# Expenditure Forecasting Methods

November 2013

Ausgrid

# Contents

# About this report

This report is a requirement of the National Electricity Rules and sets out the methods that Ausgrid will use to forecast capital and operating expenditure for 1 July 2014 to 30 June 2019.

## Transitional Regulatory Proposal and Regulatory Proposal

Every five years, electricity distribution network businesses such as Ausgrid must make a submission to the Australian Energy Regulator outlining the costs required to run a safe and reliable power supply for business and residential customers.

This submission is known as a Regulatory Proposal and includes forecast capital and operating expenditure needs as well as proposed prices that network customers are asked to pay to fund these costs.

For this regulatory period, the electricity distribution network businesses in NSW and ACT will need to submit a Transitional Regulatory Proposal that will help set network electricity prices for just one year starting on 1 July 2014. The AER will consider this Transitional Regulatory Proposal and set revenue and prices for 1 July 2014 to 30 June 2015.

Ausgrid and other distribution network businesses in NSW and the ACT will then submit a full Regulatory Proposal for the entire 2014-19 period[1]. The AER will also consider this proposal and set future electricity network revenue and prices for this entire period.

The AER's final decision on our prices is expected to be announced in early 2015, which will set revenue and prices from 1 July 2015 to 30 June 2019.

## This report

As part of the regulatory proposal determination process, Ausgrid is required by the National Electricity Rules (the Rules) to notify the AER of the methods Ausgrid proposes to use to forecast capital and operating expenditure.[2]

This report informs the AER of the methodologies Ausgrid will use to forecast capital and operating expenditure for its Regulatory Proposal.

This report is a starting point to help the AER develop an approach to assess the prudence and efficiency of the capital and operating expenditure forecasts that will form part of Ausgrid's main Regulatory Proposal.

Ausgrid's capital and operating expenditure programs are now being finalised. More details about the methodologies and how we have implemented them, including key inputs, variables and assumptions, will be included in Ausgrid's main Regulatory Proposal, as required by clauses S6.1.1 and S6.1.2 of the Rules.

Ausgrid is planning to fully implement the methodologies outlined in this report. However, if there is a need to amend the methods outlined in this report to improve capital and operating expenditure forecasts, then these will be outlined in the full Regulatory Proposal to be submitted on 31 May 2014.

## Feedback on this report

Ausgrid's customers and stakeholders can provide feedback on this Expenditure Forecasting Method to:

**yoursay@ausgrid.com.au** or
**Chief Operating Officer**
**GPO Box 4009**
**Sydney NSW 2001**

Customers can also provide comments on our reports to the AER (www.aer.gov.au).

Alternatively customers may also like to make comments via Ausgrid's Facebook page at www.facebook.com/Ausgrid.

## Other ways to comment

Ausgrid is seeking feedback with Endeavour Energy and Essential Energy on their joint Facebook page at www.facebook.com/YourPowerYourSay.


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[1] 1 July 2014 to 30 June 2019
[2] Clause 6.8.1A of the Rules

# Operating expenditure

The majority of Ausgrid's operating expenditure will be forecast using variants of the 'base-step-trend' approach and where this method is not suitable it will use other appropriate methods such as a 'bottom up' or 'top down' approach.

## Approach to forecasting opex

Ausgrid intends to adopt a 'fit for purpose' approach to forecasting its operating expenditure (opex) for the forthcoming regulatory control period. This approach is as follows:

- Disaggregate Ausgrid's total opex into various cost categories. These categories represent the costs of undertaking a set of related activities to provide standard control services and to achieve the opex objectives in the Rules. Some examples of these cost categories include maintenance opex, system control, finance and human resources.
- Assess the nature of each cost category and determine the appropriate forecasting method that would result in a forecast cost that reasonably reflects the efficient cost that a prudent operator would need to achieve the opex objectives, based on a realistic expectation of demand forecast and cost inputs for that particular cost category.

## Cost categories

Ausgrid's total forecast opex comprises the following broad groups. These are:

- System maintenance opex.
- Operation and business support opex.
- Other opex.

### System maintenance opex

Ausgrid's total system maintenance opex is made up of the following cost categories that reflect the activities undertaken to maintain the electricity network:

***Inspection:*** Work associated with undertaking planned appraisal and routine preventative maintenance tasks. This category includes the cost of condition monitoring tasks and vegetation management. These tasks are predominantly scheduled and carried out in a repetitive manner with a levelled workload. Inspections identify corrective maintenance needs.

***Corrective:*** All work associated with correcting defects that have not yet resulted in a "breakdown". Corrective maintenance occurs when assets fail to meet the threshold criteria set to ensure it remains in working order until the next inspection maintenance cycle. These tasks are generally driven from the results of the inspection process.

***Breakdown:*** All work associated with equipment that has ceased to perform its intended function (excluding nature induced breakdown). Depending on the asset requiring maintenance, this activity may need to be undertaken in emergency conditions, generally at short notice. Breakdown activities generally result in higher costs as work may need to be carried out in emergency conditions outside normal working hours.

***Nature Induced Breakdown:*** All work associated with equipment that has ceased to perform its intended function due to factors beyond the equipment's design capability (for example, animals causing an equipment malfunction). These failures cannot be managed through normal maintenance activities. Like breakdown maintenance, these activities may be carried out under emergency conditions and may lead to higher costs.

***Non-Direct Maintenance:*** All work associated with the testing of plant, tools and equipment that is used to deliver the different maintenance activities defined above. Also includes any training and development required to deliver maintenance activities.

***Engineering Support:*** Work associated with local project planning, scheduling and coordination of maintenance works.

### Table 1: Ausgrid's opex forecasting methods

| Group | Cost category | Base Year | Base Year Variation by Volume | Base Year Historical Trending | Base Year Historical Averaging | Bottom Up | Actuarial assessment | Top down approach | Other |
|---|---|---|---|---|---|---|---|---|---|
| Maintenance | Inspection – vegetation management | ✔ | | | | | | | |
| | Inspection – all other costs | | ✔ | | | | | | |
| | Corrective | | | ✔ | | | | | |
| | Breakdown | | | ✔ | | | | | |
| | Nature Induced Breakdown | | | | ✔ | | | | |
| | Non-Direct Maintenance | ✔ | | | | | | | |
| | Engineering Support | ✔ | | | | | | | |
| Operation and Support | Either base year or bottom up or combination thereof. | | | | | | | | |
| Other opex | Cost savings/Productivity Improvement | | | | | | | ✔ | |
| | Non network alternative programs | | | | | ✔* | | | |
| | Self insurance | | | | | | ✔ | | |
| | Debt raising cost | | | | | | | | ✔ i.e. AER's method |

* A small component of this cost will be forecasted using the base year approach.

## Operation and Business Support Opex

This operating expenditure group comprises of costs required to directly support the operation of Ausgrid's network system and costs that relate to the operation of Ausgrid as a business that would typically exist in any business. Operation and business support comprise of the following cost categories:

***Information, Communication and Technology:*** Costs relating to the operation and maintenance of various IT technologies and telecommunication system required for the effective operation of Ausgrid's infrastructure and day to day operations.

***Property Management:*** Costs of various activities inherent in the ownership of properties (land and building) including the costs of complying with various legal obligations pertaining to this ownership such as land registration, land tax payments, council rates, water and electricity usage.

***Network Operations:*** Costs pertaining to activities undertaken for customer operations, network control and engineering, planning and connection.

- Customer operations – costs relating to the management, planning and reliability of the distribution network. This includes facilitating new connections, responding to complaints and general enquiries concerning the distribution network, installation inspection and emergency response to installation and network safety issues.
- Network control – cost of 24 hour / 7 days a week monitoring and control of Ausgrid's infrastructure. It also includes emergency and incident management.
- Engineering, planning and connections – costs of centralised engineering and planning activities associated with preparing asset engineering and investment standards, maintenance analysis, engineering investigations, equipment ratings, technical regulatory reports and planning associated with large customer connections.

***Training and Development:*** Costs relating to centralised coordination and delivery of the technical, regulatory and professional development needs for Ausgrid's employees and compulsory training related to network access for contractors who work on the network. This also includes the four technical development programs: Apprentices, Engineering Officer Traineeships, Electrical Engineering Cadetships and the Engineering Graduate.

***Finance Costs:*** Costs relating to:

- Corporate accounting and reporting.
- Budgeting, forecasting, commercial services, investment analysis and business support.
- Treasury, taxation and cash management.
- Regularatory reporting and fixed asset management and reporting.

***Other Operations and Business Support Costs:*** These relate to:

- Contact centre and data operations.
- Fleet and logistics management.
- Insurance.
- Human resources management.
- Workers compensation, occupational health, well being and safety.
- Regulation and implementation of non-network alternative programs.
- Management including the the Board of Directors, Chief Executive Officer, Chief Operating Officer and Networks NSW Group Management.

### Other opex

These are operating expenditure relating to non network alternatives (i.e. demand management), self insurance and debt raising costs. This group also contains costs resulting from savings initiatives.

## Our standard methods for forecasting opex

For each cost category, Ausgrid assesses the underlying drivers, activities, plans and strategies for the next regulatory period and adopts a method that is appropriate to produce a forecast operating expenditure that reasonably reflects the operating expenditure criteria specified in the National Electricity Rules. Ausgrid's total forecast opex is the sum of the forecasts of these categories.

For most cost categories, Ausgrid uses the 'base-step-trend' method. Where this method is not suitable, Ausgrid uses either a 'bottom up' method, a 'top down' approach or 'actuarial assessment' approach.

Ausgrid also uses variants of the 'base-step-trend' method to determine the total forecast maintenance opex. These variants are:

- Base year -variation by volume.
- Base year -historical trending.
- Base year -historical averaging.

Ausgrid has also provided a description of the 'base year – variation by volume and age profile' method below. While it is not proposed to use this approach for any category at this stage, it has been included in this statement as it may be required if circumstances change. This method is discussed further below.

Lastly, Ausgrid intends to adopt the AER's method for debt raising cost.

The 'base-step-trend' method involves the selection of a starting actual opex amount or base which is then escalated and adjusted as appropriate to derive a forecast that best reflects the operating expenditure requirements of the forthcoming period.

The base amount is derived from the actual operating expenditure outcomes for the financial year 2012-13. This base amount is then adjusted to account for:

- Real cost escalation – Ausgrid proposes to apply forecast real cost escalation to labour, materials, contracted services and other cost types that make up the total cost of each cost category. This is to reflect the future price of cost inputs. Reflecting our commitment to alleviate pricing pressures on customers, Ausgrid intends to offset real labour cost increases through efficiency improvements. This means that there will be a net zero real labour cost increases.
- Change factors which are essentially factors that trigger a change in costs from the current amount required to provide standard control services. The base year opex for the relevant cost categories therefore must be adjusted to account for these changes which could be increases or reductions to the base opex.

These change factors could arise from one or more of the following:

- New external obligations or increase in the scope/standard of current obligations.
- Changes in Ausgrid's operating environment.
- The interaction between forecast capital expenditure and operating expenditure. This includes the impact of changes in future capital program on forecast opex.
- Change in the value of the asset base.
- Cost saving initiatives or productivity improvement initiatives designed to mitigate the financial impact on our customers of unavoidable upward pressures on our future operating expenditure requirements and minimise price outcomes for customers.

The following describes how this base year method has been tailored for each of the maintenance cost categories.

### Base year – variation by volume

This method is appropriate where there is an ability to accurately predict the forecast volume of tasks that varies from the base year volume. For example, the required number of planned inspection and routine maintenance tasks is driven by the number of items of equipment and the applicable maintenance cycle and standards. Maintenance cycles are determined on the basis of FMECA[3] analysis, and expenditures are determined on the basis of historical costs adjusted for efficiency.

The average cost per task is comprised of two elements. These are:

- The 'base' average unit cost – this is the actual

**For most cost categories, Ausgrid uses the 'base-step-trend' method. Where this method is not suitable, Ausgrid uses either a 'bottom up' method, a 'top down' approach or 'actuarial assessment' approach.**

[3] Failure Modes Effects Criticality Analysis

average cost per task incurred during the financial year 2012-13. It is derived by dividing the total actual opex incurred by the number of completed tasks.
- Cost escalation – cost escalation is applied to the base average unit cost to calculate the forecast average unit cost for each year of the 2014-19 period.
- The average cost per task is then applied to the forecast volume of tasks to derive the total inspection forecast opex for the 2014-19 period.

### Base year – historical trending

This method is appropriate where the historical expenditure varies from year to year and exhibits a significant rising or falling trend. In this case historical trending of the costs captured during the first four years of the current 2009-14 regulatory period will determine the adjustment needed to the base year actual opex.

### Base year – historical averaging

This method is appropriate where there is significant variation in year to year expenditure and the base year is not representative of the likely future. This involves taking a historical average of the costs captured during the first four years of the current 2009-14 regulatory period and substituting the average for the base year actual opex.

This method has been used for corrective, breakdown and emergency maintenance. The use of this method has been validated by an engineering assessment which indicates that the results are consistent given the planned replacement program. This would need to be reviewed if there were significant changes to the replacement program.

### Base year – variation by volume and age profile

This forecasting method is appropriate where there is a relationship between asset age and opex, and the asset age profile is changing in such a way that the base year is not representative of expected future expenditure. The methodology uses asset age as a proxy for expected asset condition. This approach is useful when the planned capital program leads to a significant variation in the asset age profile, for example, because of a significant change from historical asset replacement rates.

It follows four steps:

1. The age profile of the asset group is calculated as at the end of a selected financial year.
2. An estimation of the variation in opex based on asset age is determined from historical expenditure records.
3. The planned asset changes, both removals and installations, as detailed within the various Area and Replacement plans, are then incorporated to determine the variation to the age profile in each year.
4. The volume of assets at each age level in the profile is multiplied by the required maintenance expenditure associated with that age for the asset group in each forecast year to determine the opex requirement.

Sensitivity analysis suggests that there are no asset classes where this effect would be material provided the existing replacement planning and asset management strategies are continued. However, this method may be required if there were substantial changes to the proposed capex program.

### 'Bottom up' method

The bottom up method essentially derives the total forecast opex by taking into account all the inputs and factors relevant to the activities being performed (for example, number of tasks, the cost types required to perform each task such as labour and materials and the price of these cost inputs).

### 'Actuarial assessment'

Costs pertaining to risk categories that are best managed through self insurance will be forecasted by reference to the benchmark developed from independent actuarial assessment

### 'Top down' approach

Ausgrid's forecast opex for the 2014-19 period is likely to contain a number of cost savings or productivity improvement.

In relation to labour costs, Ausgrid aims to offset the expected real labour costs increases in the next period with efficiency savings to ensure that labour cost increases are in line with NSW Government's wage policy. The efficiency savings therefore equal to the real labour cost increases (i.e. increases above CPI, estimated to be 2.5%).

For other cost savings initiatives, the quantum of these cost savings will be derived primarily using a 'top down' approach which sets a cost saving target that aims to minimise price impacts on our customers.

### Forecast of debt raising costs

In addition, our total forecast opex also comprise an amount for debt raising costs. Ausgrid intends to adopt the method that the AER had been using to derive this cost. That is, debt raising cost is calculated by applying a benchmark debt raising unit rate to the debt portion of our regulated asset values.

# Capital expenditure

Ausgrid will use different capital expenditure forecasting methods to match the main drivers of costs including asset condition, load growth, safety compliance and more.

## Approach to forecasting capex

The proposed method to forecast total capex for the 2014-19 period is based on the sum of eight capital plans. Ausgrid's capital plans relate to:

- Network capital plans: These set capex requirements for assets used to convey electricity through the network. There are four types of capital plans relating to network assets including the Area plans (covering major Projects), the Replacement and Duty of Care plan, the Distribution capacity plans (including reinforcements and customer connections requiring augmentation of the network), and the Reliability investment plan.
- Support (non-network) capital plans: These set out our capex requirements for assets that assist us to meet out network and corporate governance obligations, including underlying technology required to operate and manage the electricity network. Ausgrid has consolidated its requirements for support assets into four plans including the Technology plan, the Corporate Property plan, the Fleet plan and Other Support plan which includes broad based demand management, plant and tools.

## Drivers underpinning capital plans

Each of our capital plans are based on meeting one or more driver of capex. Ausgrid only invests in capital when an appropriate driver exists to enable us to meet our regulatory obligations to provide an efficient, safe and reliable network.

### Asset condition & safety

Ausgrid undertakes replacement to ensure its network infrastructure is operated effectively and efficiently. There are a number of regulatory obligations that drives Ausgrid's investment including public safety, workplace safety, and environmental legislation. The key drivers of investment are:

- Risk and cost trade-offs arising from the degradation in the condition of assets on the network.
- Safety, environmental or other asset related risks.

### Growth in peak demand for electricity

The network is augmented to connect new customers, and to address imbalances in supply and demand, taking into account the NSW Government's Design, Reliability and Planning License conditions (the NSW DRP). There are two drivers of investment:

- New customer connection – This is where a new customer connection necessitates deep augmentation of the shared network.
- Network augmentation – This is where the aggregate demand from new and existing customers in the area necessitates augmentation of the shared network.

The NSW Government has advised Ausgrid of the licence conditions that will be effective 1 July 2014. In recognition of the increased flexibility these licence conditions will permit, Ausgrid has modelled its capacity driven investment requirements using less stringent decision criteria.

### Reliability investment

Investment is also required to comply with reliability performance targets in the NSW DRP. The main driver of investment is when there is forecast a gap in meeting mandated performance targets, after having taken into account the reliability benefits of other investment programs (e.g. reliability benefits of a replacement program or area plans capex).

### Network support drivers

Investment is required in support (non-network) assets to meet network and corporate functions. Support capex includes technology, corporate property and fleet, in addition to other support activities such as plant and tools. The key drivers of investment are:

- Investment is required to support the network ;
- The condition of existing asset is forecast to be inadequate to perform its current function;
- A new compliance obligation necessitates investment in a supporting asset; and
- A supporting asset will result in an efficiency benefit, resulting in long term benefit to customers.

## Our standard methods for forecasting capex

This section provides a summary of Ausgrid's capital plans and the applicable forecasting methods.

For the majority of plans, Ausgrid has have used a 'bottom up' ('zero based') method to derive the forecast capex in its capital plans. This is consistent with a business as usual approach to developing capital forecasts. Ausgrid's method relies on the following principles for selecting efficient and prudent investment:

- Ausgrid identifies the need and required timing, in accordance with the capex drivers discussed above.
- Consideration of all feasible options to address the need, and select the option which is least cost or maximises benefits in net present terms.

**Each of our capital plans are based on meeting one or more driver of capex. Ausgrid only invests in capital when an appropriate driver exists to enable us to meet our regulatory obligations to provide an efficient, safe and reliable network.**

These options include demand management and opex substitution possibilities.

In other cases, Ausgrid has used top down approaches to derive its forecasts. This generally involves a modelling approach to estimate future capex based on 'fit for purpose' considerations such as historical expenditure, and future drivers including changes in number of connections.

The latter part of this chapter provides detailed explanation of forecast methods for each of the network and support capital plans.

As part of the recent network reforms, Ausgrid has instituted an improved Network Investment Governance process to review and rationalise our required investment program. This includes an investment prioritisation model, which produces an assessed risk ranking for all proposed capex projects and programs. This has been used in parallel with our planning processes to produce the final capital works program for the regulatory period based on acceptable level of risk. This helps to ensure Ausgrid's capital program is efficient and prudent, and meets the objective of keeping prices as low as possible.

## Key inputs of forecast methods

This section identifies key inputs into Ausgrid's capital plans including demand forecasts, customer connection growth, costing programs of works and real cost escalation.

### Spatial peak demand forecasts

Spatial demand forecasts are a key input for augmentation capex on Ausgrid's network. Underlying historic local trends based on normalisation for weather and other variables form the basis for these forecasts.

Ausgrid has modelled how historic trends will be modified by econometric factors including the increase in customer connections, government policy initiatives and changes in electricity prices. The impact to spatial peak demand as a result of our broad-based demand management program has also been included.

### Customer growth

Customer connections are a key input to deriving customer connection costs and low voltage network augmentation investment, and are a key input for spatial demand forecasts. Historical data on customer connections has been reviewed and the most recent data projections have been used to forecast residential and non-residential customer connections.

### Costing programs of works

Ausgrid has largely used historical costs to determine the expected costs of completing works, and have modified this where appropriate to reflect site specific factors. As part of the forecasting process Ausgrid has proactively considered efficiencies in design scope and delivery costs. In addition, project and program costs have considered the proportion of direct and indirect costs.

### Cost escalation

Costing projections have been escalated to reflect the expected real change in costs over the 2014-19 period. Ausgrid has developed real cost escalators by identifying the elements of costs for each of its programs, such as labour, material type and contracted labour. The real cost escalator has then been identified for each element of service using market data or economic analysis. Reflecting our commitment to offset labour cost increases through efficiency improvements, a zero real cost escalator has been applied to labour costs.

### Table 2: Ausgrid's capex forecasting methods

| Capital plans | Key forecasting methods | | Key plan drivers | | | |
|---|---|---|---|---|---|---|
| | Bottom up | Top down | Growth | Asset condition & safety | Reliability compliance | Network support |
| Area plans | ✔ | | ✔ | ✔ | | |
| Replacement and Duty of Care plans | ✔ | | | ✔ | | |
| Distribution capacity plan | | ✔ | ✔ | | | |
| Reliability investment plan | | ✔ | ✔ | | ✔ | |
| Technology plan | ✔ | | ✔ | ✔ | | ✔[4] |
| Corporate property plan | ✔ | | | | | ✔ |
| Fleet plan | ✔ | | | | | ✔[5] |
| Other Support plan | ✔ | | | | | ✔ |

## Key outputs of forecast methods

The Business Planning and Consolidation application in SAP has been used to model and consolidate the total capex forecast for each year of the next regulatory control period. The application provides the ability to develop capital plans on the basis of standardised planning estimates and project/asset volumes, as well as apply consistent assumptions relating to real cost escalation and profiles for major projects for the entire capital portfolio.

The model provides key output information such as capex expressed in different dollars, and capex by the asset classes in the AER's post tax revenue model.

## Forecasting methods for each capital plan

### Area plans

Ausgrid's Area Plans identify all augmentations and large replacements on its sub-transmission network. There are 28 separate plans, each of which addresses a geographic area of the network.

The Area Plans are long term in nature (20 years) and are based on a bottom up review of each area. The drivers of future investment are identified including demand, major customers and condition of assets. A key feature of Ausgrid's approach is to develop an optimal strategy based on addressing multiple drivers of investment.

For the purposes of the 2014-19 period forecasts, Ausgrid has conducted additional reviews to incorporate more detailed design estimates, prioritisations, and most recent information on asset condition and demand forecasts.

### Replacement and duty of care plans

Ausgrid's Replacement and Duty of Care Plans identify all replacements of distribution network assets excluding those already included in the Area Plans.

Our method largely involves a 'bottom up' review of asset condition for different technology types on the network. A 15 year long term forecast is developed to address replacement needs for assets. This is based on optimising the trade-off between maintenance and repair (opex) costs and replacement costs (capex), modified by consideration of loss of supply, safety, environmental and other risks.

For the 2014-19 period forecasts Ausgrid has used latest information on condition, risks and costs.

[4] The forecast includes an number of initiatives to support productivity savings in the network business.

[5] Fleet forecast capex includes the benefits from initiatives to reduce fleet cost. These initiatives involve extension of replacement cycle, fleet standardisation and improved buying power to realise maximum value.

### Distribution capacity plans

Ausgrid's distribution capacity plans identify forecast capex for augmentations on the distribution network. This includes forecast capex relating to:

- New customer connections.
- Reinforcement of the existing network.

It is impractical to develop medium term forecasts of requirements using a 'bottom up' method, as Ausgrid does not know precisely where new customers or localised demand will occur. For this reason, high level modelling has been used as the primary means to forecast augmentation requirements on the distribution network.

Models are based on analysis of expenditure in previous periods, and factors such as changes in demand and customer connections at a macro, regional or area level. Forecasts for the 2014-19 period have taken into account latest information on key factors and costs.

### Reliability Investment Plan

The Reliability Investment Plan includes any additional capex specifically required to meet reliability performance standards in the NSW DRP and customer expectations. These relate to average and individual reliability performance of 11kV feeders and feeder segments.

A modelling approach has been used to determine expenditure requirements. This includes forecasting future average reliability performance of each feeder category with allowance for planned capex in the 2014-19 period. Reliability improvement project requirements are identified to address any forecast gap between the reliability forecasts and the standards. Ausgrid also forecasts requirements for reactive reliability improvement projects at the individual feeder and feeder segment level based on historical performance. Investment requirements are then developed based on average historical reliability project costs.

### Technology plan

The Technology plan comprises infrastructure, platforms, applications and devices required to support Ausgrid's network and corporate functions. This includes the operational technology required to control and manage the electricity network and demand. The plan also includes a small number of projects aimed at improving efficiency in business functions.

Ausgrid has largely used a bottom up approach to forecast capex on technology assets. This includes assessing needs with reference to key business processes such as asset management, workforce management and corporate functions. The most efficient option is then assessed to address the need, including assessing opex-capex substitution possibilities.

Ausgrid has developed a bottom-up program of works that identifies the supporting technology requirements for the broad based demand management program[6] (non-network alternatives).

The approach for 2014-19 period has considered key changes in our business environment and potential efficiencies in the IT service.

### Corporate property plan

This plan includes corporate property to support the housing of staff including depots and office accommodation. Ausgrid has largely used a bottom up approach to forecast capex for corporate property assets. This includes assessing the need with reference to the current condition of housing facilities, and key changes in its business environment. The most efficient option is then selected to address the need, including opex-capex substitution possibilities.

### Fleet plan

This plan includes fleet such as vehicles and equipment used to provide the electricity network services. A 'bottom up' review of Ausgrid's requirements for the 2014-19 period has been predominantly used to select the most efficient option to address the need.

### Other support capex plan

This includes other efficient capex required to support the electricity network such as plant and tools. Plant and tools have been estimated using a modelling approach that takes into account historical levels of capex.

**The Reliability Investment Plan includes any additional capex specifically required to meet reliability performance standards in the NSW DRP and customer expectations.**

[6] We note that the broad based demand management program comprises opex and capex. Only the capex related element has been included in the forecast capex.