

## Reducing emissions produced through construction

Municipal Undertaking for Social Service buildings (Omsorgsbygg) (Norway)

### Background

Oslo is the capital and the most populous city in Norway, and is both a county and a municipality. The City of Oslo has a population of nearly 650,000 inhabitants. As a member of the [UN Global Compact](#), a voluntary initiative based on universal sustainability principles, the City of Oslo is committed to the Ten Principles concerning human rights, labour, environment and anti-corruption. The City of Oslo's current Public Procurement Strategy highlights responsible and innovative procurements and supplier follow-up as particular challenges for the period of 2013-2016, and aims that its procurement "... be innovative, cost-efficient, and contribute to building confidence in the City of Oslo as a public buyer."

[Omsorgsbygg](#) is a public building owner in Oslo and aims to be a frontrunner in developing green energy efficient buildings. It owns about 900,000 m<sup>2</sup> of buildings in Oslo. Oslo is one of the fastest growing capitals in Europe and the city has a goal of reducing climate gas emissions by 95% by 2030, and of reducing the use of fossil fuel to zero by that same year.



### Procurement objectives

In February 2016, Omsorgsbygg kicked-off a dialogue with the market to obtain feedback on the type of solutions that could be required in order to reduce emissions from construction sites in the city of Oslo. In June 2016, Omsorgsbygg published tender documents for the construction of four new kindergartens, requiring contractors to operate construction sites 100% free of fossil fuel emissions, through, for example, the use of electrical construction machinery. The deadline for submitting offers was September (2016) with construction work due to be carried out in 2017.

The responses received from potential suppliers and contractors was so positive that the City Government decided to make fossil free construction sites a minimum requirement in all of Oslo's public procurement actions from 2017 onwards.

### Approach taken

#### Analysing the challenges and the market

Today, construction machinery accounts for 24% of Oslo's traffic emissions. In addition, heating (or drying) and traffic to and from the construction sites, are contributing both to local emissions as well as climate gas emissions. Analysing local emissions from construction sites in Oslo led to the realisation that:

- 1) Public procurement procedures launched today do not demand the use of state-of-the-art solutions which reduce (diesel) emissions generated at construction sites. In fact, tackling emissions produced at construction sites is not an issue that is systematically addressed in public procurement procedures. Price is usually the only competitive factor when it comes to choosing solutions and machinery for construction works.
- 2) In order to have emission free construction sites, new solutions needs to be developed.

Omsorgsbygg is looking into how it can help secure more electricity powered construction machinery and in 2015 began testing out producing local renewable energy for use on construction sites through on-site photovoltaic (PV) panels, and through the use of prototypes of electric battery operated construction machinery. In this test case, the PV

panels were used to power the building under construction. However, in the not too distant future, Omsorgsbygg will aim to set the PV panels up on-site early on so that they can be used during the building construction phase also, thus as a source for powering machinery.

#### Teaming up with an NGO

In order to gain a better understanding of the challenges and the possible solutions available, Omsorgsbygg signed a cooperation agreement with the [Bellona Foundation](#). Bellona is an independent non-profit organisation that aims to meet and fight the challenges of climate change, through identifying and implementing sustainable environmental solutions.

Upon further analysis of construction sites, in general, Omsorgsbygg decided to focus on three elements - the main causes of emissions from construction sites: 1) emissions from heating and drying construction sites, 2) emissions from construction machinery, and 3) emissions from transport to and from the sites.

#### Dialogue with market participants

In March 2016, Omsorgsbygg and Bellona organised a dialogue conference inviting market participants. See the [Prior Information Notice \(PIN\) published in Tenders Electronic Daily in February 2016](#) for more information.

The event was organised in cooperation with the (Norwegian) [National Programme for Supplier Development](#). The Programme is a driver and facilitator for strengthening the ability of the national and local governments in Norway to implement innovative public procurement. The main goal of Omsorgsbygg's conference was to obtain feedback on the kind of solutions the market could deliver today to prevent future emissions, and to find out more about the solutions that could be developed in the near future in order to eliminate emissions from construction sites altogether.

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#### Procurement phase

Omsorgsbygg used the results from the dialogue conference in four procurement actions, each involving the construction of a new kindergarten. A summary of the green criteria included into the Call for Tenders ('open' procedure) for the project (demolition and construction phases) are as follows:

**Subject matter:** Amongst other things, the subject matter included the following: Omsorgsbygg has high environmental ambitions for its projects. The new kindergartens shall be [BREEAM](#) certified and shall fulfil the Plus House requirements. Selection criteria (technical):

i) Requirement: The tenderer shall have a well-functioning quality assurance system that is relevant for the execution of this assignment.

Verification: Certificate from for example [ISO 9001](#). Instead of certificates, other equivalent documentation on quality assurance measures may be accepted. Information regarding the name of the system and a detailed table of contents, as well as an explanation of how the system is used in practice must be provided.

ii) Requirement: The tenderer shall have good experience from equivalent assignments. Equivalent assignments means:

- Construction projects as the turnkey contractor with contract work of minimum 50,000,000 NOK (approximately 5.5 million euro).
- Construction projects for kindergartens, or equivalent.
- Construction and/or erection of buildings that meet the Passive House or Plus House requirements.
- BREEAM certification of buildings.
- Experience with partnering contracts.

Verification: An overview of the most important deliveries in the last five years, stating the value, type of contract, as well as time and place the work was performed, and an indication about whether the works were professionally and properly completed. Experience with BREEAM certification and/or with Passive/Plus House could be documented in another way, if deemed necessary.

#### **Technical specifications:**

Omsorgsbygg wanted to see which of the options for reducing emissions of CO<sub>2</sub> at construction sites were generally available. Tenderers were requested to provide options where all diesel driven machinery and equipment (e.g. mini-excavators/drills and excavators) connected to the construction site operated using renewable electricity, if this was available. Everything from compressors, building dehumidifiers/heaters to lorries could be included in the offer.

**Award criteria:** The award criteria was weighed on the following basis: Price (40% weighting), and quality offered according to the specified requirements (60% weighting).

#### Results of the procurement

Several bids were received for each of the four procurement actions, and all four contracts were awarded in November (2016). The experience from the process undertaken suggests that the contractors did not find any barriers in terms of delivering fossil free construction sites. Omsorgsbygg also did not receive any questions during the procurement phase.

The share of machinery running on electricity for the construction of the four kindergartens will be known once the construction phases begin in February 2017. From then on, the monitoring phase will begin to properly assess the effectiveness of the procurement in terms of reducing emissions. It is expected, however, that some of the machines will be running on electricity. As part of the monitoring phase, Omsorgsbygg have contracted a company to assess the air quality at and around the construction sites (for people living and working closely to them).

Due to the positive experience with using public procurement strategically to reduce emissions from construction sites, Oslo's City Council has decided to include fossil free construction sites as minimum criteria in all of its public procurement procedures from 2017.

In October 2016, [Omsorgsbygg was awarded with the Innovation in Public Procurement award](#) by Norway's Agency for Public Management and e-Government (DIFI) for this particular work and the swift implementation of measures. In addition, the project was voted second best in the [category Best Local Climate Action 2016 at the Zero conference](#).

#### Next steps

Omsorgsbygg aims to cut all future diesel emissions from its construction sites. Banning fossil fuels from Oslo's construction sites will make a sizeable contribution in the reduction of greenhouse gases and local emissions from construction actions.

At the end of 2016, Omsorgsbygg launched a new public procurement procedure for the demolition and reestablishment of a 14,000 m<sup>2</sup> nursing home. This will be a pilot project where Omsorgsbygg will invite potential partners, as part

of a market dialogue process, to develop new machinery and solutions to further minimise emissions produced at construction sites. The main idea with this purchase is to push the market even further and have as many electricity using machines operating on the construction site as possible. However, some scope will be given in the tender documents to have some conventional machines operating as the market does not offer electricity operated machinery for all

## Lessons learned

One of Omsorgsbygg's most important and motivating lessons learned through these experiences is that public procurement can be used to challenge and change the market and that changes can happen very quickly. Since Omsorgsbygg started addressing these issues, new machinery running on electricity has become available on the market, and new orders have been placed.

The pre-procurement dialogue with the market is crucial for setting the right requirements into a public procurement process. One of the factors which contributed to the success of this particular project for the kindergartens was that sufficient time was set aside for the market dialogue process to be carried out effectively. The knowledge and information gained through the process was used in the public tendering/procurement procedure. The approach followed will not be a one-off, with the aim being to use the approach to develop specifications and requirements that can be used for all future construction projects.

One of the challenges was obtaining the assurance that potential contractors, particularly those bidding, have enough knowledge of the solutions available and of the companies providing them. The market dialogue approach also focused on enabling contact between the (potential) contractors and the suppliers of construction machinery and equipment.

Contact person: Lene Lad Johansen, Omsorgsbygg, Email: [lj@oby.oslo.kommune.no](mailto:lj@oby.oslo.kommune.no)

For related information, please see [European GPP criteria](#) for 'Office Building Design, Construction and Management', and 'Road Design, Construction and Maintenance', including the Technical Background Reports and Procurement Practice Guidance documents.