

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 **Rakhny Brick Plant, LLC** under the EaP GREEN Programme outlined a RECP action plan for the company team. The team then implemented three RECP options out of the six identified during the assessment. The RECP options presented below led to the effective installation of a **(1) reactive power compensator**, **(2) a cooling system for the press machine** using hydraulic oil, and a new **(3) waste treatment process**. Together, they reduce energy consumption, materials, and waste.

Rakhny Brick Plant, LLC CONSTRUCTION MATERIALS

Company overview

Address: Lisovi Rakhny village, Sharhorod district, Vinnytsia oblast

Key products: Hyper-pressed facing bricks

No. employees: 10

Main markets: Ukraine

Founding year: 2011

Certification: own organizational management system



Rakhny Brick Plant, LLC produces hyper-pressed facing bricks using a classic technology system where the raw materials extracted from the local deposit fields go through a hyper-press process. The enterprise applies its own internal research to improve the manufacturing process, resulting in high-quality facing bricks.

Benefits

- Implementation of 3 RECP options
- Payback periods of less than one year
- Improvement in material consumption
- Reduction of 150 tonnes of waste/year
- Reduction of 3 per cent of electricity consumption/year
- Emission reduction of 0.65 tonnes of CO₂-eq/year

*We have learned the key lesson. A comprehensive approach for production assessment and small investments in resource efficiency can really grant tangible benefits, said **Viktor Kondratiuk, Director***

Action implemented by:

The project's approach



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

RECP option 1. Reactive power compensation. For its 2 most energy-intensive technological processes (the hyper-pressing and thermal-hydraulic treatment), the company used to employ electric motors with irregular load, resulting in excessive reactive power. To solve this, it installed a reactive power compensator, which reduces energy losses and improves the power quality.

RECP option 2. Installing a cooling system for the press machine hydraulic oil. The assessment of hyper-pressing production area revealed that the frequent replacement of the press parts and the hydraulic oil (heated up at high temperatures) required high operational costs. By installing an oil cooling system, the shell time of the press machine was extended, saving over 1 tonne of oil per year.

RECP option 3. Waste processing. When shaping the final product in the form of the so-called 'torn brick', the plant generated high waste levels (~150 t/year). The quality of this waste was improved to use it as by-product, for instance, in coloured stones used for landscaping.

Rakhny Brick Plant, LLC also established an internal RECP team to identify and implement RECP options, elaborating suggestions for basic operations (hyper-pressing and thermal-hydraulic treatment).

Saving achievements

MAIN IMPLEMENTED ACTIONS

- Option 1:** Reactive power compensation
- Option 2:** Installing a cooling system for the press machine using hydraulic oil
- Option 3:** Waste processing treatment



ECONOMIC KEY FIGURES

	Investment (Euro)	Saving (Euro/year)	PBP (years)
Option 1:	590	1,306	0.45
Option 2:	310	1,520	0.2
Option 3:	0	940	0
Total:	900	3,766	-



RESOURCE SAVINGS

	Waste (tonnes/year)	Materials (tonnes/year)	Electricity (kWh/year)
Option 1:	-	-	1,500
Option 2:	-	1.04	- 61.2
Option 3:	150	-	-
Total:	150	1.04	1,438.8



Next steps

By focusing on energy as a main production resource, the company plans to continue improving its energy efficiency. The heat insulation of the steam engine and steam pipelines, the readjustment of the steam generator electrodes, the upgrade of the lighting system, among others, are all part of the measures foreseen to be adopted in the future.

*The RECP project greatly contributes in making our products competitive and keeping our position in the market. We keep on improving productions regularly. Among other priorities within the company's capacity-building strategies, we now focus on retraining staff. Having registered our trademark (Land Brick TM), we plan to enter the international market in the nearest future, said **Viktor Kondratiuk, 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, Rakhny Brick Plant, LLC 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.



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