



Danish Energy
Agency

2020

Data, tables, statistics and maps

Energy in Denmark 2020

Energy in Denmark, 2020

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Sources

Danish Energy Agency – Energy statistics 2020

Statistics Denmark

Danish Meteorological Institute

Danmarks Nationalbank

Danish Energy Agency

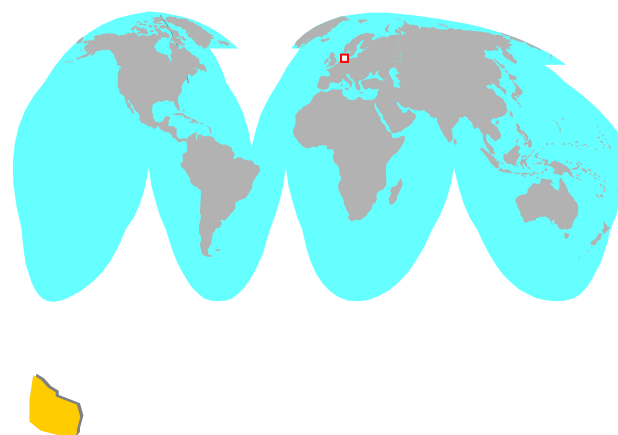
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March 2022

GENERAL INFORMATION ON DENMARK



Geography (2020)

Area, km ²	42 944
Coastline, km	8 750
Number of islands	394
Forest area, %	14.7

Climate (2020)

Average temperature:	
January	5.5° C
July	14.7° C
Sunshine, hours	1 819
Precipitation, mm	770

Population (2020)

Population (Jan. 2020)	5 822 763
By age:	
0-19 years, %	22.3
20-59 years, %	52.0
60- years, %	25.8
Population density, per km ²	135.2

Currency (2020)

1 Krone (DKK)	=	100 øre
1 USD	=	6.53 DKK
1 EURO	=	7.45 DKK
1 GBP	=	8.39 DKK

Economics (2020)

GDP, billion DKK	2 330
Exports, billion DKK	1 128
Imports, billion DKK	1 279

Constitution and Government (2020)

Denmark is a constitutional monarchy
 Monarch is Queen Margrethe II
 In 2020 the government consists of:
 The Social Democratic Party

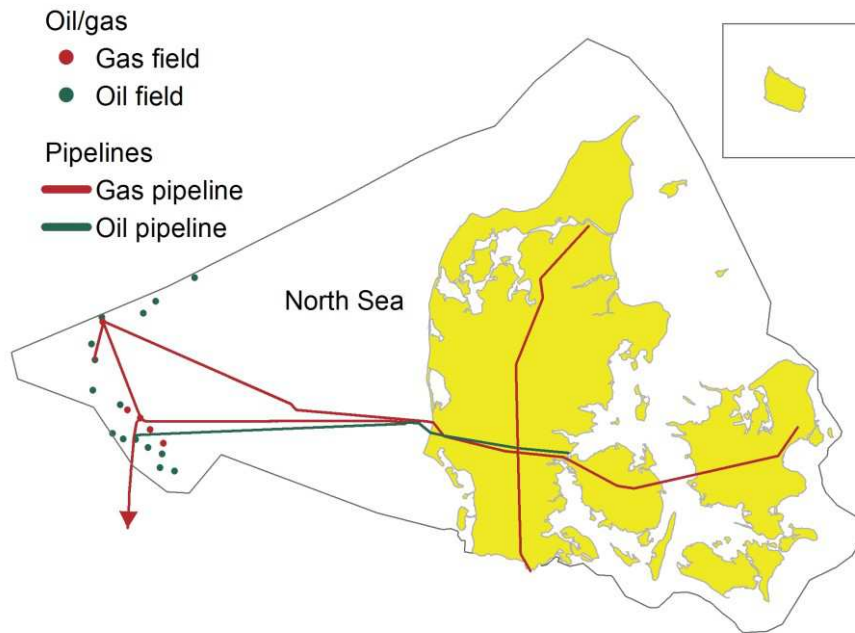
Labour Market (2020)

Labour force, '000	3025
Employed, '000	2 854
Employed in industry, %	17.8
Employed in agriculture and fishing, %	2.3
Employed in commercial and public services, %	79.9

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

ENERGY PRODUCTION

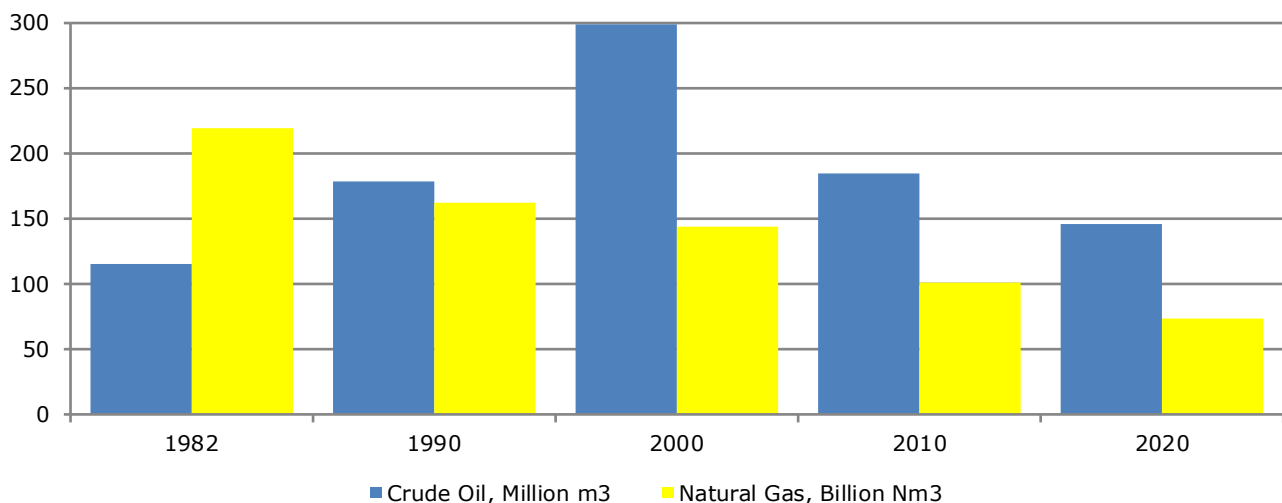
Danish oil and gas fields and pipelines



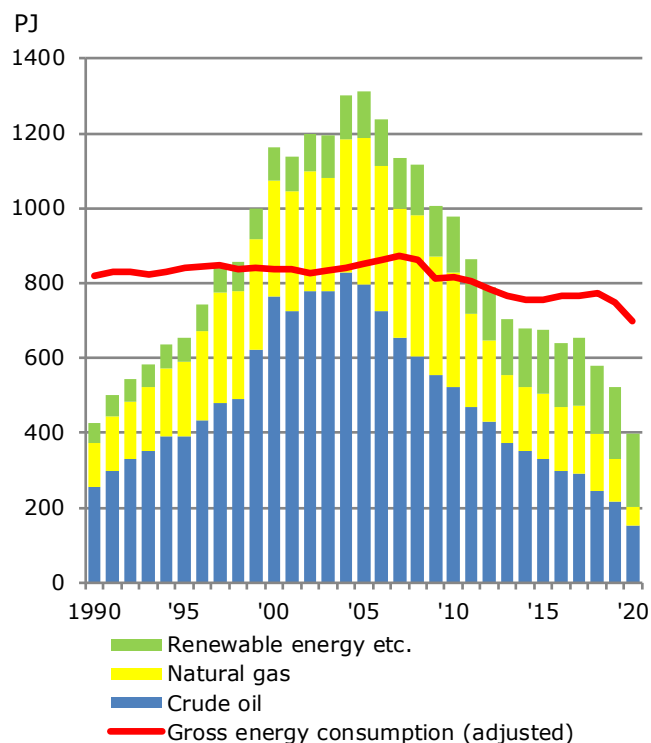
In 2020, there were twenty oil and gas fields of varying size (fifteen oil and five gas fields). Seven fields are situated in the northern part of the Central Graben, while all the other fields are situated in the southern region of the Central Graben. Denmark is the third largest oil producer in Western Europe trailing only UK and Norway.

Energy production [PJ]	1980	1990	2000	2010	2020
Total production	40	424	1 165	979	398
Crude oil	13	256	765	523	151
Natural gas	0	116	310	307	50
Waste, non-renewable	5	7	14	17	16
Renewable energy	23	45	76	131	181

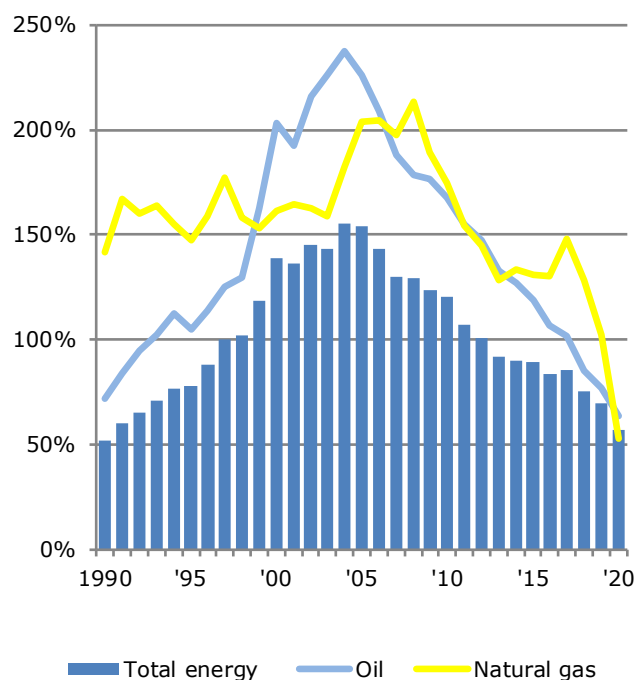
Oil and gas reserves and resources (Ultimo)



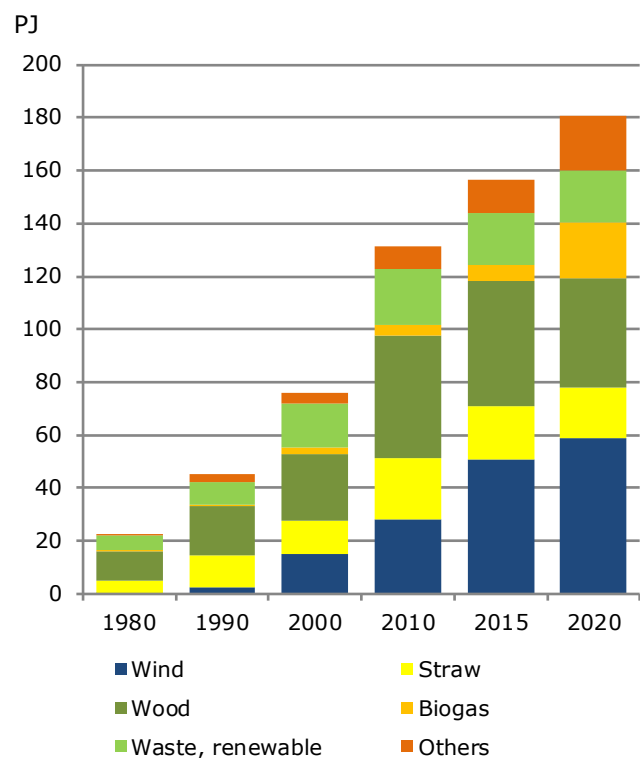
Energy production and energy consumption



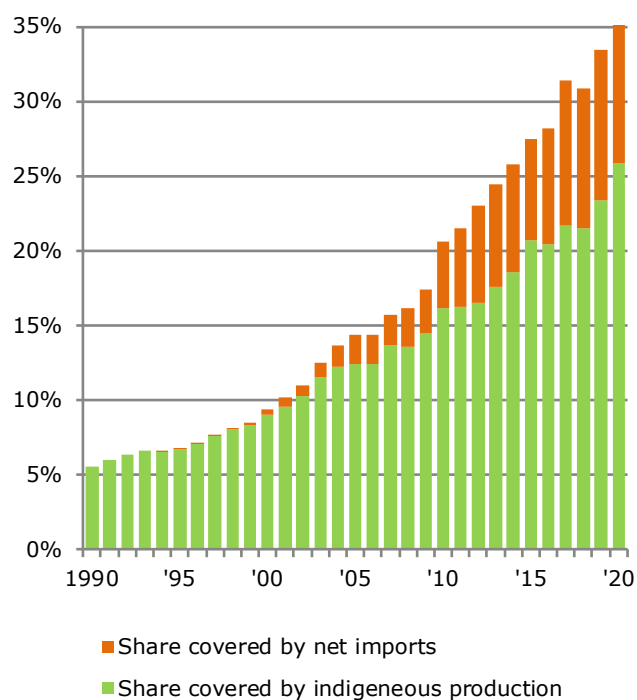
Degree of self-sufficiency



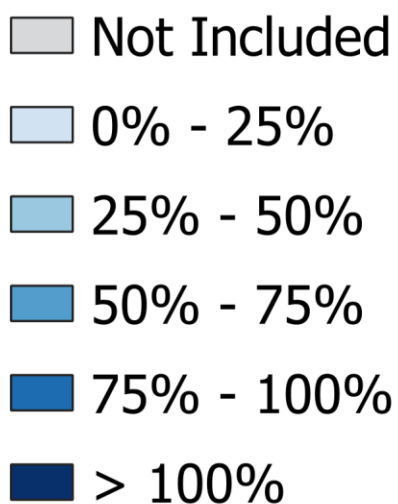
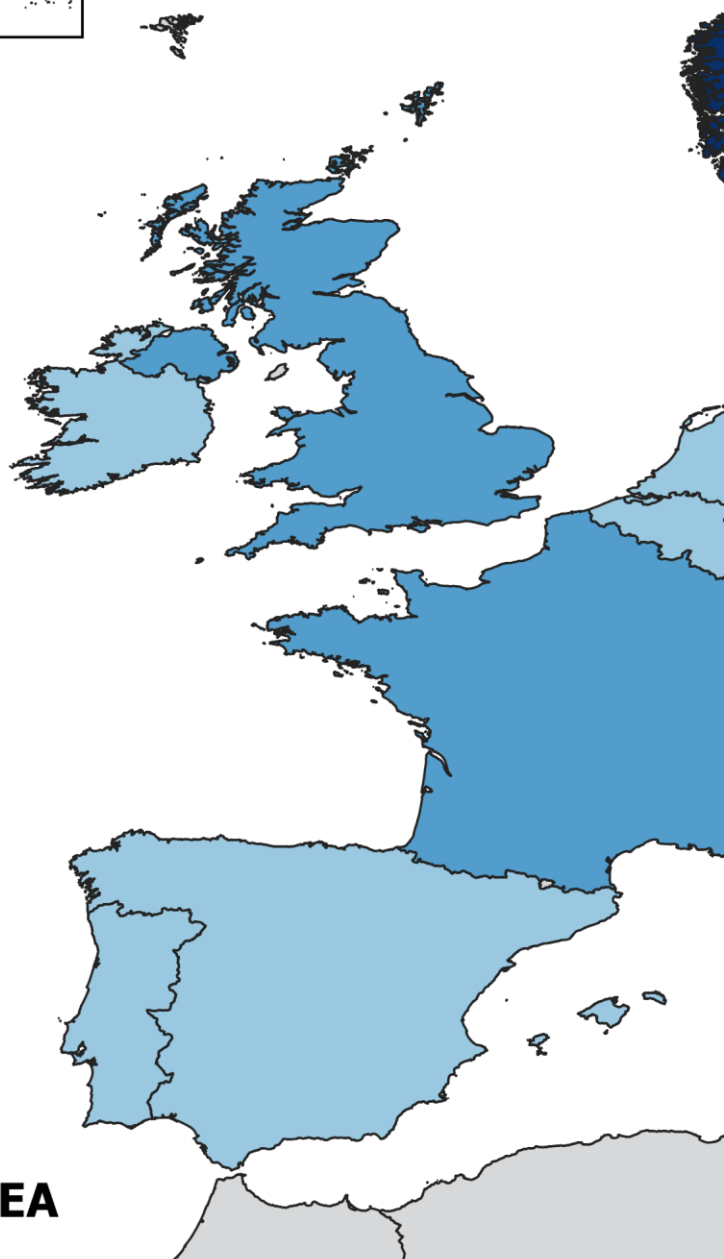
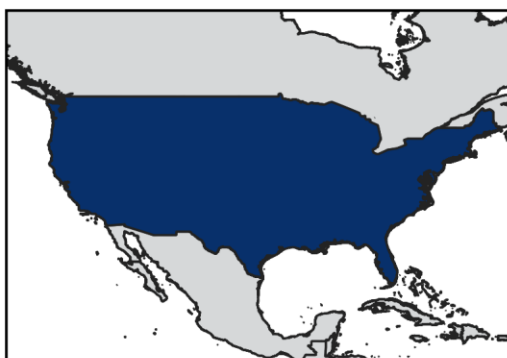
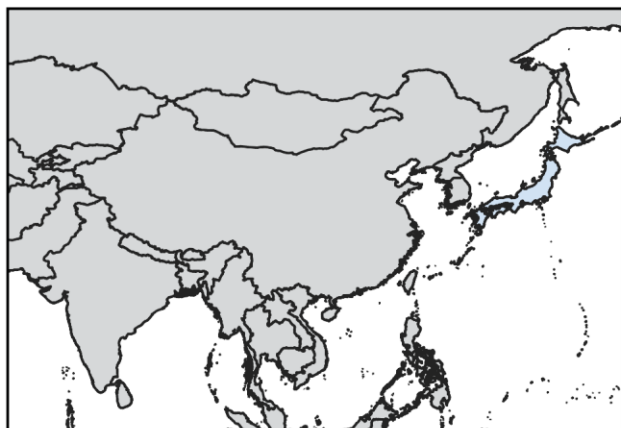
Renewable energy production by type



Consumption of renewable energy – share of total energy consumption

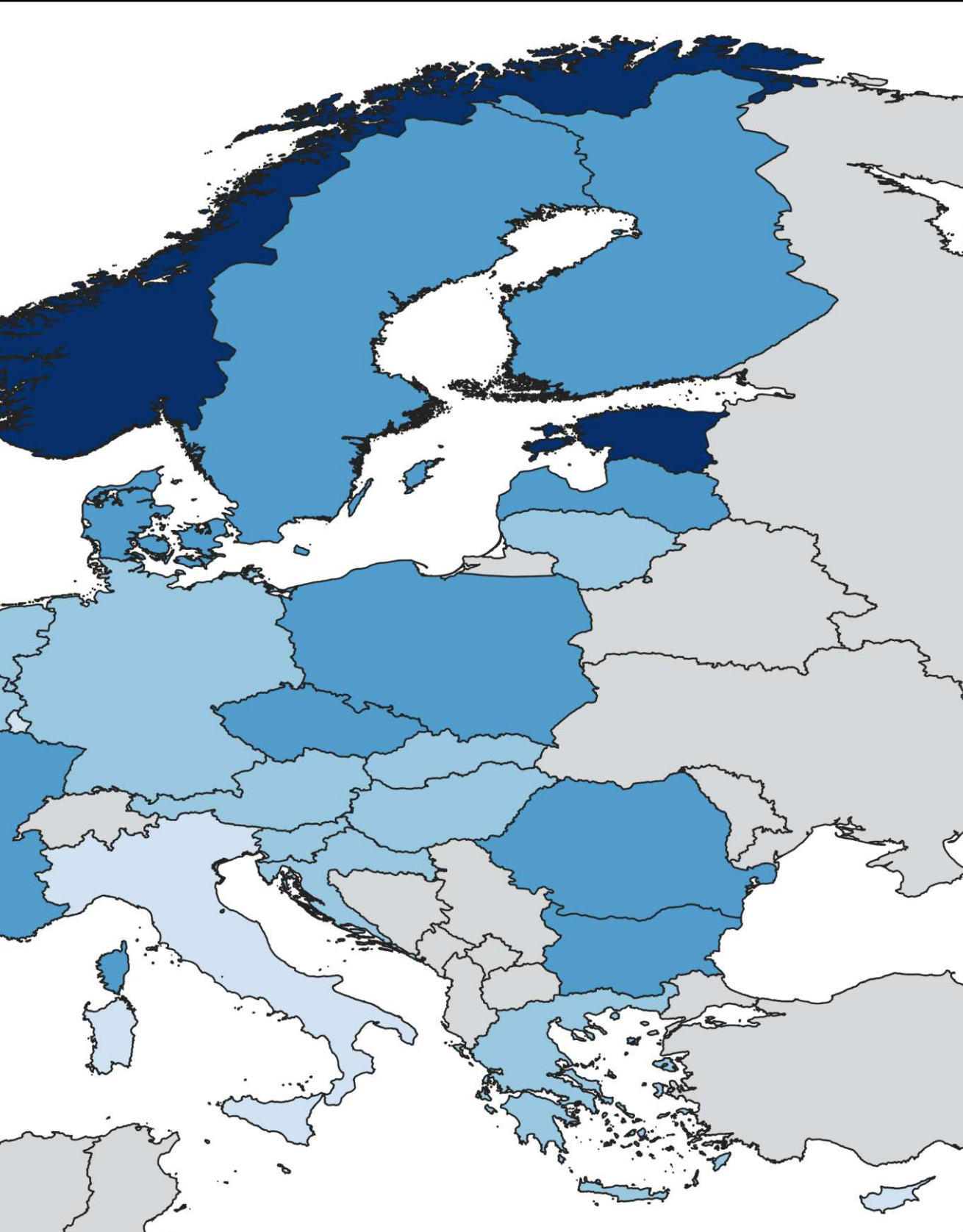


Degree of Self-sufficiency



Source: Eurostat and IEA

cy - Total Energy, 2019

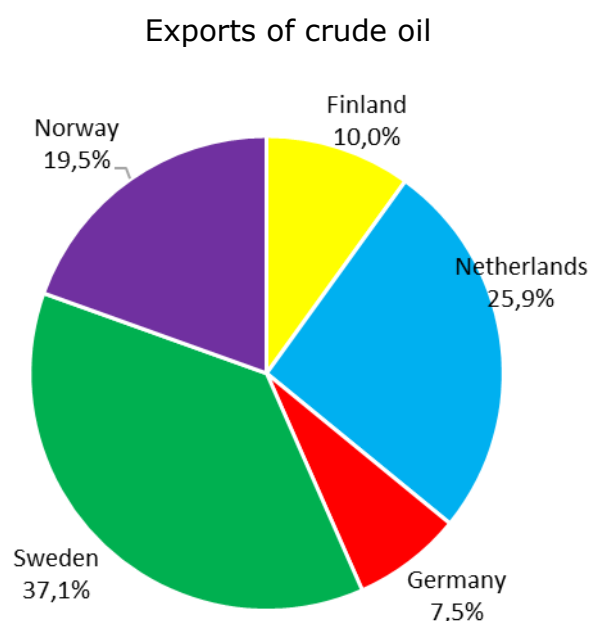
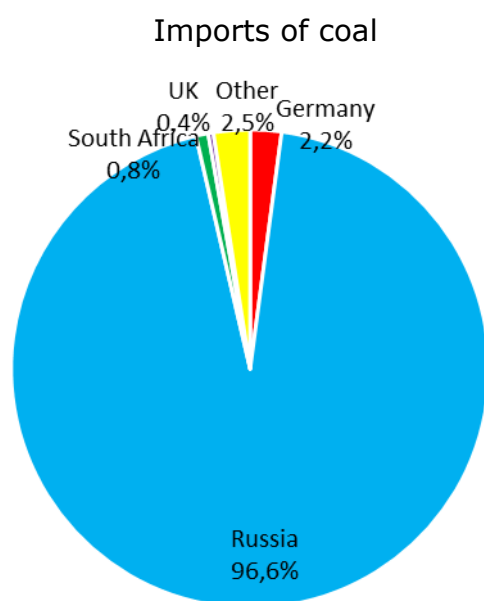


IMPORTS AND EXPORTS OF ENERGY

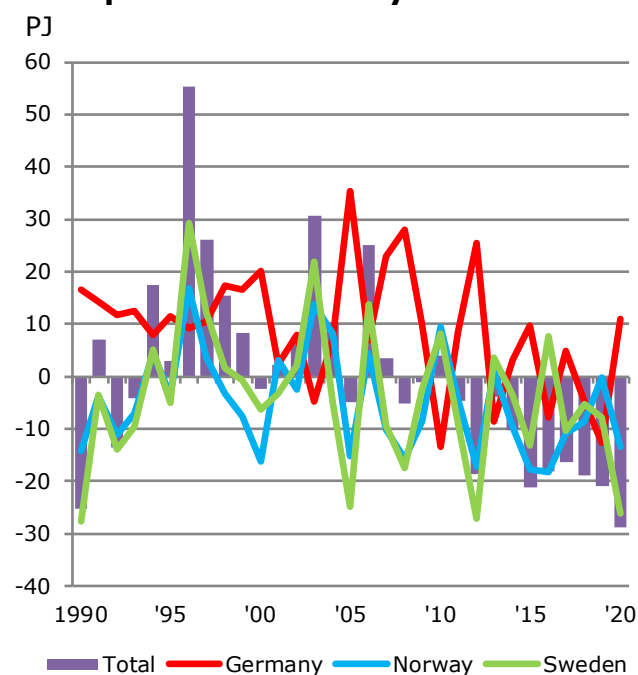
Imports and exports of energy products, 2020

	Imports	Exports
Crude oil [1000 tonnes]	4 668	1 089
Oil products [1000 tonnes]	6985	7055
Natural gas [million Nm ³]	2 525	1 625
Coal [1000 tonnes]	1 111	802
Electricity [GWh]	18 594	11 711

Imports of coal and exports of crude oil by country, 2020



Net exports of electricity



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

In 2020, the Danish net imports of electricity totalled 28.8 PJ. It was the result of net imports of 26.3 PJ from Norway and 13.5 PJ net imports from Sweden, whilst the net export to Germany was 11.0 PJ.

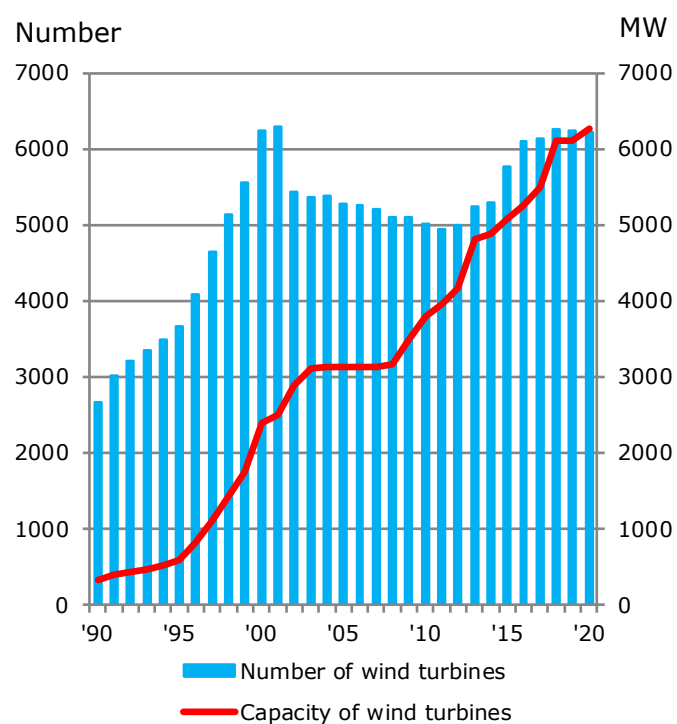
Number of wind turbines by size

	1990	2000			2020		
	Onshore turbines	Onshore turbines	Offshore turbines	Total	Onshore turbines	Offshore turbines	Total
Total	2 666	6 194	41	6 235	5 692	558	6 250
– 499 kW	2 656	3 652	11	3 663	2 225	0	2 225
500 – 999 kW	8	2 283	10	2 293	2 395	10	2 405
1000 – 1999 kW	2	251	-	251	333	-	333
2000 – kW	0	8	20	28	739	548	

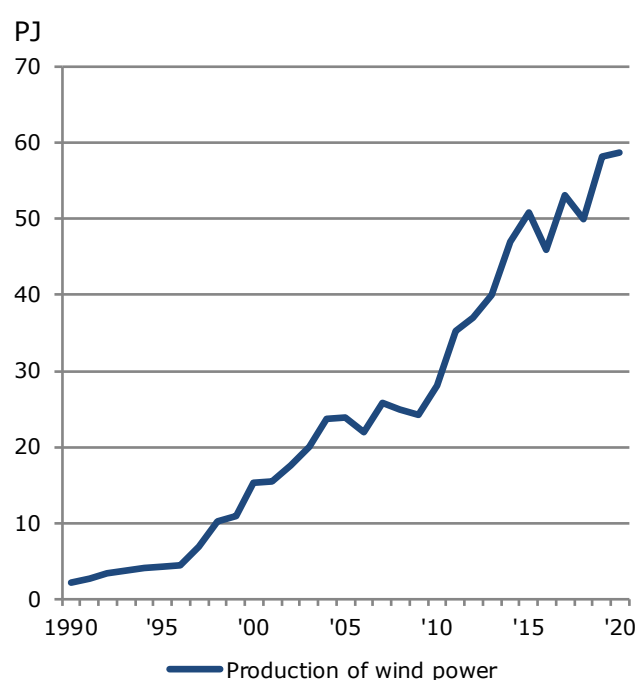
Total capacity of wind turbines by size [MW]

	1990	2000			2020		
	Onshore turbines	Onshore turbines	Offshore turbines	Total	Onshore turbines	Offshore turbines	Total
Total	326	2 340	50	2 390	4 414	1 701	6 115
– 499 kW	317	533	5	538	175	0	175
500 – 999 kW	6	1 512	5	1 517	1 633	5	1 638
1000 – 1999 kW	3	279	0	279	413	-	413
2000 – kW	-	16	40	56	2 193	1 696	3 889

Number of wind turbines and size of capacity



Production of wind power



ELECTRICITY AND HEAT

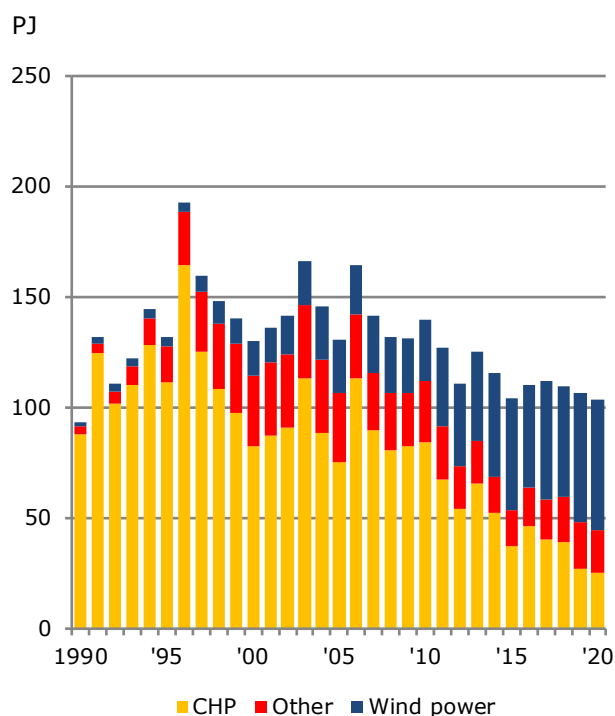
Electricity production by fuel

[PJ]	1994	2000	2010	2020
Total gross production	145	130	140	103
Oil	10	16	3	1
Natural gas	8	32	28	4
Coal	120	60	61	11
Wind	4	15	28	59
Other	3	7	19	29

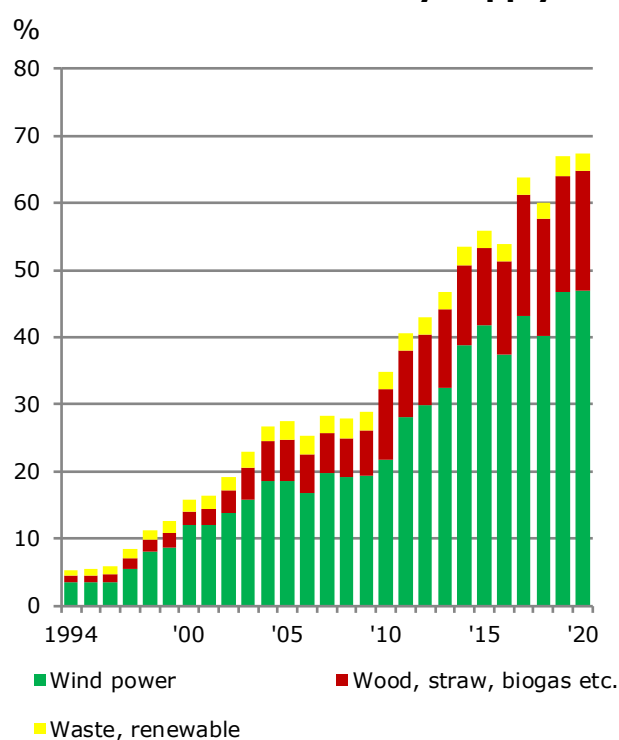
Electricity capacity (ultimo)

[MW]	1994	2000	2010	2020
Total electricity capacity	10 768	12 598	13 450	15 489
Large-scale units	9 126	8 160	7 175	5 544
Small-scale units	773	1 462	1 819	1 788
Autoproducers	339	574	638	586
Wind	521	2 390	3 802	6 259
Solar	0	1	7	1 304
Hydro	8	10	9	7

Electricity production by type



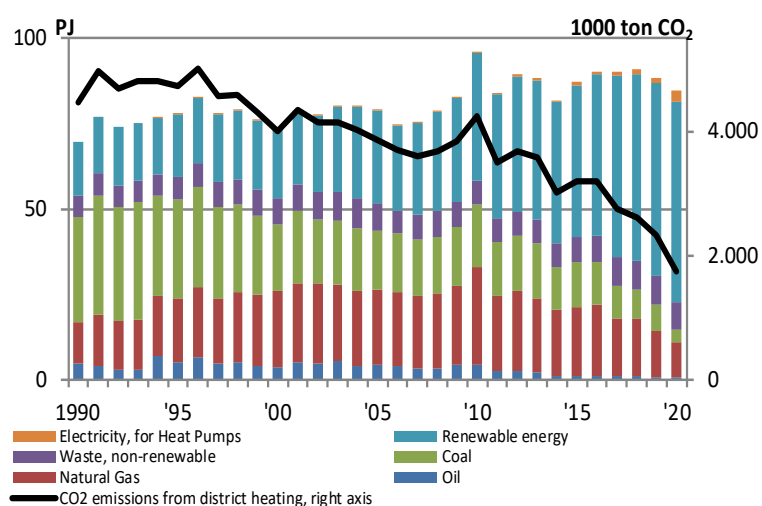
Electricity generated by renewables: Share of domestic electricity supply



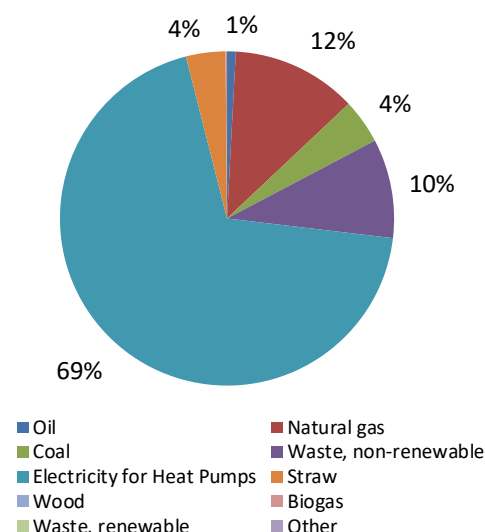
District heating by fuel

[PJ]	1994	2000	2010	2020
Total gross production	113	120	150	128
Oil	6	4	5	1
Natural gas	25	42	45	12
Coal	56	39	36	7
Surplus heat	3	4	3	5
Electricity	0	0	0	3
Waste, non-renewable	6	9	11	13
Renewable energy	17	22	51	87
- Straw	4	6	12	12
- Wood	4	5	24	50
- Waste, renewable	7	11	13	16
- Other	1	1	3	8

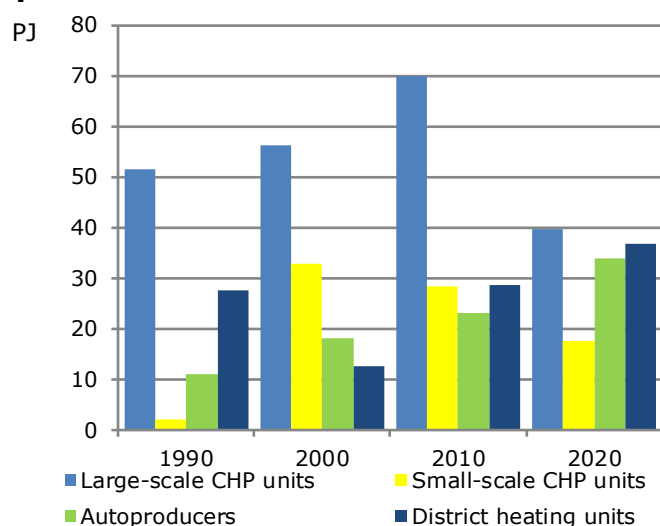
District heating CO2 emissions and consumption by fuel



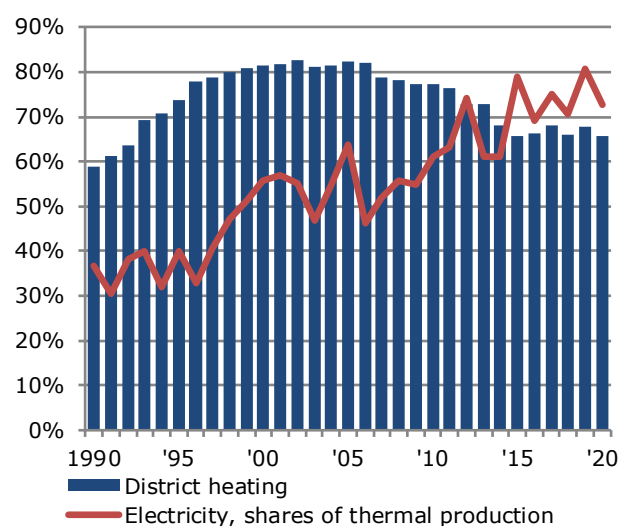
District heating fuel consumption, 2020 (Share of direct energy contents)



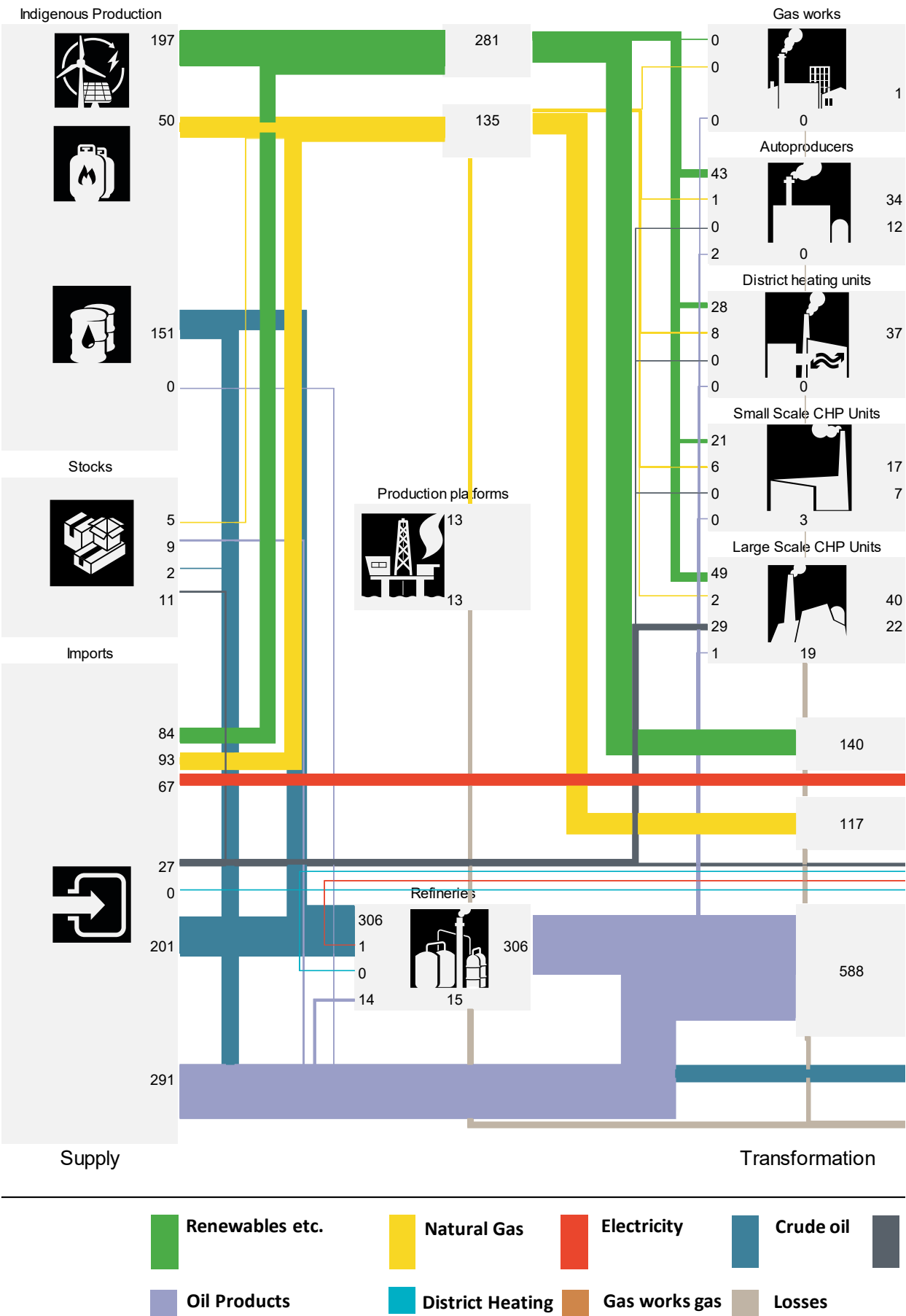
District heating production by type of producer

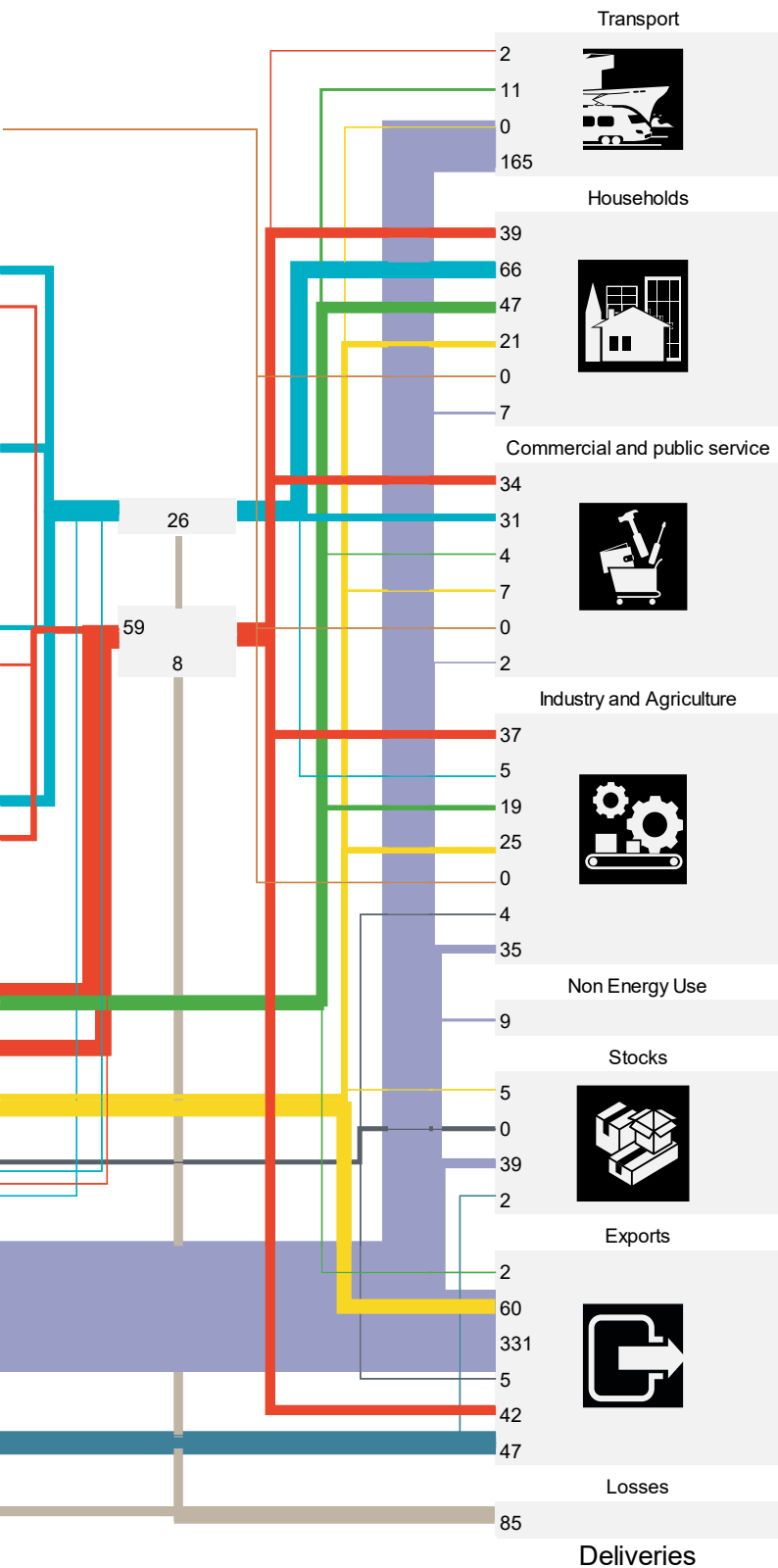


CHP shares of electricity and district heat production



DANISH ENERGY FLOWS





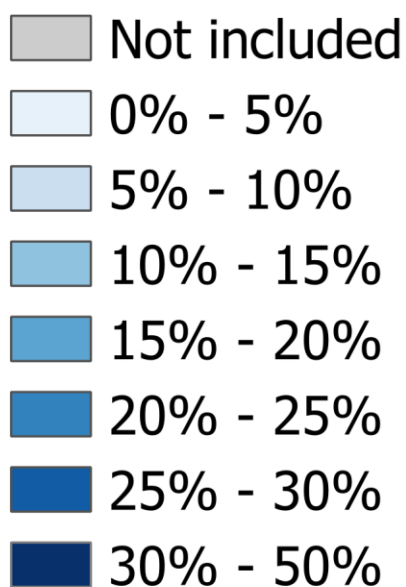
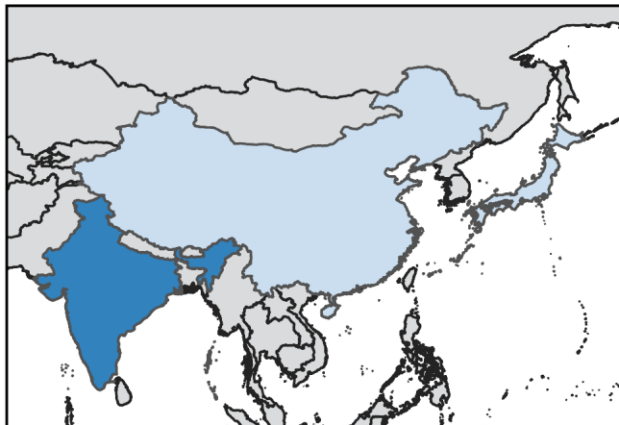
Danish Energy Flows 2020



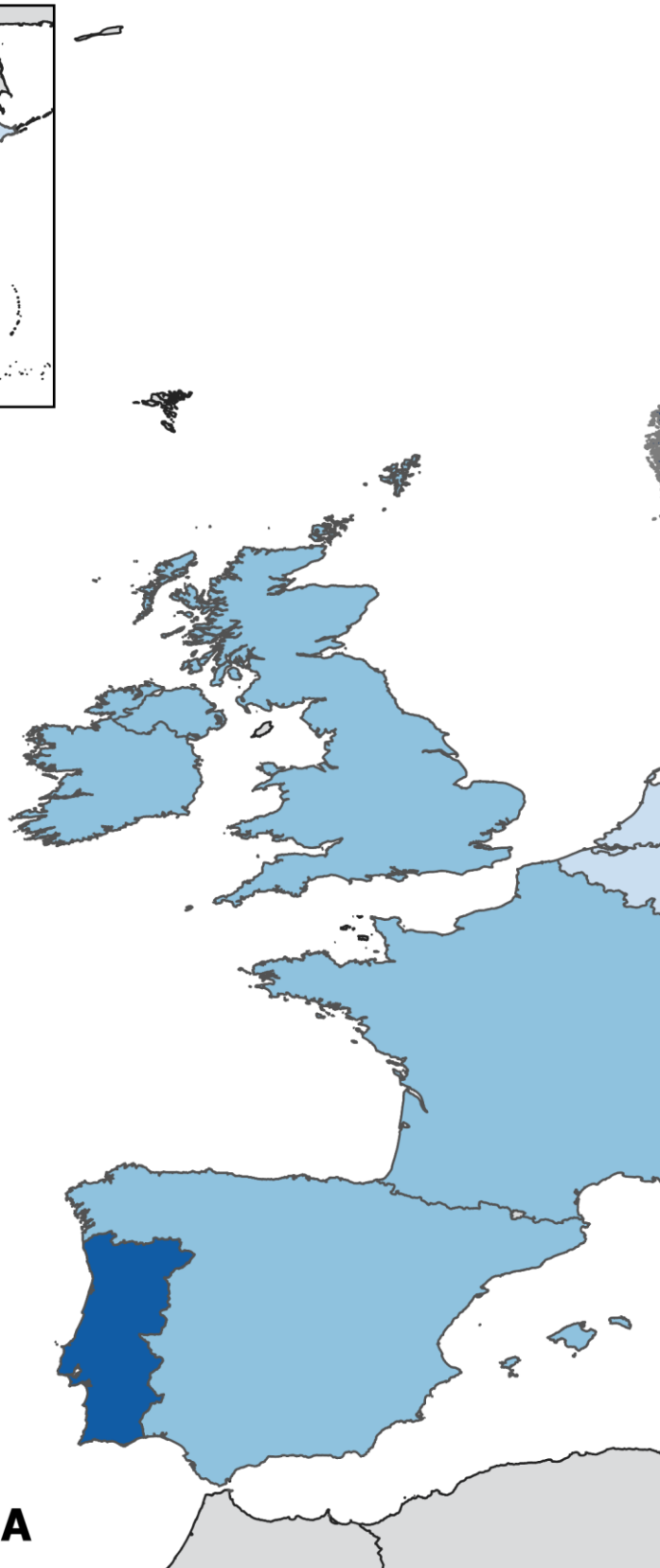
Danish Energy Agency

Renewable E

Share of Total Energy

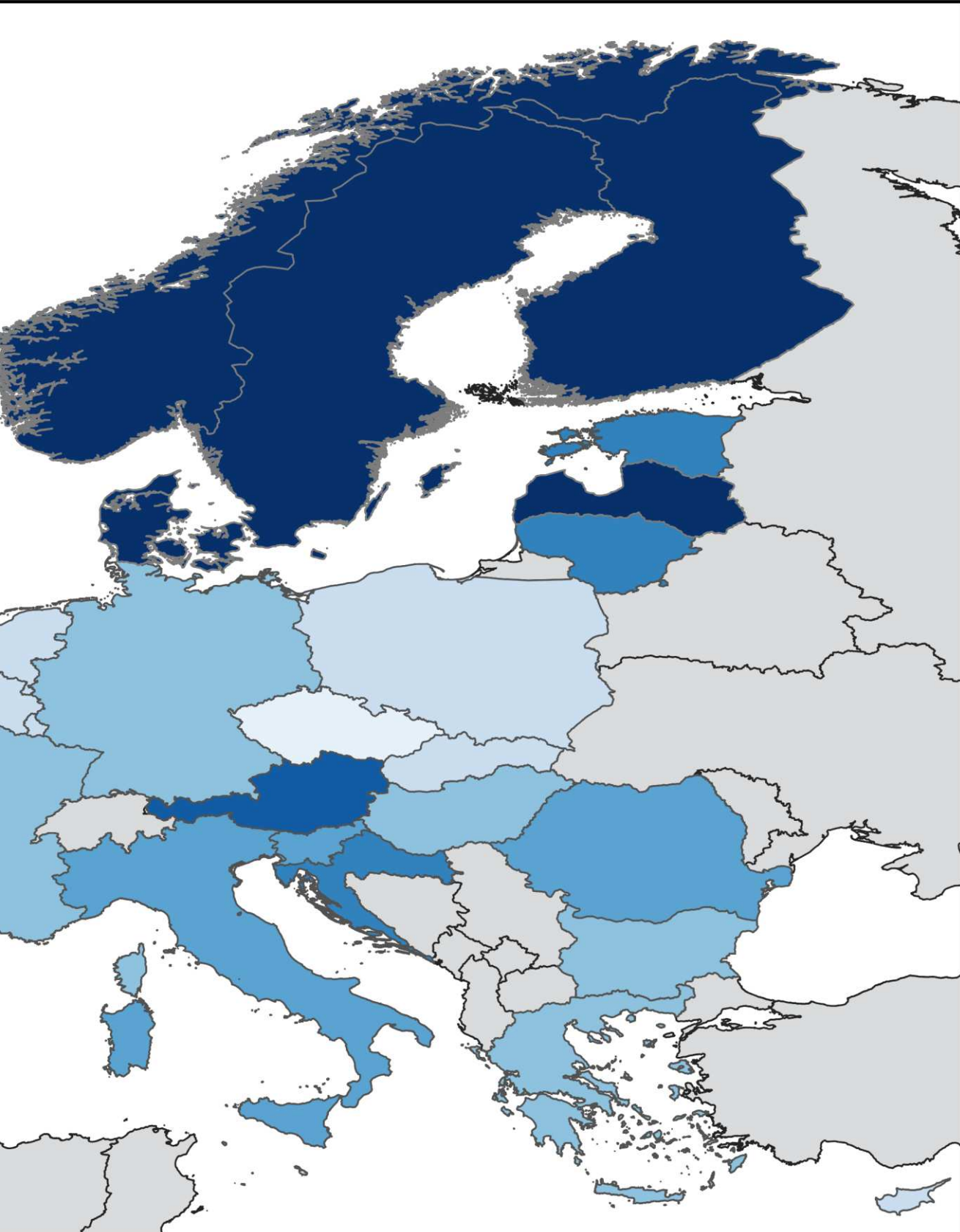


Source: Eurostat and IEA



Energy, 2019

y Consumption (TPES)



ENERGY CONSUMPTION

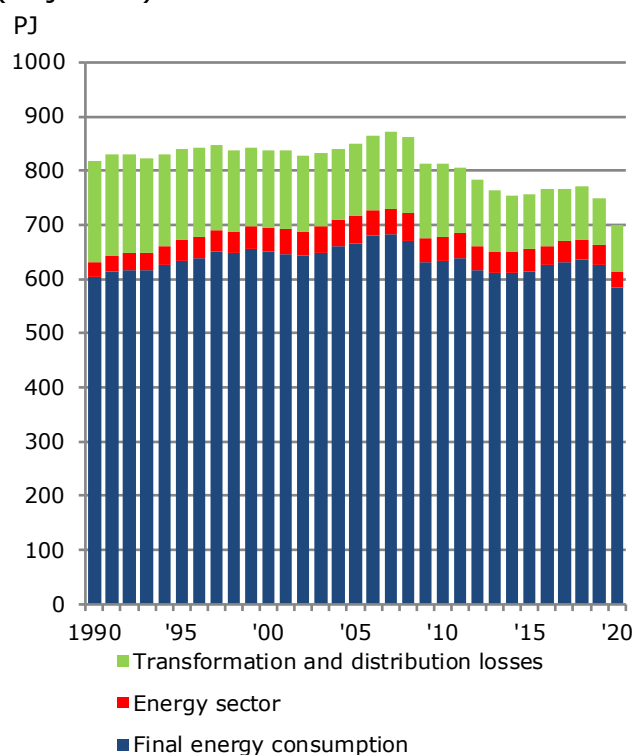
Gross energy consumption by fuel

Adjusted [PJ]	1980	1990	2000	2010	2020
Total gross energy consumption	814	819	839	814	700
Oil	546	355	376	312	238
Natural gas	0	82	192	176	95
Coal and coke	241	327	175	147	66
Waste, non-renewable	5	8	14	16	20
Renewable energy	22	48	81	163	282

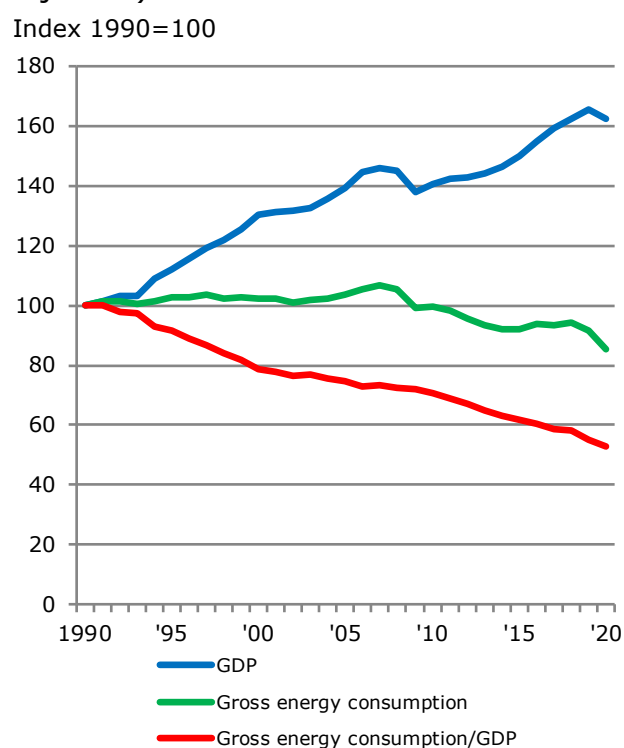
Final energy consumption by sector

Climate adjusted [PJ]	1980	1990	2000	2010	2020
Total final energy consumption	610	604	651	633	585
Non-energy use	16	13	13	11	9
Transport	143	170	201	210	178
Industry and agriculture	168	159	167	137	127
Commerce and public services	78	77	81	84	79
Households	204	185	189	192	192

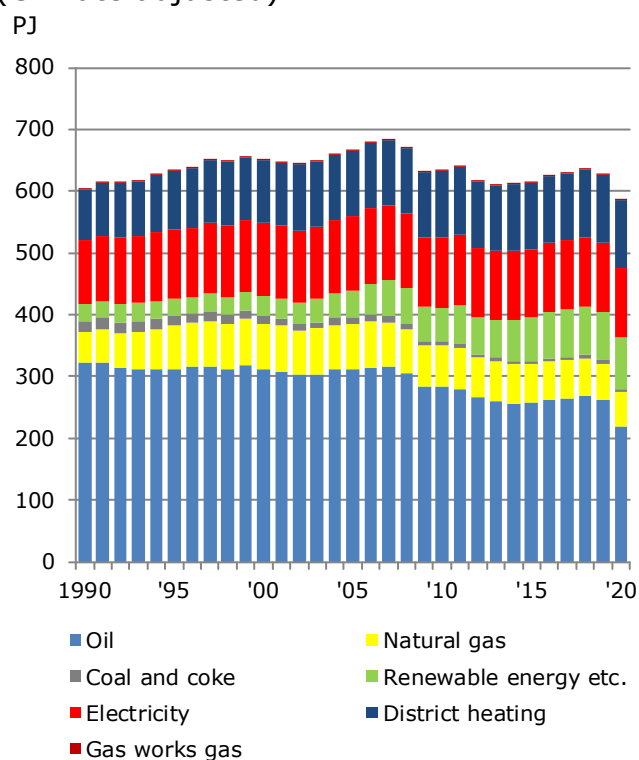
Gross energy consumption and final energy consumption (Adjusted)



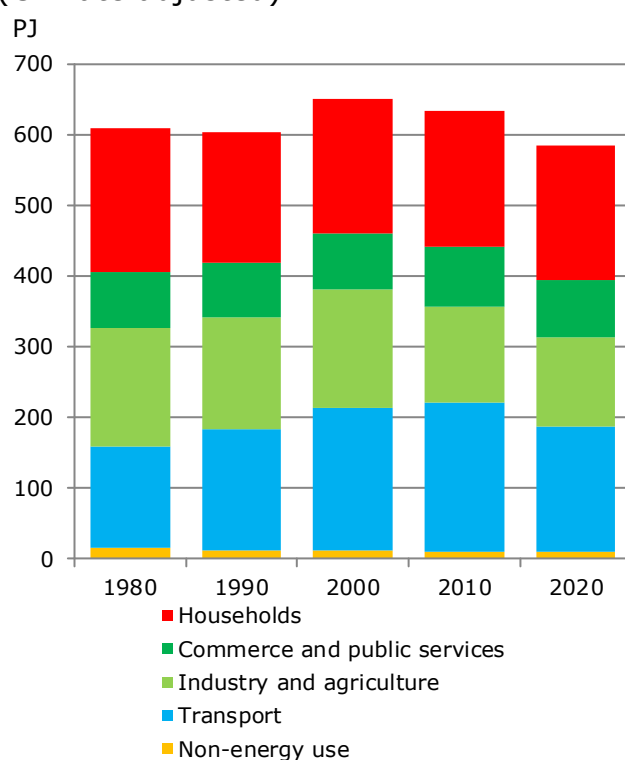
GDP, gross energy consumption and energy intensity (Adjusted)



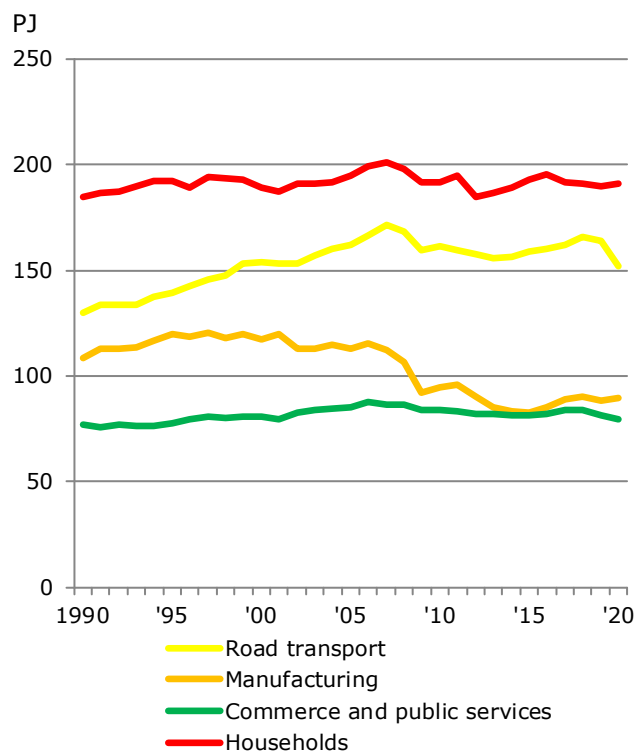
Final energy consumption by fuel (Climate adjusted)



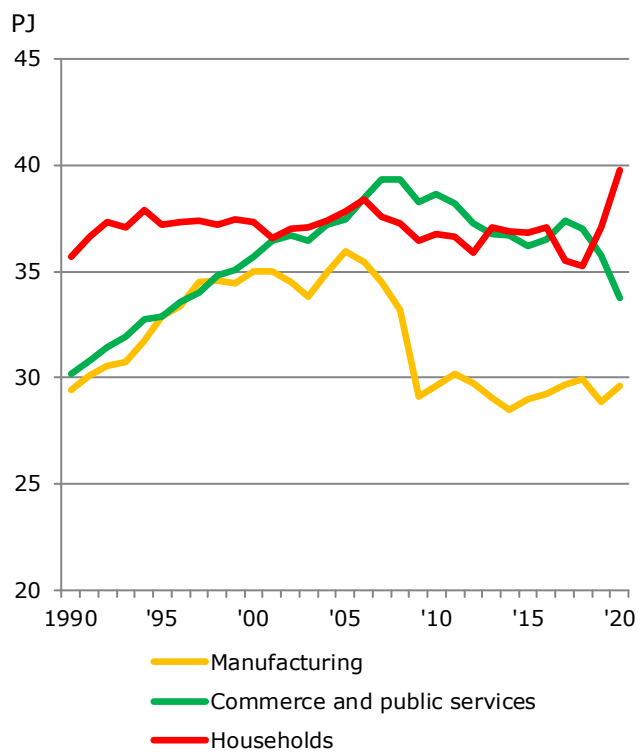
Final energy consumption by sector (Climate adjusted)



Final energy consumption (Climate adjusted)



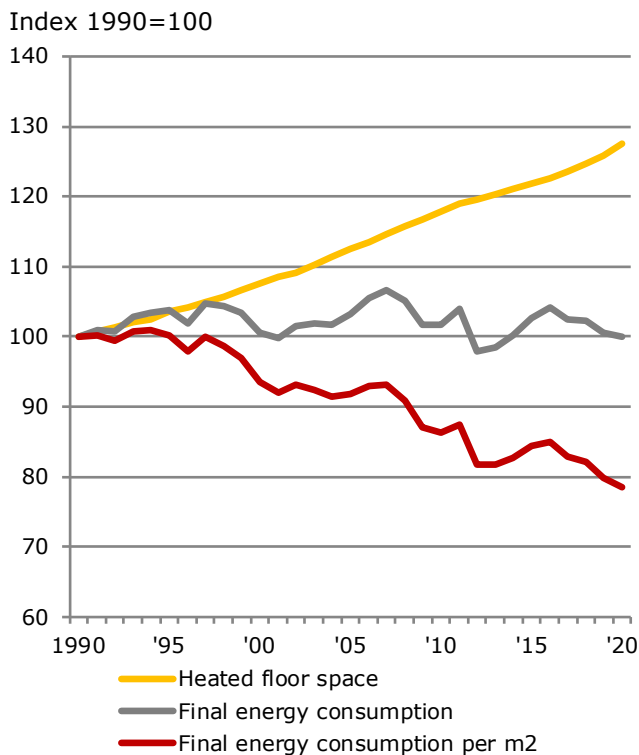
Electricity consumption (Climate adjusted)



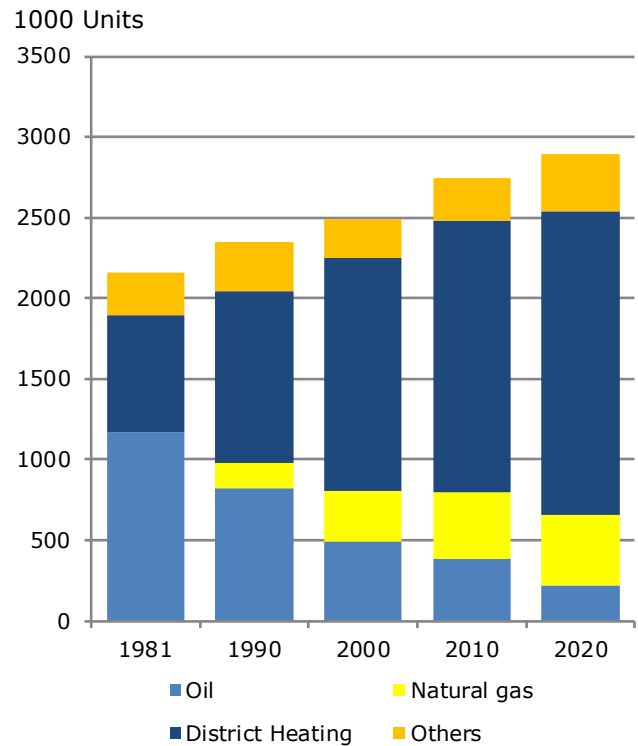
ENERGY CONSUMPTION

Energy consumption for space heating in households

(Climate adjusted)



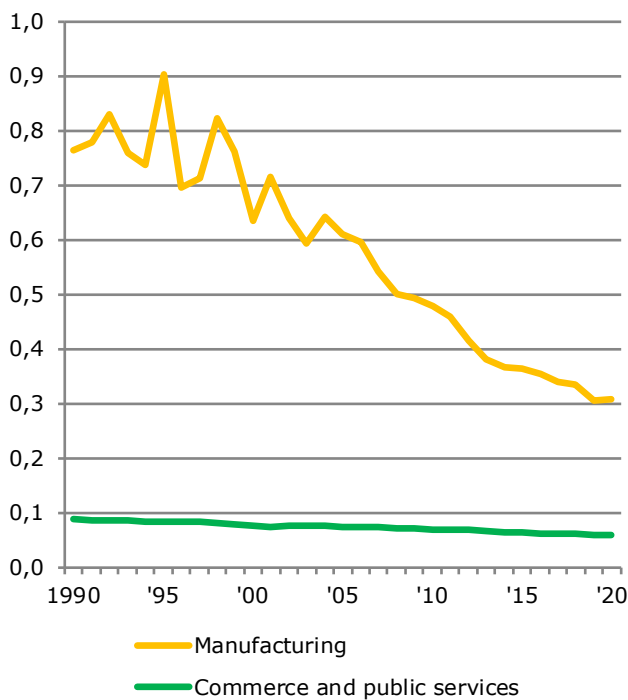
Heating installations in households



Energy intensities

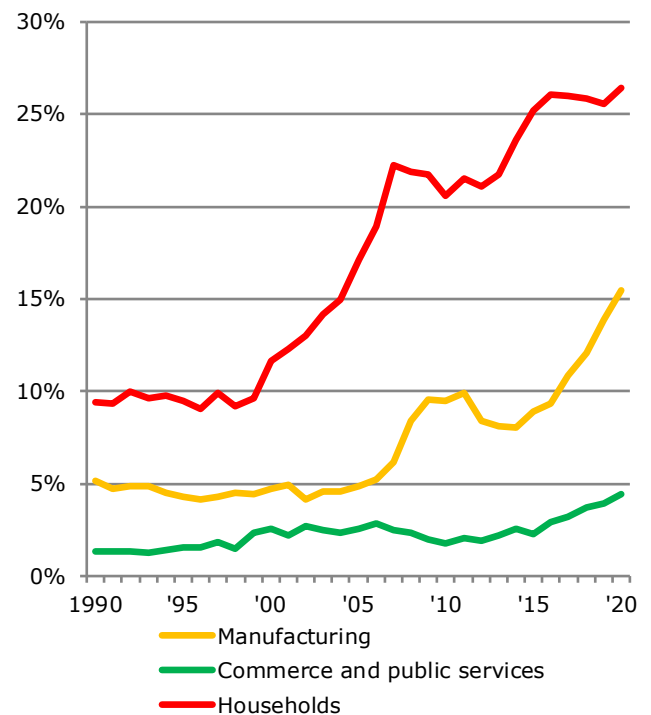
(Climate adjusted)

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



Shares of renewable energy in final energy consumption

(Climate adjusted)



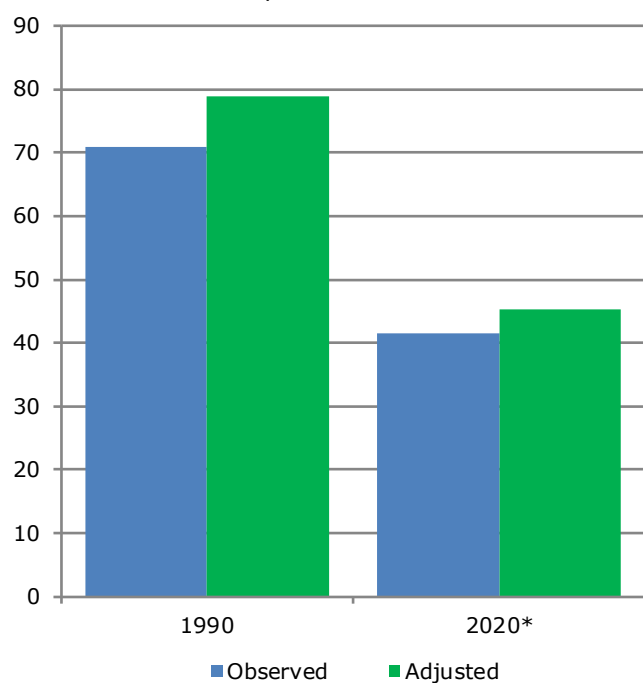
CO₂ emissions from energy consumption

[Million tonnes]

	1980	1990	2000	2010	2020
Observed CO₂ emissions	64.6	53.1	53.6	49.4	26.3
Energy sector	0.9	1.4	2.3	2.3	1.7
Transformation sector	30.1	25.1	24.2	22.0	5.5
Final energy consumption	33.3	26.6	27.1	25.1	19.0
Adjusted CO₂ emissions	62.6	61.0	55.3	47.1	30.1
Energy sector	0.9	1.4	2.3	2.3	1.7
Transformation sector	28.8	32.3	25.5	20.1	9.2
Final energy consumption	32.9	27.4	27.5	24.6	19.2

Total emissions from greenhouse gases

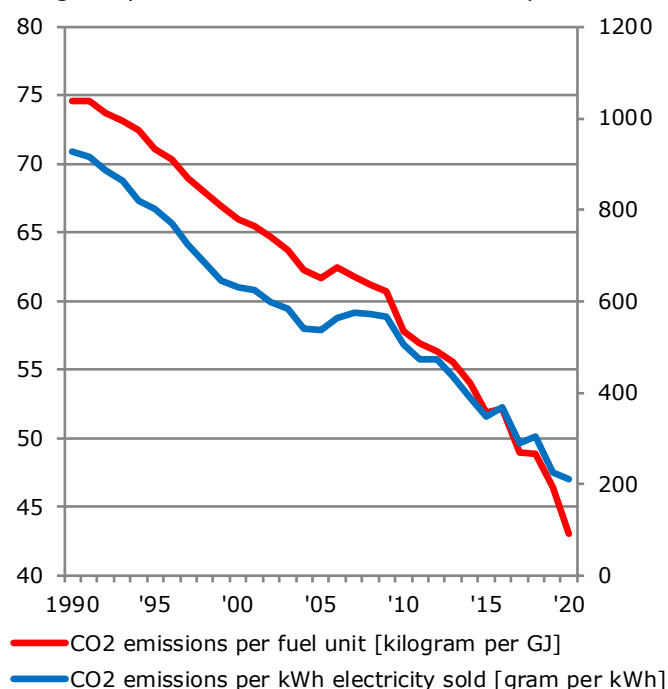
Million tonnes CO₂ equivalent



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

Kilogram per GJ

Gram per kWh

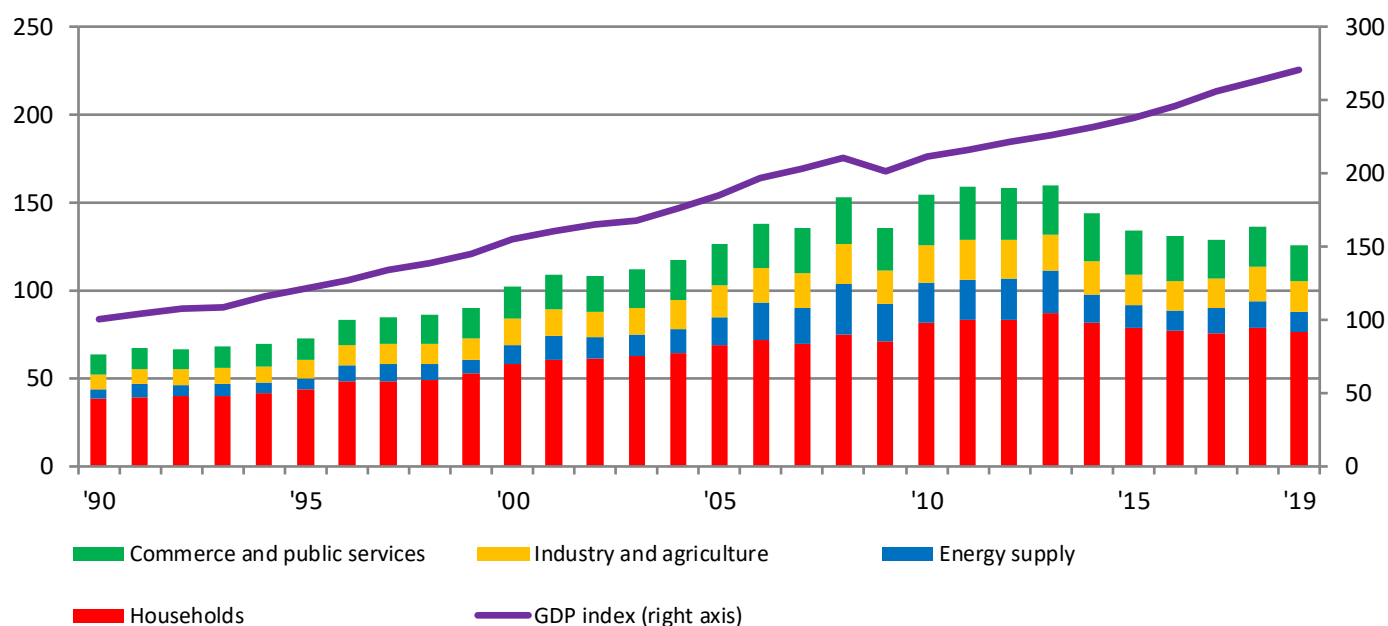


*) Preliminary emission inventory

Energy expenses by industry and households

Billion DKK, current prices

Index 1990=100



Source: Statistics Denmark

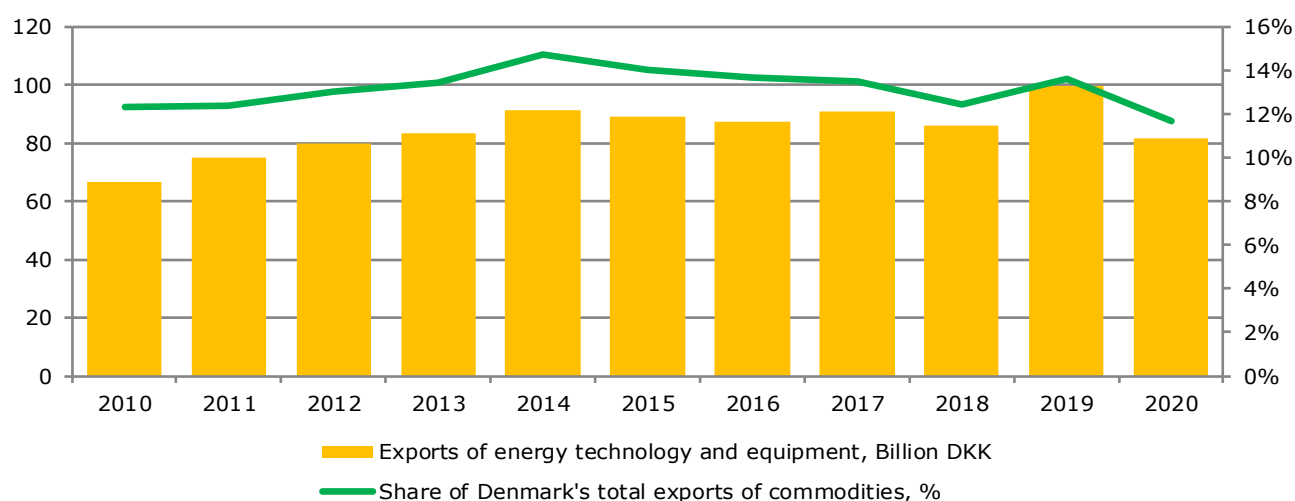
Economic key figures

[Billion DKK, current prices]

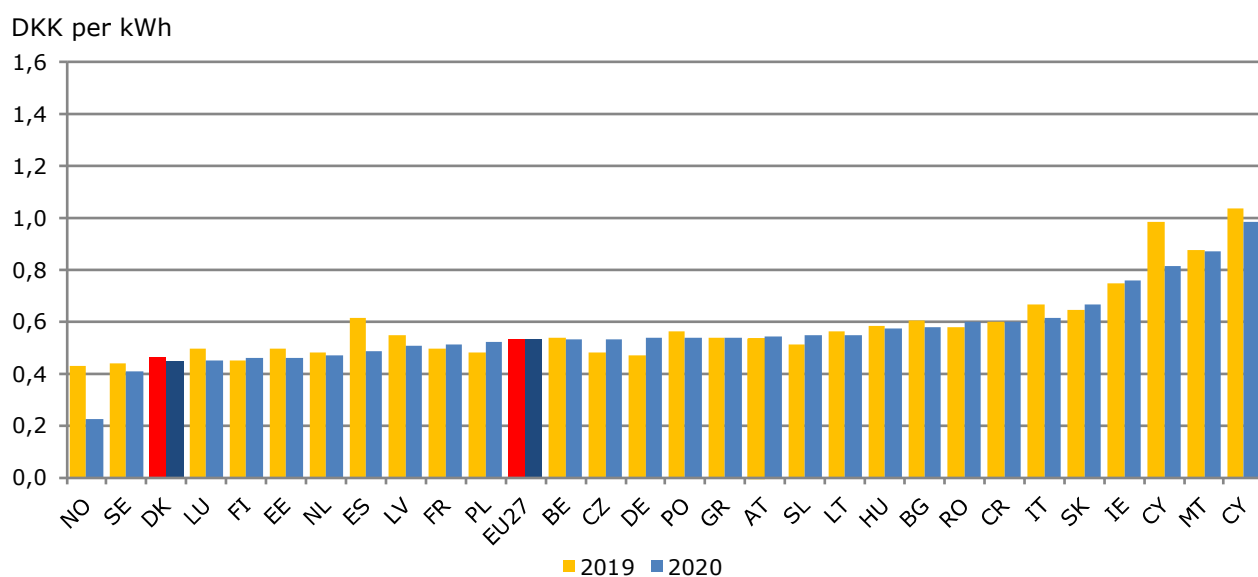
	2018	2019	2020
Total energy expenditures	136.1	125.9	•
Revenues from energy, CO ₂ and sulphur taxation	39.9	38.2	36.7
Expenditures to public service obligations on electricity	5.8	6.1	6.8
Value of crude oil and natural gas production	24.0	18.6	8.4

Exports of energy technology and equipment

Billion DKK, current prices



Electricity prices for industrial consumers (Annual consumption 2-20 GWh)

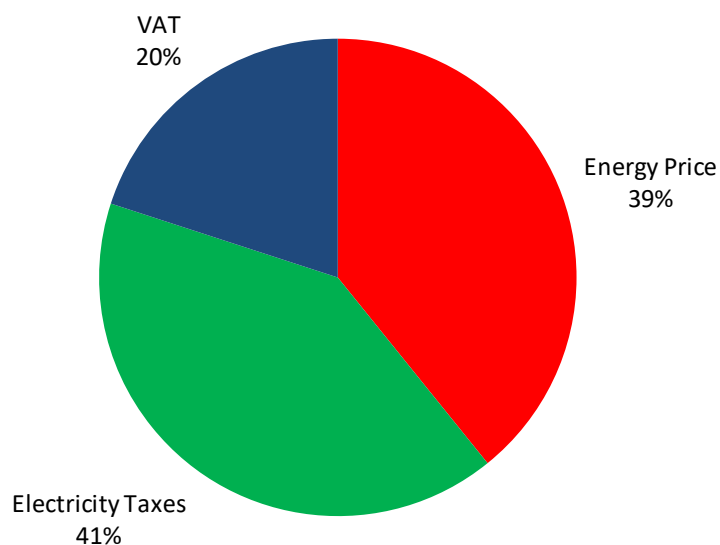


Source: Eurostat

Energy prices for households, 2020

	DKK	Euro
Gasoline regular [per litre]	11.37	1.53
Heating gas oil [per litre]	10.24	1.37
Natural gas [per Nm ³]	6.44	0.86
Electricity [per kWh]	2.11	0.28

Decomposition of the electricity price for households, 2020 (%)



INTERNATIONAL COMPARISONS 2019

	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	102	24	152	202
Romania	74	18	71	169
Sweden	74	43	203	104
Denmark	72	35	125	59
Czech Republic	62	11	169	223
Bulgaria	62	13	113	361
Latvia	61	39	101	179
Poland	57	10	115	203
Finland	56	36	260	150
France	53	11	157	108
Slovenia	50	17	135	153
Netherlands	44	7	184	116
Croatia	44	24	90	175
EU27	42	16	136	113
Slovakia	41	13	131	191
Hungary	40	11	114	202
Austria	36	30	164	93
Germany	34	15	154	95
Belgium	28	8	208	146
Ireland	28	11	128	45
Spain	28	15	113	112
Portugal	27	25	97	124
Greece	27	13	92	142
Lithuania	26	20	117	185
Italy	24	19	109	92
Cyprus	8	9	126	134
Luxembourg	5	7	310	78
Malta	4	6	77	253
Norge	677	48	227	79
UK	67	12	115	66
USA	104	8	280	
Japan	12	6	139	

Source: Eurostat and IEA.

	1980	1990	2000	2010	2020
Gross energy consumption per capita [GJ]	159	159	157	147	120
Final energy consumption per capita [GJ]	119	118	122	114	101
Energy intensity, gross energy consumption [TJ per million GDP]	0.776	0.636	0.500	0.450	0.335
Energy intensity, final energy consumption [TJ per million GDP]	0.582	0.469	0.388	0.350	0.280
Degree of self-sufficiency [%]	5	52	139	120	57
Dependency of oil [%]	67	43	45	38	34
Renewable energy: Share of gross energy consumption [%]	2,7	5.8	9.6	20.0	40.2
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	15 489
Wind turbine capacity: Share of total electricity capacity [%]	-	3.6	19.0	28.3	40.4
Net electricity exports: Share of domestic supply [%]	5.1	-22.5	-1.9	3.2	-19.8
CHP production: Share of thermal electricity production [%]	18	37	56	61	73
CHP production: Share of district heating production [%]	39	59	82	77	66
Renewable energy: Share of total domestic electricity supply [%]	0.1	2.6	15.9	34.8	67.5
CO ₂ emissions per capita [tonnes]	12.2	11.9	10.4	8.5	5.2
CO ₂ emissions per kWh sold [gram per kWh]	1027	929	632	505	211
CO ₂ emissions per consumed unit of district heating [kilogram per GJ]	96	62	43	33	20
CO ₂ emissions per GDP [kilogram per DKK]	60	47	33	26	14

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 2020

- Publications as pdf
- Figures in PowerPoint
- Time series and tables
- Denmark's energy flows 2020

Data

- Monthly energy statistics
- Wind turbine data

Maps

- Electricity generation and transmission
- Heat supply

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