



## Advancing resource efficient and cleaner production in Ukraine

**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. In essence, RECP is all about producing with fewer resources and minimizing environmental impacts while increasing overall productivity.

For **Small and Medium-sized Enterprises (SMEs)**, the RECP methodology is an effective instrument in lowering production costs whilst improving their competitive advantage by applying environmentally friendly practices. The technical assistance and training provided to **Kharkiv-Forma** under the EaP GREEN Programme outlined a RECP action plan for the company team. The RECP options presented below helped **Kharkiv-Forma** process and recycle all its plastic waste and produce new products. The energy efficiency options allowed for an increase of 100 per cent of the utilized heating area. To improve waste management, the firm also purchased a shredder and a crushing machine to recycle its own waste and the one supplied by other companies.

### KHARKIV-FORMA

#### PLASTIC AND POLYMER MOULDING MANUFACTURING COMPANY

##### Company overview

- Address:** 67-B Velyka Panasivska Str., Kharkiv
- Key products:** Moulds for fences, facade and paving tiles, monuments, gardens, architecture elements, etc.
- No. employees:** 15
- Main markets:** Ukraine, Kazakhstan
- Export quota (%):** 20
- Founding year:** 2010



**Kharkiv-Forma** is a manufacturing company working in the industry of polymer and plastic, offering a wide range of vacuumed products (turning various plastic sheets into various bulk parts). Using the current available technology, the company receives plastic prints and uses them to produce moulds for concrete fences, facades and sidewalk tiles, monuments, volumetric (3-D) letters, logos, light-boxes, and so on.

##### Benefits

- Implementation of 2 RECP options
- Payback period of 1.9 years
- Emission reduction of 5.3 tonnes of CO<sub>2</sub>-eq/year
- Reduction of 37 per cent of electricity consumption/year
- Prevention of the disposal of 1.05 tonnes of plastics/year (solid waste for landfilling or burning)

*Running a company efficiently requires regular monitoring over the resource consumption; we believe every business has to increase resource efficiency and motivate its employees to invest in a rational resources consumption, said **Artem Serhiienko, Director***

Action implemented by:

# The project's approach



The **RECP assessment** examined all production sites, and identified several opportunities from which the following two have been prioritized:

**RECP option 1. An installation to process and recycle plastic waste.** The technological process requires generating a plastic mixture with required parameters on the first stage, and the melting of plastic raw materials followed by moulding details of the required configuration on the second stage. By investing in a shredder and crusher machines, the trimmings and residues from these processes have been recycled, closing the loop of material flows. As the option was implemented in 2020, there is not enough information available on the savings. The company expects to increase its recycling rates by installing a new extruder for the recycled materials.

**RECP option 2. Enlarging the heating zones of the hot plastic machine and installing a controlling software.** The hot plastic machine consumed up to 85 per cent of electric power at the enterprise level (the most energy-intensive equipment). Due to the manual control of the heating zones and the insufficient number of zones altogether, the area of switched-on heaters always exceeded the one utilized by the plastic blanks. The new option resulted in a reduction of electricity of 12,576 kWh (37 per cent from the previous one) and annual savings of 1,258 EUR as the heating zones in the machine doubled from 120 to 240 units, and a controlling software was installed to reduce energy consumption.

**Kharkiv-Forma** is ready to further enhance its production potential and identify new ways to improve resource efficiency in cooperation with the RECP Centre experts. The main capacity building directions are (1) increasing material resources efficiency (waste minimization, using waste for by-products, manufacturing) and (2) increasing resource efficiency by introducing new energy saving technologies.

## Saving achievements

### MAIN IMPLEMENTED ACTIONS

- Option 1:** Installation to process and recycle plastic waste
- Option 2:** Enlarging the heating zones of the hot plastic machine and installing a control software



### ECONOMIC KEY FIGURES

	Investment (Euro)	Saving (Euro/year)	PBP (years)
Option 1:	4,900	ongoing	-
Option 2:	2,337	1,258	1.9
<b>Total:</b>	<b>7,237</b>	<b>1,258</b>	-



### RESOURCE SAVINGS

	Electricity (kWh/year)	Waste (tonnes/year)
Option 1:	-	1.05 (waste reduction)
Option 2:	12,576	-



## Next steps

As the demand for plastic goods is growing in various industries and considering Kharkiv-Forma's own plastic waste, the company intends to complete the installation of the waste processing line. This will create better conditions to expand the range of products, and reduce the cost of materials. The company is also interested in the Environmental Management System (EMS) certification to extend its marketplace and offer products to new and more responsible sectors.

*The cooperation with the RECP Project team gave a positive motivation, triggered the desire to inspect the facilities again and to search for more efficient measures that would bring reduction in energy and material consumption. We plan to regularly increase the awareness of the staff on rational management of resources, said **Artem Serhiienko, Director***

The introduction of RECP has been part of the EU-funded programmes: **EaP GREEN** (2013-2017) and **EU4Environment Action** (2019-2022) executed by UNIDO. In this context, Kharkiv-Forma joined the RECP training and assistance programme under EaP GREEN. Follow-up visits have been then conducted under the new Action to check the implemented RECP options after the EaP GREEN Programme ended. EU4Environment helps the six EaP partner 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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