| Description of incident type | Annual Objective 1 July 2020 to 30 June 2023 |
|---|---|
| 30(1)(f)(vi): an unassisted failure of a composite fibre, aluminium, or any other type of pole that is part of the distribution network | NA |
| 30(1)(f)(vii): an unassisted failure of a hardwood pole that is part of the transmission network | 20 (7.6 per 10,000 transmission poles) |
| 30(1)(f)(viii): an unassisted failure of a softwood pole that is part of the transmission network | 0 (0 per 10,000 transmission poles) |
| 30(1)(f)(ix): an unassisted failure of a steel pole that is part of the transmission network | 1 (0.7 per 10,000 transmission poles) |
| 30(1)(f)(x): an unassisted failure of a concrete pole that is part of the transmission network | 1 (0.7 per 10,000 transmission poles) |
| 30(1)(f)(xi): an unassisted failure of a composite fibre, aluminium, or any other type of pole that is part of the transmission network | NA |
| 30(1)(g)(i): an unassisted failure of an overhead conductor that is part of the distribution network | 313 (47.3 per 10,000 energised distribution overhead circuit km) |
| 30(1)(g)(ii): an unassisted failure of an overhead conductor that is part of the transmission network | 2 (2.6 per 10,000 energised transmission overhead circuit km) |

| Description of incident type | Annual Objective 1 July 2020 to 30 June 2023 |
|---|---|
| 30(1)(h)(i): an unassisted failure of a stay wire that is part of the distribution network | 309 (19.6 per 10,000 distribution stay wires) |
| 30(1)(h)(ii): an unassisted failure of a stay wire that is part of the transmission network | 3 (5.3 per 10,000 transmission stay wires) |
| 30(1)(i)(i): an unassisted failure of an underground cable that is part of the distribution network | 3 (1.1 per 10,000 energised distribution underground circuit km) |
| 30(1)(i)(ii): an unassisted failure of an underground cable that is part of the transmission network | 1 (0.02 per total energised transmission underground circuit km) |

# 4. Appendix – Western Power ANSPO Methodology

## 4.1 Introduction

Annual Network Safety Performance Objectives (ANSPO) is a statement which needs to be published under regulation 31 of the Electricity (Network Safety) Regulations 2015. The regulation requires Western Power to annually publish a three year forecast for a specified set of network safety incident types, providing external visibility of the public safety risk posed by the network. ANSPO 2020 covers the financial years 2020/21, 2021/22 and 2022/23.

## 4.2 Context

Western Power's objective is to provide its customers with safe, reliable and efficient access to its electricity network. It focuses on providing agreed levels of service at the lowest practical cost, while minimising harm to the public, our workforce and the environment, and damage to property.

Western Power manages its electricity network in line with an asset management system. The system meets the requirements of Australian Standard for Electricity Network Safety Management System (AS5577). The asset management system is aligned with the requirements of Economic Regulation Authority of Western Australia (ERA). The mix of asset management capability, technological capability, and a culture of innovation and continual improvement positions Western Power to deliver on its business objectives.

An integral part of providing an electricity network service is the investment in asset treatment programs (inspection, repair, maintenance and replacement) centred around identifying and mitigating safety risks on the network assets including poles, towers, conductors and substations. This risk-based approach complies with AS5577 and includes consideration of the asset condition and the potential of the asset to cause a safety or reliability consequence if failure occurs. Under this approach, it is important to note that the number of failures of a particular asset may vary without a change in the underlying risk.

## 4.3 Methodology

Western Power’s methodology for setting the ANSPO is based on the average of the last three annual results plus two standard deviations, moderated with engineering judgement to set a suitable upper limit for expected performance. For low frequency incident types not amenable to statistical treatment, the methodology applies engineering judgement and historical performance to set a suitable upper limit for expected performance. Factors considered within engineering judgement include, but are not limited to:

- Evident trends in the historical performance data for each incident type.
- Changes in the type or quantity of treatments in future investment plans that materially affect the likelihood of each incident type.
- Changes in the environment, demographics or other external factors that materially affect the likelihood of each incident type.
- Emerging technical issues affecting particular asset types that materially affect the likelihood of each incident type.

The methodology is robust, defensible and produces an appropriate picture of the likely upper limit of performance in each of the ANSPO categories.

## 4.4 Highlights of ANSPO 2020

The approach has generally reduced or maintained previous ANSPO figures, with the following highlights:

- Improvements in several figures for ANSPO 2020, most notably 30(1)(f)(iv) unassisted streetlight metal pole failures and 30(1)(g)(i) unassisted overhead conductor failures.
- Objective 30(1)(d)(i) – the forecast for fire on a wood pole of the distribution network has increased to 569 in FY2020/21 as calculated using statistical methods. Western Power are currently pausing insulator silicone program due to an incident experienced in January 2020. A revised strategy will commence from FY2021/22 onwards to continue to silicone insulators in high and extreme bushfire risk zones while also targeting feeders that exhibit a high frequency of pole top fire. Hence, engineering judgement is used to overrule Objective 30(1)(d)(i) to 512 in FY2021/22 and FY2022/23.
- Objective 30(1)(e)(i) – the forecast for contacting of 2 or more conductors of the distribution network has increased to 137 (107 in ANSPO 2019). This figure is based on the number of the clashing conductors in FY19/20 which is the maximum among all observed years. The strategy to install HV spreader has just began since July 2020 which anticipated that the targeted figure will be improved.
- Objective 30(1)(h)(i) - the forecast for unassisted stay wire failures of the distribution network has increased to 309 (208 in ANSPO 2019) as calculated using statistical methods. The review of remediation strategy is ongoing. The number of failures and the impact on Western Power's safety performance levels will continue to be monitored and assessed.
- Objective 30(1)i)(i) and 30(1)(i)(ii) –Last year we advised our intent to move to forecasting all unassisted failures of underground cables, rather than the subset of failures associated with electric shocks. On preparation of ANSPO 2020 it became apparent that the new process for capturing unassisted failures of underground cables was still bedding in during FY 2017/18 and that the data set available for analysis is therefore too small to make a meaningful forecast. Accordingly, we have elected to maintain the existing approach of forecasting failures of underground cables resulting in electric shocks for ANSPO 2020. We will now move to forecasting unassisted failures of underground cables for ANSPO 2021.