

A SAFE, RELIABLE AND COST EFFECTIVE ELECTRICITY NETWORK

ActewAGL Distribution
Electricity Network 2019–24 five year plan

Issues Paper
December 2016



ActewAGL

for you

actewagl.com.au/consumerengagement

INTRODUCTION

Every five years, ActewAGL Distribution is required to prepare a detailed plan explaining how we will operate and maintain the electricity network to meet the future demand of our customers. This five-year plan is submitted to the Australian Energy Regulator (the Regulator) for review.

We are currently preparing our plan for the 2019/20–2023/24 years ('2019–24 Plan'). We are required to submit our proposed plan to the Regulator by 31 January 2018.

This Issues Paper is the first step in ensuring the decisions made on future services, costs and prices take into consideration our customers' preferences.

Over the next year our customers and other stakeholders will have opportunities to understand our plans and provide input. At the end of this paper we provide information so that you can register to stay informed of our consultation activities and have your say about ActewAGL Distribution into the future.

Our 5 year vision

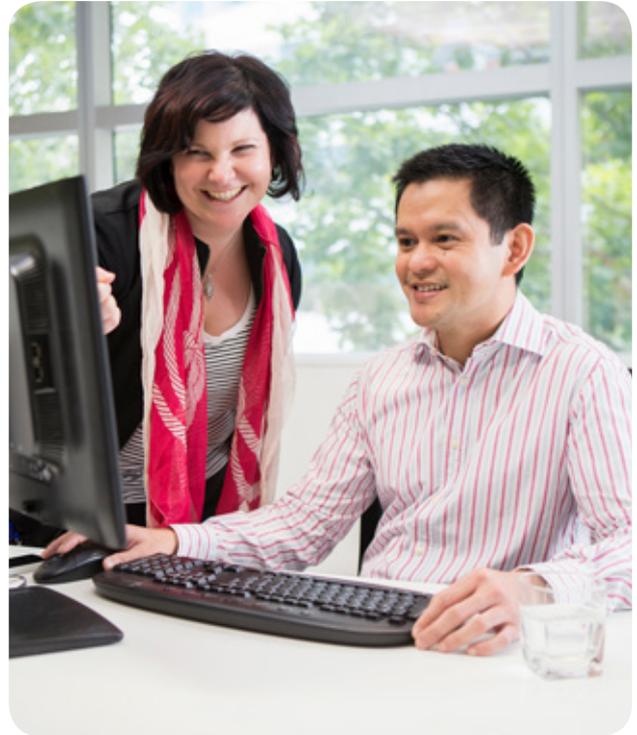
ActewAGL recently celebrated 100 years of operation in Canberra and is proud to currently be one of the most reliable electricity networks in Australia. This is an achievement we seek to maintain as we move into our next five year regulatory period.

Who is ActewAGL Distribution?

ActewAGL Distribution owns and operates the electricity and gas networks within the ACT. We are responsible for the power lines and other infrastructure used to distribute electricity through the network to your home or business. ActewAGL Distribution undertakes electricity network maintenance, connects new customers, plans and constructs new infrastructure and provides emergency responses.

The cost of the services that ActewAGL Distribution provides is passed on to our customers through the retail companies that you buy your electricity from, such as ActewAGL Retail, Energy Australia or Origin Energy.

ActewAGL Retail is a separate and distinct business to ActewAGL Distribution.



ACTEWAGL'S MISSION STATEMENT

To offer our customers the safe, reliable and sustainable energy solutions they want.

Our 2019–24 Plan will progress this mission, while seeking to further strengthen ActewAGL Distribution's core principles, which include the following.

- Always give first priority to the safety of our staff and customers.
- Recognise that it's all about the customer.
- Deliver great user experiences – tailored and seamless.
- Create solutions that give our customers choice and control.
- Take opportunities and informed risks, and innovate based on knowing our customer.
- Accept that we now operate in a highly contestable and competitive world.
- Support our local communities.

While our 2019–24 Plan will progress our mission and core principles, it will also need to respond to the significant changes occurring across the Australian energy industry. Technological and lifestyle changes impact on the daily operation of electricity networks and have significant implications for how we plan the long-term sustainability and renewal of our network. Today's electricity network is different from ten years ago and will be significantly different again in ten years' time.

Lifestyle changes have led to increased use of air conditioners and other electronic equipment as well as greater customer interest in energy usage information. Over the past five years, the adoption of more energy efficient solutions has escalated, with 15 per cent of Australian households installing rooftop solar photovoltaic (PV) panels – that's one in seven households¹. As at June 2015, there were 10,175 solar PV connections in the ACT under the feed-in tariff scheme², representing a total of 26 MW of installed capacity. At the same time, 18.8 MW of solar capacity had been installed outside of the scheme since it was closed to new applicants in July 2011³. In future, the falling price of battery storage and take up of electric vehicles will present new challenges and opportunities for electricity network businesses, such as ActewAGL Distribution.

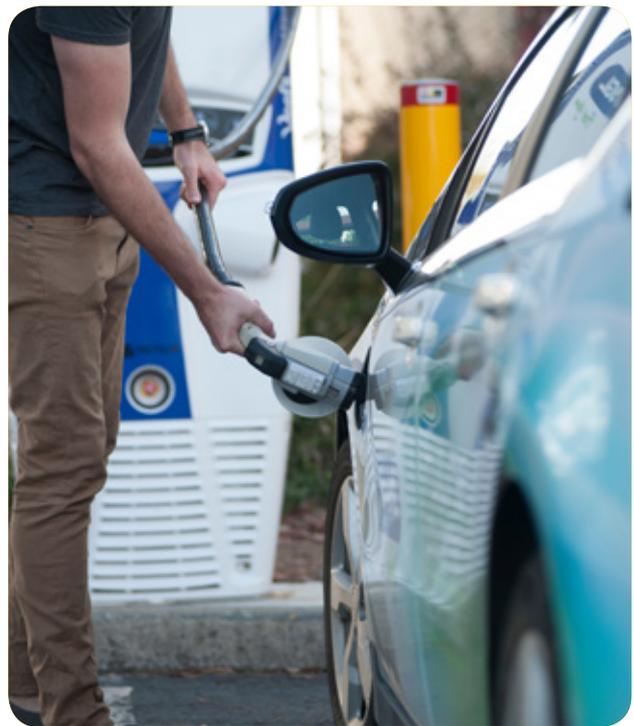
In addition, **micro grids**, where localised areas have their own power resources and generation, are being more readily considered for new developments. We are expecting to see the first micro grid in the ACT in the upcoming regulatory period.

As a city, Canberra strives to be sustainable with **renewable energy** proposed for the suburban developments at West Belconnen and Denman Prospect. With a renewable energy target for the ACT of 100 per cent by 2020 set by the ACT Government, large scale renewable penetration has increased in the ACT⁴.

At a national level over the last five years, the first commercial solar farms have opened and wind farms continue to be built, with Australia currently ranked 11th in the world for wind generation per capita⁵. These trends are expected to continue, adding to the challenges that ActewAGL Distribution will face in the 2019–24 period.

The significant changes occurring in the Australian electricity market are driven by changing consumer attitudes, technological developments and regulatory and policy decisions. Energy flows in the supply chain are no longer 'one-way' with a greater adoption of distributed generation. Regulatory and technological changes are facilitating customers' development of a better understanding of how their electricity use impacts on the network. This improves customers' ability to change how and when they use electricity which can potentially lead to greater control over their bills.

Demand management has become an important tool for ActewAGL Distribution in delivering efficiencies using solutions other than network expansion. Customers and suppliers involved in successful demand management benefit from savings incurred from the deferral of more costly network solutions. This approach reduces the cost of maintaining the network and results in lower electricity costs for all customers.



Electric vehicle getting recharged at an ActewAGL Rapid Charging Station.

1 Australian Energy Council, *Renewable Energy in Australia – How do we really compare?*, page 3.

2 On 1 March 2009, the ACT Government introduced a scheme through which premium feed-in tariff (FiT) payments can be made to the owners of small and medium-scale solar installations.

3 ACT Government, Environment and Planning Directorate, *Review of the Electricity Feed-in (Renewable Energy Premium) Act 2008*, August 2015.

4 ACT Government, *Canberra 100% Renewables*, http://www.environment.act.gov.au/__data/assets/pdf_file/0007/987991/100-Renewal-Energy-Tri-fold-ACCESS.pdf

5 Australian Energy Council, *Renewable Energy in Australia – How do we really compare?*, page 2.

OUR ELECTRICITY NETWORK

ActewAGL Distribution operates and maintains a network of poles, wires, underground cables, transformers and other equipment to distribute electricity safely and reliably to around 180,000 homes and businesses.

The ActewAGL Distribution partnership is equally owned by Jemena Networks (ACT) Pty Ltd and Icon Distribution Investments Ltd (a subsidiary of Icon Water Ltd).

The ActewAGL Distribution network is an essential part in the process of moving electricity from where it is generated to where it is used by our customers as illustrated in Figures 1 and 2.

Figure 1: The energy market of the future

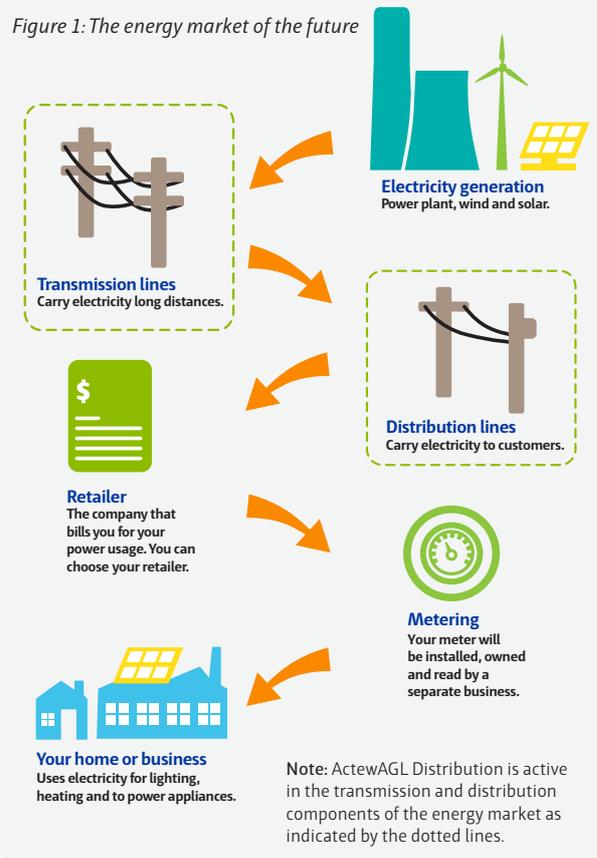
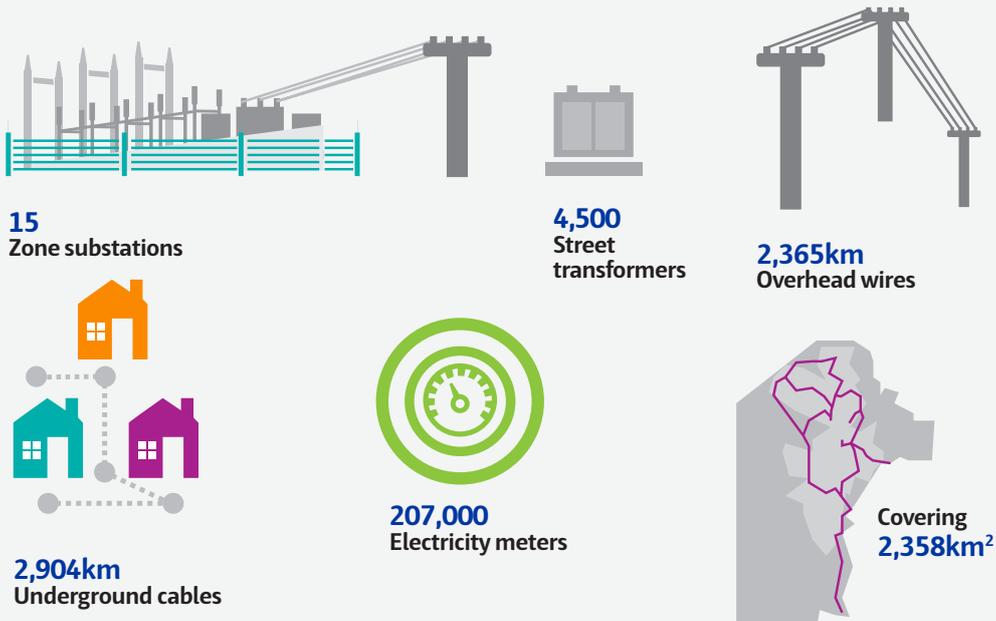


Figure 2: ActewAGL Distribution's network assets



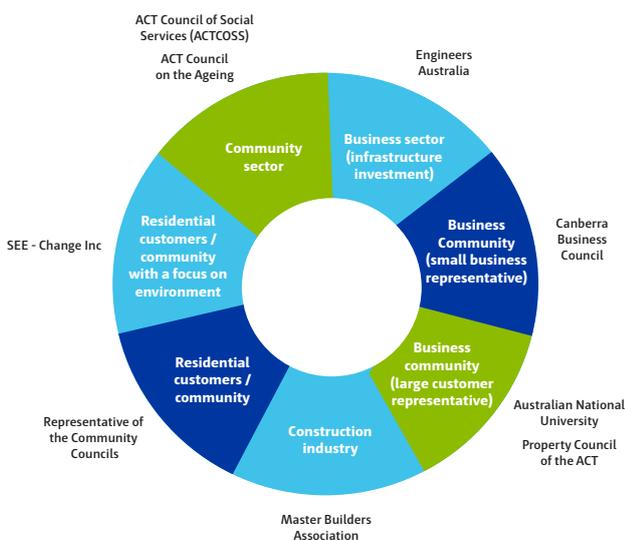
ActewAGL Distribution provides network services to electricity retailers in the Canberra region and is increasingly engaging with a number of local energy producers including household based solar photovoltaics (PV) and other generators embedded within the network. ActewAGL Distribution supplies electricity to a range of customers as described in Figure 3. As we prepare our 2019–24 Plan, we will be actively seeking feedback from customers, retailers and other stakeholders through a range of activities including surveys, workshops, retailers and other stakeholders papers and meetings.

As we prepare our 2019–24 Plan, we will also be seeking feedback from the Energy Consumer Reference Council (ECRC). The ECRC is an independent forum providing representatives of the ACT community (shown in Figure 4 below) with an opportunity to provide considered input into operations and long term planning of ActewAGL Distribution. The ECRC will enable direct feedback from consumer groups to provide input to the development of our 2019–24 Plan.

Figure 3: ActewAGL Distribution customers



Figure 4: Members of ActewAGL Distribution’s Energy Consumer Reference Council



What makes up your current electricity bill?

Electricity bills are made up of several components. The network component covers the poles and wires that are required to deliver your electricity. The retail component covers the retailer's costs, including the actual cost of purchasing the electricity.

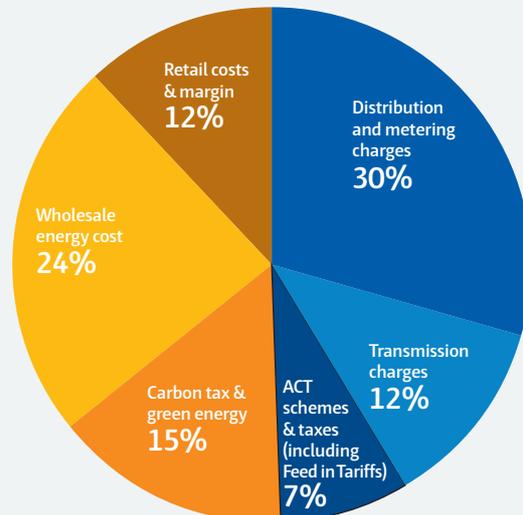
Specifically, the **network component** of the bill includes the following components.

- **Distribution costs** – poles and wires used to deliver electricity from the electricity substations to your home or business.
- **Metering costs** – providing and operating electricity meters on premises⁶.
- **Transmission costs** – delivering electricity from the power plants through high voltage lines to substations⁷.
- **ACT schemes and taxes** – the Energy Industry Levy, the Utilities Network Facilities Tax and the cost of funding Feed in Tariff payments for both small and large scale solar and wind. With a renewable energy target of 100 per cent by 2020, this component of the average electricity bill is expected to rise⁸.

Your electricity bill also includes a **retail component** which includes wholesale energy costs (purchasing electricity from generators), green energy charges (resulting from government energy saving programs), ACT Government's Energy Efficiency Improvement Scheme, and retail costs and margins (reflecting the retailer's operating costs).

It is important to note that it is the network component of your electricity bill that is determined as part of our five-year review process.

Figure 5: Components of average annual electricity bill (2014/15)



Source: ActewAGL Distribution, 'Subsequent Regulatory Proposal 2015–19', June 2014, page 4



⁶ Note that structure of metering charges may change in the next regulatory period (2019–24) due to the Power of Choice regulatory changes discussed on page 8.

⁷ Transmission costs include the cost of transmission assets owned by ActewAGL Distribution, and those of transmission network providers such as TransGrid.

⁸ ACT Government, "ACT to be powered by 100% renewable energy by 2020", 29 April 2016

REGULATORY REVIEW

As many of the services ActewAGL Distribution provide to our customers are not subject to competition, the Regulator makes decisions regarding the level of revenue, average revenue or prices to apply over a regulatory period (five years).

2019–24 Regulatory Proposal Review Process

Our five year plan takes the form of a regulatory proposal that is submitted to the Regulator who then determines the level of revenue (allowable revenue) we can collect from our customers.

In determining our allowable revenue, the Regulator considers the following factors.

Operating expenses – how efficiently we operate and maintain the electricity network; what levels of service, reliability and safety we provide.

Capital investment – how we plan to invest in the electricity network for the long term and the costs of that investment, including funding costs and depreciation.

Tariffs and demand – what types of pricing, or tariff options we provide and what we forecast as the likely future demand for our electricity network services.

It is important that we take time to provide information to our customers and seek their feedback on our plans for the future. An overview of the timing and associated process is provided in Figure 6 on the following page.

The Australian Energy Regulator

The Australian Energy Regulator regulates the Australian energy markets and networks, including network businesses such as ActewAGL Distribution, to ensure they are operating efficiently and charging appropriate prices for their services.

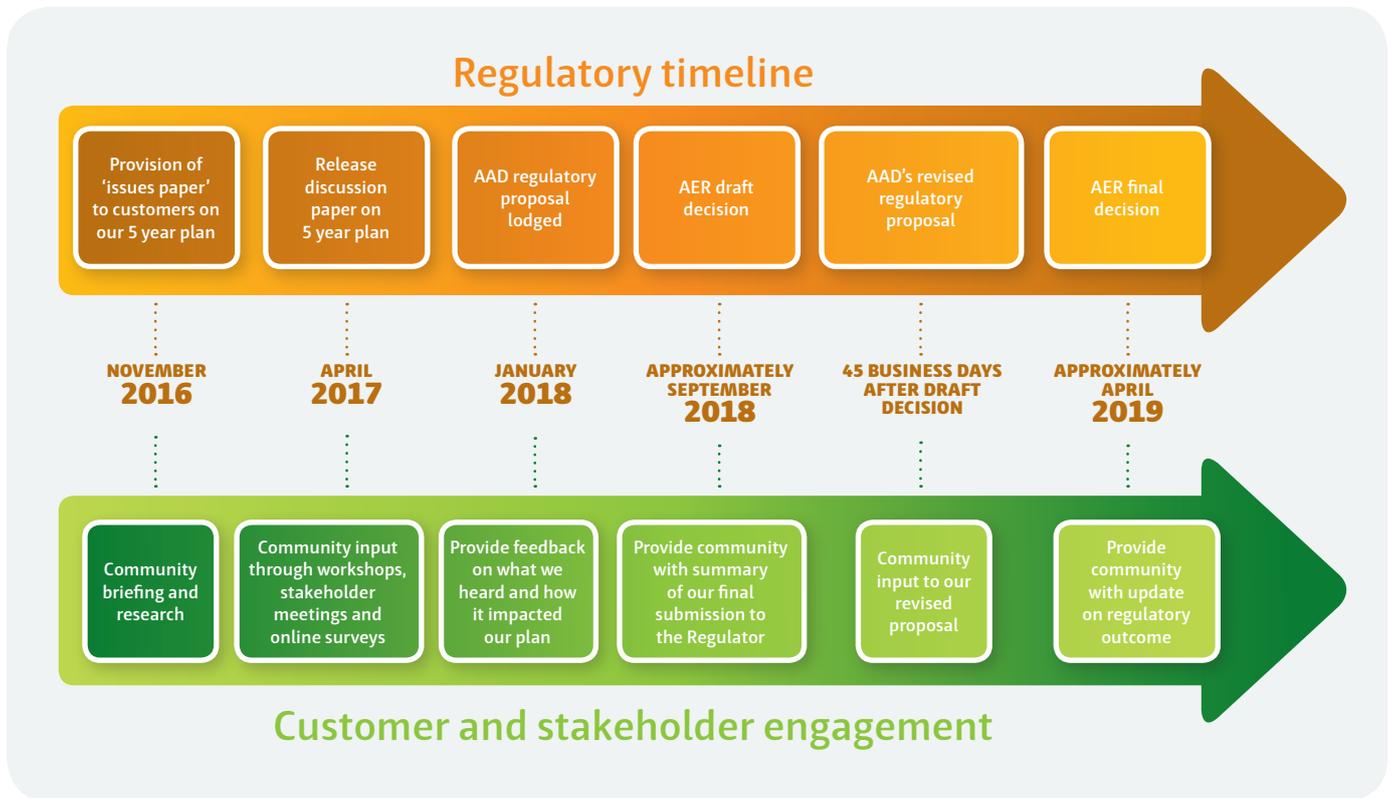
The Regulator will review our five year plan to check that it meets the National Electricity Law and associated National Electricity Objective to 'promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers with respect to:

- price, quality, safety, reliability and security of supply of electricity
- the reliability, safety and security of the national electricity system.⁹

The outcome of this review will determine the revenue that ActewAGL Distribution is able to collect from our electricity customers for the years 2019–24.

9 National Electricity Objective as stated in the *National Electricity Law (National Electricity (South Australia) Act 1996*.

Figure 6: Overview of regulatory review timeline



Regulatory changes

In preparing our regulatory proposal we need to take into consideration a range of changes in national and ACT regulations and the associated obligations these have for our business. Some of these regulatory changes are discussed below.

Power of Choice is a recent regulatory change that includes a package of reforms aimed to facilitate change in the electricity market over the next 15–20 years. The Power of Choice reforms were presented to the COAG Energy Council for consideration in 2012. Since then, there have been several rule changes to accommodate the requirements set out in Power of Choice. Some of the reforms that have impacted ActewAGL Distribution to date include:

- distribution network pricing arrangements
- expanding competition in metering and related services
- customer access to information about their electricity consumption.

The metering changes activated by Power of Choice reforms are expected to take effect from 1 December 2017. The new rules require that all new and replacement meters (even those for small customers) are 'smart meters'. The impact of this change will need

to be factored into our 2019–24 Plan. Further information on Power of Choice and its impact on Canberra, can be found on our website actewagl.com.au

The Australian Energy Regulator is currently developing an electricity distribution **ring-fencing guideline** to apply across the national electricity market. Ring-fencing refers to the separation of business activities related to the supply of regulated electricity distribution services from contestable services. The aim of ring-fencing is to:

- prevent cross subsidies
- prevent discrimination that could provide a competitive advantage to affiliated entities
- ensure commercially sensitive or customer confidential information is kept confidential and is handled appropriately.

ActewAGL Distribution already complies with ACT jurisdictional ring-fencing obligations. The new regulatory guidelines will be more detailed and apply in a consistent manner to all electricity distribution businesses. The new ring-fencing guidelines are due to be released by the Australian Energy Regulator by 1 December 2016. The full implications of these guidelines are unclear at this stage.

SAFETY, RELIABILITY AND CUSTOMER SERVICE

At ActewAGL Distribution, safety of our staff and customers is a top priority. Our customers have told us that safety and reliability of the energy network are important, while we are also reminded by our customers and stakeholder representatives that the cost of network services is an important factor.

Over recent years, we have undertaken a significant cultural transformation towards a proactive safety culture where safety is becoming more embedded in how we conduct our everyday business.

ActewAGL Distribution is proud to be one of Australia's most reliable electricity networks.

ActewAGL Distribution has been subject to the Regulator's Service Target Performance Incentive Scheme (STPIS) from 2015/16. It will remain in place for the remainder of the current regulatory period ending in 2018/19.

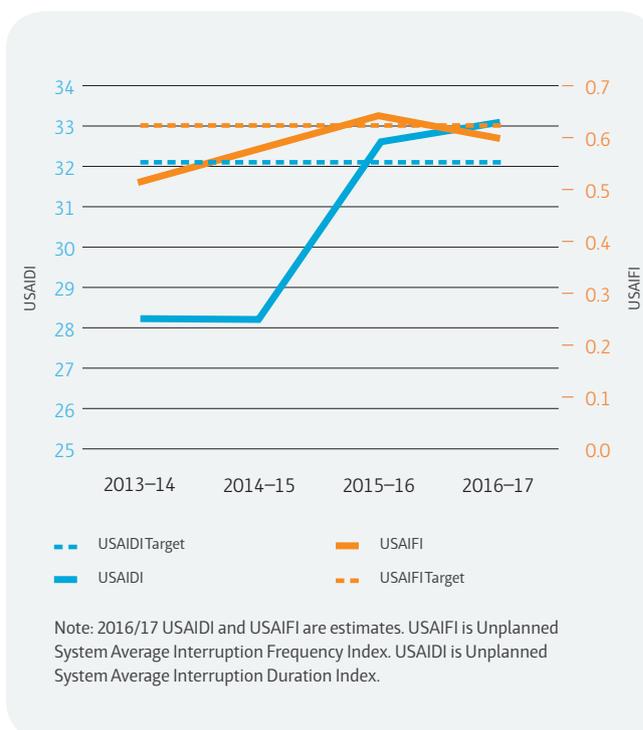
The main reliability components are:

- **Unplanned System Average Interruption Duration Index (USAIDI)** – the average minutes spent off supply due to unplanned supply interruptions.
- **Unplanned System Average Interruption Frequency Index (USAIFI)** – the average number of unplanned supply interruptions experienced by customers.

For the current regulatory period, the Regulator has set reliability targets based on the historical five year averages for each component. Given our historically high performance on reliability measures, the targets are set high to encourage further improvements.

The aim of the STPIS is to provide a financial incentive to ActewAGL Distribution to beat the annual targets, and a penalty for failing to meet them. As shown in Figure 7, the average unplanned minutes off supply (USAIDI) increased over the most recent years to slightly above the STPIS target in 2015/16 and 2016/17, peaking at around 33 minutes. The average number of unplanned outages (USAIFI) also increased to slightly exceed the STPIS target in 2015/16 before improving to slightly below the target of 0.6 unplanned outages per customer per year.

Figure 7: Electricity outage statistics



To preserve the street scape the ActewAGL Distribution electricity network has extensive pole and wire installations in customer back yards. Also, 55 per cent of our network is installed as underground cable. While providing visual benefits and protection from bad weather conditions (in the case of underground cable), these arrangements add maintenance and operational challenges and costs to delivering a high performance network.

Our customer service standards are also guided by the National Energy Customer Framework which regulates the sale and supply of electricity and gas to customers. It is focussed on customer protections and our obligations to our customers.

It is important that we continue to meet our customers' service level expectations; however there is an important correlation between safety, reliability, customer service and the cost of providing network services. Our 2019–24 Plan will seek to get the balance right between levels of safety, reliability and customer service and the impact on the cost of delivering electricity network services.

WE WANT YOUR FEEDBACK



What are your views on the trade-off between reliability, customer service and cost of electricity distribution?

In your experience, is the current balance between cost and reliability of service acceptable?



MEETING THE GROWING INFRASTRUCTURE NEEDS OF OUR COMMUNITY

As Canberra’s population continues to grow our electricity network needs to accommodate this growth. This growth can be generated from new residential developments in areas such as Gungahlin, Molonglo and West Belconnen, as well as the impacts of urban infill which leads to more development, more people and therefore more demand on network capacity in existing areas.

How we accommodate this growth across our network is a significant part of our 2019–24 Plan. Our priorities around safety, reliability and service delivery underpin how we invest in operating and expanding our network.

Over the five years to 2015/16 our operating expenditure (including government charges) has averaged \$74 million a year, and we have invested approximately \$85 million a year in capital projects.

Figure 9: Breakdown of operational expenditure

Operating expenditure

Operating expenditure relates to the regular and on-going maintenance and operation of the electricity network.

During the 2015–19 five year plan we have focused on a reliability-centred maintenance program. During 2015/16, we undertook approximately 11,000 pole inspections as well as condition assessments on other network elements such as underground cables, transformers, circuit breakers and switches. Our annual investment in network operations includes management of vegetation encroaching on our overhead electricity distribution network, and maintaining a comprehensive bushfire mitigation and management program.

As part of our network maintenance program we review and replace ageing assets, such as the recent replacement of an 11kV electricity feeder in the northern Canberra CBD. The cable and feeder were over 40 years old and had increasing reliability issues, so it was more cost-effective to replace the feeder rather than continue with repairs.

The diagram below provides a simple summary of how our operating expenditure was apportioned over the past five years.

FOR EVERY \$100 OPERATIONAL EXPENDITURE ON THE ELECTRICITY NETWORK...

\$65

NETWORK OPERATIONS AND MAINTENANCE



Operating the network requires 24 hour 7 day a week monitoring and control. Maintenance is important to ensure the network is in good condition and some of this work involves vegetation management, emergency response and responding to customer enquiries.

\$28

BUSINESS SUPPORT COSTS



This includes costs related to corporate services, legal and business services functions.

\$7

OTHER



Other costs are associated with metering, fee-based and quoted services.

These figures are calculated from averages over the five year period ending 2015–16. Payments to other transmission Network Service Providers is excluded.

Over the next five years, ActewAGL Distribution intends to set the following priorities for operating expenditure and to explore opportunities to improve and innovate.

- Maintaining the network. This will involve preventative maintenance (such as testing, assessing, and servicing) and corrective maintenance (repairs) of our electricity network assets to keep them in good condition. This is vitally important to ensure the safety of the public and our staff, and allows the network to continue to operate reliably.
- Inspecting the network to uphold safety and quality.
- Progressing strategic projects such as bushfire mitigation.
- Responding to network faults and emergencies 24/7.
- Facilitating changes in technology including batteries, smart meters and electric vehicles which impact our network and ensuring it is ready for the opportunities new technology presents, such as the establishment of micro grids and increased embedded generation.

WE WANT YOUR FEEDBACK



Are there other areas of network operations and maintenance that you think are important?



Capital investment

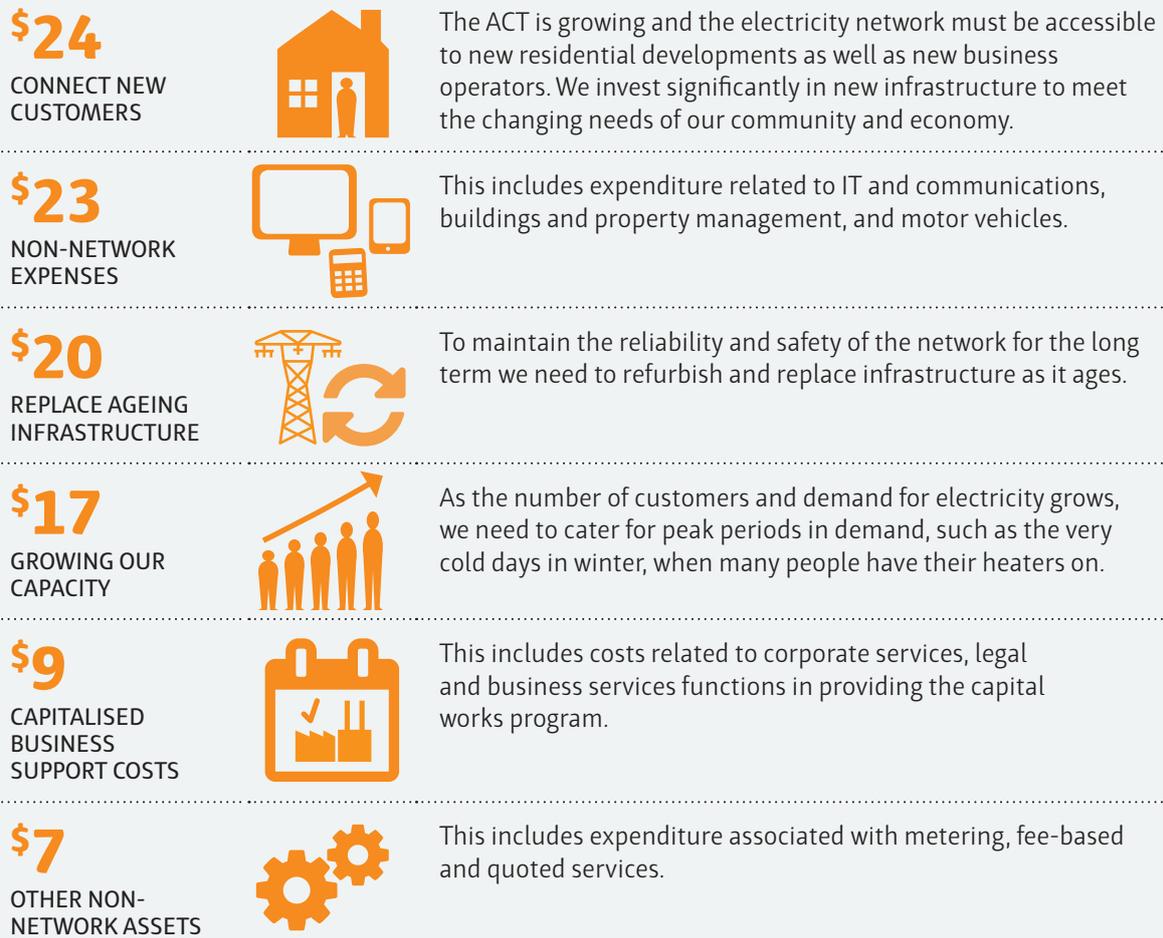
Capital investment relates to how we plan to invest in the electricity network for the long term and the costs associated with that investment. It also includes operational technology to ensure we remain functional and innovative. Capital investment also includes replacement and renewal of ageing assets; customer initiated works (such as reticulation of new estates and connection of new customers); and implementing information technology and business systems. Our investment in technology and systems has been significant over recent years. Attention on capital investment projects often focuses on network augmentation to ensure capacity and reliability of the network are maintained. Over the past five years we have undertaken the following capital investment projects of this type.

- Construction of a new East Lake Zone Substation (pictured) to address growing demand from Fyshwick, Canberra Airport and South Canberra.
- Commencement of an optical fibre installation to facilitate smart networks and upgrade of network protection systems.
- Completion of upgrade of 132 kV transmission lines from Williamsdale Bulk Supply Substation to Theodore Zone Substation to improve capacity and security of supply to the ACT.
- Replacement of a 66/11 kV power transformer at Fyshwick Zone Substation.
- Replacement of ageing assets such as 132 kV circuit breakers at various zone substations.
- Implementation of Advanced Distribution Management System which provides improved network operational and outage management.

The diagram following summarises our capital investment over the past five years.

Figure 10: Breakdown of capital investment

FOR EVERY \$100 CAPITAL INVESTMENT IN THE ELECTRICITY NETWORK...



These figures are calculated from averages over the five year period ending 2015–16

Our broad capital investment priorities for the next five year period include the following.

- Potential network augmentation, including new 132kV zone substation at Molonglo and transmission lines, replacement of transformers in several substations and upgrade to communications capability across the network.
- Installation of network capability in new developments such as Moncrieff, Throsby, Taylor, Denman Prospect and Whitlam (Molonglo Valley), Strathnairn and Macnamara (West Belconnen), Canberra CBD urban renewal, Gungahlin and Tuggeranong Town Centres.
- Supporting the development of stage 1 of Canberra's light rail network and large commercial loads such as data centres.
- Continuing the long term project to establish security of 132 kV supply to the ACT to further enhance network reliability and sustainability.
- Continued replacement of assets (based on their condition), such as distribution poles.
- Investment in smart grid technologies for network smart grids which may be implemented in the future, such as at Denman Prospect.

WE WANT YOUR FEEDBACK



Are there other areas of long term capital investment that you think are important?

ELECTRICITY TARIFFS AND DEMAND

As technology changes and the demand placed on electricity networks continues to change, electricity network businesses are reviewing the way we charge for our services and how that relates to the demand customers place on our network. This is part of the Power of Choice reforms designed to empower energy consumers to more actively participate in the energy market.

New pricing requirements established in the National Electricity Rules require electricity distribution businesses to ensure that the network tariffs (pricing plans) that we offer to customers (via retailers) reflect the costs of providing services to those customers. This is known as cost reflective pricing.

We undertook a network tariff review during 2015 and, based on feedback from a range of customers and stakeholders, refined our network tariff structure. The changes are designed to provide more opportunities for customers to save on their energy bills in response to modifying how much and when they use electricity. These changes were included in our Tariff Structure Statement which was submitted to the Regulator on 4 October 2016. The final determination by the Regulator will be released in February 2017 and will provide a basis for network prices in 2017/18 and 2018/19. A number of papers on the Tariff Structure Statement can be found on our website at www.actewagl.com.au/Consumer-engagement

In our 2019–24 Plan we will continue to work with our customers to continue moving towards more cost reflective network tariffs. This will enable the existing network to be used more efficiently by potentially reducing the need for new capacity to meet peaks in use. A new Tariff Structure Statement will be prepared as part of our 2019–24 Plan. During 2019–24, our electricity network tariff priorities are as follows.

- Continue to provide cost reflective tariff options for our customers.
- Transition customers to more cost reflective tariffs in a fair and reasonable way.
- Utilise the changing meter requirements (smart meters in the ACT) to send price signals that benefit customers by enabling them to manage their usage and therefore their bills.
- Provide clear information to help customers understand how to take advantage of new tariffs by managing their usage and therefore reducing their energy bills.
- Continue to consult with customers and retailers about the way to further improve the price signals we send customers through network tariffs.

What does cost reflective mean?

Cost-reflective is a term used to explain the relationship between the cost of providing electricity network services and the price charged to the customer for that service.

An example of cost-reflective pricing is the types of plans offered by internet service providers. When you are purchasing internet services you select a plan that takes into consideration both the speed of your download as well as your download capacity or limit. As a result, the price you pay reflects the cost of providing capacity at a particular time (to maintain the speed of your connection) as well as how much you use it (the amount you download).

In the electricity context, cost-reflective pricing is about ensuring the charges to customers reflect the economic cost of providing services to that customer (both for usage and network capacity).

WE WANT YOUR FEEDBACK



What should we take into consideration when planning new tariffs?

What are your thoughts on how distribution tariffs should reflect customers' use of the network?

What do you see as the information priorities for customers to help them manage their energy consumption and save money on their bills?

STAYING IN TOUCH AND PROVIDING FEEDBACK

This paper is the first of a number of opportunities for our customers to provide feedback on our electricity network 2019–24 Plan.

We will also be seeking feedback from our Energy Consumer Reference Council to provide input to the development of our 2019–24 Plan.

During 2017 we will be hosting community forums and workshops and issuing further discussion papers for our customers to review. If you would like to register interest to participate in these activities please email consumerfeedback@actewagl.com.au

Feedback on this paper can be provided directly in writing to:

Peter Cunningham
Regulatory Compliance Manager
PO Box 366
Canberra ACT 2601
consumerfeedback@actewagl.com.au



WE WILL LISTEN



Comments and feedback received on this issues paper will be considered by our team working on regulatory submission. An important part of the final stages of preparing the plan for submission to the Regulator is to consider how we have incorporated feedback from our customers and the broader community.

To learn more about our community engagement program visit actewagl.com.au/consumerengagement