



## Procuring LED street lighting solutions Municipality of Župa Dubrovačka, Croatia

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

### Worst solution on the market = benchmark

- 100 t CO<sub>2</sub> emissions/year
- 330.000 kWh/year energy consumption

### GPP 2020 tender

- LED technology
- 64 t CO<sub>2</sub> emissions/year
- 210.000 kWh/year energy consumption

### Results

- 36% reduction of CO<sub>2</sub> emissions (900 t CO<sub>2</sub> over 25 years)
- 257 toe energy savings over 25 years

## 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).
- Tender for replacement of existing not efficient fixed outdoor street lighting in the Municipality of Župa Dubrovačka in Croatia 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.
- Total cost: 180,000 € (excluding VAT)
- Open procedure



## Procurement approach

Tendering followed the open procedure:

LED Lighting	
<p><b>Technical specifications</b></p> <ul style="list-style-type: none"> <li>- CRI (Colour Rendering Index) &gt; 75</li> <li>- Colour temperature (Kelvin) 3.000-4.000</li> <li>- General lighting-efficiency (lumen/watt) &gt; 50</li> <li>- Life-span (hours at L70) &gt; 20.000</li> </ul> <p><b>Verification:</b> All information available in standard test documentation</p>	<p><b>Award criteria</b></p> <p>Lowest Price</p>
<p><b>Eligibility of bidders</b></p> <ul style="list-style-type: none"> <li>- The bidder/tenderer must proof that the installation will be undertaken by personnel with at least three years experience in installation of lighting systems</li> </ul> <p><b>Verification:</b> 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"> <li>- Light-budget accordingly to EN 13201</li> </ul> <p><b>Verification:</b> 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"> <li>- ENEC certificate with Photometric Data Sheets for confirmation of Photo-technical characteristics and ULOR for luminaires</li> </ul> <p><b>Verification:</b> Approbation of manufacturer of certified laboratory</p> <ul style="list-style-type: none"> <li>- IP and IK test</li> </ul> <p><b>Verification:</b> 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 chosen award criteria of contracting authority was the lowest price, but the technical performances of LED lighting were developed in order to comply with several environmental and technical requirements described in the technical specifications and eligibility of bidders.

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

- WEEE directive
- CIE (International Commission on Illumination) Technical Report CIE-1509
- [CELMA Guide on Obtrusive Light](#)
- Energy Star standards and recommendations.



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## Results

By choosing energy efficient LED Lighting characteristics described in the technical specifications and eligibility of bidders, it has been possible to achieve a significant reduction of energy consumption compared to a standard street lighting system.

Energy savings and CO<sub>2</sub> emission reductions were calculated with the GPP 2020 methodology for a lifetime of 25 years. The results are as follows.

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

### Calculation basis

- 686 new luminaires for the Municipality of Župa Dubrovačka, located in Southern Dalmatia, well known as the sunniest region Croatia.
- New LED lighting consumes 210.000 kWh per year and emits 64 t CO<sub>2</sub> per year.
- The worst solution available on the market consumes an average of 330.000 kWh per year and emits 100 t CO<sub>2</sub> per year.

While the Operating time is the same, the new low-carbon-solution reduces the power (Watt) and the energy consumption in accordance with the intensity of natural lighting by an automatic controller regulation installed in the system.



## Lessons learned

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

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

## Contact

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## About GPP 2020

**GPP**  
**2020** | procurement  
for a low-carbon  
economy

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 CO<sub>2</sub> savings. Moreover, GPP 2020 is running a capacity building programme that includes trainings and exchange. – [www.gpp2020.eu](http://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 CO<sub>2</sub> reductions. – [www.primes-eu.net](http://www.primes-eu.net)



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