-Network assets)
- Furniture and office equipment

Ergon Energy is responsible for building, operating and maintaining the electricity network, a large and diverse asset portfolio. To enable Ergon Energy to meet these responsibilities requires a significant and ongoing investment in Non-Network property. Property assets are required for the accommodation of the Ergon workforce and for the storage of plant and equipment. As Ergon Energy manages a regional and remote network, the property assets are widely dispersed.

Presently, Ergon Energy has nearly 200 Non-Network properties. A major determinant of the ongoing investment in Non-Network Property is the Non-Network Property Strategy. This strategy is underpinned by a 'hub and spoke' model that continues to drive the rationalisation of properties around the operating hubs of:

- Cairns,
- Townsville (major),
- Mackay,
- Rockhampton (major),
- Maryborough, and
- Toowoomba (major).

Driven by the strategy, Ergon Energy continues to improve the way in which property assets are managed. The recent contraction in energy sales, peak demand and customer network connections has been reflected within the workforce. Consistent with the operational contraction, Ergon Energy is seeking additional efficiencies through the reduction in small leases and the integration of employees into fewer centres.

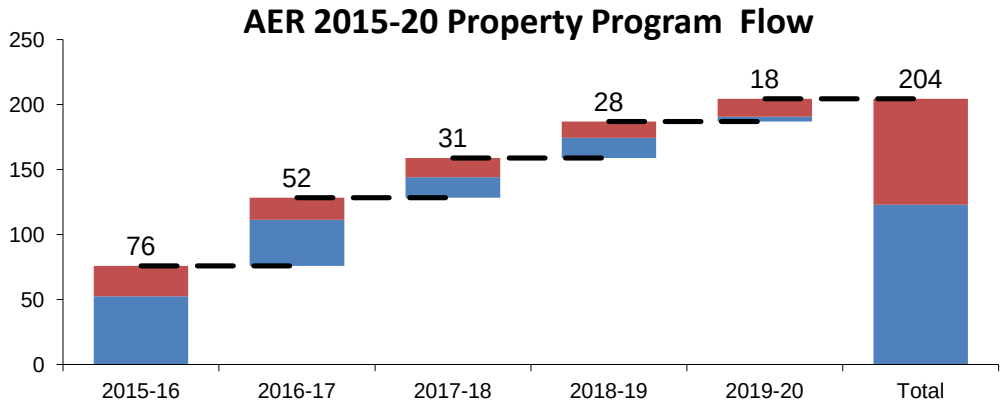
Summary of expenditure

Ergon Energy's proposed forecast capital expenditure requirements for the 2015-20 regulatory control period is illustrated in the table below ($M 2014 -15 real excluding overheads, excluding shared asset adjustment).

Category	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Major Program	52.62	35.32	15.59	15.59	3.90	**123.01**
Minor Program	23.36	17.12	14.93	12.37	13.61	**81.38**
Portion attributable to:						
Buildings and Property	72.65	50.16	29.28	26.80	16.91	**195.80**
Furniture and	3.33	2.28	1.23	1.15	0.60	**8.59**

In forecasting the expenditure for Non-Network Property, Ergon Energy utilises a bottom-up approach aligned to its hub and spoke model and in doing so, ensures greater efficiency in its program of work. Items of work are combined based on locality and as a result land, easement and building expenditure are reported as a single line of expenditure. This expenditure can be organised into sub-categories based on the hub and spoke model. Ergon Energy reports its Non-Network Property expenditure internally using a split between hubs, where expenditure is consolidated and delivered as a large body of work, and spokes, where items of work can be combined or delivered individually to ensure assets continue to meet their demand. Principally, this hub-based expenditure forms the Major program of work, while the spoke-based expenditure forms the Minor program of work.

Due to a bottom-up methodology, the Property program of work is 91% specified. That is, the work is a known entity which is specifically aligned to a hub or spoke, has a forecast expenditure value and is scheduled to be delivered within a specific period of time. Due to this (optimised) itemisation of work, trend analysis is not necessarily the most effective methodology to ensure the forecast expenditure is prudent and efficient. Each item of work is measured on its own merits to ensure it represents a prudent and efficient investment. The methodology utilised to realise and review this at a program level (major and minor) is provided in the detail below. Figures in $M 14 -15 real, excluding overheads.



It is observable that a large percentage of work is forecast towards the beginning of next regulatory control period. There are several factors that influence the scheduling of work at a regulatory level, these include:

- Two of the largest major projects in the Property portfolio (Garbutt, Townsville and Glenmore Road, Rockhampton) are currently underway and are scheduled to roll-over approximately fifty percent of their planned expenditure into next regulatory control period. It is most prudent to continue this work without interruption and therefore the schedules are fixed to 2015-16 and 2016-17.
- Gaining Shareholding approval for major investment has more recently required an extended period of time (6-15 months). This adds a considerable risk of projects running well past their initial regulatory schedule and into the next five-year period (as demonstrated by Garbutt and Glenmore Road projects). As a result, all major investment is specifically scheduled to begin in the first or second financial year of the 2015-20 regulatory control period. This ensures any potential approval delay will not shift the project timelines into the following regulatory control period, resulting in regulatory targets being met.
- Due to the nature of the major program of work, the resulting investment profile shows large expenditure across a small volume of large sites. The lack of investment at these hubs from 1990-05 has resulted in an increased expenditure more recently. As such, these major hub-based investments will peak during 2016-17, trending downwards towards the end of 2020, with no new major hub-based investment expected to commence post 2016-17. In association with the above two points, the overall regulatory cash-flow naturally follows this trend and reduces towards the end of the five year period.
- The minor program utilises a methodology based on the life-cycle of an asset. As work is grouped together at a given locality for an efficient consolidated delivery, the criticality and life of those impacted assets are considered and work is scheduled at the point in which the current condition exceeds the desired condition through an optimisation algorithm. As such, the schedule of work represents principally the most cost-effective delivery schedule, with a balancing process instituted only when it is needed (i.e. other constraints are encountered).

While trend analysis may assist in observing unexpected spikes in forecast expenditure, it is important that it is not used to validate and rationalise the proposed capital forecast. Smoothing of expenditure over several financial years does not reflect reality or what is most prudent and efficient in meeting Ergon Energy's Non-Network asset requirements during the regulatory control period.

Capital Expenditure forecast (2014-15 real $)

Category	2015-16	2016-17	2017-18	2018-19	2019-20
Forecast Program	16	18	14	11	12
Forecast Direct Costs	75.98	52.44	30.51	27.95	17.51

** Represents number of planned specified bundles of work (at a hub/spoke level); each bundle may have many several components.*

The application of overheads is generally applied consistently across the Non-Network Property capital expenditure, in line with accounting standards. Direct land purchases are the only cost category that do not incur the application of overheads. In the AER 2015-20 Program there are no planned land purchases or acquisitions of freehold land. No inflationary escalation has been applied to the forecast beyond what brings the cost up to a 2014-15 baseline. All Non-Network

Property categories of expenditure are provided at this baseline and will require an appropriate escalation to reflect the real cost at the point of delivery.

Customer outcomes

To ensure our regulatory proposal is aligned to with the long-term interests of consumers, Ergon Energy has undertaken a coordinated customer/community engagement program.

This program has built on our understanding of our customers' service expectations and informed the customer outcomes we are seeking to deliver, along with the associated works program. Our customer service commitment that is most relevant to this expenditure class is:

We'll be there after the storm, prepared and with the resources to respond to any event.

While we cannot guarantee to keep the lights on during cyclones and other extreme weather events, we can reassure the community that we are prepared, close by and ready to respond to these events.

This is supported in many ways through our property strategy and the deliverables in this property services expenditure forecast. The importance of maintaining a local presence and the ability to respond promptly was highlighted by feedback from our online stakeholder survey, and through other regional stakeholder engagement.

This feedback was also supported by the customer research commissioned through independent research specialists, Colmar Brunton, to help us explore our customers' willingness to pay for different areas of our service. In this research our customers indicated that Ergon Energy's investment priorities should be maintaining the reliability of supply, with strong support given to maintaining local depots. Less than half of the research respondents supported decreasing the current number of depots, even when offered a significant 5% decrease in their bill. Maintaining a local presence is seen as being important to our communities from a local employment perspective.

They also believe we have corporate responsibilities around community electrical safety and providing leadership in energy conservation. For safety we have established this customer commitment: Our goal for our safety performance is to stand with the best in our industry … to be ALWAYS SAFE.

These customer expectations are met through a number of targeted investments in this category's expenditure forecast, as highlighted below.

Property – major capital program of work

The Major program of Work is defined as any capital investment performed at one of Ergon Energy's major strategic locations (hubs) where the investment is greater than five million. The major strategic locations are: Cairns, Townsville, Mackay, Rockhampton, Maryborough, and Toowoomba. Specific investments in the Major Program of Work usually cross multiple financial years.

Outcomes for customers

The customer and community engagement program undertaken by Ergon Energy has shown the principal customer expectations for both regional and remote Queensland is reliability of supply and maintaining a localised presence. To ensure that we can service these customer expectations, the intent of the Major Program of Work is to maintain the ageing hub property assets to ensure

responsive and operationally efficient depots that meet relevant safety, compliance and environmental requirements as well as supporting Ergon Energy staff in servicing our customers.

Current period outcomes

As part of the approved AER five-year funding allocation, Ergon Energy Property was allocated $183.68 million (nominal) dollars for 2010-15 to execute the major program. Following the Merits Review process, the funding allocation was increased to $344.82 million. This increase allowed Ergon Energy to progress with the development of the two largest regional operational areas: Garbutt, Townsville and Glenmore Road, Rockhampton. It should be noted the additional funds allocated were budgeted to fund the full Rockhampton Glenmore Road project and only part of the Townsville Garbutt Project in this regulatory control period as planned.

In August 2012, following the Ergon Energy Board Paper 1208-07 (Revised Interim Investment Targets 2010-15 and Revenue Options) the Property group was advised that the revised AER 2010-15 five year target (major program) would be reduced to $261.17 million due to the shifting political and consumer environments. The accompanying table shows the change in expenditure target levels across the current regulatory control period.

2010 – 2015 Revised AER Breakdown *All figures include Overheads in real dollars*	**Initial 2010-15 AER Allocation ($m)** *effective Jul 2010*	**Merits Review 2010-15 AER Allocation ($m)** *effective Mar 2011*	**Revised Investment Targets 2010-2015 ($m)** *effective Oct 2012*
Program of Work - Major Projects			
Maryborough	53.50	53.50	0.42
Cairns	39.00	39.00	0.00
Hervey Bay	19.90	19.90	14.25
Mackay	44.82	44.82	46.94
Toowoomba	13.31	13.31	15.05
Rockhampton T and D Stage 1	10.15	10.15	11.75
Gladstone	3.00	3.00	3.13
Rockhampton Stage 2		86.89	79.75
Townsville Garbutt		74.25	50.44
Townsville Accommodation			23.81
Brisbane Accommodation			15.63
Major Project Total	**183.68**	**344.82**	**261.17**

The key decisions that enabled Ergon Energy to reduce the expenditure, in line with the revised budget include: deferral of work, scope reductions, value management processes and asset disposals. Further details are included in the *Non-Network Property AER 2010-2015 Expenditure Review.*

In addition to the planned reduction in expenditure there has been a further reduction in the actual spend during the 2010-15 regulatory control period when compared to the allowable expenditure. This was largely due to two dominant factors: changing shareholder requirements and changing consumer environment. These factors are also detailed in the *Non-Network Property AER 2010-2015 Expenditure Review.*

Forecasting expenditure requirements for the Major Program of Work

Due to the nature of the investments in the Major Program of Work (that is, predominantly large sites), the overall forecast is developed from the bottom up by combining the costs of individual projects. As such, the forecasting approach involves a number of key elements, these are:

- Determining the need for investment in assets,
- Analysing and costing of the most appropriate solution to invest in the assets,
- Determining the phasing of expenditure in the assets, and
- Combining the individual investments into the Major Program of Works.

Each of these elements is explained in more detail in the following sections.

Processes Practices and Decision Making Criteria at a sub-category level

This section explains the triggers for investment in the current period and the way that these triggers, within the broader strategic framework for property, are used to initiate the process whereby prudent and efficient expenditure is undertaken on Non-Network Property.

Identifying and quantifying the need for investment in assets

Providing stewardship of the Ergon Energy property portfolio, the Property Group regularly assesses the need for investment (both capital and operating) at each of the major sites. Produced as a result of the Ergon Energy Property Strategic Plan, the original Master Plans reports provided guidance on the long-term investment for each of the major strategic sites. This direction highlighted the need to only expend capital on these major strategic sites to address:

- Employee and public safety
- Non-compliance
- Building condition
- Size
- Functionality.

At the point where these triggers are present, a preliminary business case is raised in accordance with the Ergon Energy Gated Governance Process. The first step in this process is to describe and quantify the problem that must be addressed through investment and the risk associated with not investing.

Determination and costing of the most appropriate solution to invest in the assets

Starting with an exploratory phase, the business case process examines potential options for meeting the required need. As the business case develops, the favoured option is identified and the costings improve in veracity. Typical options examined during the process include:

- Business as usual
- Redevelop the site during the current regulatory control period
- Redevelop the site across the current and next regulatory control periods
- Business as usual and bring the buildings up to the standards required of the Building Code of Australia (BCA)
- Business as usual, Bring to BCA standard and upgrade sites to make fit-for purpose
- Build new depot on Greenfield site.

Approving prudent and efficient expenditure

The Investment Review Committee governance process ensures that only prudent and efficient investments in property assets are approved. The incremental nature of the gated governance process ensures that estimates are available for forecasting from the initial stages of the business case development. These estimates are refined as the preferred options progress through the stages of schematic, detailed design and tendering to the market.

In forecasting the expenditure on property (including the Major Program of Work), Ergon Energy must take account of three major groups of strategic drivers, these are:

- External strategic drivers
- Internal strategic drivers
- Shareholder drivers (Government directives and mandates).

A full list of the individual drivers associated with each of these categories is included in the *Property Services Forecasting Methodology 2015-20.*

Given the substantial challenges and expenditure associated with managing a large and diverse asset base, Ergon Energy has (in some cases in partnership with external service providers) produced a number of key documents. The aim of these documents is to guide the overall management of the property portfolio, including the development of capital forecasts. The key documents that are pertinent for the production of the forecast for the Major Program of Work include:

- **Ergon Energy Corporate Property Strategy:** Providing a long-term view of the way in which Ergon Energy will deliver and manage property services to meet the needs of all stakeholders.
- **Property Service Asset Management Plan:** Guides the way in which Ergon Energy manages the lifecycle of property assets. This plan covers both capital and operating spend.
- **Property Master Plan Executive Report:** Provides a long-term guide for the development (and redevelopment) of the major strategic sites (hubs) within the Ergon Energy property portfolio, aligned to the Property Strategy. *Executive report only provided as individual plans no longer reference the specific direction of each site.*
- **Accommodation Manual:** Provides guidance on the type and standard of accommodation that is required for each of the operational functions that Ergon Energy performs.
- **Non-Network Property Strategy Review:** Provides a recent review (and reapproval) of the Ergon Energy Corporate Property Strategy to ensure the future strategic direction is set. It uses the original strategy as a basis to ensure the long-term view of the way in which Ergon Energy will deliver and manage property services continues to meet business needs and the overall strategic direction.
- **Business Cases:** Provides the business case already submitted (to the IRC for those which carry-over into 2015-20) and for future submission in which a fully detailed and analysed options analysis is provided, including the resultant cost-benefit, risk profile, non-financial benefits and customer outcomes.

The prior list contains the main guiding documents that are used in determining the need for expenditure. In developing the forecast (estimate) for individual property assets and projects, there are several documents, guides and analysis spreadsheets referenced.

Forecasting Approach

The objective of all Non-Network Property expenditure is to achieve the objectives as noted in the Non-Network Property Strategy. These include the ongoing implementation of the hub and spoke model that allows for a concentration of critical personnel and other resources around major regional hubs, noted as the most operationally efficient and prudent model. The strategy also outlines the objective to consolidate the number of sites where possible, ensuring customer expectations are still being met.

The two major triggers for expenditure on major property projects (which combine to form the Major Program of Work) is the mitigation of risk posed by ageing inefficient property assets, and addressing non-compliance to current standards and regulations. This section describes the methodology used by Ergon Energy in taking this need for investment and then developing a prudent and efficient Major Program of Work.

Determine the phasing of expenditure in the assets

Whereas projects can be developed in isolation, the program must be brought together in delivery. The consideration of the way in which the program is delivered is important for three reasons:

- The cash flow must be managed.
- There are limits to the number of projects that can be managed simultaneously within Ergon Energy, even given the outsourced delivery model.
- There are often external limitations on delivery caused by factors such as weather and contractor availability.

Further, for large construction projects there are often numerous ways in which the individual phases can be combined with the result being different cash-flow profiles. As such, the majority of work undertaken by the Non-Network Property Group in developing the forecast for the upcoming regulatory control period is the examination of various scenarios to ensure the most prudent and efficient Major Program of Works.

In addition, extensive consideration is given to the current influence on a project timeline. In the current environment the approval process can be heavily protracted (due to a high level of shareholding oversight) and has the ability to move the project timeframe into succeeding financial years. In considering the impact on future forecasting, especially for the next regulatory control period, Ergon Energy wants to ensure its commitments can be delivered within the timeframe specified, thereby reducing reliance on future and subsequent investment requirements.

Details of the various options considered can be found in the respective business cases for each major project.

Combine the individual investments into the Major Program of Works

The final step in the forecasting process is to combine the individual projects and their cash flows into the overall program to produce the cumulative forecast expenditure for the Major Program of Work.

Inputs and assumptions

There are four main assumptions that have been used in developing the forecast for the Major Program of Work, these are:

- The forecast capital program for 2013-14 and 2014-15 will be delivered. That is, there will be no unanticipated carry-over of projects into the upcoming regulatory control period except what is specifically identified.
- There will be no significant changes to the current legislative and regulatory framework in the upcoming regulatory control period.
- Ergon Energy will be able to acquire the necessary labour and materials to deliver its capital and operating expenditure programs in accordance with its forecasts.
- The internally provided services will remain relatively consistent.

In addition to the assumptions, there are numerous inputs and triggers for investment associated with the Major Program of Work. The major inputs are the Site Assessment, Site Condition and Due Diligence reports which are undertaken for each Non-network property hub (and some larger spokes) across the Property portfolio, for those proposed within the regulatory control period.

These assessments, which are completed each regulatory control period and on demand, provide a number of specific deliverables including:

- Snapshot of the current condition of all assets across the property site (which directly relates to their efficiency).
- Review of the overall asset age and remaining life.
- Assessment of the overall site and individual assets against the current Building Standards of Australia.
- Risk profile of the asset base and overall site arrangement, including likeliness and consequence of asset failure and safe-work exposure.

Based on this documentation, a Professional Quantity Surveyor (PQS) is engaged to assess the reports and produce a detailed cost analysis across multiple views and options, including but not limited to:

- The forecast capital expenditure to bring all assets up to current compliance standard.
- The forecast capital expenditure to bring all assets up to current compliance standard and refurbish where assets have or will soon reach end of life.
- The forecast capital expenditure to redevelop the site (replace old with new) and by doing so resolving all areas of non-compliance and risk.
- Recommendations for reducing expenditure on high cost assets are also provided.

The data produced as a result of these assessments is a key input to the development of Non-Network property expenditure.

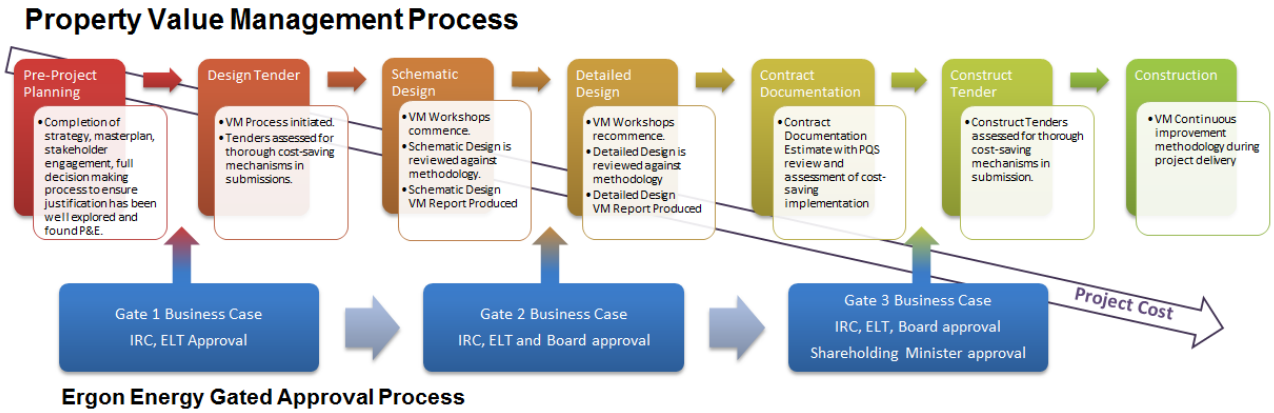
Outcomes and validation of the forecasting method

Outcomes (for the subcategory)

The forecast for the Major Capital Program of Work has been compiled from the individual projects. The individual projects have been selected based on prioritised need and are being delivered through a Value-Managed (VM) methodology, with approvals overseen by the Investment Review Committee within its gated governance process. Combined, these clearly defined process steps ensure efficiency and prudency. All projects in the Major Program of Work are (at the appropriate point) released to the market for tender with key criteria for the tenderers to achieve cost-efficiencies; this is one way that Ergon Energy seeks to ensure efficient expenditure. This VM methodology is initiated from the pre-planning stage, and is consistently applied throughout the tender invitation, schematic design phase, detailed design, contract documentation, tender (construction) submissions, and in the delivery of the project by the successful Principal Contractor.

The outcomes of the VM methodology are then applied within the development of each preferred business case option for submission within the gated governance process. This ensures that Ergon is constantly searching for ways to find efficiency in design, construction and fit-out. This value management methodology is regularly assessed for effectiveness by using quantity surveyors to ensure that ever more accurate estimates are able to be produced and the expected outcomes are realised.

As a result of this process, Ergon Energy has produced a forecast that will result in greater consolidation around the major regional hubs.



Ergon Energy Gated Approval Process

Validation of expenditure forecasts

Validation of the Major Program of Work's forecast methodology and inputs can be demonstrated in a couple of ways. Firstly, the overall forecast methodology documented here has been reviewed and validated by the Ergon Energy's Critical Review Team, EY representatives and Huegin Consultative Group to ensure accuracy and efficiency. Secondly, the value-management methodology on an individual investment basis has been found more than sufficient at meeting the target for demonstrating efficiency and prudency within the gated governance level. Thirdly, the overall proposed capital forecast for 2015-20 regulatory control period shows considerable improvement over the current (and previous) periods when benchmarked against other like organisations.

It's important to recognise that Ergon Energy operates a unique electricity network which covers considerable distances in often rural and remote areas (e.g. Thursday Island 2,185km from Brisbane). To ensure customer expectations are met in the context of an 'Always Safe' work

environment, a wide-ranging property portfolio needs to be maintained. A portfolio of this magnitude has to contend with forecast characteristics such as regional indices (increased cost from capital city), logistical risks (movement of people and material long distances), environmental hazards (vehicle wash-bay and vegetation assets), and a portfolio of residences to attract and retain employees within these remote communities. This demonstrates that a one-to-one comparison rarely assesses organisations on a consistent basis.

Given this context, Ergon Energy has historically shown a high level of expenditure based on customer numbers (when benchmarked against other DNSP's), but a considerably low level when measured on network kilometres. While this likely won't change in future, the Property group has made further clear and specific efficiency gains when measured on a purely investment forecast basis. In addition, the 2015-20 regulatory control period is strategically the last period where significant Major Program capital investment will be required. The following table illustrates the trending capital expenditure, both historical and future based on the combined 'Property and Buildings' and 'Furniture and Equipment' AER categories in real dollars, excluding overheads, excluding the Shared Asset Adjustment.

Historical						Forecast	Proposed				
2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
27.23	42.85	60.36	42.86	36.42	19.42	51.03	75.98	52.44	30.51	27.95	17.51
$209.73 – CA RIN Submission					**Yet to submit**		**$204.39 – Next Reg Period**				

It should also be noted that in validating the efficiency and prudency of the Major (and Minor) Program for Property, that all investments are measured against the 'business as usual' approach as part of the options analysis. On all occasions, the investment demonstrates over a twenty year NPV that the capital investment is required and offers a more cost-effective option than continuing along the current trend. As such, the trade-off between operating and capital expenditure plays an important part in demonstrating prudency and efficiency. As demonstrated in the submission of the 2015-20 Property operational expenditure (see supporting documentation), significant reductions in the forecast spend validates the previous investment of capital expenditure. Future capital expenditure will continue to drive this efficiency in operating expenditure.

Property – minor capital program of work

The Minor Program of Work captures that property expenditure not covered by the Major Capital Program of Work. Typically this program consists of projects that are up to $5 million in value each. The individual projects in this program seek to resolve one or more specific and immediate areas of concern. In contrast to the Major Program of Work, these projects are delivered within one financial year and are initiated through consultation with internal stakeholders based on a priority allocation, associated risk and required approval.

Outcomes for customers

The Minor Program of Work incorporates the spoke depots of regional and remote Queensland. This large spread of depots across Queensland provides the services that support our customers who seek reliable and efficient supply. To ensure we can service these customer expectations, the intent of the Minor Program of Work is to maintain the current property assets by ensuring responsive and operationally efficient depots that meet customer expectations in a safe and responsible manner.

Current period outcomes

As part of the approved AER five-year funding allocation, Ergon Energy Property was allocated $84.98 million (nominal) dollars for 2010-15 to execute the minor program. Since the Merits Review process only affected the major program, the minor program funding allocation was therefore left unchanged. In August 2012 following the Ergon Energy Board Paper 1208-07 (Revised Interim Investment Targets 2010-15 and Revenue Options), the revised AER 2010-15 overall five year program reduced to $350 million (in total, majors and minors). Due to the actions undertaken within the major program (to defer and re-scope some projects), capital investment within the minor program had to increase so as to mitigate outstanding issues on these deferred project sites. The accompanying table shows the change of funding and expenditure levels across the current regulatory control period.

2010-15 Revised AER Breakdown *All figures include Overheads in real dollars*	**Initial 2010-15 AER Allocation ($m)** *Effective Jul 2010*	**Merits Review 2010-15 AER Allocation ($m)** *Effective Mar 2011*	**Revised Investment Targets 2010-2015 ($m)** *Effective Oct 2012*
Program of Work - Minor Projects	84.98	84.98	88.83

Forecasting expenditure requirements for the Minor Capital Program of Work

The expenditure for this category is driven through a combination of source data elements and methods which demonstrably output a prudent and efficient result as follows:

Source Data:

- Lifecycle analysis,
- Condition assessments,
- Immediate demand.

Methods/Tools:

- Optimisation, and
- Financial and trend analysis.

The following sections describe in detail the process by which Ergon Energy produces the forecast for the Minor Program of Work.

Processes Practices and Decision Making Criteria at a sub-category level

The asset population requires maintenance

The output from the life cycle analysis is utilised as the basis for the minor capital program forecast. The data is represented as a series of small work items related to a specific asset at a specific location, each detailed with the current asset condition, its criticality, useful life, expected timeframe for refurbishment/replacement and the cost of undertaking the specific work. In total, the life cycle analysis identified close to $350 million in expenditure (with applied modifiers in nominal dollars) over a twenty year lifespan, with $127.8 million of this forecast within the 2015-20 regulatory control period. Due to the limited availability of funding and the desire to ensure prudency and efficiency in the execution of all forecast expenditure, Ergon Energy engaged Huegin Consulting Group to deliver an ‘Optimisation’ of the life cycle analysis, with the aim to reduce the potential $127.8 million to a more manageable and efficient value, while still minimising risk.

The aim is to meet objectives within constraints

The objective is to select a program of work that has maximal benefit with minimal risk at minimal cost.

The life cycle analysis records in detail the full lifespan of the Non-Network asset portfolio centred on the assessed condition versus the desired condition. While not every issue and risk can be documented here (see supporting information), the following items have been summarised as the most pertinent issues affecting Non-Network assets at this time.

- Detection of asbestos-containing material.
- End-of-life reached or surpassed.
- Non-compliant lighting levels or non-existent emergency lighting.
- Roads and car parks deteriorated and unsafe.
- Non-compliant height requirements (A/C systems, suspended ceilings, lighting etc).
- Replacement of environmentally harmful gas A/C systems.
- Façade and structural deterioration.
- No redundancy for operationally critical components.

These abovementioned issues are just a small component of the total life cycle assessment process, which reviewed a significant portion of Ergon Energy's portfolio of Non-Network properties to ascertain the current asset standard against the desired standard (fully compliant and operational in a cost-efficient manner). The Minor Capital Program of Work aims to address these issues, raise the asset life cycle (based on the priority levels), reduce operational maintenance requirements and contribute towards lowering overall business expenditure.

Within the Optimisation process several attributes of the life cycle data are utilised to calculate a 'Benefit score', including the current asset condition, desired condition and the criticality. Weightings are given to the attributes to calculate an overall benefit score for each item of work on an asset, with the Optimisation process bringing together those items of highest benefit (and lowest cost) to form a works program. The process gives consideration to the timing of work and where possible brings work at the same site together within the same financial year.

Cost is measured as the total cost of all the selected work items. Within the life cycle data, each work item is estimated using a barebones capital city replacement/repair cost provided by the professional contractor to bring that asset item up to standard/useful life again. Load factors need to be applied to these initial costs to ensure they represent the real cost to complete the work. Therefore, the process for forecasting the cost of the cumulative works program is as follows:

- The consolidated and grouped life cycle data is used as the costing baseline.
- Each minor project's base cost (representing all of the work to be done at a given 'spoke' within the assigned year) is applied with the following load factors:
    - Design costs.
    - SPARQ Solutions/ICT.
    - Regional Indices (provided by Rawlinsons Construction Handbook 2014) depending on distance from Brisbane.
    - EECL internal costs.
    - Council related charges.
    - Other individual requirements.

- While some of these factors are applied cumulatively, others are applied independently. The full details of these calculations including all assumptions are provided in the *Key Analysis Supporting Spreadsheets*.

The resulting value represents the true cost for each work item and when combined for a specific site form a minor project as part of the Minor Program of Work. Several high-level constraints are applied to the final Optimisation output to ensure the resulting 'efficient frontier' remains within budgetary limits:

- The total five year upper threshold is $50 million.
- The annual limits are constrained to between $5 and $15 million per year.
- The annual limits are constrained to between 10% and 30% of the total upper threshold.

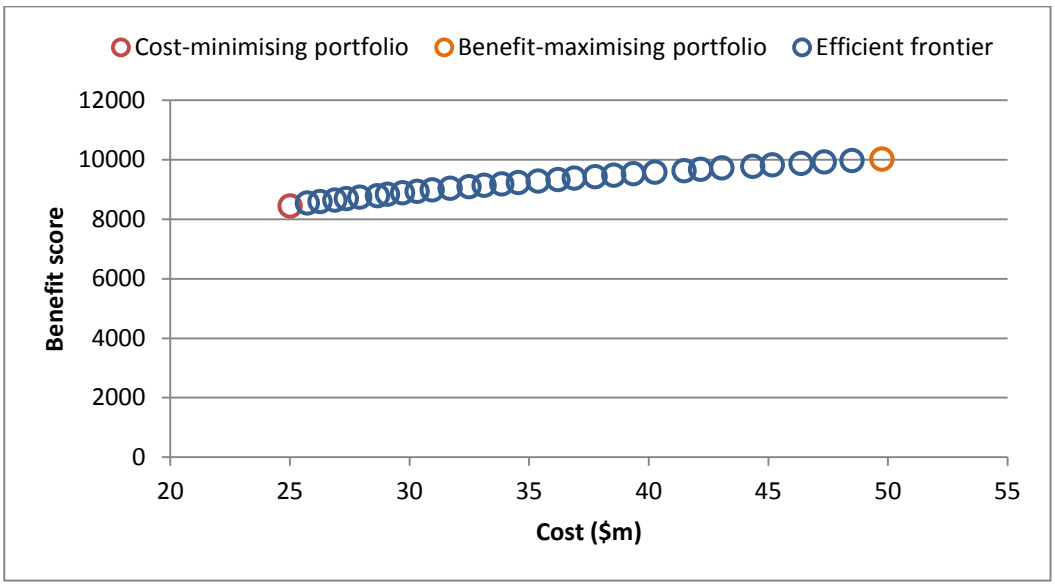
The final factor which requires consideration within this system is risk. It is not calculated within the Optimisation process but requires balancing against the value and cost of the chosen portfolio. In the context of the life cycle analysis and subsequent optimisation, the risk score is mapped external to the process using the assessed condition and criticality values of those work items *excluded* from each portfolio. That is, each portfolio calculates the best value of completing the highest priority items, but of those items it excludes what is the risk that is being carried by excluding them. As a result, the risk score is determined by a matrix that compares asset criticality and condition index for those assets where work items are excluded. The resultant risk score is mapped beside each of the potential works programs within the efficient frontier.

Together, the benefit, cost and risk scores come together to ensure the Minor Program of Work is as efficient and prudent as it possibly can. An efficient frontier is produced by the optimisation of the life cycle analysis which provides Ergon Energy with a range of intelligent cost-effective options.

Ergon Energy uses optimisation

The optimisation of Ergon Energy's life cycle data occurred in June 2014 and charts with great rigor the efficient frontier of expenditure across multiple portfolios of work. The objective of the optimisation process is to always target maximum benefit for minimal cost, while at the same time balancing expenditure across several automatically applied constraints. These constraints relate to the maximum limit per year, the maximum total five year threshold, the allocation of expenditure across years, and the consolidation of work at each site to a specific financial year where it's most efficient to do so.

The large number of projects and the multiple options per project mean that it is impossible to examine every single combination as a possible program of work, but the efficient frontier identifies key steps along the path and provides the relevant benefit, cost and risk. As these are three competing objectives, there is no single program of work that is the best of all aspects. Instead, there is a program of work which represents the lowest possible cost, another program of work with the highest possible benefit, and a range of programs with different levels of trade-off between cost, benefit and risk, as illustrated below. Each program on the efficient frontier is optimal in the sense that it has the highest possible benefit score for the given total cost.



The following chosen steps of the efficient frontier are provided below for reference:

	Benefit	Risk	Cost ($M)
Portfolio 1	8,447	904	25.0
Portfolio 8	8,841	868	29.1
Portfolio 16	9,235	715	34.5
Portfolio 24	9,632	567	41.5
Portfolio 32	10,023	422	49.7

Through analysis of the provided options, Ergon Energy has chosen Portfolio 24 as the most appropriate option for delivery due to the following reasons:

- This portfolio represents the twenty-forth option along the efficient frontier, at the cost of $41.5 million across the five year regulatory period. It reflects the most efficient balance between the three mechanisms being benefit, risk and cost.
- A risk score of 567 will be carried across the five years representing a sizeable (37%) improvement when compared to option one and it is the first portfolios to cross the threshold into a 'manageable' level of risk while at the same time displaying a more efficient cost/benefit analysis.
- Portfolio twenty-four increases efficiency and benefit within the portfolio by actioning fair and poor-conditioned asset items predominately at the larger populated depots (where work is already scheduled), thereby resulting in a greater overall positive impact per capita.
- Strategically, this portfolio represents a manageable level of risk, as the volume of fair, poor and very poor assets left unactioned has been considerably reduced, providing a diminished long-term mitigation cost against the required capital investment.
- The benefit score of portfolio 24 continues to follow a fairly steady trend from portfolio one, however this option represents the most efficient cost vs benefit ratio across the mapped portfolios. From this point onwards the dollar value per point of benefit increases at a greater rate.

Further information of the methodology and analysis is provided in the supporting business case.

The resulting program is prudent and efficient

The selected program of work is prudent because it satisfies all of the specified constraints. The selected program of work is efficient because it lies on the efficient frontier and thus has the highest possible benefit for the given level of spend.

While portfolio twenty-four represents a solid baseline from which the minor program is developed, there is no blind expectation that it is in a perfect state in terms of its material scope. The forecast item list which comprises portfolio 24 needs to incorporate other factors not necessarily addressed within the benefit, cost and risk scores. To achieve this balance, the portfolio will continue to be revisited through the regulatory control period on a quarterly basis to ensure it remains reflective of Ergon Energy's standards, health and safety obligations and legislative requirements in a context of prudency and efficiency.

In addition to these specified items based on the life cycle analysis, there are six unspecified cost categories which Property forecast within the Minor program. These are: security requirements, direct purchases, priority compliance requirements, residences, land contamination and pole yards. Collectively, these cost areas are quite minor, and allow for the efficient resolution of urgent and unknown quantities of work, which can be recurring in nature. Each of these categories has been costed based on historical trend with a diminishing requirement over time.

Given the substantial challenges and expenditure associated with managing a large and diverse asset base, Ergon Energy has (in some cases in partnership with external service providers) produced a number of key documents. The aim of these documents is to guide the overall management of the property portfolio, including the development of capital forecasts. The key documents that are pertinent for the production of the forecast for the Minor Program of Work include:

- **Ergon Energy Corporate Property Strategy:** Providing a long-term view of the way in which Ergon Energy will deliver and manage property services to meet the needs of all stakeholders.
- **Property Service Asset Management Plan:** Guides the way in which Ergon Energy manages the lifecycle of property assets. This plan covers both capital and operating spend.
- **Accommodation manual:** Provides guidance on the type and standard of accommodation that is required for each of the functions that Ergon Energy undertakes.
- **Business Case:** The fully documented methodology, analysis and outcomes for the Minor Program of Work including detailed justification for the selected portfolio.
- **Life Cycle Consolidation Report:** Provides the documented purpose, methodology and asset strategy for undertaking the life cycle analysis on the property service assets. It explains the Life Cycle key analysis spreadsheet which forms the basis for the Property minor program.
- **Key Analysis Spreadsheets:** Provides a full detailed listing of the asset life cycle analysis performed by the engaged contractor with specific workings to prioritise and consolidation items into actionable items of work.

The prior list contains the main guiding documents that are used in determining the need for expenditure. In developing the forecast (estimate) for individual property assets there are myriad documents, guides and models used.

Forecasting Approach

The primary mechanism for forecasting the Minor Program of Work is the life cycle analysis that covers the condition for each of the assets that meet the criteria for minor capital spend. The mechanism that enables the forecast to be derived from the life cycle plan is the b*enefit and risk scores for Minor Capital Program of Work.* The optimisation of work items ensures the program can demonstrate both prudency and efficiency. The output is a spreadsheet that details a single line item for each location (consolidating all of the individual asset work items), and the overall cost of those items under the proposed delivery financial year.

Inputs and assumptions

The Minor Program of works is (largely) designed to rectify or maintain the condition of extant buildings such that they are fit for purpose. As such, the main inputs required are:

- The number and type of current buildings.
- The condition of buildings, as assessed on a yearly basis by visual inspection
- The priority of works required.
- The cost of works required.
- The escalation factors based on regional locations.
- The risk of not proceeding.

The full breakdown of information is contained within the key analysis spreadsheets, including *Property Minor Input 1 - Statewide LCC Report*.

In addition to the inputs, there are critical assumptions used in the development of the Minor Program of Works, these include:

- That the assessment of condition is accurate.
- That the prioritisation levels are appropriate.
- That the optimisation method results in a prudent outcome.
- That the costs and escalation factors applied are accurate and represent efficient costs.
- That the forecast works can be completed within the upcoming regulatory control period.

Outcomes and validation of the forecasting method

Outcomes (for the subcategory)

The aim of the Minor Program of Work is to ensure that extant buildings remain fit-for-purpose and continue to meet customer needs in an efficient manner. As such, the expected outcome of this expenditure sub-category is the assurance that the portfolio of Non-Network Property remains fit-for-purpose in accordance with the applicable standards and the Ergon Energy accommodation manual.

The forecast for the Minor Capital Program of Work has been compiled as a series of specified projects from the Life Cycle analysis and unspecified cost categories from historical trend (for a small volume of expenditure). At the point of delivery, the individual projects closely follow the same methodology as the majors but in a condensed manner. They have been selected based on a prioritised need and will be delivered with a value-management focus, with approvals overseen by the Investment Review Committee and executive management, still within the gated

governance process. Combined, these steps ensure an additional level of efficiency and prudency. All projects in the Minor Program of Work are (at the appropriate point) released to the market for tender with key criteria for the tenderers to achieve cost-efficiencies; this is one way that Ergon Energy seeks to ensure efficient expenditure.

The outcomes of the tender engagement (with a VM focus) are then applied within the development of each business case for submission. This ensures that Ergon is constantly searching for ways to find efficiency in design, construction and fit-out. Quantity surveyors are utilised where appropriate to ensure that ever more accurate estimates are able to be produced. As a result of this process, Ergon Energy has produced a forecast that will result in greater consolidation of work for the 'spokes' and an efficient delivery method.

Validation of forecast methodology and inputs

Validation of the forecast methodology and related inputs has been provided by the Ergon Energy's Critical Review Team, EY representatives and Huegin Consultative Group. Multiple 'sanity checks' have also been undertaken internally to ensure the calculations and analysis meets the high standards of Ergon Energy's forecast requirements. Assessment of the three principal computational characteristics in forecasting the Minor Program of Work has been found sufficient in meeting AER requirements. The Value-management process instituted in forecasting the Major Program of Work demonstrates a continued focus on validating prudent asset investment. For further information, please see the validation of the Major forecast methodology and inputs section.

BEPSOKE PROPERTY PROJECT TO SUPPORT OTHER SYSTEM CAPEX INITIATIVES – DATA ROOM RELOCATION ROCKHAMPTON

Specified Data Room Facility Project – Relocation of the Operational Control Centre Data Centre from Richardson Road to Glenmore Road as part of previously approved property strategy for Rockhampton

As outlined in the business case (RP945c) and Corporate Property Strategy provided to the AER as part of Ergon Energy's Revised Regulatory Proposal for 2010-15 [see also pp 131-133 of the Revised Regulatory Proposal (RRP)], Ergon Energy established that the most prudent and efficient course of action for it was to rationalise and consolidate its property holdings in Rockhampton via investment in a transformational property development at Glenmore Road, Rockhampton.

Condition assessments presented to the AER previously (RP961c) for the 2010-15 Regulatory Proposal process identified that Ergon Energy's Richardson Road office in Rockhampton required significant and cost prohibitive renovation to fix general wear and tear to improve facilities and extensive work to meet applicable legislative requirements and building standards.

Although the AER rejected Ergon Energy's investment in the Glenore Road redevelopment in the Final Distribution Determination (as it did for the Garbutt Redevelopment in Townsville), the AER subsequently acknowledged that it erred in exercising its discretion under cl 6.12.3 of the Rules by not allowing any capital expenditure in respect of the Townsville and Rockhampton projects. Accordingly, the Australian Competition Tribunal subsequently determined over the course of hearings in 2010 and 2011 that the transformational property development proposed was prudent and efficient to undertake.

Following this determination by the Tribunal, the AER responded to the Tribunal in 2011 indicating as follows:

"The AER understands the effect of [39] to [44] of the Reasons to be that the Tribunal accepts, on the basis of the material before it, that the Townsville and Rockhampton projects reasonably reflect an efficient means of achieving the capital expenditure objectives.

The AER also understands that the Tribunal's observation and request at [47] and [48] of the Reasons are directed to whether the AER considers that the cost estimates provided by Ergon Energy for the proposed transformational redevelopment of the Townsville and Rockhampton sites reasonably reflect a realistic expectation of the demand forecast and cost inputs required to achieve the capital expenditure objectives.

Although that question was not expressly addressed in the Final Determination in response to the business case studies advanced by Ergon Energy for the six major non-system property projects, the AER has no information before it to suggest that Ergon Energy's estimate of the scope and costs of the Townsville and Rockhampton projects, prepared on the same basis as the four approved projects, was inaccurate or unreasonable. Accordingly, the AER considers that it is reasonably open to the Tribunal to accept Ergon Energy's cost estimates for the transformational redevelopment proposals at the Townsville and Rockhampton sites."

In the circumstances, the Tribunal accepted Ergon Energy's cost estimates for the transformational redevelopment proposals at the Townsville and Rockhampton site.

In line with the investment approval requirements set by Ergon Energy's shareholders in its Statement of Corporate Intent, Ergon Energy has now secured approval from its shareholders to implement the Glenmore Road redevelopment *(Attachment 07.08.12).*

At this time, the Richardson Road office and depot currently accommodates a number of general staff workgroups, a transformer and high voltage workshop, inventory as well as the Operational Control Centre (Southern) and a data centre. The data centre is used by a number of parties:

☐ Ergon Energy's network operators use SCADA equipment in the data centre to control and monitor the power distribution network for the southern half of Queensland, and also utilise ZETRON communication infrastructure to field and place calls to field staff and outage coordinators.

- SPARQ Solutions use the data centre as their emergency back-up site for corporate servers such as the Ellipse Enterprise Resource Planning system and data communication.
- Powerlink host servers, which allow the Ergon Energy distribution and Powerlink transmission control centres to inter-communicate.
- The telecommunication group have installed fibre infrastructure used as part of the main communication backbone as well as infrastructure for Ergon cellular and radio network servicing the Ergon Energy area.
- Nexium also utilise the fibre cabling and communication devices installed for its commercial operation.

The property at Richardson Road is being vacated due to significant health and safety and compliance issues as identified in the above-mentioned reports.

Recent site assessments have further flagged potential water inundation risks to the data centre, due in part at least to the location of chilled water beams immediately above data centre equipment (refer supporting document *07.08.33 Letter - Richardson Rd Data Centre Risks*).

In line with the Corporate Property Strategy, the property will be sold and all staff relocated.

As a result, the whole current Operational Control Centre (OCC) and data centre facility needs to be decommissioned, and all staff and hardware, at the facility will require relocation to a site providing purpose built data centre and suitable facilities OCC operations and its critical services. This will reduce significant risks associated with the building and costs of ongoing maintenance and operational costs as a result of the data centre and remaining on a site.

Analysis indicates that the most cost effective solution to enable the data centre relocation will be to move the data centre to Ergon Energy's Glenmore Road facility where there will be a new

Operational Control Centre and data centre constructed to accommodate existing staff and hardware. This will include:

- minimal cost for the expansion of the main building to incorporate the additional space needed for the data centre and OCC.
- procuring and installing ancillary services such as air-conditioning and fire detection and suppression.
- installing dual main power supply infrastructure with full redundancy.
- procuring and installing back-up diesel generators.
- procuring and installing uninterruptable power supply (UPS) with full redundancy.
- planning, procuring, installing and commissioning communication, ICT and SCADA infrastructure.
- planning, relocating, installing and commissioning SCADA equipment.
- assisting with relocation of Powerlink equipment.
- the relocation of SPARQ Solutions equipment, at its cost.

Components of the Operational Control Centre that require duplication have been costed using the actual prices to replace this equipment, as recorded in Ellipse. Other equipment has been costed using quantity surveyors and contract costs, business case estimates and the expert knowledge of internal SMEs. In-house labour has been estimated at standard labour rates. Whilst treated as Non-System Capital Expenditure in this proposal, further information about the build-up of these costs is detailed in Ergon Energy's *Network Capital Expenditure Forecast Unit Cost Methodologies Summary*.

Summary and conclusion

Ergon Energy's Non-Network Property expenditure enables the delivery of compliant, safe, efficient and fit-for-purpose buildings aligned to the businesses 'hub and spoke' model. The 2015-20 expenditure forecast permits Ergon Energy to deliver upon customer expectations in meeting the operational requirements of a very large regional network. The expenditure forecast utilises a rationalised bottom-up methodology which produces a fully quantified program of work that demonstrates efficiency and prudency. Ergon Energy is able to justify its expenditure through its supporting documentation, which details in depth the asset life cycles, forecast methodology, options analysis, cost breakdowns and associated cash-flows.

Although the Property expenditure forecast represents a potentially high-value from a customer volume (benchmarked) perspective, the business cases demonstrate that over a twenty year life, the proposed program of work offers a much greater value-for-money and positions the business to respond to the changing energy environment while addressing a considering degree of non-compliance across its asset portfolio. Therefore, it balances all of the available metrics to the best possible conclusion, ensuring risk is mitigated, customer expectations are met, investment is prudent and most importantly, our people are safe.