

NOVAP

NORSK VARMEPUMPEFORENING

The heat pump market in Norway

Facts about Norway

- Norway is a country of mountain ranges, huge forests, vast empty expanses and only about 3% arable land.
- The population is approximately 5.3 million, around 1.2 million of whom live in and around the capital city, Oslo.
- Form of government: Constitutional monarchy
- Parliament
- EU membership: No

The Norwegian economy

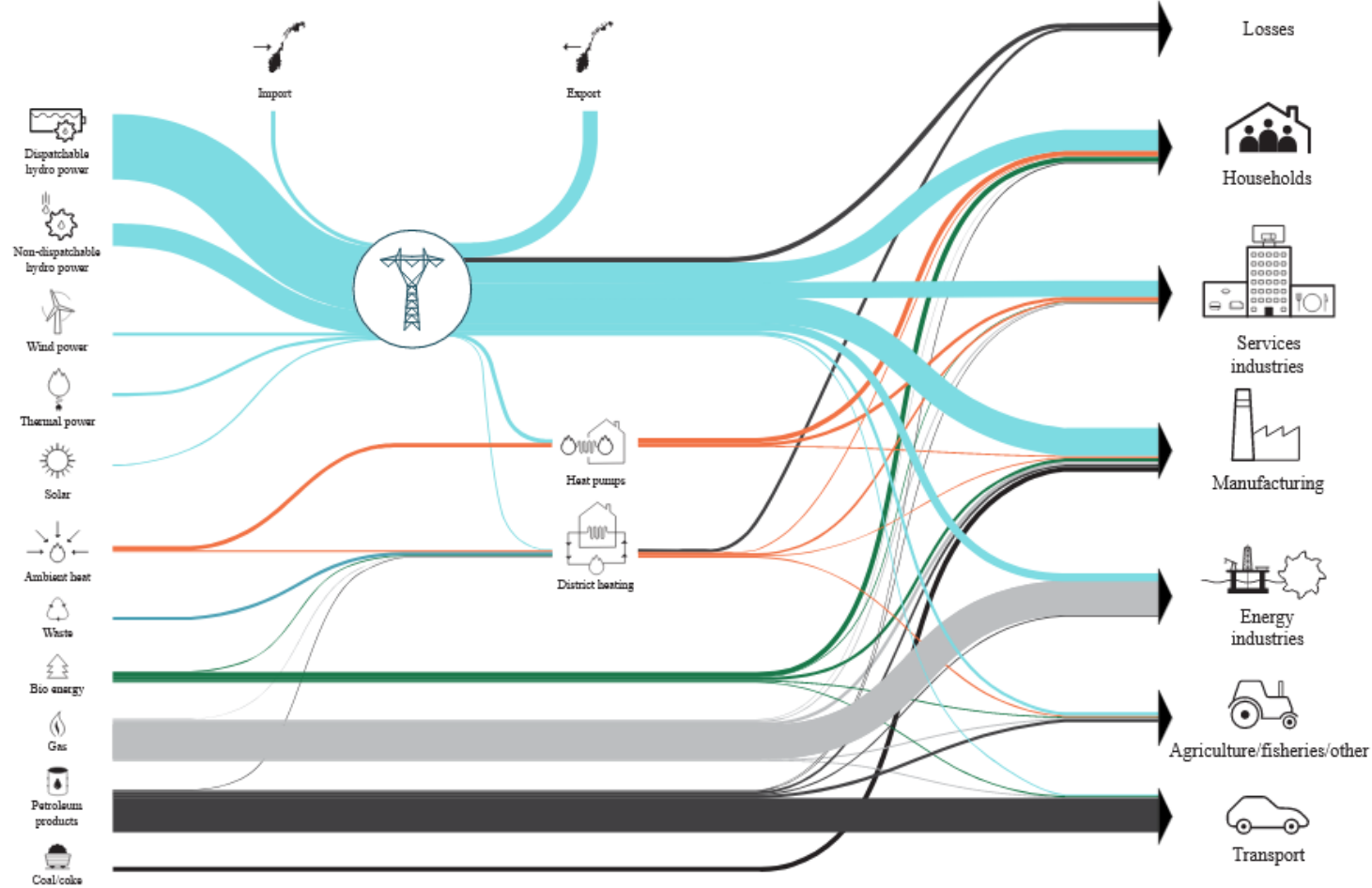
The biggest source of national income is the extraction and export of offshore oil and gas. Other significant industries include fishing, steel, shipping and tourism.

Per capita GDP: €45,700 (2020)

THE NORWEGIAN ENERGY SYSTEM

ENERGY SOURCE

CONSUMPTION



Electricity production in Norway

1690 hydropower plants

88 % of Norwegian production capacity

53 wind farms

10 % of Norwegian production capacity

The total renewable share in Norway is 50.4 per cent, compared with 46.7 per cent in 2010

Heat pumps and electrification of Norway

- To achieve Norway's climate goals, Norway must be electrified, and all energy consumption must be CO2-free in the future

Norwegian EV market



In 2021: 64.5 percent of all new cars sold were fully electric.

Electric ferries

At the beginning of 2021, there were 31 car ferries in electric operation in Norway.

A year later - at the beginning of 2022, there were 48 in operation.

Since the turn of the year, four more car ferries have been put into electric operation, so that there are now 53.

Another 20 ferries will be put into electric operation during the year.



Climate targets & fossil fuel use

Date for carbon neutrality:

90-95 % reduction in 2050 compared to 1990. Norwegian Climate Act § 4.

GHG emission reduction target for 2030:

At least 50 % and up to 55 % reduction of GHG emissions compared to 1990.

Dates and targets on use of other fossil fuels in heating:

Use of fossil oil for heating banned from 2020 (with a few exceptions). All fossil fuels banned in new buildings from 2016.

Current national CO₂ pricing policy

CO₂ price on fossil fuel and refrigerants.

No fossil fuel subsidies in heating

Heat pumps in Norway

- Heat pumps in more than 50 % in households
- Heat pumps in multi-family buildings
- Heat pumps in commercial buildings
 - University buildings
 - Hospitals
 - Hotels
 - Schools
 - etc
- Heat pumps in district heating
- Heat pumps in industry and aquaculture

About Norway and briefly about 2021/2022

- Highest electricity prices ever
- Fossil oil heating is prohibited for most buildings since 2020
- Fossil energy is prohibited in new buildings since 2015
- Gas heating is only available in a few places
- Fossil energy is still used in industry, but this will be phased out
- Electric heating is most common in Norway
- Many houses also have wood stoves
- High electricity prices increase the demand for heat pumps
- There is district heating in the cities and some smaller towns, yet less than in the other Nordic countries
- CO₂ price on fossil fuel and refrigerants

Pros and cons for heat pumps

Pros:

Electricity prices low compared to fossil energy

CO₂-taxes on fossil energy

Fossil energy banned in new buildings

Fossil oil banned in most buildings

Energy labelling of buildings, BREEAM, FutureBuild etc promotes heat pumps

Ambitious building owners choose heat pumps

Many competent companies, installers and planners

Subsidies for some heat pumps

Cons:

Direct electric heating is common

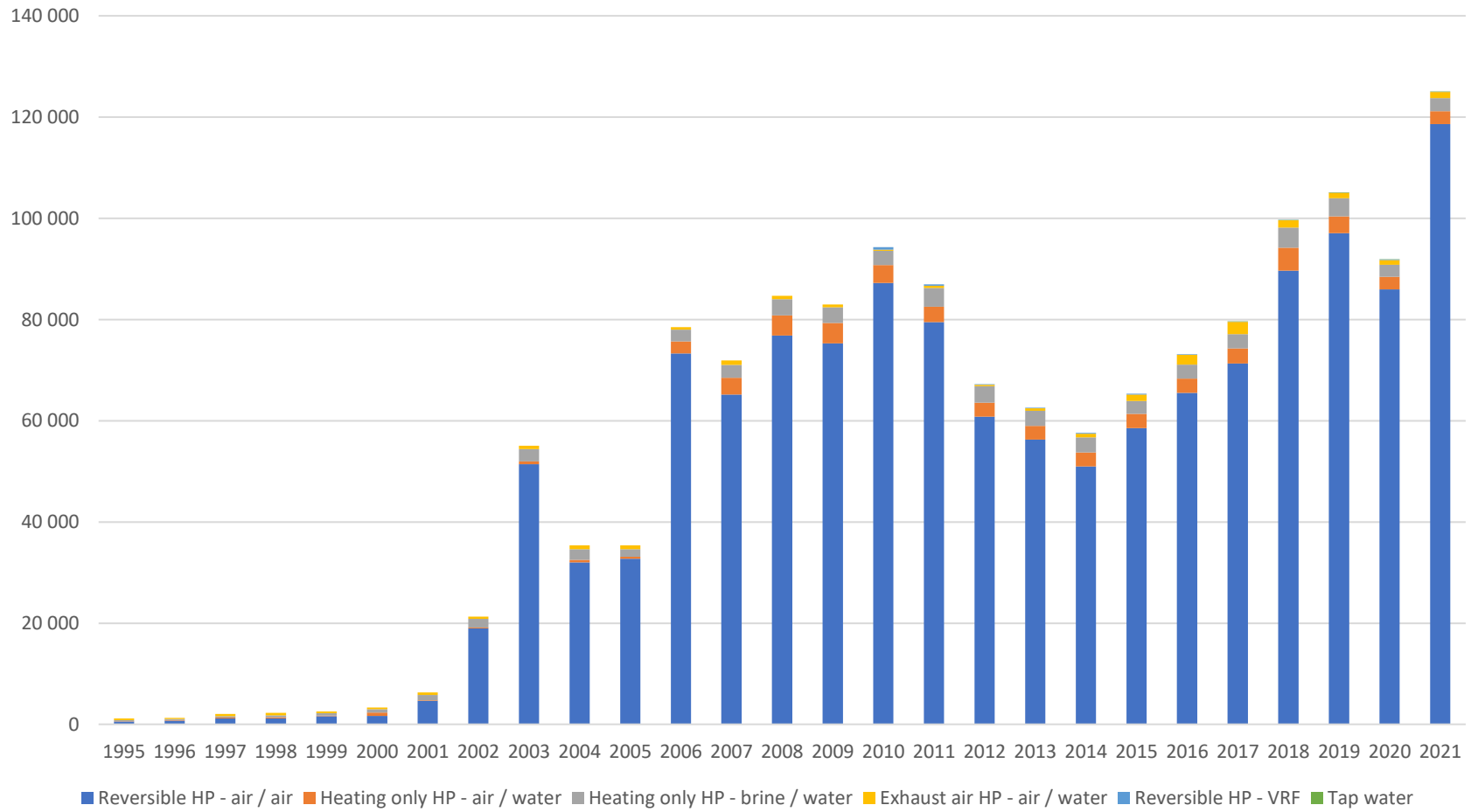
Building regulations does not give initiatives for heat pumps

NZEB not implemented in building regulations

Many incompetent companies, installers and planners

No national strategy for energy efficiency in buildings

Total market heat pumps 1995 - 2021



2021 vs 2020

- **Total sales of heat pumps:**

- 2019 105 124

- 2020 91 894

- 2021 125 049

- An increase of 36% compared to 2020

- **2021 compared to 2020**

- Air-to-air + 38,00 %

- Air-to-water + 2,5 %

- Brine-to-water + 8,0 %

- Exhaust air 29,9%

Distribution of heat pumps in Norway

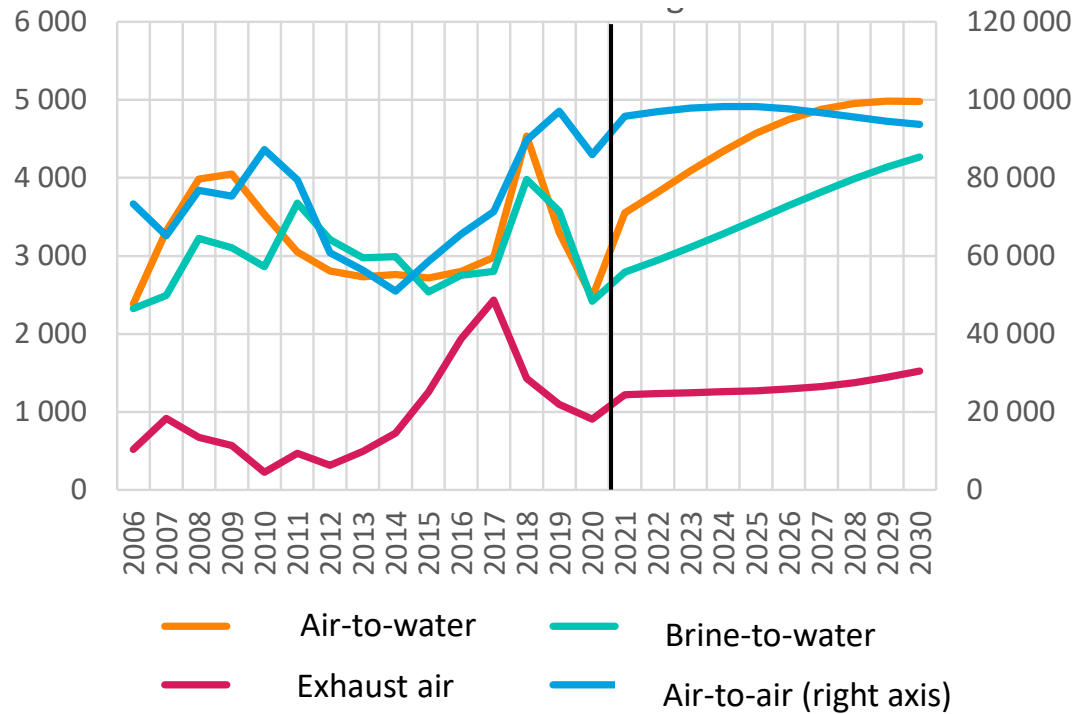
- In the period 1987 - 2020, almost 1.4 million heat pumps were sold in Norway
- Air-to-air: approx. 1.25 million
- Air-to-water: over 50,000
- Brine-to-water: over 55,000
- Ventilation heat pumps: over 20,000

- More than 1.1 million heat pumps are in operation - more than 10 TWh of ambient heat.

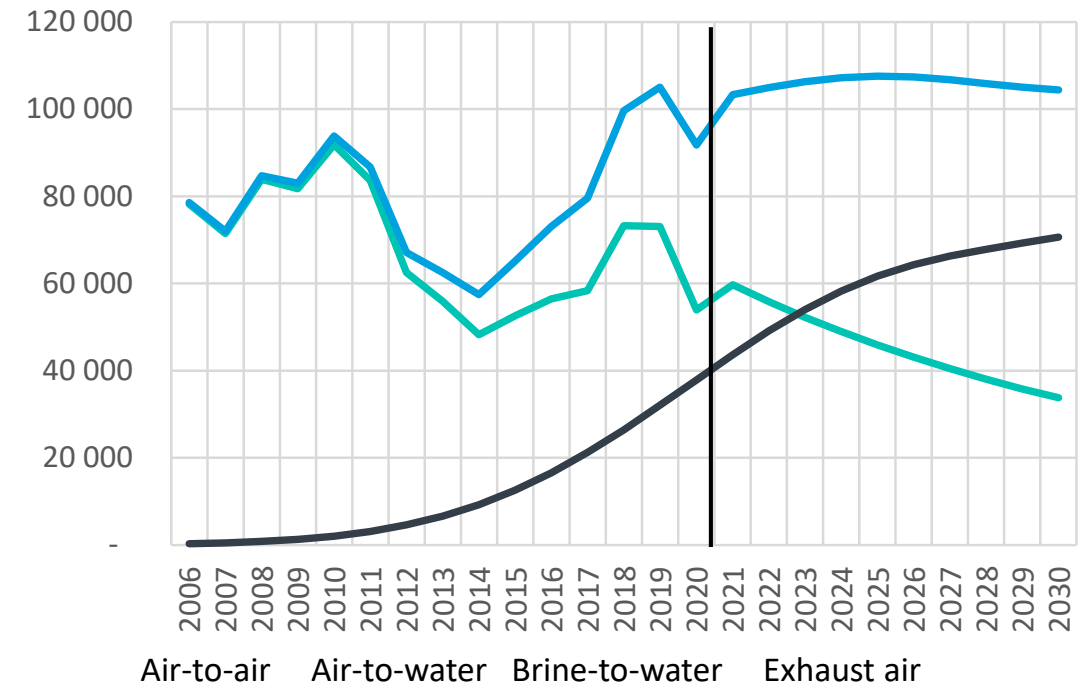
- (Including 2021 more than 1,5 million heat pumps were sold in Norway)

Trend projection for heat pump sales

Number of heat pumps sold by type, trend projection

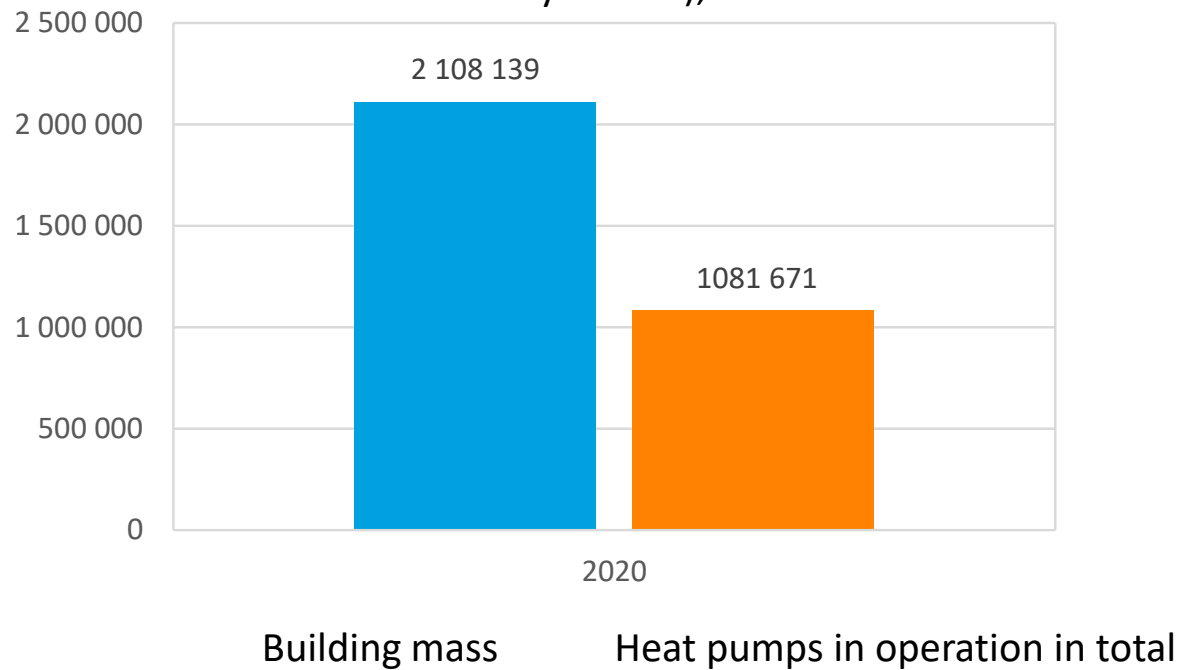


Number of heat pumps sold per year



How many heat pumps are in operation?

Heat pumps in operation in homes vs. the housing stock (detached houses, terraced houses and holiday homes), 2020



Number of heat pumps in operation, 2020 - estimate

