OUTPUT FACT SHEET

Pilot actions (including investment, if applicable)

Version 3

Project index number and acronym	CE1444 InterGreen-Nodes
Output number and title	D.T3.2.5 Solar Energy Demonstrator Koper
Investment number and title (if applicable)	/
Responsible partner (PP name and number)	Luka Koper, d.d., PP13
Project website	https://www.interreg-central.eu/Content.Node/InterGreen-Nodes.html
Delivery date	June 2022

Summary description of the pilot action (including investment, if applicable) explaining its experimental nature, demonstration character and transnational added value

Luka Koper's idea about the definition of a "Sustainable port" is that it's always linked with the better quality of life across the area of the port. Being aware of the port's impact on the environment, Luka Koper has committed in its policies to sound management of the environment in order to preserve it for future generations. The processes of monitoring and reducing environmental impacts have become part of regular activities. This orientation comes in line with InterGreen-Nodes project, which focuses on greening of transport nodes.

The port of Koper is constantly focusing on introducing measures that will not only meet legal requirements, but also reduce the adverse effects with the best technology available, to preserve the environment and allow the port to grow. Port of Koper is one of the port systems that can be classified as one of the most advanced ports in green thinking and developing social sustainable measures.

One of the greening solutions tested in the InterGreen-Nodes project was the installation of the micro solar power plant. It was set up to generate electricity from renewable sources, promote the green port and provide energy for future self-sufficiency in electricity. The purpose of setting up a micro solar power plant is to partially provide the electricity necessary for lighting the port main road connection.

The photovoltaic power plant was implemented with photovoltaic modules placed on the roof of the existing TP TROPLES transformer station in the port of Koper (on the figure below is marked in red). It was expected that 24 photovoltaic modules with a power of 330 Wp are installed, which form a maximum, peak power of 7.92 kWp and an estimated 9000 kWh annual amount of electricity energy produced. The actual results after the implementation: Micro solar power plant on TP Troples produces 9.850 kWh of electricity per year, which means 3.575 kgCO2eq (reduction of CO2). The factor for calculating CO2eq emissions for the Slovenian electricity system is 0.363 kgCO2eq / kWh.

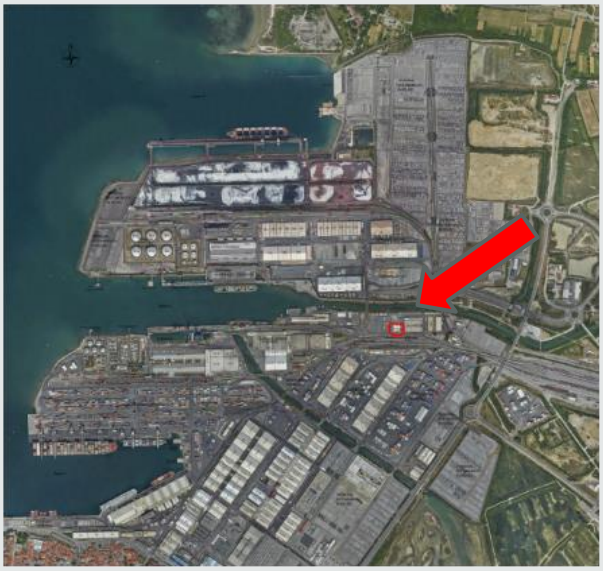

Figure 1: Location of micro solar power plant in the port of Koper

The solar power plant is connected to the internal electricity network behind the existing metering point of the facility. Additionally, also power charging points for electrical vehicles were installed at the location of micro solar power plant (co-financed through CLEAN BERTH - Interreg Ita-Slo project).

The results from micro solar power plant production analysis led to decision of the company Luka Koper for conducting a study (also developed within InterGreen-Nodes project), to find proper locations on warehouses rooftops in the General cargo terminal for further installation of solar power plants. The study was carried out as an expansion of solar demonstrator in the port of Koper. The findings of roof's static assessment were very promising, since approximately 50% of roofs are appropriate in terms of static assessment for installation of solar power plants.

Furthermore, the results showed that up to 10MW of additional solar power plants in the port can be installed in the future years. The locations/warehouses studied are marked in yellow and in red. Yellow locations are appropriate in terms of load capacity; red locations are not appropriate in terms of load capacity for solar power plants.

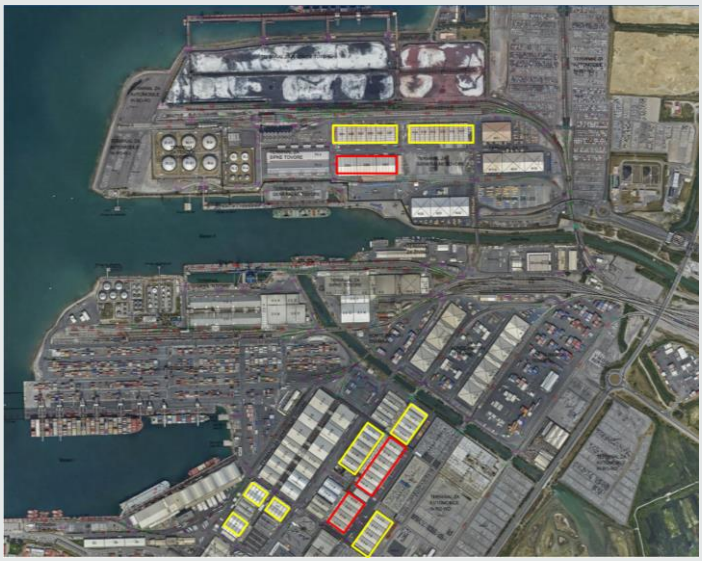

Figure 2: Possible locations (yellow) for further installation of solar power plants in the port of Koper - General cargo terminal

The study will be used for assessing the total capacity of the port roofs without additional investments in the static reinforcements. The results will be used for further planning of installation of solar power plants in the port.

NUTS region(s) concerned by the pilot action (relevant NUTS level)

SI04 Western Slovenia
SI044 Coastal-Karst Statistical Region

Investment costs (EUR), if applicable
/

Expected impact and benefits of the pilot action for the concerned territory and target groups and leverage of additional funds (if applicable)
The pilot action led to improved knowledge of Luka Koper employees and development of technology solution idea for further investing in solar power plants. Based on pilot action results the solutions will be furtherly discussed, and the next installations of solar power plants have already been planned in the Luka Koper investment plan for the following year. The benefits are not only foreseen for the employees at the port / terminal, but also for the company by energy and cost savings, for the subregion and as well for the state of Slovenia – as an encouragement to furtherly promote the use of renewable sources of energy. In case of further expanding such technology (the extent to be discussed in the future) in the port we have gained knowledge on how to place the structure at key locations, equip it with the appropriate IKT equipment in accordance with gained experience. The decision of further investments in the upscaling of such solutions is currently being discussed, based on the study conducted in the InterGreen-Nodes project.

Sustainability of the pilot action results and transferability to other territories and stakeholders

Based on experiences from InterGreen-Nodes pilot demonstrator – solar power plant in the port of Koper, we have gained a precious knowledge and put effort into gaining additional funding from "Iceland, Liechtenstein and Norway's financial mechanism" for contributions to a green, competitive and inclusive Europe. We have proposed a project for implementing a second largest solar power plant (3MW) in Slovenia and secured approx. 1,2 mio EUR of funding for the port of Koper as a lead partner in the project. The solar power plant will be constructed until the end of 2024. Within newly developed project SOPOREM, we have connected with local municipality (Municipality of Koper) and Norwegian partner Greenstat. Besides the installation of large solar power plant, we will assess and evaluate the future steps of the port and municipality towards green transition and "Fit to 55" goals. Knowledge and experiences from InterGreen-Nodes project is a valuable basis for the new project. Furthermore, more solar power plants (on a smaller scale) have already been installed in the port and the plans are for gradual expansion of solar power use. The whole Coastal-Karst region will benefit from such focus on renewable sources (solar energy) use.

Luka Koper has already implemented several measures for reducing impact on the environment (noise reductions, reducing dust emissions, biodiversity, water consumption etc); now the focus is on energy efficiency and use of renewable sources of energy. In 2021 only 1% of electricity use is generated from solar power; but in 2025 we plan to have 25% of electricity generated from solar power (7 MWp); and in 2030 we plan to have 30% of electricity from solar power (10 MWp) and be partially energy self-sufficient.

The development of port of Koper as a "green node" could be an example on how transport and logistic industry can make efforts in green transition and reaching the goals of environmentally friendly industry.

If applicable, contribution to/ compliance with:

- **relevant regulatory requirements**
- **sustainable development - environmental effects. In case of risk of negative effects, mitigation measures introduced**
- **horizontal principles such as equal opportunities and non-descrimination**

Relevant regulatory requirements have been complied with in terms of implementing proper public procurement procedure.
Promotion of renewable sources use (solar power) instead of fossil fuels is in line with sustainable development goals. There is no risk that pilot action has a negative environmental effect, quite the opposite – it has positive environmental impact as it is described in the detail above.
Horizontal principles have been respected and integrated. In the project equal opportunity, non-discrimination, gender equality and environmental sustainability are evident. With the implementation of pilot action there is a possibility monitor and control the production of energy from office in safe environment. Gender equality is evident from the fact that InterGreen-Nodes project manager in the port of Koper is woman.

References to relevant deliverables (e.g. pilot action report, studies), investment factsheet and web-links
If applicable, additional documentation, pictures or images to be provided as annex

Report:
https://www.interreg-central.eu/Content.Node/InterGreen-Nodes/CE1444-InterGreen-DT3.2.5-Report-(2022-06-16).pdf

Handbook Part 2 Energy Systems:
https://www.interreg-central.eu/Content.Node/InterGreen-Nodes/CE1444-D.T3.3.3-Part2-Energy-systems.pdf


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