



Contribution ID: 180

Type: Oral Presentation

## Biogas upgrading and bottling

*Wednesday, 5 July 2023 11:20 (20 minutes)*

### ABSTRACT

The production of biogas in South Africa is gaining popularity as a sustainable solution to waste management and energy production. However, the biogas produced from organic waste needs to be upgraded biomethane to meet the required specifications for use as fuel for road transport, electricity generation, and or for injection into the national gas grid. Biogas is a renewable energy fuel that is produced from the anaerobic digestion of organic matter, such as agricultural waste, food waste, sewage sludge, and other organic materials. It is a mixture of gases, mainly methane and carbon dioxide with small amounts of other gases such as hydrogen, nitrogen, and hydrogen sulfide. Biogas can be purified to meet natural gas quality standards. The commercial upgrading and purification technologies of biogas exist in the world for large-scale biogas plants. However, there are no such commercial purification technologies available for small-scale biogas digesters, mainly found in rural communities.

This research aims to provide an overview of the potential of biogas upgrading, purification, and bottling in South Africa. It highlights the challenges faced by the country on biogas upgrading and discusses potential solutions to accelerate the development of biogas upgrading, purification, and bottling system. A portable biogas digester with a portable upgrading, purification, and bottling system is also designed in this research.

### Apply to be considered for a student ; award (Yes / No)?

Yes

### Level for award;(Hons, MSc, PhD, N/A)?

Msc

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