NETHERLANDS[1]

Context and background

In 2010, the Dutch House of Commons ruled that the Dutch public authorities must implement 100% sustainable procurement as of 2015. In response to this, *Rijkswaterstaat* (the Department of Public Works of the Ministry of Infrastructure and the Environment) developed a methodology for infrastructure projects whereby the functional specification of the tender together with the quality input from the client ensure an innovative and high-quality solution.

Objectives

Rijkswaterstaat (RWS) strives to commission procurement projects based as far as possible on functional, performance-based specifications of the required infrastructure so that the market has the optimum freedom to arrive at effective, alternative and innovative solutions. The tenderer is also asked to respond to specific quality criteria. The RWS uses the most economically advantageous tender (MEAT) methodology.

Choice of the MEAT procedure means that the RWS selects tenders on the basis of a combination of price and quality. Quality includes, for instance:

- Public-oriented approach ("less hindrance")
- sustainability
- project management
- design
- risk management.

Implementation

To assess tender submissions, the RWS ensures that quality aspects can be monetised. To this end, the RWS assigns a value to specific quality aspects and the way in which these quality attributes are assessed at the invitation to tender stage. Tenderers can calculate precisely how much the quality value they have submitted is worth. The more effort the bidder makes to improve the quality of the bid, the higher the monetised value that will be deducted from his actual offer price. The tenderer with the lowest total "price" wins the tender. The financial cost to the contracting authority is still the same, but by monetising the efforts made to improve the quality and deducting them from the quoted prices as part of the assessment, tenderers with the best quality offers have a higher chance of winning the tender.

By using the methodology of performance-based tendering and the MEAT, the market can work in a targeted way towards better quality, more innovative solutions with greater value. This tendering methodology thus helps to stimulate and utilise the market's innovative and creative capacities.

1. Case study submitted by *Rijkswaterstaat*, Ministry of Infrastructure and the Environment, Netherlands.

During procurement based on the MEAT, the RWS very carefully draws up the criteria for the assessment of the quality aspects for a specific project and explains them in a "tendering and assessment" document or a background document. This includes the objectives of the RWS, the criteria on which the quality aspects are assessed and the maximum value (expressed as a maximum price) it assigns to these criteria.

Procurement using the MEAT follows three steps:

1. Establishing the quality aspects, drawing up criteria based on the opportunities and risks of the project and establishing the maximum MEAT amount.

2. Actual tendering, by drawing up documents, assessing submissions and communicating the results to the tenderers.

3. Monitoring during the execution phase of the added quality value provided.

The MEAT criteria with which the RWS assesses the quality of submissions, and that are drawn up for each tender, must meet a number of requirements:

- provide added value to the client
- create competition between tenderers
- be easy to understand for tenderers
- show differences in quality
- make clear whether and how added value is assessed.

Specific sustainability criteria

The RWS has decided to focus on two criteria when assessing the sustainability attributes of offers, work processes and associated products: CO_2 emissions and environmental impact. Two instruments have therefore been developed: the CO_2 performance ladder and "DuboCalc" respectively.

The CO_2 performance ladder is a certification system with which a tenderer can show the measures to be taken to limit CO_2 emissions within the company and in projects, as well as elsewhere in the supply chain. DuboCalc is a life-cycle analysis (LCA) based tool which calculates the sustainability value of a specific design based on the materials to be used. Bidders use DuboCalc to compare different design options for their submissions. The DuboCalc score of the preferred design is submitted with the tender price.

To ensure sustainable procurement, the RWS carries out the tendering procedures as follows:

- For maintenance contracts, energy consumption is included where possible as part of the submission price, in order to create a direct stimulus for energy efficiency. For the same reason, design, build, maintain and finance contracts also include energy consumption as part of the submission price.

- In some works contracts, specific technical solutions for energy savings and sustainability are obligatory. For instance, in tunnels LED lighting is always required. Another example is that only sustainable timber is allowed.

- A tenderer can submit a CO_2 performance ladder certificate with their tender submission. The certificate obliges the tenderer to comply with a certain CO_2 reduction target according to its method of execution and working processes. Holders of the certificate have their submission price reduced by a value proportional to the effort made to reduce CO_2 emissions. The certificate of the CO_2 performance ladder can be provided as evidence at the tender submission stage, but this is not compulsory as long as the certificate is provided within one year of signing the contract.

- The bidder is encouraged to offer innovative and sustainable design options as the RWS uses performance rather than compliance specifications. Sustainability is further enhanced by using the MEAT tendering procedure in which DuboCalc is used as an assessment tool.

CO_2 performance ladder

Contractors can apply for a CO_2 performance ladder certificate. In order to comply, contractors need to take steps towards reducing their carbon footprint. The first step (or "rung" on the ladder) is to measure the company's CO_2 emissions. In further steps, CO_2 emissions of their supply chain is also measured, and more importantly goals are set towards reducing emissions. The higher levels on the CO_2 ladder include steps towards CO_2 reduction in the supply chain.

The CO_2 performance ladder is used in the tendering procedure as follows: The bidder indicates at which of the five rungs (ambition levels) of the CO_2 performance ladder he intends to carry out the work; the higher the effort to reduce CO_2 emissions, the higher the rung. A commitment to a higher rung results in a greater deduction from the submission price, which increases the chance of winning the contract. Each CO_2 ambition level corresponds to a different percentage reduction of the submission price. The final amount assessed by the RWS using the CO_2 performance ladder is a deduction of 1% per rung of the submission price. The highest level is rung 5, so the maximum deduction is 5%.

DuboCalc

To quantify the sustainability of material use, the RWS has developed a software tool that calculates the environmental impact of construction materials. This calculation is based on an LCA of the material. The software is called the Sustainable Building Calculator, or "DuboCalc". This tool can be used in tenders for works if the design phase is included in the tender. Dubocalc was developed as part of an overall trend towards performance-based tendering assessing the overall environmental impact of constructions rather than prescribing details.

With DuboCalc all embedded environmental impacts of material use can be calculated, from raw material extraction and production up to and including demolition and recycling (the entire life cycle). DuboCalc also calculates the energy consumed by infrastructure works during the use phase.

For a DuboCalc calculation of infrastructure works, the programme requires input of the amounts of materials used for a particular design. Using LCA data from a built-in database, it calculates 11 environmental impact parameters. The software is based on an independent (national) dataset containing certified LCA information for each material.

DuboCalc calculates the value of these effects via the so-called "shadow price method" to arrive at a single figure, the Environmental Cost Indicator value (ECI value). The shadow price method is based on the costs of preventing emissions from arising. The ECI value indicates the environmental impact of a particular design for civil engineering works. A lower value indicates a lower environmental impact. Designs that differ significantly from each other in terms of material use also differ in terms of environmental quality. DuboCalc enables designers to calculate ECI values of alternative designs to arrive at an optimally sustainable design.

The ECI value is used in the tendering procedure as follows: The contracting authority provides the tenderer with all the functional requirements and the latest version of the DuboCalc programme. The tenderer designs the infrastructure and calculates the price and the ECI value. The ECI value is transformed into a monetary value according to a formula that is prescribed by the tenderer (the ECI value and monetary value are inversely related and there is a minimum and a maximum). These two prices are offered to the contracting authority. The contracting authority selects the tenderer with the lowest price and ECI value combined to undertake the work.

Impact and monitoring

The RWS is putting a great deal of effort into embedding sustainability into procurement procedures. To ensure that the procedure is effective, the calculated environmental quality of a tender must have enough impact on the final (virtual) price to make a difference. As a consequence, the percentage of award criteria reserved for environmental quality (calculated with DuboCalc) has to be large enough compared to other criteria and the total value of all quality criteria (compared to price) has to be substantial. In practice, the maximum environmental value added is often 10-20% of the awarded tender.

The level of CO_2 emissions is one of the (in total 11) parameters of the LCA calculation that contributes to the ECI value. This value is the amount of CO_2 emitted as a result of the use of building materials (production, transport, etc.). The potential reduction of CO_2 emissions can easily be calculated by subtracting the ECI value of the proposed design from the reference design. This is directly proportional to the reduction in energy use.

When the contract is awarded, the offered level of ambition of the CO_2 performance ladder is part of the contract and should be implemented as part of the execution of the project. The energy saving targets and measures belonging to that level of ambition are chosen by the tenderer. This is also the case for the ECI value of the works to be carried out.

Challenges and enforcement

The contractor must demonstrate that the proposed ECI value is achieved in the execution of the contract. When the actual quality does not comply with the offer then a sanction follows that is 1.5 times the calculated price for quality value, e.g. if the contractor was awarded a "virtual" EUR 5 million reduction on its quoted price for its proposed environmental efforts as part of the bid assessment and failed to achieve results, the sanction would mean that the contracting authority would have to pay the contractor EUR 7.5 million less than the submitted quote price.

Also, if after an agreed period of time the rung of the CO_2 performance ladder is not achieved, a sanction follows that is one and a half times the advantage granted at the time of submission.

More information about the CO_2 performance ladder can be found on the website of the Foundation for Climate-Friendly Procurement and Business (SKAO): www.skao.nl/index.php?ID=45.

An explanation of the DuboCalc methodology is available on YouTube at: www.youtube.com/watch?v=cAaL4FfBQNc and www.youtube.com/watch?v=LJY9QzxlW2w.

Key lessons learnt

Software tools like Dubocalc (which is specifically developed for the Netherlands) could be developed by other countries taking into consideration their own environmental calculations and impacts. Comparable tools are developed within the Eranetroad programme: www.eranetroad.org with the support of the CEDR (Conference of European Directors of Roads, www.cedr.fr/home).

Getting accurate and reliable data to feed into the software tool and calculate the environmental impact can be challenging. The Netherlands use a national database so that the data are validated and general.

All tools need to be based on appropriate standards, like the ISO standards.

The RWS' use of MEAT methodology and of instruments like the CO_2 performance ladder and DuboCalc ensures that tenderers try to use an inexpensive and environmentally friendly design. If tenderers have little or no design freedom, and are virtually indistinguishable from one other in terms of sustainability and environmental quality, there is little point in using the MEAT methodology. Therefore, before including environmental quality as a distinguishing factor in the tender process, the RWS initially always investigates whether sustainability or environmental quality will be sufficiently distinctive when proposals are submitted.