

# Joint National Procurement of Electrical Vehicles in Sweden

## JOINT NATIONAL PROCUREMENT, SWEDEN

### Procurement objectives

In October 2010, public and private entities in Sweden joined forces to conduct a national procurement of Electric Vehicles (EVs) and Plug-in Hybrid Electric Vehicles (PHEVs). An invitation to participate was issued and interested parties worked together to define parameters for bidder qualification and the tender process. 12 months later, two contracts for the purchase/lease of electric vehicles began.

The principle objectives of the joint procurement were to take the country's first significant step towards creating demand for electric vehicles and to demonstrate Sweden's market potential to manufacturers. Another aim, aside from contributing towards quieter and cleaner fleets, was to enable Swedish organisations to buy EVs or PHEVs under optimal conditions. Minimum targets included: the participation of 150 buying organisations, total demand for 6000 vehicles and offers from 8 manufacturers.

### Background

Sweden has been a forerunner in the use of clean vehicles since the 1980s. Alternative fuel vehicles running at least partly on biofuels e.g. ethanol, are routinely purchased. In fact, demand for fuel can sometimes exceed supply.

The country also has good conditions for electric vehicles in terms of production capacity, infrastructure and distribution systems for electricity. Despite this, other countries seemed to offer stronger incentives to electric vehicle manufacturers, so increased demand was needed to ensure supply to the Swedish market. Therefore, when several automakers announced production of EVs and PHEVs, the City of Stockholm and the state-owned utility company "Vattenfall" decided to demonstrate the country's potential by undertaking a large-scale national procurement. The Swedish Energy Agency pledged funding of up to €6000 towards each of the first 1000 vehicles procured.



### Criteria used

**Subject matter of the contract:** Two separate contracts had to be created to accommodate the different entities joining the procurement i) Electric vehicles 2011: Public bodies and ii) Electric vehicles 2011: Private organisations.

	Passenger Car		Transport Vehicle	
Type	EV	PHEV	EV	PHEV
All-electric range	>100km	>20km	>100km	>20km
Energy/CO2	<0.37 kWh/km	<50gCO2/km		
Recharging	Schuko socket, one phase, 230 V/10 A			
Top Speed	>100km/h		>90km/h	
Max cost	400,000 – 650,000 SEK (approx. €48,000- €78,000)		600,000 – 800,000 SEK (approx. €72,000- €96,000)	

**Award criteria:**

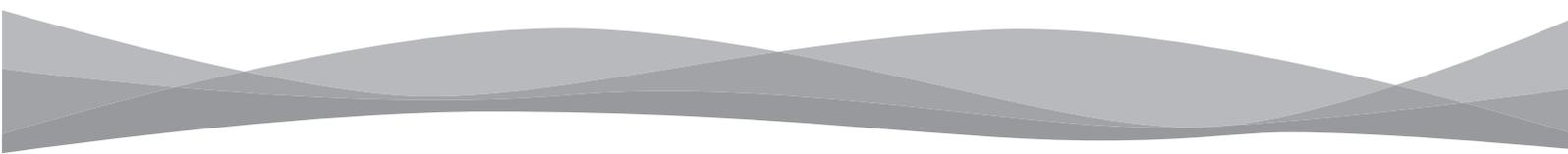
- Euro NCAP\* or similar for both passenger cars and transport vehicles
  - \* Total >32.5/28 p
  - \* Pedestrians >9.5 p
  - \* Whiplash protection >2 p
- Electronic Stability Control (ESC)
- Possible to install alcohol lock

**Contract performance clauses:**

Prior to the start of the contract, a risk assessment was conducted which highlighted priority environmental aspects associated with electric vehicles, including the use of metals like cobalt and lithium, as well as nano-products. Due to the immature nature of the market, it was decided these issues would be explored more fully a year into the contract i.e. at this stage manufacturers may have to propose improved methods for dealing with these materials.

Although manufacturers of cars and batteries are required by law to take them back and dispose of them in an environmentally responsible manner, these aspects are also followed up by contracting authorities throughout the lifetime of the contract.

\* European New Car Assessment Programme



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### Results

The invitation to participate in the procurement attracted 296 organisations; 260 public and 36 private entities. Together the stated intent was to buy 1,250 vehicles per year, corresponding to 5,000 vehicles in total over the possible four year contract period.

12 manufacturers out of 14 qualified, 10 of these submitted tenders and 6 were successful. 2 were disqualified as the top speed specified was not met and another 2 because they did not provide information about service costs. Maximum prices quoted for passenger cars ranged from the equivalent of just over €26,000 to under €40,000 and for transport vehicles from around €24,000 to €39,000. One bidder offered a 3% rebate for the consortium compared to the regular price and another offered lower prices but charged a monthly fee for leasing the battery.

The contracts began in October 2011 and each is for 2 years, with the option to extend to up to 4 years. Renewed competition has to be carried out under the framework contract for public authorities before orders are placed. Qualified suppliers had to accept orders by 1 October 2012 at the latest. To date, over 200 cars have been purchased under the framework.

Calculations conducted with assistance from the Royal Institute of Technology indicated that between January and June 2012, the vehicles purchased covered 55,403km in total, which caused the equivalent of 0.73 t/CO<sub>2</sub> to be emitted\*. Compared to an equivalent petrol car, which would have emitted 7.65 t/CO<sub>2</sub>, it works out to a saving of almost 7 tonnes of CO<sub>2</sub> over 6 months.

The main objective of the procurement was achieved; potential suppliers of electric vehicles are now aware of Sweden's interest, its well-developed charging outlet infrastructure and the country's relatively clean and cheap electricity supply.

\*Nordic energy mix = 66g of CO<sub>2</sub> are emitted per KW/h

### Environmental impacts

For all modes of transport, the extraction of raw materials, transport of components, assembly and vehicle disposal can cause environmental impacts. Electric vehicles are far less damaging during their use phase compared to petrol or diesel vehicles however, as they do not directly emit greenhouse gases such as CO<sub>2</sub>, HC and NO<sub>x</sub>.

Electric vehicles are a particularly favourable option in regards to climate change if the electricity originates from renewable sources, as laid out in the EU GPP criteria for transport (link). 90% of electricity in Sweden is generated through hydro- or nuclear power, causing much lower GHG emissions than electricity generated through the combustion of fossil fuels. Demonstrating this principle, calculations in this case indicate that for every 100,000km, the electric fleet would cause just over 1.3t CO<sub>2</sub> to be emitted, compared to over 13.8t from an equivalent petrol fleet.

The Clean Vehicles Directive provides a common methodology for considering GHG emissions and the energy consumption of road transport vehicles. Further information is available from [DG Mobility and Transport](#) and the [Clean Vehicles Portal](#).

### Lessons learned

- The joint procurement proved to be successful in terms of creating a good scale of demand and saving individual partners time and money, especially smaller stakeholders.
- The two-step procurement procedure with a prequalification stage for bidders drew attention to the procurement from both national and international vehicle retailers.
- Reaching an agreement on vehicle specifications was time-consuming and challenging due to the number of stakeholders involved and concerns over vehicle safety.
- The market for EVs is very immature and in general, demand is larger than supply. This made it hard to get lower prices or discounts in the joint procurement.

The contracting authorities involved in this procurement emphasised the need to understand the market and anticipate that smaller providers may have difficulties participating in tenders. They pointed out that vehicle manufacturers are not always used to public (joint) procurement so the tendering process and associated documents must be easy to follow. Stipulating requirements on the availability of service and maintenance was also deemed to be important.