



Jemena Ltd: Malabar Biomethane Injection Project
LESSONS LEARNT REPORT 2

Project Details

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EXECUTIVE SUMMARY

The progress in this period was the completion of detailed design, design and manufacturing of the biogas upgrader and preparation and tender for the construction works.

The lessons learnt were related to the understanding of biogas projects, standards compliance and managing specifications development of upgrader specification and community consultation.

KEY LEARNINGS

Lesson learnt No.1: Australian engineering consultancies have limited knowledge of the technologies and requirements for developing a biogas upgrading facility

Category: Technical

Objective: Improvement of project scoping, budgeting and planning

Detail:

Jemena engaged consultants with personnel overseas to mitigate the risk of developing a first of a kind project in Australia. Nevertheless, there were technical, scoping and budgeting issues that arose during the early FEED phase of the project.

Managing this process will be difficult as Australia moves to the decarbonisation of its gas network. It is recommended that more consultation works are completed with additional specialist technical advisors with project experience to ensure future projects focus on improved technical, scoping and budgeting outcomes.

Implications for future projects:

- Sharing of key learnings to industry partners to continue to promote future projects
- Consider engaging engineering consultants in Australia who work in partnership with consultants from overseas who have a strong track record in designing biogas upgrading facilities.

Lesson learnt No.2: Selecting an equipment supplier with engineering design, fabrication and construction capabilities in Australia can assist in achieving compliance with Australian Standards

Category: Technical and Commercial

Objective: Achieving compliance of the biogas treatment facility with Australian Standards

Detail:

All tender respondents from the upgrader tender stated that OEMs could achieve compliance with Australian Standards. However, Jemena had prior experience with OEMs that could not comply to the complex Australian Standards requirements, which complicated future operations.

The project team sought to reduce the risk of non-compliance by confirming the supplier and its OEM understood the requirements for compliance.

The appointed upgrader supplier had to overcome significant challenges to change and modify the design to conform to Australian Standards.

Fortunately, the equipment supplier was a capable designer and manufacturer who were able to work with the OEM to manufacture the upgrader unit within Australia to ensure compliance. Although this was a greater project outcome it resulted in significant delays to the project.

Implications for future projects:

- Given the manufacturing moved to Australia it will limit and remove all future issues associated with Australian compliance with that supplier.
- Invite Australian suppliers with engineering design, fabrication and construction capabilities to tender to assist in resolving compliance issues early that may arise from bringing technology from overseas.
- Ensure Australian suppliers establish back-to-back contracts with international OEMs.
- Understand impacts to project if the supplier and its OEM can't achieve the specifications.

Lesson learnt No.3: Specifications from the oil and gas industry can be excessively stringent for a biogas facility leading to increased complexity and costs

Category: Technical

Objective: Development of technical specifications that are fit for purpose.

Detail:

Given the limited technical specifications available, Jemena utilised its proven and developed specifications that are applied across the gas industry.

These specifications contain requirements that ensure a robust process is followed during design, manufacturing, installation and commissioning that provide confidence in the development of high-pressure facilities. As observed through the design process the application of high pressure gas facilities specification significantly overcomplicates the low pressure environment for the processing areas of biogas facilities (i.e. upgrader).

Implications for future projects:

- Develop standards and specifications that are fit for purpose for biogas upgrading to biomethane.