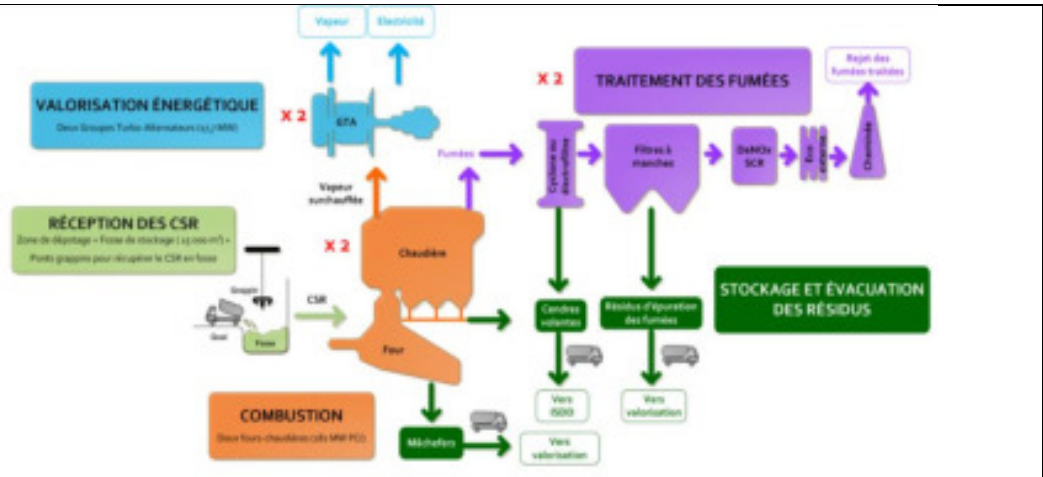


Steam & electricity production from a boiler station powered by Solid Recovered Fuels



The Dombasle Energie project, resulting from the partnership between Solvay and Véolia, aims to design, to build, finance and operate a boiler plant using Solid Recovered Fuels (SRF) to produce steam and electricity for the Dombasle plant operations, in substitution of coal.

Starting date of the project	2021 : Pre-project study and facility classified under environmental protection (ICPE) 2022 : Administratives authorisations 2023 - 2024 : Building and industrial commissioning
Project Localisation Places of implementation of the project at this stage and targeted geography if replicable.	The project is located on the Dombasle-sur-Meurthe site, in Meurthe-et-Moselle, in the Grand Est Region (France).
Project objectives Type of climate innovation of the project with a description of the problem/issue addressed	Design, build, finance and operate a boiler using Solid Recovered Fuels (SRF) in order to produce steam and electricity for the Solvay Dombasle site for at least 20 years. This boiler substitutes the three coal boilers currently in operation on the site which shall be stopped.
Detailed project description	<p>Founded in 1873, Dombasle-sur-Meurthe plant is one of the oldest soda works in the Solvay group and is one of the last two soda plants located in Lorraine. Established on a 50-hectare industrial park the plant houses a production unit as well as a research and development laboratory that works for all the carbonate, bicarbonate and derivatives activities of the Group.</p> <p>In order to maintain the competitiveness of this site, in the light of its performance and profitability criteria in an increasingly competitive international context, the company Dombasle Énergie was created. It is the result of a partnership between SOLVAY and VEOLIA groups.</p> <p>Dombasle Energie is carrying out the present project, which consists of designing, building, financing and operating a boiler plant using Solid Recovered Fuels (SRF) to produce steam and electricity for Solvay Dombasle site for at least 20 years. This boiler room will substitute the three coal-fired boilers currently in operation on the site, which will be stopped.</p> <p>The project allows:</p> <ul style="list-style-type: none"> ● To reduce atmospheric emissions by around 50% and CO2 emissions by 240,000 t / year for the Solvay site of Dombasle, or all in all, around 50% of current fossil emissions. The project includes the investment of an efficient treatment of fumes gases and polluting emissions; ● To eliminate water intake of the coal boilers which today represent 400 to 500 m3 / h ● To develop matter recovery by structuring the SRF sector and promote circular economy; ● To secure the thousand direct and indirect jobs at the Solvay's Dombasle site, preserve and create jobs in particular for the preparation of SRF and logistics and to create temporary jobs during the construction of the CSR boiler room.



Main project's drivers for reducing the greenhouse gas emissions

Reduction levers	Details on the aspects of the project
<input type="checkbox"/> Energy and resource efficiency (including behaviour)	
<input checked="" type="checkbox"/> Energy Decarbonisation	Replacement of three coal boilers by two SRF boilers
<input checked="" type="checkbox"/> Energy efficiency improvements	The two new SRF boilers will be installed with better energy efficiency than coal boilers
<input type="checkbox"/> Improving efficiency in non-energy resources	
<input type="checkbox"/> Emissions absorption: creation of carbon sinks, negative emissions (BECCS, CCU/S, ...)	
<input type="checkbox"/> Financing low-carbon producers or disinvestment from carbon assets	
<input type="checkbox"/> Reduction of other greenhouse gases emission	

Emission scope(s) on which the project has a significant impact and quantification of GHG emission reductions per emission scope

	Aspects of the project contributing to the reduction of emissions by emission category	Quantification of associated GHG emissions by emission category Please follow the quantification methodology used in the Afep guidelines .
Reduction of the company's carbon dependency		
Scope 1 <i>Direct emissions generated by the company's activity.</i>	Replacement of three coal boilers by two SRF boilers	240 ktCO2/year
Scope 2 <i>Indirect emissions associated with the company's electricity and heat consumption.</i>		
Scope 3 <i>Emissions induced (upstream or downstream) by the company's activities, products and/or services in its value chain.</i>		
Increase of carbon sinks		
Emissions Absorption <i>Carbon sinks creation, (BECCS, CCU/S, ...)</i>		
GHG emissions avoided by the company at third parties		
Avoided Emissions <i>Emissions avoided by the activities, products and/or services in charge of the project, or by the financing of emission reduction projects.</i>		

Clarification on the calculation or other remarks:
 Dombasle site's CO2 emissions in 2019 was 600kt as reported in the ETS audit, including

	<p>480 kt emitted by its coal boilers, corresponding to 192 kt of coal consumed, considering an emission factor of 2.5 tCO₂ / tonne of coal.</p> <p>The SRF emission coefficient, equivalent to that of natural gas, being 2 times lower than that of coal for equivalent energy, the current CO₂ emissions emitted by coal boilers will be divided by half.</p> <p>So, the use of SRF allows a gain of 240 ktCO₂ / year.</p>
Modality of verification of the quantification.	<p>Calculation standard used (ADEME base, GHG protocol, etc.): Audit ETS</p> <p>Verification of the calculation (internal or external): external verification</p>
Other environmental and social benefits of the project	<p>This project contributes to following SDOs :</p> <ul style="list-style-type: none"> • SDG 6 : clean water and sanitation : the project aims to eliminate water intakes for cooling coal boilers, which today represent 400 to 500 m³ / h, as well as to the zero aqueous discharge ambition, excluding rainwater and sanitary water (these are always directed to the networks provided for this purpose). • SDG 7 : affordable and clean energy : to ensure the sustainability of the site, the facility produces steam and electricity from the SRF at a competitive price over 20 years • SDG 9 : industry, innovation and infrastructure : the project promotes the development of a sustainable industry • SDG 12 : responsible consumption and production : the project will contribute to the development of material recovery, the promotion of the circular economy, as well as the reduction of the quantities of sorting refusals sent to Storage facilities for non-hazardous wastes. • SDG 13 : climate action : the project aims to reduce 240kt CO₂ emissions per year.
Project maturity level	<p> <input type="checkbox"/> Prototype laboratory test (TRL 7) <input type="checkbox"/> Real life testing (TRL 7-8) <input type="checkbox"/> Pre-commercial prototype (TRL 9) <input type="checkbox"/> Small-scale implementation <input checked="" type="checkbox"/> Medium to large scale implementation </p> <p>Remarks : /</p>
Capacity and conditions of the project reproducibility, with associated climate impact mitigation potential	<p>Solvay is studying the possibility of reproducing this type of project on these plants with the objective of substitute the consumption of coal by alternative fuels that emit less CO₂.</p> <p>Public and private funding makes it possible to respect the schedule and achieve the economic equilibrium of the project in order to ensure a stable and competitive price of steam and electricity over 20 years.</p>
Amount of investment made (in €)	Estimated initial cost: €180M.
Economic profitability of the project (ROI)	<p> <input type="checkbox"/> ST (0-3 years) <input type="checkbox"/> MT (4-10 years) <input checked="" type="checkbox"/> LT (> 10 years) </p> <p>Remarks: Economic interests for Solvay:</p> <ul style="list-style-type: none"> • To reduce the cost of CO₂ on the site • To ensure the sustainability of the Dombasle site with the supply of steam at a competitive price for 20 years • To develop the SRF sector (for the partner Veolia)
Engaged partnerships	<ul style="list-style-type: none"> • The main partner is Veolia, which supplies the SRF and will be the operator of the SRF plant • ADEME and Grand Est Region : investment and operating aid.
Open comments from the project owner	<p>At this stage, the project receives political and technical support. Unfortunately, the overall cost of the project has increased significantly, particularly because of the COVID crisis.</p> <p>It will be necessary to have the political and economic support to continue this exemplary project in terms of energy transition in accordance with the defined schedule.</p>
More about the project	
Contact the company carrying the project	natalia.orjuela@solvay.com
Project URL links	The "Concertation File" prepared for the public consultation at the start of the year is available at the following address : Link .

Illustrations of the project

