

Case study: More renewable energy and carbon abatement with a Siloxane Removal System (SRS)



Caboolture Biogas to Renewable Power Project where LGI pioneered the integration of SRS in Australia.

SRS increases power generation efficiency

LGI pioneered the integration of the Siloxane Removal System (SRS) into our bespoke gas conditioning for landfill gas to power generators in Australia. Initially developed and trialled at our Caboolture landfill gas to renewable power site, Qld in 2018. SRS was determined commercially viable in 2020 and installed at our Mugga Lane project in the ACT, followed by our Dakabin and Toowoomba sites in 2021. Today there are plans for other SRS to be installed throughout our power generation fleet.

We extract and destroy harmful biogas from landfills (aka landfill gas) and abate carbon emissions by combusting the gas in a flare. Where there are sufficient quantities we install a power generator to combust the gas to produce renewable, dispatchable electricity for the local grid.

Siloxanes (often described as silicones) are abundant in landfills because they are a commonly used additive in everything from beauty products to fire retardants, packaging, furniture and more. On landfill to power generation sites, siloxanes accumulate in the generators, gumming up the engine and causing wear and tear. We have developed a process to safely capture and remove siloxanes from the landfill gas to improve the efficiency and extend the life of the generators. See Figure 1.

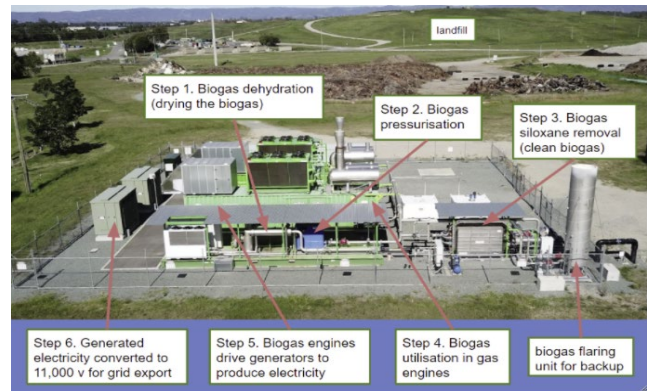


Figure 1. Landfill gas to renewable power process with SRS

Power stations with SRS experience efficiency gains from extended engine life and improved availability and output.

We plan to add SRS on all of our sites where siloxanes are an issue, which tends to be the open landfills with younger waste. Moving forward, all new power generation sites are planned to also have SRS included.

Also to contribute to overall site efficiency, all LGI's landfill power station sites are monitored remotely and via in person site visits to ensure consistency of biogas and electricity production. Skilled field technicians make adjustments on each site to ensure the gas field and the power generators are operating efficiently to achieve maximum gas extraction and power generation. Planned maintenance and repairs ensure the smooth operational continuity of the gas wells and power generation engines.



FOCUS YOUR ENERGY

Benefits of SRS:

- ✓ More renewable energy and carbon abatement
- ✓ Improved availability from reduced planned and unplanned maintenance
- ✓ Longer engine life from reduced wear and tear
- ✓ 50% less oil
- ✓ Savings in labour and consumables for engine maintenance
- ✓ Less waste

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By pioneering the use of SRS in our modular renewable power generators, LGI is able to produce even more renewable power and abate more carbon emissions.

We're also achieving savings and creating less waste.

Adam Bloomer
LGI Founder & MD



SRS Removal System at Caboolture Site