Synergy with an agricultural methaniser
by the production site of Is-sur-Tille, France

This project concerns the development of an Industrial and Territorial Ecology synergy between an agricultural methanizer and a production site in France. This has resulted in a total replacement of natural gas with local biogas, while recovering bio-waste and supporting the development of a local energy project.

Starting date of the project	The agricultural methaniser was put in operation in July 2021.
Project Localisation Places of implementation of the project at this stage and targeted geography if replicable.	The agricultural methaniser is located 2 km from Is-sur-Tille site. **Reproducibility:** other natural gas-consuming sites if the conditions are met.
Project objectives Type of climate innovation of the project with a description of the problem/issue addressed	**Objectives:** • Replace the consumption of natural gas used for heating with non-fossil energy • Valorise bio-waste of the site by methanisation.
Detailed project description	Groupe SEB contributes to the fight against climate change by making commitments to reduce greenhouse gas emissions. In 2016, the Group joined the Science Based Target initiative (SBT), to align its low carbon approach with the goal of keeping global warming below 2°C by the end of the century. Groupe SEB has set the objective of reducing its emissions per product manufactured by 40% (base year 2016). To achieve these ambitious goals, it is concentrating its efforts on two priorities: • Optimize the energy consumption of its plants, • Increase in the share of renewable energy. This is the framework for this first biogas supply project of Groupe SEB, carried out by Is-sur-Tille industrial site. The project has two components: <u>Replace natural gas consumption with biogas for buildings heating</u> Is-sur-Tille site now uses biogas for heating. An agricultural methaniser was put in operation in 2021. This facility, located less than two kilometers from the site, recycles bio-waste by producing biogas. The project has led to the establishment of a commercial partnership: part of the biogas produced by the methaniser can now replace all the fossil natural gas previously consumed to heat the site (~1,6 GWh). This has resulted in an estimated saving of 260 tons of CO_2 equivalent per year, which is more than half of the annual emissions of the site before the project. <u>Valorise the site's bio-waste by methanisation</u> Is sur Tille site now recycles its bio-waste into biogas. The site's laboratory generates food and oils wastes when carrying out quality tests. Buildings are also surrounded by large greens spaces. These bio-wastes were previously incinerated. Now, there are collected free of charge by the methaniser's operators (up to 30 tons per year) and converted into biogas - which is then reused to heat the site! <u>Some figures:</u> • 1 ton of plant material produces about 90 m^3 of CH_4. • 1 ton of vegetable oil produces 500-600 m^3 of CH_4.

<table>
<tr><td></td><td>Success factors and advice for similar projects:
• The knowledge of its neighbourhood is essential to identify possible industrial synergies and to carry out this project with several people;
• Enough food waste and green waste must be produced to interest the biogas plant;
• Having a gas delivery station adjacent to the site ensures that the biogas saturates the natural gas network pipeline all year round;
• The biogas plant must be sufficiently robust to guarantee a permanent supply and not have financial difficulties for upgrading to standards.</td></tr>
<tr><td>Main project's drivers for reducing the greenhouse gas emissions

Enter the information in the appropriate boxes</td><td>
<table>
<tr><th>Reduction levers</th><th>Details on the aspects of the project</th></tr>
<tr><td>☐ Energy and resource efficiency (including behaviour)</td><td></td></tr>
<tr><td>☒ Energy Decarbonisation</td><td>Replacement of natural gas from the French network by biogas produced by a local methanizer (emissions divided by ~5).</td></tr>
<tr><td>☐ Energy efficiency improvements</td><td></td></tr>
<tr><td>☐ Improving efficiency in non-energy resources</td><td></td></tr>
<tr><td>☐ Emissions absorption: creation of carbon sinks, negative emissions (BECCS, CCU/S, ...)</td><td></td></tr>
<tr><td>☐ Financing low-carbon producers or disinvestment from carbon assets</td><td></td></tr>
<tr><td>☐ Reduction of other greenhouse gases emission</td><td></td></tr>
</table>
</td></tr>
<tr><td>Emission scope(s) on which the project has a significant impact and quantification of GHG emission reductions per emission scope

Indicate the aspects of the project that contribute to the reduction of emissions per category of emissions considered (left-hand column) and the quantification of associated emissions.

Indicate the main hypotheses and calculation steps in the intended section (below the table)

For further details, please refer to the methodology guidelines.</td><td>
<table>
<tr><th></th><th>Aspects of the project contributing to the reduction of emissions by emission category</th><th>Quantification of associated GHG emissions by emission category

Please follow the quantification methodology used in the Afep guidelines.</th></tr>
<tr><td colspan="3">Reduction of the company's carbon dependency</td></tr>
<tr><td>Scope 1
Direct emissions generated by the company's activity.</td><td>Replacement of natural gas from the French network by biogas produced by a local methanizer (emissions divided by ~5).</td><td>-260 tCO_2e/year</td></tr>
<tr><td>Scope 2
Indirect emissions associated with the company's electricity and heat consumption.</td><td></td><td></td></tr>
<tr><td>Scope 3
Emissions induced (upstream or downstream) by the company's activities, products and/or services in its value chain.</td><td></td><td></td></tr>
<tr><td colspan="3">Increase of carbon sinks</td></tr>
<tr><td>Emissions Absorption
Carbon sinks creation, (BECCS, CCU/S, …)</td><td></td><td></td></tr>
<tr><td colspan="3">GHG emissions avoided by the company at third parties</td></tr>
<tr><td>Avoided Emissions
Emissions avoided by the activities, products and/or services in charge of the project, or by the financing of emission reduction projects.</td><td></td><td></td></tr>
</table>

Clarification on the calculation or other remarks: The average emission factor for natural gas is around 205gCO_2e/kWh (ADEME, GHG balance, based on the 5th IPCC report, 2013 - worldwide scope). In France, biogas emissions are closed to 44gCO_2e/kWh (ADEME GHG balance - biomethane, France). We consider that the site consumes about 1.6 GWh of gas per year. The gain in CO_2e is therefore of the order of 260 tCO_2e per year.
</td></tr>
<tr><td>Modality of verification of the quantification.</td><td>Calculation standard used (ADEME base, GHG protocol, etc.): ADEME base

Verification of the calculation (internal or external): Internal verification of the calculation. External verification (auditor) of energy consumption.</td></tr>
<tr><td>Other environmental and social benefits of the project</td><td>This circular economy project is a local initiative supported by two neighbouring farmers, to which Is-sur-Tille site contributes. It promotes the energy sovereignty of the region and establishes a long-term partnership around this methaniser, generating financial stability and creating a job.</td></tr>
</table>

If possible, list the impacts and Sustainable Development Objectives concerned	Is sur Tille industrial site supplies 1% of the methanizer's inputs. The biomethane thus produced is directly injected into the city's network and supplies both the site's heating and neighbouring houses. This project is concrete for employees because it is close to the workplace. This raises awareness about climate issues and is a source of great motivation for all Groupe SEB employees.
Project maturity level Tick the corresponding current maturity level	☐ Prototype laboratory test (TRL 7) ☐ Real life testing (TRL 7-8) ☐ Pre-commercial prototype (TRL 9) ☐ Small-scale implementation ☒ Medium to large scale implementation **Remarks**: **The agricultural methaniser has been in operation since July 2021.**
Capacity and conditions of the project reproducibility, with associated climate impact mitigation potential	The conditions for reproducibility depend on the possibility of installing a methaniser by a third-party operator near the site. It is also necessary to have local bio-waste with high methanogenic power.
Amount of investment made (in €)	No investment for the installation. Only the annual cost of providing a container twice a year to collect green waste from the mowing of the grassland located within the site: 150€/year.
Economic profitability of the project (ROI)	☒ ST (0-3 years) ☐ MT (4-10 years) ☐ LT (> 10 years) **Remarks:** /
Engaged partnerships	A partnership has been set up with MJ Energie, a company created by two farmers who were looking to diversify their farms with a secure activity in terms of profitability.
Open comments from the project owner	/
More about the project	
Contact the company carrying the project Please specify an ad hoc e-mail address that will allow the reader to contact the project company directly	sustainabledevelopment@groupeseb.com
Project URL links	/
Illustrations of the project 3 photos/videos minimum (in HD format to be attached)	