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.

“SMNPO-ENGINEERING” JSC - EQUIPMENT FOR INDUSTRIES

Company overview

Location: Sumy
No. of employees: 3,500
Key products: equipment for oil, gas, nuclear, and chemical industries
Main markets: Ukraine, Europe, Asia, Africa, USA
Exportation quota (%): 70
Founding year: 1896
Certifications: ISO 9001, OHSAS 18001, ISO 14001

“SMNPO-Engineering” (Sumy Machine-Building Science and Production Association) is an engineering complex that provides technical support for industries and manufactures a variety of products (compressors and gas compressor units, chemical equipment, centrifuges, pumps and gas pipeline valves, oilfield equipment and gas filling stations, integrated gas treatment units, and so on). The company has its own metallurgical, partial manufacturing, welding, and mechanical assembly units. Motivated to improve its products’ quality, increase resource efficiency, and reduce its environmental impact, the company participated in the RECP Demonstration Project under EU4Environment (2019-2024). This publication shows the its experience reported after the monitoring exercise was completed in 2023.

We joined the project to find new ways to develop a resource efficient and clean production. Thanks to the RECP Demonstration Project, we learned how to monitor and analyse our production processes while keeping an eye on resource consumption. As we plan to upgrade our equipment and reduce the negative impact on the environment, the RECP Project has inspired us to come up with new ideas and approaches regarding implementation of RECP measures in the near future, said the leading energy manager, Ms. Yuliia Laskava.

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BENEFITS FROM IMPLEMENTING RECP OPTIONS

1. Implementation of 10 RECP options (focused on resource efficiency)
2. Short payback period (around one year, on average)
3. Reduction of wastewater by 9,808 m³ per year
4. Reduction of 600 tonnes of CO₂-eq per year
The RECP assessment examined the production site and identified several RECP options, out of which the following ten were prioritised:

RECP Option 1. Reducing the moulding sand loss. This consists of rearranging the intermediate storage for dry sand by bringing it closer to the mixing machine. This way, the direction and length of the conveyor belt of the machine is reduced from 200 m to 25 m, thus reducing sand loss by about 80 tonnes per year.

RECP Option 2. Optimising the mould’s size for sand casting.

RECP Option 3. Regenerating the moulding mixture.

RECP Option 4. Improving the design of the gating system: Improving the design would help reduce metal consumption during the processes of modelling, pouring, and crystallisation of metals.

RECP Option 5. Increasing the utilisation rate of metal.

RECP Option 6. Controlling the total water consumption.

RECP Option 7. Modernising the ladle heating process: Using specialised burners for the heating stopper and lip-pour ladles with specialised lids would heat up the ladles to the needed temperature. This would significantly reduce the amount of gas needed for heating.

RECP Option 8. Rearranging the heated areas for staff.

RECP Option 9. Creating heat-insulated, closed chambers for the furnace: Installing closed chambers would help heat the valves and pumps of the furnace’s cooling system and reduce gas consumption, as the chambers would be electrically-heated.

RECP Option 10. Modernising the lightning system.

The introduction of RECP has been part of the EU-funded EU4Environment Action and executed by UNIDO. In this context, SMNPO-Engineering joined the RECP Demonstration Project 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

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