



Danish Energy Agency



2022

Data, tables, statistics and maps
Energy in Denmark 2022

Energy in Denmark, 2022

Contents

General information on Denmark	3
Energy production	4
Imports and exports of energy	8
Electricity and heat	9
Danish energy flows 2022.....	12
Renewable energy	14
Energy consumption	16
Emissions	19
Energy economy and prices	20
International comparisons	22
Danish key figures	23

Design

Danish Energy Agency

Edition

Internet

Printing

Quotations may be made from this publication with appropriate acknowledgement of source.

Internet

Available at www.ens.dk

Sources

Danish Energy Agency – Energy statistics 2022

Statistics Denmark

Danish Meteorological Institute

Danmarks Nationalbank

Danish Energy Agency

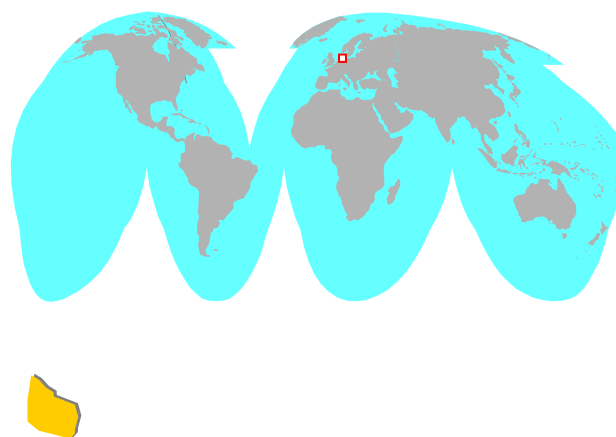
Danish Ministry of Climate, Energy and Utilities

Phone: +45 33 92 67 00

E mail: statistik@ens.dk

February 2024

GENERAL INFORMATION ON DENMARK



Geography (2022)

Area, km ²	42 947
Coastline, km	8 750
Number of islands	394
Forest area, %	15.0

Climate (2022)

Average temperature:	
January	4.1° C
July	16.4° C
Sunshine, hours	1 884
Precipitation, mm	691

Population (2022)

Population (Jan. 2022)	5 873 420
By age:	
0-19 years, %	22.81
20-59 years, %	51.8
60- years, %	26.1
Population density, per km ²	136.7

Currency (2022)

1 Krone (DKK)	=	100 øre
1 USD	=	7.08 DKK
1 EURO	=	7.44 DKK
1 GBP	=	8.73 DKK

Economics (2022)

GDP, billion DKK	2 551
Exports, billion DKK	1 327
Imports, billion DKK	1 497

Constitution and Government (2022)

Denmark is a constitutional monarchy
 Monarch is Queen Margrethe II
 In 2022 the government consists of:
 The Social Democratic Party

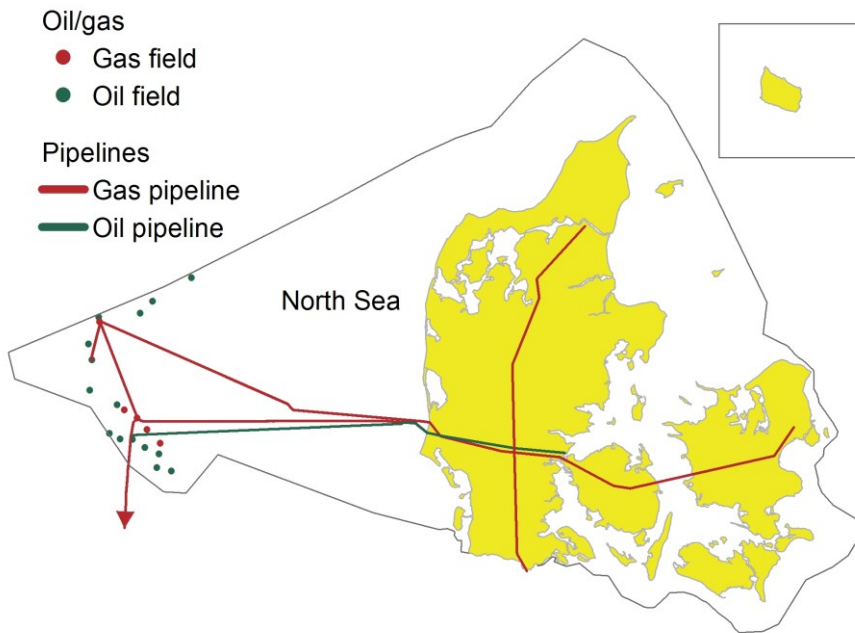
Labour Market (2022)

Labour force, '000	3115
Employed, '000	2 976
Employed in industry, %	17.7
Employed in agriculture and fishing, %	2.2
Employed in commercial and public services, %	80.1

Note: Adjusted means adjusted for climate and fuels for net electricity exports

ENERGY PRODUCTION

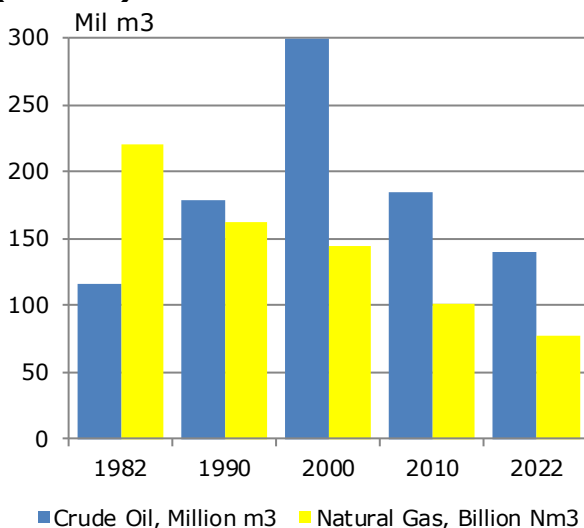
Danish oil and gas fields and pipelines



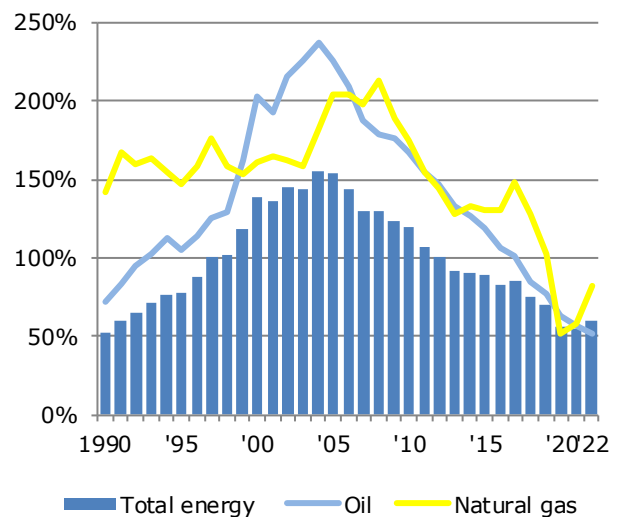
In 2022, there were twenty oil and gas fields of varying size (fifteen oil and five gas fields). Seven fields are situated in the northern part of the Central Graben, while all the other fields are situated in the southern region of the Central Graben. Denmark is the third largest oil producer in Western Europe trailing only UK and Norway. The offshore Tyra gas field in the North Sea is shut down for redevelopment from September 2019 to winter 2023/2024.

Energy production [PJ]	1980	1990	2000	2010	2022
Total production	40	424	1 165	979	415
Crude oil	13	256	765	523	137
Natural gas	0	116	310	307	52
Waste, non-renewable	5	7	14	17	15
Renewable energy	23	45	76	131	210

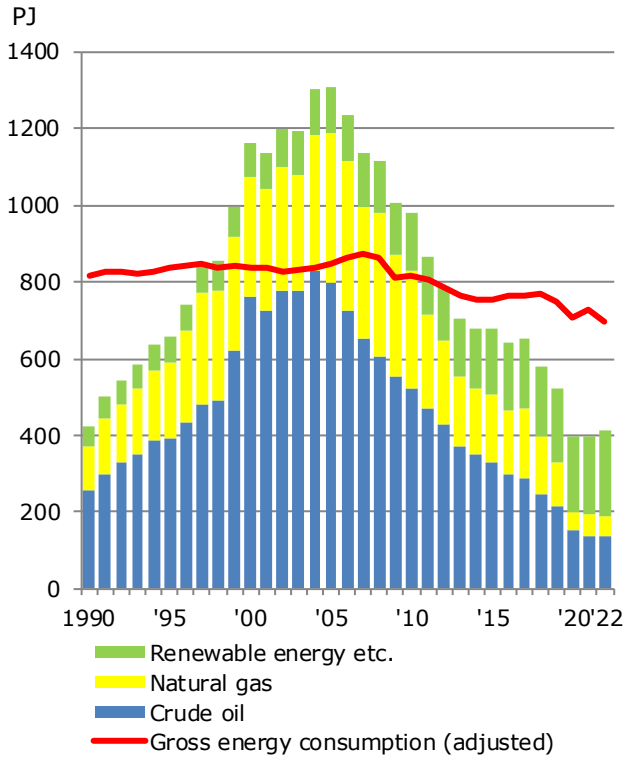
Oil and gas reserves and resources (Ultimo)



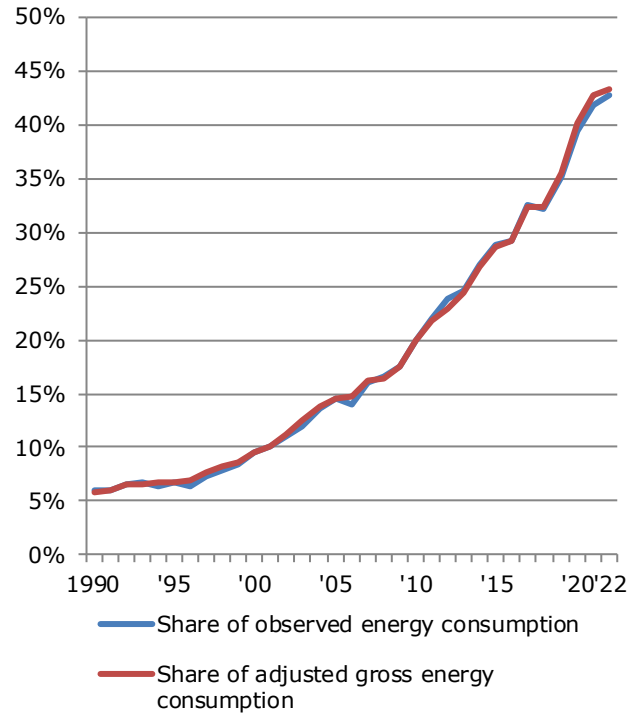
Degree of self-sufficiency



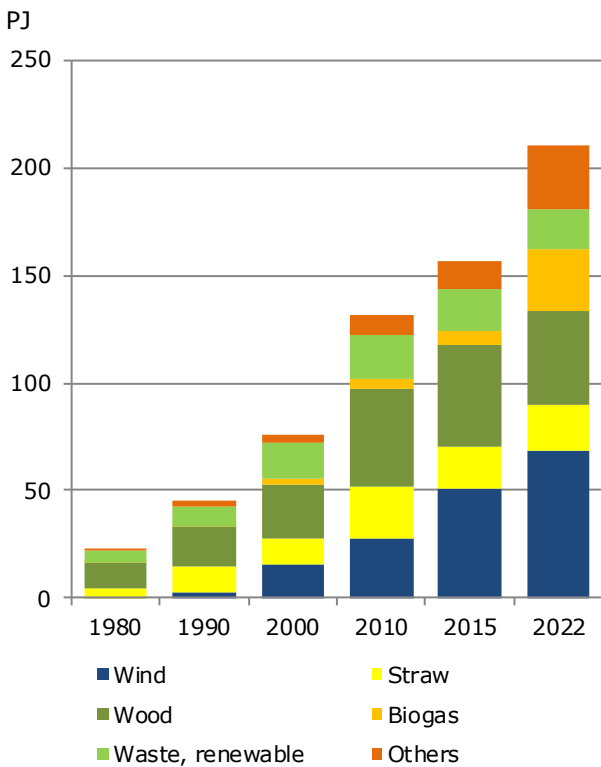
Energy production and energy consumption



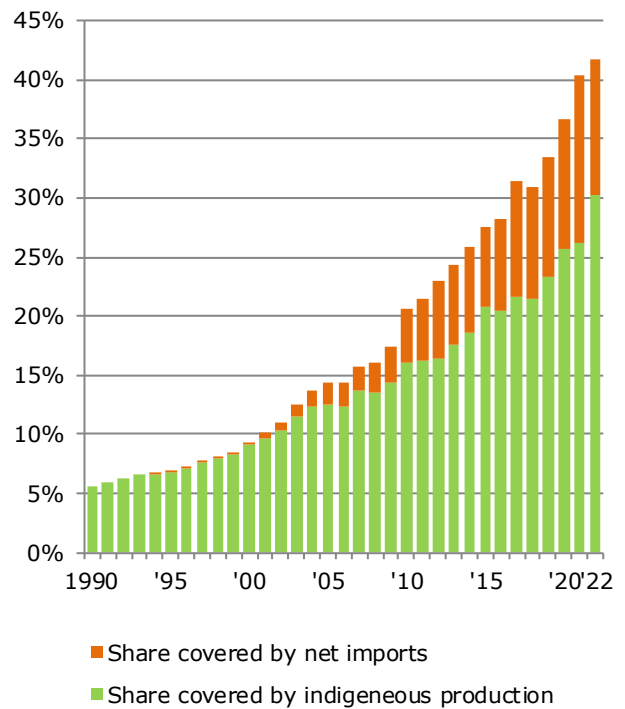
Renewable energy – share of total energy consumption



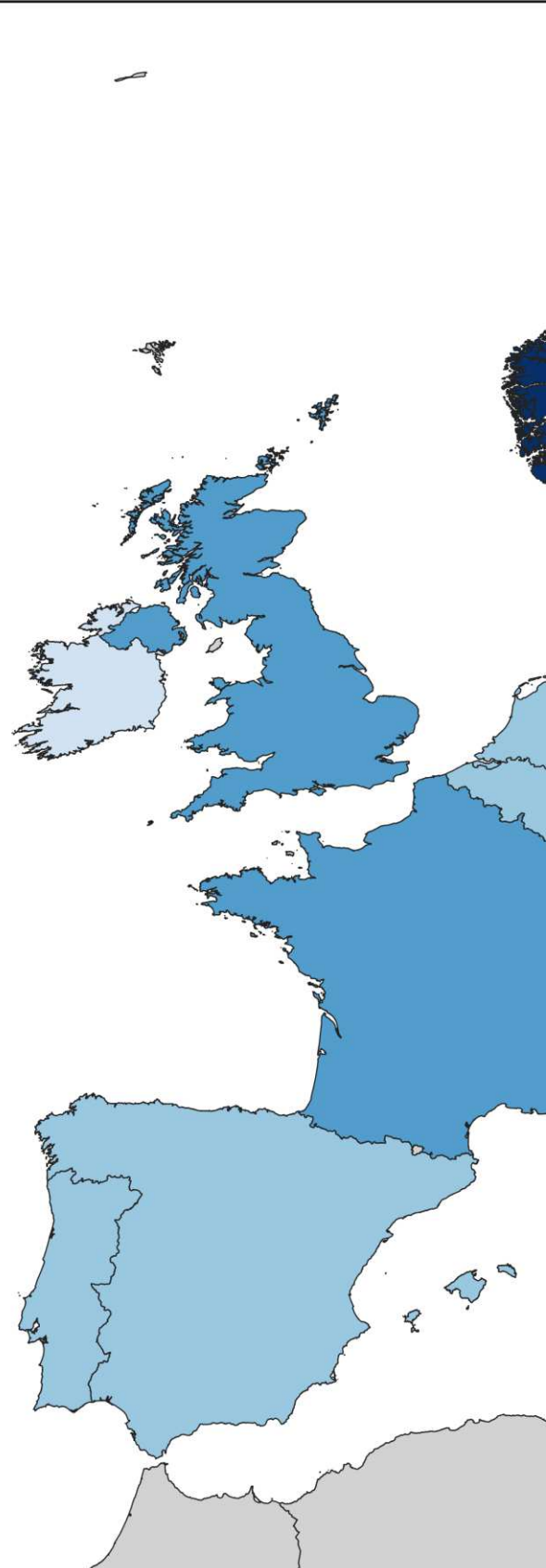
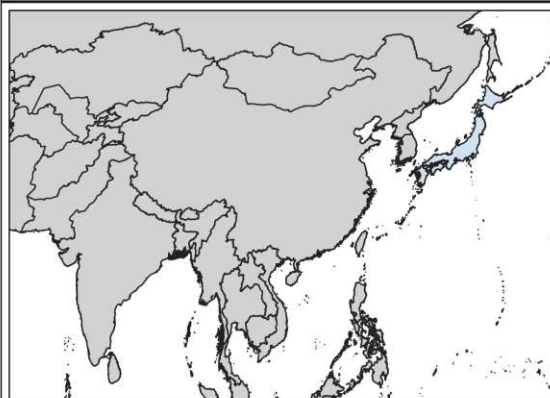
Renewable energy production by type









Consumption of renewable energy – share of total energy consumption



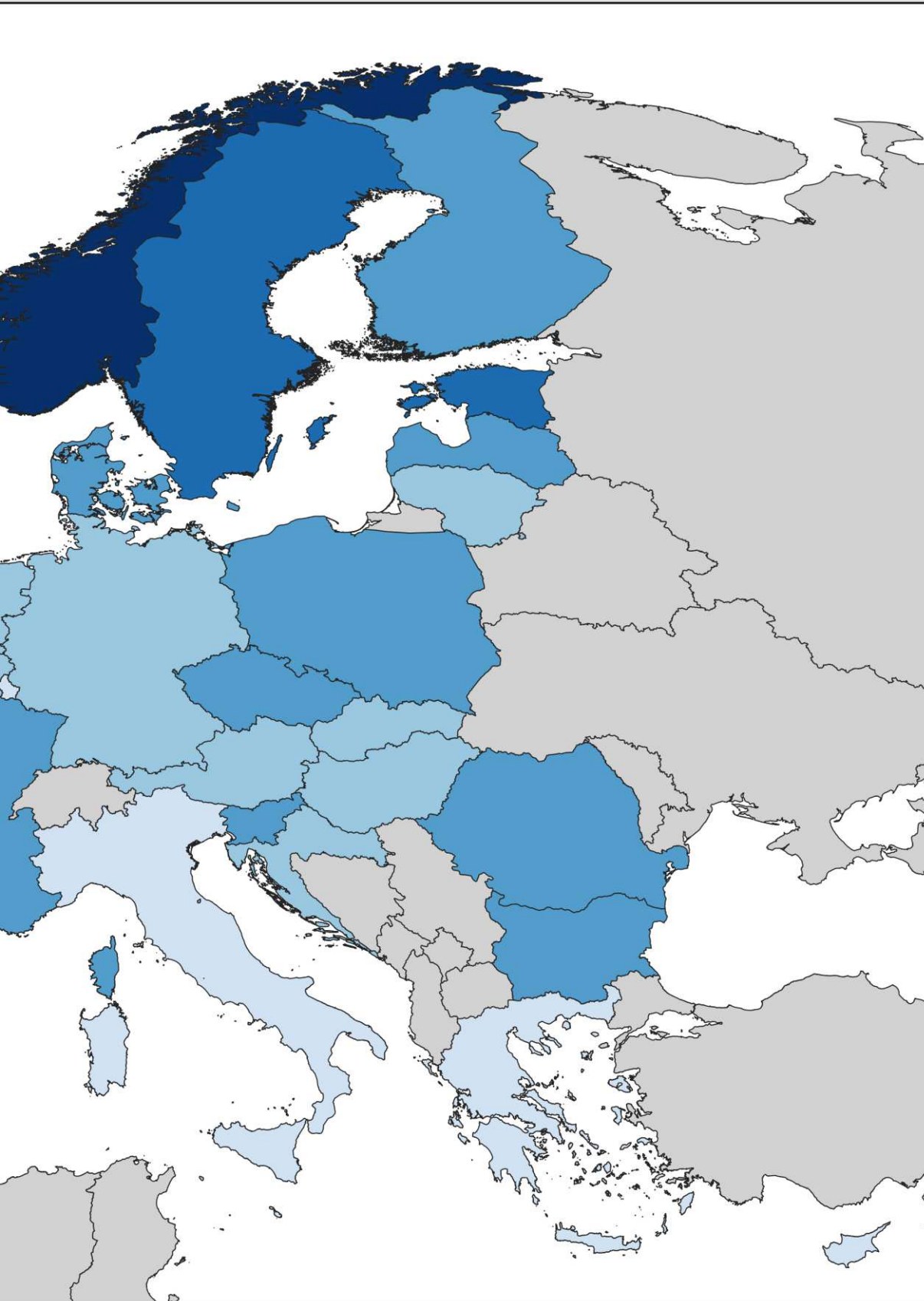
Degree of Self-sufficie



-  Not included
-  0% - 25%
-  25% - 50%
-  50% - 75%
-  75% - 100%
-  > 100%

Source: Eurostat and IEA

ncy - Total Energy, 2021

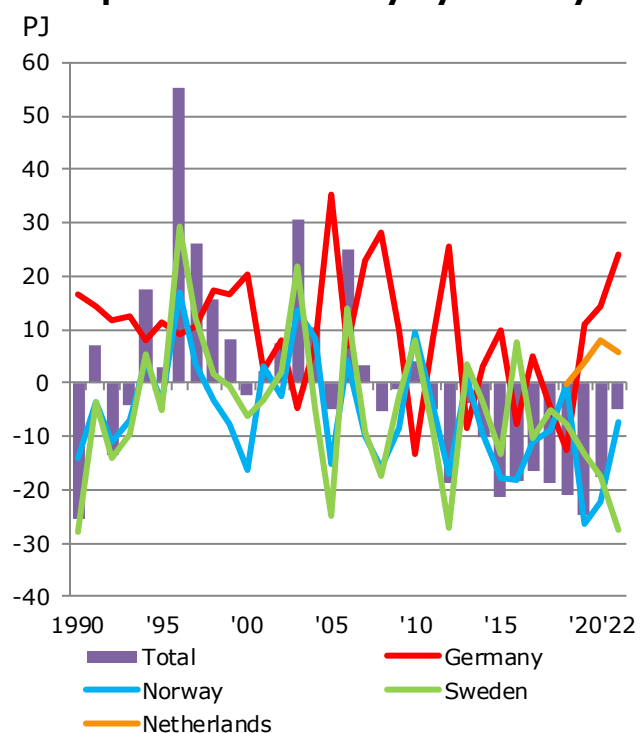


IMPORTS AND EXPORTS OF ENERGY

Imports and exports of energy products, 2022

	Imports	Exports
Crude oil [1000 tonnes]	4 458	854
Oil products [1000 tonnes]	4 737	7 067
Natural gas [million Nm ³]	2 576	2 126
Coal [1000 tonnes]	1871	0
Electricity [GWh]	18 752	17 390

Net exports of electricity by country



In Denmark, the foreign trade in electricity varies more than in any other European country. Foreign trade is strongly affected by price trends on the Nordic Electricity Exchange, Nord Pool, which is significantly influenced by the varying precipitation patterns in Norway and Sweden where electricity production is dominated by hydropower.

In 2022, Denmark had overall net imports of electricity of 4.9 PJ. This was the result of net imports of 7.2 PJ from Norway and 27.4 PJ net imports from Sweden, whilst the net exports to Germany was 24.0 PJ and 5.6 PJ to the Netherlands.

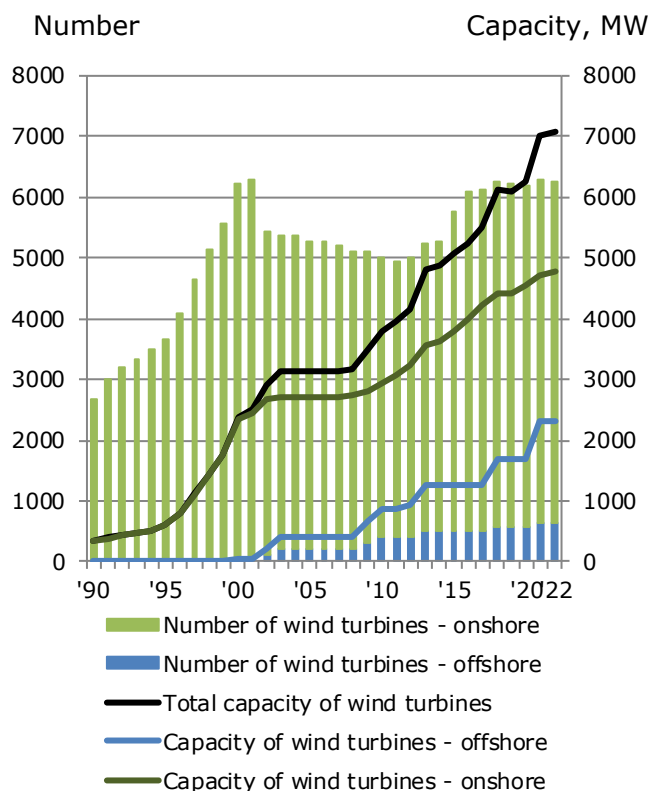
Number of wind turbines by size

	1990		2000			2022		
	Onshore turbines	Onshore turbines	Offshore turbines	Total	Onshore turbines	Offshore turbines	Total	
Total	2 666	6 194	41	6 235	5 641	630	6 271	
- 499 kW	2 656	3 652	11	3 663	2 152	-	2 152	
500 - 999 kW	8	2 283	10	2 293	2 346	10	2 356	
1000 - 1999 kW	2	251	-	251	316	-	316	
2000 - kW	0	8	20	28	827	620	1 447	

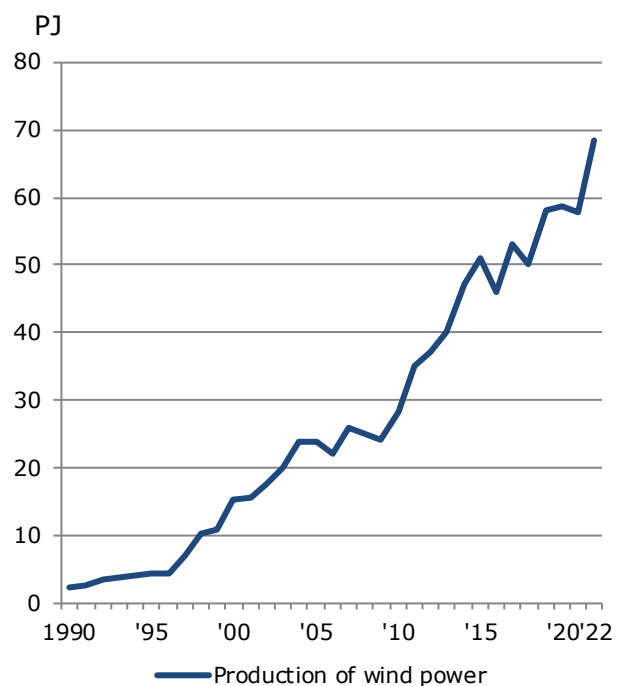
Total capacity of wind turbines by size [MW]

	1990		2000			2022		
	Onshore turbines	Onshore turbines	Offshore turbines	Total	Onshore turbines	Offshore turbines	Total	
Total	326	2 340	50	2 390	4 778	2 306	7 084	
- 499 kW	317	533	5	538	164	-	164	
500 - 999 kW	6	1 512	5	1 517	1 600	5	1 605	
1000 - 1999 kW	3	279	0	279	391	-	391	
2000 - kW	-	16	40	56	2 623	2 301	4 924	

Number of wind turbines and size of capacity



Production of wind power



ELECTRICITY AND HEAT

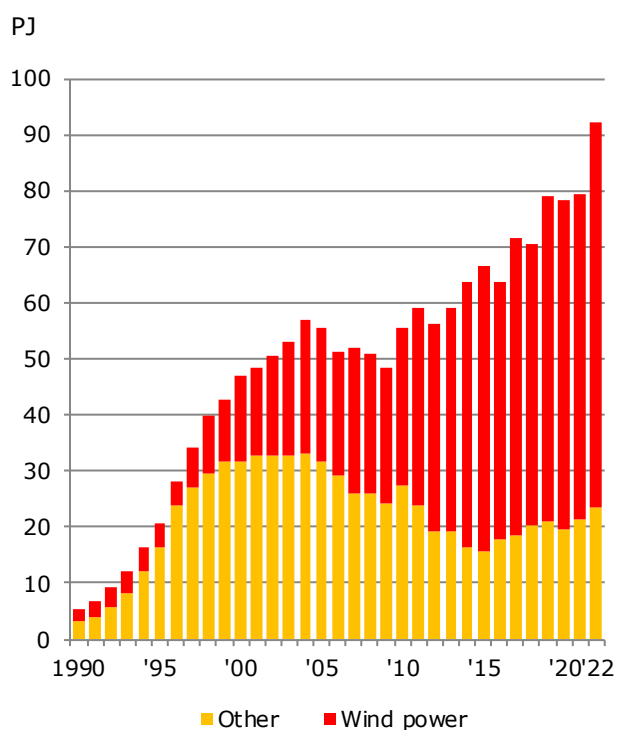
Electricity production by fuel

[PJ]	1994	2000	2010	2022
Total gross production	145	130	140	126
Oil	10	16	3	1
Natural gas	8	32	28	2
Coal	120	60	61	16
Wind	4	15	28	68
Other	3	7	19	38

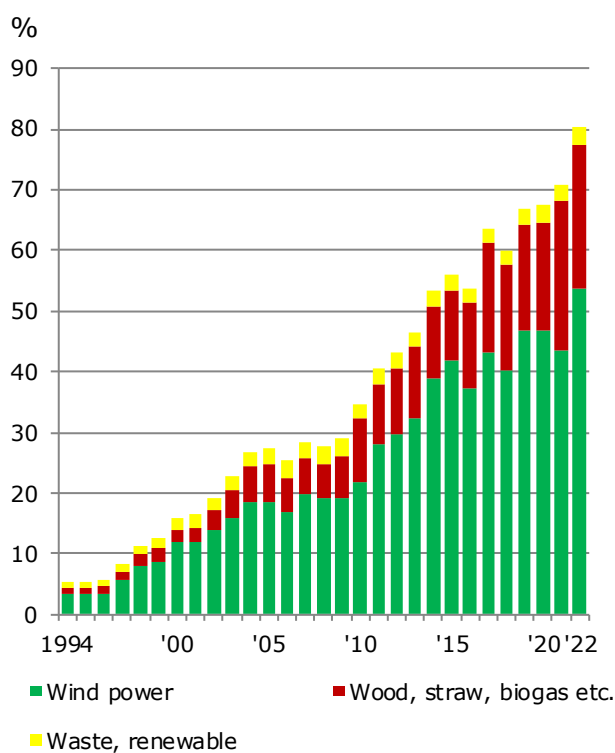
Electricity capacity (ultimo)

[MW]	1994	2000	2010	2022
Total electricity capacity	10 768	12 598	13 450	17 597
Large-scale units	9 126	8 160	7 175	5 228
Small-scale units	773	1 462	1 819	1 654
Autoproducers	339	574	638	555
Wind	521	2 390	3 802	7 084
Solar	0	1	7	3 070
Hydro	8	10	9	7

Electricity production by type



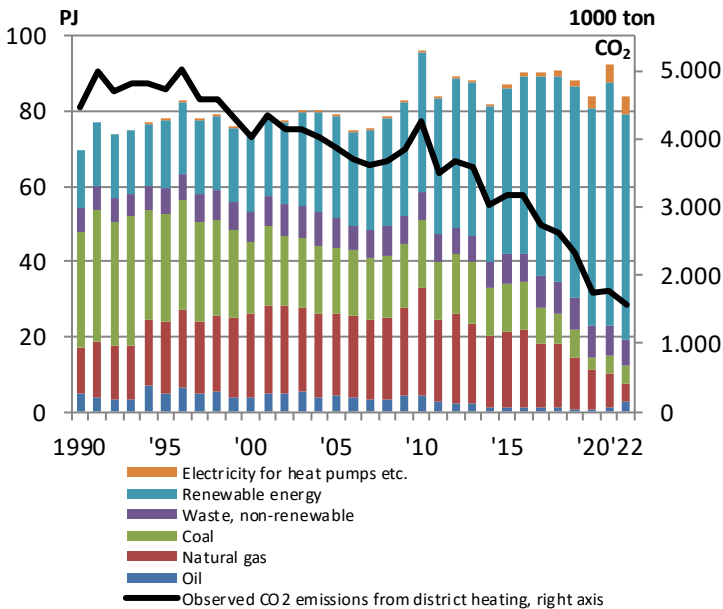
Electricity generated by renewables: Share of domestic electricity supply



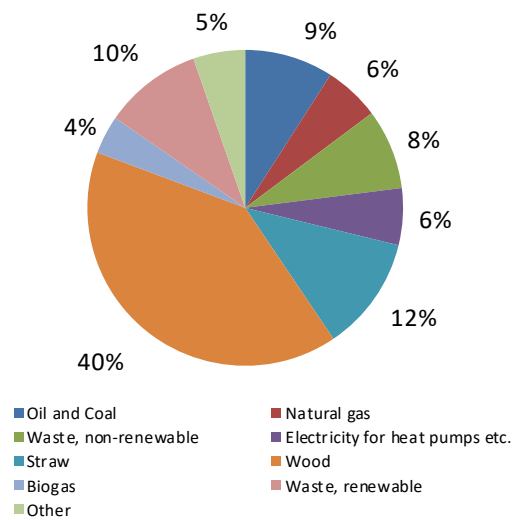
District heating by fuel

[PJ]	1994	2000	2010	2022
Total gross production	113	120	150	129
Oil	6	4	5	3
Natural gas	25	42	45	6
Coal	56	39	36	10
Surplus heat	3	4	3	5
Electricity	0	0	0	5
Waste, non-renewable	6	9	11	12
Renewable energy	17	22	51	89
- Straw	4	6	12	12
- Wood	4	5	24	52
- Waste, renewable	7	11	13	15
- Other	1	1	3	9

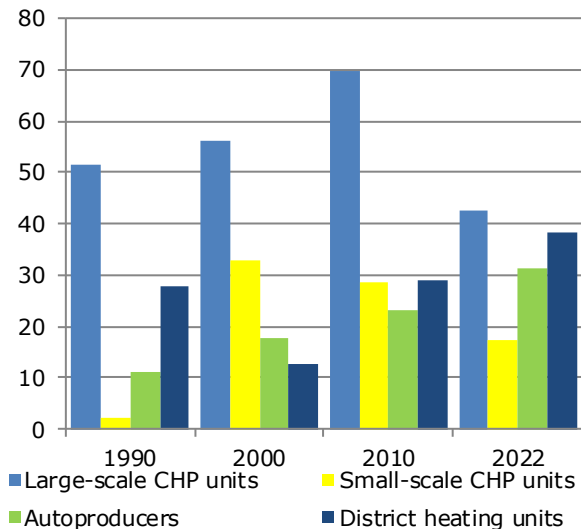
District heating CO2 emissions and consumption by fuel



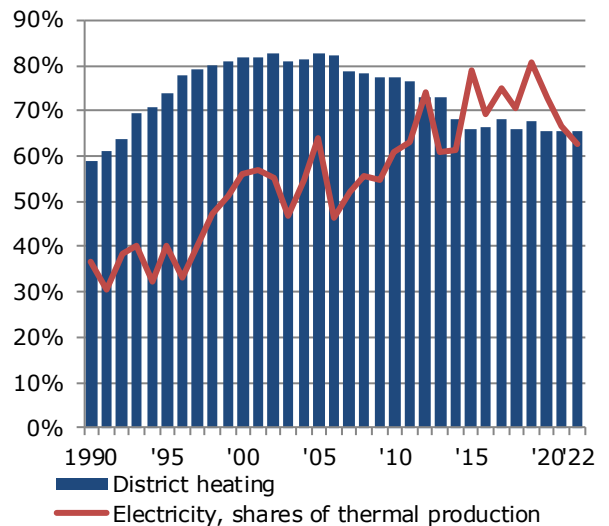
District heating fuel consumption, 2022 (Share of direct energy contents)



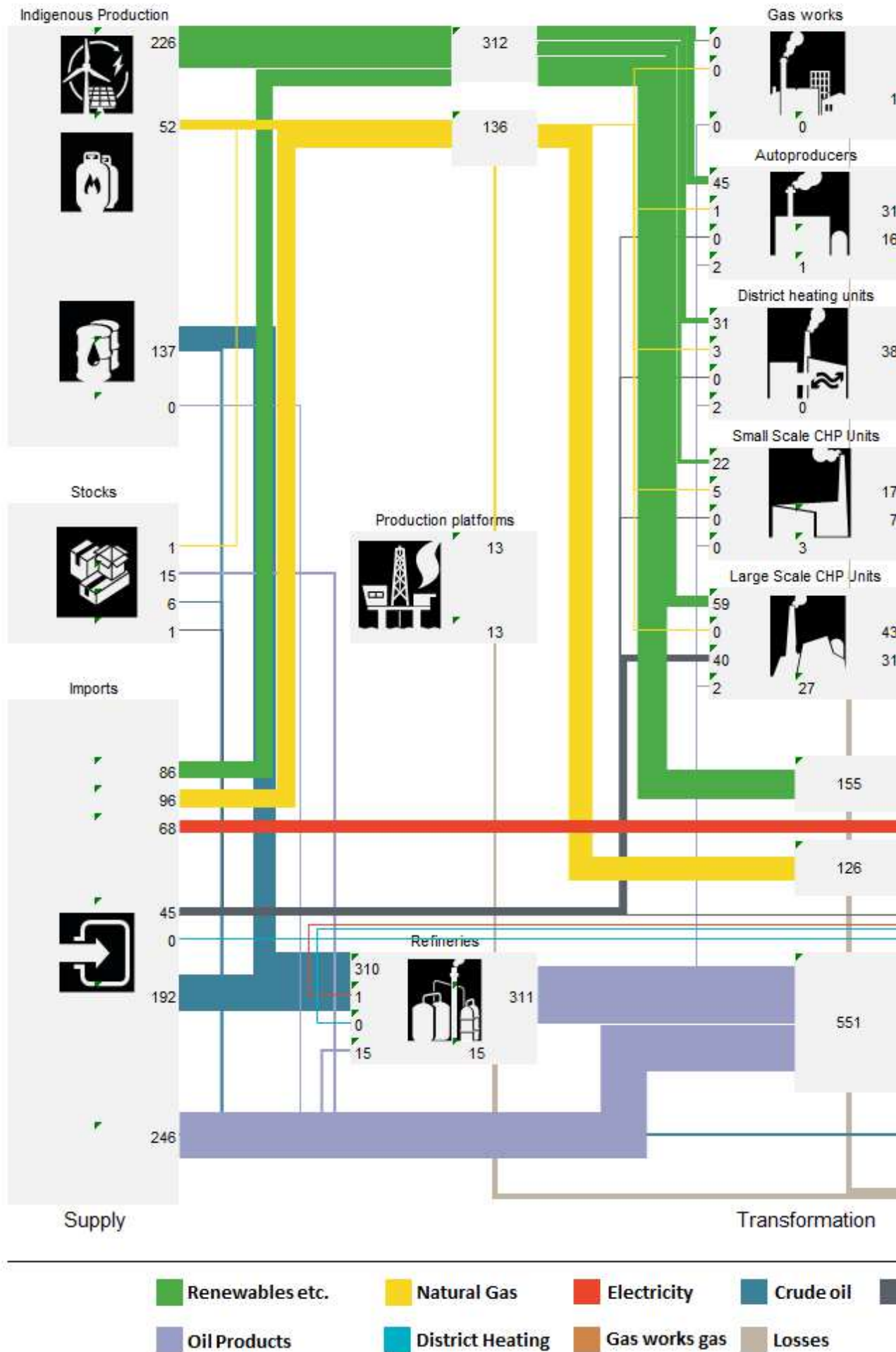
District heating production by type of producer

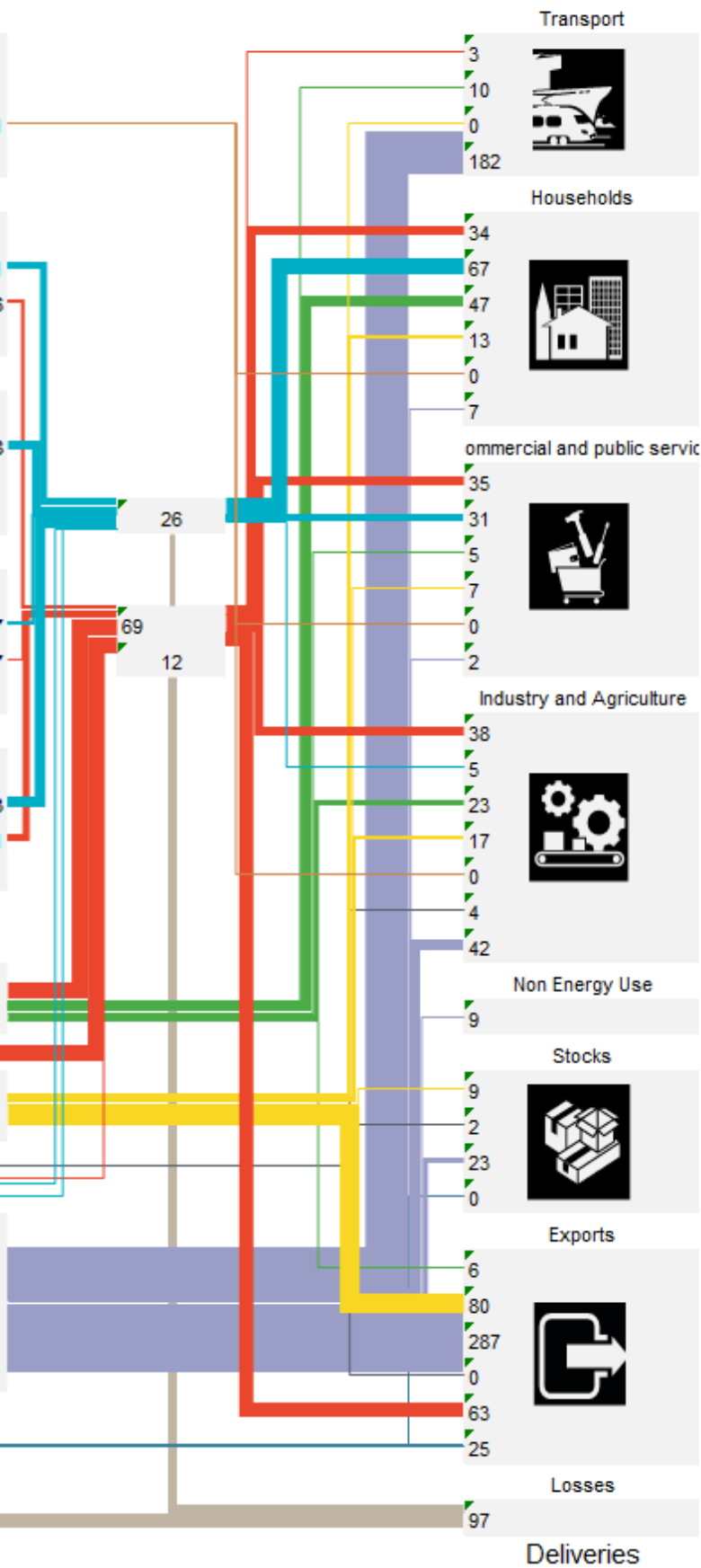


CHP shares of electricity and district heat production



DANISH ENERGY FLOWS





Danish Energy Flows 2022

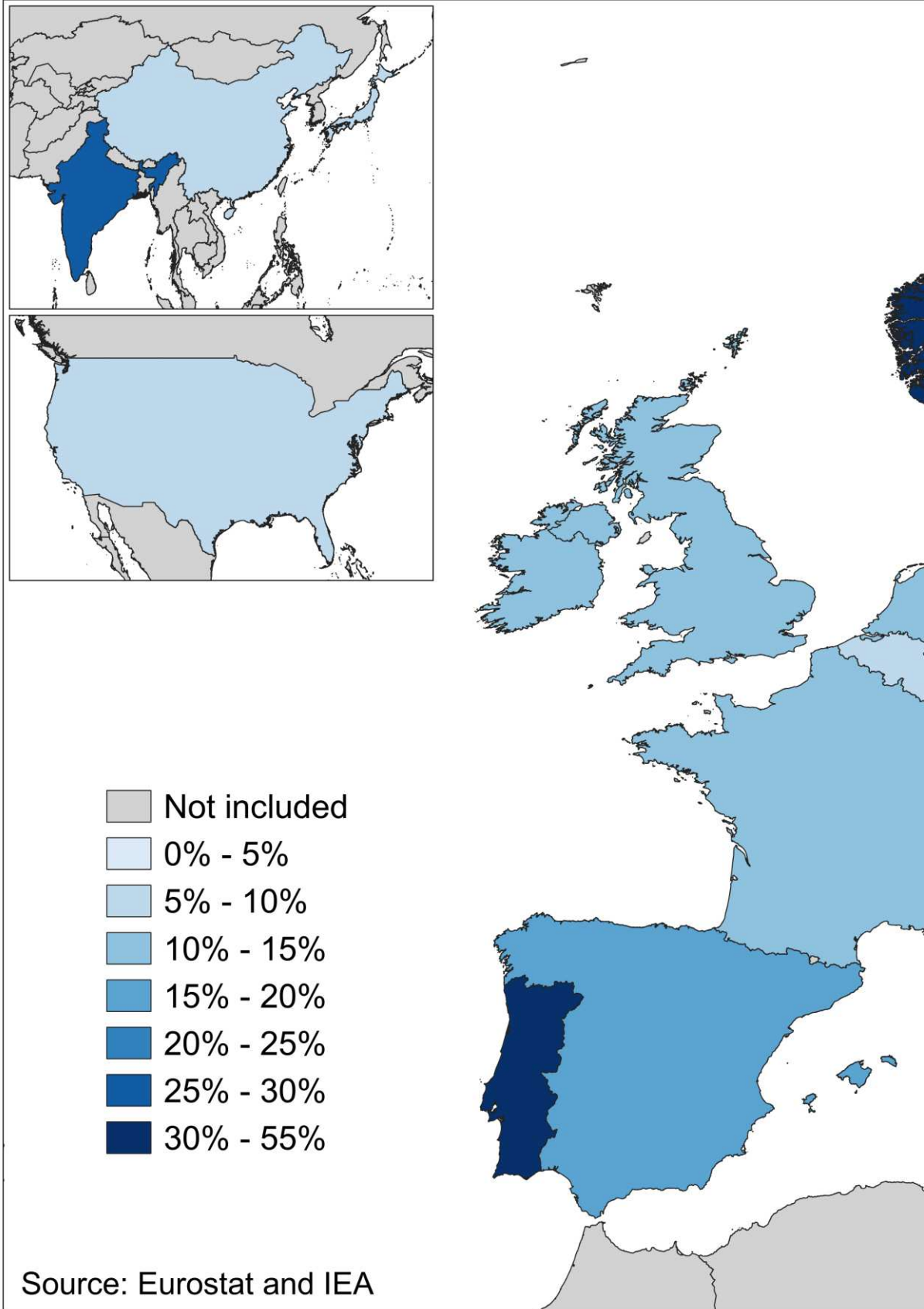
Coal and Coke

Unit:
Peta Joule (PJ)

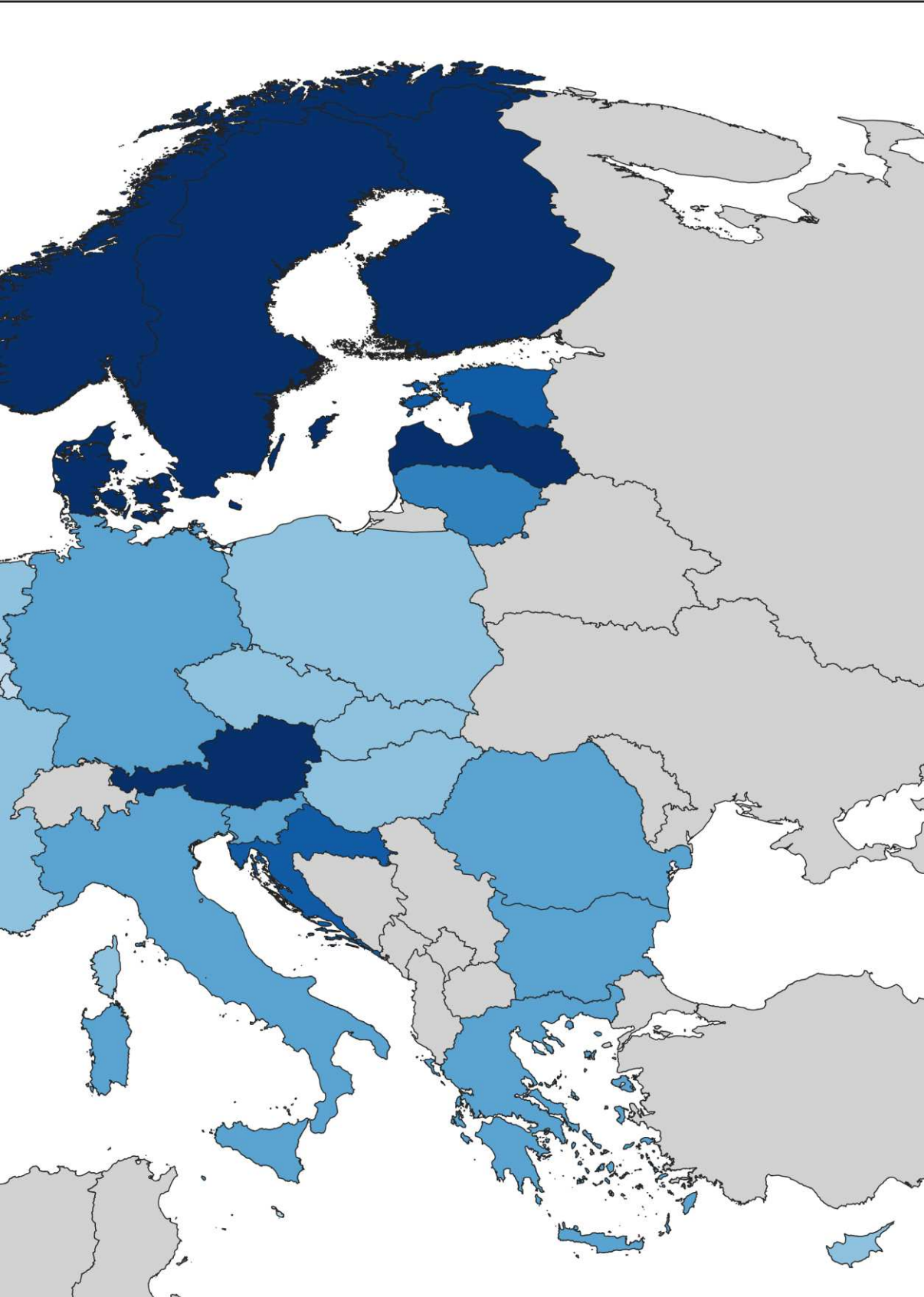


Danish Energy Agency

Renewable Share of Total Energy



Energy, 2021
/ Consumption (TPES)

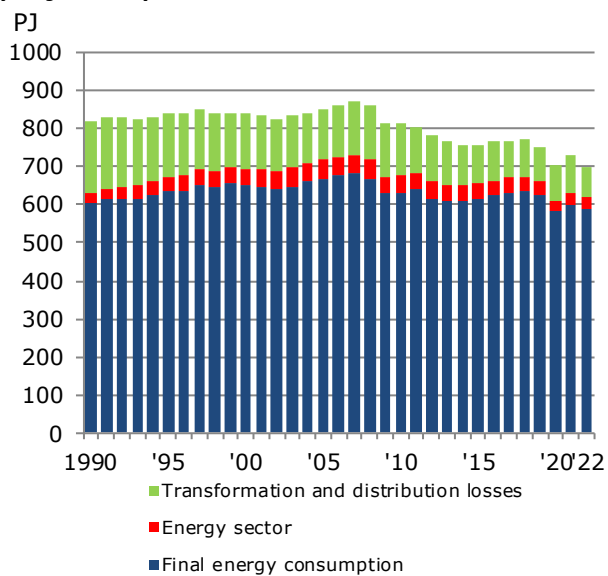


ENERGY CONSUMPTION

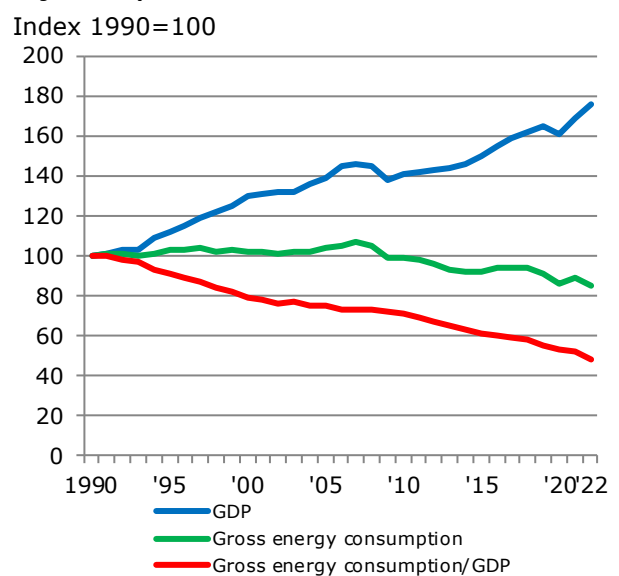
Gross energy consumption by fuel

Climate adjusted [PJ]	1980	1990	2000	2010	2022
Total gross energy consumption	814	819	839	814	696
Oil	546	355	376	312	262
Natural gas	0	82	192	176	63
Coal and coke	241	327	175	147	52
Waste, non-renewable	5	8	14	16	18
Renewable energy	22	48	81	163	301

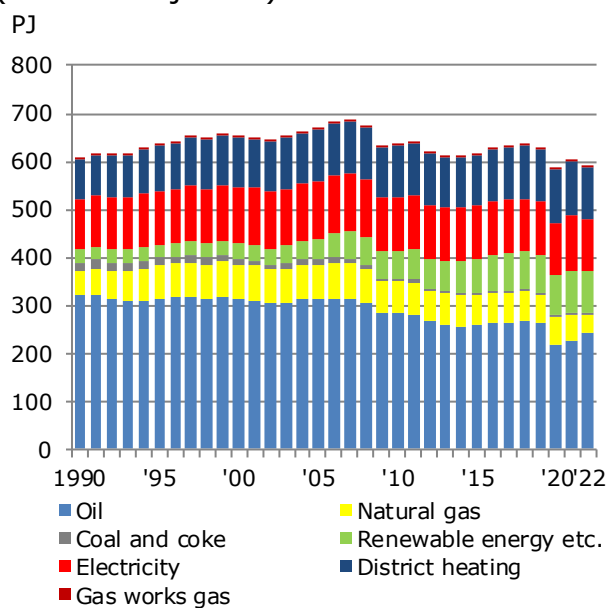
Gross energy consumption and final energy consumption (Adjusted)



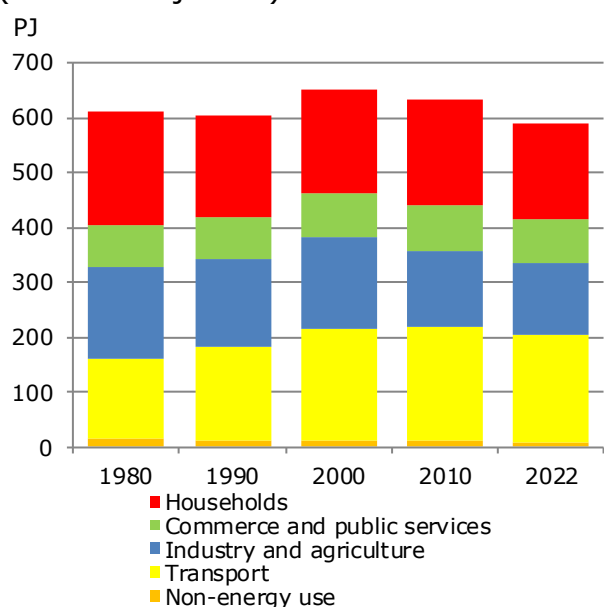
GDP, gross energy consumption and energy intensity (Adjusted)



Final energy consumption by fuel (Climate adjusted)



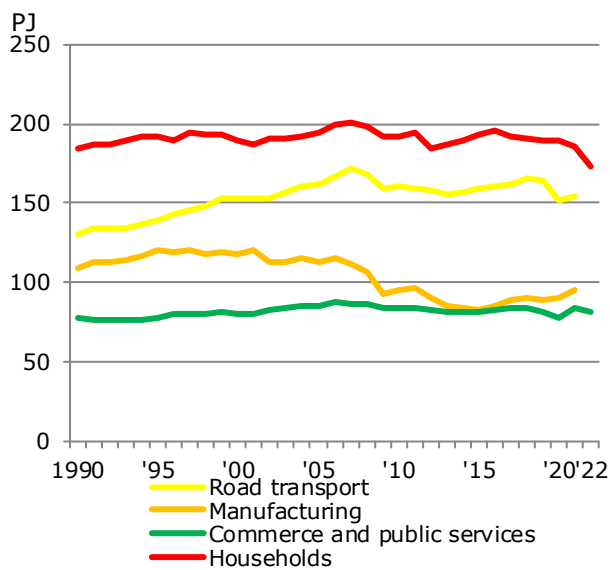
Final energy consumption by sector (Climate adjusted)



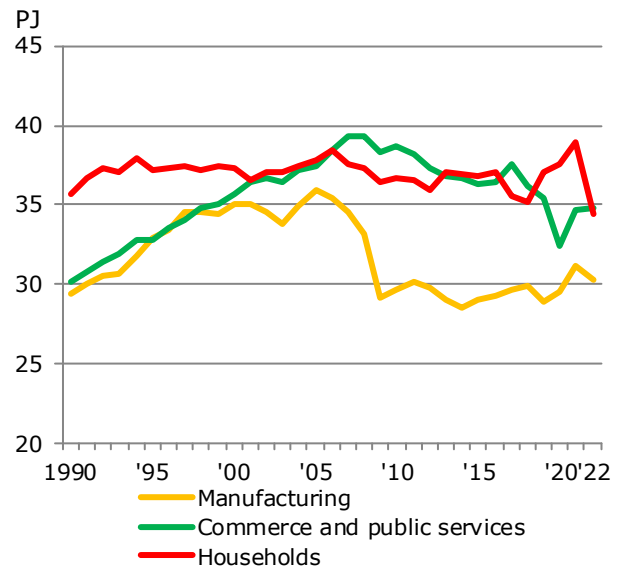
Final energy consumption by sector

Climate adjusted [PJ]	1980	1990	2000	2010	2022
Total final energy consumption	610	604	651	633	589
Non-energy use	16	13	13	11	9
Transport	143	170	201	210	195
Industry and agriculture	168	159	167	137	130
Commerce and public services	78	77	81	84	81
Households	204	185	189	192	174

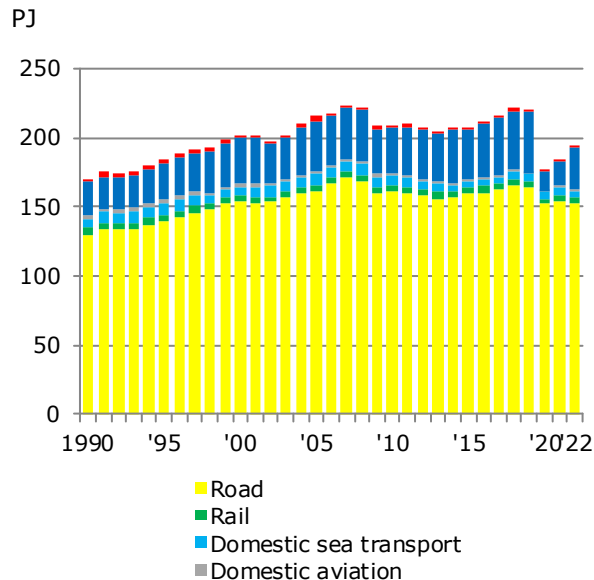
Final energy consumption by sector
(Climate adjusted)



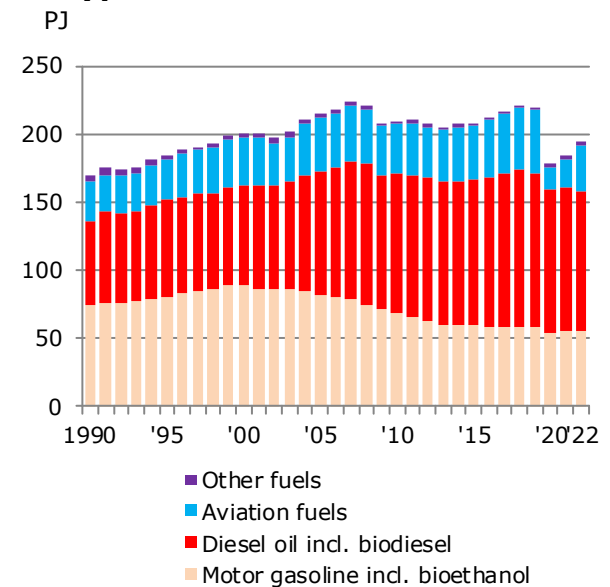
Electricity consumption by sector
(Climate adjusted)



Energy consumption for transport by transport type



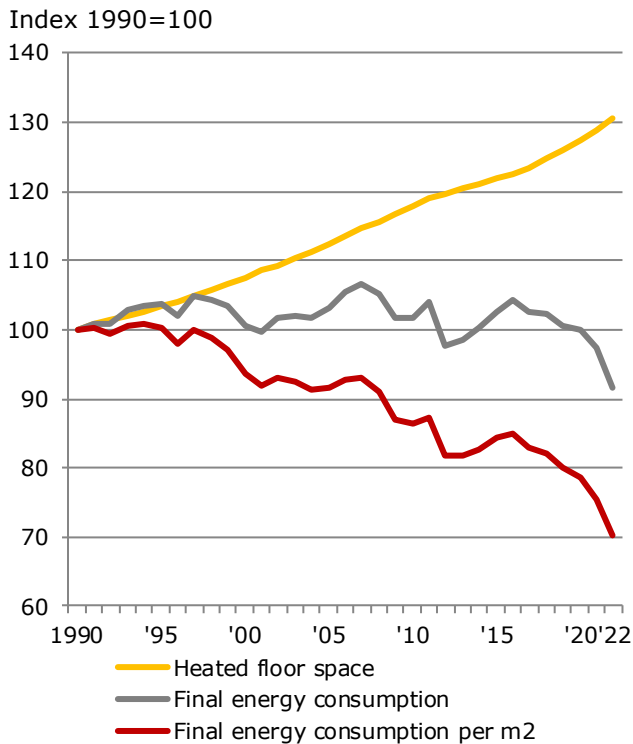
Energy consumption for transport by fuel type



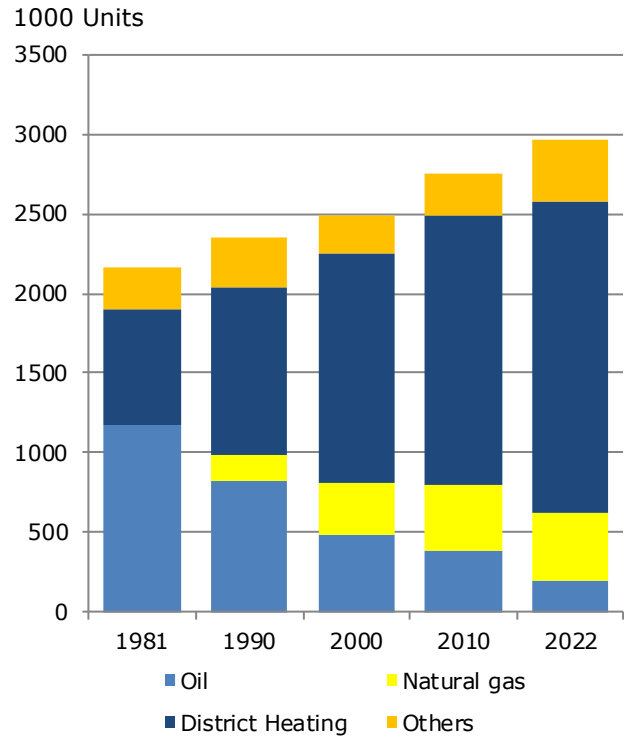
ENERGY CONSUMPTION

Energy consumption for space heating in households

(Climate adjusted)



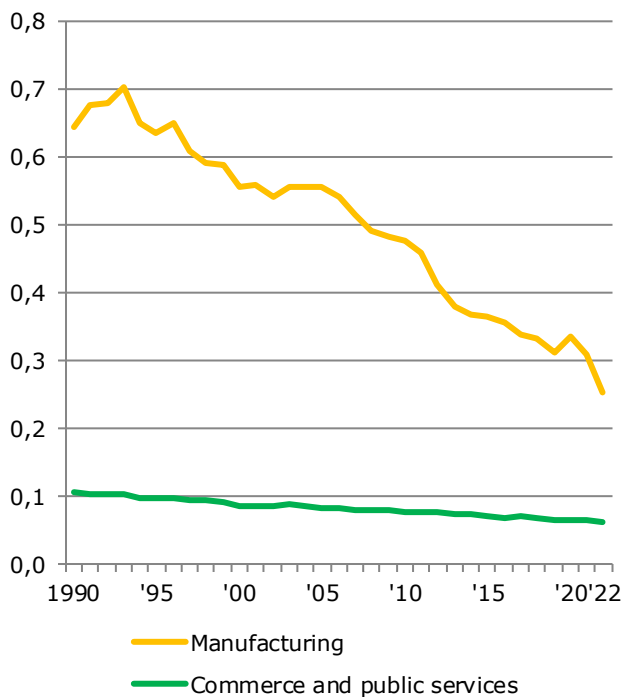
Heating installations in households



Energy intensities

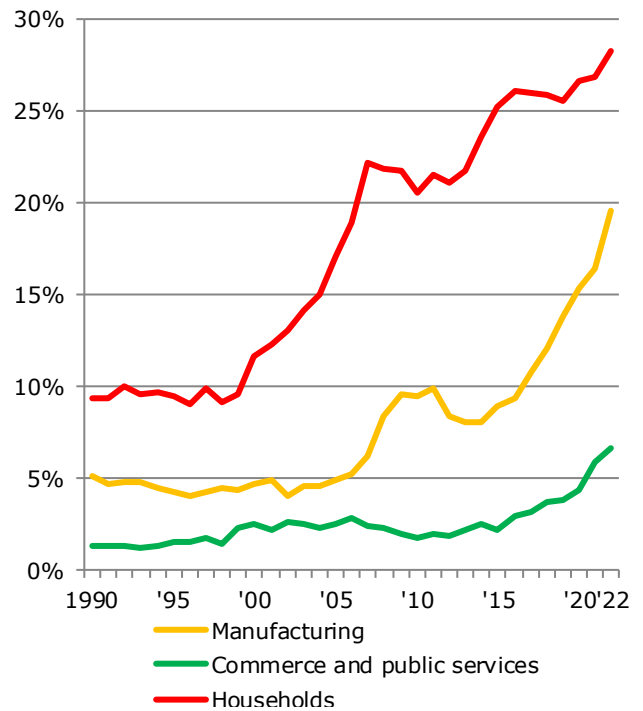
(Climate adjusted)

TJ per DKK million gross value added (2010-prices)



Shares of direct use of renewable energy in final energy consumption

(Climate adjusted)

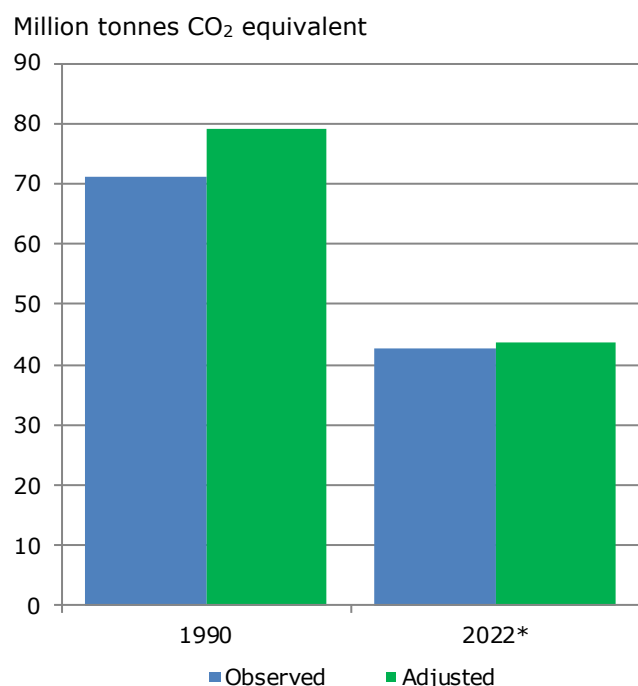


*Transformed energy is not included as renewable

CO₂ emissions from energy consumption

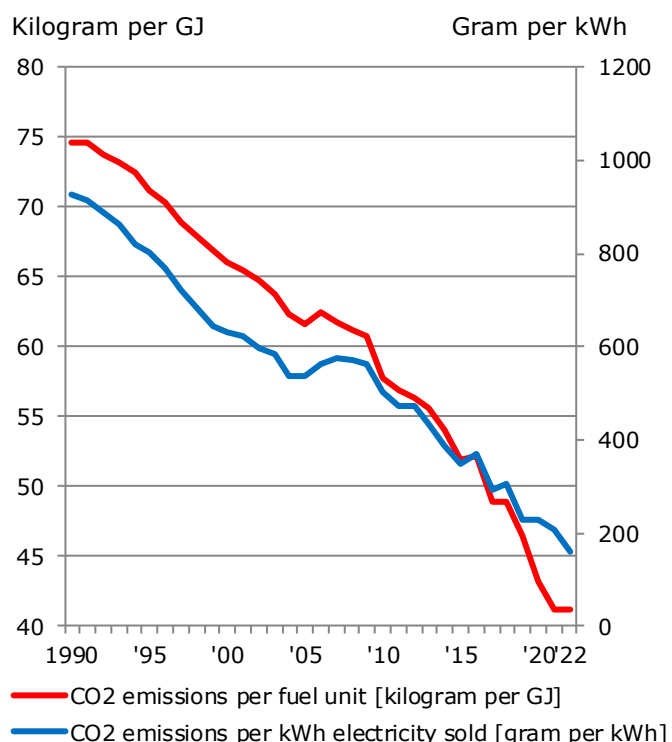
[Million tonnes]	1980	1990	2000	2010	2022
Observed CO₂ emissions	64.6	53.1	53.6	49.4	27.7
Energy sector	0.9	1.4	2.3	2.3	1.7
Transformation sector	30.1	25.1	24.2	22.0	6.3
Final energy consumption	33.3	26.6	27.1	25.1	19.8
Adjusted CO₂ emissions	62.6	61.0	55.3	47.1	28.7
Energy sector	0.9	1.4	2.3	2.3	1.7
Transformation sector	28.8	32.3	25.5	20.1	7.1
Final energy consumption	32.9	27.4	27.5	24.6	19.9

Total emissions from greenhouse gases



*) Preliminary emission inventory

CO₂ emissions per fuel unit and per kWh of electricity (Adjusted)

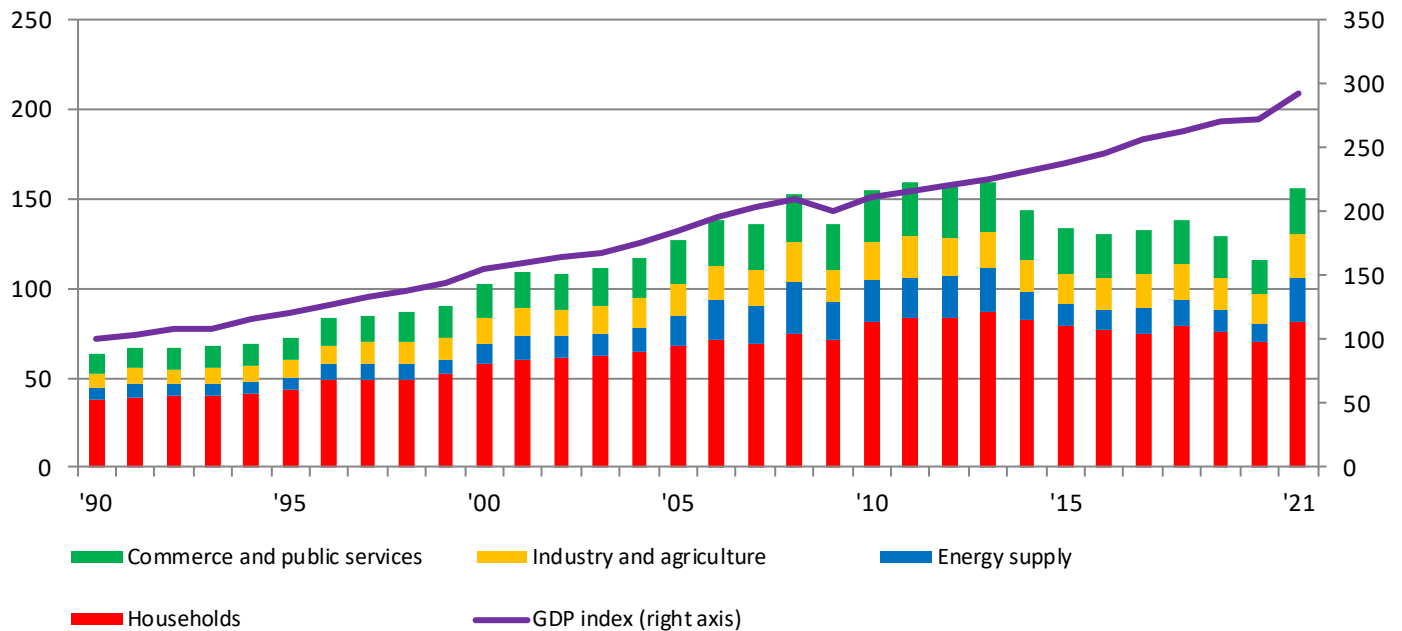


ENERGY ECONOMY AND PRICES

Energy expenses by industry and households

Billion DKK, current prices

Index 1990=100



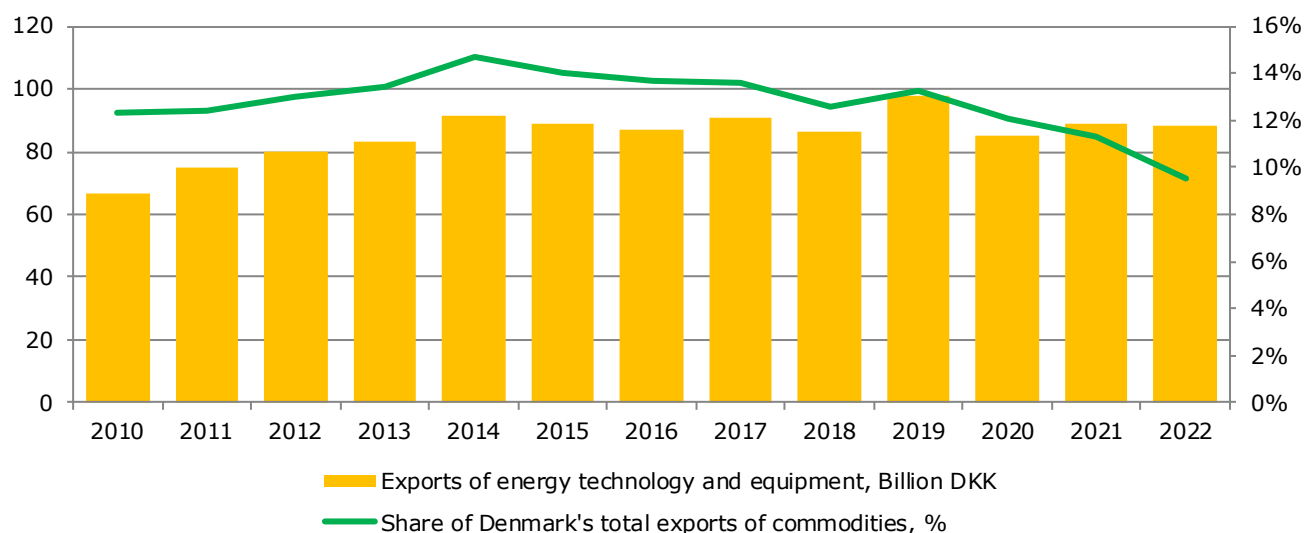
Source: Statistics Denmark

Economic key figures

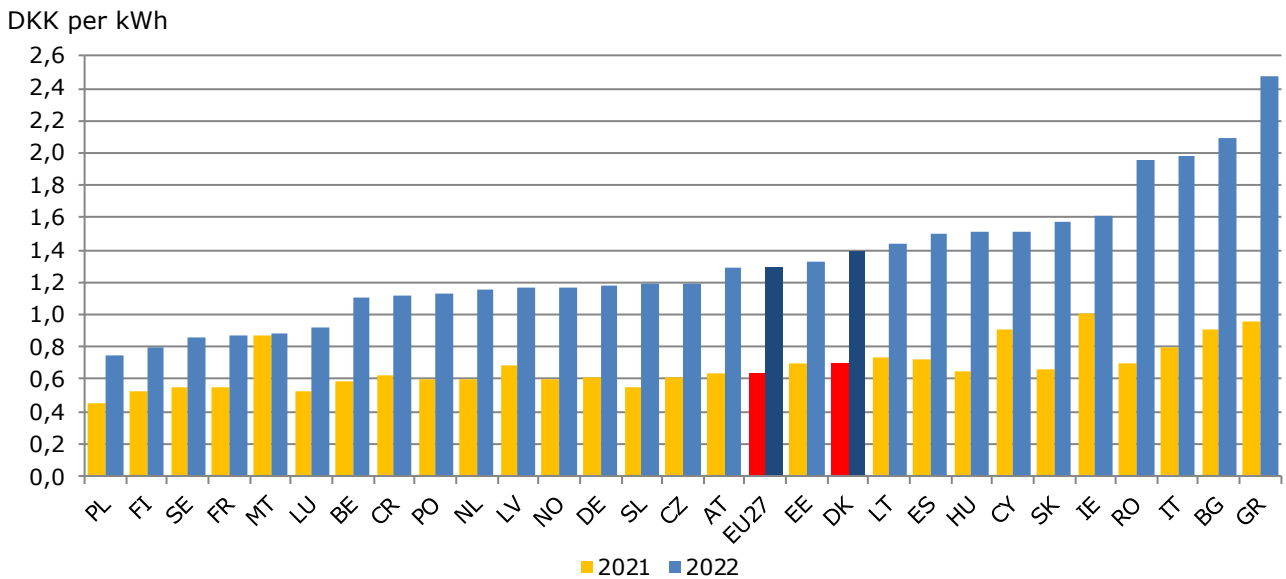
[Billion DKK, current prices]	2019	2020	2021
Total energy expenditures	128.8	115.8	156.3
Revenues from energy, CO ₂ and sulphur taxation	38.2	36.7	38.7
Value of crude oil and natural gas production	18.6	8.4	11.5

Exports of energy technology and equipment

Billion DKK, current prices



**Electricity prices (excl. taxes) for industrial consumers
(Annual consumption 2-20 GWh)**

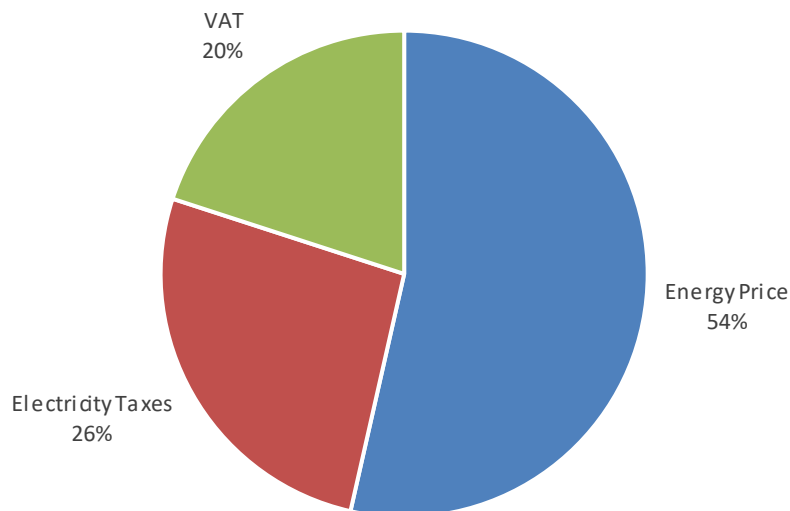


æ
Source: Eurostat

Energy prices for households, 2022

	DKK	Euro
Gasoline regular [per litre]	16.14	2.17
Heating gas oil [per litre]	16.71	2.25
Natural gas [per Nm ³]	19.88	2.67
Electricity [per kWh]	3.87	0.52

Decomposition of the electricity price for households, 2022 (%)



INTERNATIONAL COMPARISONS 2021

	Degree of self-sufficiency [%]	Renewable energy and waste: Share of gross energy consumption [%]	Gross energy consumption per capita [GJ]	Energy intensity [TOE per million EUR GDP (2010 prices)]
Estonia	96	29	145	224
Sweden	75	51	191	107
Romania	67	19	75	187
Bulgaria	63	15	117	405
Latvia	59	42	101	196
Finland	58	41	255	165
Czech Republic	57	13	171	222
Denmark	56	42	122	60
Poland	55	12	121	209
France	54	13	150	109
Slovenia	50	19	130	148
Croatia	45	29	90	163
EU27	42	18	133	117
Slovakia	39	13	136	205
Hungary	39	12	118	206
Austria	37	31	160	103
Netherlands	36	11	178	117
Germany	35	16	149	101
Portugal	32	31	88	120
Belgium	31	9	206	154
Spain	31	17	105	113
Lithuania	28	24	119	196
Greece	24	18	84	124
Italy	24	19	109	99
Ireland	21	11	120	41
Cyprus	10	12	113	116
Luxembourg	7	10	279	78
Malta	6	7	65	232
Norge	721	54	231	78
UK	63	12	98	-
USA	104	8	271	-
Japan	13	7	133	-

Source: Eurostat and IEA.

DANISH KEY FIGURES

	1980	1990	2000	2010	2022
Gross energy consumption per capita [GJ]	159	159	157	147	119
Final energy consumption per capita [GJ]	119	118	122	114	100
Energy intensity, gross energy consumption [TJ per million GDP]	0.776	0.636	0.500	0.450	0.308
Energy intensity, final energy consumption [TJ per million GDP]	0.582	0.469	0.388	0.350	0.260
Degree of self-sufficiency [%]	5	52	139	120	60
Dependency of oil [%]	67	43	45	38	38
Renewable energy: Share of gross energy consumption [%]	2,7	5.8	9.6	20.0	43.3
Refinery capacity [million tonnes per year]	9.0	9.0	9.2	9.0	9.0
Electricity capacity [MW]	6 618	9 124	12 598	13 450	17597
Wind turbine capacity: Share of total electricity capacity [%]	-	3.6	19.0	28.3	40.3
Net electricity exports: Share of domestic supply [%]	5.1	-22.5	-1.9	3.2	-3.8
CHP production: Share of thermal electricity production [%]	18	37	56	61	62
CHP production: Share of district heating production [%]	39	59	82	77	65
Renewable energy: Share of total domestic electricity supply [%]	0.1	2.6	15.9	34.8	80.4
CO ₂ emissions per capita [tonnes]	12.2	11.9	10.4	8.5	4.9
CO ₂ emissions per kWh sold [gram per kWh]	1027	929	632	505	162
CO ₂ emissions per consumed unit of district heating [kilogram per GJ]	96	62	43	33	17
CO ₂ emissions per GDP [kilogram per DKK]	60	47	33	26	13

Note: Data on energy consumption and CO₂ emissions are adjusted.

Do you need more data?

www.ens.dk/facts_figures

Please find:

Energy in Denmark 2022

- Publications as pdf
- Figures in PowerPoint
- Time series and tables
- Denmark's energy flows 2022

Data

- Monthly energy statistics
- Wind turbine data

Maps

- Electricity generation and transmission
- Heat supply

Danish Energy Agency
Carsten Niebuhrs Gade 43
DK-1577 Copenhagen V
Denmark

Phone: +45 33 92 67 00
ens@ens.dk
www.ens.dk

CVR-No.: 59 77 87 14