



# The Rijkswaterstaat Approach

## Green Public Procurement for Infrastructure in the Netherlands

### Sustainable procurement in the Netherlands

The Dutch Government wants to reduce the emission of CO<sub>2</sub> by 20% in 2020 compared to 1990. Sustainable procurement is one of the methods by which this can be achieved.

In 2010, the Dutch House of Commons ruled that the Netherlands public authorities must implement 100% sustainable procurement as of 2015. In response to this, Rijkswaterstaat (the Dept. 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. This methodology will contribute to the reduction of CO<sub>2</sub> emissions and other environmental impacts caused by materials used in infrastructure projects.

### Tendering based on functional specifications

Rijkswaterstaat (RWS) strives to commission procurement projects as far as possible based 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, which play an important role in tendering according to the Most Economically Advantageous Tender methodology

### Most Economically Advantageous Tender (MEAT)

The 'Most Economically Advantageous Tender (MEAT)' procedure means that 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

To assess tender submissions, RWS ensures that quality aspects can be monetised. To this end, RWS assigns a price to specific quality aspects. The way in which these quality aspects are assessed and monetised is communicated to the tenderers at the



invitation to tender stage. Tenderers can calculate precisely how much the quality value they have submitted is worth. This value is subtracted from the actual offer price to yield a corrected 'total price'. 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 of course, but by monetising efforts made to improve quality in this way 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 specifications and 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 more efficiently.

### Quality and MEAT criteria

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

- 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

### Targets, criteria and value

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

### 3 Steps

Procurement using MEAT follows three steps:

- Establishing the quality aspects, drawing up criteria based on the opportunities and risks of the project, and establishing the maximum MEAT amount.
- Actual tendering, by drawing up documents, assessing submissions and communicating the results to the tenderers.
- Monitoring during the execution phase of the MEAT added quality value.

### Sustainability as quality aspect

RWS has decided to focus on two criteria when assessing the sustainability attributes of offers, work processes and associated products: CO<sub>2</sub> emissions and environmental impact.

Two instruments have been developed for these two aspects: the CO<sub>2</sub> performance ladder and 'DuboCalc' respectively.

The CO<sub>2</sub> performance ladder is a certification system with which a tenderer can show the measures (to be taken to limit CO<sub>2</sub> emissions within the company and in projects, as well as elsewhere in the supply chain.

DuboCalc is an 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.



### CO<sub>2</sub> performance ladder

Contractors can apply for a 'CO<sub>2</sub> 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<sub>2</sub> emissions. In further steps CO<sub>2</sub> emissions of their supply chain is also measured, and more importantly: goals are set towards reducing emissions. The higher levels on the CO<sub>2</sub> ladder include steps towards CO<sub>2</sub> reduction in the supply chain.

The CO<sub>2</sub> performance ladder is used in the tendering procedure as follows: the bidder indicates at which of the five rungs (ambition levels) of the CO<sub>2</sub> performance ladder he intends to carry out the work; the higher the effort to reduce CO<sub>2</sub> 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<sub>2</sub> ambition level corresponds to a different percentage reduction of the submission price. The final amount assessed by RWS resulting from using the CO<sub>2</sub> 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, RWS has developed a software tool that calculates the environmental impact of the material. This calculation is based on a life cycle analysis (LCA) of the material. The software is called the Sustainable Building Calculator, or "DuboCalc".

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

### Tendering procedure

To ensure sustainable procurement, RWS carries out 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 saving 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<sub>2</sub> performance ladder" certificate with their tender submission. The certificate obliges the tenderer to comply with a certain CO<sub>2</sub> reduction target according to their 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<sub>2</sub> emissions. The certificate of the CO<sub>2</sub> performance ladder can be provided as evidence at the tender submission stage, but this is not essential 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 and gets the opportunity because RWS issues *performance* rather than *conformance* specifications. Sustainability is further enhanced by using the MEAT tendering procedure in which DuboCalc is used as an assessment tool.
- 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 program DuboCalc. The tenderer designs the infrastructure, and calculates the offer price and the ECI value. The ECI value is transformed into a MEAT price according to a formula that is prescribed by the contracting authority (the ECI value and the MEAT price are inversely related and there is a minimum and a maximum).
- The offer price and the MEAT price are offered to the contracting authority. The MEAT price is subtracted from the actual offer price to yield a 'corrected price'. The tenderer with the lowest 'corrected price' wins the contract. This procedure ensures that tenderers do their utmost to make an inexpensive and environmental friendly design.

### Sensitivity analysis

If tenderers have little or no design freedom, and the tenders are virtually indistinguishable from each other in terms of sustainability and environmental quality, then there is little point in using the MEAT methodology. Therefore, before including environmental quality as a distinguishing factor in the tender process, RWS initially always investigates whether sustainability or environmental quality will be sufficiently distinctive when proposals are submitted.

### Percentages for environmental quality

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 (compared to price) criteria has to be substantial. In practice the maximum environmental value added is often 10 to 20% of the awarded tender.



### Reduction of CO<sub>2</sub> emission

The level of CO<sub>2</sub> 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<sub>2</sub> emitted as a result of the use of building materials (production, transport, etc). The potential reduction of CO<sub>2</sub> 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.

### Realisation

When the contract is awarded, the offered level of ambition of the CO<sub>2</sub> 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 infrastructural works to be carried out.

### Enforcement of terms and conditions

The contractor must demonstrate that the proposed environmental quality value, the 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 one and a half times the calculated price for quality value. E.g. if the contractor was awarded a conceptual 5 million euro reduction on its quoted price for its proposed environmental efforts as part of the bid assessment, then it failed to make these efforts – the sanction would mean that the contracting authority would have to pay the contractor 7.5 million euro less than the submitted quote price. Also, if after an agreed time the rung of the CO<sub>2</sub> performance ladder is not achieved, a sanction follows that is one and a half times the advantage granted at submission.

### More information

More information about the CO<sub>2</sub> performance ladder can be found on the website of SKAO: [www.skao.nl](http://www.skao.nl) (click *Site in English*).

The DuboCalc methodology is explained in two YouTube videos found here:

<http://www.youtube.com/watch?v=cAaL4FfBQnc> and <http://www.youtube.com/watch?v=LJY9QzxIW2w>

### Colophon

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