



## Purchase of electric buses

City of Koprivnica, Croatia

- CO<sub>2</sub> savings through purchase of electric vehicles
  - Less tax payment for eco-friendly vehicles
- Improvement of city's social responsible profile



Standard product / old tender = benchmark

- Petroleum engine vehicles technology
- 75t of CO<sub>2</sub>/lifetime
- 38 toe/lifetime

PRIMES GPP tender

- Electric engines – new technology
- Zero direct CO<sub>2</sub>/lifetime
- 7 toe/lifetime

Results

- 75 t CO<sub>2</sub> reduction
- 31 toe/lifetime energy reduction
- 82% reduction of energy content

## Introduction to case

### 1.1 SUMMARY

As a part of the Primes project and the efforts of the city of Koprivnica to reduce CO2 emissions and to provide to the citizens a cleaner way of transport the city of Koprivnica decided to purchase electric busses instead of diesel buses as in previous tenders.

### 1.3 CASE CONTENT AND CASE ISSUE

This case study describes the tendering process of purchase of electric buses by the city of Koprivnica, the technical specifications which were used, the results of the procedure in energy and CO2 savings and the difference between the standard tender procedure and green tender procedure.

### 1.4 SOLUTIONS APPLIED

As the city decided in advance that the only solution will be electric vehicle any other vehicle was excluded, by that the only award criteria was the lowest price as in the technical specifications the city already had high standards for purchasing the electric vehicle.

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## Contract tendered

- Tender for purchasing of electric vehicles tendered by the city of Koprivnica
- 2 vehicles purchased to renew own bus fleet and other two companies owned by city of Koprivnica
- Open procedure was chosen
- Total cost: 186,700.00 € (excluding VAT)
- This tender forms part of the EU supported project *Procurement in Municipalities focusing on Energy Efficient Solutions (PRIMES)*

## Procurement objectives

The objective of city of Koprivnica was to promote the use of electric vehicles or vehicles with zero emission factor and to reduce the CO2 emission of their existing fleet by adding the zero emission buses.

## Procurement approach

Tendering followed the open procedure, and was in this case divided into three lots:

Electric buses	
<b>Technical specifications</b> <ul style="list-style-type: none"> <li>- Electrical drive motor</li> <li>- Engine power: min 100 kW</li> </ul>	<b>Award criteria</b> <ul style="list-style-type: none"> <li>- The only award criteria was lowest</li> </ul>

<ul style="list-style-type: none"> <li>- Battery capacity: min 55 KWh</li> <li>- Single charge reach: min 90 km</li> <li>- Charge standard CHAdeMO</li> <li>- Min 1500 charging cycles</li> <li>- Min 3 years guarantee on battery assembly</li> <li>- <b>Verification:</b> Manufacturer technical dossier as proof.</li> </ul>	<p>price: Bidder must prove in explicitly state that products which will be delivered are meeting the public authority's requirements as listed in technical specifications</p>
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### Contract clauses

Upon delivery, the chosen tenderer must organize specialized training on the use of vehicles.

*Minimum 3 years warranty on the drive train*

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

- Hazardous waste: separated collection and delivering to authorised waste managers.
- No hazardous waste: good management according to general law and local regulations.
- Air emissions: good management, especially of exhaust gases, VOCs (when painting) and dust.
- Process waste water: no discharges containing HC > 5ppm.
- Noise: compliance with levels established by general law and local regulations.

## Criteria development

The ambition of the public tender was to introduce electric vehicles as alternative technology and to improve sustainable consumption of energy , with that in mind the highest criteria was used ,the zero emmision vehicle, the criteria was developed with the help of EU GPP criteria for transport.

## Results

Energy savings and CO<sub>2</sub> emission reductions were calculated based on methodology for a lifetime of 5 years. The results are as follows:

	CO <sub>2</sub> emissions (t CO <sub>2</sub> /lifetime)	Energy consumption (toe/lifetime)
(Low Carbon Solution)	0 t CO <sub>2</sub> /lifetime ( <i>direct emissions</i> )	7 toe/lifetime
(Standard solution (benchmark))	75 t CO <sub>2</sub> /lifetime	31 toe/lifetime

Savings

75 t CO<sub>2</sub>/lifetime

24 toe/lifetime

### Calculation basis

- New vehicles consumes 0 l/km, and between 30.000 and 35 000 kWh and emit 0 g CO<sub>2</sub>/km during lifetime (only the direct emissions are included, and the city of Koprivnica has 100% of electricity made from renewable sources)
- Worst case vehicles consume between 7,0-10 l/km and emit between 108-149 g CO<sub>2</sub>/km
- Each vehicle will travel 250.000 km per lifetime

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## Lessons learned

- By choosing to purchase electric vehicles, it has been possible to achieve a significant reduction of CO<sub>2</sub> emissions. To better redefine the need of engine power as the diesel engines for these kind of vehicles come with much more power which means more consumption. This has made it possible to obtain vehicles with significant reductions in consumption and emissions compared to the previous vehicles in use.
- As the competitiveness was not compromised, in future, the city of Koprivnica will look to implement this criteria further even with more ambitious technical specifications set with higher EE weight in the award criteria.

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## About PRIMES



**PRIMES**  
Green Public Procurement

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)

## 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 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)



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