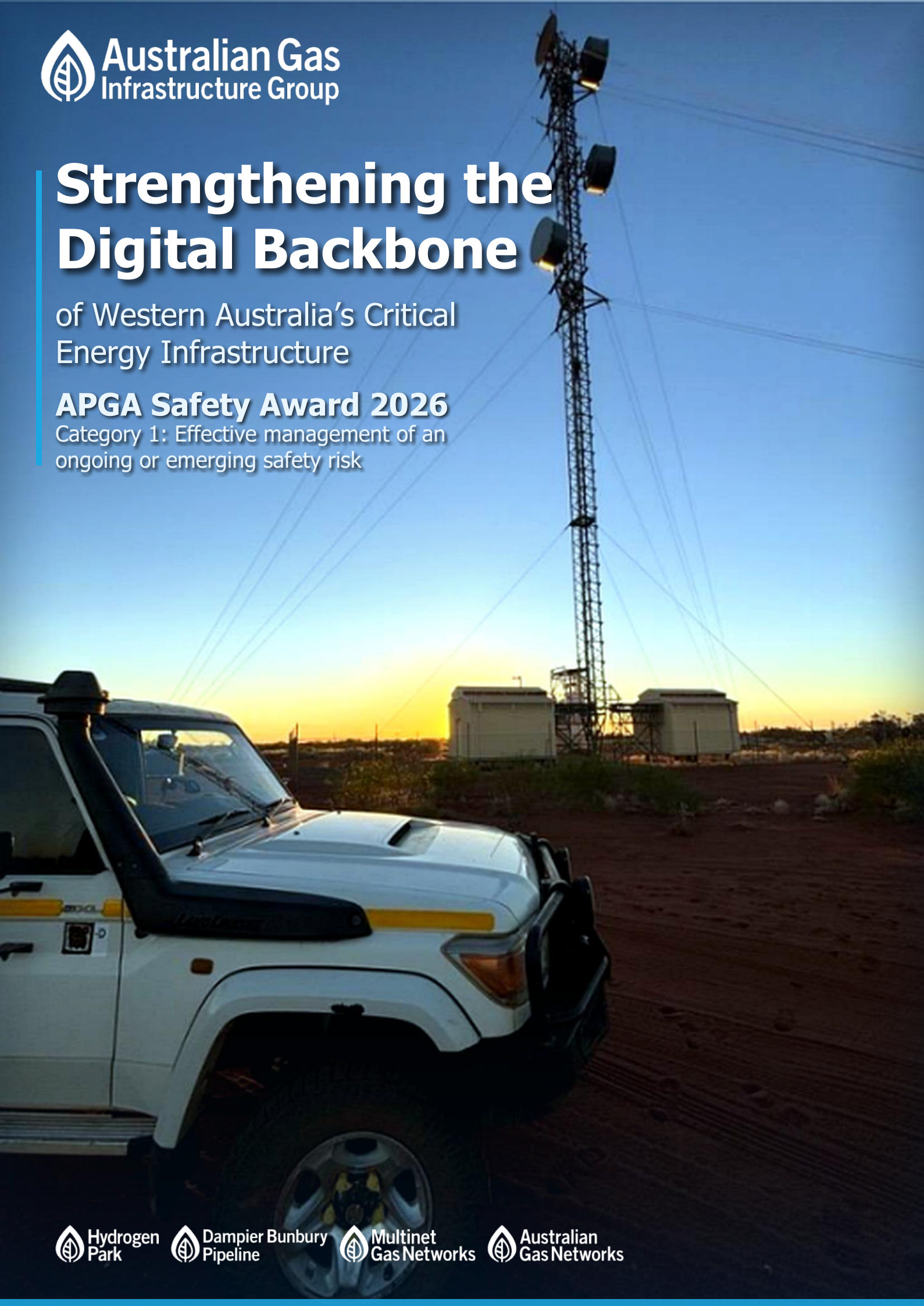
Australian Gas Infrastructure Group

Strengthening the Digital Backbone

of Western Australia's Critical Energy Infrastructure

APGA Safety Award 2026

Category 1: Effective management of an ongoing or emerging safety risk



Hydrogen Park | Dampier Bunbury Pipeline | Multinet Gas Networks | Australian Gas Networks

Background

Modernising Critical Communications Across 1,600 Kilometres

The Dampier to Bunbury Natural Gas Pipeline is one of Western Australia's most critical energy infrastructure assets, transporting natural gas across approximately 1,600 kilometers from the north-west of the State to major industrial, mining, power generation and residential markets in the southwest of Western Australia.

The Northern Communications Project was established to renew and modernise the communications backbone that supports safe pipeline operations, SCADA visibility, remote monitoring, operational control and field communications across the DBNGP corridor. The project covers operational sites across the DBNGP corridor, many of which are in remote, high-temperature and logistically constrained environments.

While the scope involved the replacement and upgrade of ageing microwave, antenna and network infrastructure, the defining feature of the project was the safety challenge associated with its delivery. Works were required across the full length of the DBNGP from Dampier to Bunbury spanning 1,600 kilometers, involving complex working-at-height activities, antenna lifts, remote mobilisation, changing weather conditions and coordination with live pipeline operations.

The project had to be delivered without compromising the integrity of the existing communications network and the safe operation of the pipeline. This required a methodical, safety-led approach to planning, contractor management, operational coordination and commissioning.

This was not a routine telecommunications replacement program. It was a large-scale, high-risk infrastructure renewal activity across one of Australia's most important pipeline systems. Its scale, geographic spread and operational complexity make it a rare event for the DBNGP and a significant example of safety-focused project delivery in the Australian pipeline sector.

Remote pipeline communications infrastructure across the DBP corridor

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Summary

The Northern Communications Project is a major safety-led infrastructure renewal program across the Dampier to Bunbury Natural Gas Pipeline. The project involved the replacement and upgrade of ageing microwave, antenna and network infrastructure across approximately 1,600 kilometres of pipeline corridor, covering compressor stations, repeater sites and mainline valve locations in some of Western Australia's most remote and challenging operating environments.

The project was significant in both scale and complexity. It required works at height on communications towers ranging from approximately 30 metres to 130 metres, the mobilisation of materials and personnel across long distances, and the management of changing site conditions including wind, heat, bushfire risk, access constraints, cyclonic weather and fuel supply pressures and the incidental habitat created by protected wildlife that choose to nest on these towers.

A key safety challenge was maintaining operational continuity while the new mircowave system was introduced. The communications network supports SCADA visibility, operational control, field communications and safe pipeline response. As a result, the project had to be delivered methodically while maintaining live operational communications between remote sites and Perth.

The project team implemented a structured safety and process safety approach, including detailed lift planning, contractor capability management, Jandakot FAT testing, controlled site mobilisation, SIMOPS coordination with Operations, weather monitoring, access planning and staged commissioning. This ensured that the upgrade could be delivered without compromising pipeline operations, asset integrity or personnel safety.

This project demonstrates how a complex live-system renewal can be delivered safely across remote critical infrastructure through disciplined planning, strong governance and careful management of field execution risk.

Remote operating environment

Communications infrastructure renewal

Field commissioning and integration

"The Northern Communications Project strengthens one of the critical systems that enables safe and reliable operation of the Dampier to Bunbury Natural Gas Pipeline. By modernising communications across remote and complex operating environments, this work improves resilience, supports our operational technology strategy, and helps ensure we continue to deliver essential energy infrastructure for Western Australia."

Craig de Laine
CEO, AGIG

130 2.4 m antennas

52 microwave hops

32 3.6 m antennas

4 1.8 m antennas

A strategic investment in the reliability, resilience and maintainability of DBP's operational technology environment.

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Business Need

Risk-based renewal of critical communications infrastructure supporting safe pipeline operations.

Business Need and Requirement to Address Risk

Modernising ageing communications infrastructure to protect operational visibility and control

The Northern Communications Project was initiated to address the safety, reliability and maintainability risks associated with ageing communications infrastructure across the Dampier to Bunbury Natural Gas Pipeline.

The DBNGP relies on its communications network for SCADA visibility, remote monitoring, operational control, field communications and emergency response. Degraded or lost communications at remote sites could reduce operational awareness, delay response activities and increase process safety exposure.

The requirement was to renew and modernise the microwave, antenna and network infrastructure without compromising live pipeline operations. The existing communications system could not simply be turned off while the new system was introduced, as field personnel, Operations and control room teams needed to remain connected to Perth throughout the works.

Delivery also introduced significant safety risk, including working at height on towers between approximately 30 metres and 130 metres, antenna lifts, remote site access, changing wind and weather conditions, bushfire risk, long-distance mobilisation and SIMOPS with other pipeline activities.

The business need was therefore to reduce long-term process safety risk while safely delivering a complex live-system renewal across remote critical infrastructure.

Ageing antenna and microwave assets

Ageing assets

Increasing reliability issues, maintenance and vendor support exposure.

Legacy serial systems

Limits scalability, diagnostics and future OT integration.

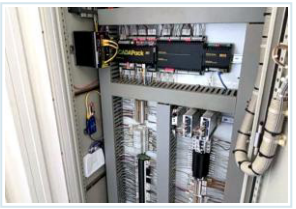
Remote environment

Long access windows, harsh conditions and higher planning complexity.

Project response

Network equipment renewal

Commissioning and testing



Operational integration

Before

Legacy communications assets and ageing field infrastructure

→

Response

Antenna, microwave and network equipment renewal

→

Outcome

Improved resilience, SCADA visibility and maintainability

This work directly supports safe pipeline operations by strengthening the communications systems that underpin SCADA reliability, cyber resilience, remote operations, field response and long-term asset management.

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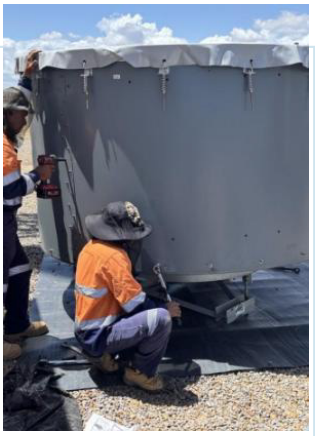
CONTROLLED LIVE-SYSTEM MIGRATION

Maintaining operational communications while modernising remote microwave infrastructure.

Approach

Methodical migration while maintaining live operational communications

The project approach was centered on one key principle: renew the communications backbone while protecting personnel safety, process safety and live pipeline operations.



Field installation under live operating constraints

The existing communications network could not simply be switched off while the new microwave system was introduced. The DBNGP relies on this network for SCADA visibility, field communications, operational coordination and response capability across remote sites. Reliable communications were critical to maintaining operational awareness and process safety throughout the works.

A detailed safety-led delivery model was established to manage the scale and complexity of the works. This included contractor capability assessment, structured lift planning, working-at-height controls, weather and wind monitoring, site access planning, and close supervision of activities where there was potential for shortcuts or complacency.

The project also required careful logistics management across the full DBNGP corridor, including mobilisation of materials from Perth staging points, remote accommodation planning, fuel supply considerations, bushfire and access constraints, and daily changes to site conditions. These risks were actively managed to protect field personnel and maintain continuity of operations.

Network verification and staged cutover readiness

To reduce site risk, testing and preparation activities were undertaken through the FAT testing before equipment was deployed to site. Installation and cutover activities were then delivered through a staged and methodical process while maintaining operational continuity.

The approach required close coordination between communications engineers, SCADA specialists, field staff, control room operations, contractors and project management and delivery teams. Work packs, outage windows, SIMOPS, commissioning activities and fallback arrangements were planned to ensure the upgrade was delivered safely without compromising asset integrity or day-to-day pipeline operations.

Controlled migration sequence

Maintain existing communications → **Install** new microwave infrastructure → **Verify** site-by-site testing → **Cutover** controlled transition → **Handover** operations and support

Key controls

- Live communications maintained during upgrade works
- Planned site-by-site migration sequence
- SCADA and operational impacts assessed before cutover
- Field personnel remained connected to Perth operations
- Fallback arrangements retained during commissioning
- Asset integrity and pipeline operations protected throughout

This disciplined approach enabled renewal of ageing communications infrastructure while maintaining operational continuity across one of Western Australia's most important energy assets.

Outcomes

The Northern Communications Project delivered a major safety and process safety outcome by renewing critical communications infrastructure across the full DBNGP corridor while maintaining live pipeline operations with no injuries recorded.

The project successfully managed a significant increase in execution complexity, including works at height on towers between approximately 30 metres and 130 metres, large antenna lifts, changing wind conditions, remote site access, bushfire impacts, cyclone-related mobilisation risks, fuel supply pressures and long-distance movement of materials from Perth staging points.

A key achievement was the safe management of contractor delivery at a scale well beyond routine communications works. The project required close supervision, structured lift planning, clear work packs and active field leadership to manage the risk of shortcuts, complacency and uncontrolled execution during repetitive high-risk activities.

The project also protected process maintaining operational communications throughout the migration. New microwave, antenna and network infrastructure was installed, tested and progressively introduced while maintaining operational continuity. This ensured SCADA visibility, field communications, operational coordination and response capability were maintained during the upgrade.

Operational continuity was further supported through FAT testing, staged commissioning and careful SIMPOS coordination with Operations and other pipeline works. These controls reduced uncertainty at site and helped protect personnel safety, asset integrity and day-to-day pipeline operations.

Overall, the project demonstrates a strong safety achievement across a large, remote and operationally complex infrastructure renewal program. It shows how major communications works can be delivered safely across live and overlapping critical infrastructure through disciplined planning, contractor management, logistics control and process safety governance.

Field delivery of communications infrastructure renewal across remote DBP assets

Key outcomes

- Delivered safely with no injuries
- Improved SCADA and OT resilience
- Live communications was maintained
- Ageing microwave infrastructure was renewed
- Future-ready IP enabled platform was implemented
- Delivered below budget

General Enquiries

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