



ESCO procurement for energy renovation of municipal buildings

Vantaa, Finland

IN A NUTSHELL

The municipality of Vantaa uses Energy Service Contracting (ESCO) to improve the energy efficiency of 26 of its public buildings, in a way that does not entail any costs for the municipality as the expenses will be covered with the savings produced by the efficiency gains.

Defining the requirements of the ESCO

The city of Vantaa decided to renovate 14 public buildings (schools, swimming halls, libraries, and a day care centre) that were on average 20 years old or renovated more than 10 years ago and were all characterised by high energy costs. The objective was to find innovative and extensive solutions to increase their energy-efficiency and to implement the Energy Efficiency Agreement signed between the Finish Ministry of Employment and Economy and the city of Vantaa. It also aimed to diminish the amount of greenhouse gases in Vantaa and to improve the indoor air quality.

Based on these objectives, the Department of Land Use, Building and Environment of the municipality of Vantaa defined a saving target of 30,000 MWh in heat and electric energy. This target was calculated so that it would make a significant contribution to the climate and energy targets of the municipality, while still being achievable in a reasonable amount of time.

The city required a savings guarantee of 100% in the final call for tender, as a non-negotiable element. This meant that if the savings were not realised, the ESCO-provider would pay the difference to the city. In the case that the energy savings are bigger than stated in the bid, the extra savings are to be divided equally between the city and the provider.

On this basis, the city launched a call for tender and selected the applicants based on the price offered, the payback time (an average of six years was indicated), the amount of saved energy, the effectiveness of the measures, and the reduction in greenhouse gases emissions. The specific selection criteria were:

- Euros saved/year, weighting 20%
- MWh savings/year, weighting 20%
- Savings/y tCO₂eq, weighting 30%
- Savings that can still be made in 2023 (MWh), weighting 30%

The participants were given detailed initial information about the energy audits of three buildings, on the basis of which they were able to select and suggest energy-saving measures. The number of different measures was not determined in advance, in order to give the suppliers freedom to choose the ones worth investing in. The invitation to tender was launched in spring 2011.



Tikkurila School, modernised as part of the ESCO project.

VANTAA



Population: 215,813	Area: 238.36 km ²
Signatory to the Covenant of Mayors since: 2009	CO₂ emission reduction target: -40% compared to 1990 levels and carbon neutral by 2050

Choosing the ESCO provider

Because there are very few ESCO projects in Finland, only four offers were received of which three were eligible. The city started negotiations with all of them. All three selected providers made preliminary studies of all the fourteen sites during the negotiations. Because of the required savings guarantee of 100%, companies were not able to risk really innovative solutions. The measures mainly consisted of electrical and building automatization, heating and ventilation/air conditioning. However, good news was that the energy savings proposed by the providers were bigger than estimated by energy audits. This strengthened the opinion of the municipality about the usefulness of this type of competitive tendering.

Implementing the project

The contract was signed in November 2013. All the investments were made by the end of 2015. The selected provider committed to guaranteeing 4,300 MWh of annual energy savings, i.e. 30,100 MWh during the contract period.

With the electricity and heat energy price at the time, this meant that the municipality would save approximately €245,000 per year, and within the whole contract period approximately €1.7 million not including the transfer price.

With the total energy cost of the buildings estimated at €1.3 million per year, the annual savings amount to approximately 18%.

During the whole contract period, the greenhouse gases emitted by the public buildings will be reduced by 7,500 tonnes of CO₂ equivalent.

The consumption figures will be verified from electricity and district heat meters, checked once a year. All refurbishment work in all 14 buildings has been completed.

Second ESCO project

Building on the success of this experience, a second ESCO project was launched in autumn 2016 for the renovation of 12 additional schools, for a similar investment of €1.5 million during the period 2017-2022. In this case, the provider was also procured to define the ESCO procedure, in addition to providing a plan for renovations. The measures implemented were similar but included as well the replacement of oil heating with geothermal heat. Renovations will be completed by the end of 2017.

Lessons learnt

A lot of discussions and debates are needed to carry out an ESCO project. It also requires special expertise, curiosity, persistence and boldness to find new ways to implement energy and environment targets. Having an open dialogue with possible tenderers from the start, even before the publication of the invitation to tender is a key success factor.

USEFUL LINKS

- ▶ Covenant of Mayors profile of Vantaa: <http://bit.ly/2iXfEg6>
- ▶ ESCO procurement I: <http://bit.ly/2xBNmpd>
- ▶ ESCO procurement leaflet: <http://bit.ly/2wSV1FV>



KEY FIGURES

2014-2021: ESCO 1 contract period

14 buildings renovated in 8 years

30,100 MWh in heat and electric energy to be saved in total (4,300 MWh per year)

€245,000 to be saved per year in the energy costs of the municipality

7,500 tonnes of CO₂ equivalent to be saved in total during the contract period



FINANCING THE PROJECT

- + **Financing source(s):**
Municipal budget, supported with a grant from the national government
- + **Total amount:**
€1.5 million
- + **Return on investment:**
100%, guaranteed by ESCO
- + **Payback period:**
6 years



CONTACT

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