

ARKEMA ENERGY: an integrated approach to improving energy efficiency

ARKEMA

In order to reduce its energy consumption and carbon footprint, Arkema is developing the ARKEMA ENERGY program at all of its industrial sites in favour of a true culture of energy

Project start date	2014										
Project location Locations of project implementation at this stage and target geography if reproducible	The ARKEMA ENERGY project concerns all of the Group's industrial sites (147 at the end of 2020) worldwide.										
Project objectives Type of the project's climate innovation with a reminder of the problem/challenge addressed	The ARKEMA ENERGY project aims to improve the Group's energy efficiency. Through a structured and homogeneous approach covering the entire industrial perimeter, it consists of implementing an energy-saving culture at all levels of the company.										
Detailed description of the project	<p>Deployed since 2014, this project is based on the positive evolution of employee practices and improved efficiency of the Group's industrial processes.</p> <p>More specifically, the actions carried out include:</p> <ul style="list-style-type: none"> • Energy-saving employee practices: <ul style="list-style-type: none"> ○ E-learning recommended to all employees on the industrial premises and offered to all other employees, highlighting the challenges and the areas of progress for each employee at their level; ○ Specific training dedicated to all local project managers; ○ Wide publication of a good practice guide, revised every two years; ○ Sharing of all projects on a shared interactive platform. • Improving the energy efficiency of industrial processes: <ul style="list-style-type: none"> ○ Creation of a global network of designated "energy leaders" pooling all actions and projects carried out in their unit via a platform; <ul style="list-style-type: none"> ▪ 120 people – monthly meetings – global coordination and regional monitoring – dedicated energy performance reporting system ○ Provision of a good practice guide, directly applicable methodologies and framework agreements negotiated upstream that simplify the implementation of action plans on each industrial site; <ul style="list-style-type: none"> ▪ Steam networks: systematic identification of defective steam traps entrusted to a subcontractor and replacement (at 35 plants – gain 53 GWh – emissions: -10 800 tonnes of CO₂/year) ○ Creation of benchmarks giving rise to global action plans with key improvement points, according to the "bulldozer approach". With a long-term follow-up of actions and results and wide dissemination; ○ Allocation of an investment budget (\$34M) dedicated to the actions carried out as part of this programme, which benefits about sixty projects per year. <p>This project was a determining factor in reducing the group's annual energy consumption. This amounts to nearly 930 GWh/year - a decrease in annual GHG emissions related to energy consumed of 216 kt CO₂ over the 2014-2021 period.</p> <p>At the end of 2021, most of the group's industrial sites - representing more than 80% of its energy consumption - carried out actions in this context.</p>										
Main project's drivers for reducing the greenhouse gas emissions	<table> <tr> <th>Reduction levers</th><th>Details on the associated aspects of the project</th></tr> <tr> <td><input checked="" type="checkbox"/> Energy and resource-savings (behaviour in particular)</td><td>Improvement of employee uses</td></tr> <tr> <td><input type="checkbox"/> Decarbonisation of energy</td><td></td></tr> <tr> <td><input checked="" type="checkbox"/> Improved energy efficiency</td><td>Sharing of good practices</td></tr> <tr> <td><input type="checkbox"/> Improved non-energy resource efficiency</td><td></td></tr> </table>	Reduction levers	Details on the associated aspects of the project	<input checked="" type="checkbox"/> Energy and resource-savings (behaviour in particular)	Improvement of employee uses	<input type="checkbox"/> Decarbonisation of energy		<input checked="" type="checkbox"/> Improved energy efficiency	Sharing of good practices	<input type="checkbox"/> Improved non-energy resource efficiency	
Reduction levers	Details on the associated aspects of the project										
<input checked="" type="checkbox"/> Energy and resource-savings (behaviour in particular)	Improvement of employee uses										
<input type="checkbox"/> Decarbonisation of energy											
<input checked="" type="checkbox"/> Improved energy efficiency	Sharing of good practices										
<input type="checkbox"/> Improved non-energy resource efficiency											

	<input type="checkbox"/> Emission absorption: creation of carbon wells, negative emissions (BECCS, CCU/S, etc.)																												
	<input type="checkbox"/> Financing of low carbon emitters or divestment of carbon-based assets																												
	<input type="checkbox"/> Reduction of other greenhouse gases																												
Scope(s) of emissions on which the project has a significant impact and quantification of reductions in GHG emissions by scope of emissions	<table border="1"> <thead> <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 <i>Please respect the quantification methodology used in the Afep note.</i></th></tr> </thead> <tbody> <tr> <td colspan="3">Reduce the company's carbon dependency</td></tr> <tr> <td>Scope 1 <i>Direct emissions generated by company activity.</i></td><td>Energy and resource- savings (in particular behaviour) and improved energy efficiency</td><td>-185 kt CO2 eq. (in 2021 compared to 2014)</td></tr> <tr> <td>Scope 2 <i>Indirect emissions associated with the company's consumption of electricity and heat.</i></td><td>Energy and resource- savings (in particular behaviour) and improved energy efficiency</td><td>-31 kt CO2 eq. (in 2021 compared to 2014)</td></tr> <tr> <td>Scope 3 <i>Induced emissions (upstream or downstream) by company activities, products and/or services in its value chain.</i></td><td></td><td></td></tr> <tr> <td colspan="3">Increased carbon wells</td></tr> <tr> <td>Emission absorption <i>Creation of carbon wells (BECCS, CCU/S, etc.)</i></td><td></td><td></td></tr> <tr> <td colspan="3">GHG emissions avoided by the company at other sites</td></tr> <tr> <td>Emissions avoided <i>Emissions avoided by the activities, products and/or services of the company promoting the project or by the financing of emission reduction projects.</i></td><td></td><td></td></tr> </tbody> </table> <p>Details on the calculation or other comments: Between 2014 and 2021, the Arkema energy projects led to a drop in consumption of 930 GWh/year, of which 9% is linked to a drop in electricity consumption and 91% is linked to a drop in heat consumption (gas, steam).</p>		Aspects of the project contributing to the reduction of emissions by emission category	Quantification of associated GHG emissions by emission category <i>Please respect the quantification methodology used in the Afep note.</i>	Reduce the company's carbon dependency			Scope 1 <i>Direct emissions generated by company activity.</i>	Energy and resource- savings (in particular behaviour) and improved energy efficiency	-185 kt CO2 eq. (in 2021 compared to 2014)	Scope 2 <i>Indirect emissions associated with the company's consumption of electricity and heat.</i>	Energy and resource- savings (in particular behaviour) and improved energy efficiency	-31 kt CO2 eq. (in 2021 compared to 2014)	Scope 3 <i>Induced emissions (upstream or downstream) by company activities, products and/or services in its value chain.</i>			Increased carbon wells			Emission absorption <i>Creation of carbon wells (BECCS, CCU/S, etc.)</i>			GHG emissions avoided by the company at other sites			Emissions avoided <i>Emissions avoided by the activities, products and/or services of the company promoting the project or by the financing of emission reduction projects.</i>			
	Aspects of the project contributing to the reduction of emissions by emission category	Quantification of associated GHG emissions by emission category <i>Please respect the quantification methodology used in the Afep note.</i>																											
Reduce the company's carbon dependency																													
Scope 1 <i>Direct emissions generated by company activity.</i>	Energy and resource- savings (in particular behaviour) and improved energy efficiency	-185 kt CO2 eq. (in 2021 compared to 2014)																											
Scope 2 <i>Indirect emissions associated with the company's consumption of electricity and heat.</i>	Energy and resource- savings (in particular behaviour) and improved energy efficiency	-31 kt CO2 eq. (in 2021 compared to 2014)																											
Scope 3 <i>Induced emissions (upstream or downstream) by company activities, products and/or services in its value chain.</i>																													
Increased carbon wells																													
Emission absorption <i>Creation of carbon wells (BECCS, CCU/S, etc.)</i>																													
GHG emissions avoided by the company at other sites																													
Emissions avoided <i>Emissions avoided by the activities, products and/or services of the company promoting the project or by the financing of emission reduction projects.</i>																													
Method of verification of this quantification	Calculation reference system used (ADEME base, GHG protocol, etc.): GHG protocol Calculation verification (internal or external): Internal and external verification (by the independent third party in charge of DPEF verification)																												
Other environmental and social benefits of the project	A genuine corporate culture has been put in place with sharing of experience (good or bad) at the global level. This project also contributed to reduce the carbon footprint of marketed products, and where customers have increasing expectations.																												
Project maturity level	<input type="checkbox"/> Laboratory prototype test (TRL 7) <input type="checkbox"/> Real test (TRL 7-8) <input type="checkbox"/> Pre-commercial prototype (TRL 9) <input type="checkbox"/> Small-scale implementation <input checked="" type="checkbox"/> Medium or large-scale implementation Comments: The project is at operational maturity with a very high level of appropriation by the teams.																												
Potential and condition of reproducibility of the project with associated potential in terms of climate impact	The project is completely reproducible, whether in terms of energy efficiency results or climate impacts. The principle of this project is to allow all Arkema plants to benefit from the feedback from each project carried out in a plant in order to benefit from Group synergy																												
Amount of the investment made (in €)	€31 million on 2014-2020 with projects ranging from €20k to €500k.																												

Economic return of the project (ROI)	<input checked="" type="checkbox"/> ST (0-3 years) <input type="checkbox"/> MT (4-10 years) <input type="checkbox"/> LT (> 10 years) Comments: Click or press here to enter text.
Partnerships	EDF, ENDEL, AMSTRONG,
Free comments from the project promoter	Project deployment continues with a significant contribution expected to the strategic objective of reducing energy intensity by 20% in 2030 compared to 2012. At the end of 2020, the reduction was 10%.
To learn more about the project	
Contact the company promoting the project	arkenergy@arkema.com
Project URL links	https://www.arkema.com/global/en/social-responsibility/environmental-footprint/optimize-consumption/
Illustrations of the project	<div data-bbox="491 607 1078 689"> </div> <div data-bbox="491 739 1137 1207"> </div> <div data-bbox="528 1272 1289 1794"> </div>