

Green Electricity

Joint procurement of 700 GWh green electricity in Catalonia



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|-------------------------------|---|
| Contracting authority: | Catalan Association of Towns and Counties |
| Contract: | <p>Framework agreement for the supply of electricity (100% from renewable sources)</p> <p>Award date: October-November 2016</p> |
| Savings: | <ul style="list-style-type: none"> • Emissions savings of 226,100 tonnes CO₂ • 833 GWh of primary energy saved • Economic savings of 10% of total expenditure |

SUMMARY

- Framework agreement for the supply of electricity to local authorities in Catalonia. Annual estimated consumption of 700 GWh.
- As requested by local authorities, since 2017 100% of the electricity comes from renewable sources. A total of 702 local authorities are part of the framework agreement.
- Awarded company for the contracts based on the framework agreement: Endesa Energia SAU.

Procurement context

The framework agreement for the supply of electricity to Catalan local authorities, in force for two years, is an instrument of aggregated purchase of 100% green electricity managed by the Catalan Association of Towns and Counties (ACM, from its acronym in Catalan). Up to 702 local authorities, covering more than 3,4 million inhabitants, have become a party to the framework agreement. The service will supply more than 22.000 supply points and a consumption of more than 700GWh is expected for 2017.

The framework agreement foresees, for the first time, that all the electricity supplied comes from renewable sources with guarantee of origin. The first experience of green energy contracting can be traced back to 2013, when 15% green electricity was required. The increase is a result of the explicit demand by municipalities, that have identified green energy as an opportunity for the improvement of their environmental performance in line with the Strategy 2020 of the European Union and the Covenant of Mayors, which takes form in the Municipal Sustainable Energy Action Plans that most local authorities are implementing. In addition, the definition of criteria for the new framework agreement has been conducted in collaboration with the Ministry of Territory and Sustainability of the Catalan Government.

The process has been organised by the Catalan Consortium for the Local Development of Catalonia, a public consortium in which ACM participates. Afterwards, the contract has been assigned to ACM, which manages the centralised procurement service. The contracting process was conducted in two phases: first the framework agreement, that defines the conditions electricity suppliers have to comply with for the next two years, was tendered; afterwards the derived contracts that formalise the electricity cost for one year are executed.

The notification of the framework contract was published in the European Union Official Journal on 16th June 2016. Before the approval of the tendering documents a preliminary market consultation was conducted. The awarding of the contract, tendered in two lots, took place on the 6 October 2016 with the 6 compliant bidders (5 for low voltage and 6 for high voltage). The derived contracts for the supply of high and low voltage electricity for 2017 were awarded on the 10th November 2016 to the company Endesa Energia SAU after an electronic auction on the basis of the lowest price, conducted on the 7th and 8th November respectively.

Joint Procurement

The Central Purchasing body of ACM is a centralised procurement service for associated local authorities and their public companies. On a voluntary basis, associated authorities can contract a variety of products and services through the central purchasing body, such as the supply of electricity, natural gas, insurance, vehicles, technical machinery, IT equipment, paper or video-minutes service. The objective of the central purchasing

INNOVATION IN PROCUREMENT

Thanks to the joint procurement the contracted supply volume is big enough to generate a direct stimulus on the market for renewable energy.

body of ACM is to ensure that small public authorities can contract with the same price and quality conditions as big municipalities. In this regard, centralised procurement is an essential instrument for the rationalisation of resources and public expenditure, thanks to the optimisation of procurement processes, ensuring at the same time the highest level of legal certainty.

The joint procurement of electricity has several advantages:

- Economies of scale allow for a reduction of the cost of the contracted energy.
- Local authorities are more efficient and reduce their administrative costs with ensured compliance with the procurement legislation.
- The adequacy and quality of the contracted service is ensured thanks to the professional competency that ACM provides.
- Compliance with environmental commitments adopted by local authorities is facilitated through the inclusion of environmental criteria in the tendering documents.
- A greater promotion of the renewable energy market is achieved.

Needs Analysis

An expert committee – comprised of local energy agencies, professional associations and ACM – produced a comprehensive study on the needs of municipalities based on the information from more than 4 years of aggregated procurement of electricity. Furthermore the close contact of ACM with local authorities allowed the identification of opportunities and demands such as the need for a specific tariff for electric vehicle charging points or the design of the tendering documents so that the best contracting conditions are obtained for the tariffs with highest consumption, such as street lighting.

Market Engagement

Before finalising the tendering documents, preliminary consultations with the market were conducted. In the procurement website an alert (or prior information notice, PIN) was published for companies to express their interest in participating in the procurement process. This has been a regular procedure in all framework agreements and centralised purchases by ACM since 2014 in order to promote the principles of transparency, equality and competition.

The preliminary consultations were conducted with the support of experts from the Energy Agency of Osona County Council, the Energy Agency of the Maresme County Council, the Contracts Supervision Office and the Studies Office of ACM and a consultancy firm hired specifically for this procurement process.

The consultation was conducted through individual interviews based on a standardised template to cover the same aspects with all interested companies. The questions dealt with:

- The definition of the subject matter of the contract and the division of lots;
- The formula for updating, indexing and reviewing the price;
- The identification of the appropriate structure of award criteria and its evaluation based on a formula or subjective evaluation, to effectively evaluate the offers that better satisfy the needs of local authorities and ACM;
- Other questions related to contract performance clauses, such as the format and information suppliers have to provide to the local authorities for the definition and/or evaluation of energy efficiency measures, the management of treasury policies or payment terms.

A total of eight in-person interviews and one virtual interview were conducted.

Tender Clauses and Verification

TECHNICAL SPECIFICATIONS

- 100% green electricity with guarantees of origin
- Website with restricted access allowing each participating authority to consult invoices for the corresponding supply and download them in e-invoice and pdf format. It will also include the processing models and procedures to register, unregister or modify consumption points.
- Support service for complaints, problems or emergencies.
- Digital file to compile and manage individually or in aggregated form the supply points of participating authorities, for the exploitation of that information and assessment of energy efficiency measures.
- Minimum bonus of 1,5% in the energy term in direct debit payments.
- Annual energy consulting report for each participating authority with the analysis of: optimisation of contracted power for each supply and each term; optimisation of the most appropriate tariff based on the consumption distribution; identification of consumptions and costs of reactive energy.

AWARD CRITERIA

- Framework agreement: to be selected, a minimum number of points have to be achieved based on the quality of the offered supply service, evaluated based on value judgment criteria.
- For contracts based on the framework agreement: lowest price, based on a formula of weighted average price (see annex 2)

VERIFICATION

The suppliers have to provide the certificates demonstrating that all supply points have been included in the guarantee of origin system of the National Commission of Markets and Competition. Those certificates must be accessible for all participating authorities following the procedure defined by the National Commission.

Regional approach to SPP

The whole procurement process, from the definition of needs and market consultation to the awarding, has been assisted by a regional technical experts committee. Furthermore, the environmental criteria of the tender (100% green electricity and data for the evaluation of energy efficiency measures) originates from the demands of local authorities gathered by ACM thanks to their regular participation in meetings and events.

Results

Environmental Impact

The new framework agreement will achieve an estimated reduction of **226,100 tonne CO₂ emissions** compared to the 2013 contract (considering the same consumption volume as the one estimated for the 2017 contract and using the emission factor of the commercialised mix of the awarded company in 2015).

Furthermore, the consumption of primary energy in the new framework agreement will be **reduced by 52%**.

Table 1: Environmental savings

| Tender | Final energy consumption (GWh/yr) | CO ₂ emissions (tonne/yr) | Primary energy consumption (GWh/yr) | RES triggered (GWh/yr) |
|---|-----------------------------------|--------------------------------------|-------------------------------------|------------------------|
| Benchmark (2013 tender – 15% renewable) | 700 | 226,100 | 1,603 | 105 |
| Low carbon solution (2017 tender – 100% renewable) | | 0 | 770 | 700 |
| Savings | | 226,100 (100%) | 833 (52%) | 595 (85%) |

CALCULATION BASIS

- CO₂ emissions factor of conventional electricity: 0,380 kg/kWh.¹
- CO₂ emissions factor of electricity from renewable sources: 0,0 kg/kWh.²
- For the primary energy consumption a primary energy factor of 2,5 for electricity steaming from fossil fuels, and of 1,1 for electricity from renewable sources has been used.³
- *The calculation has been conducted using the tool developed in the GPP 2020 project (www.gpp2020.eu), and adjusted in the SPP Regions project (www.sppregions.eu). The detailed calculations can be found in Annex 1 of the present document.*

¹ National Commission of Markets and Competition (<https://gdo.cnmec.es>); emissions factor of the mix of the supplier Endesa Energía, SAU for 2015.

² Following the criteria of the Catalan Office for Climate Change and ISO 14064 part 1, CO₂ emissions of electricity from renewable sources are considered negligible.

³ Ecofys, Development of the Primary Energy Factor of Electricity generation in the EU-28 from 2010-2013, 2015.

Economic Impact

On average, savings of 10% on energy expenditure by local authorities is expected for 2017. This is due to a reduction of 14% in the price of the low voltage energy and a 15% of the high voltage energy (€/kWh, not including taxes and other costs). This reduction will be especially beneficial for small municipalities where street lighting represents the largest energy expenditure, as it is in the usual tariff for street lighting where the most advantageous prices have been obtained.

CALCULATION BASIS

- Energy weighted average price (year 2016)
 - High voltage = 0,078563 (€/kWh)
 - Low voltage = 0,095045 €/kWh
- Energy weighted average price (year 2017)
 - High voltage = 0,066822 (€/kWh)
 - Low voltage = 0,081761 €/kWh
- These prices include only the price for the energy term, excluding other terms such as power term or taxes (electric and VAT)

Market Response

The expected demand was a clear sign to the market, which responded very positively by increasing their provisions of green electricity with certified guarantees of origin. In the consultation process it was already recognised that the demand of 100% electricity from renewable sources was not a constraint to ensure participation in the tendering process, and would not negatively affect the economic sustainability of the contract.

Contract Management

The Office of Contracts Supervision of the Central procurement service of ACM is responsible for the management of the contract. For problems resolution a Commission to support the framework contract has been set up that meets every two months with the manager of the contract nominated by the awarded company.

The awarded companies of the derived contracts have to produce a certificate stating that all consumption points have been included in the guarantee of origin system of the National Commission of Markets and Competency.

Local authorities wanting to access the framework agreement for green electricity must sign the corresponding agreement and send it to ACM. Also they have to provide the invoicing data and the list of consumption points to the awarded company.

ACM actively promotes the framework agreement in order to raise awareness amongst local authorities and encourage new authorities to join. This is done in different ways, such as the participation in events or the publication of news articles on the website and monthly newsletter of ACM. They are also used to communicate other useful information such as the procedure that the owners of the supply points have to follow to obtain the guarantee of origin certificates of the energy they consume.

Lessons Learnt and Future Challenges

The tendering process has shown that green electricity is not necessarily more expensive. In fact, considerable economic savings have been obtained in comparison with the previous framework agreement.

The aggregated procurement makes it easier to implement environmental policies by local authorities as it allows the main obstacles raised when contracting green electricity to be overcome, namely the price and complexity of the tendering process. Aggregated procurement strengthens approaches and serves as reference for the other local authorities.

Furthermore, the aggregation of the demand of green electricity serves as an incentive to the renewable energy market. In fact, since the demand of 100% renewable energy, the awarded company has organised 3 auctions for the purchase of solar energy for a slightly higher volume than required in the contract with ACM.

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Annex 1 – Calculation of the environmental savings

The comparison of environmental impacts (in terms of CO₂ emissions and primary energy consumption) is conducted between the conditions in the framework agreement of 2013 (requiring 15% green electricity) and the ones in the new agreement of 2017 (requiring 100% green electricity).

To make them comparable, we use for 2013 the same energy consumption estimated for 2017 and, in both cases, we use the latest CO₂ emissions factor published for the company awarded in the derived contract for the supply of green electricity (published in 2015).

Following the criteria of the Catalan Office for Climate Change, the CO₂ emissions factor for electricity from renewable sources is considered null.

The calculation has been conducted using the tool developed in the GPP 2020 project (www.gpp2020.eu), and adjusted in the SPP Regions project (www.sppregions.eu).

Estimated CO₂ emissions savings

| Energy source | Benchmark | | | | Low carbon solution | | | |
|---------------------------|-----------------------------------|-------------------------------|---|------------------------|---|-------------------------------|---|--|
| | Current annual energy consumption | Per year | | | Annual energy consumption with new contract | Per year | | |
| | | Energy consumption (TOE/year) | CO ₂ -emissions (t CO ₂ / year) | | | Energy consumption (TOE/year) | CO ₂ -emissions (t CO ₂ / year) | |
| Electricity, conventional | 595.000.000 kWh | 51.161 | 226.100 | 0 kWh | 0 | | | |
| Electricity, green | 105.000.000 kWh | 9.028 | 0 | 700.000.000 kWh | 60.189 | | 0 | |
| TOTAL | 700.000.000 kWh | 60.189 | 226.100 | 700.000.000 kWh | 60.189 | | 0 | |

Estimated primary energy savings

| | | Energy consumption (GWh) | Primary energy factor (P.E.F.) | Primary energy consumption (GWh) | Primary energy consumption (GWh) |
|-------------------------------|-------------------------------|--------------------------|--------------------------------|----------------------------------|----------------------------------|
| 2013 | Energy from fossil fuels | 595 | 2,5 | 1487,5 | 1603 |
| | Energy from renewable sources | 105 | 1,1 | 115,5 | |
| 2017 | Energy from fossil fuels | 0 | 2,5 | 0 | 770 |
| | Energy from renewable sources | 700 | 1,1 | 770 | |
| Primary energy savings | | | | | 833 |

Annex 2 – Formula of weighted average price:

The following formula of weighted average price is used for the contracts based on the framework agreement:

- Low voltage lot:

$$PREUBT_{MIG\ PONDERAT\ BT} = \sum_{i=1}^{15} POBT_i \times PCTABT_i / 100$$

On:

$POBT_i$ = Electricity price offered for the access fee and period BT "i" (€/kWh)

$PCTABT_i$ = Percentage of annual consumption rate of the access fee and period BT "i" (%)

- High voltage lot:

$$PREUAT_{MIG\ PONDERAT\ AT} = \sum_{i=1}^{15} POAT_i \times PCTAAT_i / 100$$

On:

$POAT_i$ = Electricity price offered for the access fee and period AT "i" (€/kWh)

$PCTAAT_i$ = Percentage of annual consumption rate of the access fee and period AT "i" (%)

About SPP Regions

SPP Regions is promoting the creation and expansion of 7 European regional networks of municipalities working together on sustainable public procurement (SPP) and public procurement of innovation (PPI).

The regional networks are collaborating directly on tendering for eco-innovative solutions, whilst building capacities and transferring skills and knowledge through their SPP and PPI activities. The 42 tenders within the project will achieve 54.3 GWh/year primary energy savings and trigger 45 GWh/year renewable energy.

SPP REGIONS PARTNERS



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