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Technology Collaboration Programme on
Advanced Motor Fuels

Country Report Sweden



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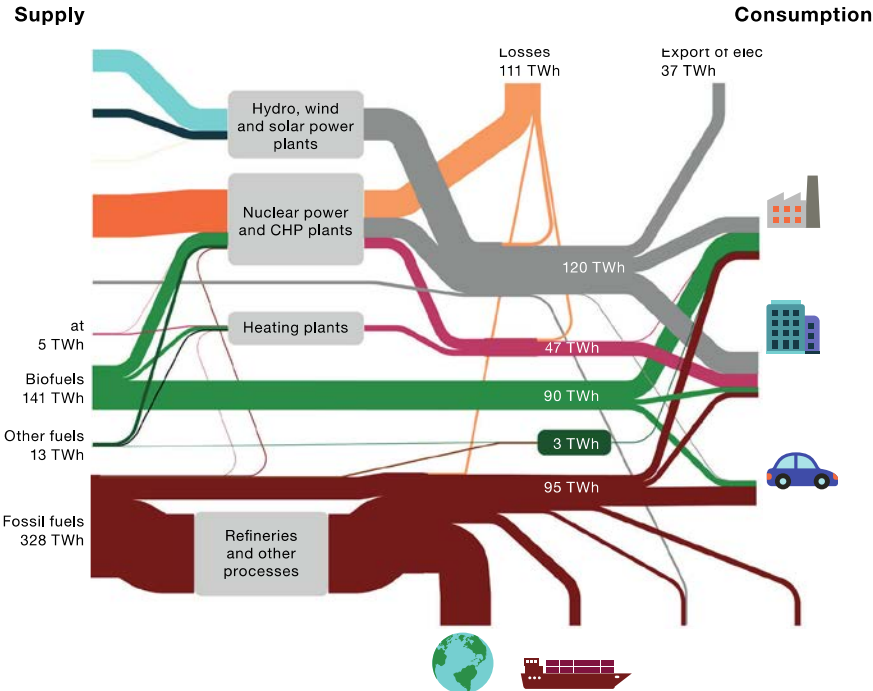


About

- Population: 10,5 million
- Total area: 530 000 km²
 - 63% Forest
 - 9% Lakes and rivers
 - 7% each Marshland, Agricultural land, Grassland
- Population density: 26 persons/km²



Energy use

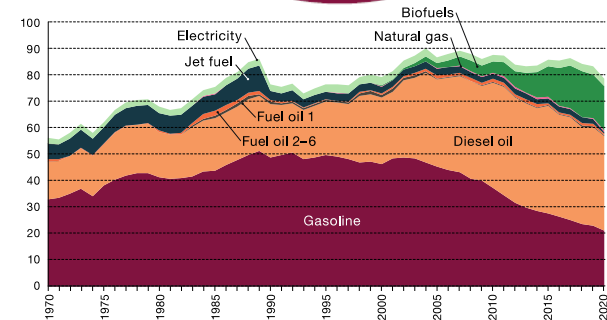
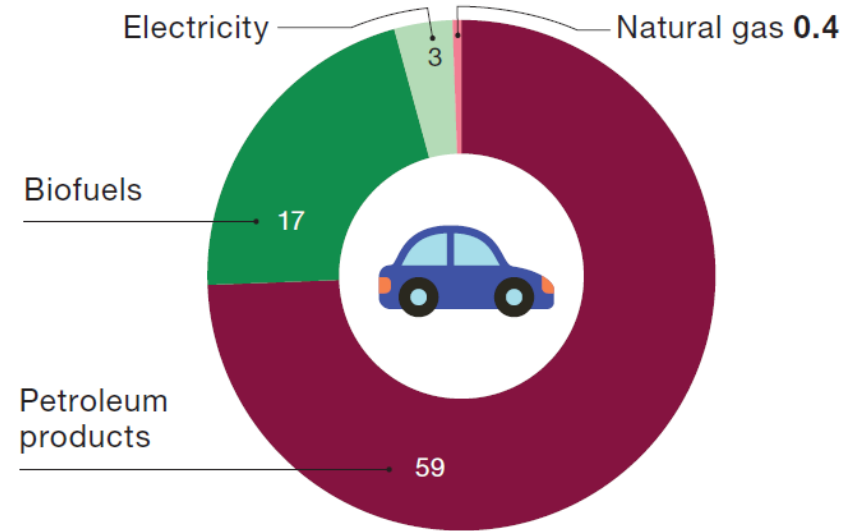


Sweden

- 738 TWh
 - Export
 - 37 TWh electricity
 - 159 TWh refined fossil fuels
 - 111 TWh losses (nuclear power)
 - Biofuels: 141 TWh
 - Industry
 - Residential and services
 - Transportation

Biofuel in transport

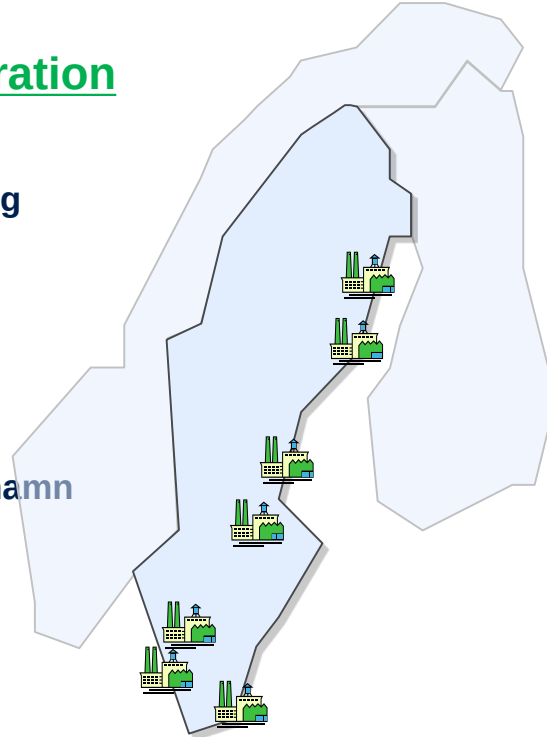
- 21% of total energy demand
 - Increase from 5% in 2010
- Types of fuel
 - 84% Biodiesel (FAME and HVO)
 - 8% Biogas
 - 5% Bio ethanol
 - 3% Other



Promising Swedish biorefineries development

Larger plants in operation

- ❖ **SunPine in Piteå**
150 000 m³ Raw Tall Diesel
- ❖ **Agroetanol in Norrköping**
230 000 m³ ethanol
- ❖ **Adesso in Stenungsund**
120 000 ton RME
- ❖ **Preemraff Lysekil**
175 000 m³ HVO-products
- ❖ **Preemraff Gothenburg**
370 000 m³ HVO
- ❖ **Energifabriken in Karlshamn**
55 000 ton RME
- ❖ **Södra in Mönsterås**
5000 ton biomethanol
- ❖ **Pyrocell in Gävle**
25 000 ton biocrude for HVO
Started 7 Dec 2021



Plants in development

- ❖ **St1 Refinery in Gothenburg**
200 000 ton HVO + SAF biofuels Q4 2023
- ❖ **Preemraff Lysekil**
900 000 m³ HVO-products 2024
- ❖ **Liquid Wind with Övik Energi**
50 000 m³ biomethanol 2025
- ❖ **Project AIR Perstorp at Stenungsund**
200 000 m³ biomethanol 2025?
- ❖ **SCA in Östrand w St1**
300 000 ton HVO biofuels 2025?
- ❖ **Vattenfall+Shell+LanzaTech in Forsmark**
50 000 ton SAF for SAS 2026
- ❖ **SkyFuelH2 Uniper+Sasol in Långsele**
100 000 ton SAF 2028
- ❖ **St1 Refinery in Gothenburg**
200 000 ton HVO + SAF biofuels 2028?

*Selected projects or plants, e.g. biogas plants not shown
Biofor in Stockholm with 6 million Nm³ bio-CNG*

*Colabit, Swedish Biofuels, RenFuel, OrganoFuels,
Votion Biorefineries, Plagazi, TreePower...*

Policy: Transport

- Reduced reduction quota
- Reduced tax on petrol and diesel
- Incentives
 - Charging and hydrogen refuelling stations
 - Electric light commercial vehicles, Environmental heavy duty vehicles and non-road mobile machinery
- Fossil free, not renewable, energy
- The 70% CO2 reduction target for transport by 2030 will not be met



Elisabeth Svantesson, minister of finance
Budget bill 2024

Stability and sudden changes in policies,

mixed signals for investors and actors



Road transport shall reduce emissions by 70% until 2030 and Sweden shall get zero net emissions until 2045. Sweden has a climate law. Electrification is underway.

Fuel	Comment	Taxes and policy
Petrol	E10, 10% ethanol	Reduction quota mandate 7.8% until 1 Jan 2024
Diesel	B7, 7% FAME + 30-35% HVO	Reduction quota mandate 30.5% until 1 Jan 2024
E85	Summer: 85% ethanol Winter: 75% ethanol	Full tax exemption for biofuel share to 31 Dec 2026
B100	RME100	Full tax exemption to 31 Dec 2026
HVO100	For some cars and most buses and trucks	Full tax exemption to 31 Dec 2026
ED95	95% ethanol for buses and trucks	Full tax exemption to 31 Dec 2026
Bio-CNG	>90% of all bio-CNG is biogas, other is CNG	Full tax exemption to 31 Dec 2030

Research areas

- Accelerate
 - system demonstration
 - Demand driven
 - Fossil free
- Zero emission
 - Vehicles and their associated infrastructure
 - electrification including fuel cells
 - also smaller investments in other driveline alternatives for zero-emission vehicles
- Advanced motor fuels
 - Aviation
 - Maritime

FFI consists of 5 subprograms

Circularity

The mission is to minimize climate and environmental impacts from a life-cycle perspective and to strengthen sustainability throughout the value chain linked to the development, production and decommissioning of vehicles, including their components. This will develop and improve opportunities for future production in Sweden.

Transport and Mobility Services

The mission is to develop and test new innovative services and transport solutions that contribute to more efficient use of vehicles and transport systems.

Accelerate

The mission is to contribute to an increasing pace of transition to sustainable road transport through broad cooperation and major system demonstrations. In Accelerate, innovative system solutions with high societal benefits will be demonstrated on a large scale.

Safe Automated Driving

The mission is to improve road safety and make transport more sustainable through safe connected automated vehicles prepared for sharing.

Zero Emissions

The mission is to reduce the negative impact of the automotive sector on the climate and environment by developing and integrating zero emission vehicles with their charging and refueling infrastructure and users.

New developments

- Renewable → Fossil free
 - Nuclear power
- Landwärme
 - Tax exemption for biogas removed
- European focus
 - Fit-for-55
 - Less focus on national goals for transport
- Public acceptance
 - Fuel cost

