



e-Mobility in Sweden

- **E-cars:** Sweden had around 79 000 plug-in cars, both Plug-in Hybrid Cars and Battery Electric Cars at the end of March 2019. The market share of plug-in cars was about 10% in April 2019. Only Norway and Iceland have a larger market share globally. Sweden has a Bonus–malus system for new vehicles since 2018. New green vehicles with low emissions of carbon dioxide will qualify for a bonus at purchase, while new vehicles with high emissions of carbon dioxide will be taxed at a higher rate for the first three years. For example, a Battery Electric Vehicle will qualify with a support of 60 000 SEK (around 6000 EUR). The Swedish government mandates the adoption of environment-friendly and electric cars in government fleets, except some classes of cars (e.g. emergency vehicles). The government owns around 32 000 vehicles. Sweden has also support both for public and private installation of charging infrastructure. The national support scheme Klimatklivet has funded several thousand recharging points. The government also has a support scheme for private charging. The support to home chargers is with up to 50 % or SEK 10 000 (EUR 960) for hardware and installation costs. Volvo Cars is a car company with their head office in Sweden. Volvo cars has the goal that 50% of all their sold cars 2025 will be battery electric vehicles. NEVS is another Swedish car company with manufacturing capabilities.

- **E-buses:** Sweden had 110 battery electric buses in operation at the end of February 2019. Several Swedish cities are planning for a rapid increase in use of electric buses in city traffic. A lesson learned is the need to have the right timing during the procurement process. Sweden also has at least three bus manufactures of electric buses. Lately, Sweden had some demonstration of electric and autonomous buses on public roads.



Figure 1 Electric and autonomous bus at Lindholmen Science Park, Gothenburg, Sweden

- **E-Bikes:** The market share of e-bikes is around 15-20 % in Sweden. Especially the more expensive premium bikes are sold as e-bikes. More than 100 000 e-bikes are in use in Sweden. The government had a specific scheme to support the purchase of e-bikes, but that support is now removed.
- **E-logistics:** Sweden has several demonstration projects with e-trucks in urban environment. Sweden also has two major truck manufactures with plans of selling electric trucks. On Gotland, Sweden will be the first in the world to charge inductively both an electric truck and a bus while in full motion.
- **E-scooters:** E-kickbikes has recently been implemented in several Swedish cities. The Polish company Blinkee City has introduced its sharing system of e-scooters in Stockholm.
- **E-ferries:** Sweden together with Denmark have two battery Electric Ferries. They are used between the between Helsingør (Denmark) and Helsingborg (Sweden), a distance

of approximately 4 km carrying more than 7.4 Million passengers and 1.9 million vehicles annually.

Key ideas from Sweden:

1. Home charging is the most important charging infrastructure to support.
2. To implement urban electric mobility solutions there is a need for collaboration between several stakeholders. Do not underestimate the effort need to find common understanding. There is also often a need to have neutral actor to balance different requirement from actors.
3. The bonus-malus system is a cost neutral solution for the government, and therefore the political cost is rather low to implement the scheme.

More detailed analysis about different e-mobility solutions in Sweden is available from <https://bsr-electric.eu/materials>.