

Case Study:

Investing in Energy Performance for Alsatian High Schools



Photo: Olivier Bertucci

Summary

The Alsace Regional Council is carrying out a major energy-efficiency renovation of 14 schools in the region. The project began in 2008 and will be completed in 2011.

Due to the high level of investment required, it was decided to establish a public private partnership to allow work to begin straight away, with payments spread over a number of years. A substantial portion of these payments will come from the savings in energy costs, based on model of energy performance contracting.

Renovation work is being targeted at making major energy-efficiency improvements, and installing on-site renewable energy capacity. Through this the region will reduce its CO₂ emissions, make substantial energy bill savings and help to raise environmental awareness amongst teachers and students.

The selected schools were not due for any renovation works within the next 10 years according to the region's investment plans. Without the public private partnership and energy performance contracting approaches these investments would therefore likely not have been made.

Organisations Involved

Client: Alsace Regional Council, Construction department

Consultant to assist in project implementation: Béton Ingénieries, SCP Salans et associés, Finance consult

Winning bidder/ESCO: Cofely / GDF-Suez Energie services

Dates

- Procurement: Nov 2008 – Sept 2009
- Refurbishment: Jan 2010 – Sept 2011
- Cofely / GDF-Suez responsible for maintenance until 2030

SCI-Network Context

Working Group 5: Financing & contracting

The procurement of sustainable construction can require innovative approaches to financing and contracting, especially given the often high upfront investment costs.

This case study illustrates two of the financing mechanisms explored by the group – public private partnerships (PPPs) and energy performance contracting (EPC).

For further information on this Working Group, or to get involved:

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Context

Since 2005 Alsace has been a pilot region in France for renewable energy and energy efficient buildings, and the concept of sustainable development underpins the region's policies. Schools are major consumers of energy, and are often housed in rather inefficient buildings. For this reason the region has targeted the renovation of schools in order to find innovative solutions for decreasing energy consumption and reducing CO₂ emissions. The following actions form the basis of this strategy:

- To invest in sustainable high schools, within the framework of the renovation budget.
- To develop solar energy, investing directly in high schools or making the high schools' roofs available to third parties.
- To implement energy performance contracts, starting immediately with 14 high schools.

Process

The scope of the work to be undertaken included the installation of renewable energy systems (biomass boilers and photovoltaic panels) and the installation of remote monitoring equipment as well as energy-efficiency renovations. The required investment costs for such a renovation project would have been prohibitively expensive for the region. It was therefore decided to establish a public private partnership over a period of 15-20 years, in which some of the investment costs would be met by energy savings under an energy performance contract.

Due to the scale and complexity of the project the competitive dialogue procurement method was used. This procedure allows the different aspects of the contract to be discussed in detail with several selected suppliers in stages within the tender process itself. A consultant was also employed to assist in the drafting of the tender specifications. A notice was published in the Official Journal on 12 November 2008 inviting candidates to apply.

Four operators were selected to participate in the competitive dialogue, which was conducted in two phases. Participants were first asked to submit summary proposals and then more detailed proposals in July 2009. Final bids were received in September 2009 and assessed against the following award criteria to determine the most economically advantageous offer:

- 30% for reduction in primary energy consumption (above the minimum 30% reduction in the specifications)
- 15% for the total cost of the offer
- 15% for the cost savings for the region from the energy generated, calculated on the basis of the energy prices paid at the time of the contract
- 15% for the reduction of greenhouse gas emissions associated with the contract
- 15% for the strength of the financial and technical master plan
- 5% for the quality of the equipment purchased (solar panels, wood burners, etc)
- 5% for the share of the contract to be subcontracted to SMEs

Energy performance contracting

Energy performance contracting (EPC) involves a private company undertaking energy efficiency improvements to a building which are paid for, in part, by the savings in energy costs over a number of years.

The upfront financing for the improvements may come from the company itself, or from a third party such as a bank.

The owner or occupier of the building may only be responsible for interest payments, or the company implementing the improvements may also levy a service charge. The companies undertaking the improvements are known as Energy Service Companies (ESCOs).

Results

On the basis of the above criteria the offer submitted by Cofely/GDF-Suez was found to be the most advantageous. It guaranteed a 35% reduction in primary energy consumption across the 14 properties, and a reduction in CO₂ emissions of nearly 65%. Of this, 25% can be attributed to the installation of wood boilers, 5% to a high school connection to district heating, 5% are associated with various optimizations including user-information and more efficient electric appliances, 15% are related to the implementation of GTB, and 15% to the work on the frame. The offer was also attractive financially, costing over 10% less than two other offers and presenting the highest savings in energy costs.

Once renovation work is complete in 2011, major improvements will have been made to the schools, with a projected overall reduction of 90,000 tonnes over 20 years.

All 14 schools will be generating their own energy. 5,000 m² of solar panels are being installed, and 6 old oil furnaces are being replaced with wood burners.

The energy performance contract has enabled this renovation work, and the huge associated energy savings, to be brought forward by at least 10 years.

Environmental Impact

- Overall energy consumption reduced by 35%
- CO₂ emissions reduced by 65%
- Total anticipated reduction: 90,000 tonnes CO₂ over 20 years

Budget and Finances

The total investment by the private partner amounts to €30 million over a period of 21 months, with €1-4 million being invested in each school. The total cost of the project, in net present value terms including interest payments, supply of biomass and maintenance costs over 20 years, amounts to €64,6 million. The estimated annual savings on energy bills amount to €1 million per year. The private partner is contractually bound to deliver the agreed energy savings of at least 35%, but the value of these is not guaranteed. Income of €7.4 over the course of the contract will also be generated by selling the excess electricity produced on site by the solar panels to EDF, the French national grid operator. Taking these savings and revenues into account, the net cost in present value terms is €35,6 million.

The investment by the Region represents just 0,8% of its annual financial capacity. A financial comparison was carried out against the cost of procuring the works and services directly. While the total costs were found to be similar (€65 million compared to €64,6 million), the savings on energy costs were significantly lower (€15 million compared to €18 million at net present value).

Public private partnerships (PPP)

Public private partnerships in the construction sector harness private sector involvement in order to achieve defined development objectives. They are typically associated with larger-scale projects carried out over a number of years. Costs and risks are allocated between the partners, and in some cases a special-purpose vehicle (SPV) may be set up.

The relevant tendering procedure for selecting a private partner depends upon the nature of the contract(s) which will be awarded to it. For public contracts which are fully covered by the Directives, the open, restricted or competitive dialogue procedures may be used.

Lessons Learned

As the renovation work is not yet complete, conclusions may only be drawn on the process up to this point, and the projected outcomes.

A strong political organisation and coherent project management needs to be in place to implement such a complex project.

Energy performance contracting can provide a highly effective model for enabling major renovation works to be undertaken without huge upfront investments by public authorities who wish to access ambitious energy savings.

The competitive dialogue procedure also proved very useful in addressing the financial, organisational and technical complexity of the contract during the tendering procedure, however it should be kept in mind that the process should not exceed a year, from launch of the dialogue to signing the contract, to ensure a good and efficient working atmosphere both with potential suppliers and within the administration

This model should be replicable for major renovation works in any EU country.

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References

- Short study prepared by the French Observatory of Public – Private Partnerships
http://www.ppp.bercy.gouv.fr/03_fiche_alsace.pdf
- Report on the Energy Performance Contract by the President of the Alsace Region
http://www.minefi.gouv.fr/directions_services/daj/ppp/rap_cpe_alsace.pdf

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