



# Biogas Purification and Upgradation

Efficient, Clean and Green



# Conserving Resources, Preserving the Future.

Thermax, a frontrunner in providing sustainable energy and environmental solutions and is committed to living up to its brand promise of 'Conserving Resources, Preserving the Future'. Thermax's product portfolio covers air pollution control solutions, heating, cooling, water and waste management, and specialty chemicals.

The company also designs, builds, and commissions large boilers for steam and power generation, turnkey power plants, and waste-to-energy systems. Thermax remains focused on continuously strengthening its green portfolio to be a clean air, clean energy, and clean water company.

## Thermax Ne0: Gas Enrichment Solutions

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Thermax Ne0 offers a diverse range of technologies for gas purification and upgradation aimed at enhancing gas processing operations, quality and efficiency, meeting the diverse needs of industry while ensuring compliance with stringent standards.

We understand the importance of removing impurities and optimising energy content, which is why our technology-agnostic approach enables us to recommend the most suitable solution impartially.



**Biogas Purification  
and Upgradation**



**Green Hydrogen  
Purification**



**Carbon  
Capture**

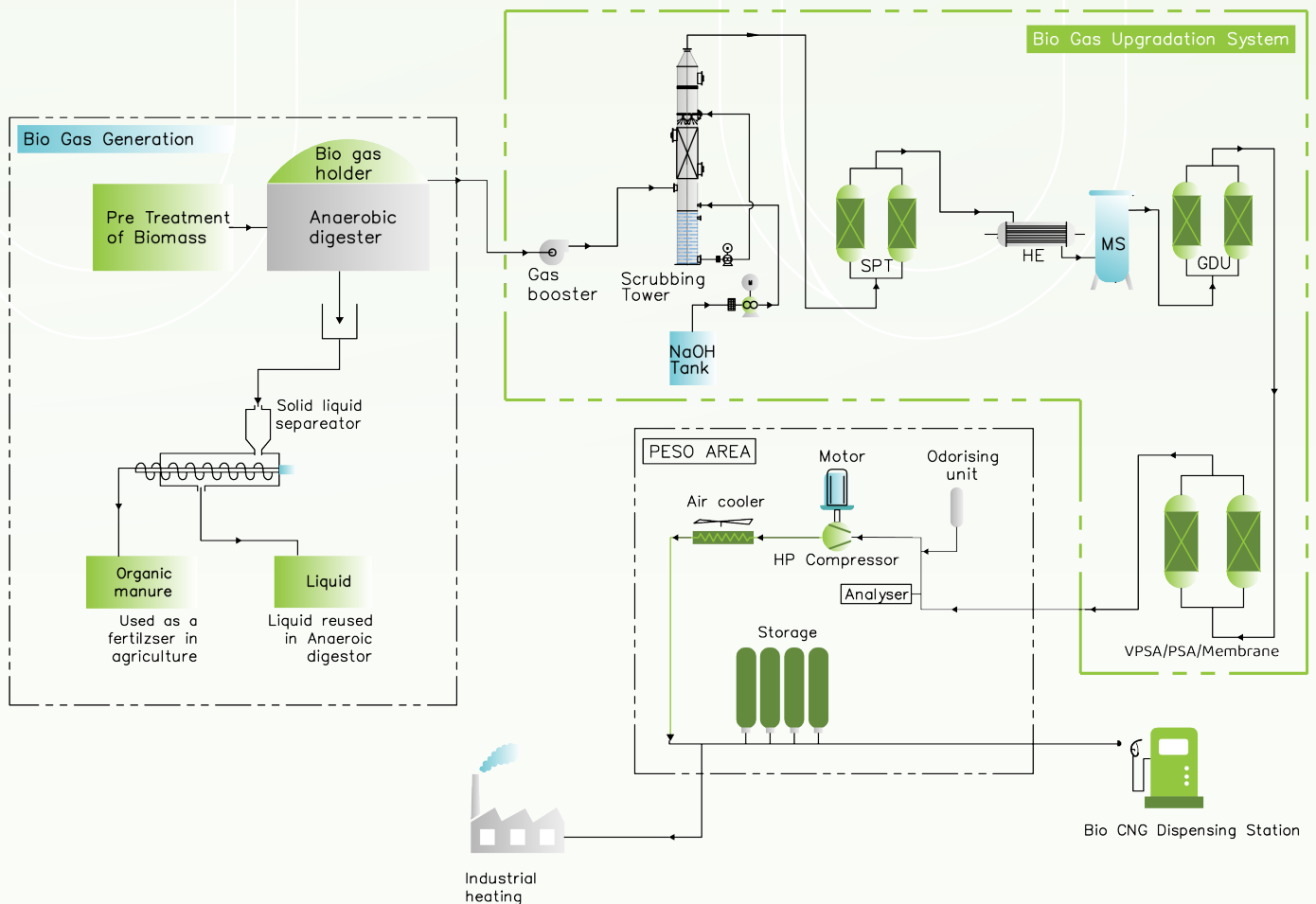


# Thermax Ne0 in Bio CNG

Thermax's Biogas purification and upgrading technologies remove impurities from biogas and separate carbon dioxide from biomethane, producing a clean, high-purity, low-carbon fuel known as bio CNG or biomethane or renewable natural gas (RNG).

Recognising the specific needs of each biogas to bio CNG project, Thermax Ne0 offers a comprehensive suite of biogas upgradation and purification technologies.




Thermax Ne0 goes beyond just technology. We are a trusted partner, collaborating with industries to design and implement customised solutions that meet their energy transition need.






# Our Technology Offerings in Bio CNG

Whether you need a compact solution for small-scale operations or a robust system for larger capacities, Thermax has the expertise and technology to meet your needs effectively.

## 1. Pre-treatment Solutions

 <b>Technology</b>	 <b>Process</b>	 <b>Equipment</b>
H <sub>2</sub> S Removal Scrubber	Chemical scrubbing of biogas to eliminate H <sub>2</sub> S	<ul style="list-style-type: none"> <li>• Static media tower</li> <li>• Chemical/Bio-chemical scrubber</li> </ul>
Moisture Removal System	Condensation of biogas moisture followed by desiccant drying	<ul style="list-style-type: none"> <li>• Desiccant dryer</li> <li>• Chiller</li> <li>• Heat exchanger and moisture separator</li> </ul>
VOCs/Ammonia Removal	Neutralise impurities using activated carbon or a chemical scrubber	<ul style="list-style-type: none"> <li>• Activated carbon tower</li> <li>• Chemical scrubber</li> </ul>

## 2. CO<sub>2</sub> Removal Solutions

 <b>Technology</b>	 <b>Process</b>	 <b>Equipment</b>
Absorption	Selective separation of molecules using solubility differences	<ul style="list-style-type: none"> <li>• Water scrubbing</li> <li>• Amine scrubbing</li> </ul>
Adsorption	Selective separation of molecules by accumulation on the surface of an adsorbent	<ul style="list-style-type: none"> <li>• Pressure Swing Adsorption (PSA)</li> <li>• Temperature Swing Adsorption (TSA)</li> <li>• Vacuum Swing Adsorption (VSA)</li> </ul>
Membrane Separation	Selective separation of molecules using polymer-based barrier	<ul style="list-style-type: none"> <li>• 2 stage membrane</li> <li>• 3 stage membrane</li> </ul>

# Thermax Ne0 Value Added Services

## Engineering Services

Specialised technical services to validate or optimise the design of purification plants

## Annual Service Contract

Purification plant service for a fixed period at dedicated intervals

## Thermax Ne0 Smart

Remote performance monitoring system



## Retrofit and Revamping


Upgrading or restoring existing purification plants to enhance performance or extend life


## Spares


Parts and consumables to keep the purification plant operational


## Thermax Ne0 Value Proposition


With a 50-year legacy in R&D, engineering expertise, and a strong supply chain, Thermax is committed to being your 'Trusted Partner in Energy Transition.'


 96 – 99 % methane purity with highest recovery rate possible

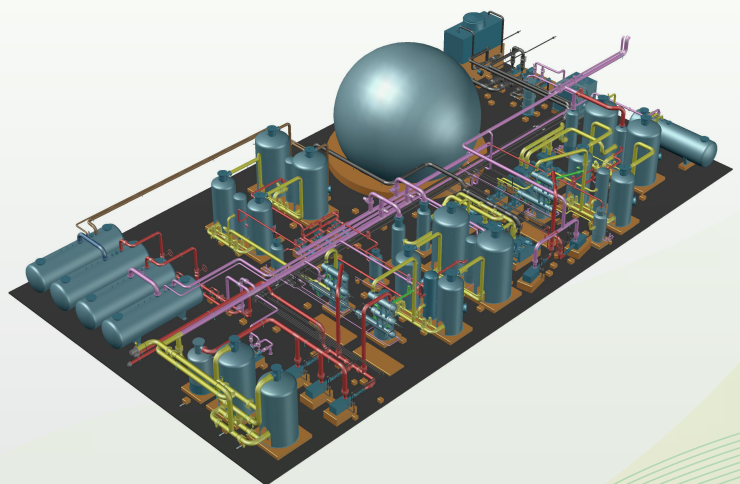
 Highly advanced catalyst/adsorbent material selection

 Accurate system sizing for optimal life cycle cost

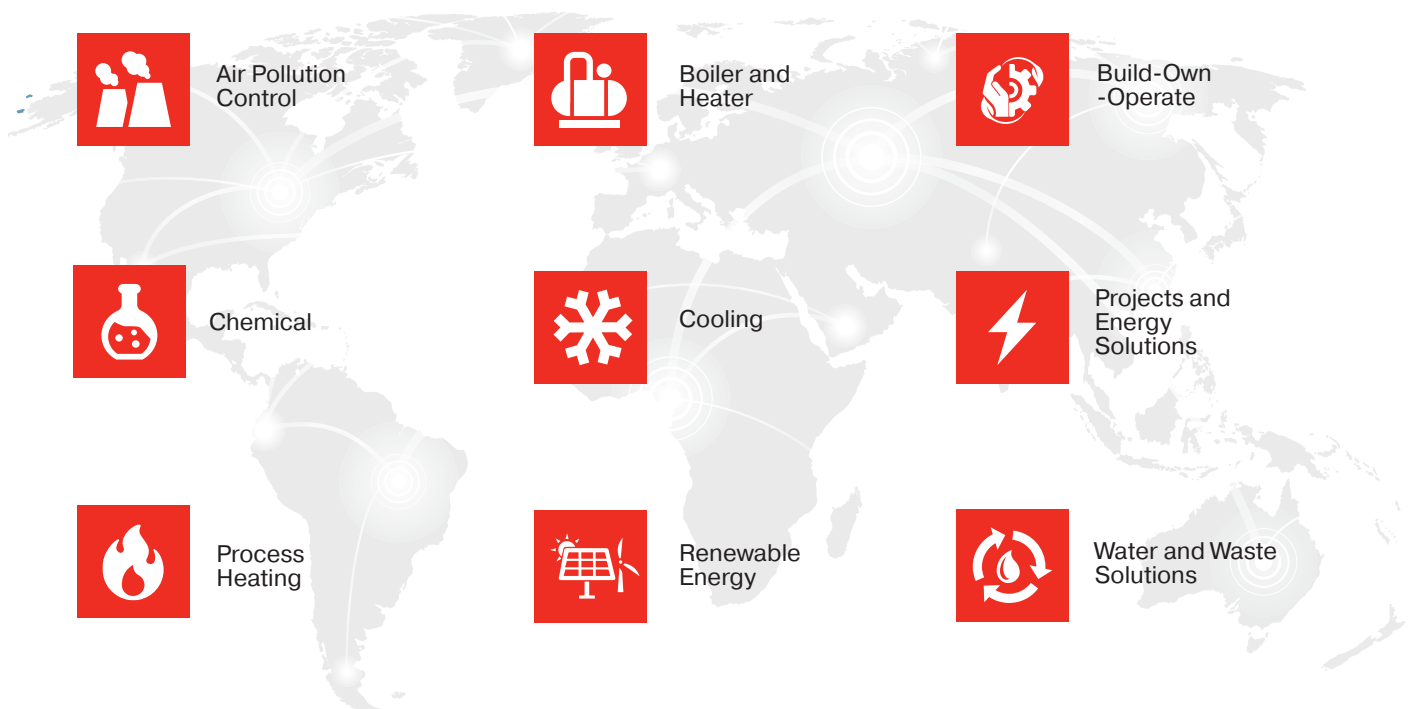
 Manufacturing expertise in complex gaseous treatment systems

 Automated system with smart interlocks and predictive analysis

 Best-in-class service support



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