



Danish Energy
Agency

Data, tables, statistics and maps

Energy in Denmark 2018

Energy in Denmark, 2018

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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 2018

Statistics Denmark

Danish Meteorological Institute

Danmarks Nationalbank

Danish Energy Agency

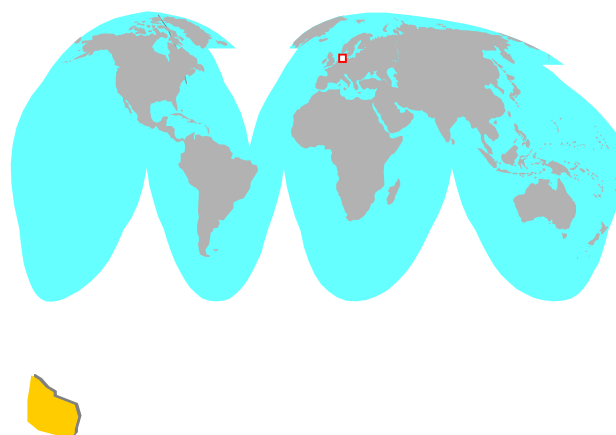
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E mail: statistik@ens.dk

March 2020

GENERAL INFORMATION ON DENMARK



Geography (2019)

Area, km ²	42 938
Coastline, km	8 750
Number of islands	394
Forest area, %	13

Climate (2018)

Average temperature:	
January	2.3° C
July	19.2° C
Sunshine, hours	1 905
Precipitation, mm	595

Population (2019)

Population (Jan. 2019)	5 806 081
By age:	
0-19 years, %	22.4
20-59 years, %	52.1
60- years, %	25.5
Population density, per km ²	135.2

Currency (2018)

1 Krone (DKK)	=	100 øre
1 USD	=	6.32 DKK
1 EURO	=	7.45 DKK
1 GBP	=	8.42 DKK

Economics (2018)

GDP, billion DKK	2 246
Exports, billion DKK	1 114
Imports, billion DKK	1 250

Constitution and Government (2018)

Denmark is a constitutional monarchy
 Monarch is Queen Margrethe II
 In 2018 the government consists of:
 Venstre - The Liberal Party of Denmark
 The Conservative Party
 Liberal Alliance

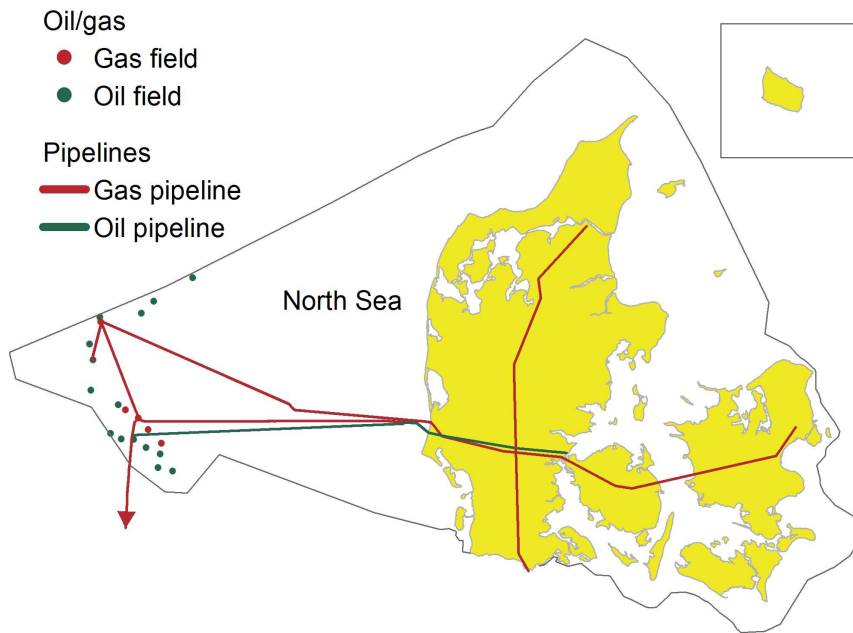
Labour Market (2018)

Labour force, '000	2 938
Employed, '000	2 786
Employed in industry, %	17.6
Employed in agriculture and fishing, %	2.4
Employed in commercial and public services, %	80.0

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

ENERGY PRODUCTION

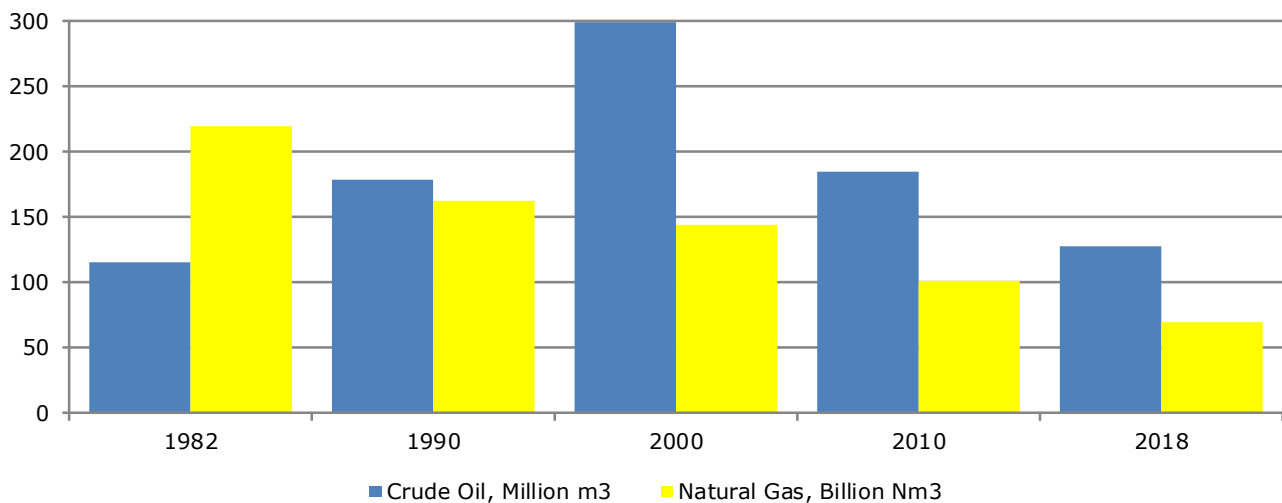
Danish oil and gas fields and pipelines



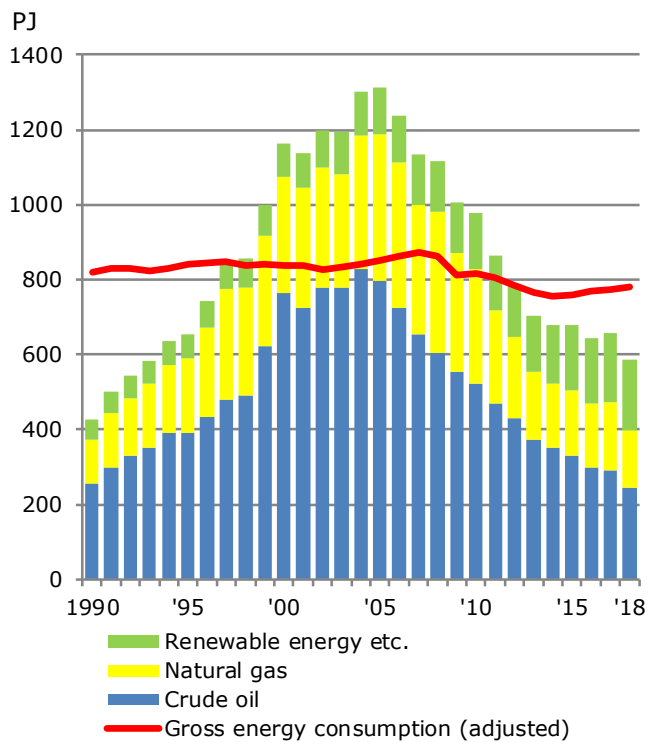
In 2018, there were twenty oil and gas fields of varying size (fifteen oil and five gas fields). Seven fields are situated in the northern part of the Central Graben, while all the other fields are situated in the southern region of the Central Graben. Denmark is the third largest oil producer in Western Europe trailing only UK and Norway.

Energy production [PJ]	1980	1990	2000	2010	2018
Total production	40	424	1165	979	587
Crude oil	13	256	765	523	244
Natural gas	0	116	310	307	155
Waste, non-renewable	5	7	14	17	15
Renewable energy	23	45	76	131	173

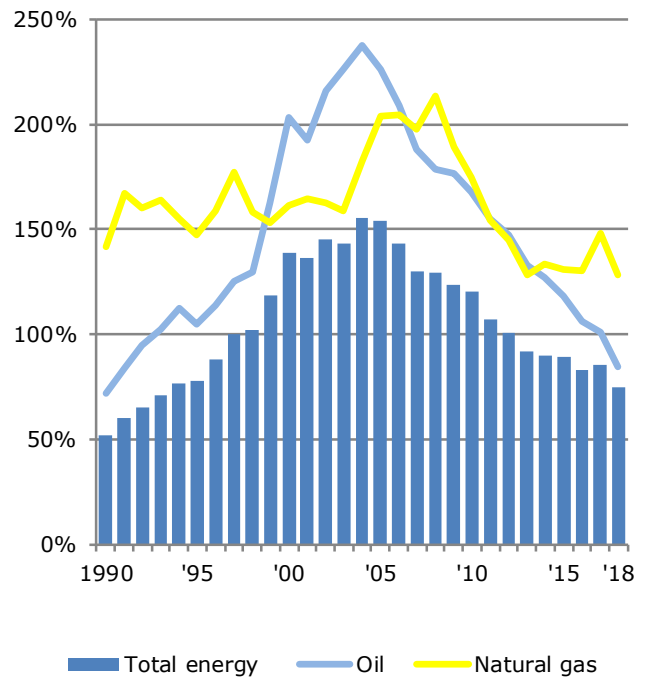
Oil and gas reserves and resources (Ultimo)



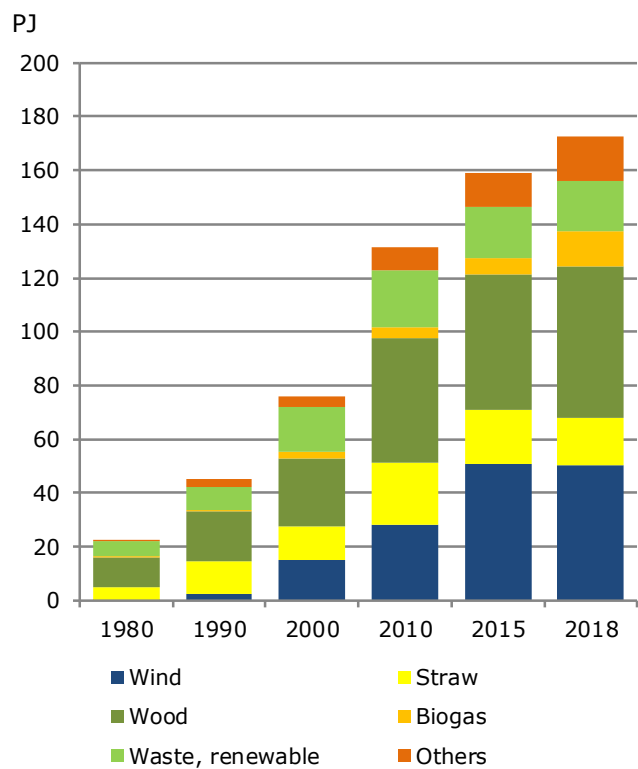
Energy production and energy consumption



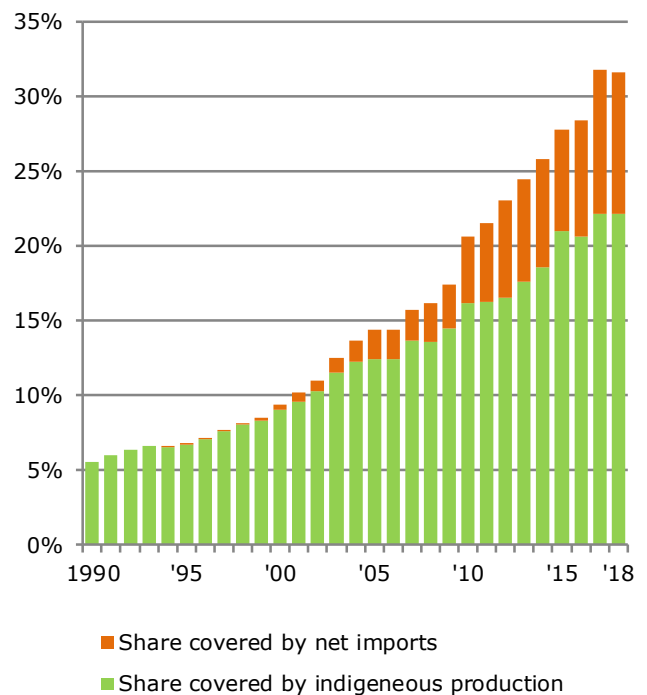
Degree of self-sufficiency



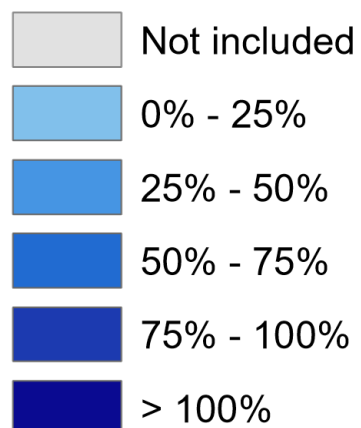
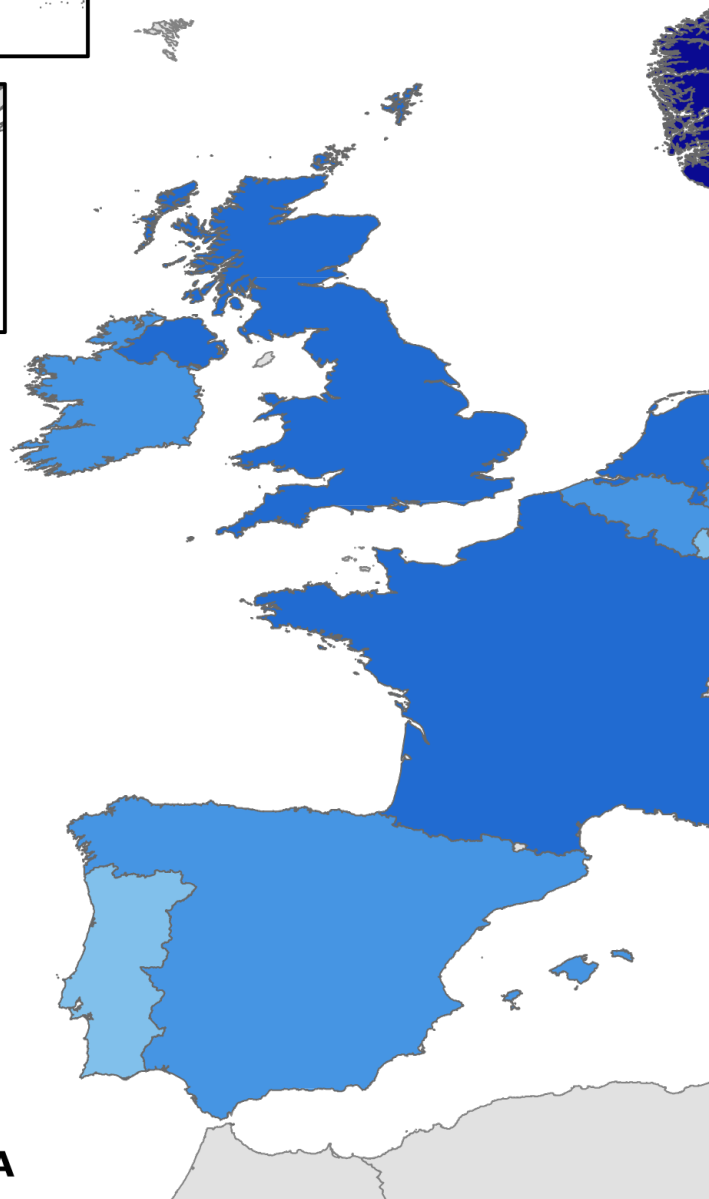
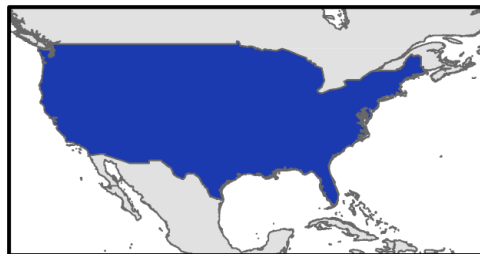
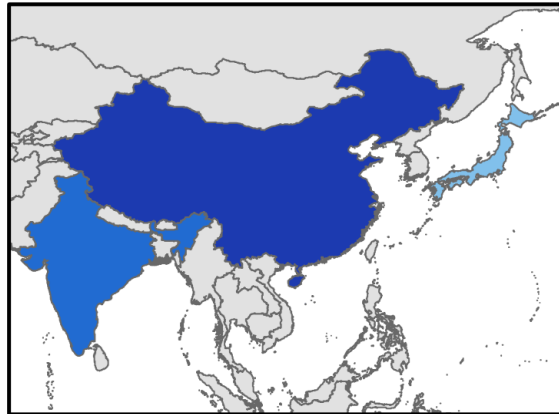
Renewable energy production by type



Consumption of renewable energy – share of total energy consumption

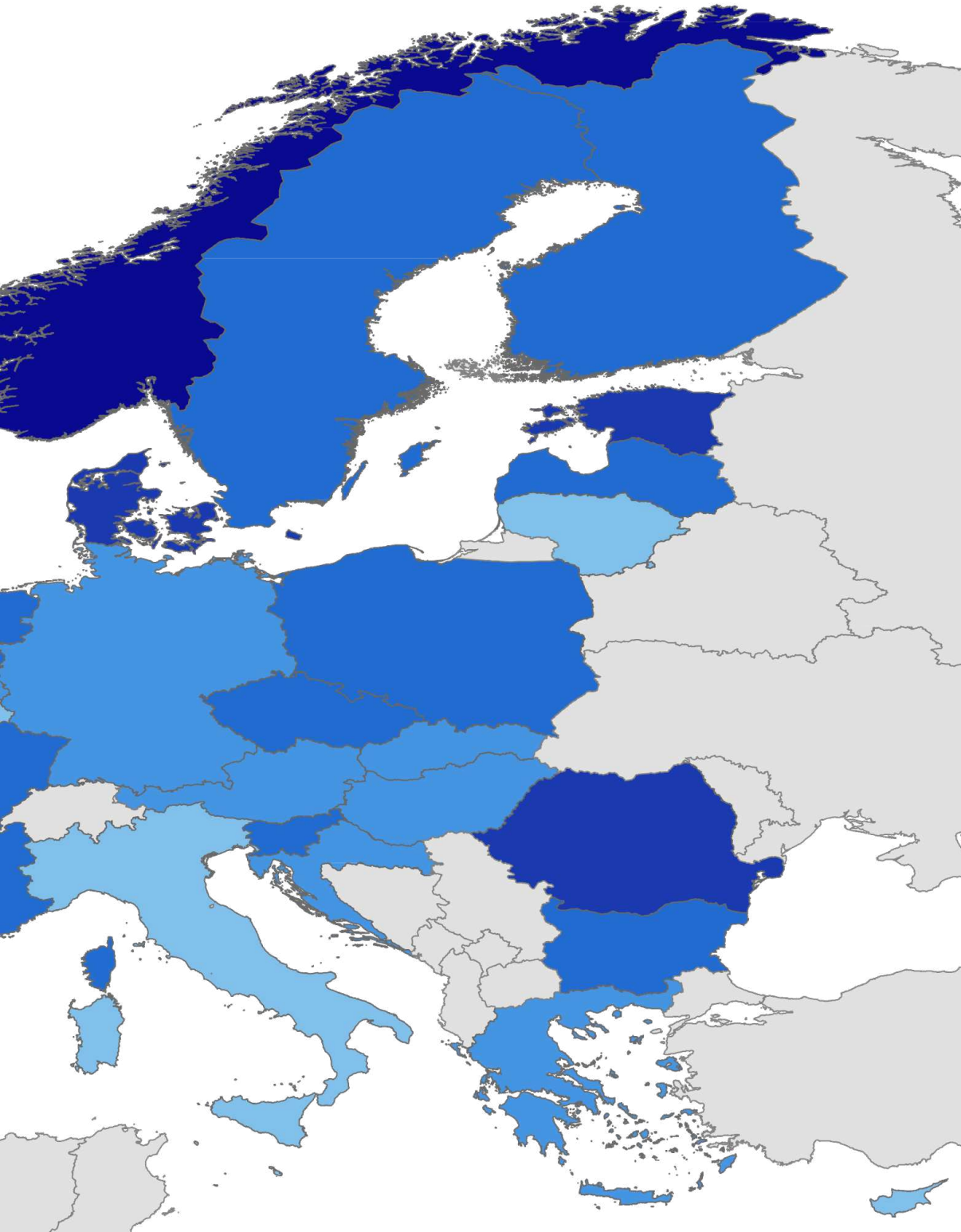


Degree of Self-sufficiency



Source: Eurostat and IEA

cy - Total Energy, 2017

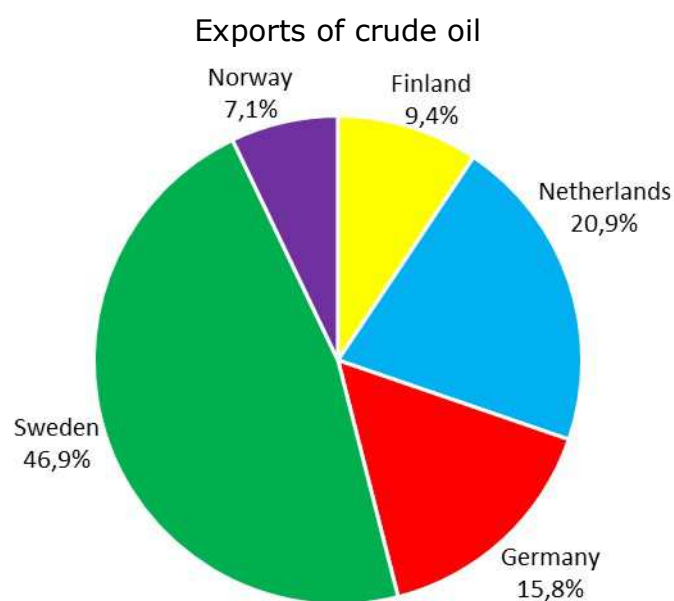
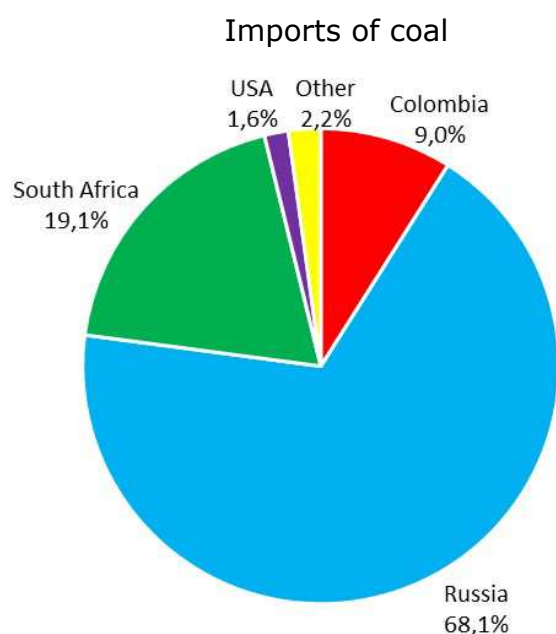


IMPORTS AND EXPORTS OF ENERGY

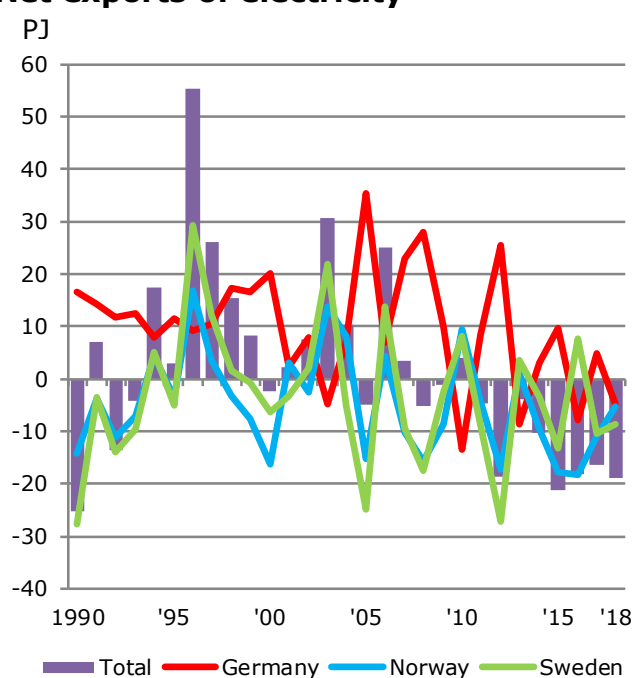
Imports and exports of energy products, 2018

	Imports	Exports
Crude oil [1000 tonnes]	4714	2809
Oil products [1000 tonnes]	6064	5893
Natural gas [million Nm ³]	367	1457
Coal [1000 tonnes]	2756	17
Electricity [GWh]	15634	10409

Imports of coal and exports of crude oil by country, 2018



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 2018, the Danish net imports of electricity totalled 18.8 PJ. It was the result of net imports of 5.3 PJ from Norway and 8.7 PJ net imports from Sweden, whilst the net import from Germany was 4.8 PJ.

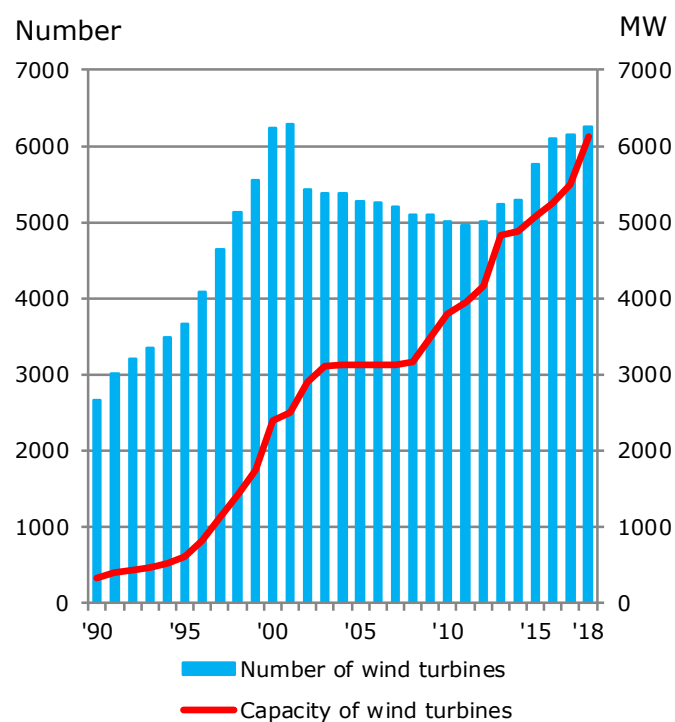
Number of wind turbines by size

	1990	2000			2018		
	Onshore turbines	Onshore turbines	Offshore turbines	Total	Onshore turbines	Offshore turbines	Total
Total	2 665	6 194	41	6 235	5 702	558	6 260
– 499 kW	2 655	3 652	11	3 663	2 233	0	2 233
500 – 999 kW	8	2 283	10	2 293	2 396	10	2 406
1000 – 1999 kW	2	251	-	251	333	-	333
2000 – kW	-	8	20	28	740	548	1 288

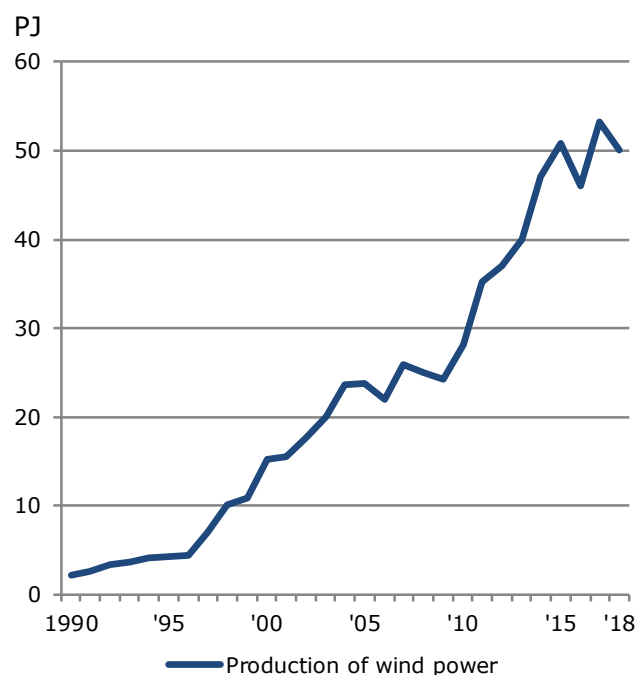
Total capacity of wind turbines by size [MW]

	1990	2000			2018		
	Onshore turbines	Onshore turbines	Offshore turbines	Total	Onshore turbines	Offshore turbines	Total
Total	326	2 340	50	2 390	4 420	1 701	6 121
– 499 kW	317	533	5	538	177	0	177
500 – 999 kW	6	1 512	5	1 517	1 634	5	1 639
1000 – 1999 kW	3	279	0	279	413	-	413
2000 – kW	-	16	40	56	2 196	1 696	3 892

Number of wind turbines and size of capacity



Production of wind power



ELECTRICITY AND HEAT

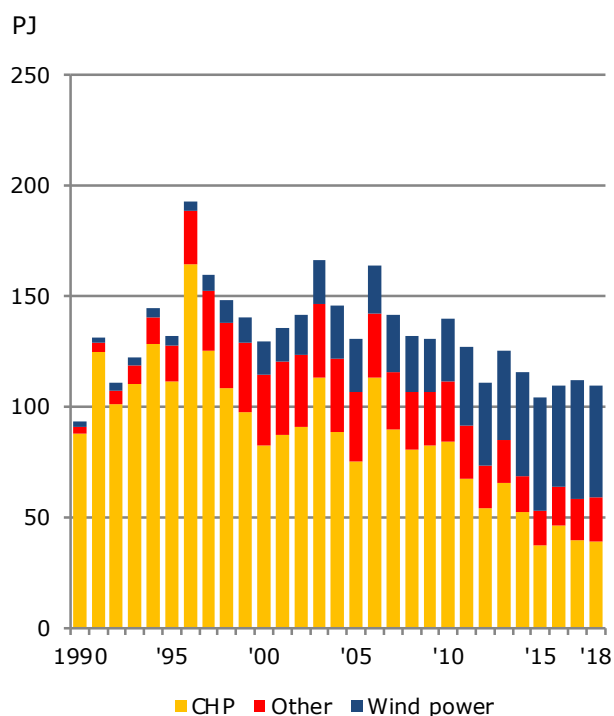
Electricity production by fuel

[PJ]	1994	2000	2010	2018
Total gross production	145	130	140	109
Oil	10	16	3	1
Natural gas	8	32	28	7
Coal	120	60	61	24
Wind	4	15	28	50
Other	3	7	19	28

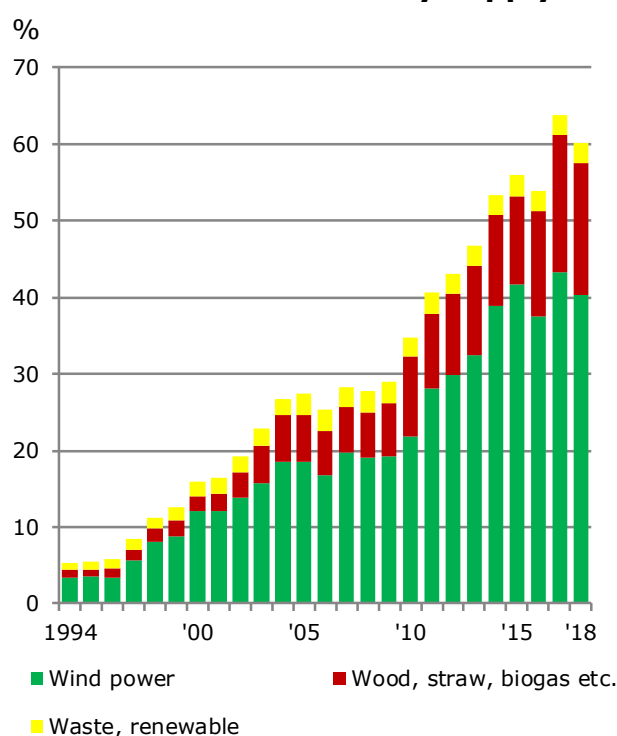
Electricity capacity (ultimo)

[MW]	1994	2000	2010	2018
Total electricity capacity	10 768	12 598	13 450	15 073
Large-scale units	9 126	8 160	7 175	5 402
Small-scale units	773	1 462	1 819	1 904
Autoproducers	339	574	638	639
Wind	521	2 390	3 802	6 121
Solar	-	1	7	998
Hydro	8	10	9	9

Electricity production by type



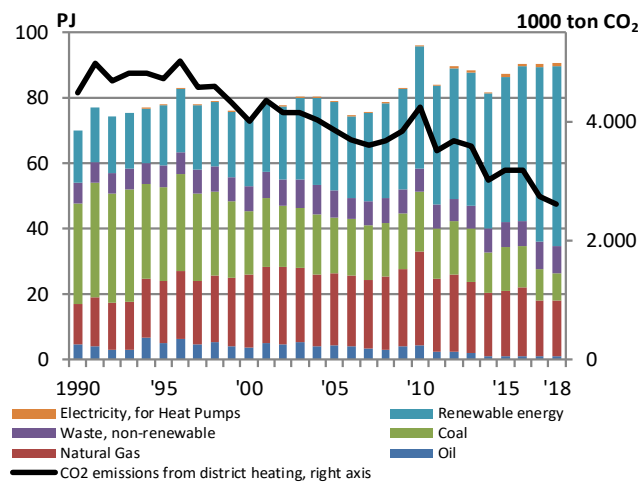
Electricity generated by renewables: Share of domestic electricity supply



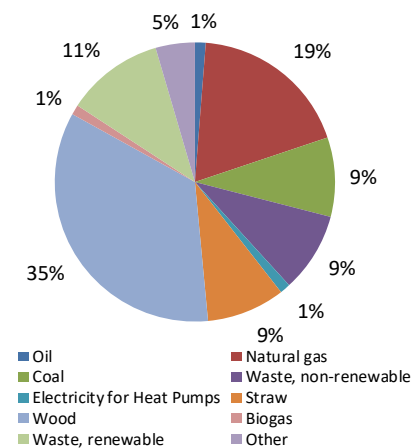
District heating by fuel

[PJ]	1994	2000	2010	2018
Total gross production	113	120	150	135
Oil	6	4	5	1
Natural gas	25	42	45	20
Coal	56	39	36	17
Surplus heat	3	4	3	4
Electricity	0	0	0	1
Waste, non-renewable	6	9	11	13
Renewable energy	17	22	51	79
- Straw	4	6	12	10
- Wood	4	5	24	47
- Waste, renewable	7	11	13	16
- Other	1	1	3	6

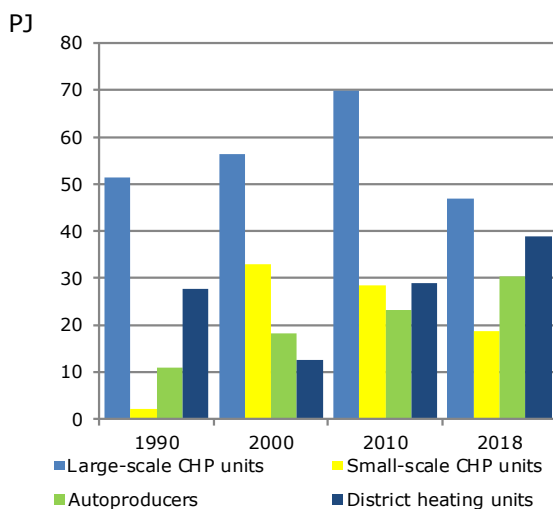
District heating CO2 emissions and consumption by fuel



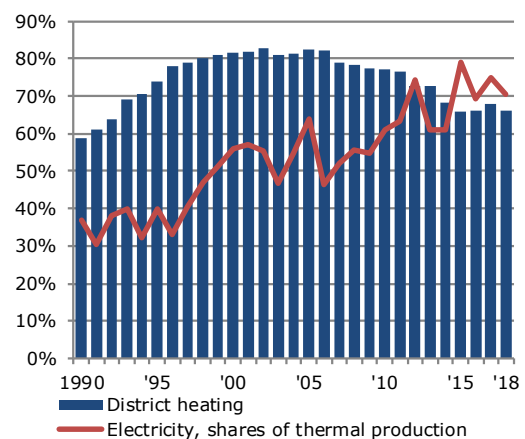
District heating fuel consumption, 2018 (Share of direct energy contents)

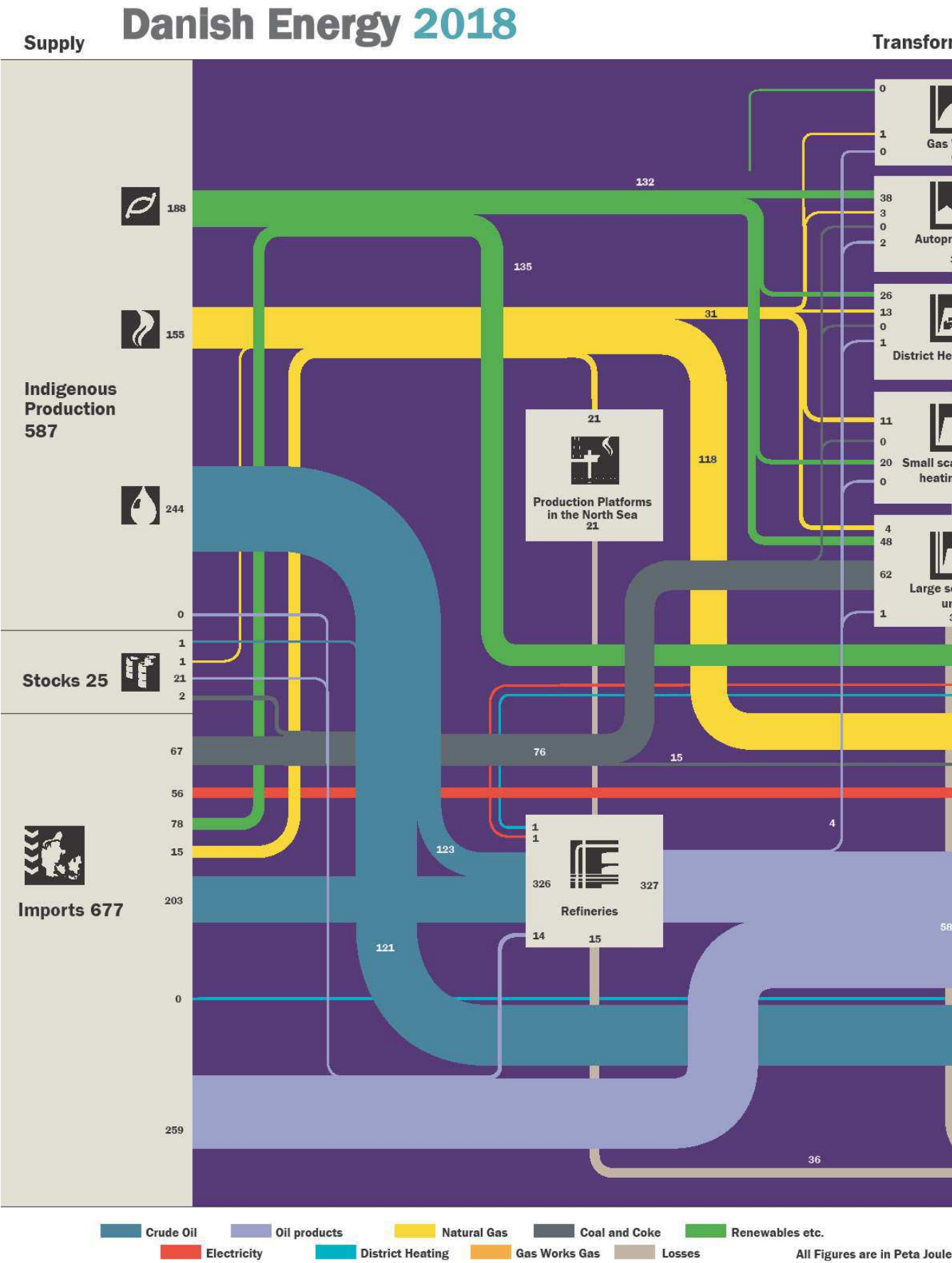


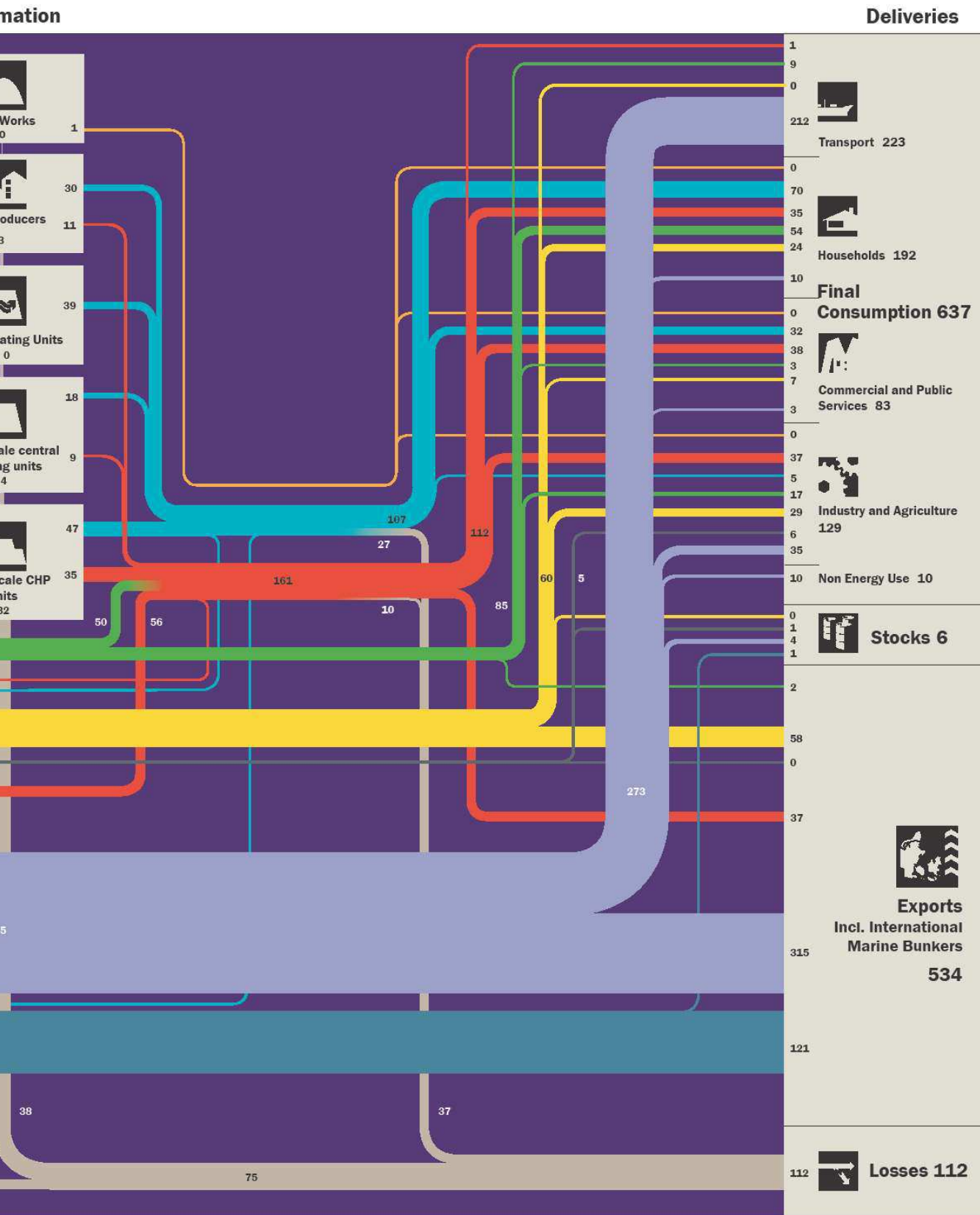
District heating production by type of producer



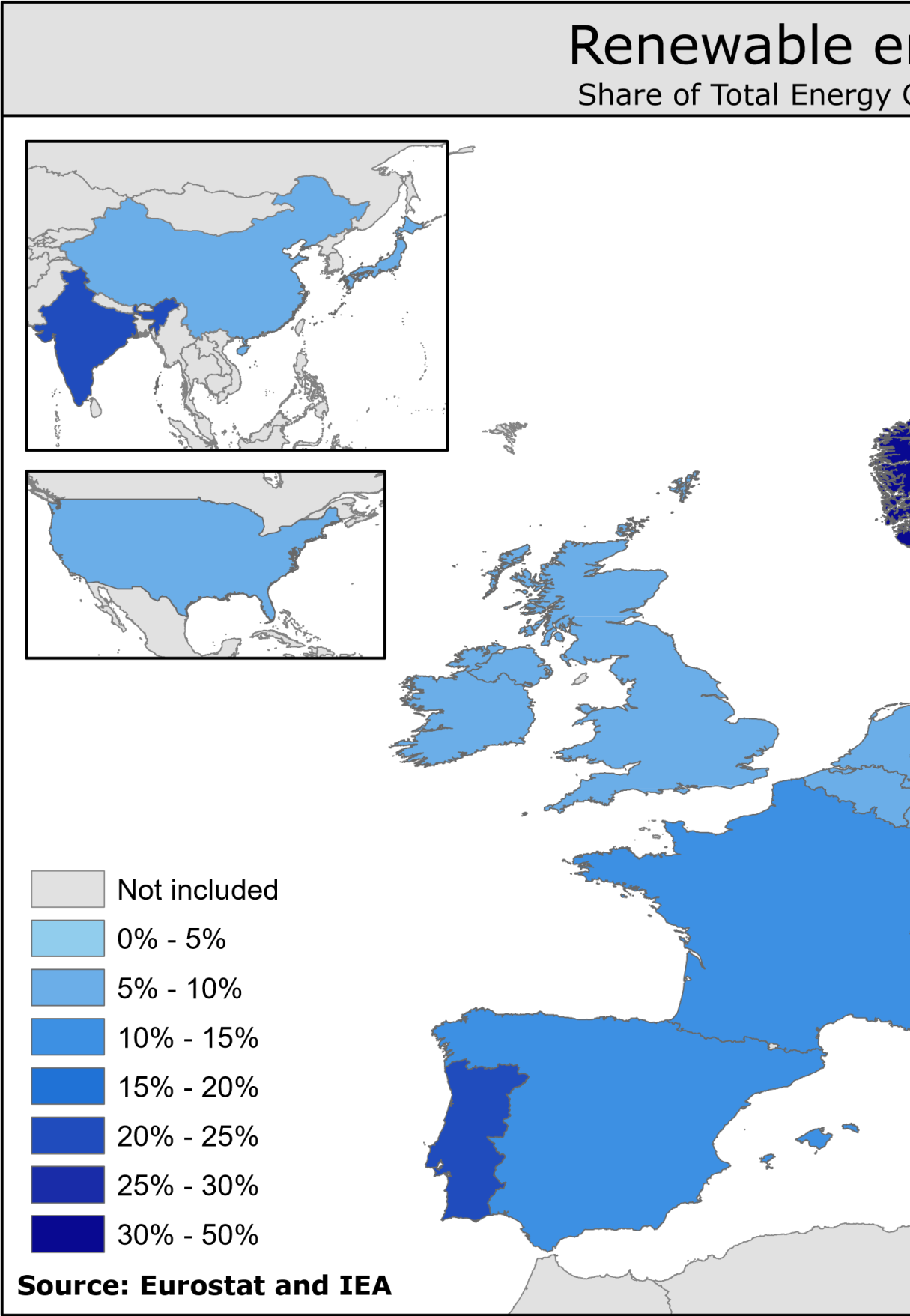
CHP shares of electricity and district heat production





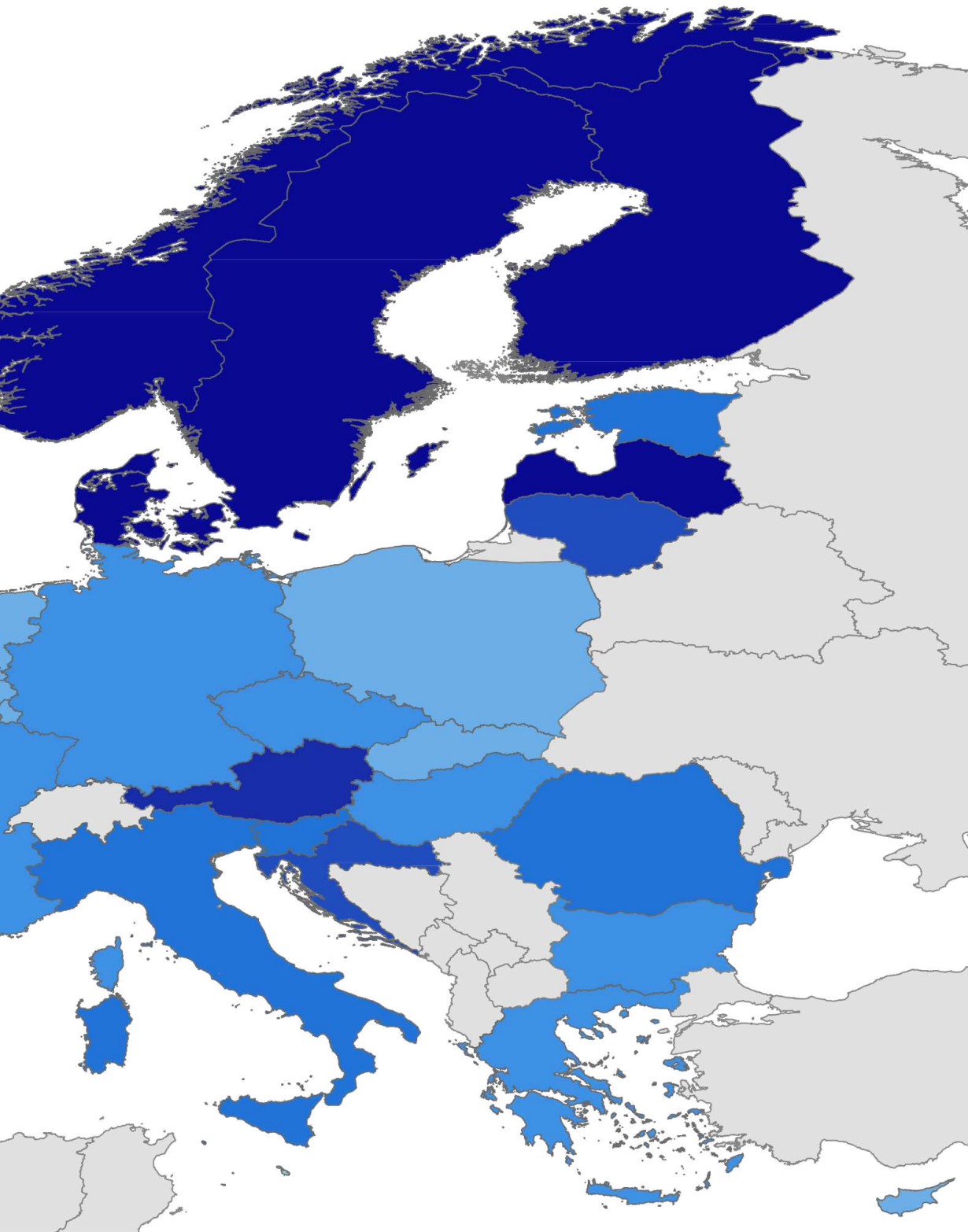


(PJ)



Energy, 2017

Consumption (TPES)



ENERGY CONSUMPTION

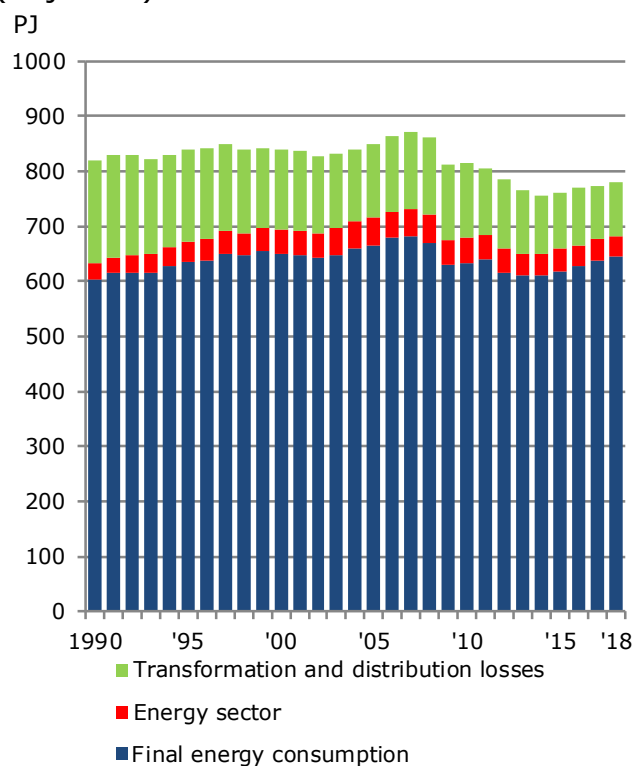
Gross energy consumption by fuel

Adjusted [PJ]	1980	1990	2000	2010	2018
Total gross energy consumption	814	819	839	814	781
Oil	546	355	376	312	288
Natural gas	0	82	192	176	121
Coal and coke	241	327	175	147	98
Waste, non-renewable	5	8	14	16	18
Renewable energy	22	48	81	163	257

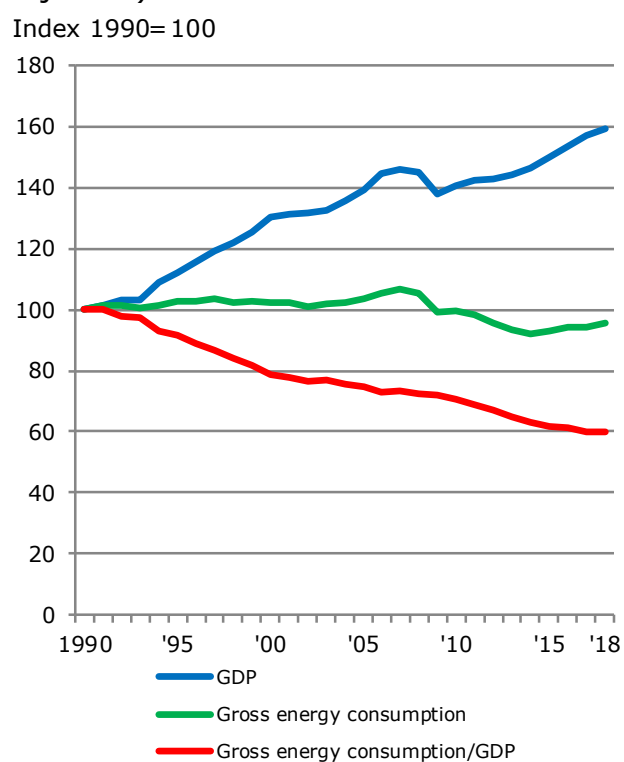
Final energy consumption by sector

Climate adjusted [PJ]	1980	1990	2000	2010	2018
Total final energy consumption	610	604	651	633	645
Non-energy use	16	13	13	11	10
Transport	143	170	201	210	223
Industry and agriculture	168	159	167	137	130
Commerce and public services	78	77	81	84	85
Households	204	185	189	192	197

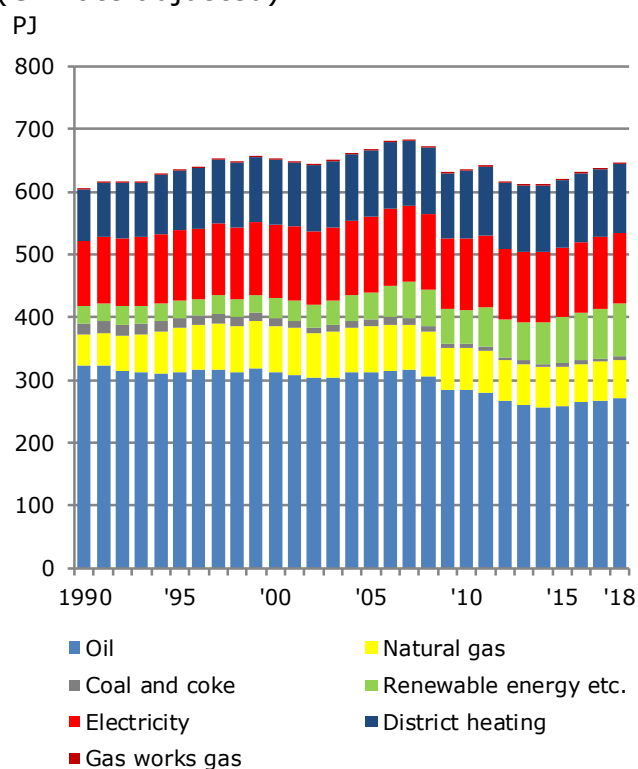
Gross energy consumption and final energy consumption (Adjusted)



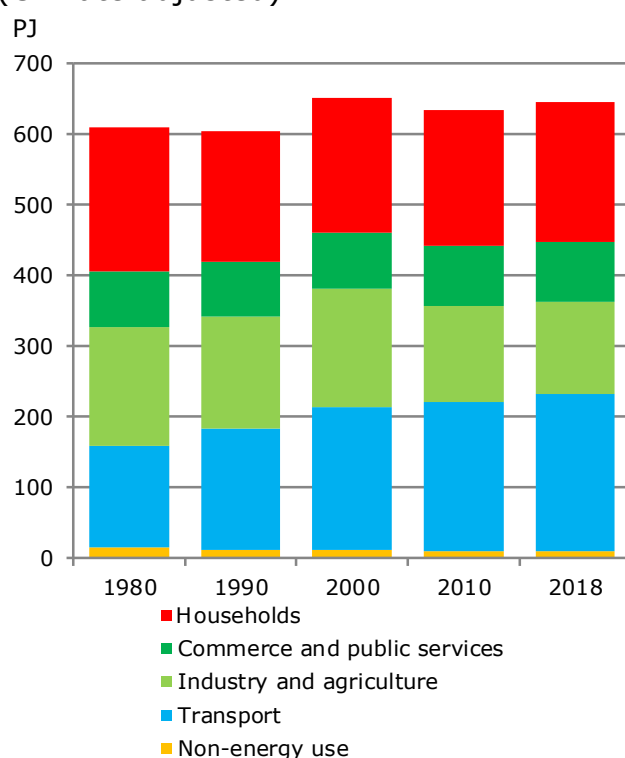
GDP, gross energy consumption and energy intensity (Adjusted)



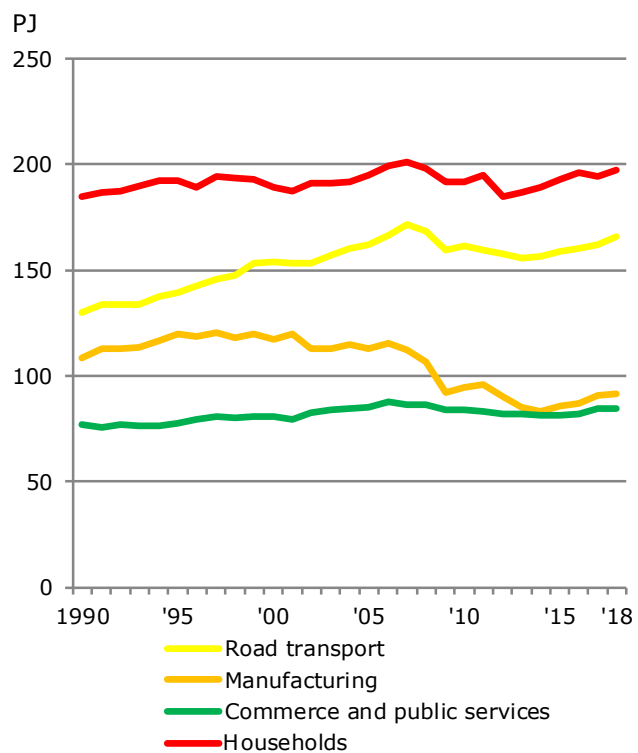
Final energy consumption by fuel (Climate adjusted)



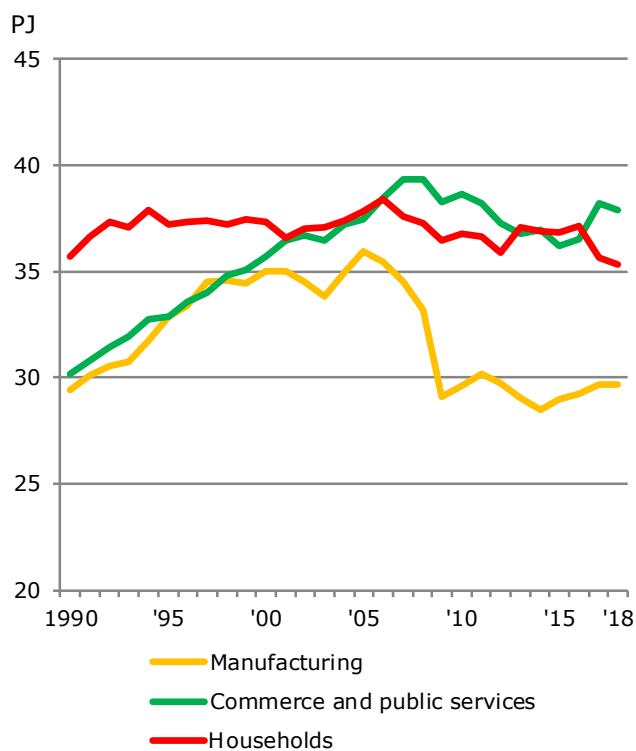
Final energy consumption by sector (Climate adjusted)



Final energy consumption (Climate adjusted)



Electricity consumption (Climate adjusted)



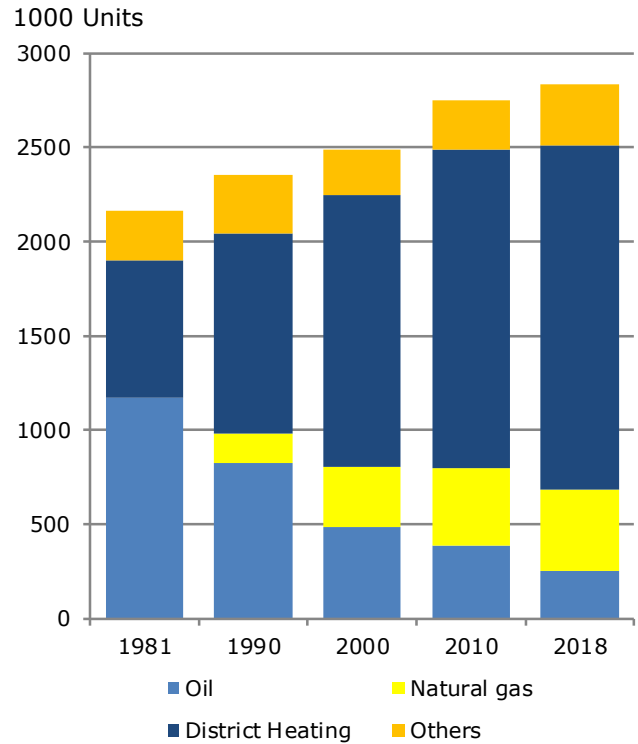
ENERGY CONSUMPTION

Energy consumption for space heating in households

(Climate adjusted)



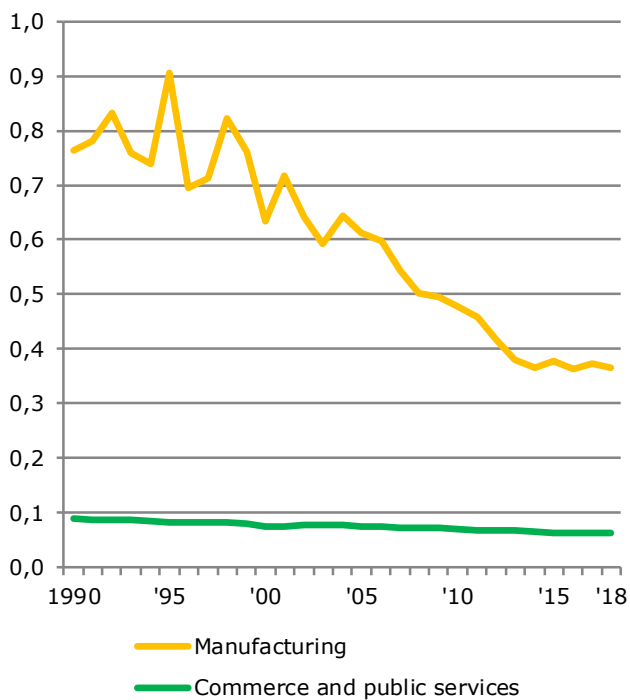
Heating installations in households



Energy intensities

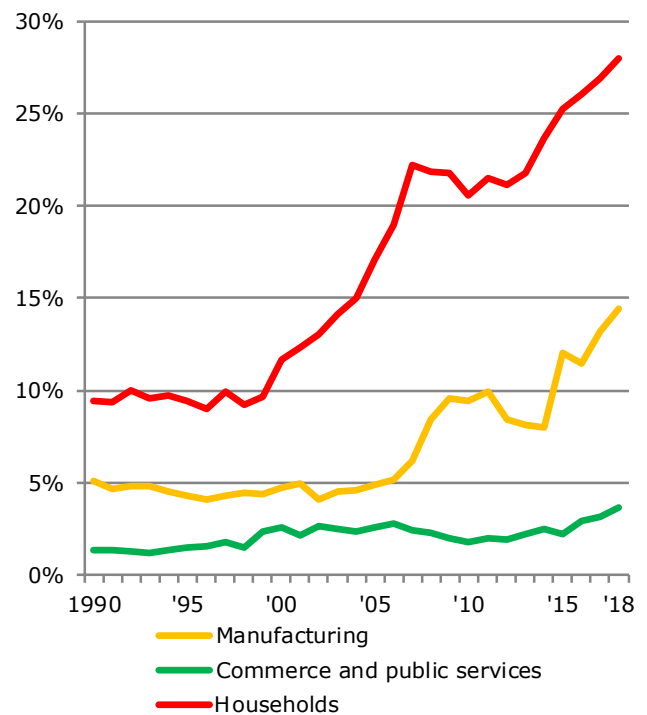
(Climate adjusted)

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



Shares of renewable energy in final energy consumption

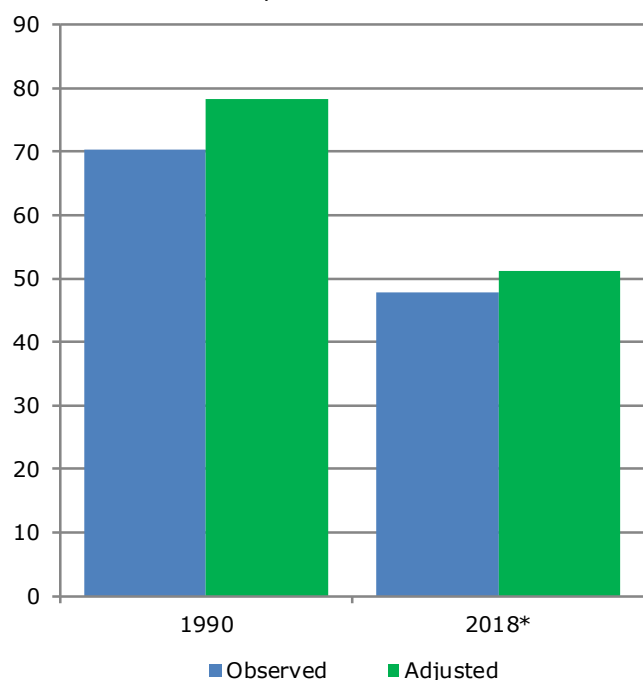
(Climate adjusted)



CO₂ emissions from energy consumption

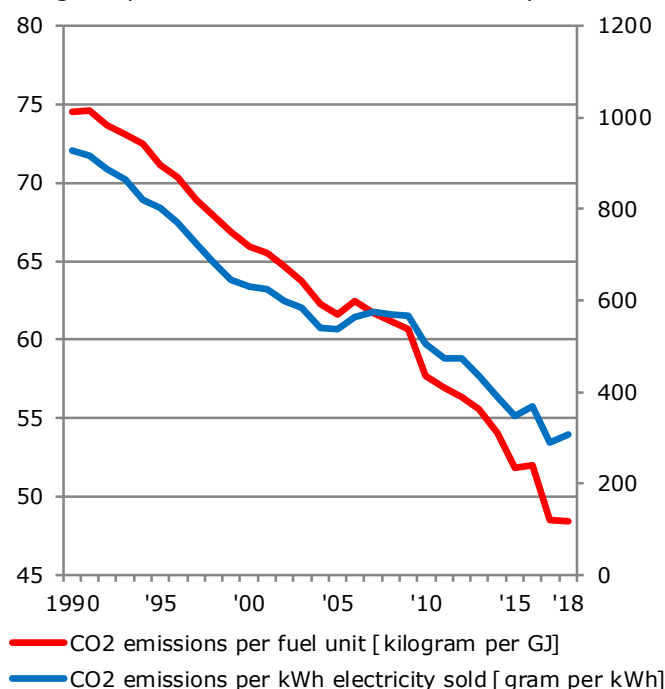
[Million tonnes]

	1980	1990	2000	2010	2018
Observed CO₂ emissions	64.3	53.1	53.6	49.4	34.5
Energy sector	0.9	1.4	2.3	2.3	1.9
Transformation sector	30.1	25.1	24.2	21.9	9.4
Final energy consumption	33.3	26.5	27.1	25.1	23.2
Adjusted CO₂ emissions	62.6	61.0	55.3	47.0	37.9
Energy sector	0.9	1.4	2.3	2.3	1.9
Transformation sector	28.8	32.3	25.5	20.1	12.7
Final energy consumption	32.9	27.3	27.5	24.6	23.3

Total emissions from greenhouse gasesMillion tonnes CO₂ equivalent**CO₂ emissions per fuel unit and per kWh of electricity (Adjusted)**

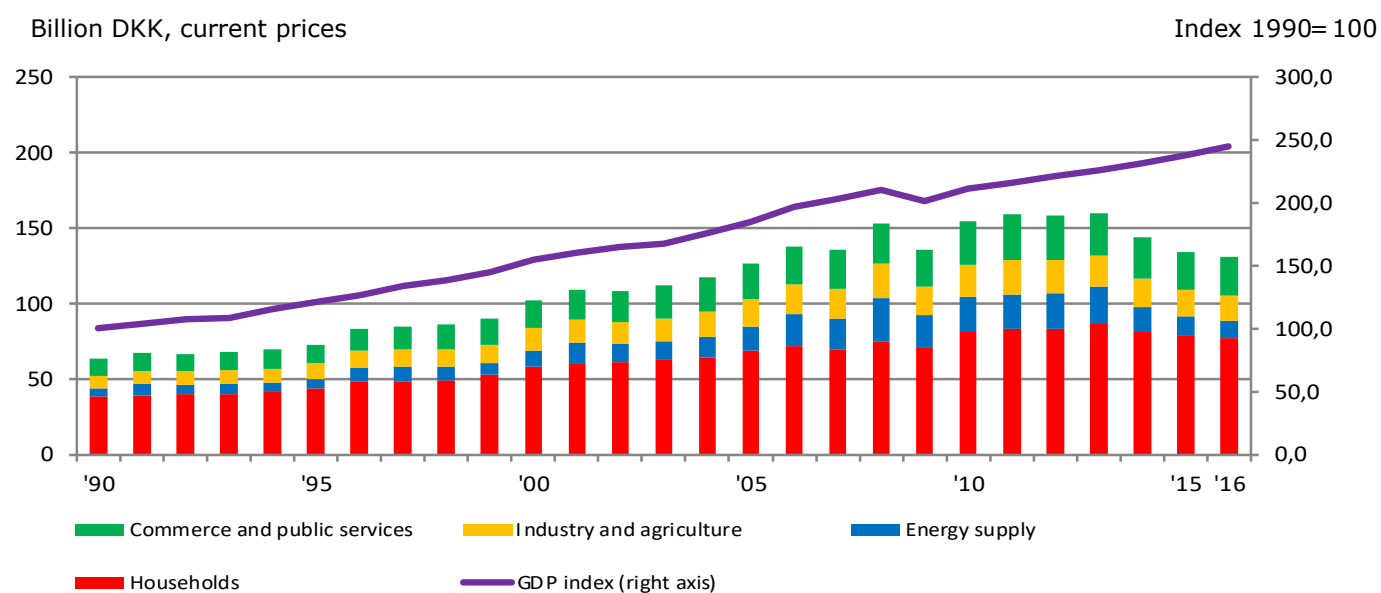
Kilogram per GJ

Gram per kWh



*) Preliminary emission inventory

Energy expenses by industry and households

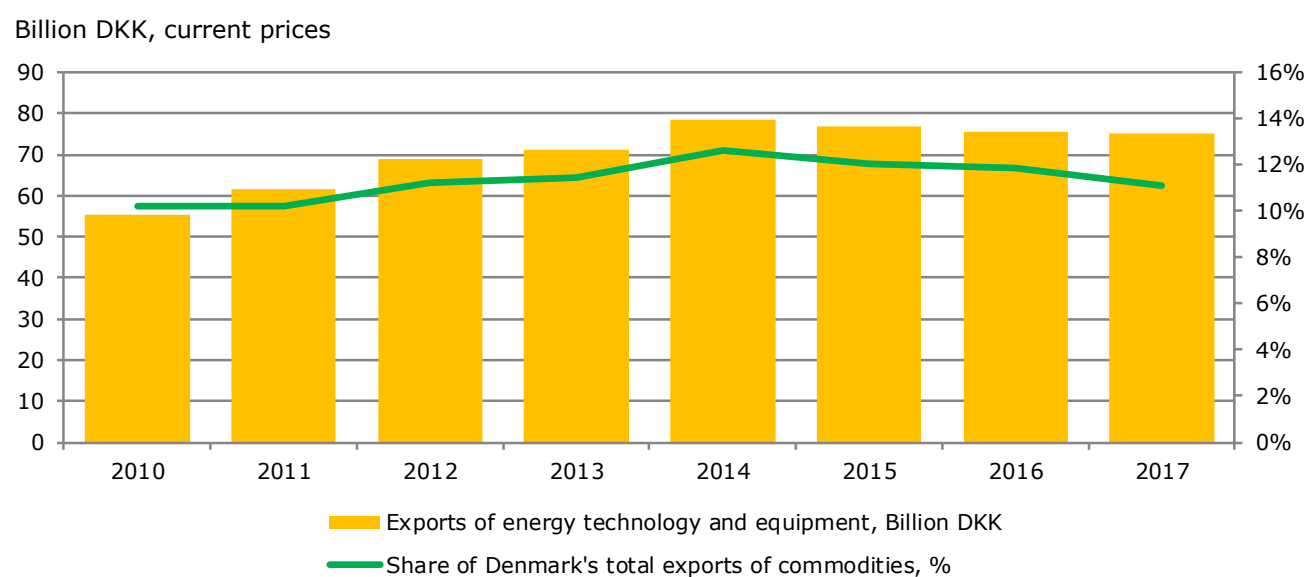


Source: Statistics Denmark

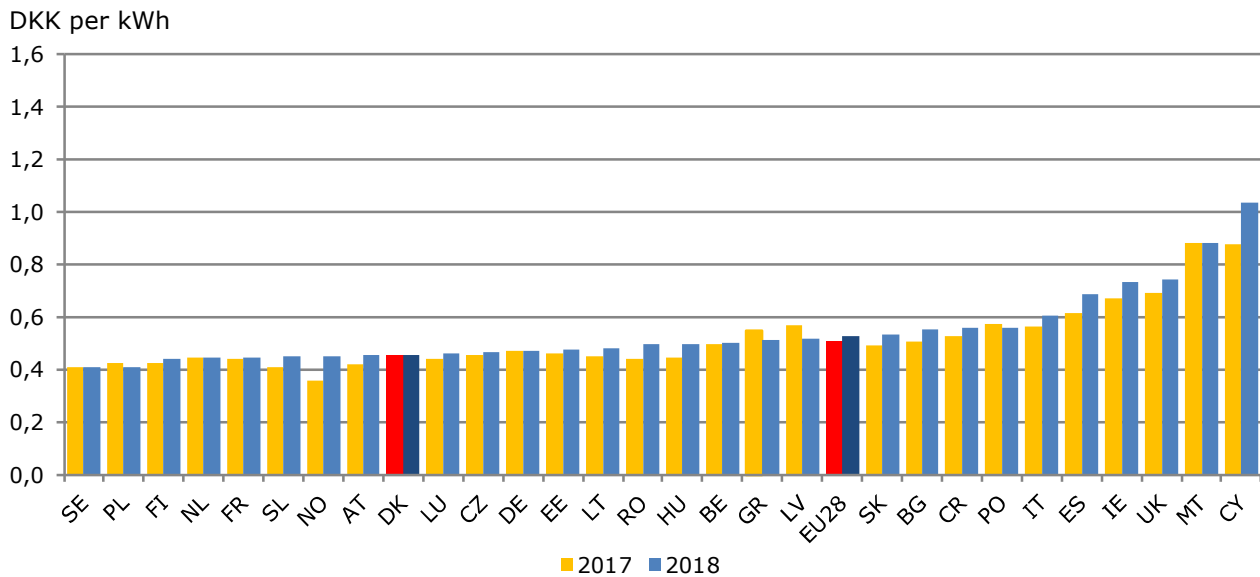
Economic key figures

[Billion DKK, current prices]	2016	2017	2018
Total energy expenditures	130.8	•	•
Revenues from energy, CO ₂ and sulphur taxation	38.2	38.5	39.9
Expenditures to public service obligations on electricity	7.5	7.9	5.8
Value of crude oil and natural gas production	19.2	23.0	28.6

Exports of energy technology and equipment



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

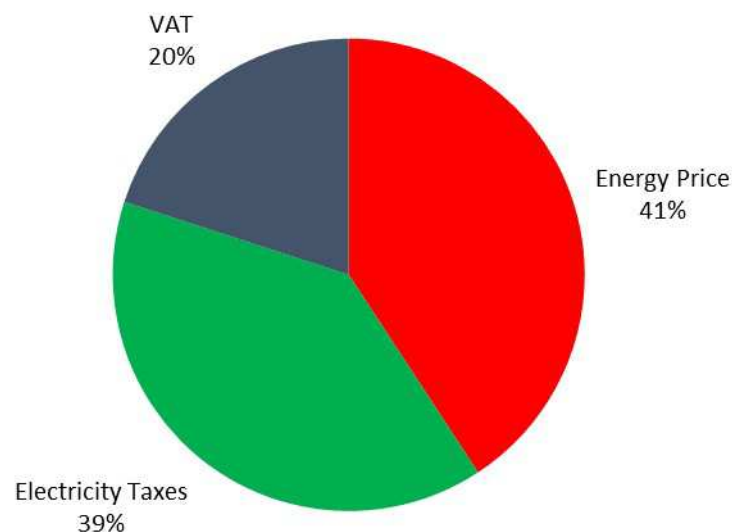


Source: Eurostat

Energy prices for households, 2018

	DKK	Euro
Gasoline regular [per litre]	12.26	1.64
Heating gas oil [per litre]	11.22	1.51
Natural gas [per Nm ³]	7.51	1.01
Electricity [per kWh]	2.33	0.31

Decomposition of the electricity price for households, 2018 (%)



INTERNATIONAL COMPARISONS 2017

	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	100	18	183	317
Denmark	87	33	133	69
Romania	76	18	71	206
Sweden	73	41	211	123
UK	64	10	118	88
Czech Republic	63	10	172	239
Bulgaria	62	10	111	426
Poland	61	8	116	232
Latvia	57	43	98	213
Netherlands	53	5	192	129
Finland	53	35	258	173
Slovenia	52	16	137	173
France	52	10	160	119
Croatia	47	21	89	186
EU28	45	14	137	121
Hungary	42	11	114	230
Slovakia	37	9	133	211
Germany	36	13	163	111
Austria	36	29	164	105
Ireland	33	9	128	55
Greece	31	12	94	141
Belgium	26	7	209	162
Spain	26	13	118	121
Lithuania	24	21	108	210
Italy	23	18	110	101
Portugal	22	20	97	137
Cyprus	5	7	125	144
Luxembourg	4	6	307	90
Malta	4	5	75	302
Norway	698	47	244	84
USA	92	8	277	
Japan	10	5	143	

Source: Eurostat and IEA.

	1980	1990	2000	2010	2018
Gross energy consumption per capita [GJ]	159	160	157	147	135
Final energy consumption per capita [GJ]	119	118	122	114	111
Energy intensity, gross energy consumption [TJ per million GDP]	0.776	0.636	0.500	0.450	0.381
Energy intensity, final energy consumption [TJ per million GDP]	0.582	0.469	0.388	0.350	0.314
Degree of self-sufficiency [%]	5	52	139	120	75
Dependency of oil [%]	67	43	45	38	37
Renewable energy: Share of gross energy consumption [%]	2.7	5.8	9.6	20.0	33.0
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	15073
Wind turbine capacity: Share of total electricity capacity [%]	-	3.6	19.0	28.3	40.6
Net electricity exports: Share of domestic supply [%]	5.1	-22.5	-1.9	3.2	-15.1
CHP production: Share of thermal electricity production [%]	18	37	56	61	71
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	60.1
CO ₂ emissions per capita [tonnes]	12.2	11.9	10.4	8.5	6.6
CO ₂ emissions per kWh sold [gram per kWh]	1 026	928	632	505	306
CO ₂ emissions per consumed unit of district heating [kilogram per GJ]	96	62	43	33	26
CO ₂ emissions per GDP [kilogram per DKK]	60	47	33	26	18

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

Do you need more data?

www.ens.dk/facts_figures

Please find:

Energy Statistics 2018

- Publications as pdf
- Figures in PowerPoint
- Time series and tables
- Denmark's energy flows 2018

Data

- Monthly energy statistics
- Wind turbine data

Maps

- Electricity generation and transmission
- Heat supply

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