



European Bank
for Reconstruction and Development



This project is funded
by the European Union

C/M/S/

Law . Tax



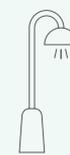
Public lighting ESCO project

www.wb-reep.org



Upgrading street lighting in Metković, Croatia

In the second quarter of 2017, the city of Metković in Croatia started to modernise its street lighting system by replacing 1,071 lamps – 64 per cent of all street lights in the city – with LED luminaires. Following an ESCO approach, the city outsourced the technical risks and financing of the project to the private bidder with the most economic bid proposal. Technical assistance from the EBRD, as part of its EU-funded Regional Energy Efficiency Programme (REEP), supported the investment.



NUMBER OF LIGHT
POINTS REPLACED

1,071



ENERGY SAVINGS

74%

(653,294 kWh/year)

Regional Energy Efficiency Programme

The EBRD's REEP helps public and private organisations to identify, prepare and finance their energy efficiency investments. Technical assistance and grant elements under REEP are funded by the EU's Western Balkans Investment Framework (WBIF). REEP follows a pragmatic operational and financing approach and is built on a combination of the following pillars:

- 1. Policy dialogue** to support the development of an enabling regulatory framework and of contract templates that facilitate sustainable energy efficiency investments.
- 2. Technical assistance** to support project identification, preparation and implementation and to help build the capacity of public authorities (ESCO clients).

- 3. Financing instruments and grant elements** for specific energy efficiency or renewable energy investments with clear estimates of energy savings and of reductions in carbon emissions.

More information and examples of these activities and REEP contact details are available here: www.wb-reep.org

Metković

Metković is a small city in Croatia, located in the county of Dubrovnik-Neretva and consisting of five villages. Tourism and agriculture are the main activities and the local economy is well positioned for ongoing development, thanks to its favourable position close to motorways and in the vicinity of the Adriatic Sea. Moreover, local taxes and land costs are relatively low. The municipality has already established one entrepreneurial zone for business development.

In total, the city of Metković has 1,682 street lights in use. The oldest fixtures date back to the second half of the 20th century. Most of the current lights were installed before the 1990s and they use mercury and old sodium technology.



Project description

Metković's old and inefficient street lighting system meant high energy and maintenance costs. In 2016, the municipality decided to modernise the system, opting for an ESCO model via public tender. The city authorities used technical assistance from the EBRD to provide support for the tender process, as part of an EU-funded REEP.

The technical specifications included the replacement of 1,071 old light fixtures with 1,118 new LED lamps. Of the old fixtures, 16 were equipped with inefficient mercury lamps and 1,055 with old sodium lamps. An additional 47 LED luminaires were installed on existing columns where no luminaires had been mounted before, in order to meet the HRN EN 13201 norms for street illumination. The old fixtures were supplied by 55 metering points located across the city. The nominal capacities of the new lamps range from 27 W to 118 W, with an expected lifetime of 50,000 hours. The project covered the replacement of the luminaires in their



entirety, but did not include columns, cables and cabinets.

The total energy savings resulting from the replacement of the lanterns, including the additional 47, was calculated at 653,294 kWh per year (or 74 per cent compared with past energy use), in addition to annual CO₂ savings of 246 tonnes. Given a street lighting tariff of €0.087/kWh, the combined savings on energy use and maintenance was calculated at about €68,836 per year. Estimated capital expenditure has been

€576,816. The new lanterns, with high-efficiency optics, improve the overall lighting quality and in parallel reduce light pollution.

Elos, a local ESCO firm, and Štedna Rasvjeta, a local LED manufacturer entering the ESCO market for the first time, won the tender in a joint bid. The Energy Performance Contract period is 100 months (8.3 years) in total. The project uses Philips luminaires with LED technology.

PROJECT IMPACT		
	Before project implementation	After project implementation
Light source	High pressure sodium/mercury	LED
Number of light points	1,071	1,118
Installed capacity	216 kW	56 kW
Energy consumption	884,534 kWh/year	231,240 kWh/year
Energy costs	€76,954/year	€20,118/year
Energy savings		74 per cent (653,294 kWh/year)
Energy cost savings		€56,836/year
Maintenance savings		€12,000/year
Total cost savings (energy and maintenance)		€68,836/year
Contract duration		8.3 years
Reduction in CO ₂ emissions		246 tCO ₂ /year