

Procuring Zero-Emission Construction Sites

Cities' current and future procurement plans

- Big Buyers Initiative Working Group -

Activities on construction sites are directly responsible for 5.5% of worldwide CO₂ emissions, predominantly through the combustion of fossil fuels to power machinery and equipment.¹ Across Europe, the construction sector is one of the last standing industries in urban centres today, contributing to local air pollution and the global carbon footprint. These emissions must be addressed in order to meet cities' overarching carbon emission reduction targets. Cities, which largely concentrate the negative externalities caused by construction works (air quality, noise, congestion, etc.), can be frontrunners in the promotion of cleaner construction machinery, with which they can also achieve improved quality of life for citizens.

The transition from traditional construction machinery to fossil-free or zero-emission solutions requires a collaborative approach between construction clients, contractors, and machine manufacturers, among others. In order to accelerate market innovation in this sector, the cities within the **Big Buyers Initiative working group on Zero-Emission Construction Sites** are committed to act using the levers available to them to promote low-/ zero-emission solutions for building and infrastructure works in order to ultimately reduce the carbon footprint of construction.

Fossil-free & zero-emission construction sites in European cities

A number of European cities have implemented pilot projects using fossil-free and zero-emission construction machinery, and have ambitious plans for rolling this out further in the coming years.

These plans are a key component in the cities' goals to drastically reduce carbon emissions.

Definitions

'**Fossil-free**' means no fossil fuels. Solutions such as biofuel are accepted.

'**Zero-emission**' means no fuel-burning motor, and no carbon or other (e.g. NO_x, SO_x, PM) emissions. Electric models should be powered by electricity from renewable sources. Includes electric (battery or cable-charging) or hydrogen solutions.

¹ <https://www.sciencedirect.com/science/article/abs/pii/S1364032117309413>

Oslo

The City of Oslo has a commitment to have all public construction sites zero-emission by 2025; by 2030, all construction sites in the city should be zero-emission. Fossil-free has been a minimum requirement for public construction procurements since 2017. Overall, the city has a target of reducing CO₂ emissions by 95% by 2030, compared to 2009.

An ongoing pilot project at Olav Vs Street, outside the City Hall, is using fully electric construction machinery. Several other public construction projects are under development, which will include zero-emission construction machinery, for example a kindergarten, a youth centre and a nursing home, a sports facility, a public bath and several housing and infrastructure projects. This is a result of the introduction of new standard [climate and environmental requirements for the City of Oslo's construction sites](#), where construction companies compete for public projects based on environmental performance (zero-emission construction).

Copenhagen

All public construction sites in the City of Copenhagen must be carbon neutral by 2030 (not politically decided but spoken out by the Lord Mayor of Copenhagen and suggested in the C40 Clean Construction Declaration). The city's own substantial fleet of non-road mobile machinery (NRMM) must be fossil-free by 2025.

Work has begun on a series of civil works and construction projects in the city, where all machines up to 2.5t must be electric, and machines above that size should preferably be either electric or biofuel. A series of further projects are planned for next year using a similar approach regarding procurement demand but with different methods.

Helsinki

Helsinki strives to become carbon neutral by 2035. In line with the Finnish green deal, all public construction sites should be 100 % fossil-free by 2025: this includes machinery and heavy vehicles on-site and 20% of machinery and heavy vehicles emission-free (electricity, hydrogen, biogas). By the end of 2030 all sites should be fossil free, including machinery and heavy vehicles to + from site and 50% of machinery and heavy vehicles emission-free.

In addition, the city made the decision that all the new infrastructure sites / roadworks will be fossil-free and low-emission (machinery stage IV, heavy transport on site euro 5, small machines ≤4kW electric). The value for these contracts is approximately 143 million € for 2021.

Four pilot fossil-free public works projects are ongoing in the city – with a requirement for all small machines (≤4kW) to be electric, and larger machines required to be HVO-diesel, and stage IV emission standard. Vehicles transporting to the sites must also meet Euro 5. In one of these projects, emission-free solutions are being tested with 4 electric machines working on site. Further pilots are expected in 2021, with the aim of extending the pilots to housing construction works.

Trondheim

With the overall target of reducing CO₂ emissions by 80% by 2030, the City of Trondheim aims to have zero-emission public construction sites by 2025, and for all sites in the city by 2030.

A series of pilot projects are underway or planned, including a pedestrian and bike bridge. The municipality has started a fossil-free rehabilitation of a bike/ pedestrian bridge, with an estimated total cost of €10m. This pilot used a minimum requirement of emission-free for small NRMM, and an award criterion for the ratio of fossil- or emission-free large machines. Environmental aspects were weighted at 10%. Trondheim has plans for two more pilots in the next three years, including the rehabilitation of an urban park in the city centre. This project aims to be the city's first emission-free project within the construction fence, while transport to/ from the site will be fossil-free.

Budapest

The City of Budapest has already set its climate related objectives in the Climate Strategy but it is also developing a plan for achieving carbon neutrality, and having declared a Climate Emergency in 2019. Zero-emission construction machinery has yet to break through to the Hungarian market, but the city administration is now holding market dialogue sessions with suppliers in advance of establishing a series of pilot zero-emission construction projects mainly by the public utility companies of Budapest (e.g. water works, road operator, transport etc.). Budapest has allocated around €572 000 in its budget for 2021 for pilot interventions, including zero-emission construction sites.

Amsterdam

The City of Amsterdam aims to meet the World Health Organization's air quality guidelines from 2030, and will therefore prioritise local emissions reduction, including those from construction sites.

The essence of Amsterdam's Clean Air Policy can be summed up in four points:

- Start at the source: preventing harmful emissions is better and ultimately cheaper than trying to combat them;
- Tackle what is achievable: prevent emissions from traffic, woodburning stoves and mobile equipment such as generators and construction vehicles;
- Deal with the most heavily polluted places first: the city centre has the most air quality blackspots and is the busiest part of the city;
- From corporate to private: business traffic drives the most kilometres and has more possibilities to clean up quicker than residents.

We welcome other procurers to join the movement!

To move beyond pilot projects, urban stakeholders, with local authorities at the helm, will have to continue and intensify current efforts to accelerate the low-carbon construction agenda. This commitment must be accompanied by the decarbonisation of electricity production, without which the benefits of electric over bio- or traditional fuels will inevitably remain limited.

The Big Buyers Initiative

This statement has been prepared by the cities participating in the [Big Buyers Initiative](#). The Big Buyers Initiative is a European Commission platform for promoting collaboration between big public buyers in implementing strategic public procurement. By working together cities and other public buyers can maximise their market power and impact, promoting the creation of new solutions more targeted to their needs.

The Zero-Emission Construction Sites working group has also published Factsheets for policymakers, businesses and citizens, as well as a Lessons Learned Report which can be found on the [website](#).

[ICLEI Europe](#) and [EUROCITIES](#) are currently running the initiative on behalf of the [European Commission, DG Internal Market, Industry Entrepreneurship and SMEs \(DG GROW\)](#).

Contact: Kaitlyn Dietz, ICLEI Europe - Kaitlyn.Dietz@iclei.org