



## Status report on thermal gasification of biomass and waste 2025 Output: Synthetic Natural Gas (SNG)

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### Annex 2

Gasification facilities for CHP production with Synthetic Natural Gas (SNG) Output  
- operational, under construction / under commissioning, on hold

## Output: Synthetic Natural Gas (SNG)

	Operational
	Planned
	Under construction / under commissioning
	On hold / Non operational

Owner	Project Name	Country	PAGE	
	Advanced Biofuels Solutions Ltd	Swindon Advanced Biofuels Plant	UK	3
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CATEGORY	INFORMATION
PROJECT OWNER	Advanced Biofuels Solutions Ltd
PROJECT NAME	Swindon Advanced Biofuels Plant
STATUS	on hold
STARTUP	2022
LOCATION	United Kingdom
CITY	Swindon
TYPE	TRL 8 First-of-a-kind commercial
TECHNOLOGY	Fuel Synthesis
TECHNOLOGY ADDITIONAL INFORMATION	ABSL RadGas and Wood VESTA technology
RAW MATERIAL	organic residues and waste streams
INPUT 1	Refuse derived fuel and waste wood (8,000 t/y)
OUTPUT 1	SNG (1,500 t/y)
OUTPUT 2	hydrogen (500 t/y)
OUTPUT ADDITIONAL INFORMATION	SNG and/or Biohydrogen
TOTAL INVESTMENT	GBP 30,000,000
FUNDING	GBP 11,000,000
FUNDING EXPLANATION	11 million pound sterling public funding
TECHNOLOGY BRIEF	The facility will accept 8,000 tonnes per year of waste and convert it into 22 GWh (2.2 million m <sup>3</sup> ) of natural gas, enough to heat 1,800 homes or fuel 75 HGVs. Also produces 6,000 t CO <sub>2</sub> (liquified for industry) and 400 t vitrified ash (aggregate). Process steps: waste reception, oxy-steam fluidised bed gasification, tar reforming, syngas cooling/cleaning, compression, catalytic conversion to natural gas and CO <sub>2</sub> , CO <sub>2</sub> separation/liquefaction, natural gas grid injection. Equipment installed and commissioning underway. Plant acts as template for larger facilities.



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**ADDITIONAL INFORMATION**

See [www.absl.tech](http://www.absl.tech) and [www.linkedin.com/company/advanced-biofuel-solutions-ltd](http://www.linkedin.com/company/advanced-biofuel-solutions-ltd). Biohydrogen is a low carbon fuel. RadGas process delivers hydrogen at lower price and higher GHG savings than other technologies. Facility can switch between biohydrogen and BioSNG production.

**CONTACT INFORMATION**

Tel: 01793 832 860 Unit A4, Marston Gate South  
Marston Industrial Estate Stirling Road Swindon  
SN3 4DE UK



CATEGORY	INFORMATION
PROJECT OWNER	Advanced Biofuels Solutions Ltd
PROJECT NAME	ABSL bio-SNG demonstrator
STATUS	non operational
STARTUP	2020
LOCATION	United Kingdom
CITY	Swindon
TYPE	TRL 6-7 Demonstration
TECHNOLOGY	Fuel Synthesis
TECHNOLOGY ADDITIONAL INFORMATION	RadGas. Follow on from GoGreenGas project - two stage (Plasma) process.
RAW MATERIAL	RDF
INPUT 1	RDF (8,000 t/y)
OUTPUT 1	SNG (2,200,000 m <sup>3</sup> /y)
TECHNOLOGY BRIEF	Two-stage gasification: fluidized bed gasifier produces syngas, plasma reformer eliminates tars. Syngas cleaned, compressed, and catalytically converted to SNG . Integrated with carbon capture and vitrified ash production .
ADDITIONAL INFORMATION	Part of a 160 MSEK R&D program (2014) to expand feedstock options and improve gas cleaning/synthesis . Demonstrated 3,500+ operational hours with multiple feedstocks .
CONTACT INFORMATION	Andy Cornell (info@absl.tech, +44 1793 832860)



CATEGORY	INFORMATION
PROJECT OWNER	ATCG
PROJECT NAME	BIOGAZ Gardanne
STATUS	planned
LOCATION	France
CITY	Bouches-du-Rhone
ZIP	13000
TYPE	TRL 8 First-of-a-kind commercial
TECHNOLOGY	
TECHNOLOGY ADDITIONAL INFORMATION	Gasification + methanation
RAW MATERIAL	lignocellulosics
INPUT 1	wood waste (100,000 t/y)
OUTPUT 1	SNG (16,951 t/y)
ADDITIONAL INFORMATION	<p>Projekt umfasst zwei Gasifizierungslinien für insgesamt ca. 100.000 t/a Holz B aus lokalen Quellen. Ziel ist die Produktion von bis zu 2.842 Nm<sup>3</sup>/h Biomethan (~235 GWh/Jahr), das in das GRTgaz-Netz eingespeist werden soll. Das Projekt entstand im Zuge der Stilllegung des Kohlekraftwerks Gardanne und dient dem Erhalt von Arbeitsplätzen. EQTEC Iberia SLU ist Technologiepartner für Gasifizierung. Starke Unterstützung durch Staat und lokale Behörden. Tests zeigten stabile und effiziente Umwandlung von Holzabfällen zu Synthesegas für die Methanisierung.</p>
CONTACT INFORMATION	Maël Disa-Vingataramin - mael@gazo.tech



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<b>CATEGORY</b>	<b>INFORMATION</b>
<b>PROJECT OWNER</b>	Bio SNG Guessing
<b>PROJECT NAME</b>	Synthesis Demo Guessing
<b>STATUS</b>	idle
<b>STARTUP</b>	2008
<b>LOCATION</b>	Austria
<b>CITY</b>	Güssing
<b>ZIP</b>	7540
<b>TYPE</b>	TRL 6-7 Demonstration
<b>TECHNOLOGY</b>	
<b>RAW MATERIAL</b>	lignocellulosics
<b>INPUT 1</b>	syngas from gasifier (350 m <sup>3</sup> /y)
<b>OUTPUT 1</b>	SNG (576 t/y)
<b>PARTNERS</b>	Vienna University of Technology, Austria; Paul Scherrer Institute, Switzerland; Repotec, Austria
<b>CONTACT INFORMATION</b>	Martin Schaub (martin.schaub@ctu.ch)



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CATEGORY	INFORMATION
PROJECT OWNER	Enerkem
PROJECT NAME	Synthesis Enerkem Sherbrooke
STATUS	operational
STARTUP	2003
LOCATION	Canada
CITY	Montreal
STATE	Quebec
TYPE	TRL 4-5 Pilot
TECHNOLOGY	Gasification-based thermochemical process
RAW MATERIAL	lignocellulosics
INPUT 1	municipal solid waste, wood chips, treated wood, sludge, petroleum coke, spent plastics, wheat straw
OUTPUT 1	ethanol (375 t/y)
OUTPUT 2	methanol (475 m <sup>3</sup> /y)
OUTPUT 3	SNG
PARTNERS	University of Sherbrooke
TECHNOLOGY BRIEF	Converts sorted municipal solid waste and agricultural/forest residues into syngas via gasification, which is catalytically synthesized into biofuels (ethanol, methanol) and chemicals. Integrated with electricity generation.
ADDITIONAL INFORMATION	Pilot plant operational since 2003, accumulating 4,000+ hours of operation. Key step in Enerkem's scale-up strategy, validating feedstock flexibility and process robustness. Facility tested diverse feedstocks, including slurries and liquids.
CONTACT INFORMATION	Amelie Desrosiers (ADesrosiers@enerkem.com)



CATEGORY	INFORMATION
PROJECT OWNER	Engie + consortium
PROJECT NAME	Gaya
STATUS	on hold
STARTUP	2017
LOCATION	France
CITY	Saint-Fons
TYPE	TRL 6-7 Demonstration
TECHNOLOGY	Circulating Fluidized Bed
INFORMATION	Gasification Circulating double fluidised bed
RAW MATERIAL	lignocellulosics
INPUT 1	Lignocellulosics and non hazardous wastes (5,219 t/y)
OUTPUT 1	SNG (0.5 MW)
OUTPUT INFORMATION	SNG (biomethane) non injected in the grid
TOTAL INVESTMENT	EUR 60,000,000
TECHNOLOGY BRIEF	The GAYA project is a semi-industrial R&D platform demonstrating a complete, flexible process chain for producing biomethane from dry biomass and waste via pyrogasification and catalytic methanation. The process uses a circulating double fluidised bed gasifier and an innovative isothermal methanation reactor, enabling robust, efficient conversion of syngas (from CO/CO <sub>2</sub> and H <sub>2</sub> ) into methane. The reactor design allows flexible operation and can be adapted for Power-to-Gas applications. The platform proved technical, economic, and environmental feasibility for 2nd generation biomethane production and demonstrated low-carbon synthetic methane from solid recovered fuels.
ADDITIONAL INFORMATION	R&D project launched in 2010, coordinated by ENGIE with 11 partners and ADEME support; completed in 2021. Demonstrated world-first production of synthetic methane from pyrogasification of SRF in 2020. Key innovation: isothermal fluidised bed methanation reactor, now fully industrializable and patent-protected.
CONTACT	<a href="http://www.projetgaya.com/">http://www.projetgaya.com/</a> Marion.maheut@engie.com



CATEGORY	INFORMATION
PROJECT OWNER	Engie + consortium
PROJECT NAME	Salamandre
STATUS	abgebrochen (ursprünglich geplant)
STARTUP	- (ursprünglich 2028 geplant)
LOCATION	Frankreich
CITY	Havre
ZIP	76600
TYPE	TRL 8 First-of-a-kind commercial
TECHNOLOGY	Fuel Synthesis
TECHNOLOGY ADDITIONAL INFORMATION	Gasification Circulating double fluidised bed
RAW MATERIAL	Biomass waste and solid derived fuels
INPUT 1	Biomass waste and solid derived fuels (32 MW)
OUTPUT 1	SNG (20 MW)
OUTPUT 2	other (6,000 t/y)
OUTPUT ADDITIONAL INFORMATION	SNG für das Gasnetz und CO <sub>2</sub> für das Projekt France KerEAUzen
TECHNOLOGY BRIEF	Circulating double fluidised bed + katalytische Methanisierung
ADDITIONAL INFORMATION	Das Projekt Salamandre wurde Anfang 2025 von Engie und CMA CGM offiziell abgebrochen. Gründe waren zu hohe Kosten und fehlende finanzielle Unterstützung, insbesondere durch EU-Fördermittel. Ursprünglich sollte das Projekt ab 2027/2028 Biomethan per Pyrogasifizierung für die Schifffahrt liefern. Als Vorläufer diente das GAYA-Demonstrationsprojekt.
CONTACT INFORMATION	thomas.pierre@engie.com



CATEGORY	INFORMATION
PROJECT OWNER	E.ON Gasification Development AB
PROJECT NAME	Bio2G
STATUS	cancelled
LOCATION	Sweden
CITY	Scania
TYPE	TRL 9 Commercial
TECHNOLOGY	Gasification
RAW MATERIAL	woody biomass
INPUT 1	woody biomass (300 MW)
OUTPUT 1	SNG (200 MW)
OUTPUT 2	heat (50 MWth)
OUTPUT ADDITIONAL INFORMATION	SNG/bio-methane
PARTNERS	Andritz Carbona Oy, Haldor Topsoe AS
TECHNOLOGY BRIEF	Pressurized oxygen-blown fluidized bed gasification with hot gas cleaning (tar reforming, HAT filter), cold gas cleaning (water scrubber, acid gas removal), compression, WGS, and methane synthesis.
ADDITIONAL INFORMATION	Total investment: ~450 MEUR. Annual production target: 1.6 TWh biogas. Designed as a reference plant for large-scale bio-SNG production. Cancelled due to financial risks and insufficient policy support. Logistics included biomass transport via road/rail/boat and drying systems.
CONTACT INFORMATION	Björn Fredriksson-Möller (+46 40 255 716, bjorn.moller@eon.se)



CATEGORY	INFORMATION
PROJECT OWNER	Hymoov
PROJECT NAME	Le Barillais
STATUS	planned
LOCATION	France
CITY	Montoir de Bretagne
ZIP	44550
TYPE	TRL 8 First-of-a-kind commercial
TECHNOLOGY	Fuel Synthesis
TECHNOLOGY ADDITIONAL INFORMATION	Gasification and synthesis of SNG
RAW MATERIAL	lignocellulosics
INPUT 1	wood waste (6 MW)
OUTPUT 1	SNG (3,246 t/y)
TECHNOLOGY BRIEF	Gasification + methanation. Pyrogasification of 20,000 t/year class B wood waste (local sourcing, max. 100 km radius), producing 600 Nm <sup>3</sup> /h biomethane and 2.1 t/h liquid CO <sub>2</sub> . 100% of methane injected into the grid, CO <sub>2</sub> to be valorized. Project located on a former industrial brownfield, within a PPRT (Seveso-adjacent). Integration with local anaerobic digestion and potential hydrogen production planned. Environmental and safety studies underway; public consultation scheduled.
ADDITIONAL INFORMATION	Part of the Barillais Ecoparc, which includes solar, anaerobic digestion, and waste recycling projects. The site is a former industrial area, now being redeveloped for renewable energy. The project aims to contribute to the circular economy and local energy transition, prioritizing the use of waste wood over natural forest resources.
CONTACT INFORMATION	John.bilheur@hymoov.com
PROJECT OWNER	Hymoov
PROJECT NAME	Le Barillais



<b>CATEGORY</b>	<b>INFORMATION</b>
<b>PROJECT OWNER</b>	IDEX + Limoges metropole
<b>PROJECT NAME</b>	Limoges biomethane
<b>STATUS</b>	planned
<b>LOCATION</b>	France
<b>CITY</b>	Limoges
<b>ZIP</b>	87000
<b>TYPE</b>	TRL 8 First-of-a-kind commercial
<b>TECHNOLOGY</b>	Fuel Synthesis
<b>TECHNOLOGY ADDITIONAL INFORMATION</b>	Gasification (EQTEC) + catalytic methanation
<b>RAW MATERIAL</b>	lignocellulosics
<b>INPUT 1</b>	biomass residues (40,000 t/y)
<b>OUTPUT 1</b>	SNG (6,853 t/y)
<b>PARTNERS</b>	Limoges métropole, IDEX, EQTEC
<b>TECHNOLOGY BRIEF</b>	EQTEC circulating fluidised bed + catalytic methanation
<b>CONTACT INFORMATION</b>	accueil@limoges-metropole.fr



CATEGORY	INFORMATION
PROJECT OWNER	JEHL + SG Energie + consortium
PROJECT NAME	MethaJehl
STATUS	planned
LOCATION	France
CITY	Artolsheim
ZIP	67390
TYPE	TRL 8 First-of-a-kind commercial
TECHNOLOGY	Pyrolysis + methanation
RAW MATERIAL	lignocellulosics
INPUT 1	wood waste (10,000 t/y)
OUTPUT 1	SNG (2.97 MW)
OUTPUT 2	heat (1.14 MW)
OUTPUT ADDITIONAL INFORMATION	Biomethane for grid injection (25 GWh/year)
PARTNERS	Jehl TP, Groupe Schmidt, GRDF, Vialis, GRT Gaz, CleanCarbonConversion, Khimod, SG Energies
TECHNOLOGY BRIEF	CleanCarbonConversion's ultra-high-temperature pyrolysis coupled with Khimod's gas treatment and catalytic methanation. Converts wood waste into syngas, then synthetic methane
ADDITIONAL INFORMATION	<ul style="list-style-type: none"> <li>- CAPEX: €21.9 million</li> <li>- Produces 1,198 t/y biochar (agricultural amendment)</li> <li>- Reduces CO<sub>2</sub> emissions by 7,174 t/y</li> <li>- Local wood waste sourcing (Alsace region)</li> <li>- Part of France's circular economy strategy, aiming to decarbonize industry and transport</li> </ul>
CONTACT INFORMATION	Yannick Ferriere (yannick.ferriere@sg-energies.eco)



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<b>CATEGORY</b>	<b>INFORMATION</b>
<b>PROJECT OWNER</b>	Leroux et LoTz + consortium
<b>PROJECT NAME</b>	Titan V-pilot
<b>STATUS</b>	operational
<b>STARTUP</b>	2022
<b>LOCATION</b>	France
<b>CITY</b>	Nantes
<b>ZIP</b>	44000
<b>TYPE</b>	TRL 4-5 Pilot
<b>TECHNOLOGY</b>	Fuel Synthesis
<b>TECHNOLOGY ADDITIONAL INFORMATION</b>	SNG non injected in the grid
<b>RAW MATERIAL</b>	lignocellulosics
<b>INPUT 1</b>	lignocellulosics and non hazardous wastes (4,600 t/y)
<b>OUTPUT 1</b>	SNG (2 MW)
<b>TECHNOLOGY BRIEF</b>	Circulating fluidised bed + Biological methanation
<b>ADDITIONAL INFORMATION</b>	Demonstrator likely not operating at 100% capacity. Costs: €3M (pyrolysis), €1.3M (methanation).
<b>CONTACT INFORMATION</b>	contact@lerouxlotz.com



CATEGORY	INFORMATION
PROJECT OWNER	Qairos Energies
PROJECT NAME	Qairos Châteauroux
STATUS	planned
LOCATION	France
CITY	Châteauroux-Indre
ZIP	36044
TYPE	TRL 8 First-of-a-kind commercial
TECHNOLOGY	Fuel Synthesis
TECHNOLOGY ADDITIONAL INFORMATION	Gasification + WGS + methanation
RAW MATERIAL	agricultural residues (primarily industrial hemp)
INPUT 1	agricultural residues (5 MW)
OUTPUT 1	SNG (200 m <sup>3</sup> /h)
OUTPUT 2	hydrogen (2 t/d)
OUTPUT 3	CO <sub>2</sub> (30 t/d) + heat (5 MWth)
TECHNOLOGY BRIEF	Pyro-gasification of biomass at high temperatures, followed by gas cleaning, methanation, and hydrogen synthesis. Efficient process requiring 40% less water/electricity than electrolysis.
ADDITIONAL INFORMATION	<ul style="list-style-type: none"> <li>- Requires 1,000 hectares of locally grown hemp (35 km radius sourcing)</li> <li>- CO<sub>2</sub> liquefied for industrial use; potential future production of liquid fertilizers.</li> <li>- Part of a circular bioeconomy model, partnering with local farmers (e.g., Fermiers de Loué cooperative).</li> <li>- Pilot site in Le Mans aims for 3.6 t/d hydrogen and 450 Nm<sup>3</sup>/h methane. Total investment: €18.8M.</li> </ul>
CONTACT INFORMATION	Jean Foyer ( <a href="mailto:jfoyer@qairos-energies.com">jfoyer@qairos-energies.com</a> )



CATEGORY	INFORMATION
PROJECT OWNER	TU Munich
PROJECT NAME	Booster
STATUS	operational
LOCATION	Germany
CITY	Munich
TYPE	TRL 4-5 Pilot
TECHNOLOGY	Fuel Synthesis
TECHNOLOGY ADDITIONAL INFORMATION	Entrained flow gasifier, refractory lining; full water quench for gas cooling; oxygen and air as gasifying agents, additionally steam and carbon dioxide.
RAW MATERIAL	Pre-treated (torrefaction and hydrothermal carbonization) and raw biomass and organic residues.
INPUT 1	Pre-treated and raw biomass and organic residues.
OUTPUT 1	SNG (0.15 MW).
ADDITIONAL INFORMATION	The BOOSTER plant is a pilot-scale, industrial-like entrained flow gasifier with up to 200 kW thermal capacity, operating at up to 5 barg and wall temperatures up to 1600°C. Biomass is finely milled and pneumatically fed via a swirl burner, ensuring effective mixing with gasification agents. The hot syngas is rapidly cooled in a water quench and then filtered. The facility supports research on gasification behavior, syngas quality, and gas cleaning for SNG production.
CONTACT INFORMATION	philipp.johne@tum.de



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CATEGORY	INFORMATION
PROJECT OWNER	Windsor Engineering Group
PROJECT NAME	Windsor Engineering Gasifier
STATUS	idle
STARTUP	2011
LOCATION	New Zealand
CITY	Rotorua
ZIP	3046
TYPE	TRL 6-7 Demonstration
TECHNOLOGY	Updraft gasifier
RAW MATERIAL	organic residues and waste streams
INPUT 1	mixed waste wood, shavings, hoggings, sawdust, bark
OUTPUT 1	SNG (1.2 MWth)
PARTNERS	Waiariki Institute of Technology (WIT), EECA, AgderBiocom (Norway)
TECHNOLOGY BRIEF	Updraft gasifier (AgderBiocom) with indexing rotary grate; automatic ash discharge via water bath. Fuel moisture $\leq 35\%$ .
CONTACT INFORMATION	Ryan Champion (ryan.champion@windsor.co.nz, +64 4 2328080)



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