GPP 2020 | procurement for a low-carbon economy

Renovation of the ex INPS building

State Property Office, Region Liguria

- Energy-efficient retrofitting of the building and use of construction materials with recycled content
- Less CO_2 emissions due to the lower energy needs
- Less CO_2 emissions due to the use of construction materials with recycled content

Benchmark

- 615 t/year CO_2 e
- 162 toe/year

GPP 2020 tender

- 303 t/year CO_2 e
- 80 toe/year

Results

Savings:

- 312 t CO_2e/year
- 4,680 t CO_2/15 years
- 82 toe/year
- 1,230 toe/15 years

Image source: State Propoerty Office

Foto: dreamstime.com

Contract tendered

- Design and management services for the regeneration works of the ex-INPS building (the Italian National Social Security Institution) located in Genoa, via D'Annunzio 80.
- Procedure for the identification of the tenderer: open procedure based on the criteria of economically most advantageous tender. For the design services the overall expenditure is € 387.410 (net of VAT and charges). For the works the overall expenditure is € 3.500.000 (net of VAT).
- The renovation works concerns 11.000 m² (the whole building).
- Duration of the works: the design phase will lasts a maximum of 170 days.

Procurement approach

The Technical Specifications for the design services required many environmental performances for the energy saving and the nonrenewable resources saving.

Technical Specifications	Award criteria
For the design service, the tenderer must describe the actions to be implemented to reduce energetic consumption and for the efficient use of environmental resources. The project implementation will contribute to the reduction of energy consumption compared to the baseline. An energetic diagnosis it thus necessary. Criteria to be considered during the design phase from the expert: - At least 20% reduction of the total energy needs (heating, cooling, lightening, process energy) of the building compared to the baseline. - At least 20% reduction of the hydric needs of the building compared to the baseline. - Environmental quality of interiors due to technical solutions which guarantee: the reduction of the exposure to pollutants (radon, external small particles, etc.); the humidity level control; the thermic wellbeing; a good natural lightening; a good protection from external and internal noise. - Reduce waste upstream in the construction phase - Reduction of nonrenewable environmental resources due to the use of construction materials and building components produced with at least 40% of recycled materials (second life plastic, iron, steel, etc.). - Waste reduction due to the use of easily recyclable construction materials and building components. - Use of construction materials and building components with low/zero release of harmful substances - Use of FSC, PEFC certified wood - Use of construction materials and building components with a low environmental impact in the production cycle - Facilitate the building maintenance - Building site with an "environmental management system"	Economically most advantageous tender.

Criteria development

The Contracting Authority has identified the criteria according to the draft of the Minimum Environmental Criteria foreseen by the Ministry of the Environment, subsequently developed by the awarded tenderers. Specifically, the designers have foreseen:

A. Reduction of energetic consumption:

- LED external lightening
- LED internal lightening equipped with electronic dimmable ballast
- LED internal lightening equipped with sensor to detect the presence of people (for toilets, archives, storage)
- LED internal lightening equipped with light sensor (close to the windows)
- Building automation system for the control of heat and electricity consumption
- HVAC (Heating, Ventilation and Air Conditioning) regulation through the sensor to detect the presence of people, which indicates to the fan coil the desired set point
- Fan coil inverter and modulating valve (to modulate the air flow rate and to regulate the thermal load based on the different places needs); heat pump water heater.

B. Reduction of the consumption of non-renewable resources (construction materials with recycled content):

- thermo acoustic panel in polyester fiber coming from the recycling of PET bottles for horizontal and vertical surfaces
- recycled plasterboard
- Thermal-acoustic insulation panel made of recycled wood fiber or mineral fiber (to be located in the plasterboard).

Results

	CO_2e emissions	Energy consumption
Low carbon solution	303 t/year CO_2 e	80 toe/year
Benchmark	615 t/year CO_2 e	162 toe/year
Annual Savings	312 t/year CO_2 e	82 toe/year
Savings (for 15 years)	4,680 t CO2e	1,230 toe

Calculation basis

To estimate the savings in energy consumption and in CO_2 emissions, the ante-operam energetic performance (baseline) has been compared with the post-operam one. The designers have used specific environmental performance software calculators.

The results are the following:

ANTE OPERAM	kWh/m²	m²	kWh/year
Heating/cooling	12,162	11281	1,371,995
Lightening	38.46	11281	433,867
Sanitary hot water	6.7	11281	75,583
TOTALE			1,881,445 (161.8 toe)

POST OPERAM	kWh/m²	m²	kWh/year
Heating/cooling (heat pump)	62.71	11281	707,432
Lightening	17.3	11281	195,161
Sanitary hot water	2.23	11281	25,157
TOTALE			927,749 (79.8 toe)

The difference is 953,696 kWh/year equal to **82 toe savings/year**.

Emission factor of the Italian energy mix (source ISPRA 2015) which: 326.78 g CO_2/kWh.

There are also savings from the use of recycled building materials but they could not be calculated here because the data for the environmental impact in the life cycle of recycled products are missing.

Lessons learned

The State Property Office (Agenzia del Demanio) manages a huge housing stock; it thus needs to proceed with maintenance and renovation works oriented to the energy consumption reduction, in order to reduce management costs and to contribute to the European and national objectives for the CO_2 emissions reduction.

The present low CO_2 emissions tender has been published before the Environmental Minmum Criteria approval from the Italian Ministry of the Environment. It represents, for the State Property Office, the first step for the adoption of the environmental criteria in public works tenders (obligatory in Italy according to the law 221 of December 2015).

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

PRIMES Green Public Procurement

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_2 reductions. – www.primes-eu.net

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

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