

Master Class and Market Dialogue for Clean and Healthy Construction

Thank you for participating in the Clean Construction Event held 9 October under the "Live Like Tomorrow" programme and the C40 World Mayors Summit in Copenhagen, and organised under the European Commission [Big Buyers Initiative](#). Your contributions made for a very successful international city industry dialogue on clean construction and we will build on it to continue working with you all to facilitate more dialogue in the value chain for delivering clean construction.

Why clean construction?

Kevin Austin, Executive Director at C40 opened the event presenting the hard facts on why clean construction needs to be on everyone's agenda:

Roughly 60% of buildings that will exist in 2050 are yet to be built. This means constructing a city the size of Copenhagen (1.5 million people) per week until 2050.
Kevin Austin, C40

This projected increase in construction worldwide is a serious climate challenge. Some of the most effective ways to lower the embodied carbon of buildings and the emissions on construction sites has been explored in the recent C40 report, [Buildings and Infrastructure Consumption Emissions In Focus](#), which presents a holistic approach to be effective and take a full lifecycle approach to grasp both the embodied carbon and the operational carbon from buildings. *"It's action that is key. We need to do more, and we need to be able to share our successes and also failures, so others won't repeat our mistakes and we need to push each other to deliver the ambitious actions required."* **Kevin Austin.**

Marzena Rogalaska, Director of the European Commission DG Grow, emphasised that *'public procurement can play a strong role in clean construction.'* She went on to call for cities to recognise that they *'are leaders of this movement, and Mayors and Ministers need to acknowledge their exemplary role in pushing the market.'*

What have we learned so far?

Cities have purchasing power over municipal assets. More cities are realizing the potential in green public procurement (GPP), but not fully utilizing it due to lack of resources, knowledge and training, budget restrictions, questions around market readiness and lack of supporting policies and standards.

The cities and private sector representatives at the event have discussed the learnings and possibilities in driving progress through procurement reflecting on their experiences, on two specific topics: materials and fossil-fuel and emission free construction machinery. What can we learn from the current frontrunners on setting demands for clean construction? Do we need to wait for the market to be fully ready with solutions to set demands, do we wait for policies to be fully developed, do we wait for budget increases? Can we afford to wait?

Oslo is a leading city on this topic and have launched a new procurement policy to help get all construction work to zero emission by 2030. **Heidi Sørensen, Director of Oslo Climate Agency**, explained that an early engagement with the industry and innovative procurement initiatives are key to success, and that it proved "*not to be too difficult*" to achieve. The city has initiated the first zero emission construction site, a pilot project right outside the Oslo Climate Agency.

The City of Copenhagen, host of the C40 World Mayors Summit, have also laid out ambitious plans to reduce carbon emissions. **Jørgen Abildgaard, Executive Climate Program Director City of Copenhagen**, explained how the City of Copenhagen's ambition is to become the world's first carbon neutral capital by 2025, where construction has one of the highest potentials for carbon savings. Moreover, Copenhagen is joining forces with Oslo and Stockholm on procuring for low-emission construction to uncover the benefits of scaling demand and sending a clear signal to the market. The three Nordic cities have initiated a [joint statement](#), and have also collaborated on a cross national [tender for non-road mobile machinery](#).

The cross-national tender was presented in more detail by **Maria Matzen, Legal Advisor Bird and Bird**, and from **City of Copenhagen Sara Lerche-Bachdal, Supply Consultant Material Development** and **Peter Gundelach, Chief of Materiel**, who emphasized the importance of procurement alliances to increase the volumes and harmonize requirements between public buyers. The project also provided valuable learnings on joint Green Public Procurement (GPP), how to develop a simple and easily scalable procurement strategy while balancing different regional requirements. In this context, **Jørgen** put emphasis on the challenge the project faced due to differences in procurement practises, which can limit cross national collaboration on joint tenders, even though "*EU practices makes things easier*". Nevertheless, setting joint demands between cities where targets align poses an opportunity to scale learning, scale experiments and scale solutions faster.

Hélène Chartier, Head of Zero Carbon Development C40, emphasized the need for more larger scale experiments and pilots, and shared experiences from the global competition for innovative carbon-free and resilient urban projects "[Reinventing Cities](#)", where projects do not go to the highest bidder, but instead to the highest quality projects. 14 cities joined the competition and committed to this evaluation process, opening the pathway for other projects. Cities need to switch from selling land to the highest bidder to selling to the best projects and **Marion Waller**, Office of the Deputy Mayor of Paris, stressed that "*Financial criteria cannot be the first point*". Cities like Paris

are in a position to set higher standards as land value is high and rewarding beyond cost criteria sends a clear message to the market on what the city wants.

The same principles can be used in GPP, and rewarding contracts based on environmental criteria is something Oslo is increasingly practising as part of their procurement strategy. When it comes to costs, **Romeo Apetrei-Thomassen, Quality, Environmental and Discipline Manager at Omsorgsbygg Oslo**, puts it simply: *"When procuring for lowering emissions, it is necessary to rethink the slightly higher costs as more responsible use of municipal funding and not just go for the lowest price"*. Oslo have initiated procurement pilots, where lower emissions for non-road mobile machinery and materials are weighted in tenders. In one specific pilot on the construction of a kindergarten, Oslo managed to achieve a 50% emissions reduction from materials. Representing one of the leading sustainability developers, **Anna Denell, head of sustainability at Vasakronan**, similarly highlighted that when they set more stringent asks for materials, only 1 out of 12 construction companies chose not to bid on the project. However, when it comes to reusing materials, there are issues regarding quality assurance and ownership, as construction companies will not guarantee the quality if materials are reused today. This is an issue that needs to be addressed. Still, Vasakronan aim to become carbon neutral by 2030.

On construction materials, **Andrew Waugh, founder and director at Waugh Thistleton Architects**, advocated for timber as a key solution to reduce carbon now. He presented the economic benefits, with quicker construction pace allowing buildings to go to market quicker. One timber storey takes a week to build compared to the 4 weeks needed for a concrete one, a process further supported by the use of prefabrication. There are also health benefits. Timber is lighter, which means fewer deliveries at construction sites and less heavy engines, thus less air and noise pollution. Moreover, **Andrew** presented views on regulation and standards in the sector in general, an issue that other panellists highlighted. He urges architects to go beyond current regulations, arguing that architects have the power to guide their clients in this direction. Such an approach needs to be applied to the whole value chain. *"We cannot wait for policies and standards to be in place before acting, we can simply not afford to wait"*, which resonated well with the room. **Didier Bosman, Senior Architect, European Investment Bank (EIB)**, brought further perspectives on this, stating that in situations where there is still a lack of regulation, the market plays a key role in lowering emissions and initiating innovation projects. **Didier** sees an increase in such projects, and although he recognizes the need for financing experiments, there are many financing opportunities for supporting projects with emission reduction targets. EIB is financing 50% of projects meeting minimum targets and up to 70% if the targets are ambitious.

Are visions, learnings and targets for Clean Construction translating into market opportunities?

The city industry market dialogue provided more insights into how cities and companies are translating clean construction targets and experiments into market opportunities. **The Mayor for Technical and Environmental Administration Copenhagen, Ninna Hedeager Olsen**, opened the discussions by announcing the political and budget support to push demand for zero emission construction sites in the city. *"We want to stimulate development, and we will do it by firstly converting our own machinery to greener fuels and emission free where it is possible. Secondly, by applying emission conditions in our public procurement projects, a number of pilot projects and in civil works projects".* To achieve these milestones, **Ninna** emphasized the importance of collaboration with the private sector on driving development in the sector:

"We need you help to get there. What are reasonable and achievable demands? How do we help an emerging market? How do we help you to help us in achieving a more sustainable construction sector?" Ninna Hedeager Olsen, Mayor for Technical and Environmental Administration in Copenhagen.

These are indeed important questions in order to strike the right balance between ambition and realism. Throughout the last three years, the city of Oslo has been in regular dialogue with the market in order to shape their procurement strategy and criteria. As a result, **Espen Nicolaysen, Head of the sustainability, procurement department City of Oslo**, announced that Oslo City Council has **by October 9 2019** agreed to change the [award criteria to municipal projects](#), applying 30% weighing in environmental criteria, 50% of which is zero emission NRMM.

The collaborative approach resonated well with **Francien Bouwmeister, Consultant purchasing, City of Amsterdam**, who explained how the Amsterdam is taking a more strategic and collaborative approach to procurement in their strategy and have extended project contracts to eight years in order to build longer term relationships. This allows buyers to set minimum criteria for contractors on carbon reductions and then increase targets throughout the contract length. Amsterdam is joining forces with Copenhagen, Oslo, and four other cities through the [Big Buyers Initiative](#) and [Clean Construction](#) programmes to drive zero emission construction sites. The next step for the Amsterdam is to agree on who will pay the initial investments to initiate pilots. Cities are keen to start procuring pilots and getting projects off the ground, what about the private sector? **Sara Neff, Vice President of Sustainability Kilroy Realty Corporation (KRC)** confirmed that their goal is to cut 30% of emissions and increase uptake of recycled materials. The Clean Construction event inspired **Sara** to introduce fossil- and emission free construction machinery to the United States. Sara is experiencing some resistance from construction companies when discussing emission reduction

targets, yet KRC recently decided to link carbon reduction target to performance and bonus pay-outs, which is a good example of creative incentives for delivery.

Is the market ready to deliver solutions and at scale?

The afternoon showcased many examples of solutions that already exist, some which **Andrew Waugh, Founder and Director at Waugh Thistleton Architects**, stated from the architecture point of view: *"We already know it is better to use less steel and cement, and that we should substitute or minimize the use of these materials when possible"*. **Brendan Macfarlane, Founding Partner at JAKOB + MACFARLANE Architects**, presented ideas on how timber construction can extend older stone/concrete buildings with light construction, thereby rethinking how we should build and expand on a city while utilising existing buildings. Further to this, **Rune Hansen, Co-founder Nullutslipp AS**, explained how surprisingly easy it had been to retrofit diesel engines to become electric. For machines up to 10 tons, it was just to take out the diesel engine and replace it with a battery. **Richard Lively, Executive Director Cummins Inc.**, is investing in electric powertrains: trucks, machinery and road vehicles, as well as developing new electric and hydrogen powered solutions. Whilst such solutions exist, scaling them appears to be the main barriers. Issues like infrastructure, energy supply, cost of ownership were mentioned and continue to be challenging. The views were very divided when it came to the role of regulation, and whether this really should be a barrier for scaling. One conclusion is clear to everyone – a joint approach is necessary.

When it comes to construction supply and demand, it is not a simple buyers and supplier relationship – multiple parties are involved and need to be aligned to deliver emission reduction targets on the construction sites as well as the building. **Roland Hunziker, Director Sustainable Buildings & Cities, WBCSD**, emphasised this point strongly, and stressed the need to include the whole value chain as early as possible. **Marlene Haugaard, Senior Vice President at NCC Building Denmark** works for Scandinavia's largest construction developer and in her experience, developers need to be involved as soon as possible in order to deliver more sustainable construction projects. The uptake of circular materials and emission free non-road mobile machines must be designed into the project design and planning in its early stages.

Should that be where public authorities can influence progress? **Marzena Rogalska, Director for DG Grow**, stated that EU plans to have a pilot group to facilitate European public procurement as there is a need for more clarity on public procurement models. Both cities and the private sector can set the terms and conditions for contracts and chose procurement models that incentivises innovation and carbon reduction in the value chain – particularly in urban development and infrastructure projects, where contract values are so high.

During the afternoon we worked on visualizing upcoming targets and goals, as well as identifying powerful questions and good ideas to leverage planning and procurement to reduce emissions from machinery and materials. Please see the timeline we created during the afternoon [here](#). To

conclude this summary, here is one idea captured in the discussions: *"It is not about price but about the values we share – if polluting construction sites become unacceptable then we move the dialogue beyond price"*. Jakob Brinkø Berg, Ph.d.-student at Technical University of Denmark.

Next steps?

Cities working under the European Commission's Big Buyers Initiative will meet in November to learn more about how the City of Oslo is using new procurement models, market dialogues and developing criteria to push carbon reduction targets in construction.

Thank you,

The organizing team, **EIT Climate-KIC, C40, ICLEI, City of Copenhagen, Innovation Norway, Gate 21 & Bellona**

We would like to thank the **City of Copenhagen** for hosting us and making the event possible, and to **The European Institute of Innovation and Technology (EIT), DG Grow** and the **European Commission Big Buyers Initiative** for co-organising the market dialogue.

Please see photos from the day [here](#).

Press from the Sustainable Procurement Platform on the Market Dialogue event – read it [here](#).

Press from our partner, the Bellona Foundation - read it [here](#).

Relevant reports: C40 Cities, Arup & University of Leeds, [Buildings and Infrastructure Consumption Emissions In Focus](#), August, 2019.

World Green Building Council, Ramboll & C40 Cities, [Bringing Embodied Carbon Upfront](#), 2019.

Bellona, [Zero Emission Construction Sites – Status 2019](#), 2019