

## Advancing resource efficient and cleaner production in Ukraine

### The RECP methodology

**Resource Efficient and Cleaner Production (RECP)** is the integrated and continuous application of preventive environmental strategies to **processes, products, and services** to increase efficiency and reduce risks to humans and the environment. RECP is all about producing with fewer resources while minimizing environmental impacts and increasing overall productivity. For **Small and Medium-Sized Enterprises (SMEs)**, the RECP methodology can effectively lower production costs whilst improving the SMEs' competitive advantage and applying environmentally friendly practices. RECP is also an effective tool to introduce and promote Circular Economy principles among SMEs.

### “KREMENCHUK METALLURGICAL COMPANY” LLC - METALLURGICAL INDUSTRY



#### Company overview

**Location:** Kremenchuk, Poltava region

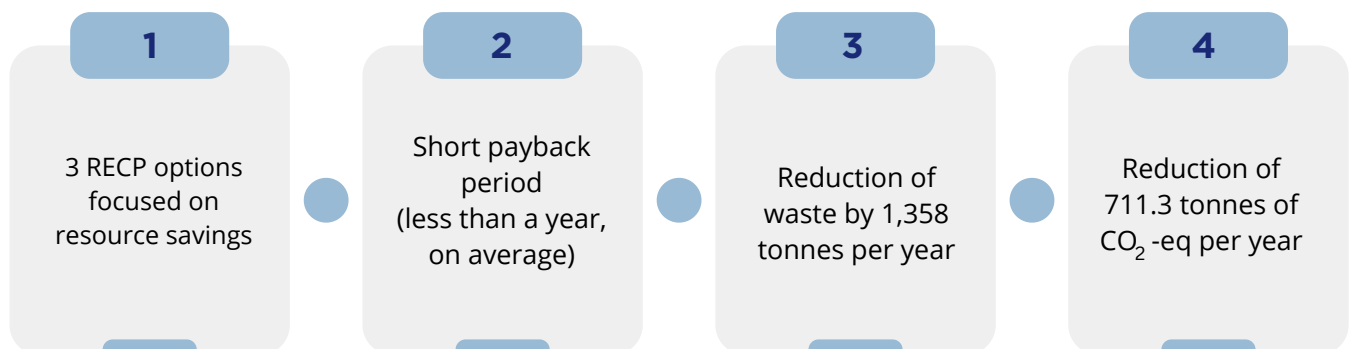
**Key products:** steel railcar frames

**Main markets:** Ukraine

**Founding year:** 1999

**“Kremenchuk Metallurgical Company”, LLC** specialises in the production of steel railcar frames. In addition, the company also creates environmentally-friendly regeneration sites for processing foundry waste, focusing on scrap metal extraction. A phased afforestation plan of the cleaned area then follows the waste processing. The regeneration site spreads across 10,300 m<sup>2</sup>, with a waste volume of 66,950 m<sup>3</sup>, and a waste layer thickness of 1.5 m up to 10 m. The area covered by waste accounts for 5.45 hectares. Motivated to analyse resource efficiency and develop resource-saving options, the company participated in the RECP Clubs programme under EU4Environment (2019-2024). This publication shows the company's experience reported after the monitoring exercise conducted in 2023.

### BENEFITS FROM IMPLEMENTING RECP OPTIONS



Action implemented by:

# The project's approach

With the support of the RECP self-assessment tool and the contribution of the RECP experts, the company developed its RECP Action plan which identified several RECP options, out of which the following three were prioritised. The suggested RECP recommendations included medium and high-cost measures:

**RECP Option 1. Heating the charge:** This consisted of a preheating treatment for the charge (scrap metal) before putting it into the melting furnace. This would reduce electricity consumption, as the charge would already reach a higher temperature during the preheating process, and hence take less time to melt it in the furnace. For this purpose, the RECP experts advised using the flue gases from the arc melting furnace.

**RECP Option 2. Insulating the slide pipes in the methodical furnace:** This consisted of the thermal insulation of the slide pipes in the methodical furnace to allow the reduction of temperature gradient in the inlet and outer water (used to cool the slide pipes). This would reduce the amount of heat taken out by water from the methodical furnace and thus, reduce the amount of gas needed to heat the furnace.

**RECP Option 3. Magnetic separation of the spent moulding mixture:** This would allow for additional metals to be recovered from the foundry waste, and reduce the total amount of generated waste.

## SAVING ACHIEVEMENTS

### Main RECP actions

OPTION 1	Heating the charge
OPTION 2	Insulating the slide pipes in the methodical furnace
OPTION 3	Magnetic separation of the spent moulding mixture

### Economic key figures

RECP OPTIONS	INVESTMENT (EUR)	SAVINGS (EUR/YR)	PAYBACK PERIOD (YR)
Option 1:	212,000	147,681	1.4
Option 2:	7,600	15,300	0.5
Option 3:	41,180	67,000	0.62

### Resource savings

RECP OPTIONS	ELECTRICITY (KWH/YR)/%	MATERIALS (TONNES/YR)/%	NATURAL GAS (M <sup>3</sup> /YR)/%
Option 1:	1,331,500/2.7	/	/
Option 2:	/	/	71,258/1
Option 3:	/	1,358/1	/

### Total pollution reduction

RECP OPTIONS	TOTAL CO <sub>2</sub> -EQ (TONNES/YR)	WASTE (TONNES/YR)
Total:	711.3	1,358

“ We were eager to know what the benefits of implementing the RECP measures were, as well as how to modernise obsolete production facilities. By participating in the RECP Clubs programme, we deepened our knowledge on how cleaner production can improve industrial processes and operations when it comes to reducing waste and pollution, and how to generate additional revenue by saving resources. In the future, we plan to continue expanding our production, said the director, Mr. Oleksandr Chubenko. ”

The introduction of RECP Clubs programme has been part of the EU-funded EU4Environment Action and executed by UNIDO. In this context, **"Kremenchuk Metallurgical Company", LLC** joined the Clubs programme to be monitored under EU4Environment. Follow-up visits have also been conducted to check on the implementation of the recommended RECP options. EU4Environment helps the EU's Eastern Partnership countries preserve their natural capital and increase people's environmental well-being by supporting environment-related action, demonstrating and unlocking opportunities for greener growth, and setting mechanisms to better manage environmental risks and impacts. For more details, visit: [www.eu4environment.org](http://www.eu4environment.org)

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