

The Role of Public Procurement in Low-carbon Innovation in Infrastructure

Summary of the Round Table on Sustainable Development¹
held at OECD Headquarters, Paris, on 5 December 2016

The OECD Round Table on Sustainable Development (RTSD) gathered public and private experts to exchange views on the role of public procurement in low-carbon innovation in infrastructure. This meeting followed up on an RTSD event on public procurement for low-carbon innovation held in April 2016.

Main Messages

- The construction sector's entire value chain has the potential to improve its low-carbon performance. A credible industrial strategy is necessary for the construction value chain to embark on the low-carbon transition path. Public procurement accounts for an important share of demand for infrastructure and must play an important role.
- This requires a high-level political commitment, i.e. a clear statement that the public purse will be used to innovate and drive low carbon practice, and a set of measures to enhance the performance of the chain going from public procurement to the supply of infrastructure and materials.
- Public procurement (PP) remains overly focused on price and not on overall costs (public and private), let alone on innovation in design or materials use, both of which are important to lower the carbon footprint of infrastructure.
- Some jurisdictions have introduced procurement procedures that monetise externalities, including global warming, in the appraisal of bids, with measurable impact on the carbon footprint when suppliers have flexibility on design. However, data for life-cycle analysis of materials and the costing of externalities are region-specific and take time to generate and be agreed by stakeholders (as illustrated by the Netherlands's Rijkswaterstaat procurement

¹ This summary does not reflect the views of the OECD Secretariat or its member countries. It was drafted by Richard Baron, Principal Advisor, RTSD, OECD. Further information on the RTSD can be found at: <http://www.oecd.org/sd-roundtable/meetings/>. The RTSD is supported by I24C (Industrial Innovation for Competitiveness), an initiative of the European Climate Foundation.

procedures). Other tools that allow for an objective and transparent appraisal of bids' non-price attributes include standards for the environmental performance of materials.

- Including infrastructure design in a procurement contract opens possibilities for innovation through competition among bidders. Environmental performance can be improved more easily when the infrastructure design is not specified.
- Shifting public procurement of infrastructure to exploit existing low-carbon innovations (from the use of alternative materials to less resource-intensive designs) requires a professional workforce with specific skills in construction, and an ability to identify and demand innovative solutions from the construction value chain.
- Best practice includes market dialogues that allow public procurers and private suppliers to exchange ideas on innovative solutions, which can then be incorporated in tenders. All too often, procurement teams are reluctant to engage with the private sector, to avoid suspicion of corruption. Procedures can be introduced to facilitate open public-private discussions.
- There are opportunities for international co-operation to enhance low-carbon innovation through procurement. Procuring authorities in separate jurisdictions could share tendering procedures when pursuing similar infrastructure innovation objectives, as well as information gathered on supply-side innovations that could be adopted more widely.
- Testing of new materials and designs is needed to demonstrate feasibility and overcome public procurement authorities' risk-aversion to the introduction of innovative solutions in infrastructure. In addition to public procurement, public-private 'Green Deals' or competition for a prize can also be used to generate breakthrough innovations. Public procurement can come as the next step, as a lead market for the breakthrough innovation.
- There is clear potential for public procurement to change the practice of the construction value chain towards low carbon. This should be a strategic area in the decarbonisation policy agenda. High level commitment and public investment will be required to build capacity in procurement authorities.

Introduction and scope

Governments recognise the potential role of public procurement as a driver of innovation. About half of OECD countries have action plans in this area backed by various instruments (policy or financial instruments, programmes, etc.). Sustainability is frequently one of the objectives that public procurement is meant to achieve. There is much experience in this space and a good community of practice, but achievements lag behind expectations. A concerted effort is needed to make public procurement a more effective tool to pursue goals such as the low-carbon transition.²

Participants brainstormed to identify the possible role of public procurement (PP) as a driver of low-carbon innovation in the infrastructure sector.

The case for public procurement-led innovation in infrastructure

Experts in public procurement recognise that it is largely under-used to promote sustainability solutions and innovation. They identify the need for a vision or an industrial strategy that would use public procurement as one of several instruments to drive low-carbon innovation. In the infrastructure area, this strategy should consider the broad construction value chain, i.e. not an individual sector or specific set of materials.

There is potential to harness public procurement towards low-carbon innovation in infrastructure and buildings.

- Public procurement accounts for an important share of the built infrastructure market.
- The construction value chain acknowledges untapped potential to innovate in design and materials (e.g. concrete, or the use of recycled materials for cement), the lack of incentives provided by PP so far, and a market that is conservative by design (suspicion of corruption, risk-aversion when spending the public purse).

Identifying and overcoming obstacles

The two most cited difficulties with respect to the innovation objective of public procurement are management and coordination, and risk aversion. Capacity (numbers and skills) and political support are also prominent barriers, according to the OECD's latest survey.³ These observations were confirmed repeatedly by participants.

Barriers to the penetration of innovation in publicly procured infrastructure included:

- **Tendering procedures.** Too many bids are still based solely on price (reportedly 80 to 90% in the EU, for all public procurement). An evolution is necessary from lowest-price criteria to the Most Economically Advantageous Tender (MEAT) method that incorporates quality attributes, with the possibility to include life-cycle costing or total cost of ownership. Reliance on minimum performance standards for materials could also create lead markets for innovative solutions, provided they are ambitious and can be anticipated by the private sector. Further, leaving the design of the procured infrastructure open in the tendering process – moving towards

² See Baron (2016). The Role of Public Procurement in Low-carbon Innovation. [OECD Round Table on Sustainable Development](#).

³ OECD, (2016), *Procurement for Innovation – Good practices and strategies*. OECD Public Governance Reviews.

functionality and away from prescriptive technical specifications – can also encourage innovation and smarter use of materials.

- **Access to information on available innovations.** Public procurers are often reluctant or unable to engage with suppliers to discover solutions that could be pursued in future procurements. Although they may be asked to innovate, risk-aversion and limited ability to evaluate the degree of innovation proposed by suppliers stand in the way. Processes to engage the private sector and technical support for an objective measurement of proposed innovations are needed. Good practice exists in these areas, e.g. pre-competitive dialogues.

Measurable performance standards can facilitate the objective assessment of tenders, recognising that it may take some trial and error to get standards ‘right’. Certain assessment methods for infrastructure have sometimes led to counter-productive results, e.g. projects rejected because their design does not match current practice.

There are risks to innovation on the supply chain side as well. It was mentioned that the procurement of a single ‘innovative’ construction is unlikely to deliver the needed return on investment. Scale is required to shift practice, but proof-of-concept in the form of a pilot test is a necessary first step to establish feasibility and build trust on both sides. Participants did not indicate whether public procurement would be suited in such a phase, although pre-commercial procurement may be useful in that case.

Accounting rules are sometimes a real barrier to the use of life-cycle cost or total cost of ownership criteria, when they prevent taking future savings into account. Reform in this area is essential, as the current practice of a lowest-price criterion may result in less favourable outcomes from a socio-economic perspective.

Drawing from best practice: how public procurement can drive infrastructure innovation

The Netherlands Public Infrastructure Authority (Rijkswaterstaat) presented its efforts to trigger sustainability innovations through procurement procedures for infrastructure.

- In essence, the procedures grant discounts to bids based on the environmental performance of the *contractor* (based on the “CO₂ performance ladder”), and of the life-cycle performance of the *infrastructure* (using “Dubocalc”: a calculator of the sustainability of built infrastructure based on monetised costs of 11 externalities, including global warming).
- A database containing average values for different groups of materials specific to the Dutch building sector has been elaborated by industry over several years.
- The monetised discounts have been significant enough to award contracts to bidders that do not present the lowest price, but are cheaper once environmental performance during the construction phase and life-cycle costs of the infrastructure are accounted for.
- The system is effective when the tender includes the design stage of the infrastructure. Tenders that include full technical specification of the infrastructure leave very little room for environmental improvements and innovations.

It was noted that the life-cycle analysis tool developed in the Netherlands contains values based on the country’s specific environment and materials. There is unfortunately no universally applicable tool or database that other countries could adopt. Participants asked whether this could be a worthwhile investment at European and international level.

Can public procurement generate breakthrough innovations?

The adoption of untested products and materials is still challenging at the project level. Other policies and tools are probably necessary for such innovations in infrastructure. Efforts are underway to envisage how governments can best support breakthrough innovations (e.g. voluntary public-private 'Green Deals') but more could be done in this area, in light of the building sector's significant carbon footprint.

A question to be further explored is whether public procurement can be used in an ensuing phase to generate lead markets that innovators can count on when their products have passed the research and development stage.

Pre-commercial procurement (PCP) has been used at the R&D stage, and is a useful tool to combine directed R&D with competitive processes. It has not always been the case, however, that the generated innovations have found a market beyond PCP. It was mentioned in this context that not all innovation is bound to meet commercial success, and that the prospect of failure prevents risk-taking on the side of traditionally conservative procurement authorities.

It was also noted that low-carbon innovation in the construction value chain will not always come from products but also from organisational and design changes that are less amenable to targeted R&D support.

A variable geometry approach is therefore needed to best trigger low-carbon innovation in the construction value chain, reflecting: the capacity of different jurisdictions, their procurement bodies and their possible evolution; the type of innovations that could be integrated in markets today and those required for more significant breakthroughs (materials, design, processes); the existing set of policy instruments operational in the sector (standards and regulations); and the range of private sector stakeholders to be engaged (SMEs, large construction companies, material manufacturers etc.).

Other issues - Questions for future work

Beyond the public procurement angle, some participants noted the role of some infrastructure as critical to deep decarbonisation, suggesting that infrastructure needs to be considered from this perspective – i.e. beyond its direct project-level carbon footprint.

Attention should be paid to the tension between the legitimate goal of innovation through public procurement and the implication it may have on competition, which remains an overriding objective of public procurement – i.e. does the innovation objective restrict the number of competitors in the procurement process? For this reason, it is critical to provide objective and transparent criteria to facilitate procurers' appraisal tasks and avoid suspicion over the selection process.

What is the ability of public or multilateral banks to influence public procurement processes to generate low-carbon innovation in infrastructure? Are there basic requirements that would unlock efforts in the right direction – e.g. the disclosure of the suppliers' GHG and environmental performance, based on existing certification systems?