

Energy

Image: Shutterstock



A cornerstone of the green transition

The global transition to sustainable energy and electrification is being driven by climate goals, policies, and the overall benefits these will have to all aspects of society. To power electric vehicles, shift to low-carbon manufacturing, and implement sustainable heating and cooling solutions, long-term, low-carbon energy technology models need to be applied.

Energy is recognised as a critical factor in building an equitable future; Sustainable Development Goal 7 aims to ensure access to affordable, reliable, sustainable and modern energy for all by 2030. But the demand for clean energy technologies and implementation requires global collaboration.

Swedish companies offer world-leading solutions in electrification and Sweden as a nation has ambitious goals to have a 100 per cent low-carbon electricity by 2045. Together, industry and government are inviting the world to work together to accelerate the green transition.



Photo: Vattenfall

Sweden's Energy system

Sweden's reliable and sustainable energy systems and circular grid are powered by commercially viable and scalable energy technologies, enabling low-carbon value chains and further accelerating the green transition.

The development and implementation of a reliable, sustainable electricity grid and supply that can power the ongoing electrification of society is underpinned by investment, policies, and energy technology innovations.

- Sweden's energy sources include hydropower, nuclear, wind, and solar which represent 90% of the electricity mix
- Energy produced in Sweden is 98% fossil fuel-free and the grid has 99.99% reliability
- The cost of electricity in Sweden is 35% lower compared to other European countries
- Sweden ranked first in the World Economic Forum's Energy Transition Index for 2024, scoring 78/100
- Sweden has unique energy technology competencies, with world-leading grid technology, heating and cooling solutions, and low-carbon energy applications



Energy sector actors

Sweden's energy sector consists of Swedish and international companies contributing solutions, knowledge, and innovation across the value chain.

Swedish companies within the Swedish energy sector provide industry and society with low-carbon and stable energy in Sweden, and with partners in global markets to implement localised solutions to meet grid and delivery demand.

Below are a few key players in Sweden's energy sector, read more about them and other companies in the comprehensive Company Directory found on [Sharing Sweden](#).



Photo: ABB

ABB

An industry leader in technology solutions that enable companies to sustainably automate and electrify their production operations.



Photo: Alfa Laval

Alfa Laval

Global innovator in industrial processes that improve energy efficiency and heat recovery, better water treatment, and reduced emissions.



Photo: Ferroamp

Ferroamp

Swedish greentech company focused on energy and power optimisation of domestic and commercial properties.



Photo: NKT

NKT

Manufacturer of high-quality power cable technology delivering low, medium, and high voltage power cable solutions that enable sustainable energy transmission.



Photo: Ola Ericsson / imagebank.sweden.se

Stockholm Exergi

Stockholm's energy provider with a 3,000-kilometre-long district heating network providing 98 per cent renewable and recycled energy.



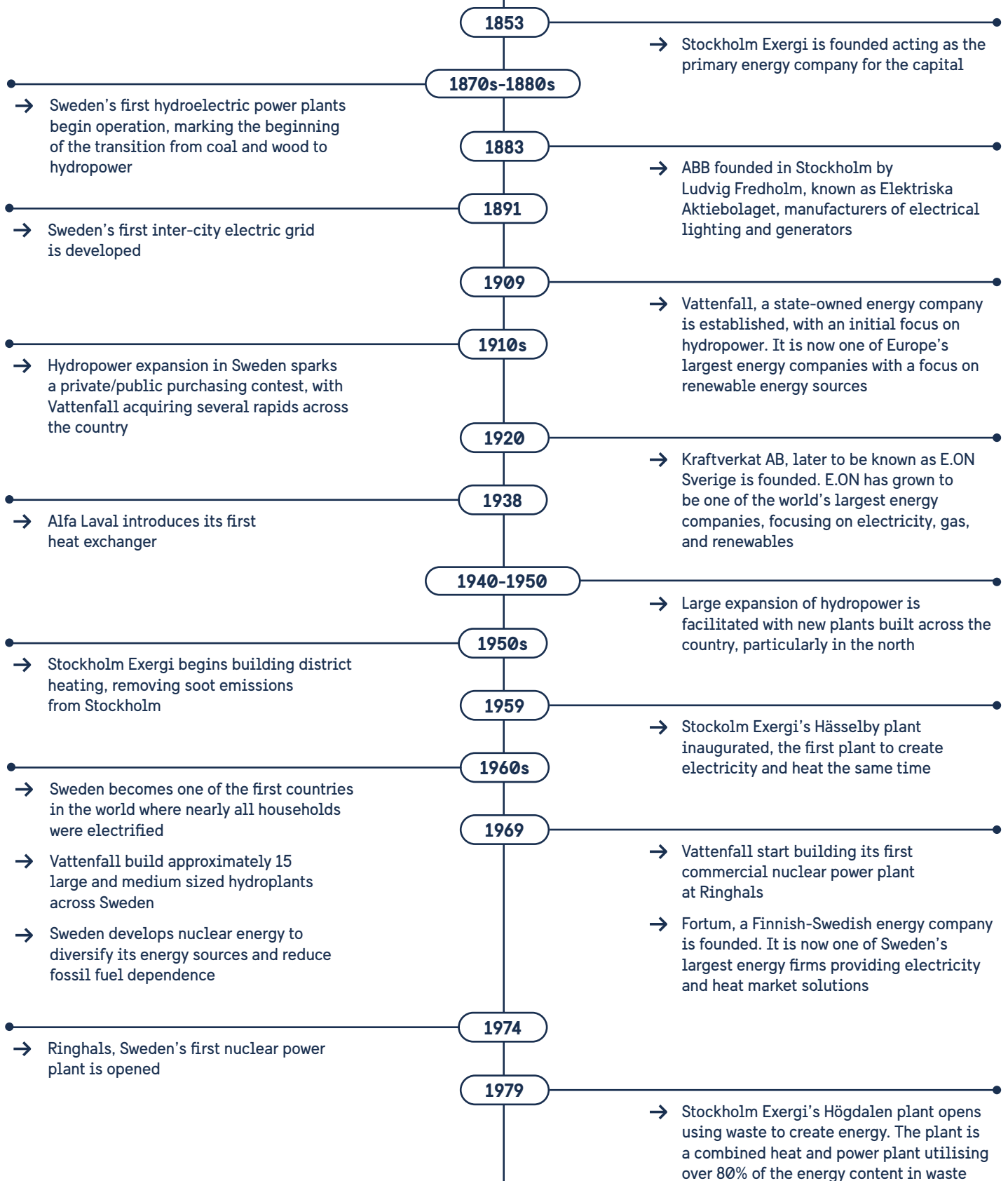
Photo: Swedish Biofuels

Swedish Biofuels

Swedish innovator of bio-based fossil fuel-free solutions that include sustainable aviation fuel, diesel, gasoline, alkylate gasoline, and aromatics.



Milestones in Sweden's sustainable energy development





1980s

- The world's largest heat pump plant opens in Hammarby, recovering waste heat from wastewater, reducing emissions over Södermalm by two-thirds
- Wind energy becomes part of Sweden's renewable energy strategy with the government initiating policies to support the development of clean energy

1990

- ABB launch a gearless steerable propulsion system where an electric drive motor is housed within a pod outside a ship's hull, cutting fuel consumption by up to 20%

1991

- Sweden is one of the first countries in the world to introduce a carbon dioxide tax

1992

- Svenska kraftnät is formed after splitting from Vattenfall, becoming Sweden's transmission company owning and managing power lines, transformers and switching stations

1993

- Lysekil wind power facility operated by Vattenfall launches operations

1996

- Sweden deregulates its energy market, increasing competition

2006

- Vattenfall's wind turbine ownership jumps to 523 with sites in Sweden, Denmark, Poland, and the UK

2007

- Minesto is founded, developing unique ocean energy technology

2009

- Sweden sets a goal to reduce greenhouse gas emissions and become one of the first fossil fuel-free OECD countries by 2045

2010

- Energimyndigheten (the Swedish Energy Agency) is launched, tasked with promoting innovation in energy technologies, including renewables, energy efficiency, and sustainable solutions
- Stockholm named Europe's first Green Capital, made possible by Stockholm Exergi replacing old oil boilers with renewable district heating
- Ferroamp founded in Stockholm and named by the Financial Times as one of the 50 fastest-growing companies in Europe
- Vattenfall inaugurated Thanet, the world's largest off shore wind farm

2012

- CorPower Ocean starts operations to develop its wave energy converter

2013

- Vattenfall increase their focus on renewable energy sources including offshore wind farms and bioenergy to decrease reliance on fossil fuels

2014

- Open District Heating is launched by Stockholm Exergi, capturing excess heat from server rooms and supermarkets converting into domestic heating



2015

- Fossil Free Sweden, an initiative of the Swedish Government launched ahead of the UN climate conference in Paris, setting Sweden's goal to be the first OECD fossil fuel-free nation by 2045

2016

- Sweden begins exporting more electricity to Europe as renewable generation increases, leveraging its renewable energy capacity in neighbouring countries

2018

- Sweden's Climate Policy Framework is launched by the government, establishing its climate policy framework with the goal of reducing emissions by 70% in the transport sector by 2030, alongside increasing the share of renewable energy in electricity production

2020

- Sweden's wind turbine numbers increase to 439 providing an estimated annual electricity production of approximately 5 TWh
- Hitachi and ABB's Power Grids' business came together to form Hitachi ABB Power Grids, becoming a market and technology leader in the global energy transition and the decarbonisation of energy systems

2021

- Wind power accounts for approximately 20% of Sweden's electricity production due to rapid buildout of land-based wind energy

2022

- Hydro accounts for 41% of total electricity generation, nuclear 30%, wind 19.1%, solar 1.1%, and coal 0.4%
- Sweden's CO2 emissions per capita down 46% since 2000 recordings
- The Swedish government starts mapping new main spatial plans with the objective of identifying locations for sea-based wind power development with findings to be reported in 2023 and 2024
- CorPower Ocean launch their first commercial scale C4 Wave Energy Converter and the CorPack wave clusters

- Sweden listed as Europe's 8th largest producer of electricity, accounting for 171,798 GWh (27th globally)

- The EU grants funding to Stockholm Exergi to build Europe's first large-scale carbon capture plant

2024

- Stockholm Exergi announces permanent carbon removal agreement with Microsoft, world's largest to date

2030

- Goal for fossil fuel-free electricity production

2045

- Meet demand for carbon-free electricity in balance with other societal targets: security of supply, competitiveness and sustainability. This means that the electricity sector will expand and develop the electricity system in pace with growing customer demand for electricity.
- Electricity generation should be approximately double 2023 figures, reaching approximately 300 TWh

FAQ

What is Sweden's energy export capacity?

In 2022, Sweden exported approximately 39.4 TWh of electricity. Sweden still imports electricity, however overall, the country is a net energy exporter, with approximately 20 per cent of electricity generated exported.

What are the main renewable energy sources used to generate Sweden's electricity supply?

Sweden's most common form of renewable energy is hydropower. Hydropower is readily available due to Sweden's geographical landscape and access to moving water. Nuclear is the second largest source of energy followed by biomass, with wind and solar both still growing.

What energy solutions is Sweden contributing to other countries?

Swedish investments through government agencies and industry are working with countries to implement hydro technology, wind farms, solar farms, and scalable grid solutions.

Why has Sweden made a policy to be fossil fuel-free by 2045?

The Swedish government wanted to increase the pace of the climate transition, and it was recognised that it was possible and necessary to go fossil fuel-free while at the same time build a strong industrial sector and create more jobs and export opportunities.

How many suppliers of electricity are there in Sweden?

Swedish consumers can choose from around 140 different companies, making the market very competitive.





Sweden has a high energy consumption rate, but low emissions, how is this possible?

Few countries consume more energy per capita than Sweden, but Swedish carbon emissions are low compared with those of other countries.

The reason for Sweden's low emission rate is that around 70 per cent of electricity production in Sweden comes from hydroelectric (41 per cent) and nuclear (29 per cent) power. Sweden currently has three nuclear plants with six nuclear reactors in operation.

Why has Sweden been so successful in switching to renewable energy?

Sweden has been ahead of the curve in reducing fossil fuel reliance. Long-term investment in renewable energy technology and energy efficiency are key factors. Ambitious policy goals coupled with financial investments have accelerated the switch to renewables. Now the next step is to change industrial processes.

What is Sweden's building energy rating system

Building energy ratings are not unique to Sweden, laws at the EU level set specific standards. However, Sweden is a generally cold and dark country and standardisation of insulation and double and triple glazed windows puts many domestic and commercial residences ahead of the rating curve.

There is a law on energy declarations in Sweden. The declaration shows how much energy a building consumes in comparison with others.

What financial incentives are available for companies investing in Sweden?

There are dedicated agencies that provide both Swedish and international companies access to financial support. These are the Swedish Energy Agency, Vinnova – Sweden's Innovation Agency, Almi invest, Tillväxtverket, and Industrifonden.

How is Sweden's energy supply divided and do costs differ in regions?

Sweden is divided into four energy zones from north to south. The charges for energy in each of these zones is different with the northern zone the least expensive. However, even the most expensive southern zone, energy is comparatively lower than European prices.



About Sweden

In global rankings, Sweden consistently ranks as a sustainability, innovation, and equality leader.

1st

**Global sustainability
competitiveness index**

[View ranking](#)

2nd

**Most innovative
economy**

[View ranking](#)

2nd

**Annual glass
ceiling index**

[View ranking](#)

Innovation and sustainability credentials

- Sweden aims to run 100% fossil fuel-free energy by 2045
- Sweden is supporting industrial decarbonisation and is home to one of the first major projects for hydrogen-based steel production
- The Swedish government has a target to reduce transport emissions by 70% from 2010 to 2030 and is supporting transport decarbonisation through electrification and biofuels
- Two Swedish companies have developed carbon-free steel. Stegra (formerly H2Steel) and Hybrit, a collaboration between mining company LKAB, energy company Vattenfall, and steel company SSAB
- Ultra-low carbon, 100% circular cement has been developed and piloted by Swedish company Cemvision
- Automotive disruptor Einride have created world-leading digital, electric, and autonomous shipping technology
- Stockholm's public transport network is primarily powered by low-carbon energy: 85% of the commuter and underground rail networks are electric while buses are largely powered by biofuels
- Candela, a Swedish startup, is responsible for developing and launching the world's first electric passenger hydrofoil ferry, cutting route times and emissions
- Sweden has exceptional grid competency with continue investment to meet ongoing demand. Between 2024-2033 approximately 1,500 km of new transmission power lines and 30 new substations will be installed and renewal of over 2,500 km of power lines and about half of the existing 200 substations will be carried out by Svenska kraftnät

A long history of sustainability leadership and action

- Sweden was the first country to pass an environmental protection act in 1967
- Sweden hosted the first UN conference on the global environment in 1972
- In 1991, Sweden was one of the first countries to introduce a carbon tax, and in parallel continued to grow GDP at a strong rate
- Sweden has an ambitious goal of becoming the first fossil fuel-free OECD nation by 2045
- In 2024, Sweden announced it's position as The Climate Matchmaker, matching climate challenges with solutions across local and regional value chains



Photo: Niclas Vestefjell / imagebank.sweden.se



Sweden's support ecosystem

Sweden's support systems provide Swedish and international companies with information and connections to financial support, research and development opportunities, and strategic and practical trade and investment advice.

Here are some of the actors within Sweden's support system.

Financial

Swedish Energy Agency

[Visit website](#)

Vinnova

[Visit website](#)

Almi Invest

[Visit website](#)

Tillväxtverket

[Visit website](#)

Industrifonden

[Visit website](#)

Research and incubation

RISE

[Visit website](#)

Base Batteries Sweden

[Visit website](#)

SISP

[Visit website](#)

Ignite

[Visit website](#)

KTH Royal Institute of Technology

[Visit website](#)

Lund University

[Visit website](#)

KAW

[Visit website](#)

Invest and export

Business Sweden

[Visit website](#)

Almi Invest

[Visit website](#)

Swedish Energy Agency

[Visit website](#)



Photo: Henrik Trygg / imagebank.sweden.se



Team Sweden

Team Sweden is a network of government agencies and other actors primarily focussed on promoting Swedish exports and investments in Sweden. The aim of Team Sweden is to strengthen collaboration and efficiencies based on each organisation's expertise and resources, through working groups that cross sectors, regions, and countries.

Swedish Institute

The Swedish Institute is a public agency that builds interest and trust in Sweden around the world. They work with Sweden promotion, cooperation in the Baltic Sea region, and global development.

Media Assets

Find all assets related to the Swedish Institute at sharingsweden.se

Sweden on social media





Almi

Almi Invest makes investments in the early stages of a startup. When the entrepreneurs want to raise capital to develop their business, Almi quickly assesses whether venture capital is the best option or if they should be funded directly.

[Visit website](#)

Business Sweden

Business Sweden is jointly owned by the Swedish state and the Swedish business sector with a mandate and mission to help international companies gain access to the Swedish market and help domestic ones utilise it as a platform for expansion.

[Visit website](#)

Embassies

Sweden has diplomatic relations with almost all States in the world. It has embassies and consulates in around half of these. Sweden's foreign representation consists of approximately 100 missions abroad and 350 honorary consulates. Embassies provide information about travelling or moving to Sweden, as well as information about doing business with or in Sweden.

Enterprise Europe Network

The Enterprise Europe Network (EEN) helps businesses innovate and grow on an international scale. It is the world's largest support network for small and medium-sized enterprises (SMEs) with international ambitions. The Network is active worldwide, bringing together experts from member organisations that are renowned for their excellence in business support.

[Visit website](#)

Export Credit Agency (EKN)

EKN (Export Credit Agency) is both a business partner and government authority tasked with promoting Swedish exports and the internationalisation of Swedish companies, by insuring companies and banks against the risk of not getting paid.

[Visit website](#)

Regional investment promotion partners

Sweden's regional investment promotion partners help international companies invest, establish, and expand in Sweden. They offer services on a local, regional, and national level to identify business opportunities. There are 18 regional partners across Sweden.

Swedish Agency for Economic and Regional Growth (Tillväxtverket)

The Swedish Agency for Economic and Regional Growth (Tillväxtverket) is a government agency under the Ministry of Climate and Enterprise. The agency works across three policy areas: enterprise policy, regional development policy, and rural policy. One of their primary tasks is helping to ensure that EU funds are invested in projects that promote regional growth and employment.

[Visit website](#)



Swedish Chambers of Commerce

The Swedish Chamber of Commerce has offices in many countries worldwide. They offer guidance for doing business in Sweden, which rules and agreements are in place as well as general information about Swedish business.

[Visit website](#)

Swedish Energy Agency (Energimyndigheten)

The Swedish Energy Agency (Energimyndigheten) works with the promotion of energy efficiency measures and investments in renewable energy technologies. They are responsible for leading society's transition to a sustainable energy system.

[Visit website](#)

Swedish Export Credit Corporation (SEK)

The Swedish Export Credit Corporation (SEK) is a state-owned organisation that finances Swedish exporters, their subcontractors, and international customers. They strengthen the competitiveness of Swedish exports, with a vision to make the world more sustainable through increased Swedish exports.

[Visit website](#)

Swedfund

Swedfund is the development finance institution of the Swedish state, with a mission to combat poverty by investing in and developing sustainable business in the world's most challenging markets. They work in combination with business, organisations, and authorities across the entire investment cycle.

[Visit website](#)

Vinnova

Vinnova is Sweden's innovation agency, with a goal to open the way for innovation that provides sustainable solutions and strengthens Swedish competitiveness. They support collaborations and provide funding for projects that bring together cross-sector and cross-boundary partners.

[Visit website](#)