



Introduction

Vattenfall is committed to building a future where everyone can choose fossil-free ways to move, make and live. The electrification of transport is key to transform society's mobility behaviour and reach climate neutrality. Many countries in Europe are aiming for net-zero greenhouse gas (GHG) emissions by 2050 compared to 1990 levels. Achieving this 2050 objective demands a sustainable mobility system reliant on cleaner transportation modes and fuels. Transportation accounts for approximately a quarter of total GHG emissions, making rapid decarbonisation of the sector imperative.

Vattenfall has a long history in transport decarbonisation, dating back over a century when we pioneered the electrification of [Swedish railways](#) with hydropower. Today, railways are the only widely electrified mode, while road transport, aviation, shipping, and heavy-duty vehicles remain heavily reliant on fossil fuels.

In our mission for fossil freedom, Vattenfall enables the decarbonisation of transport by providing fossil-free electricity and establishing e-mobility infrastructure. In October 2023, we operate 48,000 charging points in Northern Europe and collaborate with cities, businesses, and universities to find sustainable solutions.

Road Transport

Road transport accounts for 70% of total CO2 emissions in the transport sector. The most effective way of reducing emissions in this sector is through direct electrification .

There should be clear policy signals to enable the road transport sector to become climate neutral by 2050 .

There are various policy options that can be chosen, like emission standards, zero emission zones in cities, incentives for cities to invest in charging infrastructure. Clear regulations will create a level playing field for electric (EV) and heavy duty vehicle (HDV) manufacturers, ensuring consumer trust and fostering market growth.

The biggest challenge is to build a consistent charging infrastructure network that is easily accessible by everyone and fulfils all different charging needs in modern transport. **The grid connections represent the largest bottleneck. Policy makers should fast-track permits to have a grid that is ready for future challenges as soon as possible.**

Also, the system needs to be harmonized across countries to enable long-distance travel. This can be achieved with either financing options, for both charging infrastructure and EVs and HDVs, technical cooperation like **harmonization of interoperability standards or by setting a binding target in terms of number of charging points.** Further, the payment system for charging infrastructure should ensure a seamless experience for users across different networks, with help of established standardised communication protocols.

Strict ambient air quality targets are another lever to promote e-mobility in cities. Cities air quality will benefit from providing and incentivizing e-mobility as well as micro e-mobility like bicycles or scooters.

Despite the good prospects, society seems hesitant to make the switch to e-mobility, looking at a penetration rate of EVs in European sales in the first quarter of 2023 averaging 13.4%. Although this percentage is expected to grow significantly over the coming years, the transition needs to be effectively facilitated .

An important pillar of e-mobility development is to **build trust in society and to create consumer demand.** A new mobility system is needed, where EVs drivers are given an active role in the transition. This can be achieved through building of a sharing economy to increase the efficiency of vehicle use. Another possibility is to connect EVs to the grid . This has the benefit of increasing the flexibility of the power system, integrate intermittent renewable energy and reducing network investment costs.

In order to get the society on board, education and awareness campaigns should be launched by policy makers to make the consumers aware of the benefits of electro mobility, dispel myths like range anxiety, and increase knowledge about the available incentives and charging options.

In order to transition the road freight sector to zero emission, more ambitious CO2 standards are needed to set the right pace and a clear trajectory for manufacturers, logistics operators as well as for the supply chains in the electromobility and automotive industry. Almost all newly registered trucks should be 100% zero emission at the latest by 2035, to strengthen the emission reduction targets to fully decarbonize the sector by 2050. Grid connection near the depot are necessary. A mandate should be introduced for companies to electrify their EVs and HDVs fleet. This would facilitate a second hand market and also make it affordable for either Small and medium-sized enterprises and consumers and let them also the possibility to move fossil-free.

Water and air transport

While batteries are effective to decarbonise road transport and inland water vessels, hydrogen emerges as a promising alternative in sectors like planes and cargo ships, where large, heavy batteries are not feasible. To accelerate the transition to zero emissions in these two sectors, regulators should strengthen the electrofuels mandate provided that the final framework not limited to renewables but focuses on all options that can decarbonise them.

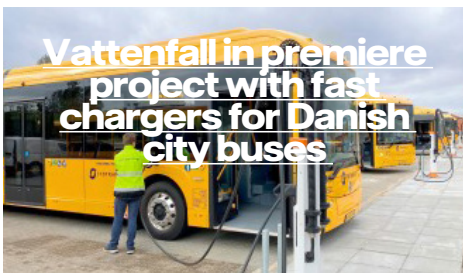
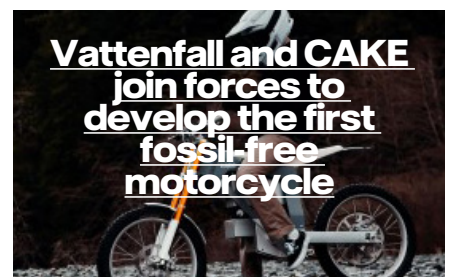
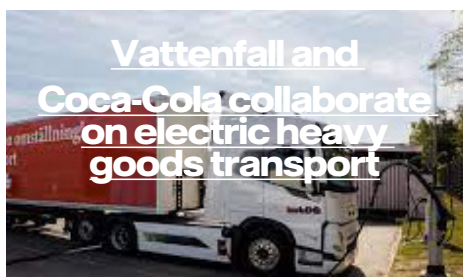
By addressing the mentioned priorities, policy makers can create an environment that supports and accelerates a more sustainable transportation system.

Summary of regulation options

- Smartening and upgrading existing grid infrastructure to allow it to support greater levels of renewable energy and facilitate the fast-track permits
- Strengthen the CO2 emissions standards for light duty vehicles, vans and heavy duty vehicles.
- Incentives cities to invest in charging infrastructure and set binding target in term of number of charging points at country level.
- Set strict ambient air quality targets and/or create zero emission zones in cities.
- Mandating EVs and HDVs adoption in corporate fleets.
- Launch education and awareness campaigns about the benefits and incentives of electro mobility.
- Strengthen the electrofuels mandate for maritime and aviation transport, embracing all fossil-free electricity sources

About Vattenfall's solutions

Vattenfall is investigation solutions to decarbonize fuel in all transportation modes. There is a variety of opportunities for creative and innovative solutions to encourage transforming ourselves and others. But one company cannot achieve the set climate ambitions alone. Therefore, we engage with several cities and regions as well as pursuing cross industry partnerships.



Vattenfall is a European energy company with approximately 19,000 employees. For more than 100 years we have electrified industries, supplied energy to people's homes and modernised our way of living through innovation and cooperation. Our goal is to make fossil-free living possible within one generation. Everything we do and the decisions we take shall lead to this goal. This is the basis of Vattenfall's strategy, and we advocate for a regulatory environment that makes this transition possible – in the energy sector and beyond in transport, industry etc