A Review of Australian Regulations and Standards for the Handling and Treatment of Biogas

APL Project 2010/1013.333
November 2010
Prime Consulting International (Australia) Pty Ltd
Davidson A.

Biogas is generated when bacteria degrade biological material in the absence of oxygen, in a process known as anaerobic digestion. In addition to the use of biogas as a sustainable energy source, interest in anaerobic digestion and in particular biogas capture has been traditionally driven by environmental outcomes. In Australia, the capture and use of biogas is a relatively new trend, which understandably is being led by the intensive livestock industries, which followed the development of landfill gas and biogas capture from sewage plants.

Australian Pork Limited commissioned this review as a result of increasing interest in biogas capture and use in the pig industry. The industry does not currently have a 'handbook' on biogas regulations and standards available to producers. Furthermore, experience from early adopters indicates wide variation between the states and territories on how biogas production is currently being regulated. Accordingly, this review details the various regulations and standards for biogas production and use across Australia. The review also covers a selection of international regulations and standards to enable comparison.

In Australia, the Gas Technical Regulators Committee (GTRC), an association of Government Departments, is responsible for the safe use of gas. The Committee includes representatives from every state and territory in Australia and New Zealand, however, the reality is that each state and territory has its own legislation in the form of Acts, Regulations and Policies that underpin gas safety. As with gas safety, each state and territory has its own legislation regarding air quality and emissions and fortunately all states have clear policy guidelines on air quality and emissions; albeit accurately determining emission levels is subjective and potentially expensive.

The overall result is a current state of confusion. Biogas is not specifically mentioned in any current legislation, which makes the task of determining the applicability of regulations more difficult combined with conflicting information regarding regulations for industrial and gas supply chain networks versus other non-networked gas requirements.

Neither regulatory path provides a satisfactory outcome as leaving biogas installations unregulated provides an opportunity for shortcuts to be taken and potentially leaves operators at risk of harm. While the highly regulated regime applied to petroleum gas production (and associated networks) is far too prescriptive and burdens on-farm production sites with comparably high compliance costs.

It would seem that a logical step would be to develop an international approach to on-farm biogas regulations and standards. In doing so, allowances can be made for differences in specific production systems (i.e. digester versus covered pond). At the very least a joint Australia/New Zealand Standard for the on-farm production and use of biogas should be pursued and aligned with the revised Australian Standard 5601 for gas installations.

In the meantime, producers planning to construct a biogas plant on their farm are strongly advised to consult with the appropriate local and state-based regulatory authorities as the first stage in the planning process.