

OSLO, NORWAY

### Procurement objectives

The City of Oslo sought to equip all schools in the area with renewable energy based heating systems.

An improvement in existing technical and operational performance was also a major requirement of the procurement, along with improved environmental performance and value for money.

A partnership was established between the Confederation of Norwegian Business, the National Program for Supplier Development and Oslo Renewable Energy & Environment Cluster, in order to find a more innovative and effective approach to purchasing renewable heating systems.

A 4-stage procedure was chosen; consultation and dialogue with the market, a pre-commercial contest for innovative solutions, a development phase, and the final tenders, where solutions from the 3 earlier steps were purchased.

### Criteria used

The aim of the procurement procedure was to replace existing fossil fuel furnaces in schools with reliable and renewable heating systems. Environmental considerations were central to each stage of the process.

#### Technical Specifications:

- No fossil fuels should be used as an energy source.
- Electric space heating should not be used.

#### Award criteria:

The early stage pre-commercial contest for new and innovative solutions included the following criteria:

- Competitiveness from a life cycle perspective.
  - Investment costs.
  - Cost of management, operation and maintenance.
  - Lifespan.
- Reliability of the system.
- Degree of innovation.
- Positive gains for the environment.
- Ease of implementation.
- Replication potential in schools and other buildings.

### Background

The City of Oslo minimises greenhouse gas (GHG) emissions through a number of mechanisms including intelligent street lighting, electric rail transport systems and the extensive use of hydroelectric power.

The overall objective of this procurement procedure was to reduce the environmental impact of Oslo's heating systems, especially in regards to CO<sub>2</sub> emissions.

In January 2008 Oslo City Council decided that use of fossil fuels for heating purposes was to be phased out in all public buildings, including schools, by the end of 2011. This was one of 10 environmental targets set by the City Council.

Earlier attempts to phase out fossil fuels had proven less successful, with substantial operational difficulties, high running costs and poor performance of ground heat pump systems.



## Results

Before the procurement procedure started, 52 out of 177 schools in Oslo used fossil fuels as the base load for heating. The City Council successfully met the aim of phasing out these 52 non-renewable systems before the end of 2011.

12 proposals were put forward as part of the competition and 4 were awarded. Several of these proposals were made by consortia as opposed to individual organisations. Ideas from the competition and outputs from the subsequent development projects were implemented in many heating systems during 2010 and 2011. Some of the technologies include ground solar heat collectors, ground heat pumps and air-to-liquid heat pumps. Also bio-oil, bio-gas, solid biofuel, and various combinations of these are now used instead of fossil fuels in Oslo's schools.

There were between 3 and 7 bids for each separate tender. The total cost of the replacement of all 52 heating systems was equivalent to approximately €11.2 million.

Improved competence within the region's renewable heating industry was achieved as a consequence of this series of procurement procedures, as were the skills and knowledge of the Municipality. Schools are now being extended and built at an unprecedented rate due to a rapidly expanding population in Oslo. Construction planned to take place in 2013 will cost over €400 million in total and the need for renewable heating must be addressed in all of these buildings. The heating systems developed during this procurement process are being considered along with other systems and the final decisions will be made on a case by case basis.

## Environmental impacts

Burning fossil fuels generates GHG emissions and has negative effects on human health, biodiversity and water quality. Replacing fossil fuel furnaces in schools with renewable heating systems mitigates the negative environmental effects of fossil fuel extraction and combustion. An annual reduction of approximately 3,000 tonnes CO<sub>2</sub> has been achieved as a result of this project. Air pollution from other emissions including carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), sulphur oxides and dust have also been reduced.

## Lessons learned

Throughout the procurement process, the City of Oslo successfully involved all relevant groups of academic, professional and commercial stakeholders, as well as Council leaders and maintenance technicians at the schools. A sufficient amount of time was allocated for this consultation, which allowed detailed and fruitful dialogue, and helped to ensure an open and comprehensive procurement process. Approval from Council Leaders at the highest level was important for changing current practice within the organisation.

The City Council gained access to technical solutions unlikely to have arisen from an ordinary purchasing process with no pre-commercial activities. Early dialogue was crucial to creating these new, innovative ideas, as was the use of competitions. Workshops organised by the industry itself made way for new and productive cooperation between suppliers.

The main challenge successfully overcome by Oslo was to maintain and implement the experience and knowledge gained through market dialogue, the competition stage and the project development phase, in a way that did not exclude competition and respected the principle of non-discrimination.