

KEnI Project Digitalization for decarbonization



One of the key priorities of Roquette's Sustainable Development approach is the reduction of energy consumption and CO2 emissions. Deployed globally, this project aims to improve the energy performance company. All energy usage data is now centralized and analyzed in order to optimize energy efficiency.

Starting date of the project	May 2020																	
Project Localisation Places of implementation of the project at this stage and targeted geography if replicable.	The KEnI project is intended to be implemented at all of Roquette's main industrial sites around the world. At this stage, the project has been rolled out on the following sites: <ul style="list-style-type: none"> • Lestrem, Vecquemont, Beinheim, Montigny-Lengrain in France • Benifaio in Spain • Panevezys in Lithuania • On our sites in China and India 																	
Project objectives Type of climate innovation of the project with a description of the problem/issue addressed	Centralize and analyze all energy consumption data in order to optimize the energy efficiency of the company's industrial processes.																	
Detailed project description	<p>Energy consumption is a very important part of the manufacturing costs of the Roquette Group's products. It is also the main component that makes up Roquette's CO2 emissions. Since 2015, most Roquette production sites have been ISO50001 certified. In France, a perimeter which represents 50% of energy consumption, energy efficiency programs have made it possible to reduce annual energy consumption by 7% compared to the reference year 2015. Roquette's ambition is to continue this effort at all of the Group's facilities with a goal of reducing CO2 emissions by 1% per year per tonne of product linked to energy use.</p> <p>To do this, Roquette launched the KEnI project in May 2020. This project is deployed in 2 phases:</p> <ol style="list-style-type: none"> 1. Implementation of energy and CO2 indicators for Roquette at the global level and within each production plant to monitor progress; 2. Installation of energy dashboards at workshop level to monitor the variations in energy performance of the production lines and optimize them. <p>In 2020, most facilities in the European, Indian, Chinese and Canadian zone were concerned.</p> <p>In 2021, Roquette will continue the roll-out in Italy, the Americas and the other remaining facilities.</p>																	
Main project's drivers for reducing the greenhouse gas emissions	<table border="1"> <thead> <tr> <th data-bbox="480 1503 979 1529">Reduction levers</th> <th data-bbox="979 1503 1481 1529">Details on the aspects of the project</th> </tr> </thead> <tbody> <tr> <td data-bbox="480 1529 979 1581"> <input type="checkbox"/> Energy and resource efficiency (including behaviour) </td> <td data-bbox="979 1529 1481 1581"></td> </tr> <tr> <td data-bbox="480 1581 979 1612"> <input type="checkbox"/> Energy Decarbonisation </td> <td data-bbox="979 1581 1481 1612"></td> </tr> <tr> <td data-bbox="480 1612 979 1684"> <input checked="" type="checkbox"/> Energy efficiency improvements </td> <td data-bbox="979 1612 1481 1684"> Control energy consumption thanks to a better understanding of possible deviations, and optimization of industrial processes. </td> </tr> <tr> <td data-bbox="480 1684 979 1715"> <input type="checkbox"/> Improving efficiency in non-energy resources </td> <td data-bbox="979 1684 1481 1715"></td> </tr> <tr> <td data-bbox="480 1715 979 1769"> <input type="checkbox"/> Emissions absorption: creation of carbon sinks, negative emissions (BECCS, CCU/S, ...) </td> <td data-bbox="979 1715 1481 1769"></td> </tr> <tr> <td data-bbox="480 1769 979 1823"> <input type="checkbox"/> Financing low-carbon producers or disinvestment from carbon assets </td> <td data-bbox="979 1769 1481 1823"></td> </tr> <tr> <td data-bbox="480 1823 979 1877"> <input type="checkbox"/> Reduction of other greenhouse gases emission </td> <td data-bbox="979 1823 1481 1877"></td> </tr> </tbody> </table>	Reduction levers	Details on the aspects of the project	<input type="checkbox"/> Energy and resource efficiency (including behaviour)		<input type="checkbox"/> Energy Decarbonisation		<input checked="" type="checkbox"/> Energy efficiency improvements	Control energy consumption thanks to a better understanding of possible deviations, and optimization of industrial processes.	<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		
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Emission scope(s) on which the project has a significant impact and quantification of GHG emission reductions per emission scope		<table border="1"> <thead> <tr> <th data-bbox="1153 1906 1145 2002">Aspects of the project contributing to the reduction of emissions by emission category</th> <th data-bbox="1145 1906 1481 2002">Quantification of associated GHG emissions by emission category</th> </tr> </thead> <tbody> <tr> <td data-bbox="1153 2002 1145 2018"></td> <td data-bbox="1145 2002 1481 2018"></td> </tr> </tbody> </table>	Aspects of the project contributing to the reduction of emissions by emission category	Quantification of associated GHG emissions by emission category														
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			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>	Digital monitoring and optimization of energy consumption	Initial situation in 2019: total emissions due to the combustion of fossil fuels (gas, coal) from the group's factories and energy purchases (electricity, steam): 3,300 kt of CO ₂ . After project implementation: reduction of 165,000 tonnes of CO ₂ in 2025
	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>		
	<p>Clarification on the calculation or other remarks: merci de préciser</p> <p>In 2019, the amount of energy used on production lines worldwide amounted to 6.5 TWh / year, of which 25% was electricity and 75% heat (steam, hot water, etc.)</p> <p>Using the emission factors for electricity in each of the countries (between 80 and 770 kgCO₂ / MWh) and the emission factors for the combustion of gas (214 kgCO₂ / MWh PCI), coal (380 kgCO₂ / MWh PCI), geothermal energy (4 kgCO₂ / MWh PCI) and biomass (0 kgCO₂ / MWh PCI), the group's energy emissions then amounted to 3,300,000 t CO₂ / year.</p> <p>The implementation of the project, on a Europe / China / India scope, allowed the reduction between the launch of the project (2019) and the end of 2020 of 83,040 MWh (8% in France, 18% in China, 74% in India), which represents a total reduction in emissions of 20,800 t CO₂ or -1.3% of CO₂ / t produced.</p>		
Modality of verification of the quantification.	<p>Calculation standard used (ADEME base, GHG protocol, etc.): The dashboards in the workshops capture the real-time data from the production lines (energy metering, flow, temperature, etc.) and allow monitoring the operational KPIs by major equipment (at the level of the operators operating the production lines). Benchmarks and models are established based on the analysis of consumption and influencing factors (rate, outside temperature, other influencing factors). The display and analysis of deviations are carried out within the manufacturing performance unit. Monitoring at Group level is also carried out to follow up on Roquette's performance and the achievement of its reduction target. CO₂ emissions are quantified according to the CO₂ GHG Protocol standards, using ADEME emission factor databases.</p> <p>Verification of the calculation (internal or external):</p> <ul style="list-style-type: none"> • Internal verification: energy consumption and production data are subject to controlling and are recorded in the ERP of each production plant via Financial Controlling processes. • External verification: energy consumption, associated CO₂ emissions and performance indicators are audited and verified every year as part of ISO 50001, PNAQ audits and audits of Non-Financial reports. 		
Other environmental and social benefits of the project	<p>This project contributes to the following SDGs:</p> <ul style="list-style-type: none"> • SDG 7 Clean and affordable energy: thanks to the implementation of this project, a decrease in energy consumption has been observed; • SDG 9 Industry, innovation, infrastructure: this project improves the overall plant management by integrating the energy dimension. 		

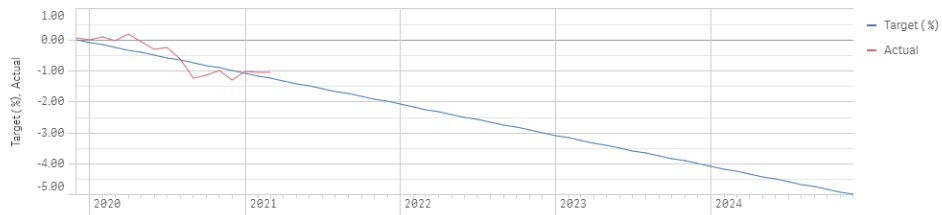
Project maturity level	<input type="checkbox"/> Prototype laboratory test (TRL 7) <input type="checkbox"/> Real life testing (TRL 7-8) <input type="checkbox"/> Pre-commercial prototype (TRL 9) <input type="checkbox"/> Small-scale implementation <input checked="" type="checkbox"/> Medium to large scale implementation Remarks: click here to enter the level of maturity of the project Roll-out on app. 20 Roquette facilities across the world.																																																																
Capacity and conditions of the project reproducibility, with associated climate impact mitigation potential	Project reproducible on all our industrial sites with significant energy and CO2 emissions savings.																																																																
Amount of investment made (in €)	Over 200 energy efficiency initiatives with invested capital of € 15 million.																																																																
Economic profitability of the project (ROI)	<input type="checkbox"/> ST (0-3 years) <input checked="" type="checkbox"/> MT (4-10 years) <input type="checkbox"/> LT (> 10 years) Remarks: click here to enter the information																																																																
Engaged partnerships	The project was managed with internal resources.																																																																
Open comments from the project owner	This project is aligned with Roquette's commitments to optimize its energy consumption by installing optimized energy solutions and using competitive renewable energies.																																																																
More about the project																																																																	
Contact the company carrying the project	globalcommunications@roquette.com																																																																
Project URL links	/																																																																
Illustrations of the project	<div style="border: 1px solid red; padding: 10px;"> <p style="text-align: center;">Cofeed Drying_MWh/t DS</p> <table border="1"> <caption>Approximate data points for Cofeed Drying_MWh/t DS</caption> <thead> <tr> <th>Date</th> <th>MWh/t DS</th> </tr> </thead> <tbody> <tr><td>1/10</td><td>1.40</td></tr> <tr><td>2/10</td><td>1.30</td></tr> <tr><td>3/10</td><td>1.45</td></tr> <tr><td>4/10</td><td>1.35</td></tr> <tr><td>5/10</td><td>1.25</td></tr> <tr><td>6/10</td><td>1.35</td></tr> <tr><td>7/10</td><td>1.35</td></tr> <tr><td>8/10</td><td>1.35</td></tr> <tr><td>9/10</td><td>1.25</td></tr> <tr><td>10/10</td><td>1.35</td></tr> <tr><td>11/10</td><td>1.35</td></tr> <tr><td>12/10</td><td>1.45</td></tr> <tr><td>13/10</td><td>1.35</td></tr> <tr><td>14/10</td><td>1.70</td></tr> <tr><td>15/10</td><td>1.10</td></tr> <tr><td>16/10</td><td>1.35</td></tr> <tr><td>17/10</td><td>1.35</td></tr> <tr><td>18/10</td><td>1.25</td></tr> <tr><td>19/10</td><td>1.35</td></tr> <tr><td>20/10</td><td>1.70</td></tr> <tr><td>21/10</td><td>1.40</td></tr> <tr><td>22/10</td><td>1.70</td></tr> <tr><td>23/10</td><td>1.35</td></tr> <tr><td>24/10</td><td>1.25</td></tr> <tr><td>25/10</td><td>1.25</td></tr> <tr><td>26/10</td><td>1.25</td></tr> <tr><td>27/10</td><td>1.25</td></tr> <tr><td>28/10</td><td>1.25</td></tr> <tr><td>29/10</td><td>1.25</td></tr> <tr><td>30/10</td><td>1.25</td></tr> <tr><td>31/10</td><td>1.10</td></tr> </tbody> </table> </div>	Date	MWh/t DS	1/10	1.40	2/10	1.30	3/10	1.45	4/10	1.35	5/10	1.25	6/10	1.35	7/10	1.35	8/10	1.35	9/10	1.25	10/10	1.35	11/10	1.35	12/10	1.45	13/10	1.35	14/10	1.70	15/10	1.10	16/10	1.35	17/10	1.35	18/10	1.25	19/10	1.35	20/10	1.70	21/10	1.40	22/10	1.70	23/10	1.35	24/10	1.25	25/10	1.25	26/10	1.25	27/10	1.25	28/10	1.25	29/10	1.25	30/10	1.25	31/10	1.10
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CO2 emissions Roquette Result (only from energy at usage)

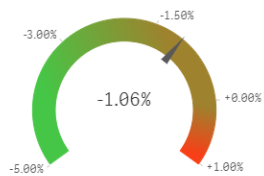
PERIOD

%CO2 emission target achievement (target and actual 12rm)



CO2 emission

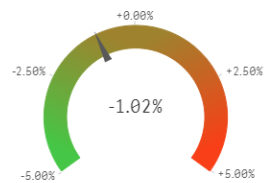
Gap from the baseline-12rm March-2021



-17597 ton

CO2 emission

Gap from the baseline-month of March-2021



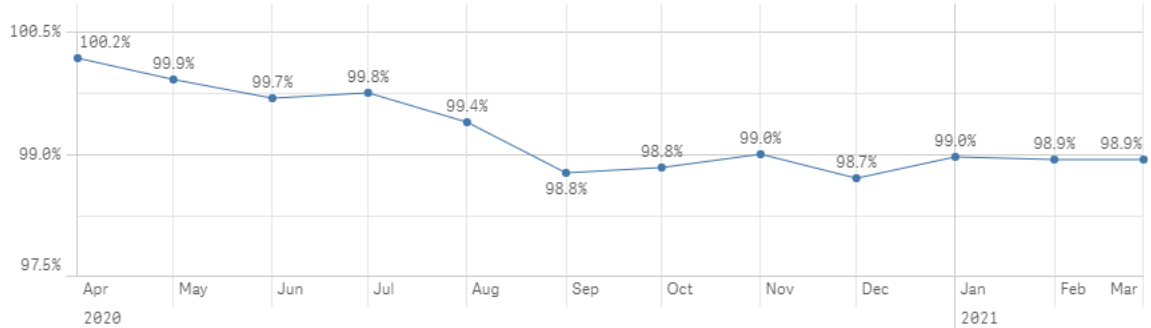
- 1568 ton



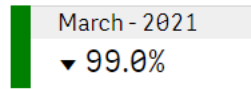
CO2 emissions KPI - Usage

PERIOD

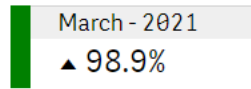
CO2 emissions Indicator 12rm (100%= 2019 baseline)
ROQUETTE



Roquette - month value
(100%=2019 baseline)

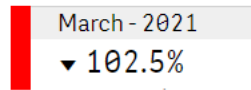


Roquette -12rm value
(100%=2019 baseline)

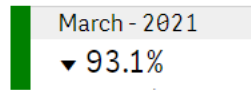


[Detail](#)

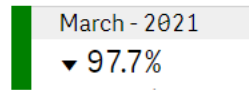
Europe - month value
(100%=2019 baseline)



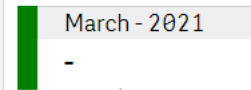
China - month value
(100%=2019 baseline)



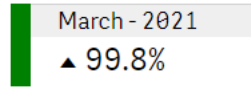
Greater Asia - month value
(100%=2019 baseline)



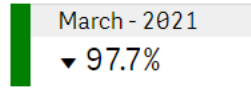
Americas - month value
(100%=2019 baseline)



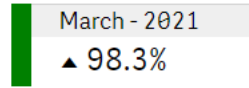
Europe -12rm value
(100%=2019 baseline)



China -12rm value
(100%=2019 baseline)



Greater Asia -12rm value
(100%=2019 baseline)



Americas -12rm value
(100%=2019 baseline)

