

Essential Energy

AER Determination Project - Review of Actual Spend vs Regulatory Allowance

29 May 2014




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By email
jack.pike@essentialenergy.com.au

Dear Jack

AER Determination Project - Review of Actual Spend vs Regulatory Allowance

Please find attached our report considering our review of Essential Energy's actual spends versus its regulatory allowance for the current regulatory period.

If you have any queries with this document, please do not hesitate to contact me direct.

Yours sincerely



Emma Lathouras
Business Analysis Lead

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Abbreviations

AER	Australian Energy Regulator
CAPEX	Capital Expenditure
DNSP	Distribution Network Service Provider
GFC	Global Financial Crisis
NER	National Electricity Rules
NNSW	Networks New South Wales
OPEX	Operating Expenditure

1. Introduction

1.1 Background and purpose

Essential Energy engaged Parsons Brinckerhoff to provide a report considering the reasonableness of its variations in actual system and non-system expenditure from that forecast in the 2009-14 Australian Energy Regulator (AER) determination.

The report was required primarily for internal management purposes. However, Parsons Brinckerhoff understands that it may be made available to the AER if it requires further clarification as to the nature of the variances. As such, the report has been completed with reference to the requirements of the National Electricity Rules clause S6.1.1 paragraph (6) and clause S6.1.2 paragraph (7). An extract of the relevant NER clauses is attached as Appendix A.

Following a one week interview period, during which the key and parties accountable for the various types of expenditure were interviewed, Parsons Brinckerhoff looked to provide the following:

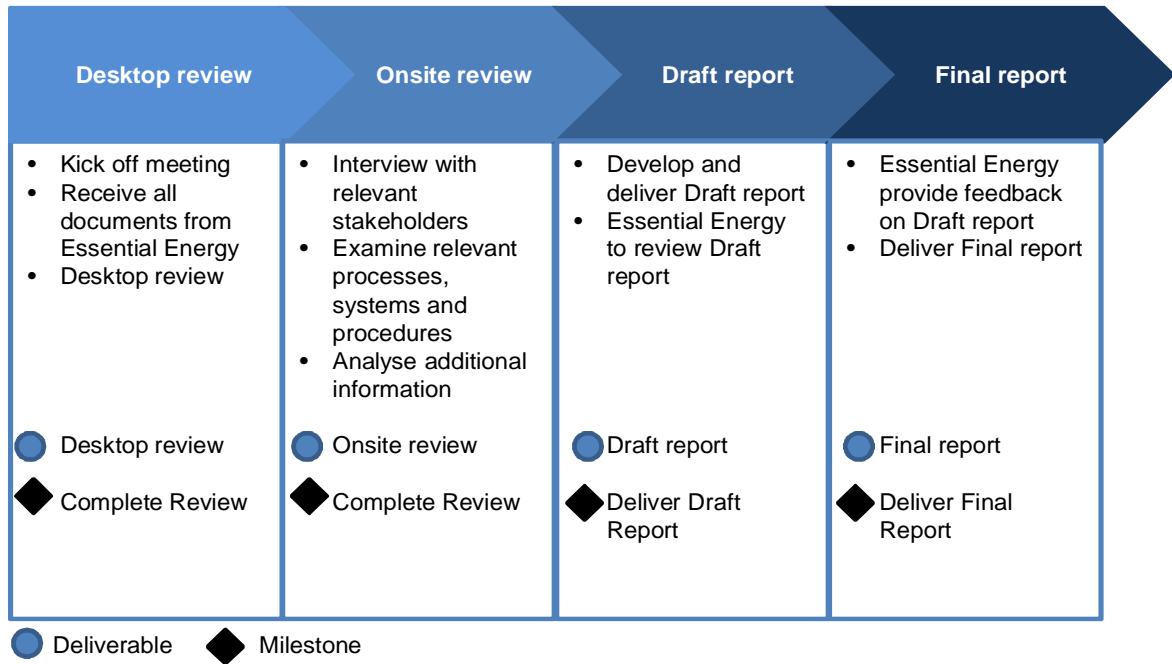
- a high level explanation of the reasons behind the variations
- details of relevant external and internal factors/changes that contributed to any variations
- immediate responses and mitigating actions undertaken by Essential Energy to address the variations
- actual outcomes achieved, despite the varying expenditure and following the immediate actions, including any impact on customers and public safety
- 'Lessons learnt' as a result of the variations occurring and need for mitigating actions
- corresponding changes to be made to Essential Energy's planning/forecasting and delivery methods to minimise variations in the future and, if applicable, achieve the original objectives/targets
- strategies of other DNSP's and the AER for addressing historic performance and expenditure variations.

Essential Energy emphasised that this review was to be undertaken at a 'high level' and completed within a short timeframe. As such, we consider that this report represents the first step in an analytical process through which Essential Energy could further understand the variations incurred.

1.2 Method and scope

1.2.1 Method

Our engagement method, which is desktop review and interview based, is depicted below:



Our engagement approach and basis for our interviews was based on the expenditure amounts provided to us in Essential Energy’s last regulatory submission as well as those currently incurred. We understand however, that in order to provide an accurate picture as to the amount of the variance, the following adjustments and breakdowns were required:

- The total expenses provided to us included both direct and indirect amounts. We understand that during the current reporting period, the indirect allocation method utilised by Essential Energy had changed from that used at the time the last regulatory submission was prepared. In order to ensure that our interviews were conducted on a consistent basis, we requested that the actual spend information provided to us be recast to reflect the indirect allocation policy utilised at the time of the submission.
- The makeup of both the actual spend amounts as well as the regulatory allowance had to be broken down into direct and indirect amounts. As the majority of stakeholders and parties accountable for the expenses were concerned with the amounts of direct expenditure only, we had to ensure that our interviews and subsequent conversations and analysis were focused on variations in direct expenditure amounts.

We note that the interviews were completed without these adjustments being made and/or breakdowns provided to us. As such our initial interviews were limited to general discussions regarding the variations, as opposed to quantifying and validating specific variation amounts.

1.3 Scope

The expenditure considered as part of this engagement is limited to that required to deliver Standard Control Services, and includes CAPEX and OPEX amounts which were incurred during the following periods:

- Actual expenditure incurred for the years ended 2010, 2011, 2012 and 2013 of the 2010 to 2015 regulatory control period.
- Expenditure forecast to be incurred for the year ended 2014 of the 2010 to 2015 regulatory control period.
- Expenditure allowed in the building block model by AER in its determination for the 2010 to 2015 period.

In addition:

- Expenditure is presented in the same categories as those categories used to describe forecast expenditure in Essential Energy's 2015-19 regulatory proposal.
- All expenditure is expressed in real 2012/13 dollars, so a comparison can be made between the expenditure on a common basis.

2. Capital expenditure

The following sections discuss each of the actual capital expenditures, including that forecast for 2013/14, for each of the regulatory asset driver categories. For each category, any significant variations between the actual expenditure and the allowance for that period is identified and explained.

2.1 Description of system CAPEX driver categories

System CAPEX has been considered in light of the following driver categories:

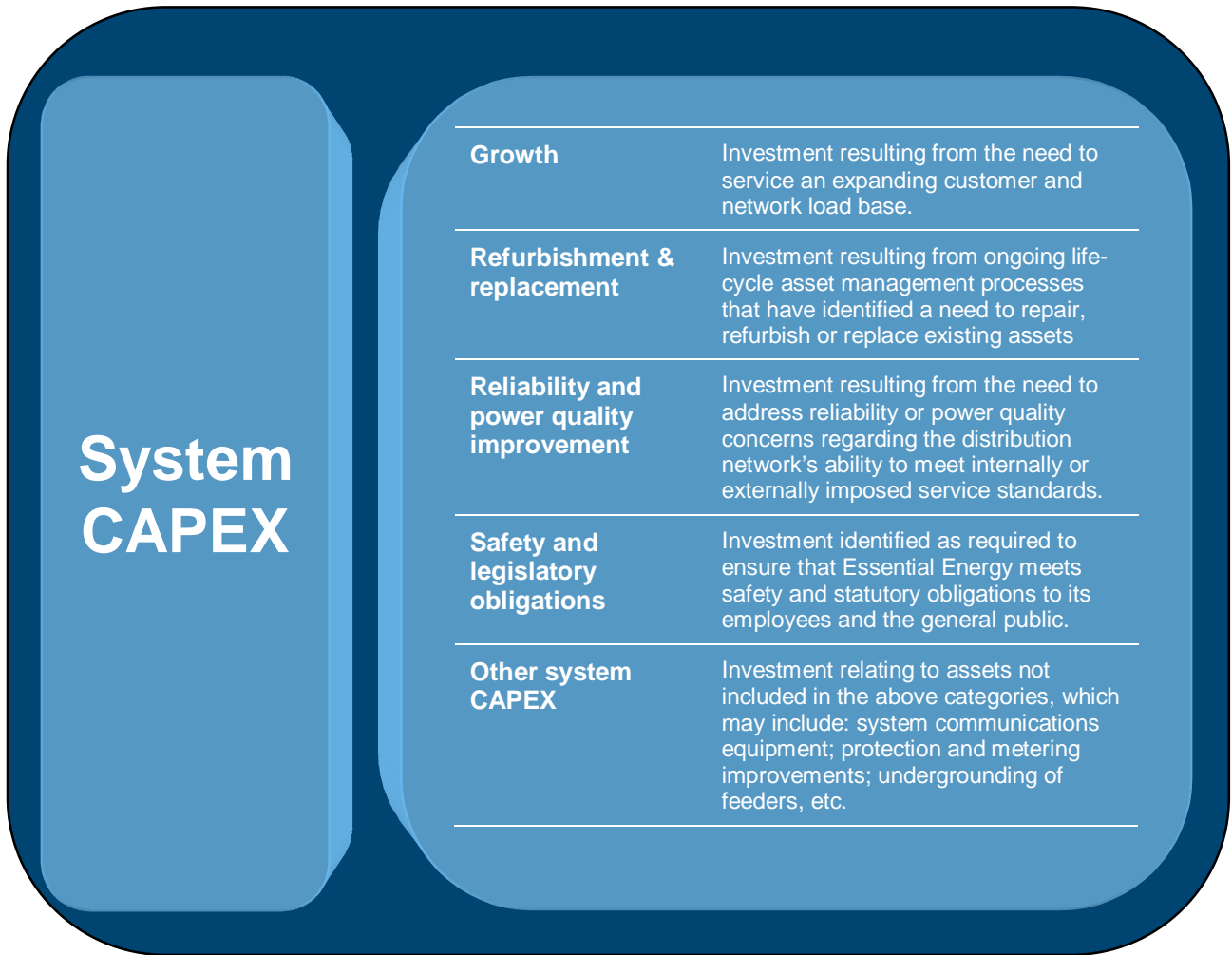


Figure 2.1 System Capital Expenditure Driver Categories

2.2 Background

Essential Energy's last regulatory capital expenditure proposal detailed how it had intended to build new infrastructure and to replace existing infrastructure. This section sets out the key elements of the proposal and identifies some of the external factors that occurred that impacted the implementation of the proposal. Specific details are then presented in the following section for each CAPEX driver. The key elements of the proposal were:

- Acquisition of new line routes and substation sites for electricity infrastructure.
- Construction of a number of new zone substations in response to demand growth and security standards.
- Construction of a number of new sub-transmission lines in response to demand growth and the need to satisfy licence conditions and security of supply standards.
- Replacement of assets that are approaching failure, prior to failure – thus preventing outages and safety incidents.
- Building of a significant amount of new customer specific infrastructure to connect new customers.

A number of external business factors have directly impacted the level of capital expenditure during the current regulatory period. Specifically:

- Demand growth in some regions has been less than forecast. For example, several residential developments in the far north have not yet proceeded following the market downturn stemming from the Global Financial Crisis (GFC). The developments have not been cancelled, but rather deferred until market conditions improve.
- Increases in retail energy prices have modified customer behaviour by driving a reduction in overall demand and by focussing customers' attention on new appliances' water and energy efficiency.
- Likewise, climate change concerns have driven a reduction in overall demand and an increase in alternative energy assets, in particular the rapid increase in embedded solar-photovoltaic generation at both a domestic and commercial level.
- Severe weather events have periodically had various effects on Essential Energy's capital and operational programmes. Immediately following an event, crews from across the company can be reassigned from existing capital and operational duties to aid in disaster recovery efforts. In the aftermath, capital works in storm-affected areas can be set back many months by storm damage, partly by the need to replace storm damaged equipment and works, and partly by the need to re-establish sites and access routes damaged by the event. Flooding and saturated ground conditions especially can make worksites inaccessible, and difficult or even unsafe to work on until conditions improve. All of these consequences have at been highlighted in Essential Energy's annual reports for 2010/11, 2011/12 and 2012/13, and have been significant contributors to spikes in emergency response requirements and to shortfalls in delivery of the company's Network Plan.
- Proposed changes to licence conditions and security standards - specifically an amendment to remove the design planning criteria from the end of the current regulatory period - has impacted those projects that were due to start in the current period to meet constraints in the forecast period, effectively allowing them to be deferred.
- Delays in obtaining statutory approvals.
- Global shortages in key components required for the program, impacting suppliers' abilities to deliver equipment and Essential Energy's ability to complete some capital projects.

These factors have resulted in fewer than expected new zone substations being constructed and fewer new line routes and sites for electricity infrastructure being required or approved.

Notwithstanding, Essential Energy has continued to deliver its intended program in the following areas:

- The replacement of assets that are approaching the point where they will fail repeatedly thus posing unacceptable risks to security of supply and licence compliance.
- Duplication of heavily loaded sub-transmission feeders, their associated switchgear and substations in order to meet licence conditions existing prior to their revision.

- Refurbishment and rebuilding of several zone, and many distribution, substations in order to mitigate risks to security of supply and license compliance.

Specific initiatives that have been unable to be attended to during the current regulatory period include:

- **A number of new zone substations have been deferred.** These deferrals also had a flow-on effect with construction of a number of new overhead and underground cables also being deferred.
- **Customer specific infrastructure has either been delayed or cancelled.** The requirement to build new customer specific infrastructure has also been less than anticipated due to the continuing impact of the global financial crisis on the demand for new connections. Notable decreases were seen in the property sector – in particular in the area of new subdivisions. For example, allowance had been made for infrastructure to serve new residential developments at Casuarina (\$11.1m) and Cobaki (\$10.3m). Of this \$21.4m total, only \$400k was actually spent on acquisition of the route for the developments' distribution feeder routes.

However, savings were also realised during the period. Following the establishment of Networks New South Wales (NNSW), and a reassessment of New South Wales Distribution Network Service Providers' (DNSP) licence conditions, a review of Essential Energy's plans identified that savings could be made in various projects, particularly those addressing concerns about Essential Energy's ability to meet the Schedule 2 (average SAIDI/SAIFI) and Schedule 3 (individual feeder SAIDI/SAIFI) standards. Of approximately \$620m allocated to address these two areas, only approximately \$150m was actually spent during the regulatory period.

In addition to those factors discussed above, a number of economic and political factors have directly impacted the Essential Energy expenditure programs during the current regulatory control period. Largely beyond its control, these factors have had a direct impact on Essential Energy's operational expenditure, but were not foreseeable during the previous determination process:

- Increased political pressure on the state government to control electricity prices. This has resulted in the establishment of NNSW – increasing the governance and cost controls put on the Essential Energy business. This has been considered in some instances to slow down the previously agreed to programs and increased the administrative costs associated with their roll out and implementation. Whilst no judgment or comment is being passed in respect of these measures, their introduction has had a quantifiable effect on Essential Energy's operations within the current regulatory period.
- A much greater than forecast uptake of solar photovoltaic generation (driven by very attractive domestic feed-in tariffs) has seen a decrease in customer demand. This in turn has altered the previous forecasts of maximum demands, leading to deferment of some augmentation projects.
- Proposed amendments to the NSW DNSP licence conditions prompted a moratorium on reliability-driven expenditure and a reassessment of project need, thereby delaying some projects for substations supplying residential loads, but bringing into the plan some new projects for substations supplying commercial and industrial loads.

2.3 Actual and forecast system CAPEX by CAPEX driver

The following tables show for each CAPEX driver category a comparison of the CAPEX allowance following the 2009-14 regulatory determination and the actual expenditure from 2009/10 to 2013/14, including that forecast for 2013/14.

2.3.1 Growth

Table 2.1 Capital expenditure driven by growth (real 2012/13 \$000's)

Expenditure type	2009/10	2010/11	2011/12	2012/13	2013/14 Forecast	Total
Actual	275,464	249,095	274,226	249,712	207,897	1,256,393
Regulatory Allowance	261,279	290,259	308,462	320,135	331,704	1,511,838
Variance	14,185	(41,164)	(34,236)	(70,423)	(123,807)	(255,445)

Explanation of Variances

Major expenditure variations were attributable to the following:

- Forecasts prepared for the previous submission anticipated significant residential demand growth in the far north of the state, just south of the Tweed River. As a result of the GFC and approval delays, the developers currently have their developments on hold, but are expected to proceed within the coming regulatory period. As a result, only \$400k out of the \$21.4m allowance was actually spent in the current regulatory period.
- Further residential developments in other parts of the service area at Brunswick Heads (\$19.75m allowance), and Murray's Flat (\$14.5m allowance) have not proceeded as anticipated, so network reinforcement has not yet proved necessary.
- Incremental load growth in several areas that was expected to trigger projects to ensure compliance with N-1 planning criteria has either not occurred or has been satisfied by non-network alternatives (e.g. standby generation). For example, new feeders from Tamworth to Quirindi (\$16.3m allowance), Narromine to Nyngan (\$54.3m allowance), and Nyngam to Girilam (17.5m allowance) were all planned, but not constructed.
- Council rezoning of land for industrial development was expected to drive load growth, which has not actually occurred. For example, Tweed Shire council rezoned land to the south of Murwillumbah, which Essential Energy expected would require a new zone substation and distribution feeders for which \$14.2m was allowed. In the event, only \$720k was actually spent on the acquisition of the planned substation site, but no further work was performed.

Many projects that were envisaged in the previous proposal were implemented, but were implemented in an alternative manner in an effort to make cost savings and/or combine the growth-driven project with others that are prompted by other drivers such as asset replacement. As an example:

- Coffs Harbour South was a \$16.5m proposed project to significantly augment and rebuild an existing 66 kV to 11 kV substation as a result of load growth and aging equipment. Further studies showed that by building a new substation (Coffs Harbour East), rebuilding the Coffs Harbour North substation, and rescoping the work at Coffs Harbour South, a much better overall outcome (increased load capacity and improved future reliability at both existing substations) would be achieved for essentially the same funding. Essential Energy is forecasting a total of \$16.2m will have been spent on this suite of projects by the end of the current regulatory period.

Some projects have returned costs in excess of those anticipated, and have often experienced delays in implementation. As an example:

- The Cooma to Bega line required duplication owing to the Bega load growth triggering the N-1 criterion of the licence conditions. The previous regulatory proposal allowed for a \$39.9m project to construct a second feeder rated at 132 kV, together with substation upgrades. The forecast project costs to the end

of the regulatory period are approximately \$51.75m, principally due to the costs of construction of the 132 kV line being over \$47m.

2.3.2 Asset refurbishment and replacement

Table 2.2 Capital expenditure driven by refurbishment and replacement (real 2012/13 \$000's)

Expenditure type	2009/10	2010/11	2011/12	2012/13	2013/14 Forecast	Total
Actual	166,702	228,639	221,712	193,623	182,382	993,058
Regulatory Allowance	150,870	170,186	182,796	191,656	200,903	896,411
Variance	15,832	58,453	38,916	1,967	(18,521)	96,647

Explanation of Variances

The variance, in comparison with some other categories of CAPEX, was not large overall. However, it is noteworthy that expenditure was running ahead of plan until the final third of the regulatory period when expenditure was curtailed. A number of factors contributed to this pattern of expenditure.

- Higher than expected costs initially due to projects being subject to scope creep as more issues arose during the course of planned replacements and refurbishments.
- Some unanticipated asset replacement costs were incurred as replacement projects originally planned for later years were brought forward to be performed concurrently with urgent growth-driven projects in the same region. Whilst incurring additional cost in the current regulatory period, cost and additional outage time will be avoided in future years, thus saving overall cost and improving planned availability and reliability.
- Delays in appointing contractors due to limited supplier capacity.
- Towards the end of the regulatory period, increased governance processes following the commencement of the Networks New South Wales board slowed the implementation of many projects, extending project approval and procurement timelines.
- Proposals to amend licence conditions towards the end of the regulatory period forced a reconsideration of the need for several projects, causing them to be downscaled or deferred.

2.3.3 Reliability and quality improvements

Table 2.3 Capital expenditure driven by reliability and power quality (real 2012/13 \$000's)

Expenditure type	2009/10	2010/11	2011/12	2012/13	2013/14 Forecast	Total
Actual	108,668	125,297	124,642	125,404	65,442	549,453
Regulatory Allowance	178,030	193,829	201,713	204,838	207,315	985,725
Variance	(69,362)	(68,532)	(77,070)	(79,434)	(141,873)	(436,272)

Explanation of Variances

Schedules One to Three of the NSW DNSP licence conditions are the main drivers for capital investment in the reliability and quality improvement program. Schedule One deals with planning criteria; Schedule Two

with average reliability targets (SAIDI/SAIFI); and Schedule Three with individual feeder reliability targets. Essential Energy's reliability statistics are generally good, so whilst provision was made in the submission for the current regulatory period, much of the work has, in the event, proved unnecessary.

- Projects intended to improve compliance with Licence Condition 14 and Schedule One are principally those where load growth (for sub-transmission feeders) or time-to-repair considerations (for distribution feeders) have triggered a need to meet an N-1 security standard. A considerable backlog of such projects had accumulated by the start of the current regulatory period, so approximately \$200m was allowed in the Regulatory determination to enable Essential Energy to catch up with its Schedule One licence obligations. This funding, combined with funding from load growth allowances, has largely been used. In the forthcoming regulatory period, the licence conditions are being amended to remove Licence Condition 14.
- Licence Condition 15 and Schedule Two projects (addressing average SAIDI and SAIFI standards) were principally intended to improve recloser effectiveness and segregation of the network in order to reduce the number of customers affected by an outage event. Approximately \$120m was allowed in the current regulatory period, of which approximately \$50m was spent. Work will continue on this and similar programs in the forthcoming regulatory period, though at a reduced scale as it is clear that Essential Energy is currently meeting its Schedule 2 licence conditions.
- Licence Condition 16 and Schedule Three projects (addressing individual feeder SAIDI and SAIFI standards) were focussed on "poor performing feeders". At the time of the previous proposal, Essential Energy's predecessor, Country Energy, suffered from a lack of specific data on its network performance, and was somewhat conservative in its estimate of what work was required by allowing approximately \$500m in CAPEX to address Schedule Three issues. During the current regulatory period, system data has improved considerably, and it was found that only approximately \$100m was required to reduce the number of poor performing feeders to about 100 out of a total of 1450 feeders on the system.
- Whilst maintaining its focus on poor performing feeders, Essential Energy is also focussing on "worst-served" customers, which are clusters of customers that are in the worst 1% for feeder reliability. By focussing efforts on these areas of the network, and provided that the projects can be undertaken simply and at reasonable cost (approximately \$4.6m per annum over the next regulatory period), Essential Energy expects to make significant improvements in feeder reliability and customer satisfaction.

2.3.4 Compliance with safety and legal obligations

Table 2.4 Capital expenditure driven by safety and legal obligations (real 2012/13 \$000's)

Expenditure type	2009/10	2010/11	2011/12	2012/13	2013/14 Forecast	Total
Actual	13,026	18,631	19,819	8,326	9,250	69,052
Regulatory Allowance	39,055	43,397	46,119	47,864	49,593	226,027
Variance	(26,028)	(24,766)	(26,300)	(39,538)	(40,343)	(156,975)

Explanation of Variances

- **Navigable waterway crossings** – a significant component of the CAPEX was required to comply with Essential Energy's statutory obligations in relation to the Crossings of NSW Navigable Waters: Electricity Industry Code (published by NSW Maritime) and AS 6947-2009 - Crossing of waterways by electricity infrastructure. An essential early part of the program was to perform a complete reassessment of the risk posed by Essential Energy's infrastructure to users of the navigable waterways

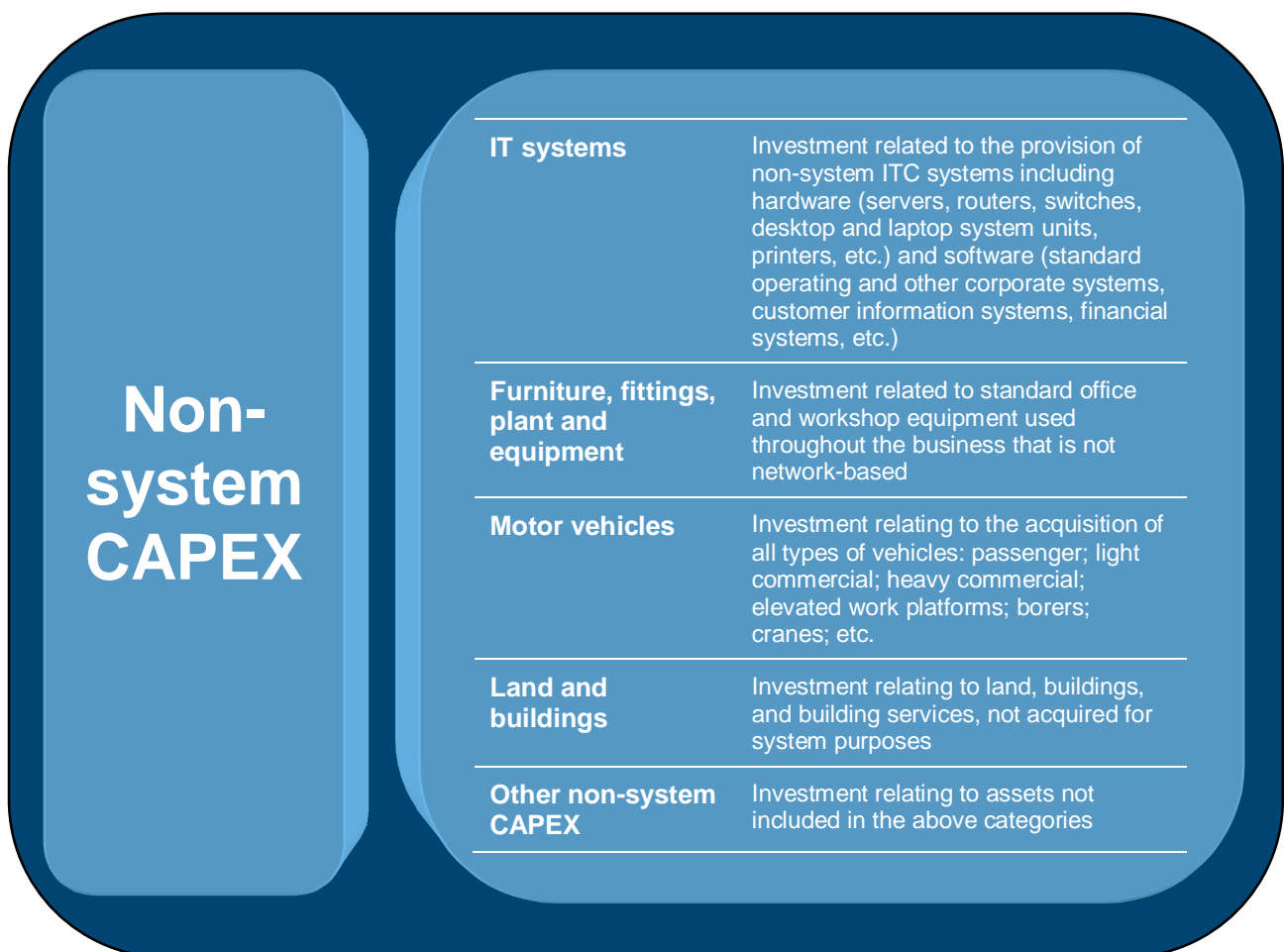
and to the network itself. Initial uncertainty surrounding the total number of crossings was resolved jointly with NSW Maritime in 2009/10, reducing the total number of overhead and submarine crossings from 2,608 to 1,357. Following this, Essential Energy embarked on its program of inspection and risk assessment against compliance with the Code and standards. Adverse weather conditions mainly in 2010/11 and 2011/12 with high rainfall resulting in flooding and high river flow rates caused delays to the assessment program, and consequent delays to specification and execution of projects to achieve full compliance. Following the establishment of Networks NSW in 2012, enhanced contracting requirements and corporate governance, and restrictions on overtime working contributed further to programme delays, meaning that compliance assessment and implementation of the remaining projects necessary to achieve compliance will continue into the forthcoming regulatory control period.

- WireAlert** - The WireAlert programme was delayed in April 2011, which resulted in a reduction in the capital plan of around \$1.5m. In early 2013, Essential Energy commenced a further review as part of a capital reduction strategy. This initiative is looking to identify further projects that can be deferred through the use non-network alternatives and other risk mitigation methods.

2.4 Actual and forecast non-system CAPEX

Non-system CAPEX has been considered in light of the following driver categories:

Figure 2.2 Non-system Capital Expenditure Driver Categories



2.4.1 IT systems

Table 2.5 Capital expenditure – IT systems (real 2012/13 \$000's)

Expenditure type	2009/10	2010/11	2011/12	2012/13	2013/14 Forecast	Total
Actual	32,410	31,990	39,120	13,644	33,412	150,576
Regulatory Allowance	64,949	62,270	50,856	37,473	32,717	248,265
Variance	(32,539)	(30,280)	(11,736)	(23,830)	695	(97,690)

Explanation of Variances

Many non-network ICT programs were planned and allowed for over the course of the current regulatory period. However, there were also many changes to the programs that were ultimately implemented, some of which led to expenditure savings and others which led to significant increase. The primary causes of expenditure variances are as follows:

- Asset management systems – approximately \$51.5m was allowed in the previous submission to undertake a review and replacement of the existing asset management business systems. Whilst there was some initial expenditure assessing the existing systems and the most prudent use of the funding, work was suspended following the creation of Networks NSW and the subsequent moratorium on CAPEX. In parallel with this, expenditure on existing asset management ICT systems was curtailed in anticipation a replacement system being implemented. In the absence of a replacement system, continued and possibly increasing expenditure on the legacy systems will be required in the forthcoming regulatory period.
- Customer information system - The previous submission included an allowance of approximately \$26m to review and replace the existing CIS systems, which include billing systems, customer information, and national electricity market transaction systems. Ongoing assessment of overall business needs morphed the requirement into a whole-of-business enterprise solution encompassing asset management, customer information, and other financial systems. However, still further changes such as the separation and sale of the retail component of the business, the creation of Networks NSW, and the decision to continue with existing asset management systems prompted yet further reassessments to focus on a financial and network-only CIS solution which will largely be implemented in the next regulatory period. Essential Energy forecasts total expenditure of about \$11m by the end of this regulatory period, of which more than \$10.5m will be spent in FY 2013/14 now that previous uncertainties have been largely alleviated.
- Owing to postponement of the implementation of the replacement CIS project, legacy CIS systems had to be maintained to a greater extent than anticipated by the previous regulatory proposal. Whilst a little over \$6m had been allowed, expenditure will actually exceed \$10m.
- Non-network to network transfers – the telecommunications group, which had been part of the ICT (Non-Systems) part of the business was transferred to Engineering Services (Systems). With this transfer, responsibility and funding for several programs were effectively transferred from non-network CAPEX to network CAPEX. The five programs affected were the Fibre-to-Zone project, Radio Site Upgrades, Router and Switch Maintenance, Radio Site Construction, and SCADA and BPL. The total variance across these programs was expenditure of approximately \$6.4m out of an allowance of \$35.8m.
- Mobile data and field force enablement project – approximately \$15.7m was allowed to improve data collection in the field and to improve work planning and access to asset information for field crews. The program included replacement of many old portable data entry devices and the equipping of field vehicles with enhanced communication and computing devices, also known as “Smart Vehicles”. In the

implementation, the scope of the program (especially the Smart Vehicles aspect) was considerably expanded to improve worker access to information and to increase significantly safety outcomes. The program is expected to have cost nearly \$30.3m by the end of the regulatory period.

- Meter data management system – approximately \$13.6m was allowed because at the time of the previous submission, Country Energy doubted that its existing system would be capable of satisfying its ongoing obligations to NEMMCO (now AEMO). Later reassessments changed that evaluation to a decision that the existing system could be maintained acceptably such that only \$215k has been spent in the current regulatory period.
- Enterprise system modules – approximately \$4m was allowed for maintenance of the existing systems such as PeopleSoft, Lotus Notes, etc. However, following reassessment and postponement of asset management and CIS system replacements, additional maintenance and upgrades of existing systems became necessary to the extent that expenditure is expected to exceed \$27.2m in the current regulatory period.

Note that Essential Energy has re-categorised the capital cost of IT communications (e.g. telephone, video-conferencing equipment, etc.) to the ‘furniture, fittings, plant and equipment’ category below, rather than this category.

2.4.2 Furniture, fittings, plant and equipment

Table 2.6 Capital expenditure – furniture, fittings, plant and equipment (real 2012/13 \$000's)

Expenditure type	2009/10	2010/11	2011/12	2012/13	2013/14 Forecast	Total
Actual	12,709	14,670	19,699	15,872	4,551	67,501
Regulatory Allowance	12,252	10,734	10,420	11,158	10,267	54,831
Variance	457	3,936	9,279	4,714	(5,716)	12,670

Explanation of Variances

The primary causes of expenditure variances are as follows:

- Essential Energy has re-categorised the capital cost of IT communications equipment (e.g. telephone, video-conferencing equipment, etc.) to this asset category, rather than the ‘IT systems’ category above.
- Essential Energy had included in its previous regulatory proposal forecast expenditure on miscellaneous capitalised items such as tools, test equipment, furniture and office equipment in the ‘Other non-system CAPEX’ category (Table 2.9). Some of this expenditure has also been re-categorised to this furniture, fittings, plant and equipment category.

2.4.3 Motor vehicles

Table 2.7 Capital expenditure – motor vehicles (real 2012/13 \$000's)

Expenditure type	2009/10	2010/11	2011/12	2012/13	2013/14 Forecast	Total
Actual	85,909	56,000	55,445	20,847	19,989	238,190
Regulatory Allowance	67,780	58,097	51,603	42,347	43,287	263,113
Variance	18,130	(2,097)	3,842	(21,500)	(23,298)	(24,923)

Explanation of Variances

The primary causes of expenditure variances are as follows:

- Following the creation of NNSW, there was a drive to reduce capital expenditure in all areas. In the vehicle fleet, this was achieved by implementing alternative vehicle management strategies:
 - ▶ Passenger vehicle lifetimes were extended from approximately 100,000 km to 120,000 km
 - ▶ Light commercial vehicle lifetimes were extended from approximately 120,000 km to 150,000 km
 - ▶ Heavy commercial vehicle lifetimes were extended from between 8-10 years to 15 years
 - ▶ Replacement by procurement is no longer automatic – when a vehicle reaches the end of its planned lifetime, the availability of surplus vehicles elsewhere is assessed allowing for reassignment of underused assets.
- Demand on the fleet has reduced as a result of increased use of tele- and video-conferencing facilities.
- Overall fleet size is contracting reducing not only capital costs, but also operational costs (fuel, servicing, etc.).

2.4.4 Land and buildings

Table 2.8 Capital expenditure – land and buildings (real 2012/13 \$000's)

Expenditure type	2009/10	2010/11	2011/12	2012/13	2013/14 Forecast	Total
Actual	11,498	21,117	15,676	9,048	25,213	82,552
Regulatory Allowance	28,393	20,988	19,224	18,702	18,781	106,088
Variance	(16,895)	129	(3,547)	(9,654)	6,432	(23,535)

Explanation of Variances

The primary causes of expenditure variances are as follows:

- In the current regulatory period, there was an increased emphasis placed on ensuring that buildings and their services were built to suit their purpose. For example, unless there were extenuating circumstances that dictated otherwise, they would typically be of low-cost modular construction.
- Cost savings were made by reducing the scope of the zone substation fencing programme following the outcomes of more detailed risk assessments reducing the number of substation sites requiring fencing.

- Essential Energy is continuing to occupy both leasehold and freehold properties, but the benefits of both are more closely assessed
- Since creation of Networks NSW, there has been a push to reassess usage and dispose of property that is surplus to requirements. This will continue in the next regulatory period
- Whilst working within operational requirements, Essential Energy is looking at the possibility of depot consolidation.

2.4.5 Other non-system CAPEX

Table 2.9 Capital expenditure – other non-system CAPEX (real 2012/13 \$000's)

Expenditure type	2009/10	2010/11	2011/12	2012/13	2013/14 Forecast	Total
Actual	326	873	-	4,104	-	5,303
Regulatory Allowance	5,959	6,017	6,060	6,099	6,126	30,260
Variance	(5,634)	(5,143)	(6,060)	(1,994)	(6,126)	(24,957)

Explanation of Variances

The primary causes of expenditure variances are as follows:

- In its previous regulatory proposal, Essential Energy included forecast expenditure on miscellaneous capitalised items such as tools, test equipment, furniture and office equipment in this category. In the event, most of this expenditure has been re-categorised to the 'furniture, fittings, plant and equipment' category shown in Table 2.6.

3. Operating expenditure

The following sections discuss each of the actual operational expenditures, including that forecast for 2013/14, for each of the regulatory asset driver categories. For each category, any significant variations between the actual expenditure and the allowance for that period are identified and explained.

3.1 Description of OPEX categories

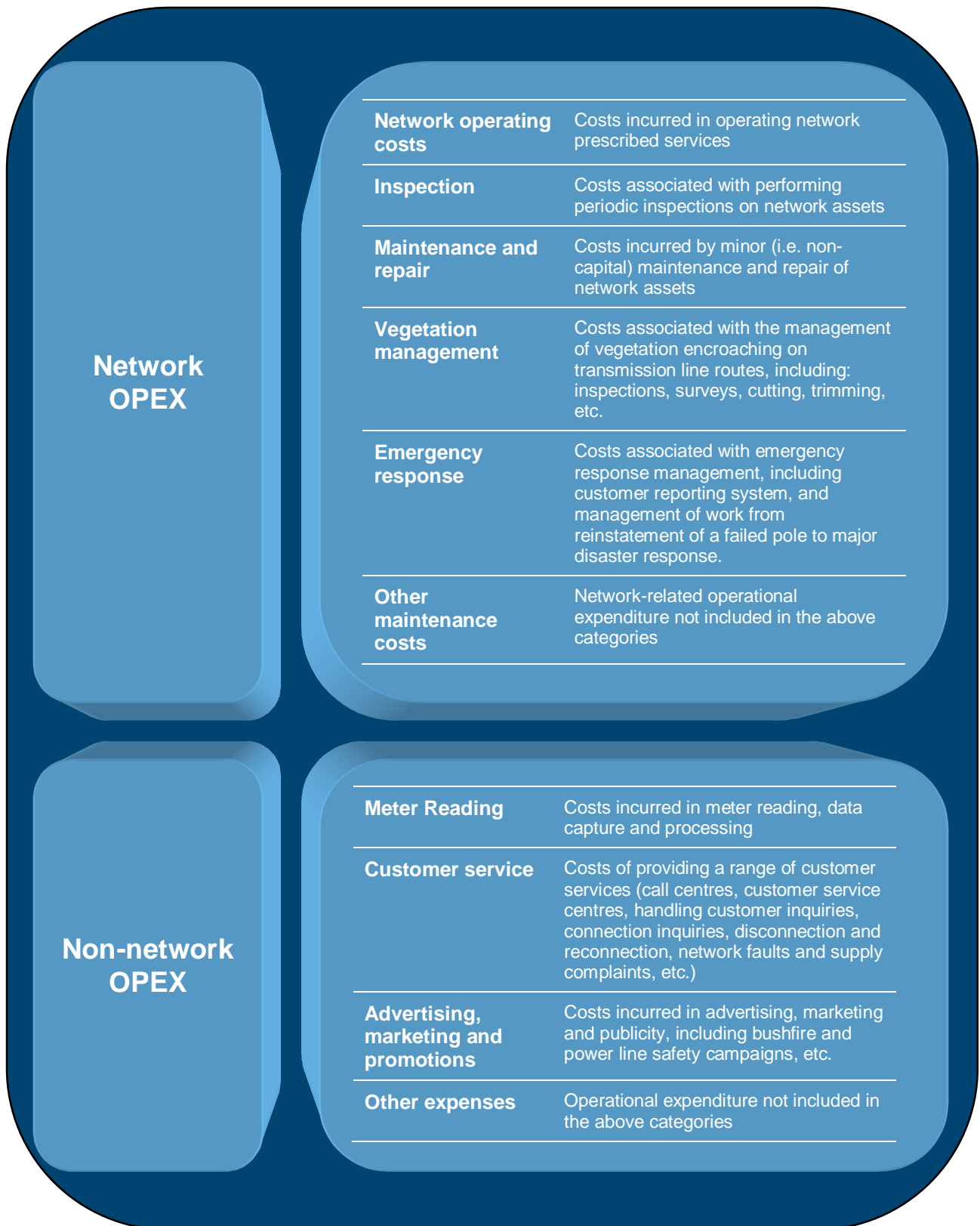
OPEX has been considered in light of the drivers and expense categories shown in Figure 3.1.

3.2 Network OPEX

Initiatives that were expected to be completed during the current regulatory period included:

- The development and implementation of new asset inspection and maintenance activities across all asset equipment types. This would involve new activities being introduced into the asset inspection and maintenance regime, including:
 - ▶ Programmed internal inspection of all underground pits and pillars
 - ▶ Six monthly condition monitoring and minor maintenance of all critical distribution substation and ring main units
 - ▶ Programmed live line pole top inspection of all radial subtransmission feeders
 - ▶ Annual 'thermovision' program covering all critical equipment and urban network components, and
 - ▶ Six monthly condition monitoring and minor maintenance program of all regulator and recloser assets.
- The continuation of an initiative to better manage inspection, testing and risk defects to address the backlog of work prudently and with an efficient use of resources.
- The reinstatement of deferred programs of inspection, vegetation management and maintenance. Expenditure constraints in previous regulatory control periods had caused deferral of some programs. Reinstatement of some of these programs was a priority to address problems with earthing inspection and testing and reliability of poor performing feeders.
- An enhanced vegetation management program, including:
 - ▶ More thorough vegetation inspection, scoping, and clearing of all vegetation
 - ▶ Targeted removal of overhanging limbs and clearing of the canopy across power lines
 - ▶ Targeted removal of problem trees
 - ▶ Preventative corridor clearing to maintain an adequate ground power line corridor, and
 - ▶ More effective major access track maintenance to ensure access at all times for routine inspections, maintenance work, and fast response to fault locations.

Figure 3.1 Network Operational Expenditure Driver Categories



Extensive evaluation and assessment of Essential Energy's maintenance costs and requirements has been undertaken during the current regulatory period. The underlying driver for the review has been to ensure Essential Energy's programs are prudent and efficient such that often competing needs associated with both the business's required financial returns and its operational and corporate risks are balanced. As a business Essential Energy continually assesses asset performance and maintenance programs to ensure strategy effectiveness and efficiency. The main aim of the reviews is to identify where efficiency and effectiveness gains can be made and also result in program shortcomings or negative trends being quickly identified and addressed.

Risk assessments to validate and verify outcomes are conducted which look to consider risk from the following perspectives:

- Health and Safety (to employees and the general public)
- Legal and Regulatory
- Financial
- Reliability
- Cultural and Environmental

Despite Essential Energy's intentions for its programs for the current regulatory period, a number of initiatives were not either able to be attended to or were attended to in a different manner to that originally forecast in the last submission. Specifically:

- The creation of NNSW part way through the regulatory period as an overarching distribution network entity immediately started to realise efficiencies in both capital and operational expenditure. NNSW introduced enhanced governance processes and cost controls that amongst other things placed a freeze on recruitment and curtailment of overtime for direct staff.
- Inspection and maintenance methodologies have been improved, and major gains were being made to address the backlog of inspections that resulted from earlier program deferrals. However, the creation of Networks NSW and the resulting moratorium on recruitment and curtailment of overtime has put pressure on the availability of resources to progress the programs at the desired rate. For example, the pole inspection program is now estimated to be some 40,000 poles behind plan, resulting in an increased risk of pole failure and loss of service to customers.
- The vegetation management program is making extensive use of new technologies and assessment methodologies. A greater use of aerial patrol, and more recently LiDAR surveys, allows more risk assessment-based decisions to be made about the best use of available funding. The breaking of the nationwide drought in the middle of the regulatory period, and the resulting resurgence in growth of vegetation that had been relatively dormant for several years meant that there was a significant increase in the amount of work to be performed in the second half of the regulatory period.
- The significantly increased uptake of residential solar photovoltaic installations, which was not anticipated at the time of the previous submission, has had an impact on metering installations; instead of planning only to replace approximately 240,000 outdated meters in a planned programme, Essential Energy has also had to be responsive to those customers that have installed solar PV equipment, which can be on a much more piecemeal basis. A scaled-down programme replacing 67,000 outdated, non-compliant meters was started and will continue, in addition to approximately 70,000 customers, who installed solar PV.

The variance in expenditure from that forecast can be attributed to a combination of internal and external factors.

3.2.1 Internal Factors

As discussed above, the business undertook numerous reviews in a number of its key programs. These reviews enabled significant improvements to be made, reducing the required spends.

3.2.2 External Factors

A number of economic and political factors have emerged during the current regulatory period, which have impacted significantly on Essential Energy's ability to meet its forecast program. Largely beyond Essential Energy's immediate control, these factors have nonetheless had a direct impact on Essential Energy's operational expenditure, but were not foreseeable during the previous determination process. The key developments are:

- Increased political pressure on the state government (the network owner) to control electricity prices. This was probably the primary motivation behind the creation of Networks NSW, and the resulting governance and cost control measures that were put in place.
- The unprecedented take-up of solar PV in the residential sector. An initial feed-in tariff of \$0.60/kWh on gross solar PV generation was the most generous of all the states' schemes and extremely attractive to a large number of householders. Essential Energy was committed to enabling embedded generation connections, ensuring that metering installations were updated, and to managing the effects of the PV installations on power quality.
- A side-effect of the global financial crisis was that several large residential subdivisions, particularly in the north of the state near the Queensland border, were put on hold by their developers. Whilst deferment of such projects reduces the DNSP's CAPEX requirements, a lot of effort would have already been put into designing the growth projects necessary for such developments, which could also partly address known shortcomings in the existing network that would then have to be addressed by a possibly technically inferior and less efficient solution.

3.2.3 Variance Analysis

The following tables show the actual expenditure for 2009/10 to 2013/14, including that forecast for 2013/14 compared to the regulatory determination allowance. The regulatory allowances in these tables have been adjusted from those in the original determination to account for an accounting policy change in the way that Essential Energy distributed overhead costs. At the time that the regulatory submission and determination were made for the 2009-14 regulatory control period, Essential Energy's policy was to allocate overhead costs in proportion to the direct cost of labour for Essential Energy staff. However, from the start of the regulatory control period (i.e. from 1 July 2009), Essential Energy started to allocate overhead costs in proportion to the total direct cost of activities, including subcontractor costs.

Table 3.1 Variance analysis - network OPEX (real 2012/13 \$000's)

Expenditure type		2009/10	2010/11	2011/12	2012/13	2013/14 Forecast	Total
Network operating costs	Actual	-	33,220	35,368	15,003	14,998	98,589
	Allowance	-	-	-	-	-	-
	Variance	-	33,220	35,368	15,003	14,998	98,589
Inspection	Actual	37,303	41,174	45,667	30,117	30,107	184,368
	Allowance	37,832	38,895	39,947	40,903	41,656	199,233
	Variance	(529)	2,279	5,719	(10,785)	(11,549)	(14,865)
Pole Replacement	Actual	-	-	-	-	-	-
	Allowance	1,692	1,740	1,787	1,829	1,863	8,911
	Variance	(1,692)	(1,740)	(1,787)	(1,829)	(1,863)	(8,911)
Maintenance and Repair	Actual	84,084	70,467	79,525	74,252	74,227	382,555
	Allowance	71,422	73,429	75,415	77,220	78,642	376,128
	Variance	12,662	(2,962)	4,109	(2,968)	(4,415)	6,427
Vegetation Management	Actual	98,468	101,847	149,508	179,264	179,205	708,293
	Allowance	124,082	125,226	126,023	126,450	126,058	627,840
	Variance	(25,615)	(23,379)	23,485	52,815	53,146	80,453
Emergency Response	Actual	75,978	71,191	78,308	72,716	72,692	370,885
	Allowance	45,324	45,789	46,210	46,483	46,477	230,283
	Variance	30,653	25,402	32,098	26,234	26,215	140,602
Other maintenance costs	Actual	31,894	39,893	50,527	43,077	43,062	208,454
	Allowance	97,076	99,737	102,362	104,746	106,738	510,659
	Variance	(65,182)	(59,843)	(51,835)	(61,669)	(63,676)	(302,206)
Network Operating Costs	Actual	327,726	357,792	438,903	414,430	414,291	1,953,143
	Allowance	377,429	384,815	391,744	397,631	401,435	1,953,054
	Variance	(49,703)	(27,022)	47,159	16,799	12,856	89

Explanation of Variances

The variations in actual expenditure from that forecast are attributable to the following:

- Change in Accounting Policy** - The reported OPEX data has been impacted by accounting policy change that occurred during the current regulatory period. Previously, Essential Energy distributed overhead costs according to the cost of direct labour (i.e. Essential Energy personnel) included in the total direct cost. However, this policy was changed in July 2009 such that overhead costs would be distributed across all direct costs, not just labour. As a result those programs that have an above average subcontractor content (e.g. vegetation management) show a significant increase in cost, largely as a result of this accounting policy change.
- Network operating costs** – An allowance had been made in the determination for the costs of operating all prescribed services to be a “non-network” cost (see Table 3.3). Essential Energy has now

reclassified these costs as network costs, so they have been re-categorised accordingly. As an overall category of cost, the performance is as shown in Table 3.2.

Table 3.2 Network operating costs comparison (real 2012/13 \$000's)

Expenditure type		2009/10	2010/11	2011/12	2012/13	2013/14 Forecast	Total
Network operating costs – Prescribed services operating costs	Actual	14,260	33,220	35,368	15,003	14,998	112,848
	Allowance	20,032	20,129	20,322	20,497	20,592	101,572
	Variance	(5,772)	13,091	15,046	(5,495)	(5,594)	11,276

- Vegetation Management** – The vegetation management programme was the one programme most significantly affected by the change in overhead allocation policy. Under the original allowances, the programme would have shown a variance of \$158m against an allowance of \$550m (real 2012/13) for the 2009/14 regulatory control period, as shown in Figure 3.2.

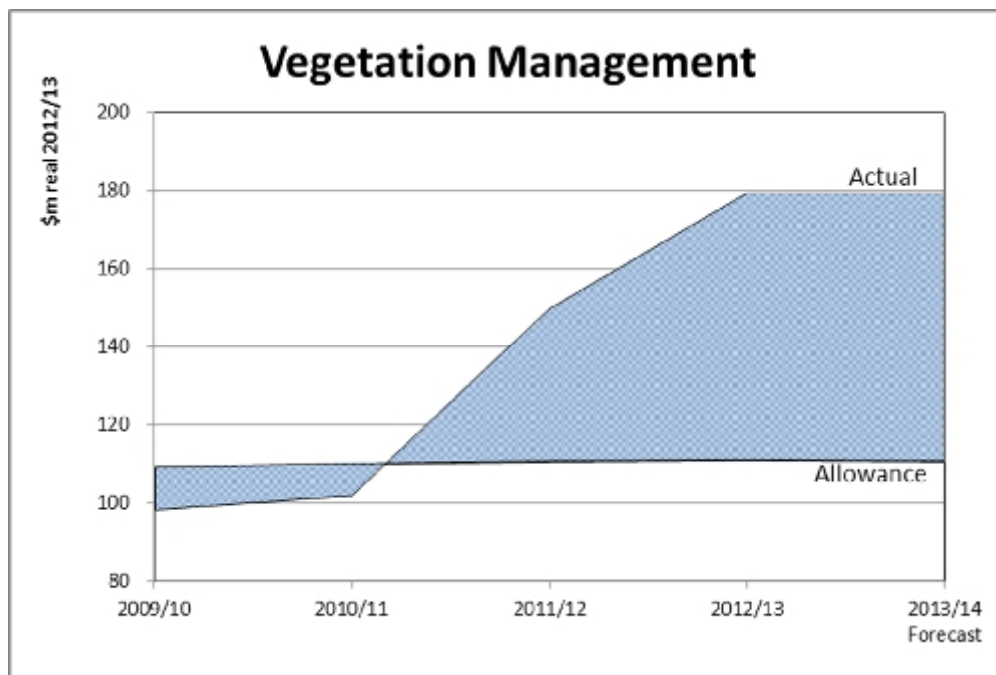


Figure 3.2 Vegetation management OPEX – actual vs original allowance (\$m real 2012/13)

However, a large proportion of the cost of vegetation management is in subcontractor charges, so the policy change resulted in a significant adjustment, increasing the allowance by \$77.5m (real 2012/13) over the regulatory control period, thus reducing the variance to \$80.5m, as shown in Figure 3.3.

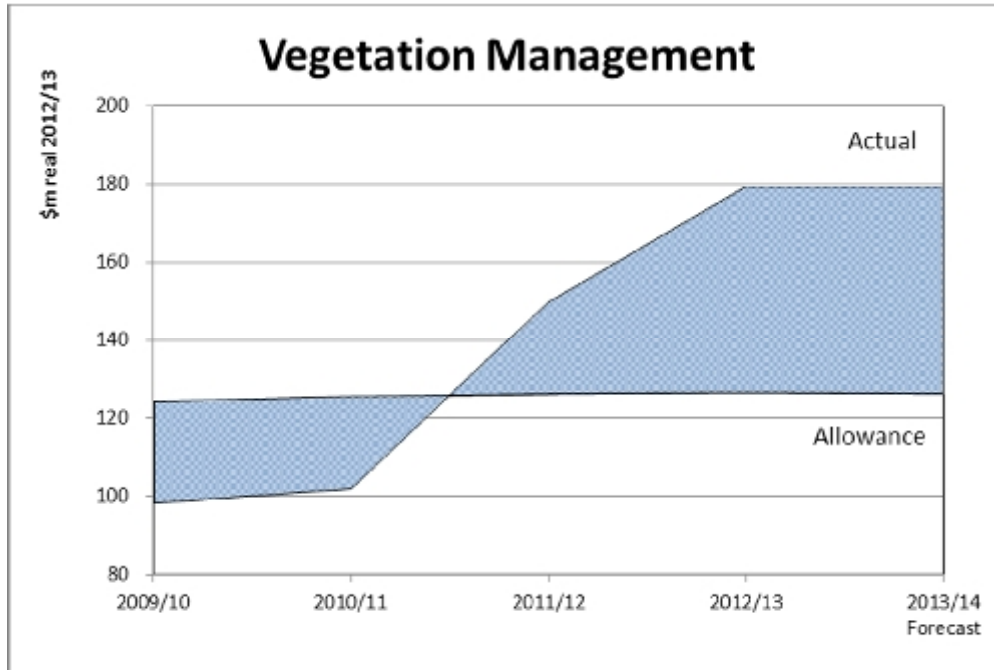


Figure 3.3 Vegetation management OPEX – actual vs adjusted allowance (\$m real 2012/13)

- The residual variance is due to one main factor. The Victorian Bushfires Royal Commission attributed the ignition source of several of the Victorian bushfires of February 2009 to power lines. It was therefore incumbent on prudent electricity network service providers to reassess their bushfire mitigation and vegetation management practices, and to be more proactive in the prevention of vegetation-related outages and bushfire starts. Essential Energy has made many improvements to its vegetation management program during the current regulatory control period (e.g. centralisation of assessments, improved risk assessment criteria), and it has significantly increased the inspection and maintenance frequency from about 6.5 years to approximately 3.6 years, aiming for an ultimately sustainable target of 3.0 years in most areas. Whilst improving efficiencies by controlling and reducing the specific costs of maintenance, the increase in maintenance frequency has necessarily resulted in an increase in the annual cost of the programme in the final three years of the current regulatory control period. Work is now much more proactive, planned and controllable, rather than being reactive to outages caused by vegetation issues.
- Inspection (poles, etc.)** – The inspection program cost has benefitted from the overhead allocation policy change as it is primarily an in-house program. The underlying direct costs have increased slightly following a drive to increase the inspection frequency from once every 4.5 to once every 4 years. Similarly, risk assessment criteria have been reassessed so as not to cause assets to be replaced prematurely. A freeze on recruitment and a cutback on overtime following the establishment of Networks NNSW will continue to see the cost of the program to be held down; however, given the geographically dispersed nature of the system, it may make it difficult to maintain the desired inspection frequency.
- Pole replacement** – Essential Energy formerly treated the pole replacement program as an add-on to the inspection program; therefore, allowance for pole replacements was categorised under OPEX in the previous submission. Essential Energy decided at the beginning of the current regulatory period to treat replacement poles as CAPEX; hence there was no actual expenditure under OPEX.
- Emergency Response** – Emergency Response is always a difficult category to estimate expenditure requirements for. Whilst the unit cost of the service is dependent on some factors, most of which are within Essential Energy's control (e.g. personnel, plant and equipment costs, etc.), the actual need for the service in urgently responding to customer supply interruptions is outside Essential Energy's control (e.g. weather, criminal damage/vandalism, vehicle collisions, etc.). The original regulatory allowance of approximately \$54.9m per annum (real 2012/13) was based on knowledge of historical expenditure by

Country Energy over the years prior to the last determination. This allowance was reduced to approximately \$46.1m as a result of the change in accounting policy. In the event, actual expenditure was found to average approximately \$74m per annum (real 2012/13) as shown in Figure 3.4.

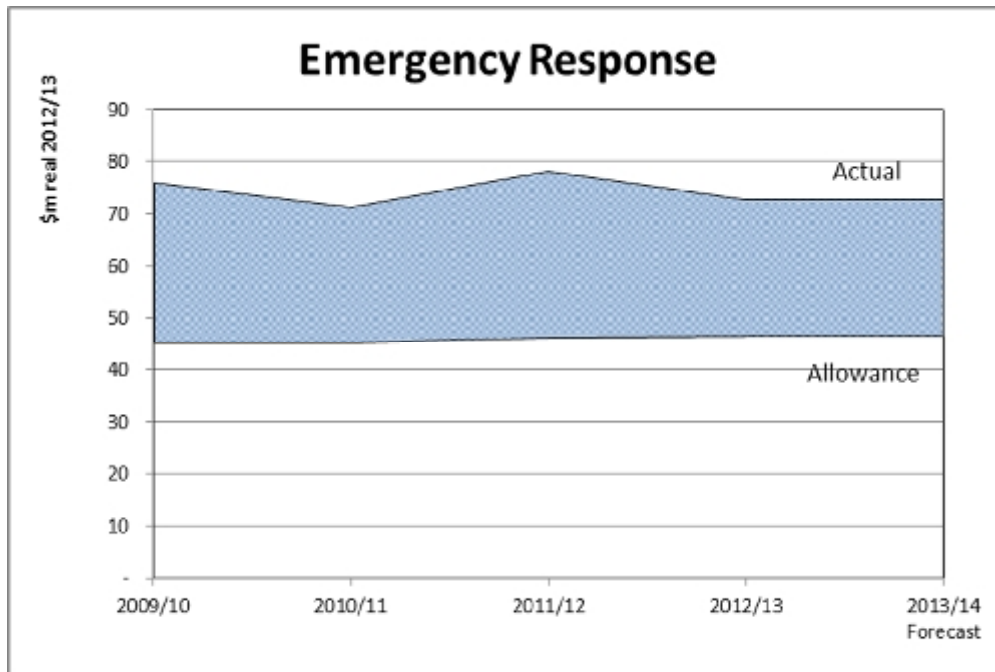


Figure 3.4 Emergency response OPEX – actual vs adjusted allowance (\$m real 2012/13)

Overall, our assessment indicates that much of the OPEX savings is attributable to re-categorisation of prescribed services operating costs from non-network to network OPEX, and the pole replacement program from OPEX to CAPEX. Pressure from NSW to improve efficiency has been effective in reducing costs, though possibly at the expense of increasing the business’s risk exposure – particularly in the areas of inspection and vegetation management. Notably these programs might not keep up with their planned frequencies given personnel capacity constraints.

3.2.4 Non-network OPEX

In the case of non-network OPEX the following variances were noted.

Table 3.3 Variance analysis – non-network OPEX (real 2012/13 \$000's)

Expenditure type		2009/10	2010/11	2011/12	2012/13	2013/14 Forecast	Total
Meter Reading	Actual	29,877	29,113	33,296	25,064	25,055	142,405
	Allowance	21,648	22,258	22,860	23,407	23,838	114,012
	Variance	8,229	6,855	10,436	1,656	1,217	28,393
Customer service	Actual	20,571	21,712	22,410	21,499	21,492	107,685
	Allowance	15,131	15,557	15,978	16,360	16,662	79,688
	Variance	5,440	6,155	6,432	5,139	4,831	27,997
Advertising, marketing and promotions	Actual	4,984	5,615	4,525	2,352	2,352	19,828
	Allowance	5,398	5,579	5,731	5,869	5,978	28,555
	Variance	(414)	36	(1,206)	(3,516)	(3,626)	(8,727)
Other expenses	Actual	-	(1,827)	449	(2,303)	(2,302)	(5,983)
	Allowance	-	-	-	-	-	-
	Variance	-	(1,827)	449	(2,303)	(2,302)	(5,983)
Prescribed services operating costs total	Actual	14,260	-	-	-	-	14,260
	Allowance	20,032	20,129	20,322	20,497	20,592	101,572
	Variance	(5,772)	(20,129)	(20,322)	(20,497)	(20,592)	(87,313)
Non-Network Operating Costs	Actual	69,691	54,613	60,679	46,613	46,597	278,193
	Allowance	62,208	63,523	64,892	66,134	67,070	323,826
	Variance	7,483	(8,910)	(4,212)	(19,521)	(20,473)	(45,633)

Explanation of Variances

The primary causes of expenditure variances for each expenditure category are as follows.

- Prescribed services operating costs** – Allowance had been made in the determination for the costs of operating all prescribed services to be a “non-network” cost (see Table 3.3). Essential Energy reclassified these costs as network costs in 2010/11, so that actual costs for the majority of the remainder of the regulatory control period are as “network operating costs” shown in Table 3.1. Table 3.2 shows the comparison of actual cost and allowance for the relevant categories combined. Table 3.4 shows the variance of non-network costs after excluding the prescribed services category.

Table 3.4 Variance analysis – non-network OPEX excluding prescribed services (real 2012/13 \$000's)

Expenditure type		2009/10	2010/11	2011/12	2012/13	2013/14 Forecast	Total
Non-Network Operating Costs (excl. prescribed services)	Actual	55,432	54,613	60,679	46,613	46,597	263,934
	Allowance	42,177	43,394	44,569	45,636	46,478	222,254
	Variance	13,255	11,219	16,110	976	119	41,680

- Meter reading and customer service** – costs have been ahead of expectations throughout the regulatory control period, but both categories are greatly affected by the geographical spread of Essential Energy’s service area, and increasing service expectations of Essential Energy’s customers combined with the business’s own desire to enhance customer satisfaction.
- Discretionary expenditure** - since the establishment of Networks NSW in the second half of the regulatory control period, discretionary expenditure on advertising, for example, has been constrained and much reduced, leading to the overall variance in non-network operating costs excluding prescribed services to be non-material.

Appendix A

National Electricity Rules requirements



A1. National Electricity Rules extracts

National Electricity Rules clause S6.1.1

1. capital expenditure for each of the past regulatory years of the previous and current regulatory control period, and the expected capital expenditure for each of the last two regulatory years of the current regulatory control period, categorised in the same way as for the capital expenditure forecast and separately identifying for each such regulatory year:
 - a) margins paid or expected to be paid by the Distribution Network Service Provider in circumstances where those margins are referable to arrangements that do not reflect arm's length terms; and
 - b) expenditure that should have been treated as operating expenditure in accordance with the policy submitted under paragraph (8) for that regulatory year;
2. an explanation of any significant variations in the forecast capital expenditure from historical capital expenditure; and
3. the policy that the Distribution Network Service Provider applies in capitalising operating expenditure.

National Electricity Rules clause S6.1.2

7. operating expenditure for each of the past regulatory years of the previous and current regulatory control period, and the expected operating expenditure for each of the last two regulatory years of the current regulatory control period, categorised in the same way as for the operating expenditure forecast;
8. an explanation of any significant variations in the forecast operating expenditure from historical operating expenditure.