

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.

GP AGRO LLC - FOOD PRODUCTION



Company overview

Location: Velyki Pidlisky, Lviv oblast

Key products: frozen vegetables and fruits

No. of employees: 23

Main markets: Ukraine, Europe

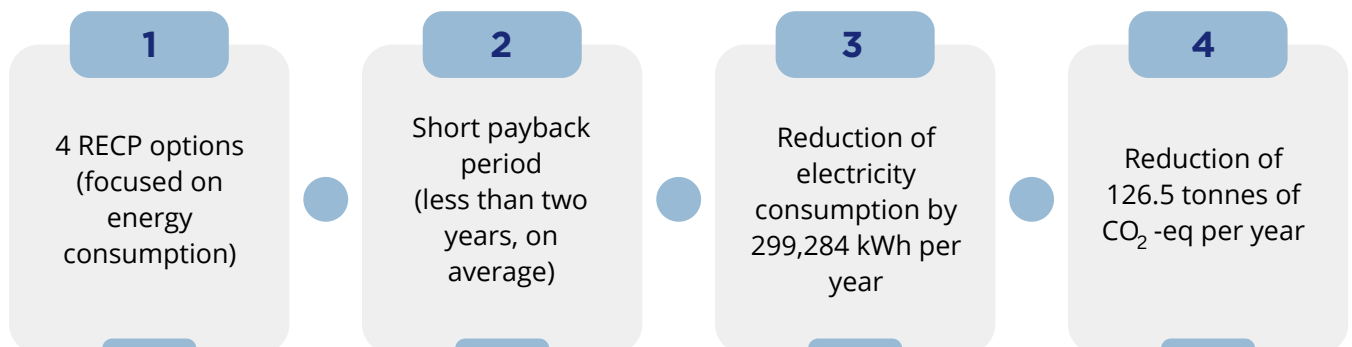
Founding year: 2019

Certifications: ISO 22000:2018



GP Agro, LLC is a company specialised in growing, harvesting, processing, and marketing frozen fruits (mainly berries), vegetables, as well as their components. It bases its production on its own raw materials as well as on those purchased from local farmers. The current freezing method is the individual quick-freezing (IQF), which allows for the preservation of all the beneficial properties of the frozen products. Motivated to become energy-sufficient and reduce electricity costs, the company participated in the RECP Demonstration Project under EU4Environment (2019-2024). This publication shows the company's experience reported after the monitoring exercise completed in 2023.

BENEFITS



Action implemented by:

The project's approach

The RECP assessment examined the production site and identified several RECP options, out of which four were prioritised, with the following three being described below:

RECP Option 1. Installing a photovoltaic (PV) solar grid station: Installing a ground station with a capacity of 240 kW (generating 265.6 MWh of electricity, annually) would make the company energy-sufficient, and significantly reduce electricity costs to the grid operator.

RECP Option 2. Applying adiabatic air cooling: This consists of adiabatic cooling of the ambient air before supplying it to the condenser within the cold generation system. This would significantly reduce electricity consumption as the air would already be at a lower temperature and hence require less energy for cooling.

RECP Option 4. Using a return water supply system with purification and cooling: This measure consists of introducing a system to return water supply, with a three-stage purification of the water, its cooling in the chiller, and a further reapplication for washing the raw materials before they are frozen. It would significantly reduce the wastewater generated after the pre-washing of the raw materials, as well as electricity used by the shock freezing tunnel (since the temperature of the raw materials would already be low).

SAVING ACHIEVEMENTS

Main RECP actions

| | |
|----------|--|
| OPTION 1 | Installing a PV solar grid station |
| OPTION 2 | Applying adiabatic air cooling |
| OPTION 3 | Pre-cooling of the water before washing the raw materials |
| OPTION 4 | Using a return water supply system with purification and cooling |

Economic key figures

| RECP OPTIONS | INVESTMENT (EUR) | SAVINGS (EUR/YR) | PAYBACK PERIOD (YR) |
|--------------|------------------|------------------|---------------------|
| Option 1: | 145,350 | 37,773 | 4.3 |
| Option 2: | 120 | 331 | 0.4 |
| Option 3: | 3,125 | 2,609 | 1.2 |
| Option 4: | 3,371 | 2,646 | 1.3 |

Resource savings

| RECP OPTIONS | ELECTRICITY (KWH/YR)/% | WATER (M ³ /YR)/% |
|--------------|------------------------|------------------------------|
| Option 1: | 254,965/29 | / |
| Option 2: | 2,648/0.3 | / |
| Option 3: | 20,875/2.4 | / |
| Option 4: | 20,796/2.4 | 1,800/96 |

Total pollution reduction

| RECP OPTIONS | TOTAL CO ₂ -EQ (TONNES/YR) |
|--------------|---------------------------------------|
| Total: | 126.5 |

“ Our company joined the project to receive qualified expert advice on the possibility of installing a PV solar power plant. Thanks to the RECP Demonstration Project, it was clear that adjusting the temperature of the working areas (in which the technological processing of raw materials took place) could lead to a reduction in energy consumption. As we plan to install a PV solar grid station and invest in a return water supply system with purification, the RECP Project has inspired us to continue improving our production processes, said the owner of GP Agro, LLC, Mr. Emil Vinnytskyi. ”

The introduction of RECP has been part of the EU-funded EU4Environment Action and executed by UNIDO. In this context, **GP Agro, LLC** 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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