Supply of electricity from renewable and high efficiency cogeneration sources

Department of Economy and Knowledge, Government of Catalonia

- CO₂ savings equivalent to the annual consumption of 10,000 European households were achieved (66,701.1 t CO₂ in total).
- The percentage of green electricity with guarantees of origin was doubled (now 30%).
- The guaranteed capacity of green production associated to the contract almost tripled.

Previous tender
- 15% of electricity supply from ‘green’ sources
- 75,818.5 t annual CO₂ emissions

GPP 2020 Tender
- 30% of electricity supply from ‘green’ sources
- 59,143.2 t annual CO₂ emissions

Results
- 66,701.1 t CO₂ savings in total
- An additional 21,480.4 toe of ‘green’ energy guaranteed

www.gpp2020.eu
Tender

- Framework agreement for the supply of energy (electricity and gas) in the property of the departments of the Administration of the Government of Catalonia and of the bodies associated to the central purchasing system of the Central Supplies Committee of the Department of Economy and Knowledge (Case file 2013/3).
- Division in lots: 7 for the supply of electricity, in which environmental criteria have been applied, and 3 for the supply of natural gas, liquefied natural gas and propane gas.
- Duration: 1 year with the possibility of annual extensions up to a maximum contract duration of 4 years.
- Tender budget: basic budget for the first year of €132,440,669.23 (excluding VAT and other taxes on energy), which includes a centralised contract with the Central Supplies Committee and related contracts with the rest of the bodies associated to the Framework Agreement. The estimated value for the entire duration of the agreement is close to 596 million Euros (excluding VAT and other taxes).
- Amount supplied: annual electricity supply estimated at 316.4 million KWh.

Contract criteria

Type of procedure: open.

Technical specifications for the supply of electricity: a minimum of 30% of the supply must originate from renewable or high efficiency cogeneration sources. The corresponding guarantee of origin certificates must be included.

This minimum percentage must be guaranteed by the contractor in every contract deriving from the Framework Agreement. Further information on the applied scheme is available here.

Contract execution clauses: for derived contracts awarded by the Central Supplies Committee, the successful bidder must request the guarantee of origin certificates from the National Energy Commission and submit them to the contracting body within one month as from the date of signing of the contract.

Penalties: failure to comply with the clauses established in the terms and conditions, including the clause for the supply of 30% ‘green’ electricity, is considered gross negligence, and subject to financial penalties.

Development of criteria

The tender specifications of the previous Framework Agreement (2011) were taken as a reference point. The aim was to increase the percentage of ‘green’ energy, that is, energy from renewable or high efficiency cogeneration sources from 15% of the previous tender to 30% in the new Framework Agreement.
Results

All companies that submitted tenders for the 7 lots on the supply of electricity complied with the minimum compulsory requirements. With the obligation of supplying a minimum of 30% of energy from renewable or high efficiency cogeneration sources, the effective results in terms of CO₂-savings and amount of renewable energy triggered are as follows:

<table>
<thead>
<tr>
<th></th>
<th>CO₂ emissions</th>
<th>Amount of renewable energy triggered</th>
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</thead>
<tbody>
<tr>
<td>Current framework agreement (2014)</td>
<td>59,143.2 t CO₂/year</td>
<td>8,162.8 toe/year</td>
</tr>
<tr>
<td>Previous framework agreement (2011)</td>
<td>75,818.4 t CO₂/year</td>
<td>2,792.7 toe/year</td>
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<tr>
<td>Annual</td>
<td>16,675.3 t CO₂/year</td>
<td>5,370.1 toe/year</td>
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<tr>
<td>Total</td>
<td>66,701.1 CO₂</td>
<td>21,480.4 toe</td>
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Basic data of the calculations

- The figure of 316,442,792 kWh electricity consumption estimated from the first year of the 2014 contract (221,509,954 conventional and 94,932,838 ‘green’) is used as the basis (baseline data).
- In the 2011 contract, the amount to be supplied was 216,524,440 kWh. This was 30% lower because the number of bodies associated to the Framework Agreement was also lower; for this reason, the consumption of the prior agreement has been corrected to reflect the purchase volume of the current agreement. This has been done by calculating the volume of ‘green’ electricity (15%) supplied in 2011 (=32,478,666 kWh) and considering the rest, up to the 316 million kWh of the current tender, as conventional (a total of 283,964,126 kWh). This assumption is made due to the lack of evidence that the bodies not associated to the Agreement in 2011 incorporated a renewable sources criterion in their tenders at that time.
- The CO₂ emission factors used are those recommended by the Catalan Office of Climate Change (OCCC)¹, the calculations which are based on the electricity mix data corresponding to the Iberian peninsula’s electricity grid following the international methodologies of the GHG-Protocol and the ISO/TR standard 14069.

The emission factor applied to the mix is 0.267 kg CO₂/kWh, adjusted discounting

¹ Practical guide to the calculation of greenhouse gases (GHG), 2015 Version
the green electricity produced from renewable energy (RE) and sold to the end user with the corresponding renewable energy certificate (REC). This reflects the fact that the green electricity sold as such is not available to other consumers, so for the purposes of the calculation the amount of RE in the remaining mix is reduced. Similarly, the factor "neutralises" the CO₂ emissions originating in the production of green electricity: so to avoid double counting, the green electricity is assigned an emission factor of 0 [zero] g CO₂/kWh.

- Electricity consumption figures have been multiplied by their corresponding emission factors to obtain the total generation of CO₂ emissions, which has fallen from 75,818.4 t/a to 59,143.2 t/a.
- The difference between ‘green’ electricity in 2014 and in 2011 represents the guaranteed additional generation of ‘green’ electricity of 62,454,172 kWh (5370.1 toe) per year.

With the increase of the required percentage of energy from renewable or high efficiency cogeneration sources, and the increase of the bodies associated to the Framework Agreement—and, therefore, of the energy consumption supplied with a minimum of 30% of ‘green’ energy—the following was achieved:

- 22% of reduction of CO₂ emissions
- The guaranteed production from renewable sources or by high efficiency cogeneration increased by 300%

Lessons learned

- The Central Supplies Committee achieved to considerably increase the environmental requirements with regard to the previous tender (double those of 2011), while not being excessively restrictive to the market. This was possible because of the nature of the set of minimum conditions for electricity supply, and because of the increase in the number of bodies associated to the Framework Agreement.

- Further to the increase of environmental requirements (from 15% to 30%), an increase in purchasing volume has been added (30% higher than in the previous agreement), which lead to an even greater reduction of CO₂ emissions in absolute terms.

- This tender supported the uptake and increased demand for green electricity on the Spanish market which is seen important for a shift towards a green economy.

- It is possible that there would even be a higher percentage of electricity from renewables or high efficiency cogeneration in the actual contracts that are based on this framework agreement. Therefore the real results in terms of CO₂ emission reductions may be even be higher than those estimated based on the Framework Agreement.

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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 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

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