Canberra Landfill Gas Renewable Energy, Storage and Carbon Abatement Project



Joseph Mikhail
National Biogas Manager, LGI



The Site at a Glance

Mugga Lane, ACT

Developed by LGI through a long-term partnership with the ACT Government, this project transitions waste assets into advanced, dispatchable energy infrastructure, expediting the transition to renewables with clean energy and carbon abatement solutions.

192 million cubic meters of biogas captured

219 GWh of renewable energy created

432 thousand ACCUs created





The LGI project is a really important factor in us being able to reduce emissions and actually turn the landfill into a power source that is of benefit to the ACT community, and that's a fantastic outcome.

Katherine Harrington
Senior Director, Service Delivery - ACT NoWASTE

The Benefits of
Landfill Gas Capture

Methane is **28 times** more potent greenhouse gas than CO_2. Capturing and flaring this gas, which is often up to **65%** of a Council's carbon footprint, reduces greenhouse gas emissions and improves local air quality.

Immediate
Greenhouse Gas emissions being abated **as soon** as combustion occurs.

Measurable
Full transparency and high levels of **accuracy** translate to quantifiable impact.

Permanent
The **96% reduction** in greenhouse effect from flaring is **irreversible**.



Developing the Mugga Lane Resource Recovery Centre

LGI **redesigned and enhanced** legacy infrastructure at **zero cost** to ACT Govt.





2020

LGI commenced on site in June, installing a new **4MW facility** and upgrading gas field infrastructure, including a **Siloxane Removal System (SRS)**.

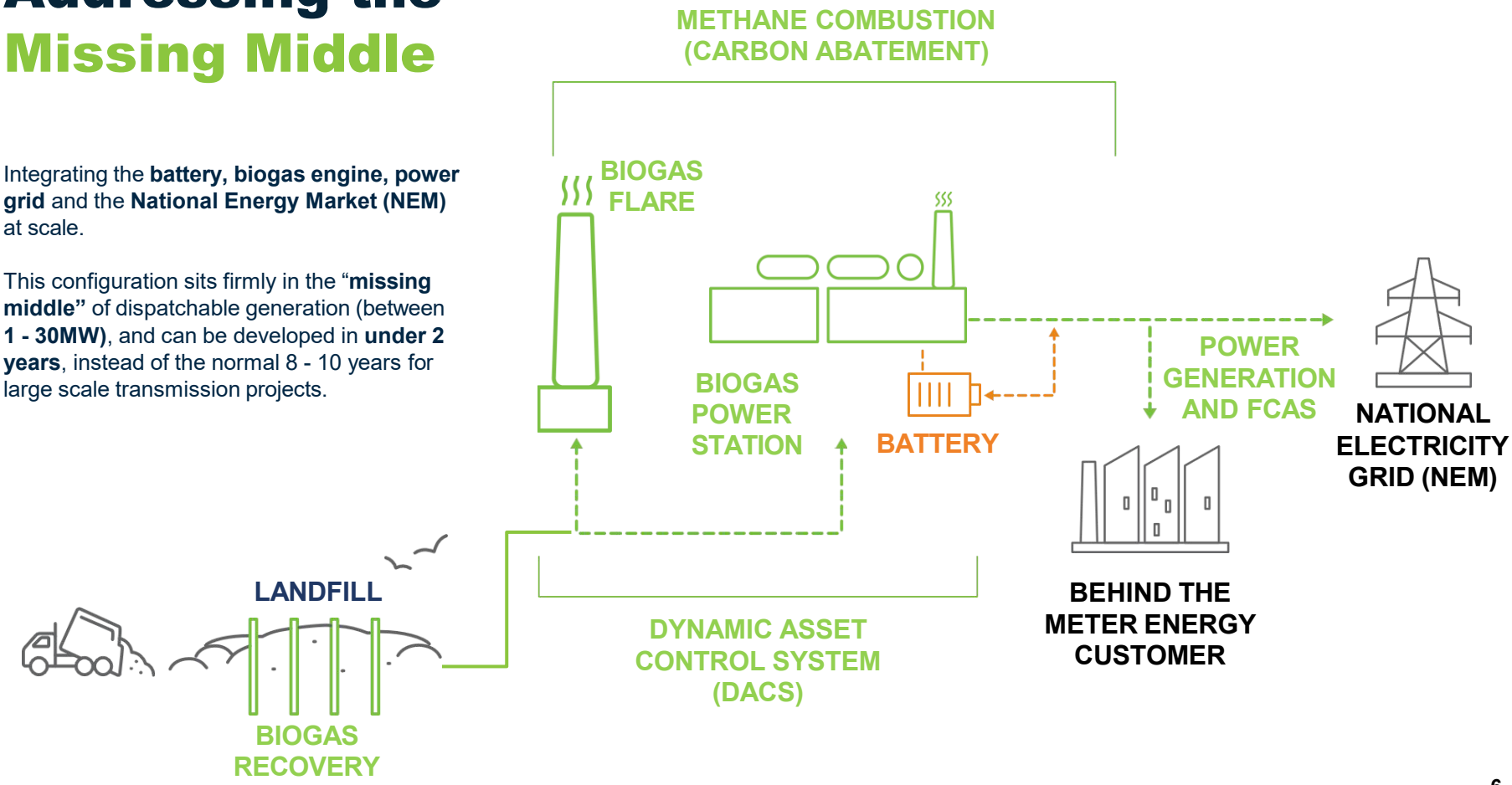
2025/2026

LGI expanded the site to **6MW**, with **12MWh of battery storage (BESS)** & the installation of proprietary **DACS technology.**

Addressing the Missing Middle

Integrating the **battery, biogas engine, power grid** and the **National Energy Market (NEM)** at scale.

This configuration sits firmly in the "**missing middle"** of dispatchable generation (between **1 - 30MW)**, and can be developed in **under 2 years**, instead of the normal 8 - 10 years for large scale transmission projects.



Battery Energy Storage System

Unlocking the value of Energy Storage

Batteries:

- Provide milliseconds-fast response needed for market volatility
- Unlock **premium revenue streams**, including Frequency Control Ancillary Services.



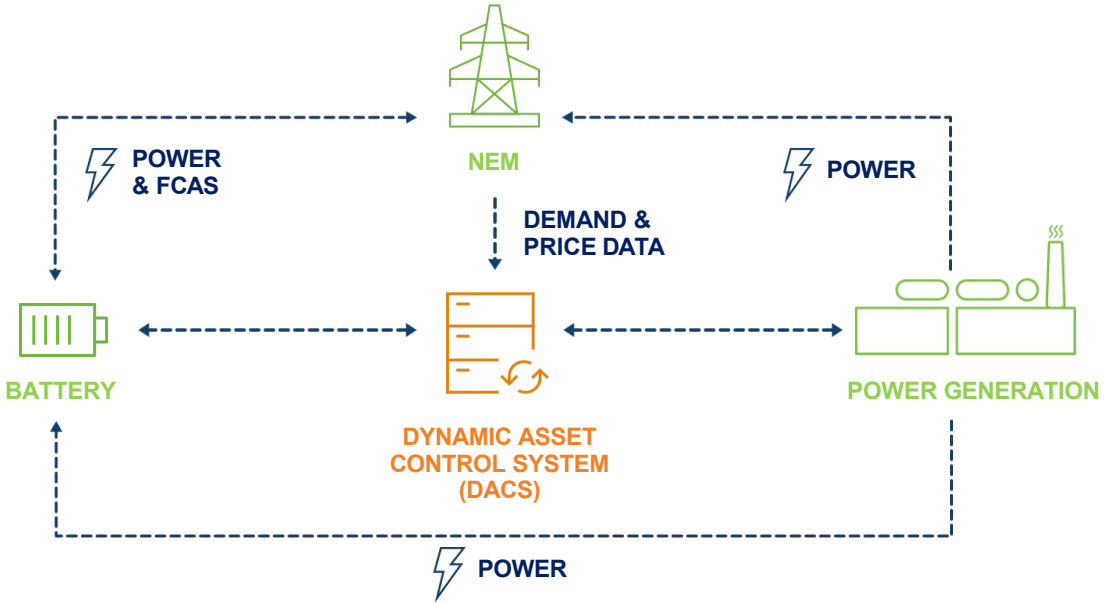
LGI CLEAN ENERGY & CARBON ABATEMENT

Dynamic Asset Control System

Machine Learning Meets the Grid

Dynamic Asset Control System (DACS) uses machine learning to coordinate biogas extraction, generators, batteries and the grid.

Supports a more **distributed** generation and storage to expedite a smooth transition to renewables.



LGI CLEAN ENERGY & CARBON ABATEMENT

A Definitive Flagship

As **Australia's largest landfill biogas renewable hybrid and storage facility**, this project serves as the blueprint for nationwide municipal infrastructure integration.

To date, the site has abated over

1,818,000

tonnes of CO2 equivalent

And generated enough stable electricity to power over

10,800

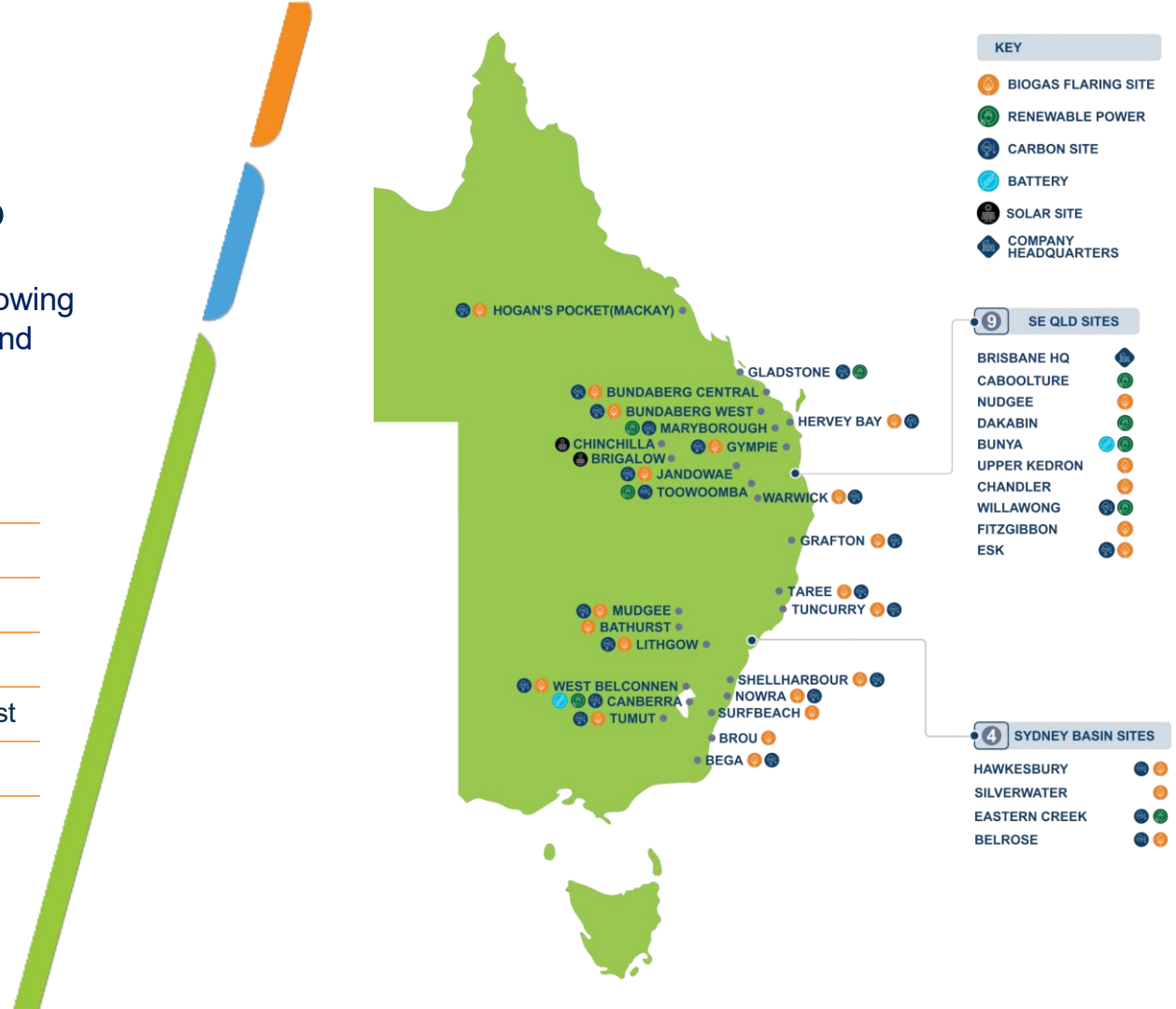
homes annually



Part of a
Growing Portfolio

This project forms part of LGI's growing portfolio of **biogas from landfill** and **renewable energy sites.**

9	biogas power generation sites
28	biogas flaring sites
2	solar sites
1	manufacturing facility (HQ)
40	total sites on Australian east coast
26	of these create carbon credits





Thank You

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