

# Closing the curtains on noisy substations



*Curtains in use at the Herdsman substation.*

**Western Power has engineered a first, with two substations in Perth now emitting less noise due to the installation of Pyrotech curtains around the transformers at the University and Herdsman substations.**

Following a report by the Environmental Protection Authority (EPA), Western Power began looking at ways it could reduce noise emitted by a transformer and reduce impact on local residents and businesses.

Traditionally, high boundary walls have been erected around transformers to mitigate the noise level, but the construction of these takes up to three months per substation. The Pyrotech curtain method of noise mitigation takes only eight days to enclose one transformer, including the steel support structure, roof and curtain.

The first trial was at University substation (near UWA) and the results were positive overall, except in one location where the curtains failed to reduce noise levels sufficiently. The Transmission Noise Mitigation team took these learnings to the second test site, Herdsman substation, and added a sound absorption roof resulting in a minimum one decibel reduction, compliant with EPA regulations.

The curtains consist of two layers of a 25mm thick layer of acoustic foam bonded to 8kg/m<sup>2</sup> loaded vinyl. These two layers are then enclosed in a fluorocarbon coated fibreglass fabric which is highly resistant to weather,

industrial chemicals and temperatures up to 600 degrees Fahrenheit.

Project Manager Alex Kiddie said the design of the enclosure configuration was the most important part of the project.

**“The design of the enclosure was a combined effort by CADDs Engineering, E&M Industries, Herring Storer Acoustics, Power Alliance and Western Power. The enclosure design was very important as there were concerns that the transformers may overheat in the confined space of the enclosure. Therefore the enclosures were designed to create natural convection air currents around the transformers and, as a bonus, it was discovered during our hot weeks during January that the enclosure helped to keep the transformers cool,” Alex said.**

The curtains, which are half the cost of traditional noise mitigation methods, are also a good alternative when maintenance access is required. This is a practical example where innovation and thinking outside the box can achieve cost savings and process efficiencies.

