



LED Lighting

Municipality of Župa Dubrovačka, Croatia

- Replacement with energy efficient solution
- Encouraging bidders to offer innovative materials on local market
- Improvement of local governments' social responsibility profile and control light pollution



Existing solution = benchmark

- 7.3 t CO₂e emissions
- 24 000 kWh/year energy consumption

GPP 2020 tender = LED technology

- 4.7 t CO₂e emissions
- 15 300 kWh/year energy consumption

Results

Savings of:

- 36% CO₂e
- 66.3 t CO₂e/lifetime
- 8 700 kWh/year
- 18.7 TOE/per lifetime

Contract tendered

- 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).
- The street lightning tender was intended for improving the lightning on a pedestrian walkway in Municipality of Župa Dubrovačka.
- 1 year contract
- Total cost: 50.000 € (excluding VAT)

Procurement approach

Tendering followed the open procedure:

LED Lighting	
<p>Technical specifications</p> <ul style="list-style-type: none"> - CRI (Colour Rendering Index) > 75 - Colour temperature (Kelvin) 3.000-4.000 - General lighting-efficiency (lumen/watt) > 60 - Life-span (hours at L70) > 20.000 <p>Verification: All information available in standard test documentation</p>	<p>Award criteria / Lowest Price</p>
<p>Eligibility of bidders</p> <ul style="list-style-type: none"> - The bidder/tenderer must proof that the installation will be undertaken by personnel with at least three years experience in installation of lighting systems <p>Verification: The bidder/tenderer shall supply a list of past successful contract during last three years with same or similar complexity.</p> <ul style="list-style-type: none"> - Light-budget according to EN 13201 <p>Verification: DIALUX or RELUX calculation (English version) with electronic version of calculation in form of IES and LDT files.</p> <ul style="list-style-type: none"> - ENEC certificate with Photometric Data Sheets for confirmation of Photo-technical characteristics and ULOR for luminaires <p>Verification: Approbation of manufacturer of certified laboratory</p> <ul style="list-style-type: none"> - IP and IK test <p>Verification: Approbation of manufacturer of certified laboratory</p>	

Contract clauses

Repair and maintenance: warrantee of compliance for following environmental aspects:

- All components must be labelled with CE-mark.
- All components must have a Declaration of Conformity with Croatian laws
- Manufacturer Warranty during warranty period

Criteria development

The ambition of the public tender was to introduce LED Lighting as alternative technology and to improve sustainable consumption of energy in local government.

The contracting authority calculated the benefits of bidder's delivered tenders and those with combined results of calculation as close as possible to a total outcome of 100% were chosen (as most desirable tender, most similar to the one described in the tender documentation).

Furthermore, the environmental specifications were structured and defined using guidances given in:

- WEEE directive
- CIE (International Commission on Illumination) Technical Report CIE-1509
- [CELMA Guide on Obtrusive Light](#)



3

Results

By redefining the characteristics to LED Lighting, it has been possible to achieve a significant reduction of energy consumption compared to previous street lighting.

Energy savings and CO₂e emission reductions were calculated based on GPP2020 methodology for a lifetime of 25 years. The results are as follows.

	CO ₂ emissions (t CO ₂ e/lifetime)	Energy consumption (toe/lifetime)
Low Carbon Solution	116.7	32.9
Benchmark (existing solution)	183.0	51.6
Savings per lifetime	66.3 t CO ₂ e/lifetime	18.7 toe/lifetime

Calculation basis

- 50 new luminaires for the pedestrian walkway in the Municipality of Župa Dubovačka, located in Southern Dalmatia.
- New LED lighting consumes 15 300 kWh per year and emits 4.7 t CO₂e/year (50 luminaires à 100 W that are dimmed half of the operating time to 50 W).
- Previous street lighting consumed an average 24 000 kWh per year and emits 7.3 t CO₂ per year (50 luminaires with 120 W).

Lessons learned

The new procurement method was applied successfully and the Municipality of Župa Dubrovačka will continue applying this method in the coming tenders.

As the competitiveness was not compromised, in future, even more ambitious criteria on the energy efficiency could be considered as an award criterion and also more ambitious technical specifications set with higher EE weight in the award criteria.

Contact

4



Municipality of Župa dubrovačka

20207 Mlini

Srebreno, Vukovarska 48

Croatia

opcina.zupa.dbk@du.t-com.hr

+38520486026, +38520486056

About GPP 2020



GPP 2020 aims to mainstream low-carbon procurement across Europe in support of the EU's goals to achieve a 20% reduction in greenhouse gas emissions, a 20% increase in the share of renewable energy and a 20% increase in energy efficiency by 2020.

To this end, GPP 2020 will implement more than 100 low-carbon tenders, which will directly result in substantial CO₂ savings. Moreover, GPP 2020 is running a capacity building programme that includes trainings and exchange. – www.gpp2020.eu

About PRIMES



Across six countries in Europe; Denmark, Sweden, Latvia, Croatia, France and Italy, PRIMES project seeks to help municipalities overcome barriers in GPP processes, many of which lack capacity and knowledge.

PRIMES aims to develop basic skills and provide hands-on support for public purchasing organisations in order to overcome barriers and implement Green Public Purchasing. This will consequently result in energy savings and CO₂ reductions. – www.primes-eu.net



The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EACI nor the European Commission are responsible for any use that may be made of the information contained therein.

