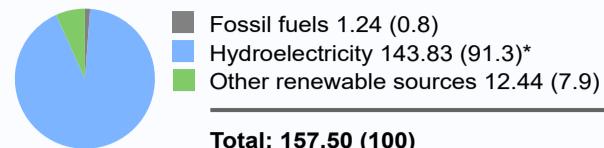


# Norway • Electricity and Renewable energy

## Gross electricity generation 2021, TWh (%):



Source: Based on the U.S. Energy Information Administration data (Sep 2023)  
\* including pumped storage

420 kV lines in service

- National grid 420 kV of other power plants, grid connection points, substations
- Border crossing



## Gross electricity generation from renewable sources by 2021, TWh (%)



Source: Renewable Energy Statistics 2023  
© IRENA  
\* excluding pumped storage

## Key hydro power plants over 330 MW, MW:

- 1 Kvilldal, 1240
- 2 Aurland, 1114
- 3 Sima, 1120
- 4 Tonstad, 960
- 5 Svartisen, 600
- 6 Rana, 500
- 7 Tokke, 430
- 8 Tyin, 374
- 9 Brokke, 330
- 10 Evanger, 330

## Key pumped-storage plants over 100 MW, MW:

- 1 Saurdal, 640
- 2 Aurland III, 270

## Key gas power plants, MW:

- 1 Kårstø, 420
- 2 Mongstad, 280
- 3 Tjeldbergodden, 150

## Key coal power plants, MW:

- 1 Longyearbyen, 12

## Key biomass power plants:

- 1 Kirkenær CHP
- 2 Lørenskog
- 3 Sørumsand
- 4 Årnes

## Key hydrogen fueling stations:

## Hydrogen fueling stations:

- 1 Trondheim
- 2 Bergen Asane
- 3 HYOP Porsgrunn - Grenland
- 4 Kjorbo
- 5 HYOP Hovik
- 6 Oslo Aiport
- 7 Oslo Bus station CHIC
- 8 HYOP Lillestrom

## Key wood pellet plants:

## Key wood pellet plants:

- 1 Ål, Hallingdal Trepellets
- 2 Tofte, Statkraft
- 3 Brumunddal, Pemco Energi

## Key waste-to-energy plants over 60 000 t/y:

## Waste-to-energy plants over 60 000 t/y:

- 1 Oslo Klemetsrud
- 2 Bergen (BIR Avfallsenergi)
- 3 Trondhjem-Tiller (Heimdal varmesentral)
- 4 Sarpsborg 1-2
- 5 Kristiansand (Returkraft Langemyr)
- 6 Oslo Haraldrud
- 7 Fredrikstad (FREVAR)
- 8 Hamar (Trehørningen)
- 9 Øra Fredrikstad
- 10 Ålesund (Tafjord Kraftvarme)

## Key biodiesel plants:

## Biodiesel plant:

- 1 Fredrikstad, Perstorp

## Key waste gasification plants from MSW, MWth:

## Key waste gasification plants from MSW, MWth:

- 1 Sarpsborg 1-2, 54.0
- 2 Forus DHP, 13.5
- 3 Hurum, 13.5
- 4 Averøy, 8.0

## Solar district heating plants over 1 MWth:

## Solar district heating plants over 1 MWth:

- 1 Akershus, 8.8

## High activity areas:

The most common solar GHI intensity is 2.7 - 3.0 kWh/m<sup>2</sup> per day, distributed in the southeastern part of the country, along coastline with the Skagerrak strait.

The most common wind speed is over 9.00 m/s at 50 m are distributed in western part of Norway, between Bergen and Alesund cities.

Avg wave power potential is 40 - 60 kW/m per year.

Sources: Energydata.info; Wikipedia.

## Key 2G bioethanol plants:

- 1 Bergen, Weyland
- 2 Sarpsborg, Borregaard

0.0 kWh/m<sup>2</sup>/d Global Horizontal Irradiation (GHI)

0.0 m/s Wind speed

In 2019 Norway had 36.72 GW of electricity installed generating capacity. Gross theoretical hydropower capability, related to Norway is 22.0 TWh/year. As of 2018, Norway registered about 1259 small-scale hydropower plants up to 10 MW with a total installed capacity of 2571 MW, generating roughly 10.3 TWh per year.

Sources: U.S. Energy Information Administration (2019); World Small Hydropower Development Report 2019; Used by permission of the World Energy Council (2013).

## Major wind farms over 50 MW, MW:

- 1 Bjerkeim, 294.0\*
- 2 Storheia, 288.0\*
- 3 Roan, 255.6\*
- 4 Tellenes, 160.0
- 5 Smøla, 150.0
- 6 Egersund, 112.5
- 7 Midtfjellet, 110.0
- 8 Høg-Jæren, 73.6
- 9 Lista, 71.3
- 10 Bessakerfjellet, 57.5
- 11 Hitra, 55.2
- 12 Fakken, 54.0
- 13 Hamnfjell, 50.0

\* under construction

