Energy in figures 2022

Figures are based on 2020 data from Statistics Netherlands

The Dutch energy system

1 petajoule (PJ) can supply a city like Tilburg with electricity for a year

Primary demand (2940 PJ)
Energy sources

- 10% — 300 PJ Renewable energy
- 1% — 40 PJ Nuclear energy
- 44% — 1307 PJ Natural gas
- 37% — 1078 PJ Oil
- 6% — 173 PJ Coal
- 2% — 47 PJ Other

Excl. international shipping and aviation
5 PJ natural gas and 586 PJ oil

808 PJ is directly available → a
1477 PJ* is available after conversion → b
660 PJ of energy losses:
- 464 PJ by conversion
- 169 PJ by own use energy sector
- 27 PJ through distribution

5 PJ net export of electricity

Final demand (2280 PJ)
Energy carriers

- 17% — 389 PJ Electricity (108 TWh)
- 10% — 219 PJ Heat
- 25% — 570 PJ Direct use of gas
- 25% — 566 PJ Transport fuel and residual gas
- 23% — Products and feedstock (non energetic demand)

a 808 PJ is directly available:

- 85 Solar and wind
- 49 Biomass, geothermal and ambient heat
- 570 Direct use of gas
- 104 Natural gas as feed stock

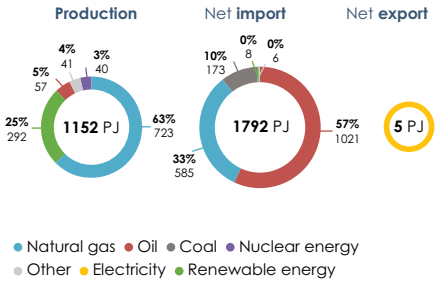
b 1477 PJ* is available after conversion:

Through power plants and CHP's: 111, 40, 569, 17, 86, 36 → 344, 164
Through other conversions: 55, 18, 978, 80, 11 → 29, 566, 432

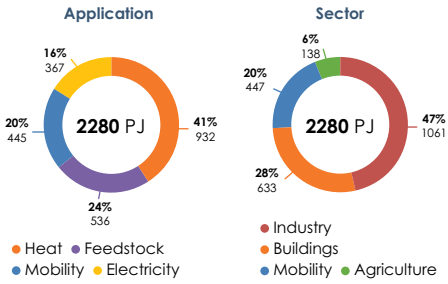
* Net output (1535 PJ) minus losses of electricity (35 PJ) and heat (23 PJ) = 1477 PJ

Production & consumption

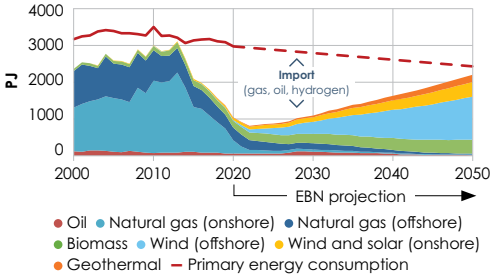
1) How much and what kinds of energy does the Netherlands produce, import and export?



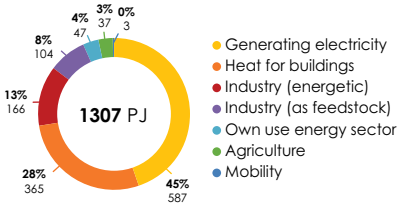
2) How is final demand distributed among applications and sectors?



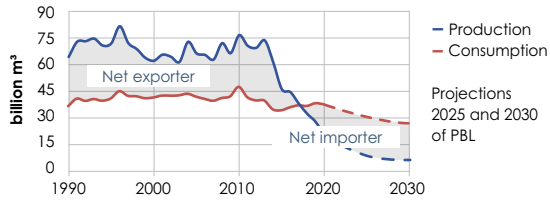
3) Domestic energy production: how self-sufficient is the Netherlands?



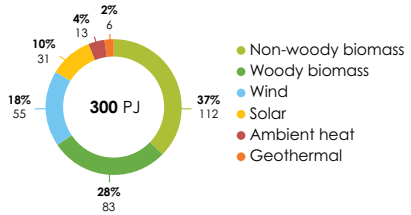
4) How much natural gas is consumed per sector?



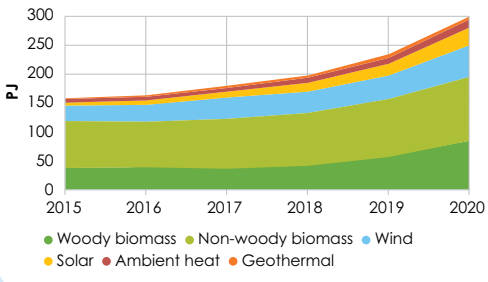
5) How much natural gas do we produce and how much do we use?



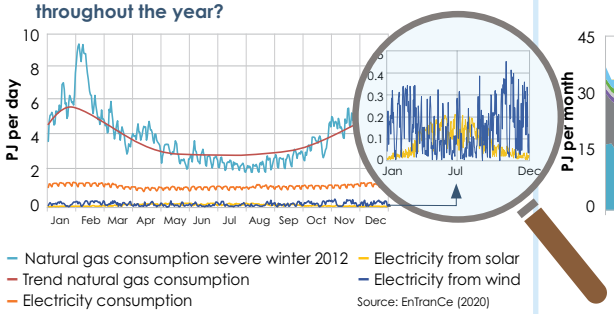
6) Which renewable sources contribute to renewable primary demand?



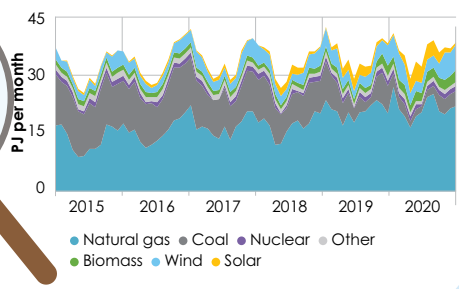
7) How has renewable primary demand developed?



8) How do gas and power demand vary throughout the year?

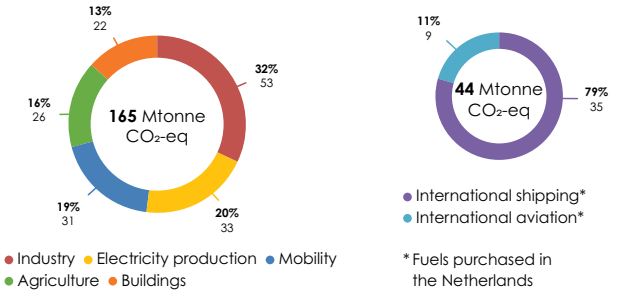


9) From what sources is electricity generated?

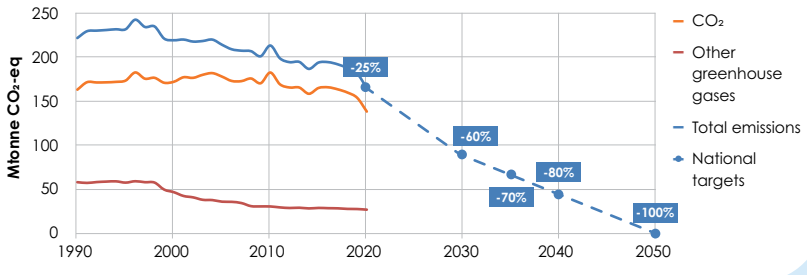


Emissions (in CO_2 equivalents)

10) What share of emissions do the different sectors have?



11) How are greenhouse gas emissions developing in relation to the national targets?



Turn the knob!

Which knobs can we turn?

Possibilities for accelerating the CO_2 reduction annually

Green gas
The natural gas consumption of one million households is replaced by green gas.
-1.5 Mtonne CO_2

Heat grid
400,000 homes replace their central heating boilers by connecting to district heating with geothermal energy as source.
-0.5 Mtonne CO_2
(increases as the share of green electricity grows and heat loss in the grid decreases)

Industry
The food industry and paper and board industry switch to heat pumps.
-0.2 Mtonne CO_2
(increases as the share of green electricity grows)

CO_2 storage
For a large industrial area 2.5 Mtonne CO_2 can be captured and stored in an empty gasfield offshore.
-2.5 Mtonne CO_2

Steel production
2.5 million tonnes of steel (35% of current Dutch production) are produced in plants running on natural gas or hydrogen and renewable electricity instead of coal.
Natural gas; **-3.1 Mtonne CO_2**
Hydrogen: **-3.8 Mtonne CO_2**

Insulation
Three million homeowners improve the insulation of their family homes.

1 million improvements:
- Exterior wall: **-1.6 Mtonne CO_2**
- Glass: **-0.4 Mtonne CO_2**
- Floors: **-0.5 Mtonne CO_2**

Total: **-2.5 Mtonne CO_2**

Extraction
One billion m^3 natural gas (5% of current Dutch production) is produced in the Netherlands instead of import of LNG.
up to -0.4 Mtonne CO_2

Electric car
Two million car owners replace their cars running on petrol with an electric car.
-1.6 Mtonne CO_2
(increases as the share of green electricity grows)

Refinery
A refinery with a capacity of 400,000 barrels of oil per day (30% of current NL capacity) switches to renewable sources.
-2.7 Mtonne CO_2

Car usage
Two million owners of petrol cars cut their car use in half by taking the train or (electric) bike instead.
-2.1 Mtonne CO_2

Nuclear power plant
A nuclear power plant the size of Borssele (485 MW) produces 3.8 TWh electricity without significant CO_2 emissions.
-1.3 Mtonne CO_2
compared to electricity from natural gas.

Solar panels
Two million homeowners install ten solar panels on their roofs.
-1.8 Mtonne CO_2
(decreases as the share of green electricity grows)

Travel
Half the trips to London and Paris (two out of four million) will be made by train instead of flying.
-0.3 Mtonne CO_2

Heat pump
One million homeowners with well-insulated family homes switch from a HR-boiler to a heat pump.
-0.4 Mtonne CO_2
(increases as the share of green electricity grows)

2022 / realisation: adesign.nl

For detailed information see energieinnederland.nl

All examples are indicative, expressed in CO_2 equivalents per year and directed towards feasibility in 2030.

This infographic was produced in cooperation with Milieu Centraal, TNO, Statistics Netherlands and PBL.