

INVESTMENT FACT SHEET

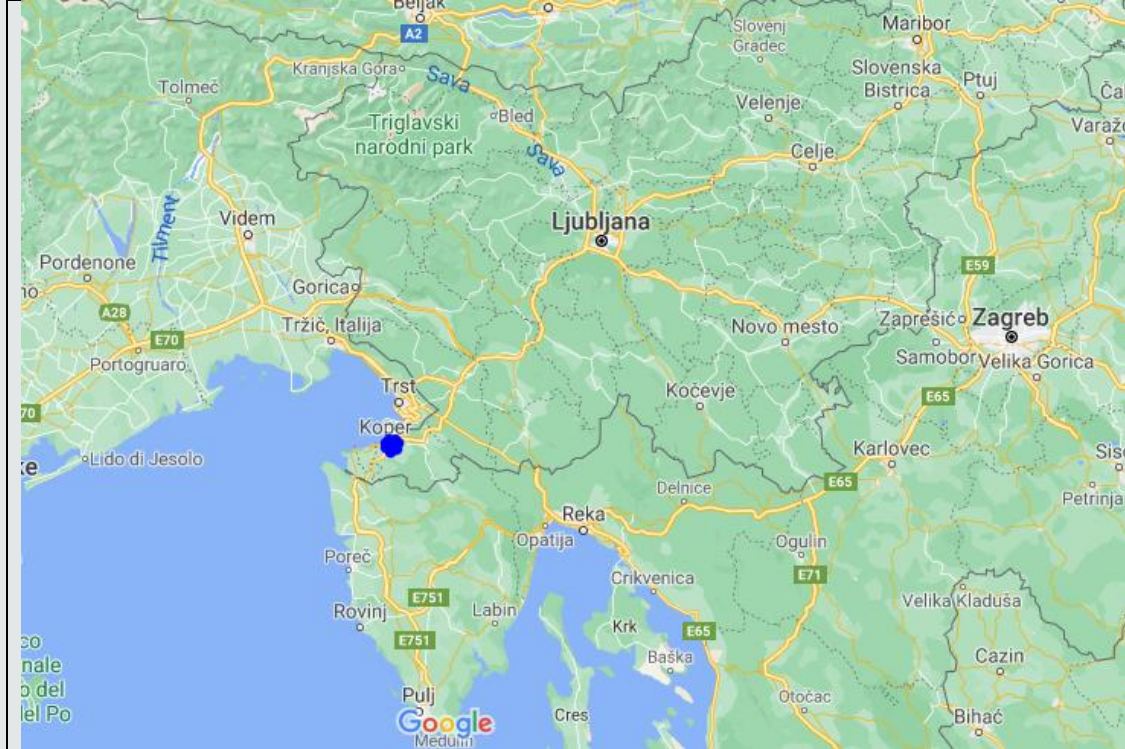
I1.1

Version 2

PA for ECO-innovations on energy efficiency deployment: test in energy efficiency in cargo handling

Project index number and acronym	CE1044 TalkNET
Responsible partner (PP name and number)	Luka Koper, d.d.; PP5
Linked to pilot action (number and title)	D.T3.10, PA for ECO-innovations on energy efficiency deployment: test of energy efficiency in cargo handling
Project website	https://www.interreg-central.eu/Content.Node/TalkNET.html
Delivery date	May 2020

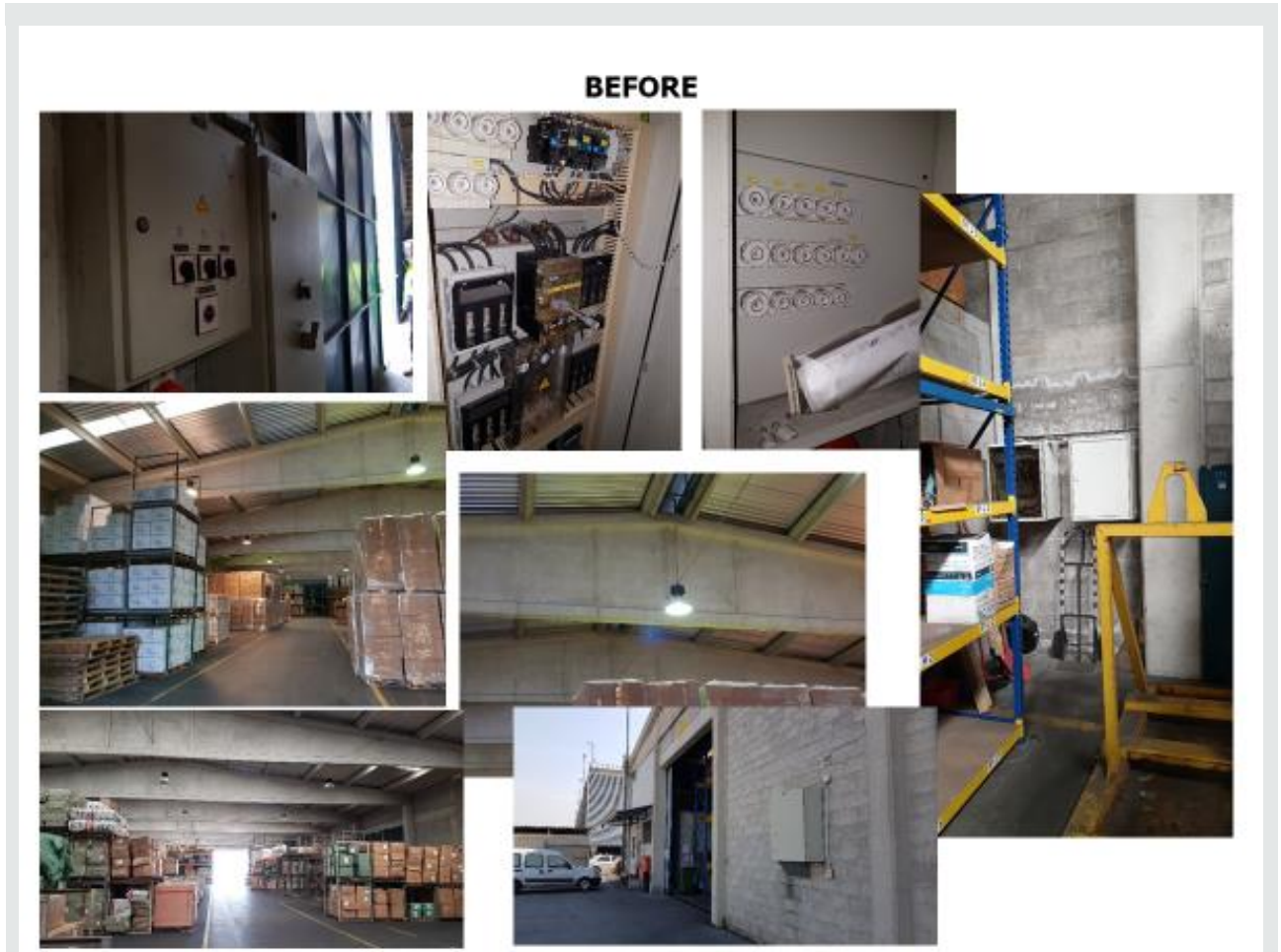
Description and technical characteristics of the investment



Picture 1: Location of the port of Koper (Luka Koper)



Picture 2: Location of the Pilot action (warehouse nr.33 of the General cargo terminal)



Picture 3: Before the pilot action

Luka Koper's investment was planned based on research of the best tailor-made solutions aiming to reduce the use of energy. The Port of Koper has recognized energy efficiency as one of the key measures to improve company performance and enhance its competitiveness. The port acknowledges that energy efficiency improvements make a significant contribution to security of supply, lower environmental impacts, and more cost-effective business operations. Pilot action (and investment) focused on the creation of management solutions with a high level of efficiency to reduce the waste of energy during all transport/handling operations.

In the selected general cargo warehouse no. 33 the new LED lighting system with a powerful monitoring and control capabilities was implemented. It provides a flexible and open concept for upgrading electrical lighting installations and it must be capable to operate in a standalone mode or integrated in a future smart grid. The documentation/project design of electrical installations and electrical equipment for reconstruction of the electrical installations in the warehouse 33A, B, C, D in the port of Koper was prepared on the basis of the project task of the investor (Implementation of alternative solutions for electrical installations in the warehouses 33A, B, C, D, in Luka Koper).

Addressed warehouse no. 33 is used for the storage of general cargo and it is in constant operation since 1995. Building has a typical warehouse design where the main construction material is the reinforced concrete. Total useful surface of the warehouse is around 7,032 m² and the height is around 8 m. Warehouse is divided by walls in

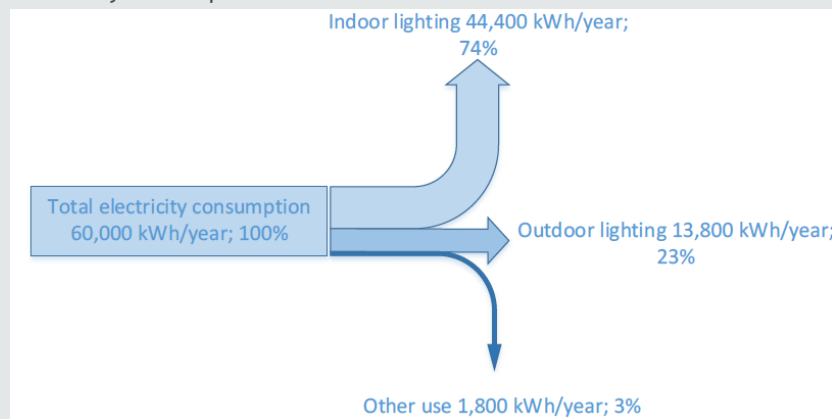
four equal storage units (no. 33A, 33B, 33C and 33D) with the surface of 1,758 m² each. Each storage unit has its own entrance.

The implemented solution can operate fully automatic with remote control or in a standalone mode.

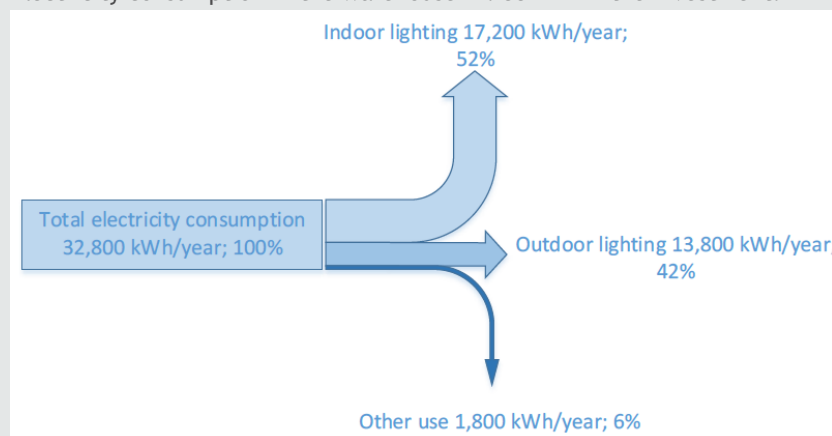
Existing metering system was upgraded and additional sub-meters for direct measuring of electricity consumption for indoor and outdoor lighting were installed. The proposed solution upgraded existing light level/illuminance and consequently working conditions in the selected general cargo warehouse no. 33 in the port of Koper were improved. It is positive that proposed LED based solution requires less maintenance than existing, conventional high-pressure metal halide lamps.

The illumination before the LED-lighting system installation was 189 lx on average. After the installation of LED-lighting system the illumination in the warehouse no. 33 was 236 lx on average.

Electricity consumption in the warehouse nr. 33 BEFORE the investment:



Electricity consumption in the warehouse nr. 33 AFTER the investment:



KPI's measured before and after the Pilot Action:

	BEFORE PA	AFTER PA
Ratio between total electricity consumption for indoor lighting and total number of cargo handling operational hours	11,89 kWh/op. h.	4,63 kWh/op. h.
Ratio between electricity consumption for indoor lighting and total mass of cargo stored in the warehouse	1,81 kWh/t	1,37 kWh/t
Ratio of electricity consumption for indoor lighting and total number of cargo units stored in the warehouse	12,43 kWh/TEU	6,88 kWh/TEU

Investment costs (EUR) including a break-down of main cost items

Investment costs for Luka Koper d.d. in total were 84.790,35 EUR. In the work package I1 (Investment) within the TalkNET project 42.068,31 EUR were reported, the rest of the costs were covered by Luka Koper d.d own sources.

WP Investment costs break-down:

- Elpro Križnič d.o.o. (switch blocks/cabinets and SCADA); 5.173,50 EUR
- Elektronabava d.o.o. (cables and other el. material); 7.063,20 EUR
- Marchiol d.o.o. (lightning equipment); 17.948,78 EUR
- Isbe d.o.o. (small infrastructure works); 11.882,83 EUR

Within the Pilot Action (in the WP3) also costs for external experts were included in the amount of 9.714,55 EUR.

Investment location

NUTS 3	Address (Street, house number, postal code, city, country)	GPS coordinates
NUTS III SI044 Coastal-Karst Statistical Region	Vojkovo nabrežje 38, 6501 Koper	Latitude: 45° 33' 25" N Longitude: 13° 44' 10" E

Duration and process of investment implementation

Start date	End date
11/2018	8/2019

Major milestones of investment implementation

- Preparation of a proposal for Luka Koper investment plan for 2019 (November 2019)
- Meetings with key players in freight transport
- Conclusion of the public procurement procedure (March 2019)
- The material and equipment needed for the implementation of the pilot action and finished the civil works (April 2019)
- Start of the works on new electrical installation in the warehouse (el. installation, switch cabinet,...)
- Completion of works (September 2019)
- Testing of the LED lighting system with the assessment of the pilot results (October - November 2019).

Ownership and durability of the investment (e.g. maintenance, financing)

The investment is financially sustainable since it leads to reduced costs of electricity consumption. The replacement of old lightning system with new one, that is automatized and based on LED technology and equipped with monitoring system, has turned out to be positive in cost and energy savings for up to 50 %. Luka Koper company has also planned the financial resources for the maintenance of such LED lightning system (minimum maintenance is required) and planned financial resources to gradually replace old lightning systems also in other warehouses in the port.

The company management board support such investments that lead to cost savings, reduced energy consumption and better and healthier working environment. According to the Luka Koper strategic development plan for the period 2020-2025, accelerated development of energy efficiency and the use of renewable energy sources is a fundamental element of the transition to a low-carbon society. In the case of the Luka Koper can become the lever for further development of the port, as is described in the new strategic development plan. In the period until 2025, in order to achieve the highest standards of energy efficiency, Luka Koper obtains and actively upgrades the ISO 50001 certificate - energy management system.

References to related pilot action (output fact sheet) and relevant deliverables (e.g. pilot action report, studies) and web-links.

If applicable, additional documentation, pictures or images to be provided as annex

- D.T2.5.4 - Action plans on eco-solutions deployment - LUKA KOPER (NAPA)
 - D.T3.2.10 - PA for ECO-innovations on energy efficiency deployment: test of energy efficiency in cargo handling
 - PILOT ACTION - FINAL REPORT
- Attachment: PP5Luka Koper-TalkNET-PILOT ACTION_final report (PowerPoint presentation)

-D.C3.5 - Pilot site visit - Koper

Attachments:

- TalkNET Pilot site visit_Stakeholders Meeting Minutes

