



Energistyrelsen

2023

Data, tables, statistics and maps
Energy in Denmark 2023

Energy in Denmark, 2023

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Design

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Internet

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Sources

Danish Energy Agency – Energy statistics 2023

Statistics Denmark

Danish Meteorological Institute

Danmarks Nationalbank

Danish Energy Agency

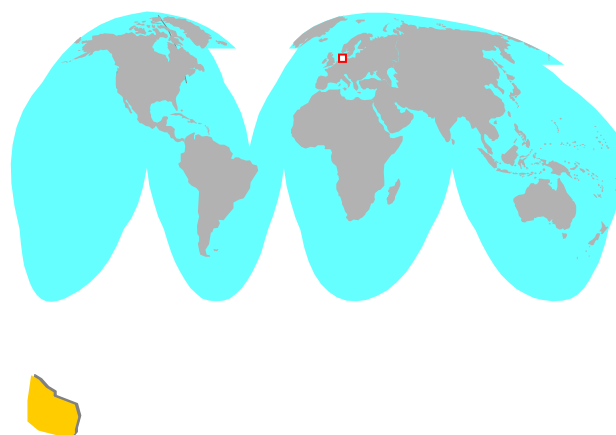
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January 2025

GENERAL INFORMATION ON DENMARK



Geography (2023)

Area, km ²	42 952
Coastline, km	8 750
Number of islands	394
Forest area, %	

Climate (2023)

Average temperature:	
January	3.8° C
July	15.9° C
Sunshine, hours	1 769
Precipitation, mm	973

Population (2023)

Population (Jan. 2023)	5 932.654
By age:	
0-19 years, %	21.8
20-59 years, %	51.7
60- years, %	26.5
Population density, per km ²	138.1

Currency (2023)

1 Krone (DKK)	=	100 øre
1 USD	=	6.89 DKK
1 EURO	=	7.45 DKK
1 GBP	=	8.57 DKK

Economics (2023)

GDP, billion DKK	2 805
Exports, billion DKK	1 678
Imports, billion DKK	1 906

Constitution and Government (2023)

Denmark is a constitutional monarchy
 Monarch is Queen Margrethe II
 In 2023 the government consists of:
 The Social Democratic Party, Venstre - The Liberal Party of Denmark and Moderates

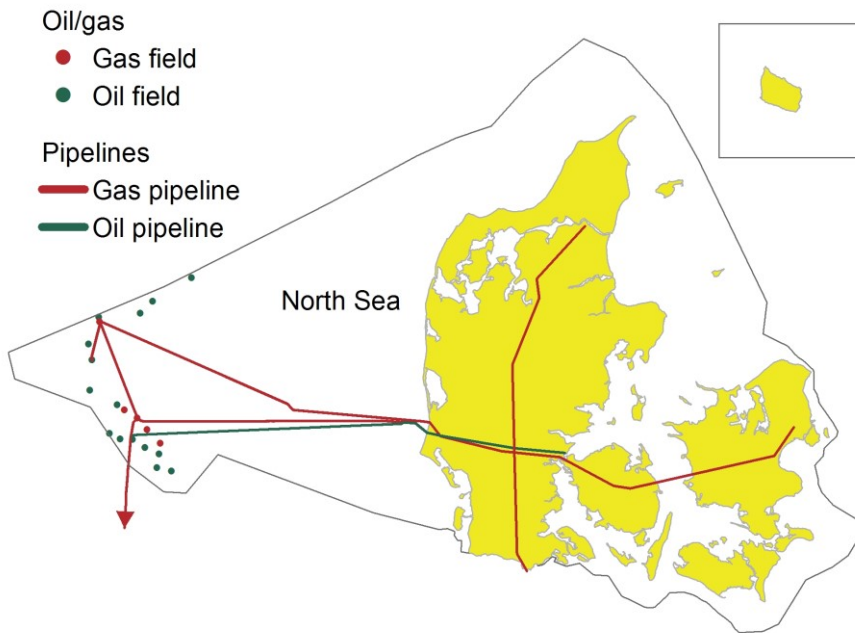
Labour Market (2023)

Labour force, '000	3166
Employed, '000	3 004
Employed in industry, %	17.8
Employed in agriculture and fishing, %	2.1
Employed in commercial and public services, %	80.1

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

ENERGY PRODUCTION

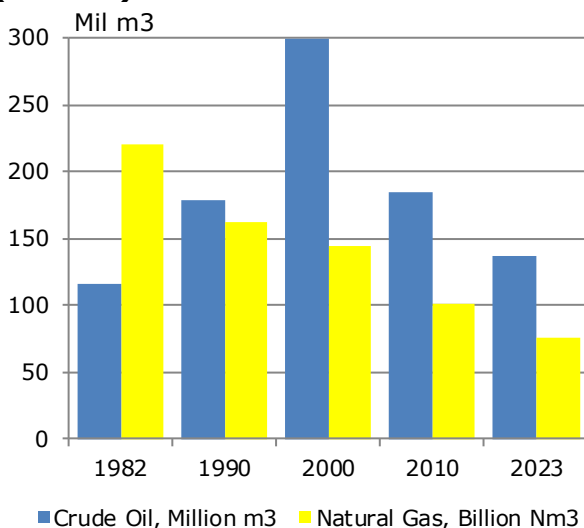
Danish oil and gas fields and pipelines



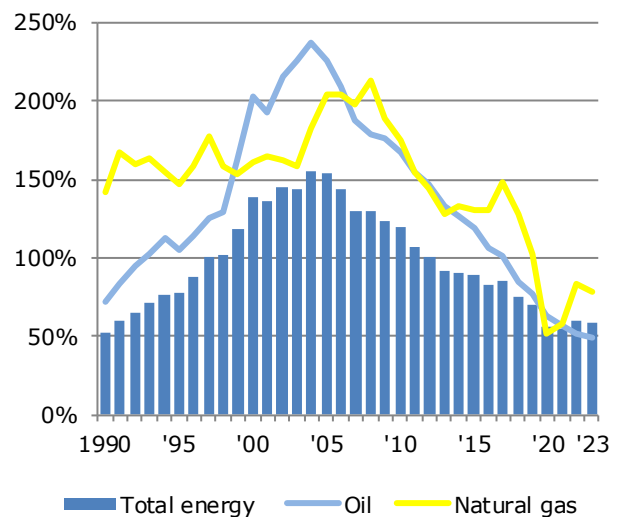
In 2023, there were twenty oil and gas fields of varying size (fifteen oil and five gas fields). Seven fields are situated in the northern part of the Central Graben, while all the other fields are situated in the southern region of the Central Graben. Denmark is the third largest oil producer in Western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

Energy production [PJ]	1980	1990	2000	2010	2023
Total production	40	424	1 165	979	413
Crude oil	13	256	765	523	126
Natural gas	0	116	310	307	49
Waste, non-renewable	5	7	14	17	15
Renewable energy	23	45	76	131	223

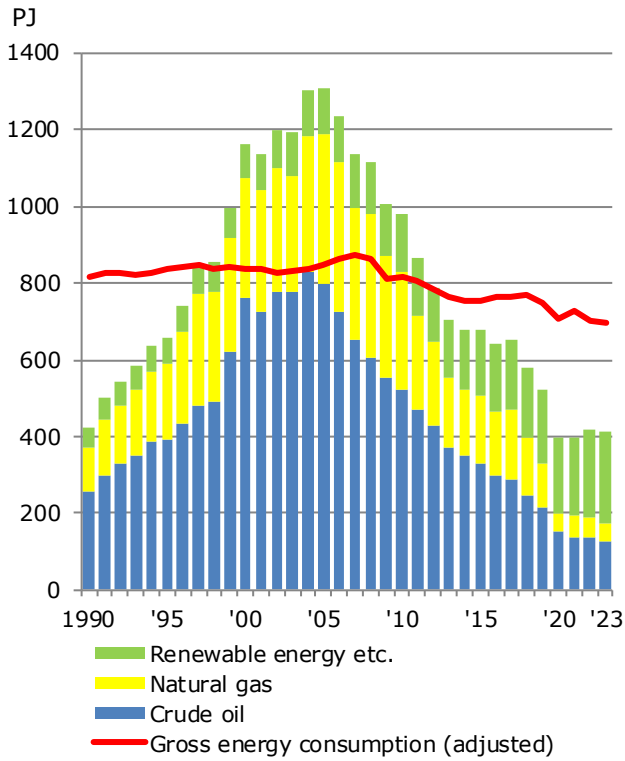
Oil and gas reserves and resources (Ultimo)



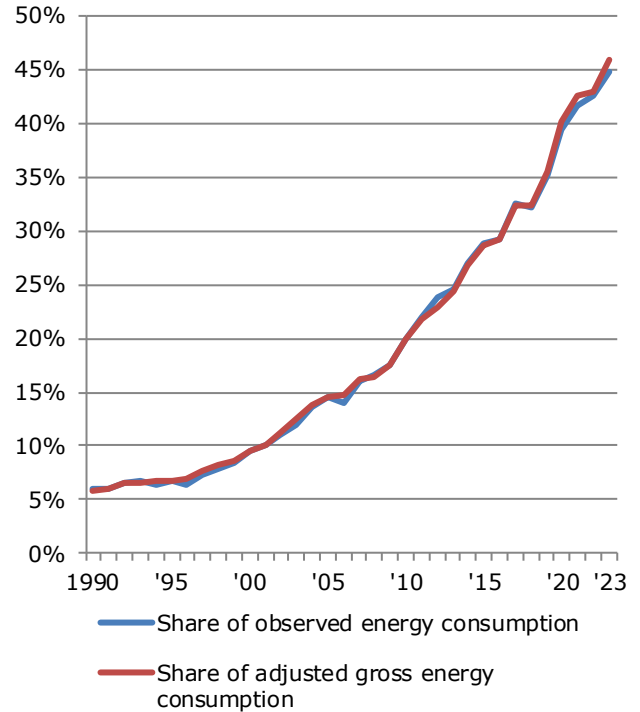
Degree of self-sufficiency



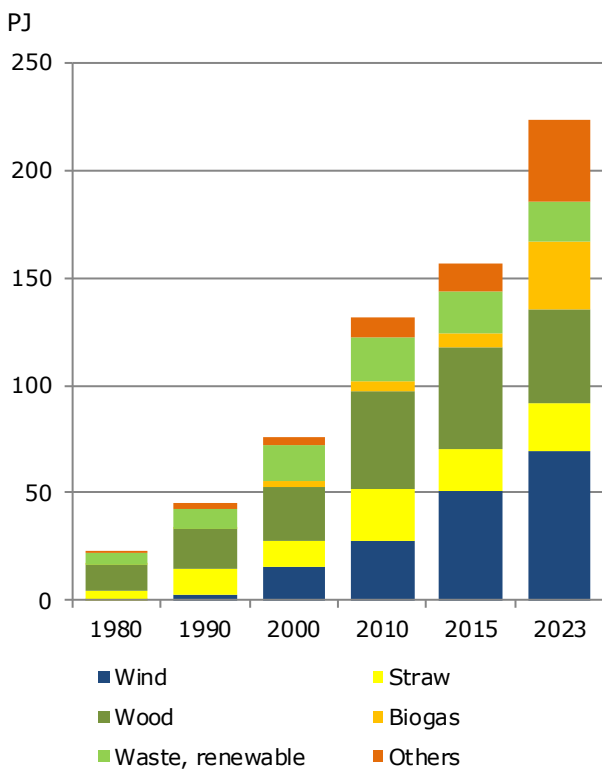
Energy production and energy consumption



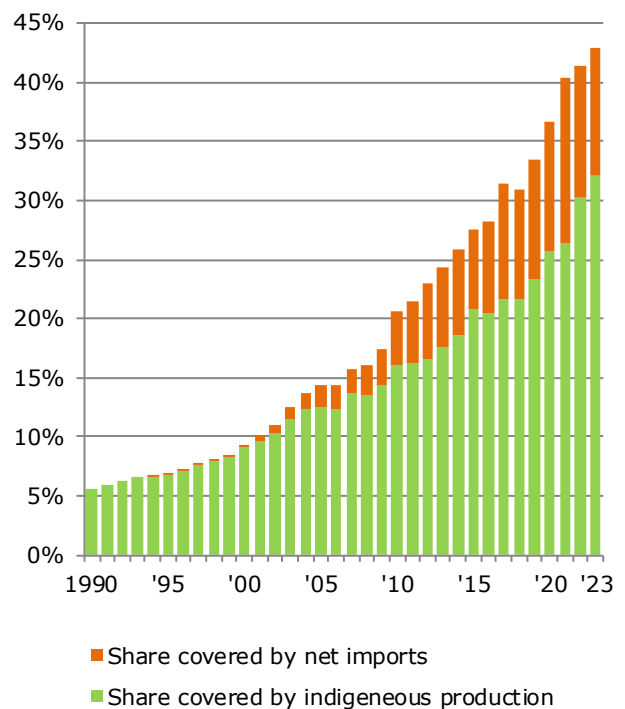
Renewable energy – share of total energy consumption



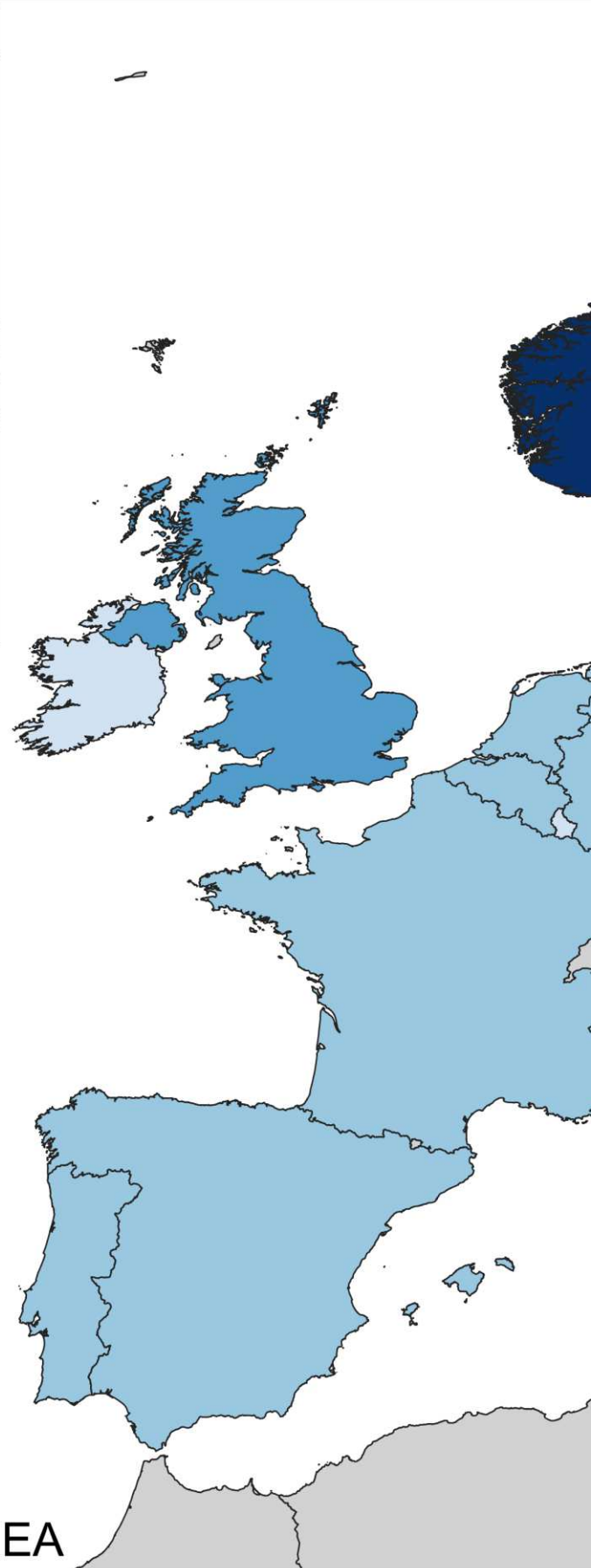
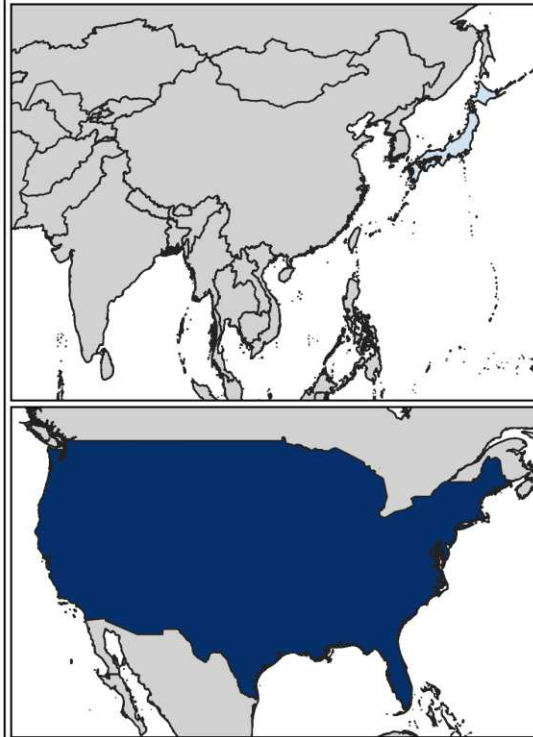
Renewable energy production by type



Consumption of renewable energy – share of total energy consumption



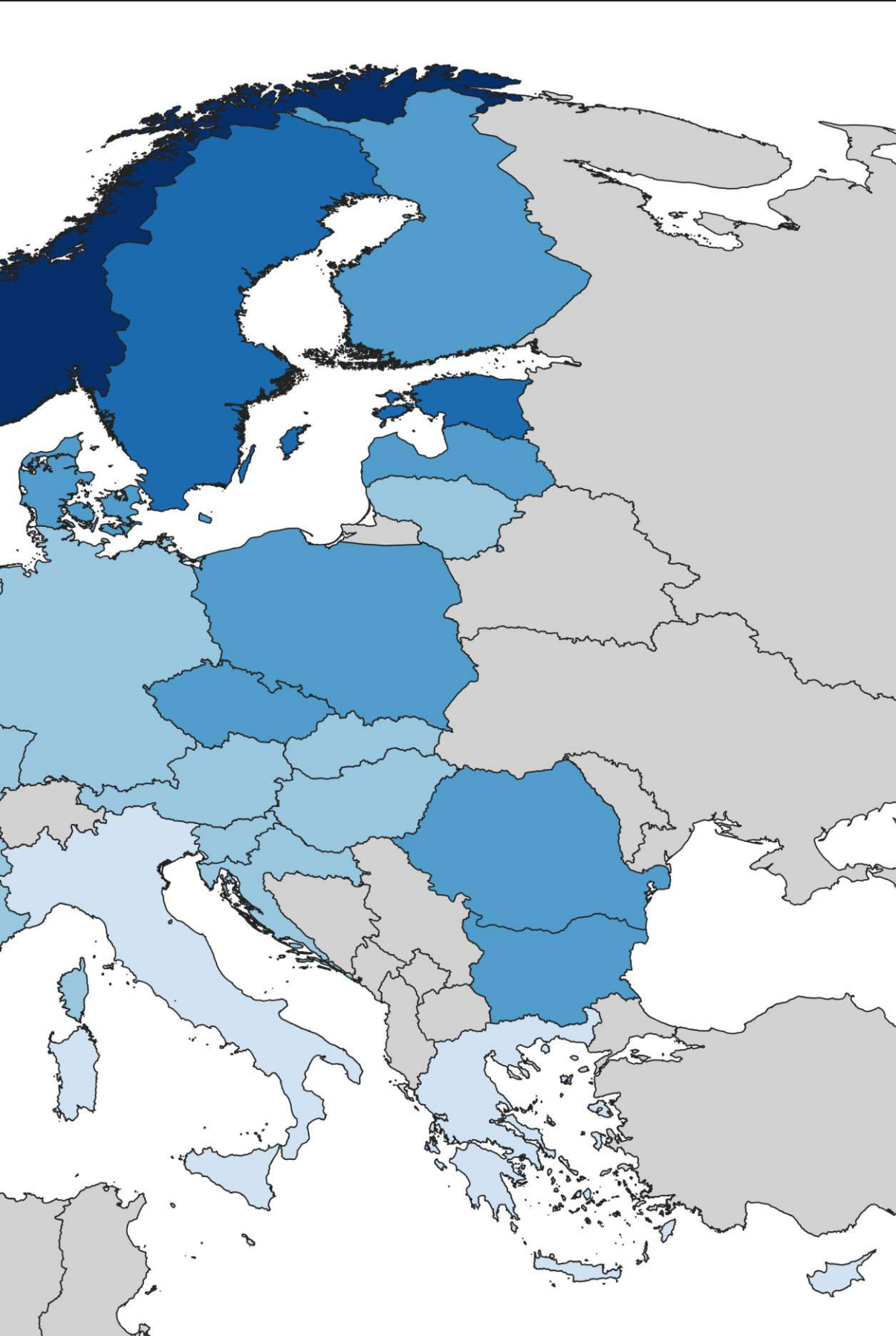
Degree of Self-Sufficiency
Total energy



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

Source: Eurostat and IEA

Self-sufficiency
Energy, 2022

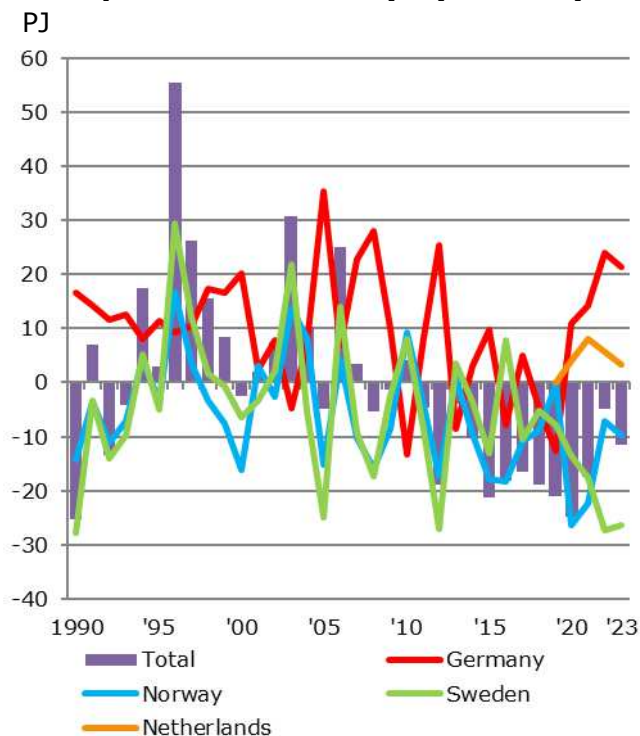


IMPORTS AND EXPORTS OF ENERGY

Imports and exports of energy products, 2023

	Imports	Exports
Crude oil [1000 tonnes]	4 762	854
Oil products [1000 tonnes]	5 865	7 067
Natural gas [million Nm ³]	8 165	7 970
Coal [1000 tonnes]	1 287	10
Electricity [GWh]	19 831	16 698

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 2023, Denmark had overall net imports of electricity of 11.5 PJ. This was the result of net imports of 9.7 PJ from Norway and 26.5 PJ net imports from Sweden, whilst the net exports to Germany was 21.4 PJ and 3.3 PJ to the Netherlands.

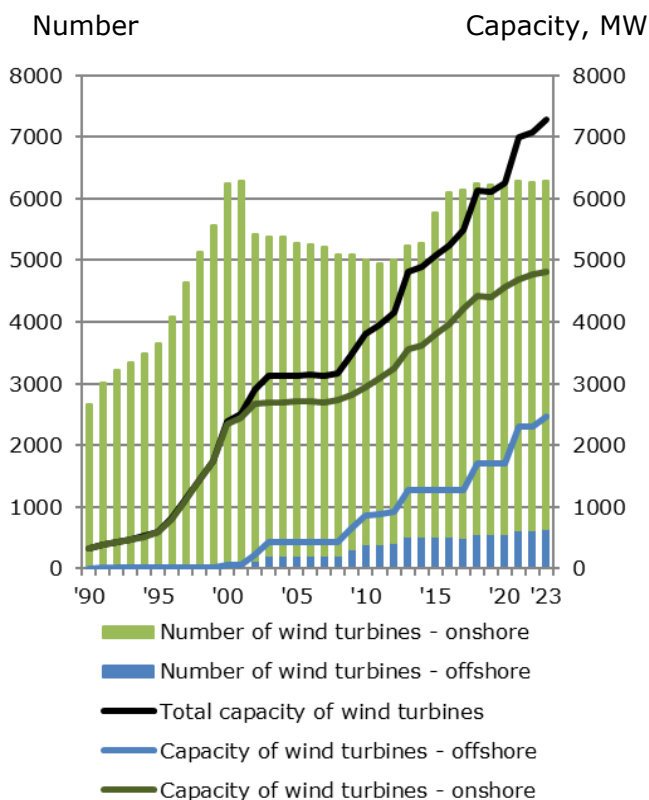
Number of wind turbines by size

	1990		2000			2023		
	Onshore turbines	Onshore turbines	Offshore turbines	Total	Onshore turbines	Offshore turbines	Total	
Total	2 666	6 194	41	6 235	5 631	648	6 279	
- 499 kW	2 656	3 652	11	3 663	2 160	-	2 160	
500 - 999 kW	8	2 283	10	2 293	2 318	10	2 328	
1000 - 1999 kW	2	251	-	251	316	-	316	
2000 - kW	0	8	20	28	837	638	1 475	

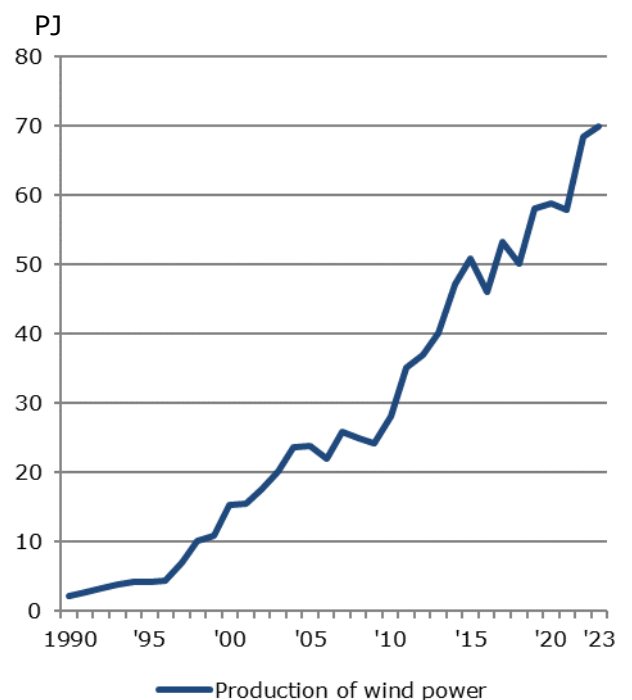
Total capacity of wind turbines by size [MW]

	1990		2000			2023		
	Onshore turbines	Onshore turbines	Offshore turbines	Total	Onshore turbines	Offshore turbines	Total	
Total	326	2 340	50	2 390	4 808	2 469	7 277	
- 499 kW	317	533	5	538	162	-	162	
500 - 999 kW	6	1 512	5	1 517	1 580	5	1 585	
1000 - 1999 kW	3	279	0	279	391	-	391	
2000 - kW	-	16	40	56	2 675	2 464	5 139	

Number of wind turbines and size of capacity



Production of wind power



ELECTRICITY AND HEAT

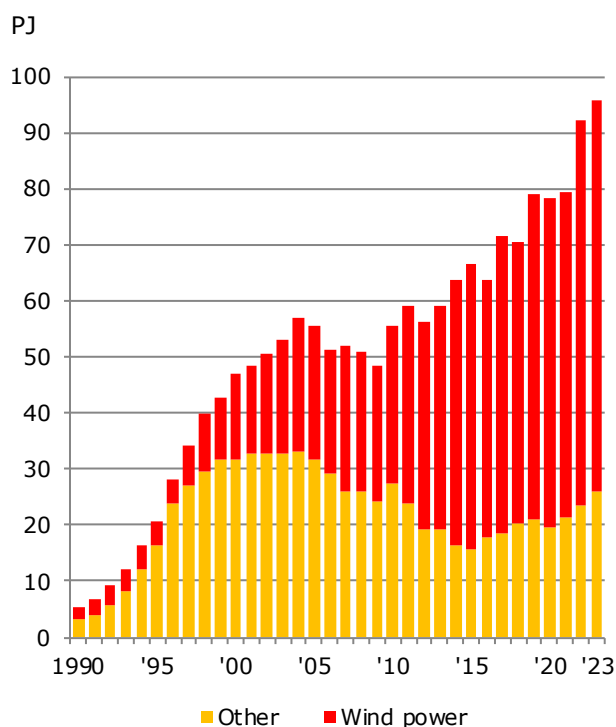
Electricity production by fuel

[PJ]	1994	2000	2010	2023
Total gross production	145	130	140	121
Oil	10	16	3	1
Natural gas	8	32	28	2
Coal	120	60	61	9
Wind	4	15	28	70
Other	3	7	19	39

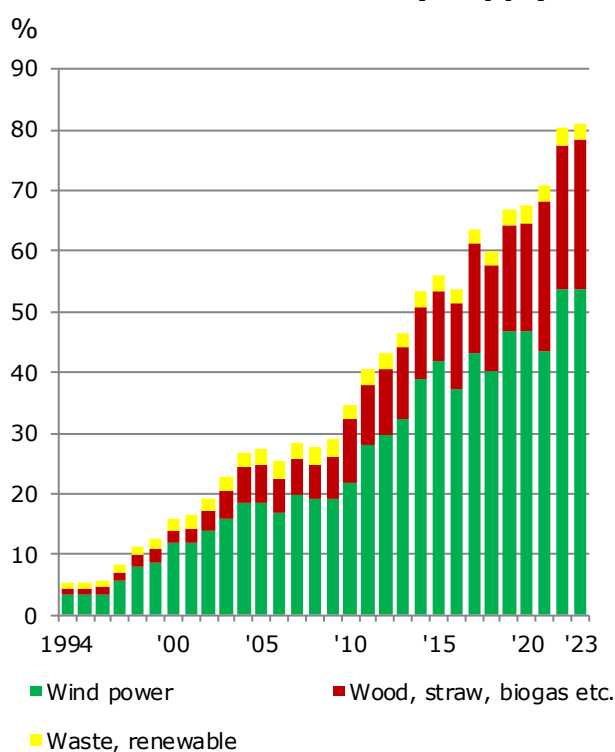
Electricity capacity (ultimo)

[MW]	1994	2000	2010	2023
Total electricity capacity	10 768	12 598	13 450	18 204
Large-scale units	9 126	8 160	7 175	5 228
Small-scale units	773	1 462	1 819	1 620
Autoproducers	339	574	638	543
Wind	521	2 390	3 802	7 277
Solar	0	1	7	3 529
Hydro	8	10	9	7

Electricity production by type



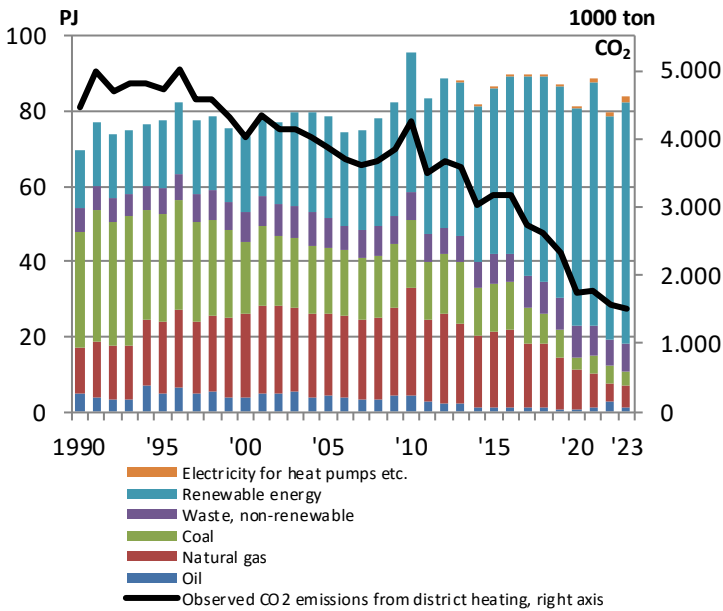
Electricity generated by renewables: Share of domestic electricity supply



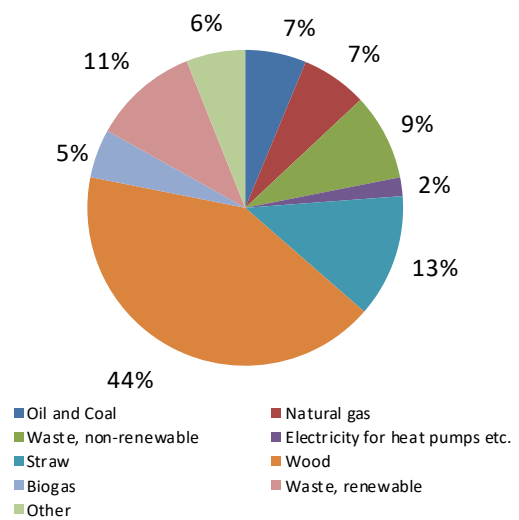
District heating by fuel

[PJ]	1994	2000	2010	2023
Total gross production	113	120	150	135
Oil	6	4	5	1
Natural gas	25	42	45	7
Coal	56	39	36	8
Surplus heat	3	4	3	5
Electricity	0	0	0	9
Waste, non-renewable	6	9	11	13
Renewable energy	17	22	51	92
- Straw	4	6	12	13
- Wood	4	5	24	53
- Waste, renewable	7	11	13	15
- Other	1	1	3	10

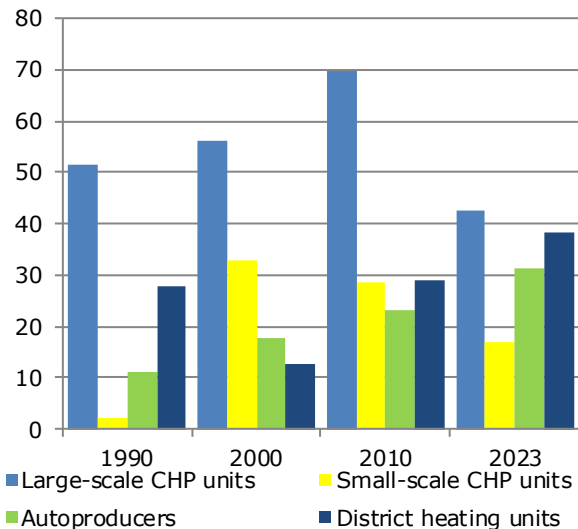
District heating CO2 emissions and consumption by fuel



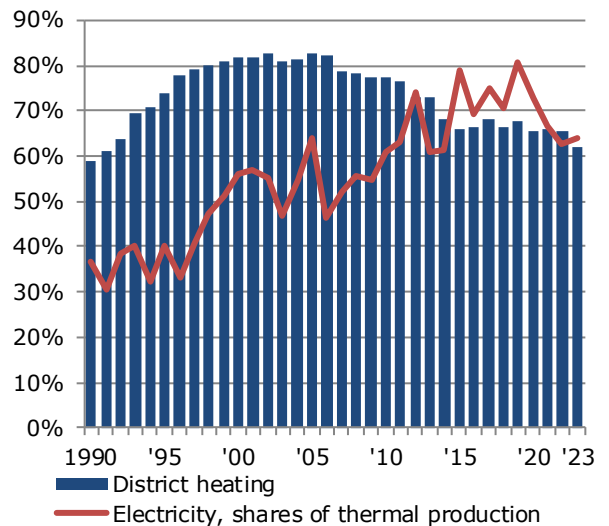
District heating fuel consumption, 2023 (Share of direct energy contents)



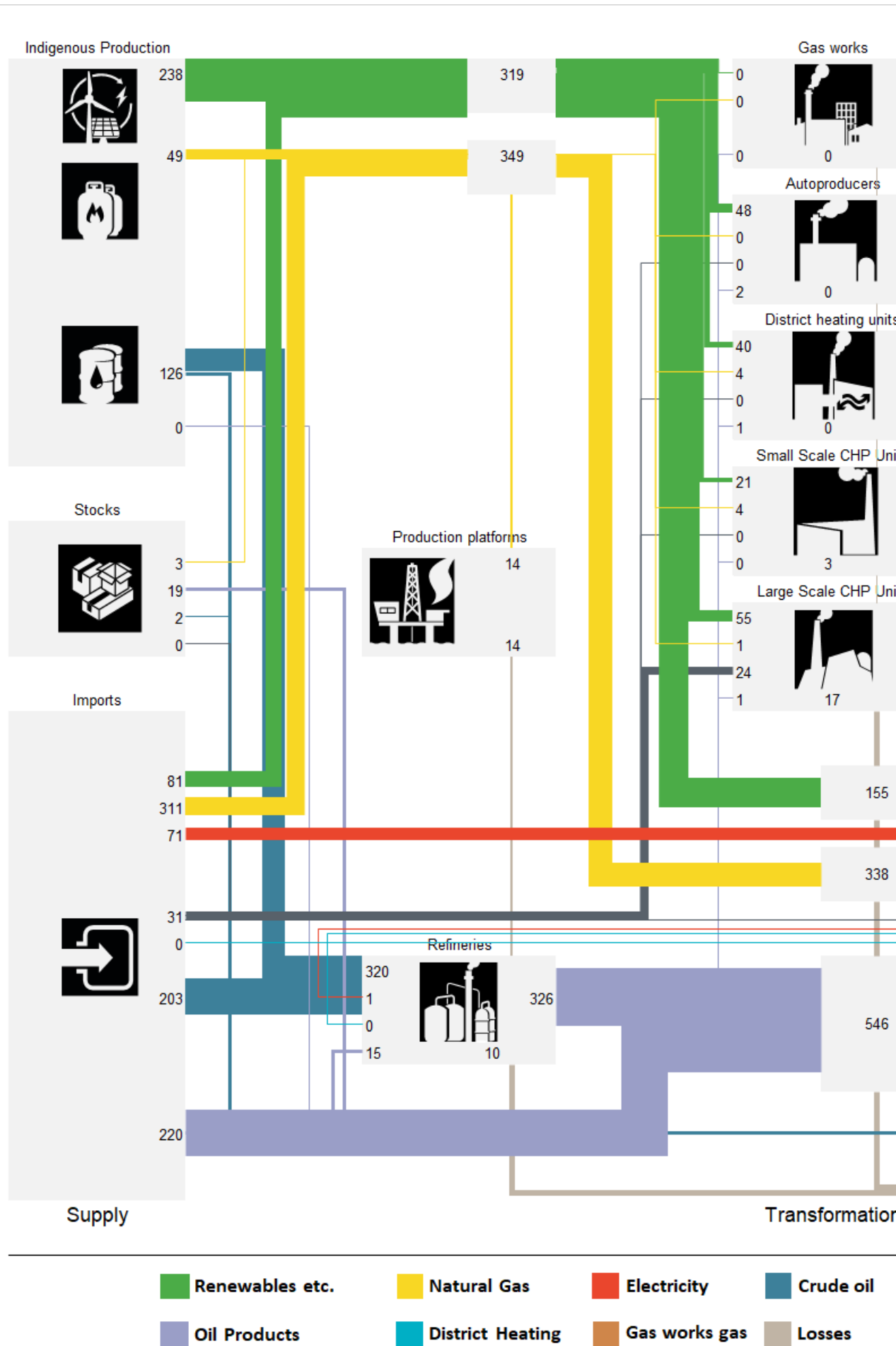
District heating production by type of producer

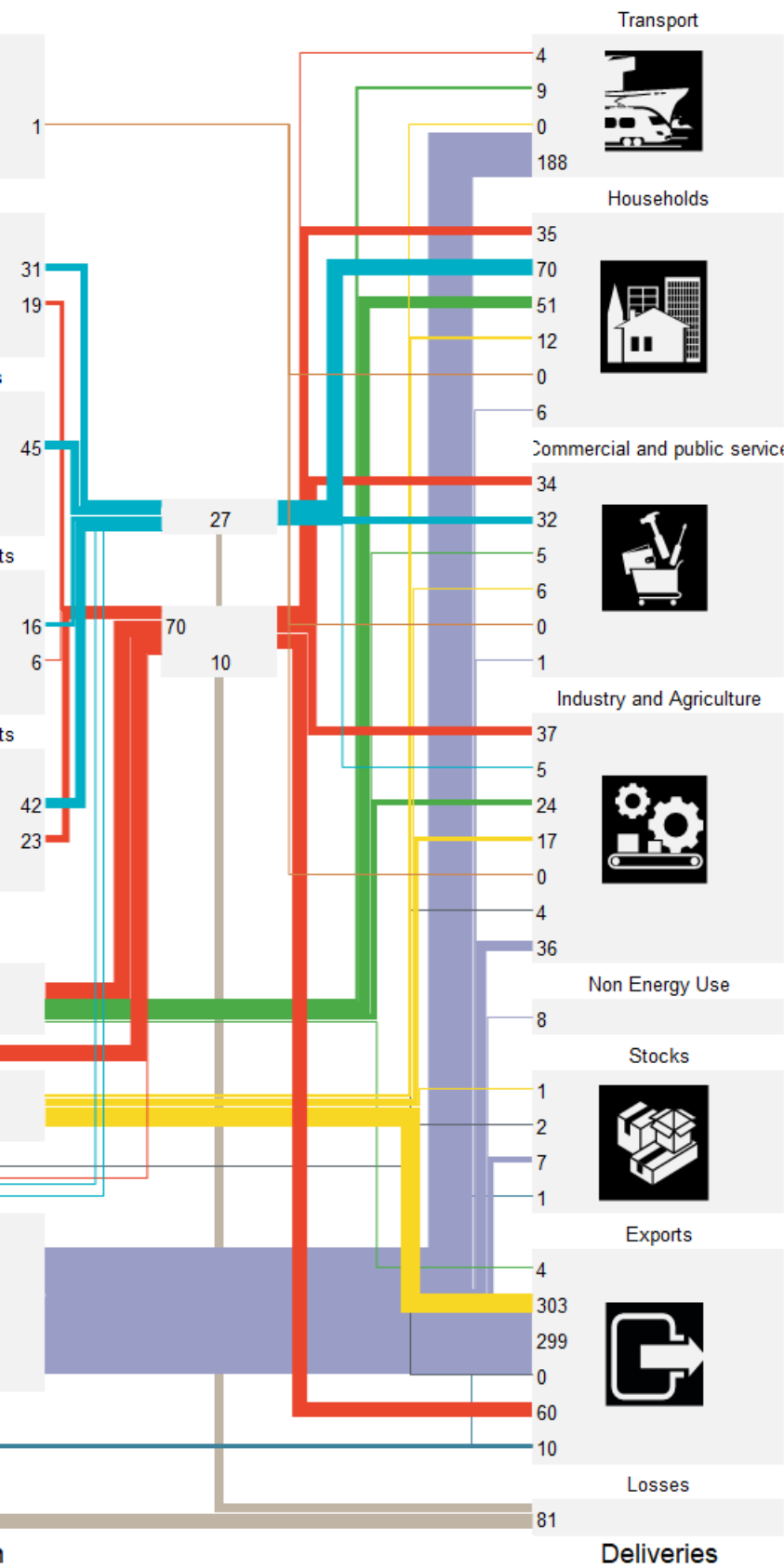


CHP shares of electricity and district heat production



DANISH ENERGY FLOWS



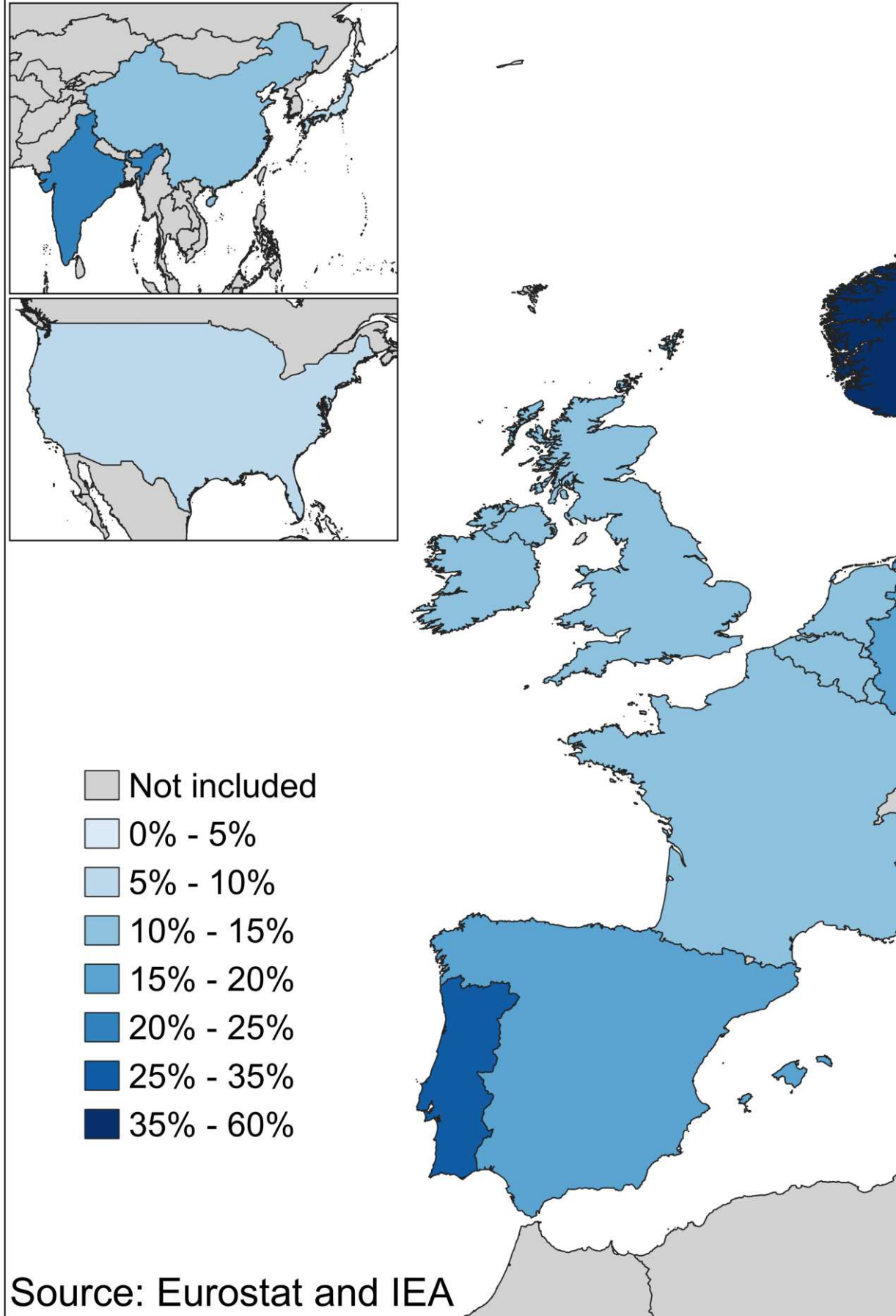


Danish Energy Flows 2023



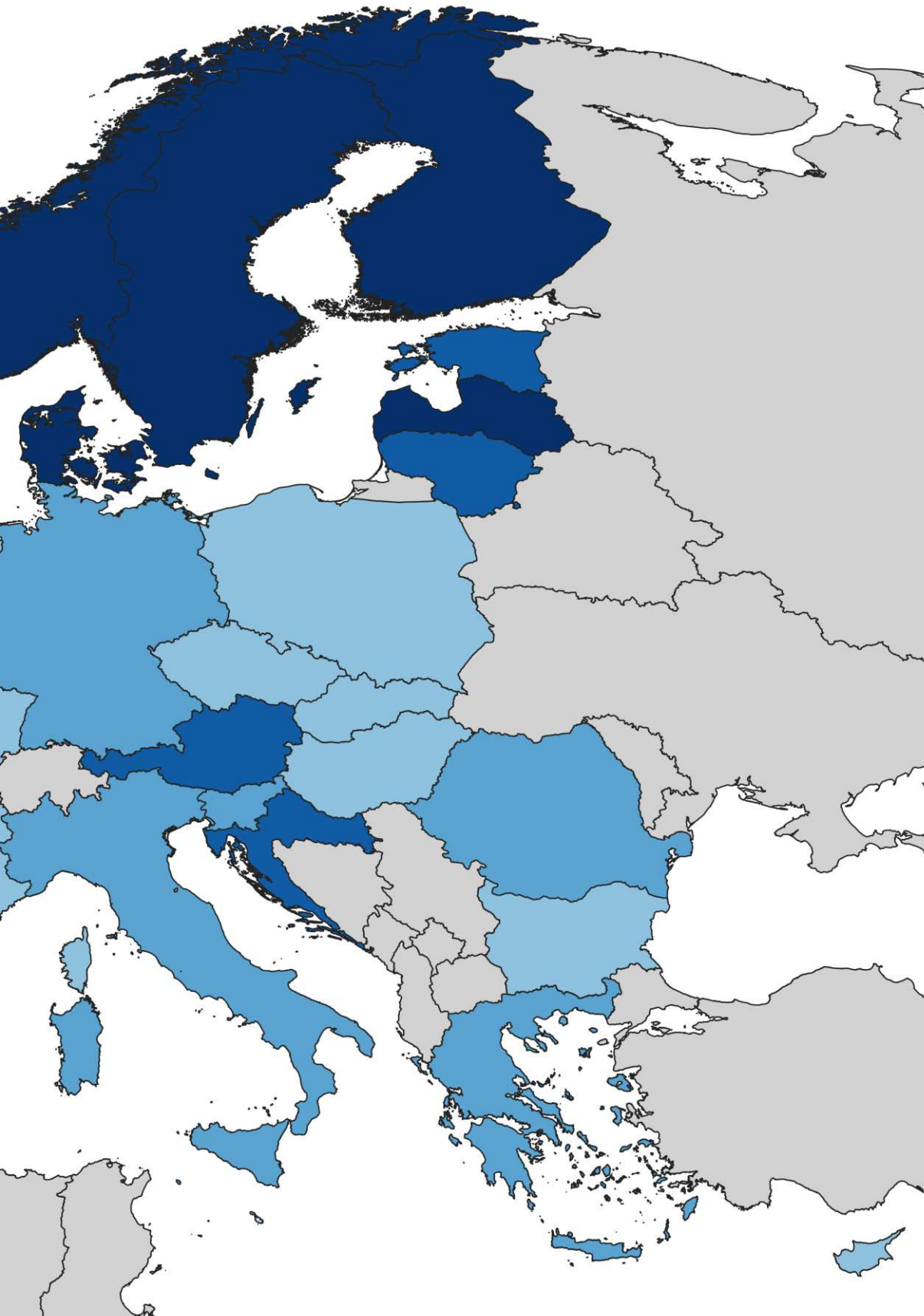
Danish Energy Agency

Renewable Energy Share of Total Energy



Source: Eurostat and IEA

Energy, 2022
Consumption (TPES)

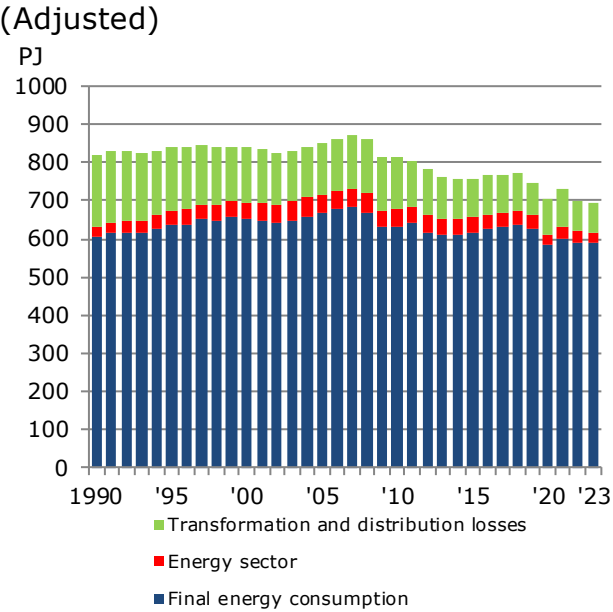


ENERGY CONSUMPTION

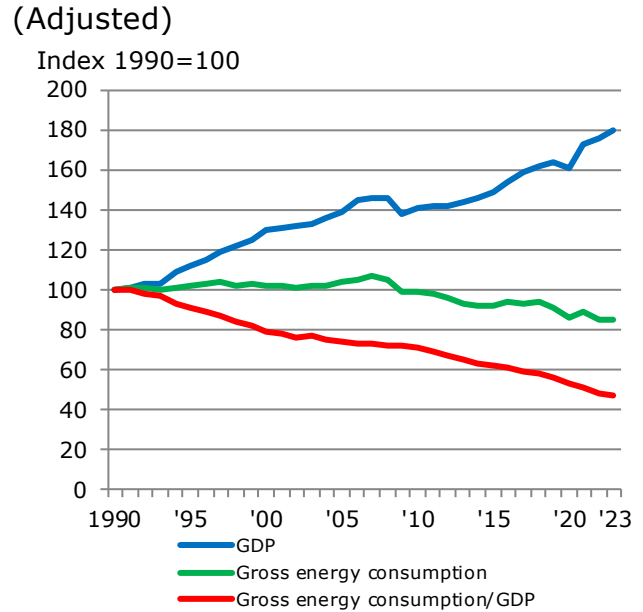
Gross energy consumption by fuel

Climate adjusted [PJ]	1980	1990	2000	2010	2023
Total gross energy consumption	814	819	839	814	696
Oil	546	355	376	312	255
Natural gas	0	82	192	176	62
Coal and coke	241	327	175	147	41
Waste, non-renewable	5	8	14	16	18
Renewable energy	22	48	81	163	319

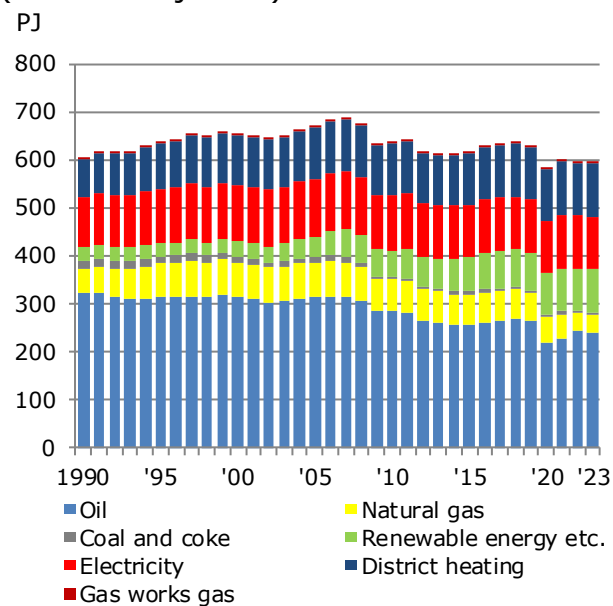
Gross energy consumption and final energy consumption (Adjusted)



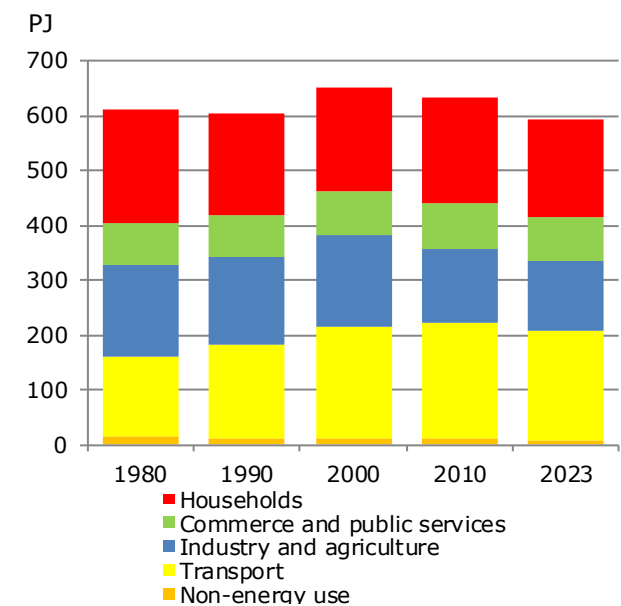
GDP, gross energy consumption and energy intensity (Adjusted)



Final energy consumption by fuel (Climate adjusted)



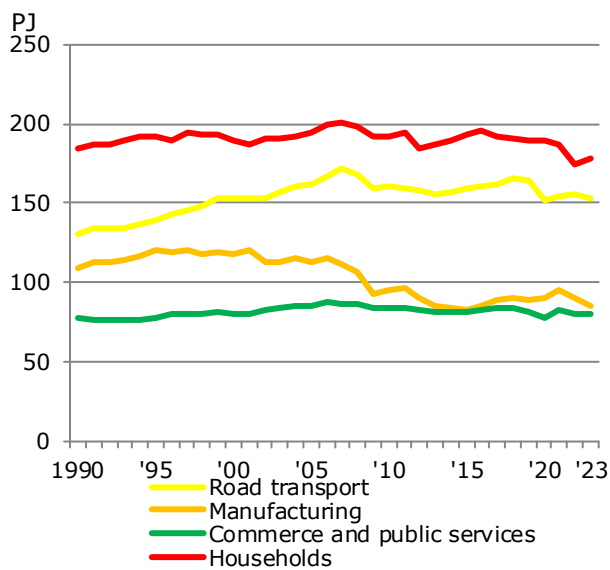
Final energy consumption by sector (Climate adjusted)



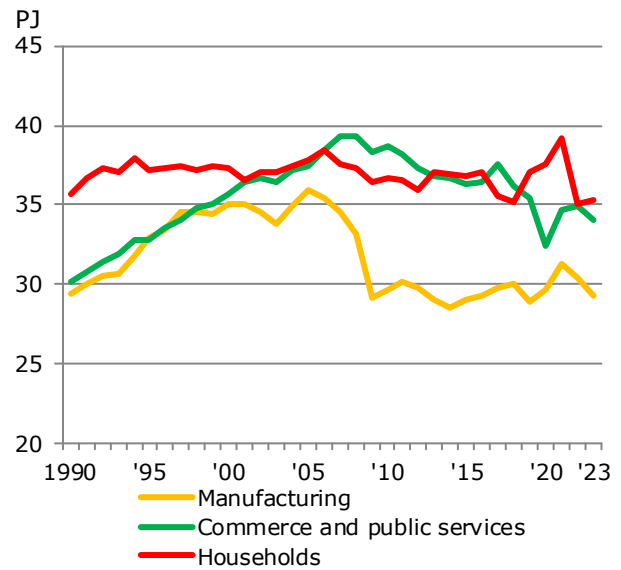
Final energy consumption by sector

Climate adjusted [PJ]	1980	1990	2000	2010	2023
Total final energy consumption	610	604	651	633	591
Non-energy use	16	13	13	11	8
Transport	143	170	201	210	201
Industry and agriculture	168	159	167	137	124
Commerce and public services	78	77	81	84	80
Households	204	185	189	192	178

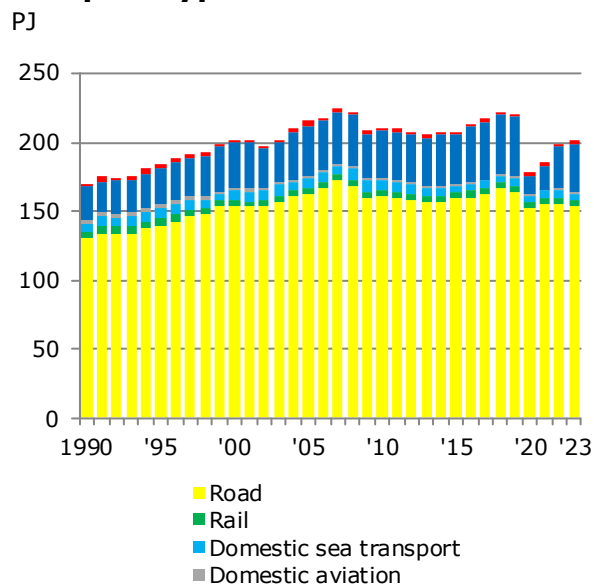
Final energy consumption by sector
(Climate adjusted)



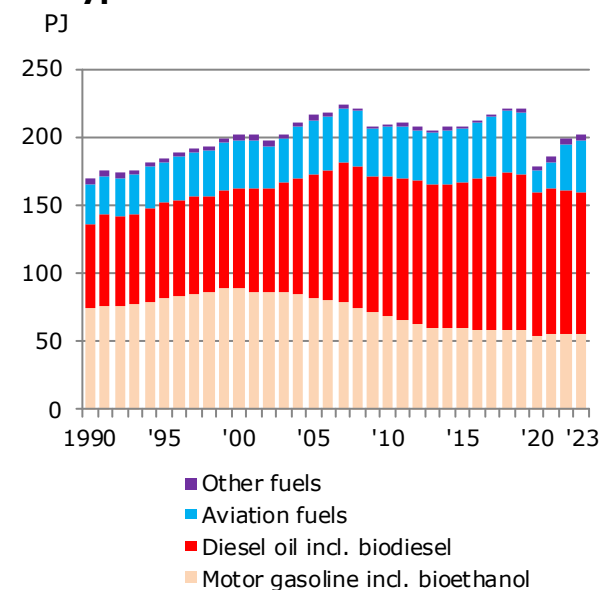
Electricity consumption by sector
(Climate adjusted)



Energy consumption for transport by transport type



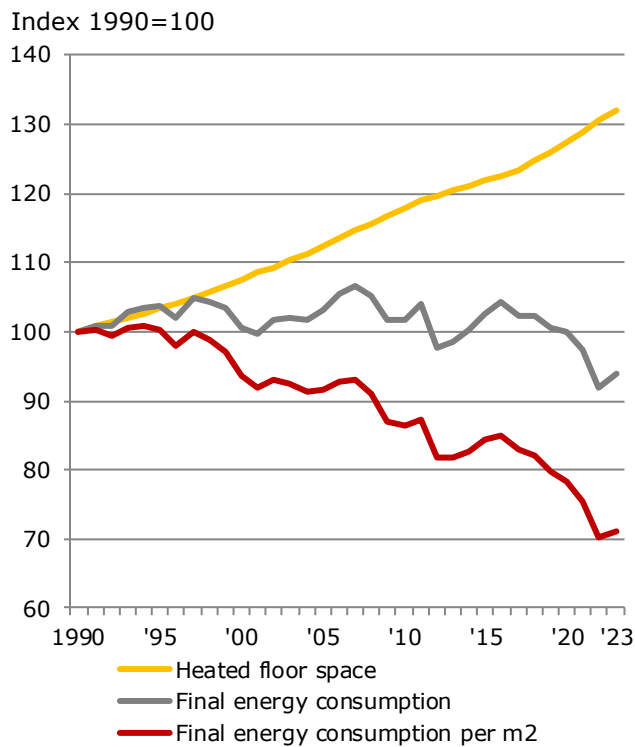
Energy consumption for transport by fuel type



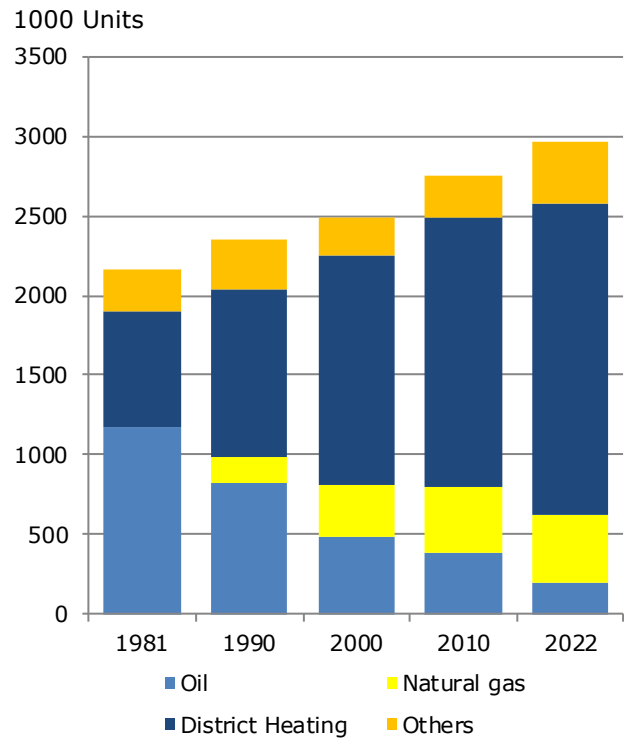
ENERGY CONSUMPTION

Energy consumption for space heating in households

(Climate adjusted)



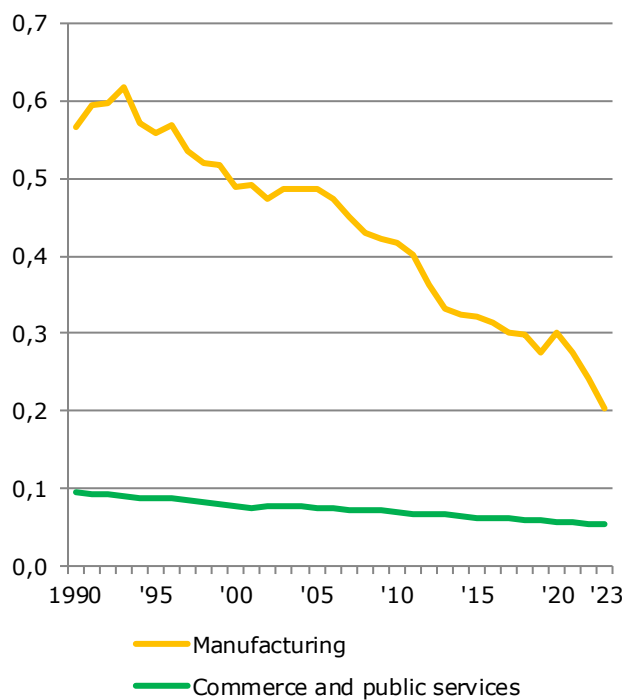
Heating installations in households



Energy intensities

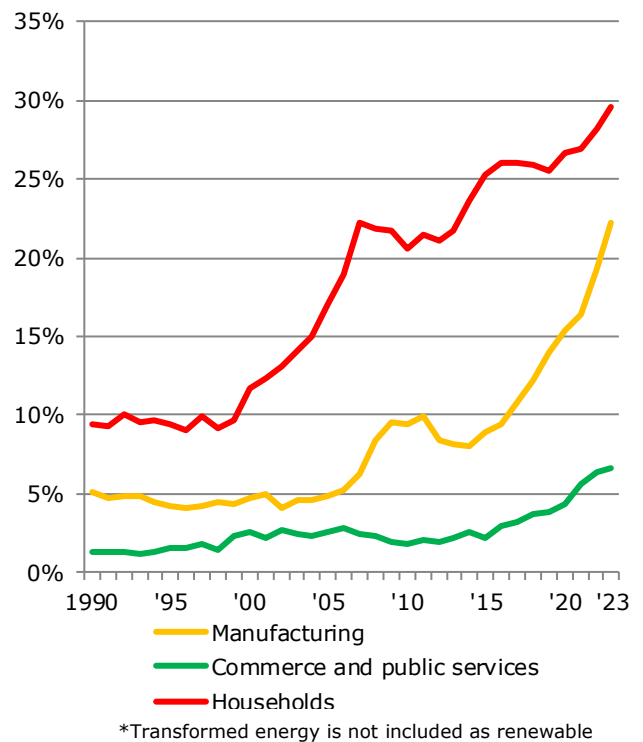
(Climate adjusted)

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



Shares of direct use of renewable energy in final energy consumption

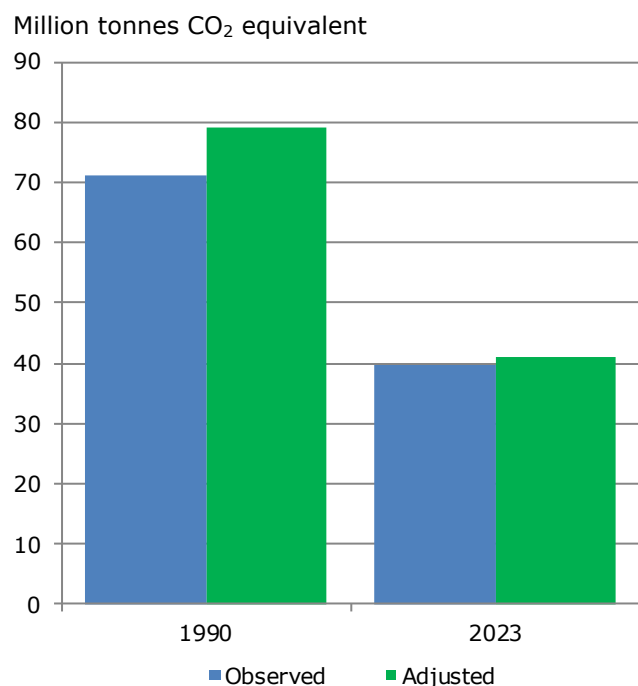
(Climate adjusted)



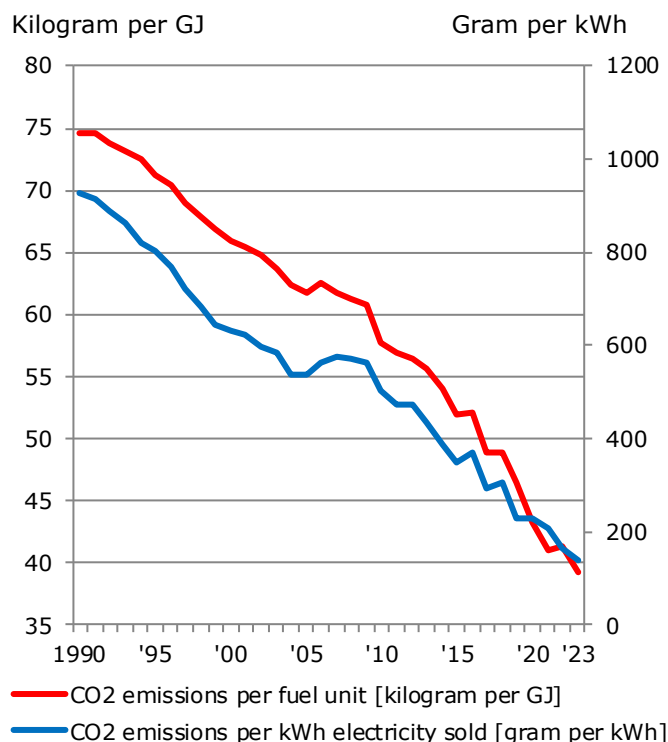
CO₂ emissions from energy consumption

[Million tonnes]	1980	1990	2000	2010	2023
Observed CO₂ emissions	64.6	53.1	53.6	49.4	25.8
Energy sector	0.9	1.4	2.3	2.3	1.6
Transformation sector	30.1	25.1	24.2	22.0	4.6
Final energy consumption	33.3	26.6	27.1	25.1	19.5
Adjusted CO₂ emissions	62.6	61.0	55.3	47.1	27.3
Energy sector	0.9	1.4	2.3	2.3	1.6
Transformation sector	28.8	32.3	25.5	20.1	6.1
Final energy consumption	32.9	27.4	27.5	24.6	19.6

Total emissions from greenhouse gases



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

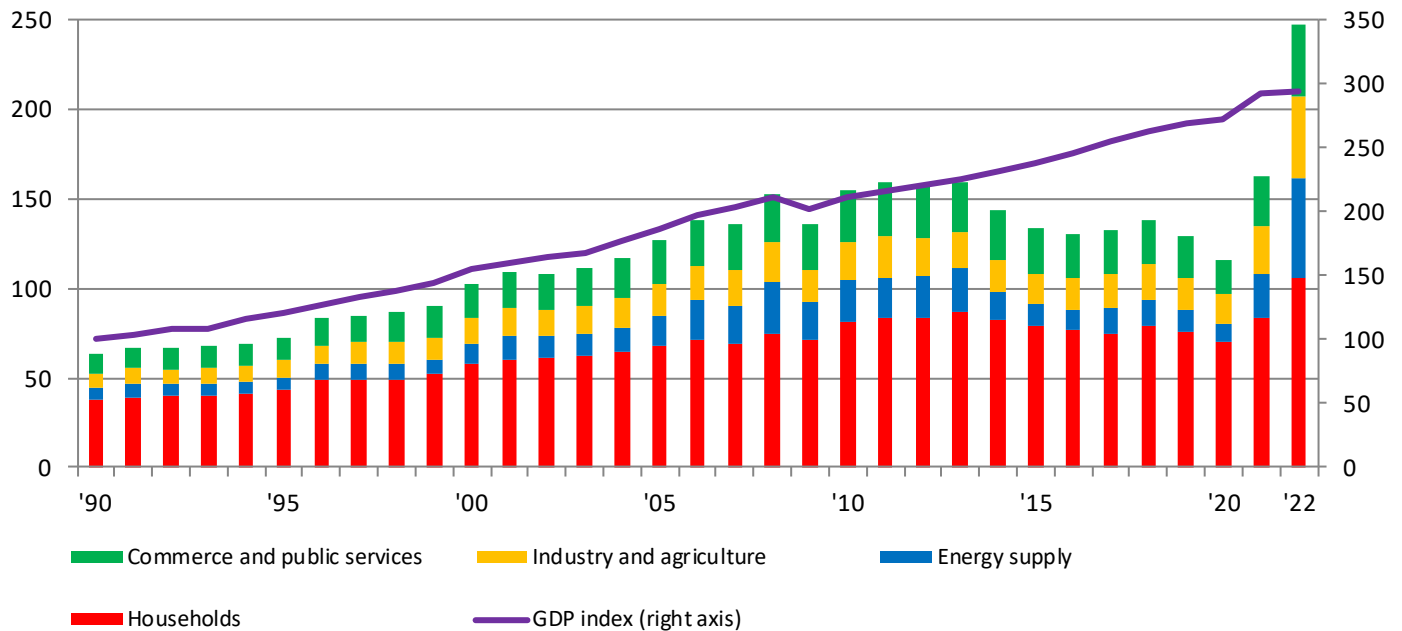


ENERGY ECONOMY AND PRICES

Energy expenses by industry and households

Billion DKK, current prices

Index 1990=100



Source: Statistics Denmark

Economic key figures

[Billion DKK, current prices]

2020

2021

2022

Total energy expenditures

116.1

162.4

247.4

Revenues from energy, CO₂ and sulphur taxation

36.7

38.7

36.9

Value of crude oil and natural gas production

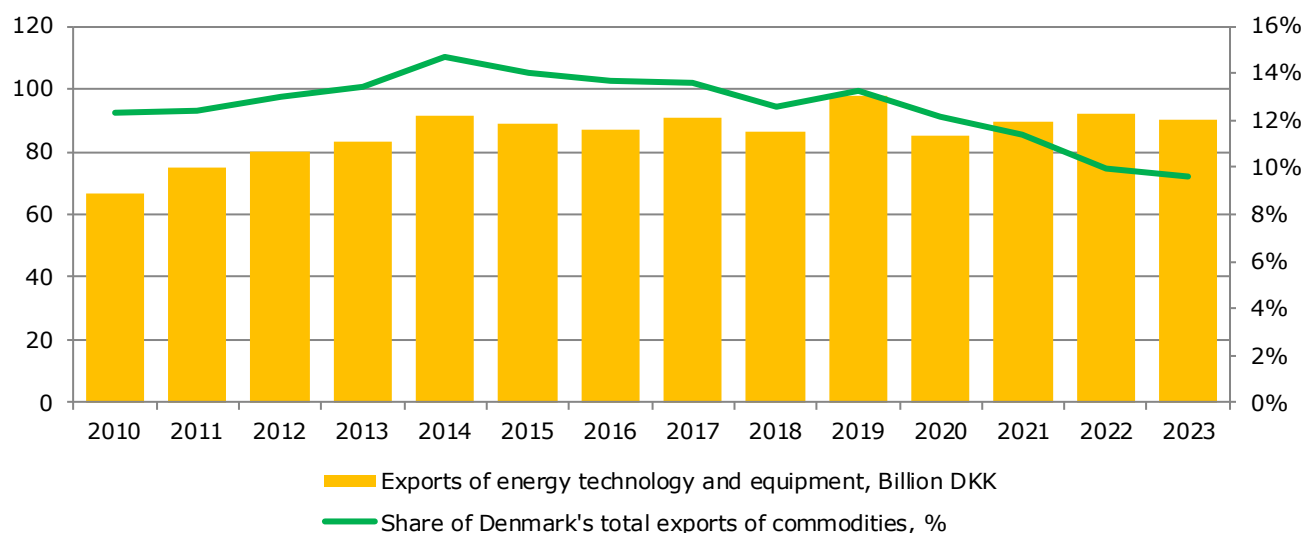
8.4

11.5

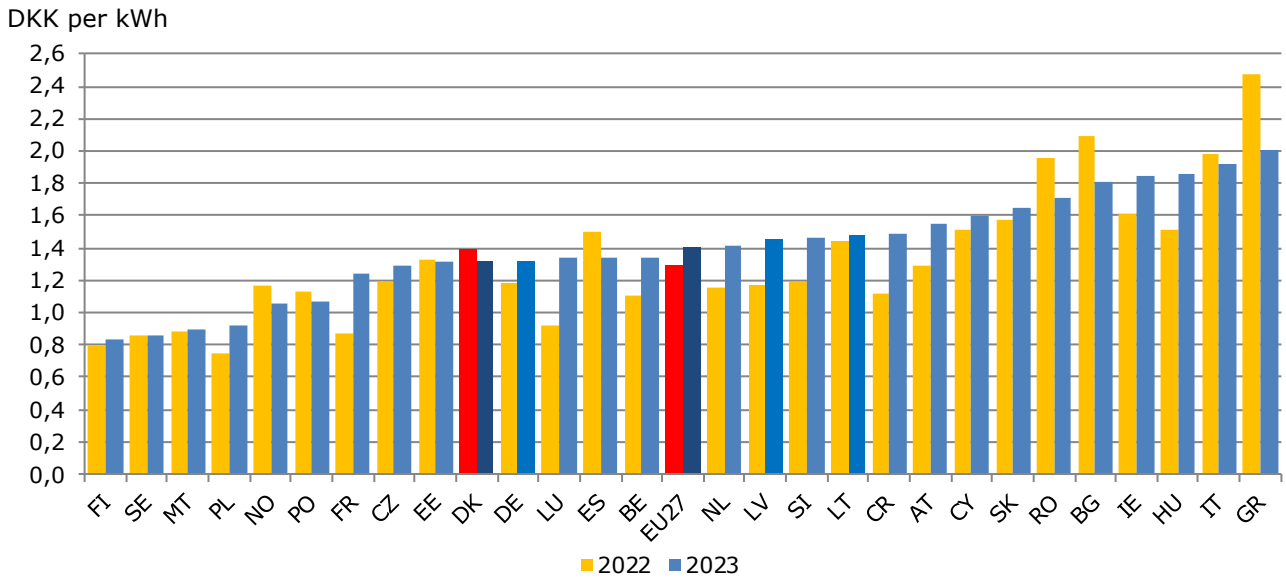
18.5

Exports of energy technology and equipment

Billion DKK, current prices



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

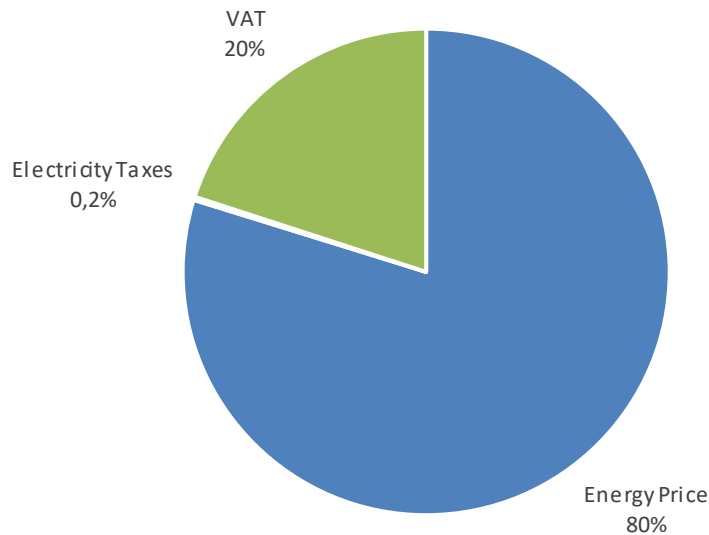


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Source: Eurostat

Energy prices for households, 2023

	DKK	Euro
Gasoline regular [per litre]	15.35	2.06
Heating gas oil [per litre]	15.84	2.13
Natural gas [per Nm ³]	11.3	1.52
Electricity [per kWh]	2.74	0.37

Decomposition of the electricity price for households, 2023 (%)



INTERNATIONAL COMPARISONS 2022

	Degree of self- suffi- ciency [%]	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	97	27	153	239
Sweden	78	52	183	99
Romania	70	19	70	166
Bulgaria	67	14	120	395
Latvia	66	43	98	181
Czech Republic	60	13	167	212
Finland	60	40	245	157
Denmark	60	42	119	56
Poland	57	13	119	189
France	49	14	135	97
Slovenia	47	16	127	138
Croatia	44	26	92	148
EU27	42	18	127	107
Hungary	41	13	111	185
Slovakia	41	13	128	185
Austria	37	32	151	94
Netherland	36	13	160	102
Germany	34	17	142	94
Belgium	30	10	188	138
Spain	30	16	105	108
Portugal	30	29	91	117
Lithuania	29	25	106	170
Greece	24	17	87	120
Italy	23	19	105	90
Ireland	21	13	121	37
Cyprus	10	12	119	114
Luxembourg	9	11	248	68
Malta	5	7	74	233
Norway	811	57	206	68
UK	68	15	95	-
USA	107	9	273	-
Japan	13	8	131	-

Source: Eurostat and IEA.

DANISH KEY FIGURES

	1980	1990	2000	2010	2023
Gross energy consumption per capita [GJ]	159	159	157	147	117
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	0.268
Energy intensity, final energy consumption [TJ per million GDP]	0.582	0.469	0.388	0.350	0.227
Degree of self-sufficiency [%]	5	52	139	120	59
Dependency of oil [%]	67	43	45	38	37
Renewable energy: Share of gross energy consumption [%]	2,7	5.8	9.6	20.0	45.9
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	18204
Wind turbine capacity: Share of total electricity capacity [%]	-	3.6	19.0	28.3	40.0
Net electricity exports: Share of domestic supply [%]	5.1	-22.5	-1.9	3.2	8.7
CHP production: Share of thermal electricity production [%]	18	37	56	61	84
CHP production: Share of district heating production [%]	39	59	82	77	62
Renewable energy: Share of total domestic electricity supply [%]	0.1	2.6	15.9	34.8	82.1
CO ₂ emissions per capita [tonnes]	12.2	11.9	10.4	8.5	4.6
CO ₂ emissions per kWh sold [gram per kWh]	1027	929	632	505	138
CO ₂ emissions per consumed unit of district heating [kilogram per GJ]	96	62	43	33	15
CO ₂ emissions per GDP [kilogram per DKK]	60	47	33	26	11

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

Do you need more data?

www.ens.dk/facts_figures

Here you can find:

Energy in Denmark 2023

- Publications as pdf
- Figures in PowerPoint
- Time series and tables
- Denmark's energy flows 2023

Data

- Monthly energy statistics
- Wind turbine data

Maps

- Electricity generation and transmission
- Heat supply

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