

# Electric vehicles for Stuttgart's Sewage Treatment Works

STUTTGART MUNICIPAL SEWAGE TREATMENT PLANT, GERMANY

## Procurement objectives

The City of Stuttgart aims at continually improving its green public procurement (GPP) practices. In this contract, Stuttgart have gone one step beyond the technical specifications required by the EU GPP criteria for vehicles and have replaced their mixed diesel and electric fleet with entirely electric vehicles.

The 3-year contract covered the vehicles used at the Municipal sewage treatment plant. A tender document with specific requirements was drawn up after extensive market analysis.

## Background

The City of Stuttgart has a strong commitment to reducing greenhouse gas (GHG) emissions and to preserving natural resources. The City also recognises its responsibility to create a healthier working environment for employees, which has been achieved by this contract through the elimination of diesel fumes from the vehicles used at the waste treatment plant.



## Criteria used

### Subject matter of the contract:

A 3-year contract for the successive replacement of diesel vehicles with electric trucks. The battery electric vehicles are designed for internal use at the City's main sewage treatment plant in Mühlhausen.

### Technical specifications:

- Battery: one of the following car batteries for electric vehicles has to be provided: Lithium-Ion battery, lead-acid battery, flooded battery
- Battery warranty: 2 years included
- Restriction of speed to 25km/h
- Brakes: hydraulic, energy recovery

### Award Criteria:

The importance of the vehicle quality to the contracting authority was demonstrated by the fact that they used a 60:40 (Quality: Price) ratio. Scores for quality included criteria for the warranty, distance to the closest customer service office, operating range of the car battery, driving comfort for employees and handling during loading and unloading. To test and evaluate these features the manufacturers had to provide test vehicles.

## Results

Not all manufacturers were able to meet Stuttgart City Council's technical specifications. The single operator's cab was particularly problematic compared to the double. The bidders who did meet the specifications however, had no trouble with proving that their vehicles were compliant.

The net price for a two-person cabin was €35.950 and for a one-person cabin was €38.450. The duration of the contract is 3 years within which all diesel vehicles and old electric vehicles will be replaced, as they become available, by the zero emission electric vehicles.

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### Environmental impacts

For all modes of transport, the extraction of raw materials, vehicle assembly and disposal can cause key environmental impacts. Alternative fuel vehicles however, such as electric or hydrogen fuel cell vehicles have a use phase which is far less damaging. Conventional vehicles tend to be associated with greenhouse gas (GHG) emissions including CO<sub>2</sub>, HC and especially NO<sub>x</sub> from diesel engines, which all contribute towards climate change and local air pollution. The emission of small particulate matter (e.g. PM<sub>10</sub>), which is associated with the aggravation of respiratory ailments, is also avoided. Zero emission electric cars are therefore preferable in terms of their use phase and even more so if the electricity originates from renewable sources, as laid out in the EU's GPP award criteria for passenger cars, passenger transport vehicles and waste collection trucks. Consideration must be given to the appropriate disposal of vehicle batteries however, as they can contain hazardous materials such as lead-acid.

### Lessons learned

The contract is currently being monitored by the tendering department at Stuttgart City Council. As an additional selection criterion the Municipality has suggested that including delivery time may be of benefit, as they have had to wait for fairly significant periods of time for each vehicle to be produced, due to the fact that they have been made to measure.