

Best practices report Highschools

Country: FRANCE



© Francis Mainard

Contact:
Rhôneénergie-Environnement
Christian Labie
Phone: +33 4 78 37 29 14
e-mail : christian.labie@raee.org

Table of contents

| | | |
|-----------|--|----------|
| 1 | Executive summary..... | 2 |
| 2 | Background | 3 |
| 3 | Aims and ambitions with the energy service project..... | 4 |
| 4 | The customer’s internal preparation prior to the project..... | 4 |
| 5 | The purchasing and contractual process | 5 |
| 6 | The content of the contract | 6 |
| 7 | Results | 7 |
| 8 | Gained experiences and lessons learned | 8 |
| 9 | What problems and applied solutions could be used at the EU-level | 8 |
| 10 | Contact information..... | 9 |

Best practices study of energy service implementation

Country: France

Project: Renovation of High schools of the Rhône-Alpes Region

Customer: Conseil Régional Rhône-Alpes

Energy Service Provider: SINERG

Financial provider (if other): SINERG

1 Executive summary

Background: In the framework of the devolution laws, the 22 French Regions became in charge of investment spending for the construction of new high schools, as well as spending relating to the major maintenance of existing high schools. In addition, the Region's were now responsible for the operating expenditure necessary to cover the material operating costs of the high schools (energy, water, major and minor maintenance, etc.). In the case of Rhône-Alpes Region, this transfer involved 275 high schools. Rhône-Alpes Region decided to pursue a vigorous policy of investment in energy saving.

The objective of the policy of investment in energy saving was to set up sufficient material conditions necessary for the high schools to fulfil their education service, but also minimise the costs of this service.

The internal preparation was about one year. Since politicians and policy makers were already aware of the necessity of an energy saving program, no special information process was needed. The high school head and bursar who are responsible for operation and maintenance of the installation were involved from the very beginning. To begin with, systematic diagnostic studies of the entire property holding made it possible to select the investment programmes.

After the various existing **financing solutions** were studied, the third-party financing format was selected. This third-party investment format was far from widespread in France. It was proposed only by SINERG, a subsidiary of the Caisse des Dépôts et Consignations, specialised in financing programmes linked with energy saving created in 1983. The principal difficulty lay in meeting the Public Procurement Code.

Content of the contract: in 1987, the Region decided to give SINERG, the specialised subsidiary of the Caisse des Dépôts et Consignations, the responsibility of carrying out and financing the work in a first phase involving 78 high schools to a global value in the region of FF 50 million (€ 7.6 million). This was followed by three phases, taking investment to FF 185 million (€ 28 million) for 190 high schools, with FF 124 million (€ 19 million) provided by SINERG.

The work involved buildings, heating installations, BTM, controllers, and electrical installations. SINERG ensured the financing of all of the work with a maximum return period of 5 years. It carried out the programme of works decided by the Region and the high school, by handling the realisation studies, organising consultation with companies, placing work orders, ensuring payment and reception (SINERG was the Region's

mandated agent). At completion of the works, SINERG handed the work over to the Region, which became the owner. The Region pays back the investment made by SINERG. The repayment represents 85 % of the recorded financial savings. The results guarantee is brought in by SINERG for a limited repayment period. This repayment is completed when the invested capital, including financial costs, has been paid back. If, after 15 years, the results have not been reached, the amount of remaining repayment is covered by SINERG.

Results: The objectives of this operation were globally achieved. In 1991, energy saving reached 4,920 tep, and FF 22 million (€ 3.3 million). The forecast global savings were 18.5 % in quantity and 24.5 % in cash. Effective savings were 15.4 % in quantity and 23.4 % in cash.

This operation also received accompaniment actions:

- Development of two energy consumption monitoring software packages,
- Training of high school managers,
- Upgraded maintenance contracts to ensure adequate operational quality,
- Installation of BTM systems in 20 % of the establishments.

The principal interest of this action lies in its global approach:

- knowledge of existing property characteristics through in-depth studies,
- diagnostics,
- works
- improved management and management training.

The third-party financing system has been in use since the 1980's and early 1990's. However, difficulties arising from conflict with the Public Procurement Code have led to a decline in the use of this procedure. In **an EU perspective**, it is necessary that EU concentrate its effort to dismantle legal and administrative hurdles for Energy Service Contracting.

2 Background

In the framework of the devolution laws, the 22 French Regions were given the responsibility for real estate investment and operation of the public high schools. This transfer of responsibility, which became effective on January 1st 1986, meant that the Region was in charge of investment spending for the construction of new high schools, as well as spending relating to the major maintenance of existing high schools. In addition, the Region's were now responsible for the operating expenditure necessary to cover the material operating costs of the high schools (energy, water, major and minor maintenance, etc.), through subsidy paid to the school. However, the School Head is responsible for the management of these installations.

In the case of Rhône-Alpes Region, this transfer involved 275 high schools.

Rhône-Alpes Region, having had an active regional policy of energy management for several years, quickly brought particular attention to the reduction of energy spending in the high schools. This decision was further justified by the fact that energy spending took a large slice of the high school operating budget. For all Rhone-Alpes high schools, the

operating budget was around FF 200 million (€ 30 million), of which 75 % was for heating costs.

3 Aims and ambitions with the energy service project

Rhône-Alpes Region decided to pursue a vigorous policy of investment in energy saving, with the following objectives:

- to set up sufficient material conditions necessary for the high schools to fulfil their education service (adequate lighting and heating, adequate level of comfort).
- service provided at the lowest cost.

The budgetary restrictions under which Rhône-Alpes Region must work led it to seek a method of financing adapted to the nature of the work involved. The Regional Council looked for a solution that could respond to the following objectives:

- with regard to the fact that the work undertaken would lead to long-term operating savings, part of this saving should be used to pay back the financing set up for the programme,
- taking into account the geographic dispersion of the operations to be undertaken, the Region wanted the work realisation studies to be carried out by local partners, close to the establishments,
- as high school managers are responsible for the operating budgets and management of installations, it was clear that the financing solution selected should not interfere with the establishment's competence,
- finally, the Region preferred a solution that offered the work with guaranteed results.

4 The customer's internal preparation prior to the project

In 1983, Rhône-Alpes Region and the French Energy Management Agency decided to pool their means and co-ordinate their interventions. A programme was set up to provide aid for local authorities to launch energy diagnosis plans and set up energy saving actions. Politicians and civil servants were fully aware of the necessity of energy saving. It was a natural step, after the transfer of competence in 1986, for the Region to accept the proposition of Rhônalénergie, the regional energy agency, to set up a programme of energy diagnosis and rehabilitation in the high school buildings. Since politicians and policy makers were already aware of the necessity of an energy saving program, no special information process was needed. The high school head and bursar who are responsible for operation and maintenance of the installation were involved from the very beginning.

The financial executives were positive to the project, but due to lack of experiences, they experienced some difficulties regarding accounting and contractual issues. Legal experts were consulted. The internal preparation took only one year.

In order to implement a policy of investment in energy saving, the Region started by making an inventory of the existing situation, then carried out an energy saving diagnosis campaign covering all the buildings. From 1986, the Region asked Rhônalénergie to carry out a systematic analysis of all its buildings, to seek possible and profitable energy saving measures. Specifications concerning diagnostics were drawn up by Rhônalénergie, and, after consultation with over a hundred design offices, four of them were selected to carry out the studies.

For each high school, the mission of the designated design office was to seek out and propose:

- Profitable energy saving investments (return period criteria: 5 years)
- Less profitable energy saving investments, which could prove to be justified, either because of the degraded condition of the equipment or to re-establish a satisfactory level of thermal comfort,
- The investments necessary in metering energy, with the perspective of monitoring energy expenditure.

It was not necessary to ask data from energy companies. Energy bills in each high school were used.

This work enabled the Region to have a proposed coherent programme of energy saving measures, featuring the cost and profitability of each proposed measure.

The building stock consisted of 275 high schools spread over 235 sites, representing a global surface area of 3.5 million square metres. Most of the high schools (60%) were built between 1950 and 1975. In addition the age of the installed thermal equipment in the high schools was relatively high: average age of 14 years.

In 1985, global energy expenditure was FF 150 million (€ 22.9 million), including 40 % for domestic heating oil, 27 % for electricity, 20 % for natural gas, 9 % for urban heating and 4 % for LPG and coal.

Average heating expenditure worked out at FF 38 /m² (€ 5.8 /m²), but this value covered a very uneven situation as, from one high school to another, heating costs ranged from FF17 to 70 /m² (€ 2.6 to 10.7 /m²)

The results of the diagnosis were presented in each establishment, during a meeting bringing together:

- The high school head and bursar,
- The regional council administrator in the establishment,
- The mandated entity (SINERG),
- A representative from the education authority (rectorat),
- The design office,
- Rhônealénergie.

5 The purchasing and contractual process

Different financing solutions were analysed.

Opting for a leasing arrangement would enable the council to finance the operations at 100 % without putting the local authority in debt, with the rent being compensated by the financial savings realised. Financial executives objected to this format, mainly because of the risks of budget over-runs.

A second possibility was to have the work carried out by companies operating in heating supply who find, in the framework of PI service (fuel supply and operation of installations) or P3 (total equipment guarantee), the means to ensure both their remuneration and depreciation of investments made. As this solution was not in line with the Public

Procurement Code and, in most cases, the high schools only had a P2 contract (maintenance and minor repairs of installations), this solution was discarded.

Taking into account the objectives set by the Region (Repayment of financing through savings in operation and works, with guaranteed result), it was the solution of third-party investment that was chosen.

This third-party investment format was far from widespread in France. It was proposed only by SINERG, a subsidiary of the Caisse des Dépôts et Consignations, specialised in financing programmes linked with energy saving created in 1983.

The principal difficulty lay in meeting the Public Procurement Code. A consultation process with legal experts was launched. It was also important to respect the respective responsibilities of the Region and the Head of Establishment. The Region covers spending relating to the major maintenance of the buildings, while the Establishment is in charge of operating the installations. The Region participates in operating expenses via a subsidy. The solution was to set two agreements one between the Region and SINERG and one between each Establishment, the Region, and SINERG.

In parallel a negotiation process started between SINERG, the Rhône-Alpes Region and the Establishment to fix the work to be done, the contractual level of savings and the contract duration.

The key success factors in the negotiation process were the clear will find a win-win project. Third party financing was not really widespread at this time. SINERG really wanted to set this operation as an example.

6 The content of the contract

A first phase covering 48 high schools started in 1987, after the Regional Council's May 14th 1987 decision to award the energy rehabilitation programme to SINERG. This represented investments of around FF 50 million (including tax) or € 7.6 million. Before works, the consumption of the schools concerned was FF 21.4 million (€ 3.3 million), for 8,700 tep. The forecast saving was FF 5.8 million (€ 0.88 million), or around 27 %.

Other phases were launched in 1988, 1989 and 1990. The total investment was FF 185 million (€ 28.2 million), including FF 124 million (€ 18.9 million) provided by SINERG, covering 190 high schools. Before the works, consumption was FF 72.8 million (€ 11.1 million), for 21,450 tep. The global forecast and guaranteed saving was FF 17.3 million (€ 2.6 million), or 23.7 %.

The works included in the programme were of different types and concerned:

- buildings (25 % of investment, mostly covered by the Region, taking into account return period): insulation, roofs in particular,
- heating installations (52 % of investment): changing boilers and burners with eventual fuel type changes (wood energy in certain cases), gas condensation, thermostatic valves and taps, balance and lagging of circuits,
- regulation (18 % of investment): programmers, regulators, optimisers, programmable automation, centralised technical management,
- electrical installations (5 % of investment): replacement of incandescent lighting, by fluorescent lighting in particular

Rhône-Alpes Region and SINERG signed an agreement concerning the guarantee of works destined for energy saving. This agreement included specific missions coming

under the SINERG remit: carrying out detailed studies and carrying out the works involving energy saving, the methods of financing the programme and the guarantee of results. This agreement was in an annexe to a particular tri-partite agreement (Region, SINERG, Establishment) per establishment, indicating the nature of the work to be carried out and the list of equipment to be installed, as well as:

- The cost of the operation for the establishment concerned,
- The reference consumption for the establishment (set after an agreement between SINERG, the Region and the Establishment manager),
- The amount of the energy and financial savings expected as a result of the programme of works,
- The provisional schedule for carrying out the programme of works,
- The methods of monitoring savings,
- The establishment's obligations in terms of operating and maintaining the planned installations. In this framework, the operating contracts have been upgraded to ensure a high level of quality.

The main characteristics of the financing package are as follows:

- SINERG covers financing of all of the work with a maximum return period of 5 years,
- A consumption reference, before the work programme, has been defined for each high school. The reference is jointly agreed by the Region, SINERG and the School.
- SINERG also carries out the programme of works decided by the Region and the high school, by handling the realisation studies, organising consultation with companies, placing work orders, ensuring payment and reception (SINERG is the Region's mandated agent),
- At completion of the works, SINERG hands the work over to the Region, which becomes the owner,
- The Region makes repayments to SINERG. The repayments represent 85 % of the financial savings recorded,
- SINERG provides the guarantee of results with a limited repayment period. Repayment ceases as soon as the invested capital, including financial costs, is refunded. If the results have not been achieved, by the end of 15 years, the remaining sum to be refunded becomes the responsibility of SINERG.

Energy bills are always paid by the High School, through the Region's operating subsidy. The 15 % of savings achieved (remaining after refunding SINERG) is left for the benefit of the Establishments, helping to increase their autonomy by associating them with the regional effort to manage energy.

7 Results

In 1991, energy savings came to 4,920 tep. FF 22 million incl. tax (€ 3.35 million) were also saved through energy saving and fuel substitution..

Forecast global savings were 18.5 % in quantity and 24.5 % in cash. The savings achieved were 15.4 % in quantity and 23.4 % in cash.

So, globally, the objectives were attained.

This renovation operation also received accompaniment actions in the field of systems management and training for users..

Annual energy consumption monitoring software (GELYCO) was developed for the region. ECO software, enabling daily and weekly consumption monitoring of the high school was made available to the establishment managers.

On the technical front, BTM systems (computerised Building Technical Management systems) were installed in 20 % of the establishments. This part of the process of modernising and improving the performance of technical systems.

In the same vein, emphasis was placed on the maintenance of installations. Contracts were reviewed and often re-specified and reinforced.

Specific training modules were developed for the managers and staff of the high schools. Based on a voluntary basis, there has been strong participation by the high schools, as, in five years, 70 % of the high schools have been involved.

The results are very positive, as all of the objectives have been attained:

- Financing by energy savings,
- Support for local activity through studies, the works, energy supply (wood industry) and maintenance.

8 Gained experiences and lessons learned

The principal interest of this action lies in its global approach:

- knowledge of existing property characteristics through in-depth studies,
- diagnostics,
- works
- improved management and management training.

The success of an approach like this is the result of:

- the great determination of elected representatives, who unanimously voted to set up an energy saving plan,
- the determination of the Caisse des Dépôts et Consignations, through its company SINERG, and the work with public authority specialists to develop innovative means of financing,
- accompanying by Rhônalpénergie, the regional energy agency.

The global energy saving objectives were attained, however, it should be pointed out that there were wide disparities from the average at either end of the scale.

9 What problems and applied solutions could be used at the EU-level

The third-party financing system has been in use since the 1980's and early 1990's. However, difficulties arising from conflict with the Public Procurement Code have led to a decline in the use of this procedure. In addition, as the Public Procurement Code has changed, use of this solution is quite difficult for local authorities.

10 Contact information

Under this headline you give contact information to well initiated representatives of the customer and the service provider:

Customer contact:

- Rhônealénergie Environnement (for the Rhône-Alpes Région)

10 rue des Archers

69002 Lyon

+ 33 (0)4 78 37 29 14

raee@raee.org

Service provider contact:

- Fabrice BOUZEREAU

- Project Director

- ADELIS

74 Rue Maurice Flandin

69 003 LYON

+ 33 (0)4 72 13 03 23

fabrice.bouzereau@adelis.fr

- Eric CORNIER

- Operation manager

- EOC France SINERG

74 Rue Maurice Flandin

69 003 LYON

+33 (0)4 72 13 03 23

ecornier@eoc-france.fr