

2012-13 POWER SYSTEM REVIEW SUMMARY OF KEY FINDINGS

- The 2012-13 Power System Review further aligns reporting for the Territory's regulated power systems with other power system reporting in the National Electricity market (NEM) and is the first time overall power system reliability in the Territory has been assessed utilising techniques commonly used in the NEM and other power systems.
- For 2012-13, the Commission has placed considerable focus on actual system availability (generation and networks) to assess the security and reliability (dynamic performance) of the system, including voltage, forced outage rates and spinning reserve.
- The Commission undertook the 2012-13 Review with the assistance of Entura, Marsden Jacob Associates (MJA) and MDQ Consulting. Both Entura and MJA have expertise in the assessment of the generation and networks demand supply balance and NEM assessment and reporting techniques. MDQ Consulting is a firm with expertise in fuel supply issues and knowledge of the Territory's gas industry.

Key Findings

- Similar to previous reviews, the 2012-13 Review shows that both the Darwin-Katherine and Alice Springs power systems have a high level of generation capacity to 2022-23. The two power systems are likely to have the technical capability to operate at a reliable level for the 10 year review period assuming a low 2 per cent forced outage rates for generators (92 per cent overall availability).
- The review highlights the sensitivity of actual generator availability to the assumed generator forced outage rates. The Commission is concerned with the actual availability and reliability of generation plant, particularly at Channel Island, noting that for 2012-13 five out of nine sets at Channel Island had considerably less availability (less than 67 per cent with one at zero availability due to life extension work) than that predicted by Power and Water Corporation (PWC) (92 per cent) for the 10 year period.
- The Commission reviewed PWC Networks' forecast maximum demand in relation to system, zone substations and feeders with actual demand (on a same weather basis) and its methodology. The expected growth in system maximum demand was determined to be 2.7 per cent based on historical maximum demand (weather corrected) and zone substation growth. The Commission accepted the maximum demand forecasts but noted a number of issues which need to be addressed to improve the reliability of PWC Networks' demand forecasts. The Commission also noted that based on historical trends, PWC Networks' maximum demand forecasts tend to err on the high side.
- Energy growth forecast by PWC Generation applied to the Darwin-Katherine, Alice Springs and Tennant Creek were consistent with those used by PWC Networks' in terms of maximum demand in the Darwin-Katherine system (2.7 per cent). Energy forecasts for Alice Springs and Tennant Creek showed virtually no growth.

Generation Outlook

- PWC has adopted an N-3 (that is, the unavailability of the three largest generating units) planning criterion for the Darwin-Katherine system as a temporary measure to allow for life extension works at Channel Island Power Station.

- There is adequate generation available to 2022-23 at the N-2 planning standard but if the N-3 standard is continued the standard will not be met in 2018-19 and 2019-20. PWC needs to consider when it is appropriate to return to an N-2 criterion.
- The Commission notes that the forecast availability for Alice Springs is well in excess of the N-1 planning criterion for the period to 2022-23.
- The Commission notes that there is not sufficient gas generating units in Tennant Creek to satisfy the N-1 planning criterion, without the reliance on diesel back-up at least until 2015-16 at which time new gas units will commence the replacement of retiring diesel units.
- Approximately 50 per cent of the major system events examined by the Commission constitute double contingency events which is a significantly high number. PWC's practice of routinely shedding load for single contingency events is also inconsistent with most Australian electricity networks. These issues suggest that spinning reserve and system security decisions need to be reviewed by PWC as a priority.

Network Outlook

- There is sufficient network capacity to meet future demand to 2022-23 subject to the following capacity concerns:
 - transmission line loop between Hudson Creek, Palmerston, McMinns, Weddell and Archer Substation;
 - the frequency of transmission line outages (89) within the Darwin-Katherine area is high;
 - the number of 11 kV feeders exceeding the utilisation target is above what would be considered good electricity industry practice.
- The number of feeders with poor performance has decreased considerably which represents the overall work of PWC Networks in this area.
- PWC made improvements in aligning its Network Management Plan with the requirements of the National Electricity Rules. The Commission is aware that PWC needs time to establish the systems and processes required to meet all the reporting requirements, however there are still critical areas of reporting that need attention.

Customer Service

- The Commission notes that PWC met its target standard (if it was applied to 2012-13) in three out of four feeder categories in relation to SAIDI and SAIFI performance. The only feeder type not complying with the target standard was Rural Short feeders. PWC advised that the main contributing factor to this poor performance was 'Trees Blown into Mains' and 'Equipment - Failure or Defect'. PWC proposes to address these issues with further vegetation management activities and the feeder upgrade program.
- The Standards of Service Code allows for combined reporting of customer responsiveness and complaint information for network and retail services. The Commission considers that this should only be a temporary solution until appropriate reporting mechanisms are initiated by PWC.
- The percentage of on time customer reconnections significantly deteriorated in 2012-13 being below the five year average as well as the minimum of the last five years.
- On time new connections to urban areas where no extension or augmentation is required improved significantly to the highest level in the last five years.
- Urban connections in new subdivisions improved from previous years.
- There was deteriorating responsiveness to telephone queries. During 2012-13, the percentage of calls not answered within 20 seconds of the caller asking to talk to a person increased to 60.8 per cent, up from 40 per cent the previous year. The Commission notes that the volume of calls increased significant by over 20 per cent over the same period.