GPP 2020 | procurement for a low-carbon economy

Energy efficient building reconstruction

National Park Risnjak, Croatia

- Pursuit of zero energy building objective
- Environment protection improvement, especially in areas of significant and particular natural importance

Benchmark

Existing situation

- 49.6 t CO_2e/year
- 13.7 toe/year

GPP 2020 tender

After renovation

- 0.8 t CO_2e/year
- 1.3 toe/year

Results

- Savings during 25 years:
- 1,221 t CO_2e (98 %)
- 310 toe (91 %)

Contract tendered

- The National Park Risnjak tendered an energy efficient building reconstruction comprising of replacement of the heating and hot water system and the improvement of the thermal insulation (outer shell and windows).
- Replacement of heating and hot water system: Wood chip heating boiler instead of the existing oil boiler.
- Improvement of the thermal insulation through the replacement of the outer shell and windows.
- The tender was published in December 2015
- The cost of construction works according to executive project was € 205,000 (excluding VAT).
- Total contract duration that included both procurement of equipment and performance of works was 90 days.
- Open procedure

Procurement approach

Tendering followed the open procedure, based on the following approach:

- Thermal insulation enhancement based on mineral wool which leads significant reduction of CO_2 emission. This high insulation efficiency has been used for maximum thermal comfort, but at the same time with high level of non-combustibility and very high acoustic performance which makes it highly sustainable.
- Thermal insulation enhancement included window system replacement: wood (larch) and aluminum biplane tilt&turn window system. Light, warmth and ventilation were the main objectives that has been followed in compliance with targeted energy efficiency effect. With replacement, heating, cooling and lighting costs has been minimized, but at the same time a design improvement touch has been also achieved.
- As Risnjak is in a forest area there are lots of wood chips available, the solution of changing the old oil boiler into the new which uses wood chips for fuel in the heating system. System life is estimated at 25 years.

Eligibility of bidder: must have minimum one reference of construction works of same or similar degree of complexity. Award criteria: Lowest price

Contract clauses

Upon completion of the contract, the selected bidder must provide a warrant that all the equipment installed and all work that has been done is according to contract. Also, warranty on quality of executed work has a total duration of 2 years.

Criteria development

The ambition of the public tender was to decrease the consumption of fossil energy. Therefore, Nature Park Risnjak made a significant and strong turnaround. It all started with the idea that being a park of nature – it's a must to be a leader and example on how to enhance positive impact on nature in order to preserve it.

Series of environmental criteria were implemented in detailed technical specification which were part of public procurement procedure documentation. Wide range of sources were employed to design these technical specification data which led to succesfull bidder selection.

Results

The basis for the calculation of energy savings and CO_2 emission reductions is described below. The results are as follows.

	CO_2e emissions	Energy consumption
Low Carbon Solution	0.8 t CO_2e/year	1.3 toe/year
Benchmark	49.6 t CO_2e/year	13.7 toe/year
Annual savings	48.8 t CO_2e/year	12.4 toe/year
Total savings (25 years)	1220.9 t CO_2e	309.8 toe

Calculation basis

As a benchmark, we used the energy consumption of the old heating and hot water system (fuel oil). This system consumed 159,000 kWh/year.
We used the following emission factor for fuel oil: 312 g CO_2e/kWh (see GPP2020-calculator for energy contracting).

The new heating and hot water system (wood chips) is going to consume 14.874 kWh energy by the project designs made by an authorized engineer.

We used the following emission factor for wood chips: 52 g CO_2e/kWh (see GPP2020-calculator for energy contracting).

Lessons learned

In Croatia 85% of buildings do not have sufficient insulation and are responsible for 40% of energy consumption, by higher level of insulation and reducing the energy demand National park Risnjak makes an example for reconstruction levels to chase the near zero building levels.

National Action Plan for Green Public Procurement 2015-2017 with a view till 2020 accepted on August 26th 2015 predicted at least 70% of green public procedures to be conducted. This

procedure is one step close to achieve the set goals. Public procurer must have a well-thought-out reference design and know where there is any room for improvement. Gains of procedure justify the costs: reduction of carbon emission and positive impact on nature. Possibly on further similar public procedures that shall be conducted MEAT could be use as award criteria.

Contact

National Park Risnjak

Crni lug

Bijela Vodica 48

Croatia

marketing@np-risnjak.hr

www.np-risnjak.hr

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_2 savings. Moreover, GPP 2020 is running a capacity building programme that includes trainings and exchange. – www.gpp2020.eu

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_2 reductions. – www.primes-eu.net

Co-funded by the Intelligent Energy Europe Programme of the European Union