Snapshot Report

AMPC
AUSTRALIAN MEAT PROCESSOR CORPORATION

Accelerating Biogas Adoption with AnCoD Pilots

Project code
2024-1003

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Project description

This project aims to accelerate the adoption of anaerobic co-digestion (AnCoD) technologies across Australia's red meat industry by designing and delivering modular, pilot-scale digestion units. The project supports industry-led research and development by providing processors with access to practical demonstration infrastructure to test the feasibility and performance of co-digestion using site-specific organic waste streams.

Project content

Two 400L anaerobic co-digestion pilot units were custom-engineered and fabricated in Germany to suit a variety of red meat processing wastes, including paunch, DAF sludge, and manure. A key milestone was the successful completion of Factory Acceptance Testing (FAT) in Germany, which verified the mechanical design, control systems, and operational integrity of both units.

To maximise accessibility and streamline deployment, a dedicated R&D hub was established in Myaree, Western Australia. This facility provides a flexible, non-academic environment for piloting and demonstrating co-digestion systems tailored to industry needs. Site preparation, risk management, and logistics planning have all been undertaken to support deployment.

Project outcomes

Factory Acceptance Testing (FAT) successfully conducted in Germany

The AnCoD pilot units underwent a rigorous Factory Acceptance Testing (FAT) process in Germany in mid-2024. Tessele's engineering team participated on-site to verify that all mechanical, control, and safety systems met the specified design and operational requirements. Key aspects of the FAT included mixer operation, thermal insulation checks, temperature control systems, gas-tightness testing, instrumentation calibration, and PLC-based automation interface testing. This milestone ensured that both 400L co-digestion units were built to a high standard and were functionally ready for anaerobic digestion trials.

Units shipped from Germany to Griffith University in October 2024

Following FAT, both pilot units were shipped to Griffith University (Nathan Campus) in Queensland, where they were temporarily stored while site hosting arrangements were being finalised. Due to a change in delivery strategy, which reflected institutional limitations in housing operational reactors, a decision was made to transfer the equipment to an independent facility to ensure project continuity and accessibility for industry stakeholders.

Relocation to Myaree and preparation for deployment

In early 2025, the units were relocated from Griffith to Western Australia. Detailed logistics and risk-managed handling procedures were developed and implemented to ensure safe transport across states. Upon arrival in Perth, the reactors were transferred to the newly established **Tessele Bio Hub** in Myaree, WA. The site was prepared with bunding, drainage, electrical access, and space allocation for gas storage and digestate handling, ensuring suitability for pilot-scale operation.

Establishment of the Tessele Bio Hub in Myaree, WA

The Myaree facility is now positioned as a dedicated anaerobic digestion R&D centre tailored to industry needs. It offers secure access, modular configuration, and a regulatory-compliant environment for operational trials. The Bio Hub will serve as the base for ongoing industry-facing testing, stakeholder engagement, and innovation activities related to AnCoD, nutrient recovery, and decarbonisation in the red meat industry.

National workshop hosted by RACE for 2030 in March 2025

A major knowledge-sharing milestone was the national workshop held in **March 2025**, led by RACE for 2030 and hosted at the Tessele Bio Hub. This event brought together industry processors, technology partners, regulators, and researchers to showcase the AnCoD units, discuss trial parameters, and explore commercialisation pathways.

Successful FAT validates technology performance

The Factory Acceptance Testing (FAT), conducted in Germany, was a pivotal milestone in the project, ensuring both pilot units meet stringent mechanical, electrical, and operational performance criteria. The FAT process involved comprehensive testing of instrumentation, mixing systems, temperature regulation, safety alarms, gas-tightness, and integration with programmable logic control (PLC) interfaces.

Tessele's technical team collaborated closely with the European manufacturer (UIT) throughout the FAT to confirm that the AnCoD units were built to Australian safety standards and tailored to the specific requirements of red meat processing waste streams. The pilot systems were designed with flexibility in mind, enabling co-digestion of a variety of organic wastes, including paunch, DAF sludge, and manure.

This rigorous validation process has given stakeholders confidence that the technology is fit-for-purpose and capable of delivering valuable operational insights under Australian conditions. The success of the FAT marks a major step forward in de-risking deployment and enabling practical trials at processor sites.

Figure 1 Factory Acceptance Test (FAT) in Germany (May 2024).

Strategic foundations in place for industry trials

All necessary foundations have been established to enable the transition into the demonstration and industry engagement phase. Detailed planning has been undertaken to support deployment of the AnCoD pilot systems, including logistics coordination, site layout design, service connection strategies, and risk and safety documentation. Safety protocols and commissioning procedures have been outlined to ensure the units will operate within regulatory and environmental compliance frameworks.

A significant project milestone was the successful delivery of the RACE for 2030 Industry Workshop, held in March 2025 at the newly established Tessele Bio Hub in Myaree, Western Australia. This national workshop brought together representatives from the red meat processing sector, technology providers, academic institutions, regulators, and funding partners. The event provided a platform to share the vision for the AnCoD initiative, demonstrate the pilot units prior to commissioning, and align future trial objectives with stakeholder needs.

The workshop served as a springboard for future collaboration and validated the importance of practical, processor-led innovation in biogas adoption. Participants praised the project's transparency and the opportunity to physically inspect the pilot systems before operation.

A full recording of the workshop, including presentations and system walkthroughs, is available at the following link:

Watch the workshop video here

This workshop and the associated groundwork position the project to deliver high-impact results as pilot trials begin.

Figure 2 Reactors being displayed at the stakeholder workshop in March 2025.

Independent R&D hub established in WA

To support hands-on demonstration and overcome hosting limitations identified during the project, Tessele established a dedicated pilot R&D facility in Myaree, Western Australia. Known as the Tessele Bio Hub, this site provides a flexible, non-academic setting for applied innovation and industry collaboration.

The Myaree hub was selected to maximise logistical efficiency, simplify site access for partners, and enable rapid commissioning of the AnCoD systems. It offers controlled environmental conditions, suitable services (power, drainage, bunded areas), and the ability to customise operating conditions as needed for different processor scenarios.

By removing reliance on university or third-party hosting arrangements, the new R&D hub ensures the project can remain agile and responsive to stakeholder needs. It also strengthens industry trust by offering transparent access to trial results, training, and direct participation in the technology evaluation process.

Figure 3. Reactors unpacked at Tessele Bio-Hub, ready for installation and wet commissioning.

Useful resources

https://www.youtube.com/watch?v=hYtu-b9fJ3M&t=2s