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| **2014-15 POWER SYSTEM REVIEW** **SUMMARY OF KEY FINDINGS**  |

On an annual basis, the Utilities Commission (Commission) is required by the *Electricity Reform Act* to prepare a Power System Review (Review) that reports on power system performance and capacity in the Northern Territory. The Review relates to the Darwin-Katherine, Alice Springs and Tennant Creek power systems.

Consistent with the Northern Territory Government’s electricity reform program to align the electricity industry with national arrangements, the Australian Energy Market Operator (AEMO) provided high-level advice on the scope of the 2014-15 Review. The Commission aims to seek further AEMO involvement and input in future reviews.

For the 2014-15 Review, the Commission continues to place focus on power system incident reporting and planning, including the power system model and spinning reserve, generation availability and response and network planning, availability and reliability. The Commission has also considered the approach to power system planning in Alice Springs and Tennant Creek.

The 2014-15 Review is the first review following structural separation of the retail and generation business units from Power and Water Corporation.

The Commission undertook the 2014-15 Review with the assistance of Entura, Marsden Jacob Associates and MDQ Consulting, with information provided by electricity industry participants.

**Key Findings**

***Overall Power System Issues***

* The Commission notes overall performance improvements in 2014-15 in the areas of gas supply, generator plant reliability, network sensitivity to disturbances and service standards across the power systems.
* During 2014-15, the Commission noted a significant improvement in the performance power systems, particularly in the Darwin-Katherine power system, in terms of the number and severity of outages. The analysis and work undertaken by System Control and Territory Generation to investigate incidents also improved over this period.
* The Commission recognises the work undertaken by System Control and Territory Generation in relation to voltage and frequency control issues, under frequency load shedding arrangements and addressing recommendations from various investigation reports, including the Commission’s 12 March 2014 System Black investigation and 2014 Technical Audit. This work appears to have contributed to improved power system reliability.
* In acknowledging the improved performance of the power systems during 2014-15, the Commission is aware of system black events in Alice Springs in early 2016. This leads the Commission to conclude that the performance improvements are not yet consolidated and further work is required to meet customer expectations, particularly in Alice Springs and Tennant Creek.

***Maximum Demand and Energy Projections***

* The Commission forecasts an average of 1.4% per annum system-wide maximum demand growth to 2024-25, a slight decrease from the previous year’s projection. Maximum demand growth for Alice Springs and Tennant Creek is forecast at 0.14% and 2.8% per annum respectively.
* The percentage of households with a rooftop photovoltaic installation is projected to increase uniformly over the 10-year review period, with a slightly higher rate of uptake expected in Darwin-Katherine and a decline in the rate of uptake expected in Alice Springs and Tennant Creek.
* Darwin-Katherine and Tennant Creek are projected to have small increases in energy demand (0.93% and 0.35% per annum respectively), while Alice Springs is expected to have energy demand decline slowly (-1.07% per annum) over the 10-year review period.

***Generation Outlook***

* A review of load shedding events in 2014-15, found that all the power systems satisfied a generation response reliability standard of 0.002% per annum of expected unserved energy (EUE) (being the standard used in the National Electricity Market and the Western Australian Wholesale Electricity Market). The Darwin-Katherine system was at the standard and the other power systems performed better than the standard.
* The Darwin-Katherine power system had two load shedding events in 2014-15 associated with generation capacity reliability. This is a significant improvement from the 11 events that were recorded in 2013-14. Alice Springs and Tennant Creek power systems did not record any such events in 2014-15, in comparison to three events in Alice Springs and one event in Tennant Creek during 2013-14.
* The two Darwin-Katherine events were not related to generator breakdowns but the severity of one of the events resulted in the percentage of unserved energy far exceeding the generation capacity standard of 0.002% per annum. The Commission makes the observation that a limitation of the projections of reliability may not account for these types of events and that these issues will need to be considered in future development of formal reliability standards for the Territory.
* The responsibility for planning for generation adequacy in the Darwin-Katherine power system is still in development post-structural separation of Power and Water Corporation and is an issue being considered as part of the Territory’s wholesale electricity market reforms.

***Fuel Supply***

* The Territory’s gas system security is considered to be N-1 in the short to medium period, with an additional back-up arrangement from 2017 increasing gas system security to N-2 until 2022.
* The Commission recommends that a review of long-term gas supply arrangements be undertaken in light of structural separation of Power and Water Corporation and the future commencement of the North Eastern Gas Interconnector pipeline.

***Network Outlook***

* There is sufficient network capacity to meet future demand for the 10-year review period subject to a number of capacity concerns in zone substation and feeder loading, earthing on transmission towers and upgrades to tower grids on the 132kV Channel Island to Hudson Creek line and or its protection systems.
* The Commission notes progress on work done to reduce the likelihood of a outage of the transmission line loop between Hudson Creek, Palmerston, McMinns, Weddell and Archer substations.
* Power and Water Corporation met its System Average Interruption Duration Index and System Average Interruption Frequency Index targets for both transmission and distribution networks in 2014-15. There were no poorly performing feeders reported in the 2014-15 period.

***Customer Service***

* The Commission had previously observed a steady increase in the number of customer complaints and deteriorating responsiveness with respect to answering the telephone calls. This appears to have greatly improved in 2014-15 through the efforts of Jacana Energy.
* Timeframes for network re-connections and new connections improved in 2014-15.
* The number of complaints relating to network quality of supply reduced in all regions other than Alice Springs where there was a small increase. The Commission considers the number of complaints remains high and further effort is required to break down the category of complaints to better understand the spread of issues.