Stopping the consumption of fossil fuel
at the Ronneby plant, Sweden

Tarkett reduces emissions at its Ronneby, Sweden plant by replacing the site's oil-fired boilers with electric boilers

Starting date of the project	Q1 2021
Project Localisation Places of implementation of the project at this stage and targeted geography if replicable.	Tarkett plant in Ronneby, Sweden The interest of the project depends on several criteria (carbon tax, availability of renewable energies in local). At the moment, Tarkett has no similar project in any other factory of the group.
Project objectives Type of climate innovation of the project with a description of the problem/issue addressed	Use non-carbon energy by switching from fuel oil to renewable electricity to power the site's processes on the site. Improving the site's energy efficiency by using electric boilers to limit heat loss. heat loss.

Detailed project description	This project to stop fossil fuel consumption on the site consists of several phases:
	• Phase 1:
	  ○ Replacement of the 2 largest oil-fired boilers with electric boilers (which used to heat thermal oil used in production);
	• Phase 2:
	  ○ Replacement of 3 other smaller boilers in the warehouse, the recycling center and the recycling center and the biomass department.

Main project's drivers for reducing the greenhouse gas emissions

Reduction levers	Details on the aspects of the project
☐ Energy and resource efficiency (including behaviour)	
☒ Energy Decarbonisation	Use of decarbonized electricity instead of fossil fuel
☒ Energy efficiency improvements	More efficient electric boilers energetically
☐ Improving efficiency in non-energy resources	
☐ Emissions absorption: creation of carbon sinks, negative emissions (BECCS, CCU/S, ...)	
☐ Financing low-carbon producers or disinvestment from carbon assets	
☐ 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 *Direct emissions generated by the company's activity.*	Use of decarbonized electricity instead of fossil fuel	6.2 ktCO2/year
Scope 2 *Indirect emissions associated with the company's electricity and heat consumption.*	Use of decarbonized electricity instead of fossil fuel More energy-efficient electric boilers efficient electric boilers	-0.9ktCO2/year
Scope 3 *Emissions induced (upstream or downstream) by the company's activities, products and/or services in its value chain.*		

<table>
<tr><td></td><td>
<table>
<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>
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Clarification on the calculation or other remarks:
Before the project was launched, the Ronneby site consumed 2320 t of fuel oil per year. Assuming an emission factor of emission factor of 2.67 tCO2/tfuel, this represents almost 6194 tCO2/year.

Phase 1 of the project (replacement of the 2 largest oil-fired boilers) will reduce the amount of 520 t of oil per year. The two new electric boilers consume 15 121 MWh/year of electricity. Considering an emission factor of 0.053 kgCO2/MWh, this allows a reduction of 4 ktCO2eq/year (the calculation considers a renewable source of electricity that will be available from January 1, 2021).

Phase 2 of the project (replacement of 3 other smaller boilers), will reduce to 0 fuel consumption to zero. These boilers will consume about 5181 MWh/year of electricity. Considering an emission factor of 0.053 kgCO2/MWh, this allows an additional reduction of 1.3 ktCO2eq/year
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<tr><td>Modality of verification of the quantification.</td><td>Calculation standard used (ADEME base, GHG protocol, etc.):
• Electricity emission factor: Statkraft (electricity supplier)
• Emission factor fuel oil: naturvårdsverket (Swedish authorities)
• Biomass emission factor: naturvårdsverket (Swedish authorities)

Verification of the calculation (internal or external): internal verification</td></tr>
<tr><td>Other environmental and social benefits of the project</td><td>Other benefits of this project include:
• The eradication of the risk of fuel leakage;
• Eliminating the need to transport fuel oil by rail to the plant;
• Reduction of noise from the exhaust stack</td></tr>
<tr><td>Project maturity level</td><td>☐ 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:
• Project commissioned for Phase 1 in early 2019 (construction began April 2018);
• Phase 1 successfully implemented in 2019;
• Phase 2, which is a replication of Phase 1, is being implemented, with no major major blocking point ;
• The objective is to eradicate fuel consumption in the plant during 2021</td></tr>
<tr><td>Capacity and conditions of the project reproducibility, with associated climate impact mitigation potential</td><td>No potential for replication of the project has been identified at this time</td></tr>
<tr><td>Amount of investment made (in €)</td><td>The investment made in Phase 1:
- 2 electric boilers of 2MW each, replacing a capacity of 5MW ;
- 5kms of cable for connection to the electrical network;
- Building for the boilers;
This represents about 2M€ of investment including 45% of Swedish subsidies</td></tr>
<tr><td>Economic profitability of the project (ROI)</td><td>☒ ST (0-3 years)
☐ MT (4-10 years)
☐ LT (> 10 years)

Remarks: Details of the economic benefits of this project:
• Phase 1:
o Saving of 1800m 3 of fuel consumed per year, at about 950€/m3 (high price linked to the carbon tax in Sweden);
o Return on investment less than 2 years (including subsidies).
• Phase 2:
o Boiler for the biomass department: 0.5MW, saving 350m3 of fuel oil per year ;
o Boiler for the warehouse: saving 140m3 of fuel oil per year;
o Boiler for the recycling department: saving of 30m3 per year</td></tr>
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Engaged partnerships	The investment was financed by the public authorities up to 45% in order to encourage Tarkett to reduce its GHG emissions. The project was the largest financing in the southern region of Sweden in 2018.
Open comments from the project owner	To accompany this project, other actions are underway: • A renewable electricity contract will come into effect on January 1, 2021; • The site's machine tools are being converted to biodiesel (CO_2 neutral); • Electric car charging stations have been installed in front of the plant; • Internal cars on site are now electric; • The plant does not consume natural gas.
More about the project	
Contact the company carrying the project	communication@tarkett.com
Project URL links	/
Illustrations of the project