

GPP
2020

zelena javna nabava
za nisko-ugljično
gospodarstvo



STREET LIGHTING – Municipality Zupa Dubrovacka

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MUNICIPALITY ŽUPA DUBROVAČKA

The **Municipality of Župa Dubrovnik** is situated in the county of Dubrovnik-Neretva in the south-east of Croatia. Situated on the Mediterranean coast, the Municipality covers an area of approximately **23 km²**, includes 16 towns and has a population of **8,331** people.

BUDGET 2015: cca. 11 mil €



ENERGY EFFICIENCY AND RES

In September 2014, the Municipality introduced a Sustainable Energy Action Plan (SEAP) which was established as part of the Covenant of Mayors initiative.

The SEAP provides the Municipality with stronger leverage when they wish to implement a green public procurement (GPP) procedure.



PROCUREMENT APPROACH

The Municipality of Župa Dubrovačka recognised the need **to improve the quality of street lighting** in the Municipality and wished to do so by installing a fixed lighting installation which would achieve that goal and thereby **improve public safety, traffic safety and traffic flow** at night.

The Municipality decided to publish an **open tender** which would include the **replacement of the existing street light fixtures and high pressure mercury lamps**, with a new and more sustainable solution. Župa Dubrovačka decided for the first time to carry out a GPP procedure, as they wished to ensure that the **final solution would emit less light pollution and cause less greenhouse gas emissions** than the previous system.



Procurement approach

Public street light is a fixed lighting installation intended to provide good visibility to users of outdoor public traffic areas during the hours of darkness to support traffic safety, traffic flow and public security (definition derived from EN 13201).

Tender for **replacement of existing not efficient fixed outdoor street lighting in Municipality with new sustainable technology and new procurement approach leading to a successful local environment protection improvement, especially light pollution in rural areas and lowering of greenhouse gas emissions**



Procurement approach

By changing to an LED lighting solution, the Municipality was able to significantly reduce its energy consumption in comparison to the previous street lighting system, where high pressure mercury lamps were used.

This calculation was based the 686 newly installed LED lamps

The new solution is programmed so that the lamps do not switch on until visibility reaches the minimum illumination level for street lightning required by law in Croatia. Furthermore, the new solution reduces the power (wattage) and energy consumption in accordance with the intensity of natural lighting by an automatic controller regulation which is installed in the system.



SPECIFICATION

- Supply and transport of standard tine: 400
- Supply and transport of double arched tine: 60
- Supply and transport of road lamps: 686
- Supply and transport power cable: 567
- Supply and transport of power terminal: 800
- Supply and transportation of lighting dividers: 167
- Turning off the power cables of public lighting in the supply point (TS). After completion of the merger reconnection of power cables in supply point: 56
- Dismantling of the existing lamps with the help of a hydraulic crane in full, removal and disposal: 686
- Installation of lights on existing poles, installation of joints and commissioning: 686
- The presence of a representative of Elektra while work is in progress: 10
- Light-measuring, testing and installation of the issuance of the necessary protocols: 1 (only once)
- Data collection: 1



Procurement approach

Worst solution on the market = benchmark

- 100 t CO₂ emissions/year
- 330.000 kWh/year energy consumption

GPP 2020 tender

- LED technology
- 64 t CO₂ emissions/year
- 210.000 kWh/year energy consumption

Results

- 36% reduction of CO₂ emissions (900 t CO₂ over 25 years)
- 257 toe energy savings over 25 years

The new LED lighting solution consumes **210,000 kWh per year** and emits **64 tonnes of CO₂ per year**. In comparison to the previous system, which was consuming **330,000 kWh** and emitting an average of **100 tonnes of CO₂ a year**, the new LED lighting solution has reduced the **CO₂ emissions (from street lighting) by 36%**, saving the equivalent of **900 tonnes of CO₂ over a 25 year period**. Financially, the new LED lighting solution is saving the Municipality approximately **13,800 euro a year** at today's energy price (currently 0.115 euro per kWh for street lighting). This figure does not include the savings made from the reduced need to service light fixtures.



Technical specifications:

CRI (Colour Rendering Index) > 75

Colour temperature (Kelvin) 3.000-4.000

General lighting-efficiency (lumen/watt) > 50

Life-span (hours at L70) > 20.000

	CO ₂ e emissions	Energy consumption
Low Carbon Solution	64 t CO ₂ e/year	18 toe/year
Worst solution available on the market	100 t CO ₂ e/year	28 toe/year
Annual savings	36 t CO ₂ e/year	10 toe/year
Lifetime savings	900 t CO ₂ e	250 toe



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