



PLAINÉNERGIE has announced the launch of the second phase of the partnership under which waste from the Plaine de l'Ain will be converted into renewable or low-carbon gas.

PLAINÉNERGIE's partners¹ have successfully completed the first phase of the programme. The CCPA, the SMPIPA, GRTgaz, Séché Environnement and Enosis are now embarking on the second phase. It involves coupling pyrogasification and biological² methanisation³ at semi-industrial scale in order to validate the quality of gas produced using solid waste from the Plaine de l'Ain (end-of-life wood, large objects from the waste collection centre, waste generated by business, etc.) which traditional sectors have difficulty recovering. The aim of the partnership is to confirm the benefits of this waste processing solution so that renewable and low-carbon gas can be produced locally. The PLAINÉNERGIE programme therefore helps deliver the energy transition, while at the same time playing a part in developing the circular economy across France's regions.

PLAINÉNERGIE is a collaborative programme, designed to meet the needs of the Plaine de l'Ain in the Auvergne-Rhône-Alpes Region. Thanks to the diversity of its partners, it is in a position to cover all stages of the value chain – from waste treatment through to the production of sustainable energy, all as part of a circular economy approach. PLAINÉNERGIE aims to convert residual waste, or waste that has only been partially recovered⁴ from across the Plaine de l'Ain region into gas. This gas can then be injected into the existing gas network. By coupling two processes – pyrogasification and biological methanisation – this renewable or low-carbon gas can be used instead of imported fossil gas.

PLAINÉNERGIE is a comprehensive programme. Structured into phases, it covers the various stages in the development of the solution – from waste characterisation and laboratory testing through to construction of an experimental industrial plant – the first such plant that can be replicated across regions other than the Plaine de l'Ain.

A successful first phase involving the identification of waste to be recycled

The first phase established that the Plaine de l'Ain has some 8600 tonnes of waste that can be used for pyrogasification annually. And once it has been converted into renewable or low-carbon gas, it can meet the energy needs of more than 1000 homes.

Provademse conducted a study of the region's residual waste reserves, and qualified the portion that is suitable for pyrogasification. It then successfully demonstrated (at its platform), that this waste could be converted into "syngas".

At the same time, Enosis and its partners demonstrated, in a laboratory setting, the feasibility and benefits of using biological methanisation to produce renewable or low-carbon gas from this syngas that can be used as a substitute for natural gas.

The start of the second phase: implementing a semi-industrial scale demonstrator

The CCPA, the SMPIPA, GRTgaz, Séché Environnement and Enosis have today announced the continuation of the PLAINÉNERGIE programme as the second phase gets underway. This involves a demonstration on a semi-industrial scale, conducted at the ERBE platform of the LERMAB, the University of Lorraine's laboratory for the study and research of wood materials, located in Epinal on the Bois Campus.

¹ Plainénergie is currently made up of the Plaine de l'Ain intercommunal structure (the CCPA), the Plaine de l'Ain joint industrial facilities association (the SMPIPA), GRTgaz, Séché Environnement and Enosis

² Pyrogasification: process whereby solid waste is heated at high temperatures (between 800 and 1500°C) in a low-oxygen (or zero-oxygen) environment so as to convert it into gas.

³ Methanisation: process for converting carbon monoxide (CO) and carbon dioxide (CO₂) into methane (CH₄) using a chemical reaction with hydrogen (H₂).

⁴ End-of-life wood, bulky waste from recycling centers, waste from economic activities, etc.

⁵ ADEME, *Transition(s) 2050*, November 2021

Several test campaigns are scheduled to run between July and November this year. They will involve converting waste from the Ain plain area, supplied by the CCPA and Séché Environnement, into gas that can be injected into the network. This waste will be processed using the (small-scale) industrial pyrogasification plant developed by EQTEC, operated by the LERMAB, linked to the semi-industrial biological methanisation unit – BIMOTEP® –, designed by Enosis.

Séché Environnement is contributing its industrial expertise in process integration and the operation of waste recovery centres.

GRTgaz, via its RICE research laboratory, carries out in-depth analysis of the renewable or low-carbon gas obtained, to ensure that it complies with the specifications required for injection into existing gas networks.

PLAINÉNERGIE is unique, and brings together both public and private stakeholders within the framework of a regional innovation approach. It is perfectly aligned with the objectives of the French Strategy for Energy and Climate, and meets the aims of the country's Green Industry plan.

Pyrogasification for injection – a major sector for France’s regions and its gas industry

Pyrogasification for injection into existing gas networks promotes the recovery of residual waste from regions at local level and is underpinned by a circular economy approach. It helps to bolster France's energy sovereignty, as well as helping to reduce greenhouse gas emissions, alongside other renewable and low-carbon gas production channels (methanisation, power-to-methane, hydrothermal gasification and hydrogen).

The first industrial-scale pyrogasification projects are expected to mature between now and 2025.

By 2030, provided that legislation and regulations are appropriately amended, network operators' forecasts, based on the aims enshrined in regional development planning projects (regional schemes for town planning, sustainable development and equality, etc.), show that pyrogasification could recover 3 million tonnes of waste per year. This equates to 6 TWh of renewable or low-carbon gas being injected into networks.

By 2050, the ADEME predicts that up to 67 TWh⁵ of renewable and low-carbon gas could be produced by pyrogasification in France. This will be enough to meet 30% of French gas consumption by this time.



Diagram showing tests for producing gas from waste within the framework of the second phase of PLAINÉNERGIE

About the CCPA

The Communauté de Communes de Plaine de l'Ain is an intercommunal structure located East-North-East of the Lyon urban area, along the length of the Lyon-Geneva urban axis. It has a population of nearly 80,000 residents, spread over 53 towns and villages. The region is structured around three main urban areas – Ambérieu en Bugey, Meximieux and Lagnieu – and it has two significant employment hubs (one being the Plaine de l'Ain Industrial Park). Waste management is one of the CCPA's responsibilities. Environmental considerations, along with the projected increase in waste management costs, are incentivising the intercommunal structure to investigate alternative approaches to waste management and treatment.

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About ENOSIS

ENOSIS is an innovative SME based in Toulouse. As a forerunner in biological methanisation technologies, ENOSIS designs equipment for producing renewable or low-carbon methane which can be used as a substitute for natural gas and injected into the networks, or used as a fuel. With a design focused on using biological processes to recycle CO₂ (thus helping to reduce carbon dioxide emissions), the equipment that ENOSIS develops can be used to enrich biogas into biomethane, and process the syngas that results from the gasification of waste and waste industrial gases. The solutions developed by ENOSIS can serve as a bridge between the electric grid and the gas network in "Power-to-Gas" architectures. As an equipment manufacturer, ENOSIS also selects and grows the microorganisms used in its systems. ENOSIS is an independent stakeholder that sells its solutions to manufacturers in the energy and waste recycling sectors.

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About GRTgaz

GRTgaz is Europe's second-largest gas carrier, with 32,618 km of pipes and 640 TWh of gas transported. The company has 3330 employees and generated nearly €2.1 billion in turnover in 2022. GRTgaz has a mission statement: "Together, we enable an energy future that is safe, affordable and climate neutral". GRTgaz is an innovative company undergoing a major transformation to adapt its network to new ecological and digital challenges. It is committed to a 100% carbon-neutral French gas mix by 2050. It supports the hydrogen and renewable gas sectors (biomethane and gas from solid and liquid waste). GRTgaz carries out public service missions to guarantee the safety of gas transmission for its 879 clients (shippers, distributors, industrial companies, biomethane plants and producers). With its subsidiaries Elengy, the European leader in LNG terminal services, and GRTgaz Deutschland, operator of the MEGAL transmission network in Germany, GRTgaz plays a key role on the European gas infrastructure scene. The company exports its expertise internationally, in particular services developed by its research centre, RICE. Find us at <https://www.grtgaz.com/>, or on Twitter, LinkedIn, Instagram and Facebook.

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About SECHE ENVIRONNEMENT

Séché Environnement is a leading waste management company. It specialises in complex and hazardous waste, as well as in the delivery of environmental services – particularly in the event of environmental emergencies. Thanks to its expertise in creating circular economy loops, decarbonisation and hazard management, the group has been involved in facilitating the ecological transition for industries and regions – as well as protecting the living environment – for nearly 40 years. Séché Environnement is a French family-run industrial group and utilises cutting-edge technologies developed by its R&D unit in the hearts of the regions in which it operates via more than 120 sites located in 15 countries. This includes 50 or so industrial sites in France. With more than 5700 employees (of which more than 2500 are in France), in 2022, Séché Environnement posted sales of €900 million, 30% of which was generated internationally.

Séché Environnement has been listed on the Euronext Eurolist (compartment B) since 27 November 1997. The title belongs to the CAC Mid&Small, EnterNext Tech 40 and EnterNext PEA-PME 150 indices. ISIN: FR 0000039139 – Bloomberg: SCHP.FP – Reuters: CCHE.PA

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About the SMPIPA

The Plaine de l'Ain's Industrial Park is home to 190 companies employing more than 8200 people. Located on the outskirts of the Lyon urban area and spread over some 1000 ha, it is the largest industrial park in the Auvergne-Rhône-Alpes region. It is recognised as a leading site for the quality and diversity of the solutions that it has available for companies looking to grow or acquire new locations. The Plaine de l'Ain Industrial Park's Joint Management Association develops and runs the site, implementing an ambitious strategy that encourages "economic biodiversity", driving innovation in the face of environmental challenges. With its exemplary CSR approach, it has been ISO 14001 certified, and has been awarded the LUCIE label (ISO 26000).

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