



## Supplying electricity guaranteed to come from renewable energy sources and from high-efficiency cogeneration

Department of Resources, Barcelona City Council

- We have managed to save 37,583 metric tons of CO<sub>2</sub> per year.
- We guarantee that 100% of the electricity consumed is from renewable sources and/or high-efficiency cogeneration with a guarantee of origin certificate.



### Existing contract

- Energy supply with 15% from “green” sources
- 37,583 t of CO<sub>2</sub> generated annually

### Extension of the contract

- Energy supply with 100% from “green” sources
- Zero t of CO<sub>2</sub> generated annually

### Results

- 75,165.9 t of CO<sub>2</sub> savings over the time of the contract
- 24,206.4 additional toe from “green” sources guaranteed

## Initial Situation

- In 2013, the Barcelona City Council established a framework agreement (FA) for the supply of electricity to buildings and installations of the Council and associated organisations (including public lighting).
- This FA was running for two years, extendible annually to a maximum of two additional years (= 4 years in total). It demanded that 15% of the electricity supplied must be “green” electricity, drawn from renewable sources and/or from high-efficiency cogeneration, with the necessary guarantee of origin certificate.
- The electricity companies are responsible for requesting this (exclusively electronic) certificate from the State Commission on Markets and Competition of the Spanish Ministry of the Economy<sup>1</sup>. The certificate associates each electricity supply point's code (CUPS) with the production of renewable energy or energy from high-efficiency cogeneration, certifying that during the requested time period, the amount of “green” electricity generated and added to the power network matches the amount of energy consumed. A Guarantee of Origin Certificate must be requested for each electricity consumption point, which number around 3,000 in the case of the Barcelona City Council.
- In 2013, the Barcelona City Council approved the “[Mayor's Decree on Responsible Public Contracting According to Social and Environmental Criteria](#)”. This Decree establishes that the City Council will establish the environmental criteria for contracts providing certain goods and services, among them the supply of electricity.
- In 2014, the City Council worked to define these criteria and considered the need to establish a minimum percentage of electricity coming from renewable sources and/or high-efficiency cogeneration, or even the possibility of requiring that 100% of municipal energy be “green”. This was aimed at fulfilling the energy and sustainability policies adopted by the Council (the Citizen Commitment to Sustainability, the Energy Self-Sufficiency Plan, the Air Quality Plan, and the European Covenant of Mayors for Sustainable Energy, among others). This process is led by the +Sustainable City Council Programme in coordination with other relevant Council departments.

## Contract management: negotiating the renewal

- Coinciding with the period for renewing the electricity contract currently in force, the City Council's Department of Resources (which participates in the elaboration of the environmental criteria for the supply of electricity) decided to consult with the company involved in the Framework Agreement in order to study the possibility of requiring that 100% of the electricity supplied comes from green sources, both in the extension of the contract and in future bids.

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<sup>1</sup> <http://www.cnmc.es/>



- The company confirmed that there was no reason that all electricity provided should not be from renewable sources and/or high-efficiency cogeneration, although there would be an additional cost to request the Guarantee of Origin Certificate for the over 3,000 points of consumption to be registered. This additional cost was estimated at 0.5 cents per kWh consumed. In other words, no more than an additional 0.3% on the cost of the tendered contract.

## Results

The company party to the framework agreement made a commitment to supply electricity exclusively from renewable sources or from high-efficiency cogeneration, and to obtain the necessary guarantee of origin certificates. The CO<sub>2</sub> emissions associated with the City Council's electricity consumption over the next two years of extension of the contract are shown in the following table.

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	CO <sub>2</sub> Emissions	Guaranteed capacity of "green" electricity production
Framework agreement currently in force (as of 2013)	37,583 t CO <sub>2</sub> /year	2,135.9 toe/year
Extension of current contract with new conditions (2015)	0 t CO <sub>2</sub> /year	14,239.1 toe/year
Annul saving or Guaranteed capacity of "green" electricity consumption	37,583 t CO <sub>2</sub> /year	12,103.2 toe/year
Total saving (2 years) or guaranteed capacity of "green" electricity consumption	75,165.9 t CO <sub>2</sub>	24,206.4 toe/year

### Basic calculation data

- For the calculation, we used the GPP2020 energy contracting calculator which was developed in the project.
- The base energy consumption used is 165,600,190 kWh of real consumption in 2015 with 15% "green" energy (140,760,161.5 conventional and 24,840,028.5 "green").
- For conventional electricity, we use the CO<sub>2</sub> emissions factor recommended by the Catalan Office for Climate Change<sup>2</sup>, which is based on the electrical mix of the Iberian Peninsula and which follows the international methods of the GHG Protocol and ISO/TR 14069. The emissions factor applied to the mix is 0.267 kg CO<sub>2</sub>/kWh. This is equivalent to the emissions of the Iberian electrical mix corrected by subtracting the "green" electricity sold with the corresponding

<sup>2</sup> Guidance on calculating greenhouse gas (GHG) emissions, 2015 version.

guarantee of origin which, as a result, is no longer available in the mix. With this factor, we avoid double-counting the “green” electricity, and an emissions factor of 0 g of CO<sub>2</sub>/kWh is applied to it.

- Electricity consumption has been multiplied by its corresponding emissions factors in order to obtain the total generation of CO<sub>2</sub> emissions.
- The annual difference between previously consumed “green” energy and that consumed as of the contract extension represents the additional generation of “green” energy guaranteed annually (140,760,162 kWh annually, equivalent to 12,103.2 toe).

With the increase in the required percentage of energy with a guarantee of origin, we:

- Reduce CO<sub>2</sub> emissions by 100%.
- Multiply the production of electricity guaranteed to be from renewable sources or from high-efficiency cogeneration by 6.7.

In addition, this initiative has allowed to establish in the [“Technical Instructions for the Application of Sustainability Criteria to Electricity Supplies”](#), approved in April 2015, that all electricity supplied to the Barcelona City Council be “green” and with guarantee of origin certificates, ensuring the continuity of this measure.

## Lessons learned

- The political commitment channelled through the definition of compulsory technical instructions for the City Council has been the principal drive behind this improvement of environmental conditions through the management of the existing contract.
- The dialogue with the company party of the Framework Agreement and the negotiation during the extension of the existing contract allow for the incorporation of improvements without having to conduct a new bidding process.
- In the Iberian Peninsula’s electricity market, the generation of “green” electricity is currently greatly superior to the demand for electricity with a guarantee of origin. Until these two factors become more similar, there is no additional cost for production, and the additional cost of obtaining a certificate for the “green” electricity consumed is hardly relevant (just 0.05 cents/kWh supplied or, in other words, an additional cost of just 0.3% of the cost of the tendered contract).
- With the increase in the environmental demand (from 15% to 100% of “green” electricity), the reduction of the City Council's indirect CO<sub>2</sub> emissions is very significant.
- In fact, the purchase of 100% “green” electricity represent CO<sub>2</sub> savings equivalent to the application of the measures foreseen in the SEAP that are the responsibility of the City Council. This measure, together with the ones on savings, energy efficiency, and local renewable generation of the plan will allow reducing the CO<sub>2</sub> emissions to almost 40% regarding the 2008 baseline.

## Contact

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## About the GPP 2020 Project

The aim of the GPP 2020 Project is to promote low carbon emission public procurement throughout Europe to help obtain EU targets, with an eye on 2020, of reducing greenhouse gas emissions by 20%, increasing the use of renewable energies by 20% and increasing energy efficiency by 20%.

With this target, the GPP 2020 Project will implement more than 100 low carbon call for tenders to obtain a significant reduction in direct CO<sub>2</sub> emissions. The GPP 2020 Project is also driving forward a training programme that will include both courses and exchanges. –

[www.gpp2020.eu](http://www.gpp2020.eu)



## On the PRIMES Project



The purpose of the PRIMES Project is to help local companies in six European countries – Denmark, Sweden, Latvia, Croatia, France and Italy– overcome difficulties with green public procurement processes, as many of these organisations do not have great enough skill or knowledge to apply them.

The PRIMES Project plans to develop basic skills and offer practical advice so that public procurement organisations can overcome obstacles when applying green public procurement. Consequently, this will foster energy saving and the reduction of CO<sub>2</sub> emissions. –

[www.primes-eu.net](http://www.primes-eu.net)



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