

CO₂ Removal & Gases: Biomethane Gas Grid Share

Digestion of manure and similar materials under anaerobic conditions produces biogas, which comprises mostly of methane (CH₄) and carbon dioxide (CO₂), with small amount of water vapor and other gases. Biogas can be upgraded to biomethane with the same quality as the more familiar natural gas. Biomethane is a promising renewable energy source that can be used in the same manner as natural gas. It is impossible to distinguish biomethane from natural gas once injected into the natural gas network. Energy experts view biomethane as a powerful weapon against climate change.

The quantity of biomethane that can be injected into an existing gas grid is highly dependent on availability and supply sustainability. This area deserves utmost attention as the country prepares to utilize the gas as a GHG mitigation option. Presently, only a handful of small-scale pilot biogas plants have been installed in the country. Plans have not yet been muted to install large-scale biogas generating plants in Nigeria. However, the potential for injection of the gas into the existing gas network is excellent.

Available literatures have shown that anaerobic digestion of 542.5 million tons of organic wastes produced annually in Nigeria, can generate around 25.53 billion m³ of biogas.

Level 1

Pilot large-scale biomethane generating plants are installed to produce gas whose injection into the existing gas grid, constitute a share of around 15%

Level 2

More effort is devoted towards biomethane injection such that its share in the gas grid increases to 45%.

Level 3

Biomethane share of the gas grid rises to around 70%

Level 4

Biomethane gas is fully injection into the gas grid. This is however, predicated on huge improvements in the methods for sustainable and safe production of the gas.

Key Interaction

In the priority order for decarbonizing the gas grid, biomethane gas is considered as a second option after hydrogen. It is assumed that any short fall in the gas demand should be met by natural gas.

Default Timing - Start Year: 2030, End Year: 2050

Sub-lever	Units	2015	Level 1	Level 2	Level 3	Level 4
Biomethane Gas Grid share	Share	0%	15%	45%	70%	100%

