STATEMENT OF STEPHEN PATRICK DEVLIN OF ACTEWAGL DISTRIBUTION

I, Stephen Patrick Devlin, General Manager, Asset Management at ActewAGL Distribution of 40 Bunda Street, Canberra of the Australian Capital Territory, say as follows.

Position

1. I am the General Manager, Asset Management at ActewAGL Distribution responsible for all network infrastructure (Electricity & Gas) within ActewAGL Distribution.

2. As the General Manager, Asset Management I am responsible for Asset Management accountability of the electricity distribution network within the Australian Capital Territory, and the gas distribution network within the Capital Region through a managed services agreement and the Enterprise Strategic Asset Management.

3. One of the fundamental objectives of my role is to provide value to customers in a manner that does not compromise safety, network reliability or sustainability. The position description for my role is attached as **Appendix 1**.

Educational background and professional experience in the energy sector

4. I hold a Bachelor of Engineering (Electrical), from the University of Queensland (1977).

5. I also hold a Master of Business Administration degree from James Cook University (2004), a Master of Commercial Law from Deakin University (2007) and a Juris Doctor, from the University of Canberra (2012).

6. I joined ActewAGL Distribution in March 2008. Since that time I have held various roles at ActewAGL Distribution including:

   6.1 Group Manager, Electricity Assets, responsible for the management of all electricity assets within the Networks Division. This role included responsibility for asset management, system control and major projects and regulatory affairs responsibilities.

   6.2 Manager Major Projects, Networks Division, responsible for the delivery of all major infrastructure projects within the Networks Division in the Electricity Network and the Gas Network.

7. My curriculum vitae is attached as **Appendix 2**.

ActewAGL Distribution

8. ActewAGL Distribution owns, operates and maintains the network of poles, wires, transformers and other equipment used to distribute electricity safely and reliably to more than 177,000 customers and businesses in the Australian Capital Territory (network). It is the sole provider of

electricity distribution services in the ACT. The network has operating voltages of 132/66/22/11 kilovolts and 415/240 volts.

9. A map of the network is set out in Figure 6.1 of the ActewAGL Distribution Subsequent Regulatory Proposal. The network area spans 2,358 square kilometres.

10. The network serves an important role in reliably supplying several of Australia's major political, administrative and strategic institutions and its largest inland city.

11. ActewAGL Distribution customers are served via a network with a regulated asset base valued at $898 million (as at 1 July 2014) utilising a combination of approximately 490 staff and 146 external contract providers.

12. In the National Electricity Market (NEM), ActewAGL Distribution is the smallest distributor by customer numbers and maximum demand and the second smallest network in terms of kilometres of line length.[1] But, ActewAGL Distribution is currently serving 40% more customers and maintaining a 40% higher asset base than it was in 1999/2000.

13. Since its formation in October 2000, ActewAGL Distribution has consistently provided the most reliable electricity distribution services. I am aware based on customer consultation data and surveys that our customers are satisfied with our performance.

Legislation framing ActewAGL Distribution's responsibilities

14. ActewAGL Distribution is subject to a broad range of Commonwealth and territory-specific laws, as well as a number of codes and procedures established by various regulators which drive operating costs. These obligations fall under the following broad categories:

    14.1 Industry obligations which are mainly associated with the characteristics of ActewAGL Distribution as the sole provider of electricity distribution services in the ACT. These include many of the obligations under the *Utilities Act 2000* (ACT), *Territory-owned Corporations Act 1990* (ACT), Utility Services Licence, Consumer Protection Code, and Ring-fencing guidelines.

    14.2 Safety obligations which are associated with the safety risks involved in owning an electricity network, and the procedures and processes required to operate, maintain and build network assets and ensure employee and community safety. Relevant instruments include the *Work Health & Safety Act 2011* (ACT), the *Electricity Safety Act 1971* (ACT), the *Building Act 2004* (ACT), the *Construction (Occupations) Licensing Act 2004* (ACT), the *Scaffolding and Lifts Act 1912* (ACT), the *Dangerous Substances Act 2004* (ACT), the *Crimes Act 2000* (ACT), the *Utilities Act 2000* (ACT), and regulations, codes and procedures under these Acts. These obligations drive both capital and operating costs.

[1] AER 2013, State of the Energy Market 2013, p 63.

14.3 Environment, emergency and heritage obligations which relate to the operation of ActewAGL Distribution in the ACT environment, its responsibilities to prepare for, and act in the event of, an emergency, as well as heritage issues. Obligations arise from the *Environment Protection Act 1997* (ACT), the *Litter Act 2004* (ACT), the *Planning and Development Act 2007* (ACT), the *Tree Protection Act 2005* (ACT), the *Nature Conservation Act 1980* (ACT), the *Emergencies Act 2004* (ACT), the *Heritage Act 2004* (ACT) and the *Native Title Act 1993* (Cwth). Obligations under these acts, and associated regulations and codes, drive both capital and operating costs. ActewAGL Distribution has dual planning accountability to the ACT government (ACT Planning and Land Authority) and the Australian government through the National Capital Authority (NCA). The NCA manages the Australian Government's continuing interest in the planning and development of Canberra as the Australian National Capital. Obligations to the NCA arise under the *Australian Capital Territory (Planning and Land Management) Act 1988.* There are designated commercial and residential areas, with limited mixed development, restrictions on the location of substations and given Canberra's status as the "Bush capital", and a relatively high concentration of urban vegetation.

14.4 Market obligations which relate to the role of ActewAGL Distribution as a distribution network service provider in the NEM. These obligations include compliance with the National Electricity Law and National Electricity Rules, and policies and procedures developed by the Australian Energy Market Operator (AEMO) and the Electricity Metering Code, including business-to-business (B2B) obligations and procedures, metrology procedures, and other rules and directions. These obligations largely drive operating costs.

14.5 Corporate obligations which are associated with running a large and complex business in Australia, which has significant economic, environmental, employment, and safety impacts on the community. These obligations relate to finance and taxation, intellectual property, human resources, terrorism and criminal matters, and ensuring appropriate compliance systems, internal auditing and due diligence procedures are in place. Relevant acts include the *Annual Reports (Government Agencies) Act 2004* (ACT), *Taxation (Government Business Enterprises) Act 2003* (ACT), *Corporations Act 2001* (Cwth) and the *Privacy Act 1988* (Cwth). These obligations give rise to capital and operating costs.

15. I was also recently reminded about ActewAGL Distribution's safety obligations by the ACT's Emergency Services Commissioner's letter to our CEO, Mr Michael Costello, dated 30 January 2015 expressing his concern regarding compliance with these obligations against the background of the AER's Draft Decision: **Appendix 3**. This letter sets out ActewAGL Distribution's actual and possible future regulatory obligations in respect of bushfire mitigation.

Purpose of this statement

16. This statement is made in support of ActewAGL Distribution's revised regulatory proposal to the Australian Energy Regulator (**AER**).

17. The AER has proposed, in its draft decision dated November 2014, inter alia:

    17.1 Opex reductions of approximately 42% based solely on economic benchmarking results. The AER rejected ActewAGL Distribution's proposed standard control services opex for the 2014-19 period of $377.3 million ($2013/14) and substituted its forecast $220.3 million ($2013/14), which represented a reduction in total opex of $157 million ($2013/14) from that proposed by ActewAGL Distribution, or a 41.7% reduction.

    17.2 That a largely fixed-cost network business like ActewAGL Distribution is able to make significant adjustments to its operations in an unduly short timeframe to meet cuts in its expenditure allowance.

18. The effect of these reductions is exacerbated by the fact that the draft decision is retrospective in nature, which means that one year of the five year period for which the AER is determining expenditure allowances will be almost completed at the time of the AER's final decision. As a consequence, expenditure allowances for ActewAGL Distribution for the subsequent regulatory control period are lower than even the AER's own estimates of efficient costs for the period. The AER also provides no mechanism for recovery of restructuring costs that would be incurred.

19. This aspect of the draft decision has a significant retrospective financial impact on ActewAGL Distribution's business. Even if it were practicable (having regard to safety, quality, security of supply, and reliability considerations) for ActewAGL Distribution to reduce its opex to the extent proposed in the AER's draft decision, based on my industry experience, I am of the view that implementing these initiatives would take considerable time, rather than being achievable as one step change. Transformation is a process, not an event. A transition period is required to ensure a safe, secure, sustainable and reliable electricity supply that is in the long term interests of consumers.

20. I would expect that a new business model and associated systems and processes would need to be developed in an attempt to operate the network in a different manner with 40% less opex. Significant consideration would need to be given to prioritising expenses within acceptable risk. Any new business plan would need to be systematically implemented, in order to ensure that the new systems and procedures and the staff align with the new business model. The staff would have to be introduced to, trained in and given the opportunity to understand the new processes in order for them to be confident that the new processes are safe, and to allow for the required cultural change with the changes in accountability to avoid or manage operational safety risks.

21. The AER's draft decision proposes an opex allowance which is lower than our opex was 15 years ago, despite the 40% increase in our customer numbers and the size of our asset base. By way of

example, the following is a table setting out ActewAGL Distribution's opex in the years 1998 to 2014. This data has been extracted from ActewAGL Distribution's internal records.

Year	Opex (excluding UNFT and feed-in tariff) ($2013/14), million
FY00	48.66
FY01	47.50
FY02	47.57
FY03	46.64
FY04	50.19
FY05	48.32
FY06	49.27
FY07	50.15
FY08	53.67
FY09	57.78
FY10	61.82
FY11	70.53
FY12	73.82
FY13	78.31
FY14	89.20
FY15 AER Draft Decision	***42.51***

22. In my opinion, based on current information and my experience at ActewAGL Distribution, in the energy industry and in regulated industries generally, the reductions proposed by the AER would likely lead to substantial underinvestment by ActewAGL Distribution in both capex and opex, and would likely compromise the safety, the reliability and the on-going sustainability of its electricity network.

23. In general terms any deferral or reduction of required network expenditure will increase staff, contractor and public safety risk, environmental risk, bushfire risk, and have network reliability implications and have capacity constraint impacts. Following are some key examples of the likely impact on safety, reliability and sustainability:

23.1 There may in the future be a number of unassisted pole failures, that is failures due to gravity and not induced by external factors like bad weather or collision due to reductions in pole inspection;

23.2 Deterioration in ActewAGL Distribution's response time to public and customer emergency situations due to reductions in staff and more specifically, reductions in the field resources with the skill base to respond to incidents and emergency. Reducing the level of service, may in turn extend the time to restore power supply and impact on safety levels associated with our assets. For example, ActewAGL Distribution has estimated that the AER's proposed opex reductions could double response times, lead to a reduction in planned maintenance of over 30% leading to an increase in unplanned faults, which in turn would cause further increases to response time.

23.3 Increased safety risk to the public and ActewAGL Distribution staff, in particular during periods such as storm season, bushfire season and during extreme weather events. ActewAGL Distribution's current resources match our emergency resource requirements. If the maintenance expenditure is reduced (following an opex reduction by 42% as proposed by the AER), the effect will be that certain assets which presently have a lower fault pattern (as they are currently well maintained, monitored and kept in good condition) may experience a greater frequency of faults between 2015 to 2019, if maintenance expenditure is deferred in the same period. This will in turn result in occupying available staff in responding to those incidents. As a consequence, this may increase the inability to respond to faults in a timely manner as there would be approximately 150 fewer operational staff (resulting from an opex reduction of 42% as proposed by the AER) and the available staff are already occupied on other work arising due to maintenance cuts when an emergency or unplanned outage occurs, thus increasing the length of the outage even further.

23.4 Increase in unplanned outages, where the customers affected cannot be made aware of the outage in advance. One particular class of customers who could be more impacted are those customers requiring life support equipment. ActewAGL Distribution is required to notify customers on life support in advance of planned interruptions. However, ActewAGL Distribution is not obliged to provide such notification in relation to reactive faults. I anticipate the reduction in opex will give rise to more reactive fault incidents in which customers requiring life support equipment could be jeopardised as they unexpectedly lose energy supply.

23.5 Deferred maintenance is likely to cause or increase deterioration in asset quality and increase the risk of asset failure, which is likely to necessitate increased spending in the future to return the safety and reliability of the network to acceptable levels. This is particularly important in circumstances where ActewAGL Distribution's total weighted average system age is approximately 26.3 years.

24. I am concerned that if reductions in opex of the order indicated in the AER's draft decision occur, ActewAGL Distribution's network would deteriorate, leading to adverse reliability and safety outcomes and a further need for substantial remedial reinvestment in the future. This would also increase the risk of non-compliance with the various legislative requirements on ActewAGL Distribution.

How ActewAGL Distribution determined its Opex Requirements

25. ActewAGL Distribution proposed an opex based upon the opex needed to maintain the safety and reliability of its network assets and the operation of the network.

26. ActewAGL is largely a fixed cost business where costs are incurred primarily in relation to assets. A small proportion of costs can reasonably be considered to be variable (dependent on the quantity of energy shipped). Opex costs are typically not dependent on demand.

27. The main components of ActewAGL Distribution's standard control opex are:

27.1 labour cost associated with operating and maintaining the network including associated direct and indirect overheads and excluding vegetation management (approximately $43.3m per annum in $2013/14 during the 2014-19 period);

27.2 the costs of the vegetation management program itself (approximately $3.7m per annum in $2013/14 during the 2014-19 period); and

27.3 other non-labour costs primarily related to expenditure associated with materials, information and communications technology and other contractors (approximately $27.2m per annum in $2013/14 during the 2014-19 period).

28. Compliance with legislated standards and regulatory reporting requirements is a substantial driver of the costs incurred by ActewAGL Distribution in operating and maintaining its electricity network. Regulatory obligations to be introduced during the 2014/15 –2018/19 period have been built into the operating expenditure forecasts such as changes to work health and safety legislation in 2011.

29. The *Work Health and Safety Act 2011* (**WHS Act**), Regulations, and Codes of Practice are being incorporated into ActewAGL Distribution's internal systems. In the 2014/15-2018/19 regulatory control period, ActewAGL expects changes to continue to occur to the WHS Act, Regulation and the implementation of as many as 13 new Codes of Practice. This in turn will require discussions with workplace health and safety specialist legal practitioners to understand any changes, as well as reviewing process/procedures, consultation, implementation and training of new practices and requirements.

30. ActewAGL optimises its opex costs by balancing intervention (maintenance) costs with asset risk over the lifetime of the asset. The value of risk that accrues to a given asset escalates every year as the asset ages and deteriorates.

31. ActewAGL Distribution sets its capex and opex taking into consideration network need which is informed by the previous costs and forecasting the future requirements of the network. There can be trade-offs between capex and opex. If less opex is spent, network equipment usually deteriorates such that more capex will be required to compensate for reduction in opex. Similarly, less capex may contribute to (amongst other consequences) a decrease in reliability of the network for which more opex will be required.

32. The characteristics of the network drive costs rather than customer numbers. ActewAGL has unique cost drivers such as backyard reticulation due to ACT requirements, reduced ability to capitalise on economies of scale due to its size and a high proportion of hardwood poles, all of which need to be considered when preparing its opex budget.

33. While low-voltage reticulation is confined to backyards, the high-voltage network, whether overhead or underground, remains in the street verge. There is no scope for multiple use of the backyard reticulation structures. Economies of scale available to most distributors, through use

of common high and low-voltage poles, are not available to ActewAGL Distribution in these circumstances. Assets over a wider geographical area increase construction costs, as well as exposure to potential damage and on-going maintenance costs.

34. Further, the role of Canberra as the national capital has implications for the requirements and expectations of ActewAGL Distribution's customers. ActewAGL Distribution has a relatively high number of customers with special requirements. Strategically important facilities and institutions such as Parliament House, the Department of Defence, the Australian Signals Directorate, the Australian Security Intelligence Organisation, Centrelink and the National Data Centre require a high level of supply security.

35. In addition, numerous assets owned by ActewAGL Distribution have been classified as critical infrastructure according to Australian Government documentation. These assets include the zone substations and switching stations, the Fyshwick Building D System Control and Data Centre, and the Greenway West Data Centre. ActewAGL Distribution takes a consistent approach to security measures across all ActewAGL Distribution assets. Australia is also currently at a high level of terrorism alert; defined as a terrorist attack is likely. ActewAGL Distribution's Physical Security Standard (2015) was created to comply with the terrorism alert level of medium, but allows for escalation of security measures in the event of an increase in the Government's Terrorism Alert Level to high.

36. Canberra is unusual among Australian cities, being an entirely planned city. The planning for the city is generally in accordance with the Griffin plan. This plan requires electricity distribution assets to be situated on the periphery of the built urban environment with forested areas between the designated town centres. Hence, there is a need for more zone substations and sub transmission lines.

37. ActewAGL Distribution also has a different asset configuration when compared to other networks. It must operate and maintain, relative to the Victorian urban distribution network service providers: 36% more sub transmission lines; 40% more zone substation transformer capacity; 108% more 11kV-33kV distribution lines; 32% more distribution transformer capacity; 38% more low voltage line; 41%more poles per customer; 20% more route length per customer for an equivalent circuit length; and 36% more overhead line length per customer. More assets are deployed per customer by ActewAGL Distribution. If the opex is reduced based on customer numbers, there will be less money to maintain assets based on the asset numbers in ActewAGL Distribution's network.

38. ActewAGL Distribution is also a geographically isolated network with limited ability to realise meaningful synergies through cost-sharing arrangements with other co-located DNSPs (unlike the Victorian DNSPs).

39. In its Draft Decision, the AER concludes that it is not satisfied ActewAGL Distribution's opex forecast reasonably reflects the opex criteria. Accordingly, the AER rejected the opex forecast included in ActewAGL Distribution's building block proposal. The AER substituted ActewAGL Distribution's total opex forecast for the 2014/15 - 2018/19 period with the AER's total opex

forecast for that period, which it considers reasonably reflects the opex criteria. The AER considered that ActewAGL appears to have very high costs relative to most other service providers in relation to maintenance, labour and vegetation management.

40. Following the AER's Draft Decision, ActewAGL has revised the opex requirements for its Revised Regulatory Proposal (RRP). Following are details of ActewAGL Distribution's revised opex:

$ million	2014/15	2015/16	2016/17	2017/18	2018/19	Total
ActewAGL Distribution regulatory proposal	76.7	74.9	73.0	75.6	77.1	377.3
AER draft decision	42.5	43.2	44.1	44.8	45.6	220.3
Difference	-34.2	-31.7	-28.9	-30.7	-31.5	-157.0
ActewAGL Distribution revised regulatory proposal	74.8	74.2	72.3	74.3	75.6	371.2

41. ActewAGL Distribution made the following revisions in response to the Draft Decision. In summary - move to a base-step-trend forecasting approach for all opex, minor adjustments to the base year, updated labour cost escalators, adjustments to the proposed corporate services charge step change and the inclusion of an additional step change.

42. I set out below an explanation of certain key components of ActewAGL Distribution's opex.

Maintenance of ActewAGL Distribution's Assets

ActewAGL Distribution's Assets

43. ActewAGL Distribution's assets fall into two categories: operational (network) assets and non-operational (non-network) assets.

Operational assets

44. Operational assets are assets that currently form part of the electricity distribution network. The main types of operational assets are:

44.1 Poles and pole top structures including air break switches, gas switches, HV load break switches, HV links, reclosers and pole substations;

44.2 Cables including overhead 132kV, 66kV, 22kV , 11kV, and LV cables and underground cables for 132kV, 11kV and LV;

44.3 Meter fleets;

44.4 LV pillars and LV service pits;

44.5 Distribution transformers;

44.6 Distributor switchgear including HV Cast Resin Switchgear and all other switchgear units;

44.7 Various types of Zone transformers such as 132kV Power Transformers, 66kV Power Transformers, ZS Auxiliary Transformers and ZS Earthing Transformers;

44.8 Various types of Zone switchgear such as 132kV Circuit Breaker, 132kV Isolator, 132kV Isolator with Earth Switch, 66kV Circuit Breaker, 66kV Isolator, 11kV Circuit Breaker, SF6 Modular Switchgear;

44.9 Other transformers such as ZS 132kV Voltage Transformers, ZS 132kV Current Transformers, ZS 66kV Voltage Transformers and ZS 66kV Current Transformers.

45. ActewAGL Distribution's significant assets are poles, cables and substations which I discuss in turn below.

Poles

46. Poles are structures which primarily support ActewAGL Distribution's overhead distribution network. Poles have a critical function in maintaining the integrity of the overhead network. Pole failures have a direct and immediate impact on the safety, availability, reliability and performance of the power network. If a pole fails, in addition to the public safety issue, customers will in all cases lose power. The severity of a pole failure on electricity supply depends on the location and voltage level of the affected overhead lines. Where a pole is situated in a rural area, especially in a high bushfire risk area, the structural integrity of the pole is critical to bushfire risk. Pole failures in bushfire mitigation areas can potentially cause a fire.

47. ActewAGL Distribution has approximately 50,746 poles, of which approximately 6,900 poles are located in the Bushfire Prone Areas.

48. ActewAGL Distribution's pole population consists of several pole types. The pole material in use in ActewAGL Distribution's network is natural round timber (wood), Creosote treated (wood), Tanalith treated (wood), concrete, stobie, steel or fibreglass[2]. The majority of the poles (approximately 31,243) are timber. The wooden pole population is slowly reducing over time as they are gradually replaced by concrete or fibreglass poles. Between 2008 and 2013, the population of wooden poles has declined by 5,500, from 39,000 to 33,480. The table below provides a summary of the asset volumes by the pole material as at May 2014.

Asset Base			
Pole type	**Average Age of Poles**	**Expected Service Life**	**Number of Poles**
Concrete	16	80	10300
Fibreglass	3	70	1930
Steel	14	60	5848
Stobie	65	80	359
Timber	46	45	31243

49. The structural integrity of poles deteriorates over time. Routine inspections of the pole condition can identify defects which can cause pole failure and allow these defects to be addressed. Pole condition inspections are intended to identify defects before failure, so that a planned maintenance intervention can be scheduled (keeping service interruptions to a minimum).

50. All poles located in the Bushfire Prone Areas are fully inspected every three years and visually inspected every year in accordance with EN 4.09 P01 ActewAGL Bushfire Mitigation Strategy & Management Plan. All other poles are inspected every 4.5 years in accordance with EN 4.02 P13 - Pole and Line Inspection Procedure. All pole and overhead asset inspections are completed in accordance with FSW 203 Pole and Line Inspection Manual (see the Asset Specific Plan: Poles, Appendix B17.2 to the Regulatory Proposal). ActewAGL continues to explore options that will provide a more effective inspection outcome, including use of acoustics or aerial inspections where appropriate.

51. The service life of a timber pole is generally between 40 to 60 years. The key drivers identified for the deterioration of the timber poles are:

51.1 Insufficient structural strength related to loss of pole cross section by rot.

51.2 Insufficient structural strength related to new loads to be applied to the pole.

51.3 Pole top deterioration due to rot and splitting.

[2] Natural round timber poles were not treated with preservatives and they did not have the sapwood removed. Creosote poles were purchased already pressure treated with creosote preservative. Tanalith poles were purchased already pressure treated with a Copper Chromium Arsenic (CCA) preservative.

51.4 Pole sapwood is so badly deteriorated, there is either a high risk that a large piece of sapwood would fall on a person, or the pole appears so bad that the public have a strong perception that the pole is unsafe.

51.5 A nailed pole loses so much of its wood below ground level, the nail can move in the resultant void. In this case, the whole pole can sway in strong wind.

51.6 Insufficient structural strength related to loss of pole cross section by termites.

52. Most timber poles are condemned because of a loss of strength in the buried section of the pole near ground level, forming a 'pipe' of empty space. This loss of strength is typically the result of rot, termites or bushfire.[3] The wood surrounding the pipe is referred to as the 'wall' of the pole. The inspection of timber poles usually involves drilling a hole into the pole to measure the thickness of the wall and then the diameter of the pipe inside the pole. If the pipe becomes too wide (i.e. the pole wall becomes too thin), the pole becomes less stable and may fail. The consequential risk of unexpected failure of timber poles includes a risk to public safety and property as well as impacting on network supply reliability. I recall that there was a recent incident where a pole maintained by the ACT government failed and fell across the top of a car in an urban space.

53. By taking this measurement, the remaining life of the pole can be estimated and one of the following four possible actions can be taken based on the estimated remaining life of the pole:

53.1 Further pole inspection (Condition Monitoring).

53.2 Pole reinforcement:

53.2.1 That is to reinforce the pole with a steel stake driven into the ground at the base of the pole and attached to the pole by way of bolts. This technique is commonly called 'pole nailing' and is used to support a weakened pole. Pole nailing is only applicable for poles that are condemned at the base. Poles with poor condition at the pole top (or "head") or poor above ground condition (which is rare) are not suitable for nailing. For the period 2012-13, approximately 76% of poles were condemned at the base and 24% at the head.

53.2.2 Generally in order for nailing to be suitable, following pole base condemnation, sufficient healthy timber must be present at the nail brace points and the external surfaces of the pole unencumbered where the nail is to be applied to provide adequate restraint for the resultant pole load forces. Additionally the area below the pole ground-line must also be relatively unencumbered or capable of easy unencumbering to facilitate the nail penetrating this area in a safe manner. Generally in excess of 60% of pole base condemnations are

[3] Natural round wood poles have no preservative treatment carried out prior to being installed in the ground which increases the risk of rot and/or termites. As a result, the condemnation rate for natural round poles is approximately 10 times greater than the other types of wood.

suitable for pole nailing. Pole nailing can extend the life of a pole by about 15 years.

53.2.3 In 2013, approximately 63% of ActewAGL Distribution's pole population was wood. Of this 63%, approximately 38% were reinforced at the base with metal stakes. Over the last four years, on average 60% of those poles that were condemned have been reinforced and remain in the network. This ratio is forecast to remain the same in the next 2014/15 to 2018/19 regulatory period based on ActewAGL Distribution's historical data from the last five years. Reinforcing poles allows for the deferral of capital expenditure by extending the life of the pole.

53.3 Pole and line defect repair.

53.4 Pole removal and replacement which involves the complete removal and replacement of the condemned pole with a new concrete (Urban street or Rural areas) or two piece fibreglass (Urban backyards) poles. Condemned timber poles located on the urban street of the heritage precincts areas are typically replaced with tanalith poles as required by the ACT Heritage Council. The timing of replacement will be dependent on the condition of the pole.

54. The pole replacement program is the largest single component of ActewAGL Distribution's forecast capital expenditure for the 2014/15 to 2019/20 period. The AER has accepted ActewALG Distribution's proposed pole replacement volumes and expenditure. However, if as a consequence of the AER's proposed opex reductions, pole inspections are reduced, ActewAGL Distribution may not be able to identify all of the potential poles in need of replacement.

55. In addition, it is estimated that at least half of the natural round wood poles have cross-arms attached with a non-galvanised (black) king bolt. These bolts are 40+ years old and are corroding. The resultant rust is causing the pole heads to split which leads to moisture ingress and rot spore invasion. Many of these poles will require replacement because of severe loss of strength in the pole head.

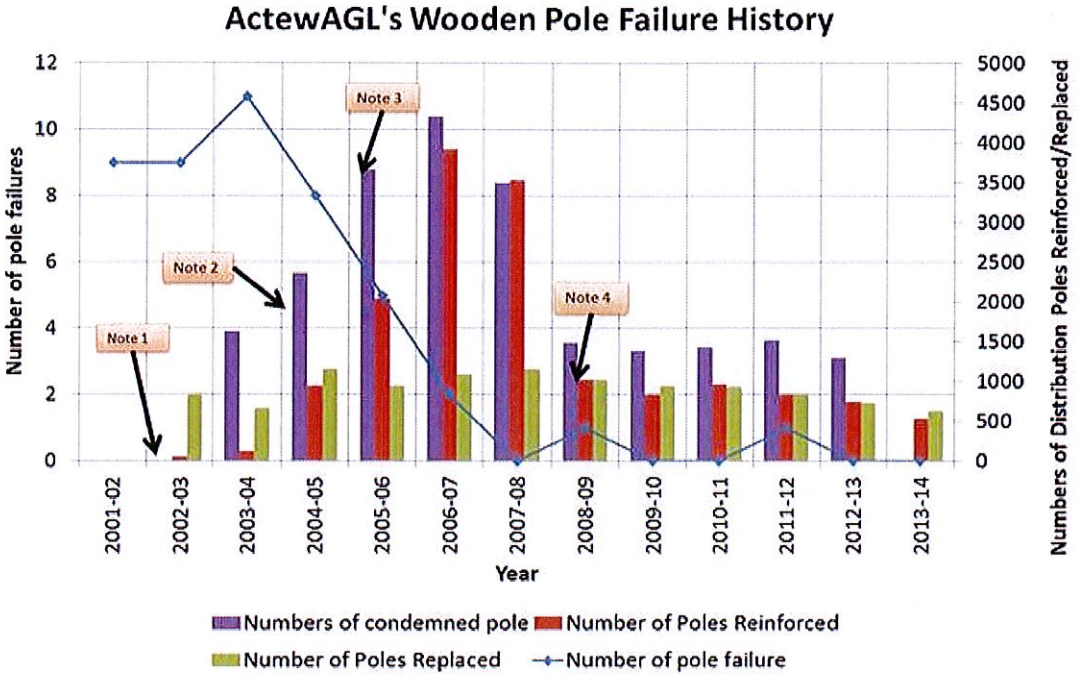
56. The AER has reduced the pole top replacement capex, thus increasing the risk of pole failure. This is coupled with an opex reduction which will lead to a reduction in the inspection of pole heads, resulting in a significantly reduced ability to identify failure in the elements of the structure, consequential rapid deterioration of the pole head and accelerated pole failure rates.

57. Failure of pole-top hardware and cross-arms is the most common form of failure on the overhead distribution system, causing overhead conductors to sag excessively or fall to the ground. The risk to public and worker safety can be significant in such an event. In 2002, we had a near miss incident when a King bolt snapped on a pole while a worker was on the pole. As part of the following investigation, when the old cross-arms were brought down to the ground it was found that the three king bolts holding the cross-arms had rusted away to nothing. The bolts holding the LV links had also rusted. The cross-arms had split a lot.

58. Replacement of deteriorating cross-arms and pole-top hardware, and installation of vibration dampers, armour rods, and preformed distribution ties on rural high voltage overhead lines located in high bushfire risk areas is required to minimise the role that these assets can play in starting bushfires which are a significant threat to life and property.

59. I have reviewed ActewAGL Distribution's pole performance history. In 2002, there were approximately 800 poles condemned and 10 pole failures. At that time, the pole condemnation rate was considered high, approximately 10% for natural round poles. A serious injury to a lineman occurred when a pole failed in December 2002. At this time, ActewAGL Distribution's pole failure rate was at least three times higher than for other electricity network companies with similar poles who belonged to the then ESAA Power Poles committee. Since then, the pole inspection program has been more rigorous to address the significant increase in pole failures between 2000 and 2004. The pole failure rate has been reduced to one between the period July 2008 to June 2013. If ActewAGL Distribution's current pole inspection regime is able to continue, ActewAGL Distribution currently forecasts no pole failures apart from any random failure due to factors beyond ActewAGL Distribution's reasonable control. This removes pole failure as a potential cause of bushfire, and improves system reliability.

60. I have set out below the statistics pertaining to wooden pole condemnation, replacement, reinforcement and failure over the last 10-12 years, which was prepared based on the Workshop Accounts Software Program (WASP) and Geographic Information Systems (GIS) software corporate system.



Note 1	2001 - 2002	-	Transact rollout onto ActewAGL Distribution's poles which hugely disrupted pole inspection program
Note 2	Late 2003		Start of dramatic improvement for pole inspection, condemnation criteria & quality control.
Note 3	Dec 2005		Pole failure at Civic Pool. ActewAGL Distribution Board actively involved in monitoring pole management.
Note 4	2007		ActewAGL Distribution's Asset management brought in a consistent/uniform inspection workload regime over the year.

61. There are also approximately 10,300 concrete poles. These poles are also inspected on a 3 - 4.5 year cycle. Concrete poles require less maintenance but are more expensive to install. Concrete poles are generally deployed in certain areas, eg high bushfire risk areas subject to certain constraints. There is, however, an offsetting safety disadvantage of concrete poles which are conductive primarily due to their integrated steel reinforcement. The safety issue may arise if the insulator at the top of the pole fails thereby causing potential voltages on the pole or in the immediate ground area around the base of the pole. For this reason the application of the overall lower lifetime cost concrete pole in urban areas needs to be considered carefully. The failure consequences of concrete poles are not dissimilar to those of timber poles.

62. There are also approximately 5,848 steel poles. These poles are also inspected on a 4.5 year cycle. The main risk exposure for this type of pole is corrosion occurring at the air/ground interface of the pole. Failure to inspect these poles on the normal cycle of 4.5 years results in an increased risk of the poles failing prior to potential failure being identified. The failure consequences of steel poles are not dissimilar to those of timber poles.

63. ActewAGL Distribution has an Asset Specific Plan for poles ((see the Asset Specific Plan: Poles, Appendix B17.2 to the Regulatory Proposal). On-going condition monitoring, maintenance and augmentation of the distribution network pole population is a key strategy in supporting the safety, reliability and performance of ActewAGL Distribution's network. The current pole management and maintenance strategy is to achieve and maintain zero pole failures, ensure pole integrity between inspection cycles and achieve maximum pole life. The software product, Riva DS, was used to evaluate the minimum, whole-life, whole-system cost approach to determine the optimal intervention options and scenarios.

64. Based on the data in our corporate system, I am aware that the impact of the current pole inspection regime was a reduction in condemned pole numbers by at least a factor of 10 (from an average of around 200 per annum in 2007/08 to an average of around 20 per annum in 2012/13), and a similar outcome has been evidenced with asset failures (from around 9 per annum to less than 1).

65. Around 800 poles are forecast to be replaced every year and 700 are forecast to be reinforced every year between FY2014/15 to 2019/20. This is based on the decreasing timber pole population, having an average condemnation rate of 4%. In addition, pole inspections in 2013 condemned a number of poles which were in difficult to access locations. These poles have been reinforced to allow time to construct a suitable access track to prepare for a pole replacement. It is planned and budgeted to complete the replacement of 33 poles of these in each of FY14/15 and 15/16. All 33 poles are in the bushfire mitigation area.

66. As a part of our pole and line inspection, overhead assets with deteriorating condition and defects are also identified in accordance with FSW 203 - Pole and Line Inspection Manual. These defects are prioritised based on the risk to public safety, employee safety, network reliability and asset integrity as follows:

66.1 Priority 1 - defects which require immediate response (reactively).

66.2 Priority 2 - defects which require maintenance in a planned manner. For example, pole leaning more than three pole heads, missing earth conductor, damaged earth and all defects that presents an unacceptable hazard to public safety and our employees.

66.3 Priority 3 - defects which should be addressed if resources allow, otherwise there is an acceptably low risk to leave for the next inspection. For example, missing asset number, concrete poles spiral cracking and all defects that have acceptably low risk to ActewAGL Distribution assets, employees and public if left for another inspection cycle.

67. Based on the historical work in the past five years, 242 priority repair works have been budgeted for each year in the 2014/15 to 2018/19 period. These works are included in ActewAGL Distribution's opex budget and comprise defect rectification such as repairing insulator damage. Due to their priority nature, these works cannot be deferred. However, resulting from an opex reduction of 42% as proposed by the AER, prioritisation of these works will likely mean that other more routine maintenance items will be deferred.

68. Approximately 30 redundant poles are removed from residential suburbs every year. These poles become redundant when surrounding blocks in a section no longer require the overhead electricity supply, for example, if the area becomes underground reticulated.

69. The costs of inspecting, maintaining and replacing poles are increased by the requirement in the ACT for backyard electricity reticulation and the associated planning and regulatory requirements. Pole failure in backyards is an uncontrolled public safety and property risk. There are several examples of the incremental expenditure associated with backyard reticulation including:

69.1 The need to send notification letters prior to inspection, cancelled inspections, additional time for inspections and access issues (primarily due to scaffolding requirements).

69.2 Backyard poles are often difficult to access and present a challenge to pole maintenance and safety. Particular obstacles to access include: locked gates; obstruction by retaining walls, garden sheds, swimming pools, cubby houses and other structures which do not allow access for plant; pets including dangerous dogs and the need to guard against pets escaping while working in the backyards; and trees, vegetable gardens, flower beds and shrubs in close proximity to the reticulation assets.

69.3 Staff often are required to walk in with ladders and equipment to lift material as the site is inaccessible to trucks, and elevated platforms which would be used to maintain a pole or line in the street.

70. Backyard reticulation costs are estimated to contribute an additional $2 million to opex in the 2014/15 to 2018/19 period.

71. As a result of the AER's Draft Decision, I anticipate that consideration will need to be given to minimising the cost of pole condition monitoring, based on a review of overhead maintenance strategy, which may increase pole failures, impact on reliability and in the rare case, impact on public safety.

72. A reduction in allowed expenditure levels of 42% would force ActewAGL to lengthen the inspection cycles adopted. Rural assets and vegetation would be inspected at 5.5 yearly intervals and urban assets at 8 yearly intervals. Such an inspection regime, forced by a reduction in expenditure levels, would reduce the inspection of assets in bushfire prone areas. ActewAGL Distribution's experience indicates that the interval is too long to guarantee that all failures can

be prevented, so a change such as this would inevitably result in an increasing rate of failures, impacting on service reliability and the potential for asset failure to cause bush fires.

73. In addition, as a result of there being more limited information about pole conditions, it in turn reduces the reliability of ActewAGL Distribution's deterioration analysis or curves for poles. There is a greater likelihood of ActewAGL Distribution missing key information about pole condition or misinterpreting the limited data available as a result of the reduction in inspections. As a consequence, this situation could increase the likelihood of pole failures.

Cables

74. High voltage transmission lines send electricity through a network of lines known as the electricity grid. The voltage on these ActewAGL Distribution lines is 132,000 volts/v (132kV), although sometimes the voltage is 66,000 volts (66kV). When the electricity reaches the zone sub-stations, the voltage is lowered for distribution through smaller overhead power lines and underground cables to the distribution networks of the electricity suppliers.

75. There are two types of electricity cables or conductors: underground or overhead. There are also secondary service cables utilised within the network of both overhead and underground construction.

76. ActewAGL Distribution's network has approximately 197 kilometres of overhead 132kV and 66kV transmission lines that go to zone sub-stations. ActewAGL Distribution's network also has approximately 6 kilometres underground 132kV transmission cables.

77. Historically, cables are generally of overhead construction. Since the 1980s, about 90% of new network construction in ActewAGL Distribution's network has been underground.

Overhead lines

78. ActewAGL Distribution has HV overhead distribution lines spanning over approximately 1,012 kilometres. ActewAGL Distribution's high voltage overhead distribution network lines consists of 46.6% All Aluminium conductor (AAC), 13.6% Aluminium conductor steel reinforced conductor (ACSR), 18.5% hard drawn copper conductor (HDC) and 21.2% steel conductors. Approximately 57% of HV overhead distribution lines are located in the Bushfire Prone Areas.

79. Overhead lines typically fail due to asset deterioration, vegetation encroachment and/or bush fire. The consequence of an overhead conductor, cross arm and other hardware failure will pose a risk to public safety, a risk to employees, potentially starting a bushfire, and potentially result in the loss of supply and damage to property.

80. Three types of routine overhead line inspections are performed, which are pole and line inspection, thermo vision survey and helicopter aerial inspection. The pole and line inspection occurs once every 3 years in bushfire prone areas and once every 4.5 years in other areas. The thermo vision survey and the helicopter aerial inspection each take place once every year.

81. Attached as **Appendix 4** to my statement is a map showing where fires were recorded to have occurred from FY 2006 to FY 2014. These fires were caused by asset failure, natural events (such as wind causing conductors to clash), and/or vegetation growing into the network.

82. Depending on the circumstances, a number of different ActewAGL Distribution personnel may be involved in responding to fires such as dispatch, supervisor, manager, senior line worker, line worker, pole inspector, distribution fitter, zone fitter, protection supervisor, protection technician, SCADA technician, cable jointer, trades assistant, cable recorder, plant operator, backup dogman operator, stores and electrical operator. As a result of a reduction in allowed expenditure levels of 42%, it is likely that such emergency support will be reduced in terms of the total number, depth and competency.

83. If the AER's draft decision to reduce ActewAGL Distribution's opex by 42% is maintained, we could expect the following to occur:

83.1 when there is a Total Fire Ban day in the ACT where numerous outages typically occur, ActewAGL Distribution's response time is likely to increase as a limited number of staff will be available to attempt to respond to the events that occur.

83.2 it is also likely that maintenance will be reduced, and as a consequence there is a high chance that there will be a larger number of events on extreme weather days (such as Total Fire Ban days). ActewAGL Distribution currently can reliably forecast the number of asset failures and address those, but potentially ActewAGL Distribution will be unable to address increased incidents in the future with less resources.

84. During two Total Fire Ban days on 8 and 12 January 2013, there were 6 separate fire incidents caused by conductor clashes due to the strong winds, or where vegetation was growing into the lines and causing arcing, Due to the weather condition on both days, fires were started on the ground. ActewAGL Distribution was able to respond to the various incidents and prevent those fires from escalating to a larger fire as we had the personnel required to undertake the emergency response task. This capability is likely to be compromised with a reduction in allowed expenditure of 42%, with consequential:

84.1 changes to ActewAGL Distribution's established vegetation program, that is each of inspection, maintenance or clearance of vegetation,

84.2 removal or reduction of targeted inspection in bushfire prone areas after an above average rainfall year,

84.3 removal or reduction of the staff who would be responsible for engaging in proactive communication with the government department responsible for maintaining government owned vegetation clearance,

84.4 impact on ActewAGL Distribution's ability to re-prioritise work within its program to install spacers on low voltage bare conductors with spans longer than 30 metres, according to which have the greatest potential to clash and cause a fire,

84.5 increase in overall incidents due to limited on-going maintenance activities, which will likely strain the limited resources which will be available on a Total Fire Ban day.

Overhead transmission lines

85. Overhead transmission lines are patrolled once every 3 years. The main risk exposure is asset deterioration, vegetation encroachment and bush fire. The failure consequences of overhead transmission lines are not dissimilar to those of overhead distribution lines.

Underground cables

86. ActewAGL has a high proportion of underground cables compared to its peers, and this is growing. There is approximately 1,475 kilometres of HV underground cable and 1,236 kilometres of LV main cables (and 1,878 kilometres of service cables) in ActewAGL Distribution's network.

87. ActewAGL has an aged underground distribution network. 27% of the underground cable fleet will have exceeded its expected economic life by 2020.

88. ActewAGL Distribution owns and maintains all of the underground service cables connecting customers to the electricity network, but this is not the case for all DNSPs. The boundary between ActewAGL Distribution's network and customer installation is typically at the meter box. This is not the case for a number of other businesses, where the network boundary is defined at the pit/pillar located in the street verge and consequently the service cable is owned by the customer, which increases ActewAGL Distribution's maintenance costs relative to other distributors.

89. Underground networks require less maintenance, however faults are much harder to locate and / or repair. Because they are installed underground, any fault of the cable will require time to detect the fault location, excavate, repair, test, backfill the trench and restore the urban landscape. This means that an underground network has better reliability but higher maintenance cost, whenever maintenance work is required.

90. Different cables have different failure modes. Generally, failures are caused by asset deterioration and external damage (among other reasons). The effects of a cable failure can be loss of supply to customers, consequential damage to other parts of the network due to flow through fault current, risk to the public, and/or surges or spikes causing damage to customers appliances' or premises. The risk to public would depend on the particular failure mode, the severity of the fault and the characteristics of the network. It could manifest through a person suffering an electric shock, which has previously occurred in connection with an underground network failure in Kambah.

91. Up until 2014, ActewAGL adopted the strategy of running the underground cables to failure. Any replacement decisions have been driven by repeated root cause failure which has been identified from failure investigation. An example of this is the replacement program of all Concentric Neutral Solid Aluminium conductor (Consac) cables with T-jointed service cables.

After ActewAGL had experienced multiple failures on the T-joint of Consac cables in 2009, it was found that the failure was associated with water ingress into the Consac cables' T-branch joints which eventually lead to a joint failure. As a result, all known Consac cables with T-branch joints were identified and prioritised for replacement, that is approximately 4 km of CONSAC cable.

92. Between 2008 and 2013, the number of cable faults has increased and reactive repairs and replacements have been increasing underground. Whilst most repair work is on the cable joint or termination, an increasing number of underground cables are reaching the end of their nominal operational life. For example, during repairs to an ageing cable at Parkes (which was installed in the 1950s), it was observed that the steel armour tape and the lead metallic sheath of the cable showed signs of corrosion.

93. To address this trend, avoid unplanned outages and disruption to residences and businesses of Canberra, ActewAGL Distribution has developed an asset management strategy that involves condition monitoring of high voltage underground cables and prioritisation of the high voltage underground cable replacement with suspected problems (see the Asset Specific Plan: Underground Cables, Appendix B17.3 to the Regulatory Proposal).

94. In accordance with good practice, ActewAGL is implementing a cable condition assessment program to assess the condition of some of the oldest HV cable in the network and the worst performing HV cable feeder to prioritise cable replacement. ActewAGL plans to assess the condition of over 20 HV cable feeders in the next five years. The purpose of this program is to stop the growth in the number of reactive cable or joint failures every year by detecting imminent failures and replacing the cable section before the failure occurs, to avoid the consequences of failure described above. This program is forecasted to cost approximate $1.02 million between 2014/15 to 2018/19.

95. It is anticipated that 3% of the condition assessed HV cable or joints will require replacement each year. An estimate of 0.7 kilometres of HV cable section will be identified for replacement in 2014/15 from the condition monitoring, and 4.5 kilometres of cable section will be identified for replacement in the remainder of the 2014/15 to 2018/19 period. It is expected that this program will reduce the risk of asset failure and associated reactive maintenance expenditure levels in future regulatory periods. The LV CONSAC cable replacement program will continue throughout the 2014/15 to 2018/19 period and subsequent regulatory periods at two suburbs every year.

96. With regard to unplanned maintenance, it is anticipated that there will be 20 LV or Service cables with poor cable or pothead condition identified from pole inspections every year. Due to pole replacements from unplanned events, 85 service cable terminations are allowed for replacement every year.

97. It is expected that the number of cable failures will rise as the cable ages. As a result, the cost for unplanned/reactive maintenance will increase until the condition monitoring and replacement program is fully implemented. As a result, for the 2014/15 to 2018/19 period, the budget has been smoothed for unplanned/reactive maintenance requirements based on the historic failure rate, and includes allowances for:

97.1 26 HV cable or joint repairs due to in-service failures (opex);

97.2 3 HV cable repairs due to third party dig-in (opex);

97.3 10 HV cable termination repairs due to in-service failure (opex);

97.4 26 LV cable or joint repairs due to in-service failures (opex);

97.5 10 LV cable repairs due to third party dig-in (opex);

97.6 11 LV cable termination repairs due to in-service failure (opex);

97.7 30 service cable replacements due to in-service failures (capex).

98. As a result of the AER's Draft Decision, I anticipate that consideration will need to be given to minimising the cost of the cable condition assessment program, within an acceptable level of risk, but with the consequence that the number of reactive cable or joint failures will increase every year, resulting in more unplanned disruptions to customers. Neither Canberra's businesses nor ActewAGL Distribution can prepare in advance for unplanned disruptions. The ACT businesses lose the opportunity to make advanced arrangements for a generator to be made available. Unlike a planned outage where distribution network can be switched around to accommodate works for the period of the outage or alternatively the customer can arrange for a generator, during an unplanned disruption, ActewAGL Distribution's system does not automatically reconfigure to switch or reconfigure the load. It needs to be manually switched to minimise the impact of the disruption.

99. It appears that the AER has derived theoretical remaining lives for these cables in its calibrated model that are greater than ActewAGL Distribution's assessment (for underground cables rated up to 11kV), which significantly affects REPEX budget projections. If the AER's Draft Decision prevails and their life estimates are proven incorrect, there will be a significant increase in service interruptions caused by cable failures.

Substations

100. Substations are where voltage of the electricity is transformed to a higher voltage to prepare for long distance transmission, or transformed to a lower voltage for distribution.

101. The principal assets making up a substation are the transformer (which transforms the voltage from one level to another, and typically costs approximately $2.8 million per zone substation), switchgear (which is used to switch on or off the different circuits running into and out of the substation), the land upon which the assets may reside and any building structures housing the assets.

102. ActewAGL Distribution operates 13 zone substations and two switching stations. ActewAGL Distribution also operates 4,506 distribution sub-stations.

103. The zone substations reduce voltage to a level at which distribution feeders operate. There are zone substations in the East Lake Zone, Belconnen Zone, City East Zone, Civic Zone, Fyshwick Zone, Gilmore Zone, Gold Creek Zone, Latham Zone, Telopea Park Zone, Theodore Zone, Wanniassa Zone and Woden Zone. Angle Crossing zone substation at Williamsdale services an Icon Water pump station at the Murrumbidgee river. The Fyshwick Zone Substation is supplied by the Queanbeyan bulk supply point, while the others are supplied from the Canberra and Williamsdale bulk supply substations. Each urban zone substation typically supports approximately 10,000 customers.

104. Ten of the 13 zone substations and the two switching stations were commissioned before 1990, while the Gold Creek Zone Substation was commissioned in 1994. Angle Crossing and East Lake zone substations were commissioned during the 2009/10 –2013/14 regulatory control period, in 2012 and 2013 respectively. The need to repair and maintain ageing zone substations is an important driver of ActewAGL Distribution's operating expenditure forecasts.

105. A new zone substation will be required during the 2014/15- 2018/19 regulatory control period to serve the extensive greenfield urban development at Molonglo.

106. Zone substations, given their greater complexity and cost (between $20 million to $40 million) and the greater consequences if they fail, are usually inspected every three or six months. ActewAGL Distribution is reluctant to outsource the inspection and maintenance of zone substations to external service providers primarily due to safety concerns and the critical nature of the supply arrangements. I note that in 2010 there was a TransGrid fatality at their Sydney East substation when a contractor was killed due to unfamiliarity with the technical operation and safety requirements at their site.

107. All land and network buildings, including each of the substations, must be managed to comply with relevant legislation, codes of practice and standards including the *Work Health & Safety Act 2011* (ACT), the *Electricity Safety Act 1971* (ACT), the *Building Act 2004* (ACT), the *Construction (Occupations) Licensing Act 2004* (ACT), the *Scaffolding and Lifts Act 1912* (ACT), the *Dangerous Substances Act 2004* (ACT), the *Crimes Act 2000* (ACT), the *Utilities Act 2000* (ACT), the *Environment Protection Act 1997* (ACT), the *Litter Act 2004* (ACT) and with the regulations, codes and procedures under these Acts.

108. The East Lake substation is situated immediately adjacent land controlled by the NCA. Hence, ActewAGL Distribution has dual planning accountability to the ACT government (ACT Planning and Land Authority) and the Australian government. Obligations to the NCA arise under the Australian *Capital Territory (Planning and Land Management) Act 1988.* Obligations to the Commonwealth also arise under the *Environment Protection and Biodiversity Conservation Act 1999.*

109. If a power transformer is maintained correctly, it will give very long service life. It is not uncommon to encounter units which have been in service for approximately 30 - 40 years. Regular sampling and testing of insulation oil taken from transformers is a valuable technique in a preventative maintenance program, enables appropriate intervention or remediation prior to

serious degradation of the transformer and needs to be performed correctly. Poorly maintained transformer insulation will significantly reduce the life of a transformer.

110. Inappropriate maintenance of power transformers can result in catastrophic failure of the unit, with the potential to cause major damage to other substation plant equipment and network outages. (Also, when failures occur, the capital required to replace this vital infrastructure, represents a substantial financial burden.)

111. Compliance with the relevant standards is managed by ActewAGL Distribution project and asset managers. The physical delivery of both inspection and corrective services where needed is delivered by a blend of internal resources and external contractors due to the strategic importance of this asset and the specialist nature of the work involved in maintaining power transformers (such as retightening the core). Given power transformers are high value, critical assets, maintenance work is required to be undertaken to the recommended standard of the transformer manufacturers.

Control equipment

112. Control equipment refers to equipment used to control the ActewAGL Distribution network. The control equipment used by ActewAGL Distribution comprises what is called the Supervisory Control and Data Acquisition (**SCADA**) system.

113. In the SCADA system, remote terminal units in substations and on the distribution network collect information regarding the network which is sent to the Control Room at the Fyshwick depot. ActewAGL Distribution staff within the Control Room can obtain real time monitoring data of the network, in particular zone substations and major chamber substations, and remotely switch electrical loads around the network.

114. The control equipment is subject to rigid inspection programs (typically every three to six months) and maintenance programs. This work is performed by ActewAGL Distribution employees, because of the strategic nature of the major substations where this equipment is fitted. Further, from a safety perspective, we cannot afford to have these assets out of service for any period. The maintenance work involved is of a specialist nature, especially as we have legacy protection equipment. Hence, it is undertaken by protection engineers within the distribution and transmission networks.

115. A cut in expenditure will impact on ActewAGL Distribution's ability to provide uninterrupted services and isolate faults. If control room equipment is improperly maintained and fails, we may not be able to fully understand what is happening in the network and provide a prompt solution to customers.

Vegetation Management

116. ActewAGL Distribution has a number of poles and conductors in the Bushfire Abatement and in the Rural Zone.

117. Reducing the vegetation management expenditure as required by the AER in its Draft Decision in the categories described below (among others) increases the probability of vegetation contact with ActewAGL Distribution's overhead power lines with the potential to cause ignition and start a bushfire. For example:

117.1 A 50% reduction in aerial photography of pole top and steel tower condition: Reducing surveillance increases the risk of a pole top defect from being identified and in turn rectified. Each unrectified pole top defect increases the risk of a bushfire.

117.2 An 80% reduction in Vegetation Management Urban Government Defect Clearing Planned Maintenance increases the risk of storm damage and fire.

118. In addition, reducing the vegetation management expenditure may also impact on the prompt identification of issues with poles and pole hardware, as often those issues are highlighted during vegetation management. I have earlier in this statement described the risks associated with inadequate pole maintenance.

Potential consequences of revenues cuts

119. In my opinion, based on current information, the reductions proposed by the AER would likely lead to substantial under investment by ActewAGL in both capital and operating expenditure, and would compromise the safety, the reliability and the on-going sustainability of its network.

120. In general, if the capex program was reduced in order to achieve the AER Draft Decision expenditure levels all ActewAGL Distribution's programs of work would be reduced on a risk assessed basis. Some equipment which would have been replaced in a timely fashion prior to failure will not be replaced, which will add to the safety and reliability risk of the business. For example, 11 kV distribution switches which are not replaced will likely fail in service adding to customer interruptions and restoration times. Some of these switches may be deemed unsafe to operate (as they could rupture) and require staff to switch at more remote field locations extending the level of outage to cover more customers than otherwise necessary.

121. In relation to opex, as noted above, ActewAGL has determined the amount of opex it requires for its RRP based upon the opex required to maintain the safety and reliability of its network assets and the operation of the network. ActewAGL as part of this process has identified and incorporated planned efficiency savings into the RRP. The AER's Draft Decision on opex is far below the opex required to maintain safety and reliability. If the Draft Decision were to be adopted, ActewAGL would not be able to carry out a material part of the opex it had planned over the 2014/15 to 2018/19 period. A failure to perform that opex will mean that network assets will not be maintained in a timely fashion or inspected in a manner which enables preventative maintenance to occur. This is likely to result in increased asset failures. For example, a reduction in the inspection and rectification of found defects with respect to poles will, based on past experience, lead to an increase in asset failures that will impact safety outcomes, increase the risks faced by ActewAGL Distribution during bushfires and extreme

weather events, and lead to poorer reliability and a more inefficient outcome due to the reactive unplanned nature of the response.

122. In general terms any deferral or reduction of required network expenditure will increase staff, contractor and public safety risk, environmental risk, bushfire risk, have network reliability implications and have capacity impacts. Further, deterioration in asset quality is likely to necessitate increased spending in the future to return the safety and reliability of the network to acceptable levels for the ACT community, with an associated effect on distribution charges.

123. The proposed significant reduction in opex and capex allowances by the AER, coupled with the need to increase the level of external sourcing of services by ActewAGL, which may not be able to be absorbed by staff attrition (including voluntary redundancy), may adversely impact the financial position of ActewAGL, which would in turn compromise its ability to invest in and maintain its network.

Conclusion

124. In summary:

124.1 Based on my training, history and experience as the General Manager, Asset Management at ActewAGL Distribution and in industry, the consequences of the AER draft decision, if implemented from both a quantum and step change perspective, are significant.

124.2 The provision of insufficient capex and opex by the AER will undoubtedly and appreciably raise both the safety and operational risk profile of ActewAGL Distribution. It could lead to adverse safety outcomes for our staff, contractors and the ACT community we serve. It will almost certainly result in a deterioration of network reliability and security, and impact the sustainability of the business.

124.3 The provision of insufficient capex and opex by the AER will also impact on ActewAGL Distribution's ability to comply with all the required legislative and licence conditions.

124.4 A long term sustainable outcome in the long term interest of customers is needed.

Signed at 40 Bunda Street,

Canberra of the Australian Capital Territory

this 13 February 2015

Before me:

Usman Saadat

Table of Appendices

Appendices	Documents
1	General Manager, Asset Management at ActewAGL Distribution - position description
2	Devlin curriculum vitae
3	ACT's Emergency Services Commissioner's letter to ActewAGL Distribution CEO, Mr Michael Costello, dated 30 January 2015
4	Map showing where fires were recorded to have occurred from FY 2006 to FY 2014

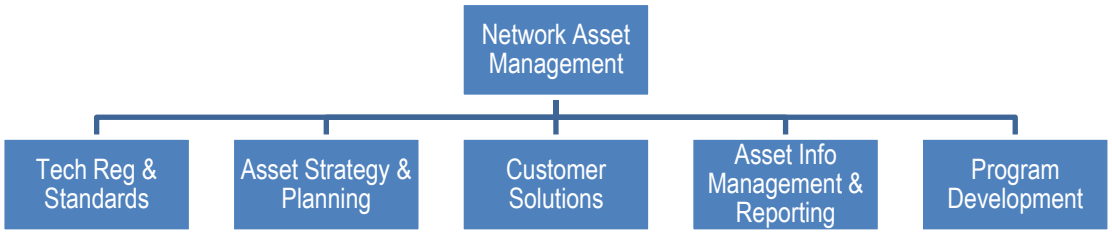
Position Description

Title:	**General Manager Network Asset Management**
Position Number:	
Classification:	
Division:	**Network Asset Management**
Branch:	**N/A**
Reports to:	**CEO**
ANSZCO Code:	

POSITION OVERVIEW

The primary purpose of this role is to provide asset stewardship for all electricity and gas distribution network assets managed by ActewAGL. As such the GM Asset Management is accountable for managing the long-term requirements of the Network, defining such in terms of strategies, standards and long-term plans documented within a holistic Asset Management Plan which is the foundation for the timely development, approval and update of the annual Program of Work.

DIVISIONAL STRUCTURE



DUTIES & RESPONSIBILITIES

In relation to all Electricity and Gas assets under ActewAGL stewardship, manage a team who:

- Develop Asset Strategies and long-term network (5-20 years) strategic plans in support of legislative, regulatory and policy requirements (for both primary and secondary assets)
- Develop medium-term (3-5 years) plans such as Asset Management Plans for each asset class and coordinate them into overall plans covering capital and operating activities (for both primary and secondary assets)
- Incorporate Demand Management options as alternatives to capital spend according to desired company strategy and targets
- Identify, develop, and maintain technical, equipment, design and data standards on behalf of the organisation
- Ensure that both Network Initiated Capital works and Customer Initiated Capital works are appropriately prioritised and managed within the Program of Works planning and approvals processes
- Develop the 1-year rolling program of work, manage the sign-off process with the Network Service Delivery Division and conform to change control processes
- Ensuring the performance of the assets are effectively monitored, documented and reported
- Responsible for Asset Risk and Investment considerations including risk profiling, capital deferment risk, contingency planning, system security, system growth forecasting, asset utilisation optimisation, etc
- Ensuring the maintenance and relevance of Engineering technical plant policies and standards
- Responsibility for technical / data system specification, configuration & administration.

In addition to the delivery of the core functional responsibilities of the role, the incumbent is expected to make a meaningful and palpable contribution to the leadership of ActewAGL and

the Networks Asset Management Division. The incumbent will be expected to personally champion:

- The implementation of the new business model (which will include a new organisation structure, new management processes and behaviours, a new compliance management system, and a united approach to the direction of the business)
- The close integration of activities across the individual lines of business, with a focus on Network Asset Management Division outcomes – balancing functional responsibilities with the need to deliver an integrated outcome across the business
- Building strong working relationships, especially across the Network Asset Management and Network Service Delivery Divisions

Above all else, this is a leadership role.

KEY PERFORMANCE INDICATORS

- Manage the assets to meet regulated and internally established network performance standards (eg. SAIFI by asset class)
- Asset-related safety / environmental events
- Asset Management Plan delivery
- Timely Program of Work development (dates TBC)
- Manage the Division within approved CAPEX and OPEX budget allocations
- Providing accurate and timely reporting to the CEO, the Board and other stakeholders

A final list Key Performance Indicators and performance management framework are still under development and will be confirmed at a later date.

MINIMUM ROLE COMPETENCIES

- A demonstrated understanding of the regulatory framework in which the Electricity and Gas Networks Businesses operate and the link between business decisions and their impact on the regulatory outcomes
- An understanding of the regulatory, financial, commercial and technological drivers of Asset Management
- Technical leadership in a number of the nominated functional areas
- Knowledge of trends in technology development in the industry, which are likely to impact on future asset management
- Proven knowledge and experience in the development of asset management strategies
- Ability to review, assess and integrate competing demands for capital, reflecting the objectives of the business
- Ability to build and maintain excellent relationships inside and outside the business
- An understanding of the roles and responsibilities of various statutory bodies, agencies, customers, etc.

RESUME

NAME	STEPHEN PATRICK DEVLIN
DATE OF BIRTH	21 September 1954
NATIONALITY	DUAL (AUSTRALIAN & IRISH)
EDUCATION	*Bachelor of Engineering (Electrical),* University of Queensland, 1977 *Master of Business Administration* James Cook University, 2004 *Master of Commercial Law* Deakin University, 2007 *Juris Doctor*, University of Canberra, 2012
LANGUAGES	English - written and spoken fluently

FIELDS OF EXPERTISE

General Management in Utility & Local Government Sectors
International Consultancy in the Utilities & Local Government Sectors
Operations (Electricity, Water, Wastewater & Solid Waste)
EPCM Contracting, D&C Contracting and Alliance Contracting

Provision of Multi-disciplined Engineering Services.

Water, Wastewater and Solid Waste Sector
Water & Wastewater Asset Management, Capital Works Planning & Design and Delivery.
Solid Waste Operations Management including Recycling
Water Efficiency and Resource Recovery

Energy Sector
Electricity & Gas Distribution & Transmission Asset Management, PAS 55, Distribution & Transmission Project Delivery, SCADA System Design and Development

Information Technology Sector
Systems Design and IT operations. WAN/LAN Network Design and Operations. CCTV Systems Design and Operations.

Facility Management
Operation and Maintenance of Building Services Building Management Systems.

Fleet Services
Operations and Maintenance
Fleet acquisition and leasing

Training of Staff, particularly relating to other cultures, PNG & East Asia

RESUME

EMPLOYMENT RECORD

ACTEWAGL
May 2011 to present

General Manager, Asset Management responsible for all Network infrastructure (Electricity & Gas) within ActewAGL Distribution.

- Asset Management accountability of the Electricity Distribution Network within the ACT.
- Accountable for the Gas Distribution Network within the Capital Region though a managed services agreement.
- Enterprise Strategic Asset Management based on a Geo-spatially enabled single source of truth for all asset data.

December 2009 to May 2011

Group Manager, Electricity Assets, responsible for the management of all Electricity Assets with Networks Division. It includes asset management, system control, major project and regulatory affairs responsibilities. Relevant project activities include the following:

- Strategic Asset Management, in line with PAS 55 and Reliability Centred Maintenance (RCM)
- Utility Scale Solar PV Facility for Canberra
- Smart Grid Strategy for Canberra
- Second 132kV Supply for Canberra (Alliance Contract)
- Eastlake, Civic and Molonglo Zone Substation Projects

March 2008 to November 2009

Manager Major Projects, Networks Division, responsible for the delivery of all major infrastructure projects with the Networks Division. These projects are in the Electrical Network and the Gas Network and include the following:

- 16km 132kV Dual Circuit Transmission line
- Mobile/ Package 132kV/ 11kV 10/15MVA Zone Substation
- 132kV / 11kV 30/55 MVA Zone Substation
- 22/2.75kV Pumping Substation

Responsible for the development and implementation of first Alliance Contract for Networks Division on Angle Crossing Supply Project.

CAIRNS WATER
November 2006 to February 2008

Manager Cleaner Seas Project, responsible for the delivery of a $120 m Program Alliance for design and construction of Wastewater Treatment

Plant upgrades for Cairns City Council and surrounding Councils. (Alliance Leadership Team member)

June 2005 to November 2006

Manager Infrastructure, responsible for the provision of Strategy and Tactical Planning, Capital Works Delivery and Asset Management in the area of Water, Wastewater and Solid Waste Services for Cairns City Council.

CAIRNS WATER
January 2001 to June 2005

Second in Charge for General Management of Cairns Water, (Commercial Business Unit of Cairns City Council)

Manager Business Development, responsible for the provision of Asset Management Services, Capital Project Development, SCADA Services, Engineering Services and Water Quality Laboratory Services to Cairns Water.

Operational Control of Solid Waste Services, including management of regional collection contracts and regional resource recovery contracts.

CAIRNS CITY COUNCIL
July 1998 to December 2000

Manager Technical Support Services, responsible for the provision of logistic support services to all areas of Cairns City Council. Engineering and scientific services provided include Facilities Management Services, Mechanical Services, Fleet Repair Services, Fleet Operations, Water Quality Laboratory Services, and Integrated Communications & Control Services.

CAIRNS CITY COUNCIL
January 1997 to July 1998

Manager Services, responsible for the provision of engineering services to all areas of Cairns City Council. Engineering Services provided include Electrical Services, Mechanical Services, Fleet Services, Water Quality Laboratory Services, Engineering Design Services and Asset Management Services. the principal focus of the position has been the development of business plans and service agreements/contracts for each service area as well as the introduction of a number of micro-management systems for job control.

ADVANCE ENERGY
July 1995 to December 1996

Acting Technical Services Manager after the amalgamation of 5 western NSW Electricity Distributors. Appointed Technical Services Manager in February 1996 in charge of planning, development and provision of Technical Services for Advance Energy. Operational Control of Advance Energy's Zone substations, VHF/UHF Communications systems, Telecommunications Systems, SCADA and Load Management Systems, Metering Workshops and HV Metering installations and Fleet Management.

CENTRAL WEST ELECTRICITY
July 1989 to June 1995

Development Manager in charge of the planning, development and augmentation of the Central West Electricity's (CWE) distribution system, sub transmission system and information technology systems. Operational control of CWE's Sub transmission System, VHF/UHF Radio Communication Systems and Information Technology (IT) Systems and CWE's Metering installations.

Responsible for analyzing, modelling and setting CWE's Electricity Tariff and Charges. Responsible for the annual purchasing forecast and negotiation of conditions of Supply with the Transmission Authority.

Responsible for the establishment and operation of Customer Service Centres at Parkes and Cowra and the provision of energy advisory services within the Central West region.

SNOWY MOUNTAINS ENGINEERING CORPORATION
September 1987 to July 1989

Electrical Engineering Consultant engaged on a number of engineering infrastructure projects, including a 132kV Transmission Line project in Nepal.

HYDRO-ELECTRIC COMMISSION OF TASMANIA
September 1985 to July 1987

Electrical Engineer (Transmission Lines) responsible for design and construction of 220kV Transmission Lines on the West Coast of Tasmania.

CAPRICORNIA ELECTRICITY BOARD
June 1981 to August 1985

RESUME

Mains Project Design Engineer responsible for the route selection, survey and design of 66kV Sub transmission Lines and the control of the survey, design and contract construction of major rural distribution projects.

ELECTRICITY COMMISSION OF Papua New Guinea
February 1980 to June 1981

Transmission Projects Engineer responsible for the design and construction of all new Transmission lines and maintenance of the existing 66kV Transmission Network.

FAR NORTH QUEENSLAND ELECTRICTY BOARD
January 1978 to February 1980

Electrical Engineer with Special Projects Section.

OVERSEAS ASSIGNMENTS

Assignments have been carried out in Papua New Guinea and Nepal. The most recent assignment was with the Lae Urban Level Local Government in Papua New Guinea in 2001 to 2004.

OTHER ASSOCIATIONS

Member of the Advisory Board for the Energy Change Institute at the Australian National University (ANU)

Member of the Australian Institute of Management

REFERENCES (Please discuss before contact)

Mr Robert Atkin, General Manager, Network Services,
(ph 02 62935817)
Mr Dennis Stanley, Senior Branch Manager, Asset Strategy and Planning (ph 02 62707667)

ACT Government

Mr Michael Costello AO
Chief Executive Officer
ActewAGL
ActewAGL House
GPO Box 366
Canberra ACT 2601

Dear Mr Costello

I recently met with representatives of ActewAGL Distribution regarding the Australian Electricity Regulator's recent draft decision and potential impact on your bushfire mitigation activities. It was agreed at the meeting that I would formally write to you to outline the ACT's statutory framework regarding bushfire prevention and electricity distribution.

The ACT is a bushfire prone environment and the ACT Territory Wide Risk Assessment (TWRA) identifies bushfire as a natural hazard that poses an extreme risk to the ACT. Risk mitigation activities undertaken by ActewAGL Distribution reduce the likelihood of bushfires and their impacts in the ACT.

Section 6 of the Electricity Networks Assets Management Code requires the electricity distributor to have an Electricity Safety Plan that addresses, but is not limited to, the protection of the environment, including protection from ignition of fires or bushfires. Section 6.2 requires a compliance report of the Electricity Safety Plan compiled by the electricity distributor to be submitted to the Director-General of the ACT Environment and Planning Directorate annually.

Section 77 of the *Emergencies Act 2004* (the Act) requires an owner of land or manager of unleased territory land or land occupied by the Territory to, as far as practicable, ensure the land is managed in accordance with the ACT Strategic Bushfire Management Plan (SBMP) and comply with any bushfire management requirement. ActewAGL is required to comply with the SBMP as an owner of land, where an owner of land is defined in the Act as lessee or occupier of the land.

Section 78 of the Act requires an owner or manager of land in a bushfire abatement zone to prepare a Bushfire Operational Plan (BOP) in accordance with the SBMP. Historically, ActewAGL prepared Bushfire Management Plans but there was a level of ambiguity around whether ActewAGL was required to prepare Bushfire Operational Plans as required by the Act. The SBMP tabled in September 2014 (Schedule 2) specifically lists ActewAGL as being required to develop a BOP for Bushfire Prone Areas.

In my role as Emergency Services Commissioner, I have the authority to approve ActewAGL's BOP, with stated amendments if required, as per Section 78 (3) (b) of the Act.

Once a BOP is approved, the ACT Minister for Police and Emergency Services can direct a manager of land, and the Emergency Services Commissioner can direct an owner of land, to comply with a bushfire management requirement or bushfire operational plan, applying to the area by way of Sections 81 & 82 of the Act. Failure to comply with a Direction by the Commissioner on an owner of land is an offence by way of Section 83 of the Act.

The ACT Minister for Police and Emergency Services introduced the most recent 5 year ACT Strategic Bushfire Management Plan into the ACT Legislative Assembly as a disallowable instrument on 23 September 2014. The content of the plan is prescribed by section 74 of the Act and there are 12 objectives within the plan.

Objective 1 of the SBMP specifically addresses the need to reduce bushfire ignitions. As you are aware, the 2009 Victorian Bushfires Royal Commission included a number of recommendations relating to the risk of ignitions associated with electricity infrastructure and supply. These matters were considered by ActewAGL to determine the level of risk in the ACT and any necessary actions that should be taken. These considerations were outlined in correspondence between yourself and the former ESA Commissioner, Mr Mark Crosweller in 2011 and 2012. While many of the matters raised in the Victorian Royal Commission had already been addressed in the ACT, or were not relevant, specific issues relating to the inspection and management of vegetation around powerlines remain, and the SBMP has identified specific recommendations to address these outstanding concerns as described below.

The SBMP outlines that arrangements will be clarified in relation to vegetation management near power infrastructure which include:

- The regulatory framework and responsibility of agencies and individuals to undertake works to reduce risk;
- Standards for vegetation clearance zones in proximity to power infrastructure, as well as the management of vegetation outside these zones that may also have an impact on power infrastructure;
- The provision of information and advice in relation to private power infrastructure on leased land in the rural areas of the ACT.

I plan to commence facilitating the above work with stakeholders in 2015. I understand that ActewAGL has been working with the ACT Environment and Planning Directorate to review vegetation clearance regulations and that revised regulations are expected to be considered in the first part of 2015. I also understand that ActewAGL is now revising your Bushfire Management Plan to satisfy the requirements of a BOP.

A BOP outlines the prevention and preparedness activities along with the performance indicators applicable for these activities as per Section 74 (3) of the Act.

A BOP needs to detail the specific timing, type and location of fuel-reduction, access and infrastructure activities proposed to be undertaken. The BOP also needs to identify actions and strategies to reduce bushfire ignitions.

Following the 2003 Canberra Bushfires where 73% of the Territory was burnt, internal research by the ESA has shown that vast areas of the ACT have regenerated. As the

regeneration of the forest canopy returns this may increase the work required in relation to ongoing vegetation management in the ACT.

As the Emergency Services Commissioner, I am required to consult with the ACT Bushfire Council (a ministerial advisory body established by way of the Act), who have a statutory role in monitoring the scope and effectiveness of the Strategic Bushfire Management Plan. The ACT Bushfire Council has requested a briefing at their meeting scheduled for 7 October 2015 in relation to bushfire mitigation activities and electricity distribution in the ACT. I would welcome ActewAGL to provide a presentation to the Bushfire Council on your bushfire prevention activities at this meeting.

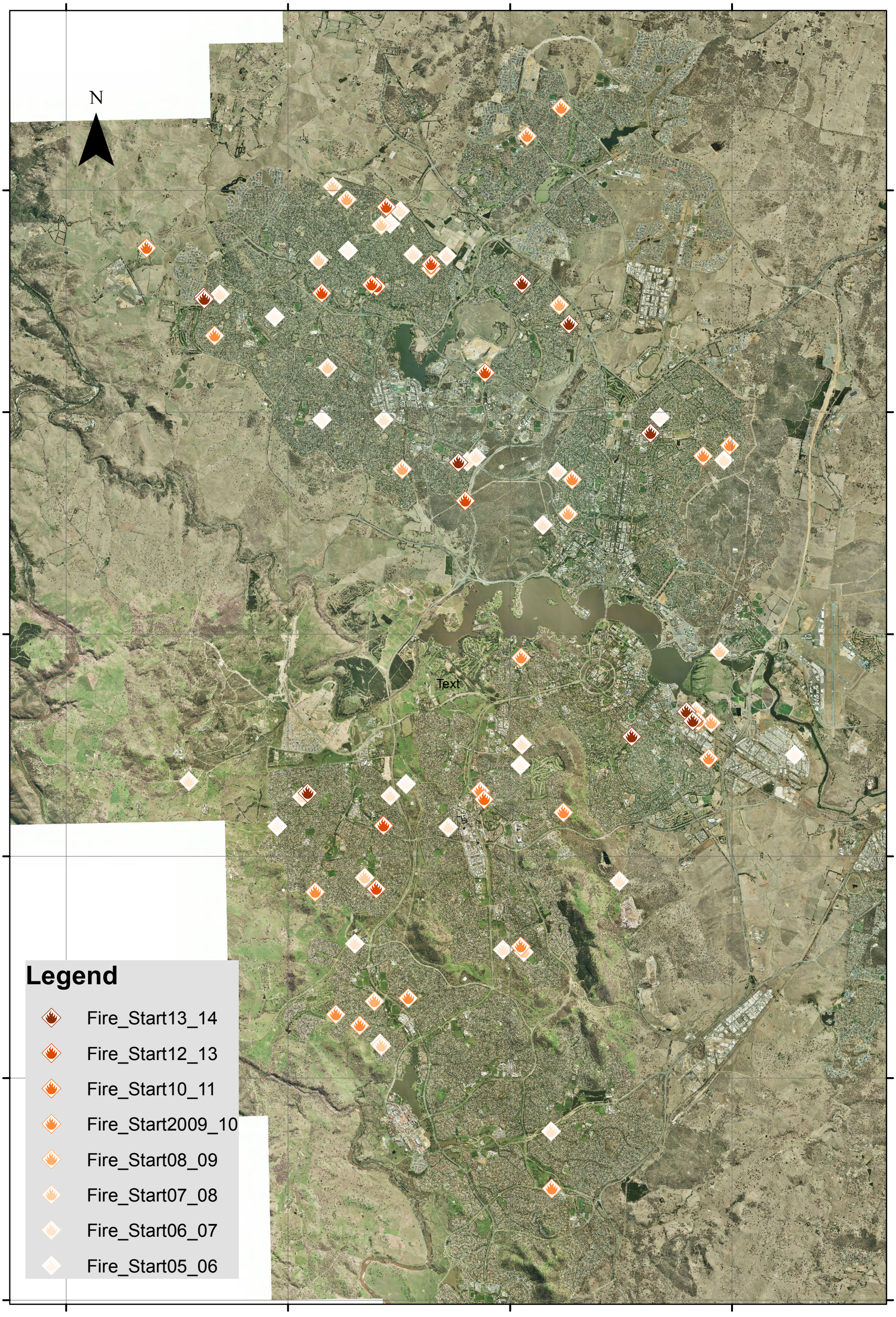
I trust this letter outlines the regulatory expectations on ActewAGL in relation to bushfire prevention in the ACT. I am happy for the ESA to provide further explanation if required. The contact in the ESA is Mr Tony Hanson, A/g Manager, Bushfire Coordination and Planning on (02) 6207 0278.

I look forward to working with you and your team to implement the ACT Strategic Bushfire Management Plan and mitigate the risk of bushfires in the ACT.

Yours sincerely

Dominic Lane
Emergency Services Commissioner
30 January 2015

Fires related to Electrical Poles, Canberra



Documents from ACTEW AGL files