

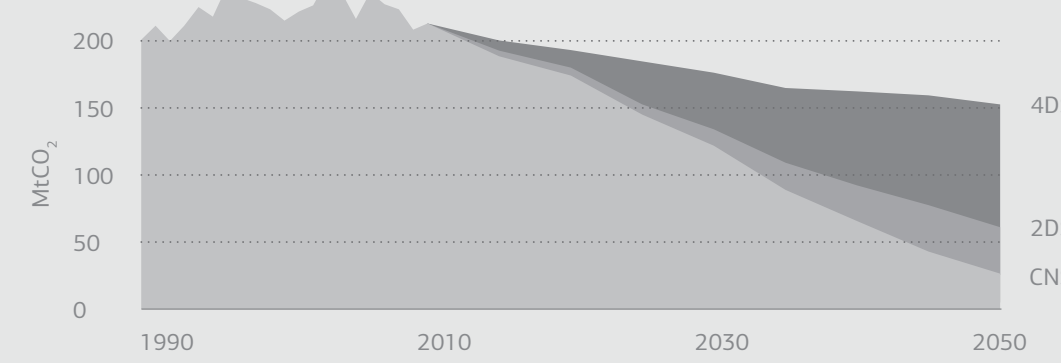
Nordic Energy Technology Perspectives

The five Nordic countries of Denmark, Finland, Iceland, Norway and Sweden have announced ambitious goals towards decarbonising their energy systems by 2050. Based on the scenarios and analysis of Energy Technology Perspectives 2012, the International Energy Agency (IEA) and leading Nordic research institutions jointly assess how the Nordic region can achieve a carbon-neutral energy system by 2050. Download the full publication and explore the data by following the link below.

www.iea.org/etp/nordic



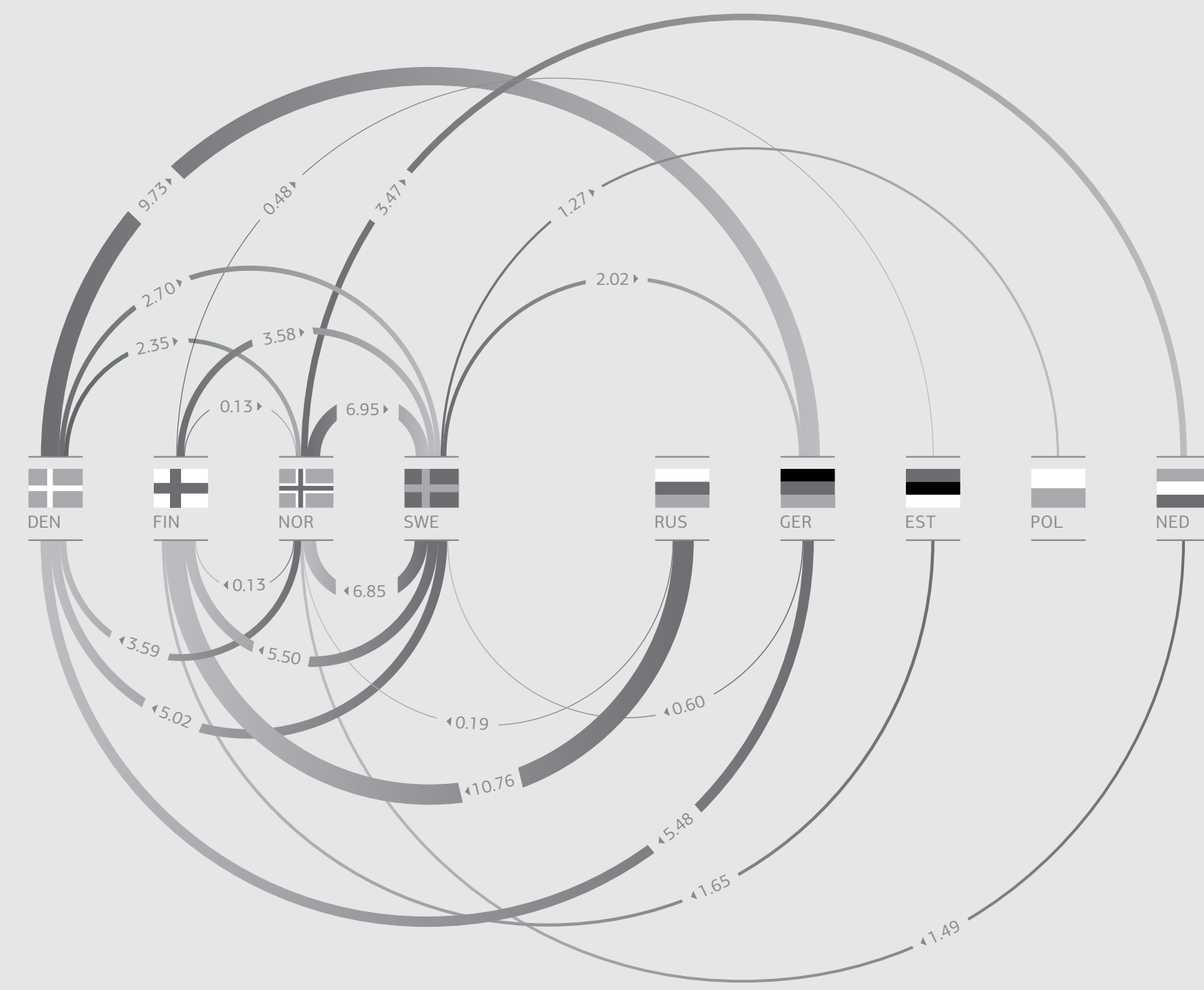
Nordic energy-related CO₂ emissions



The Nordic **4°C Scenario (4DS)** represents a future in which global average temperature increase is limited to 4°C. Nordic energy-related CO₂ emissions in 2050 decrease by 29% compared to 1990 levels.

The Nordic **2°C Scenario (2DS)** reflects the Nordic energy system within a more ambitious future limiting global average temperature increase to 2°C. Nordic energy-related CO₂ emissions in 2050 decrease by 68% compared to 1990 levels.

The Nordic **Carbon-Neutral Scenario (CNS)** is the focus of the Nordic ETP. It sees Nordic energy-related CO₂ emissions in 2050 fall by 85% compared to 1990 levels, with the remaining 15% offset. The rest of the world pursues the 2°C Scenario.



Electricity trade in the Nordic region, 2011

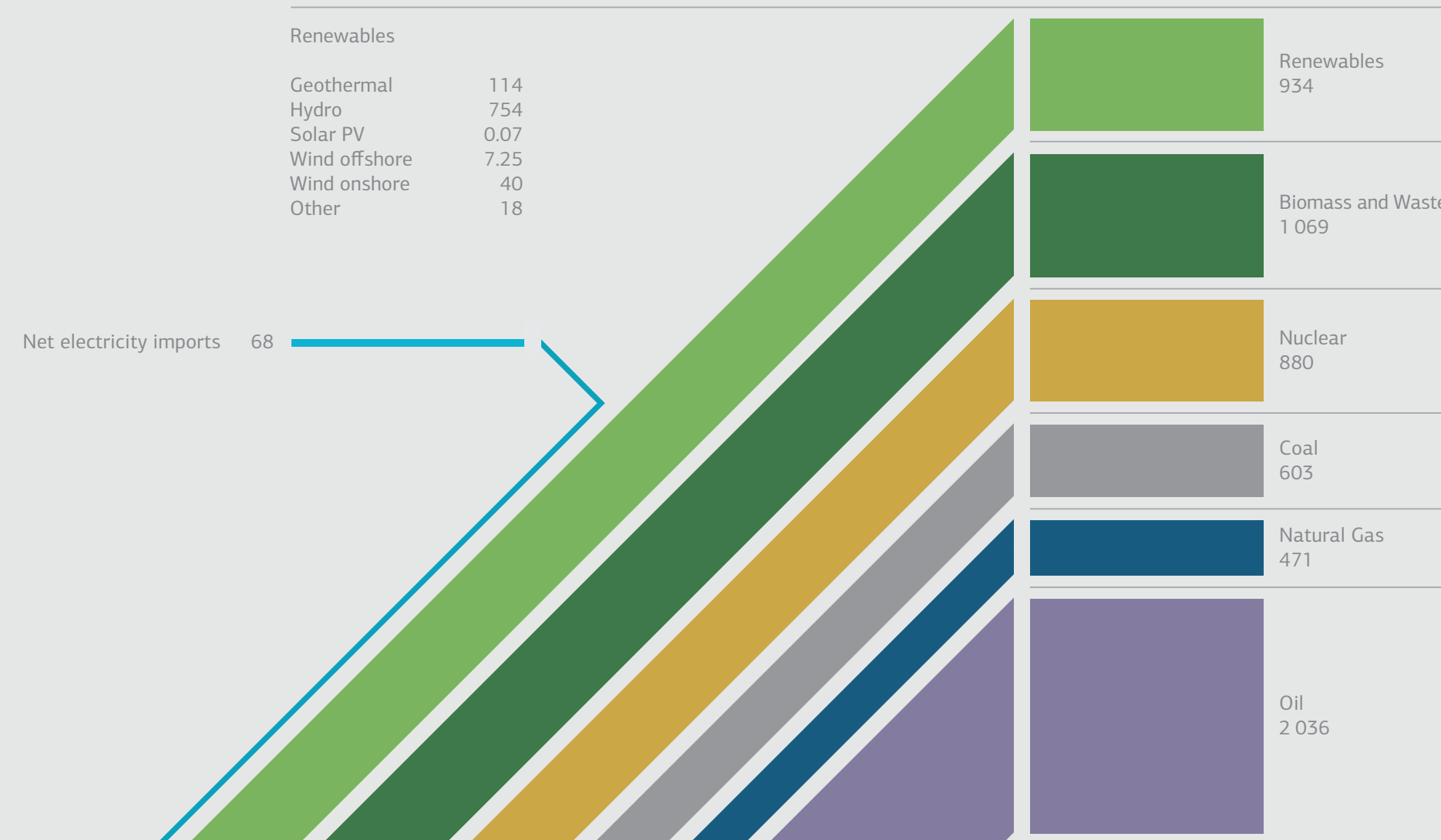
Denmark, Finland, Norway and Sweden share a common electricity market and have significant cross-border trade in electricity. A further increase in electricity trade is an important factor in achieving the scenarios outlined in the Nordic ETP.

Trade volumes vary from year to year, influenced by winter temperatures and inflow to the region's hydropower reservoirs. In recent years Finland has been a net importer, while Norway, Sweden and Denmark have fluctuated between being net importers and net exporters.

Notes: Flows are expressed in TWh. Flows below 0.1 TWh are not shown. Source: Nord Pool Spot.

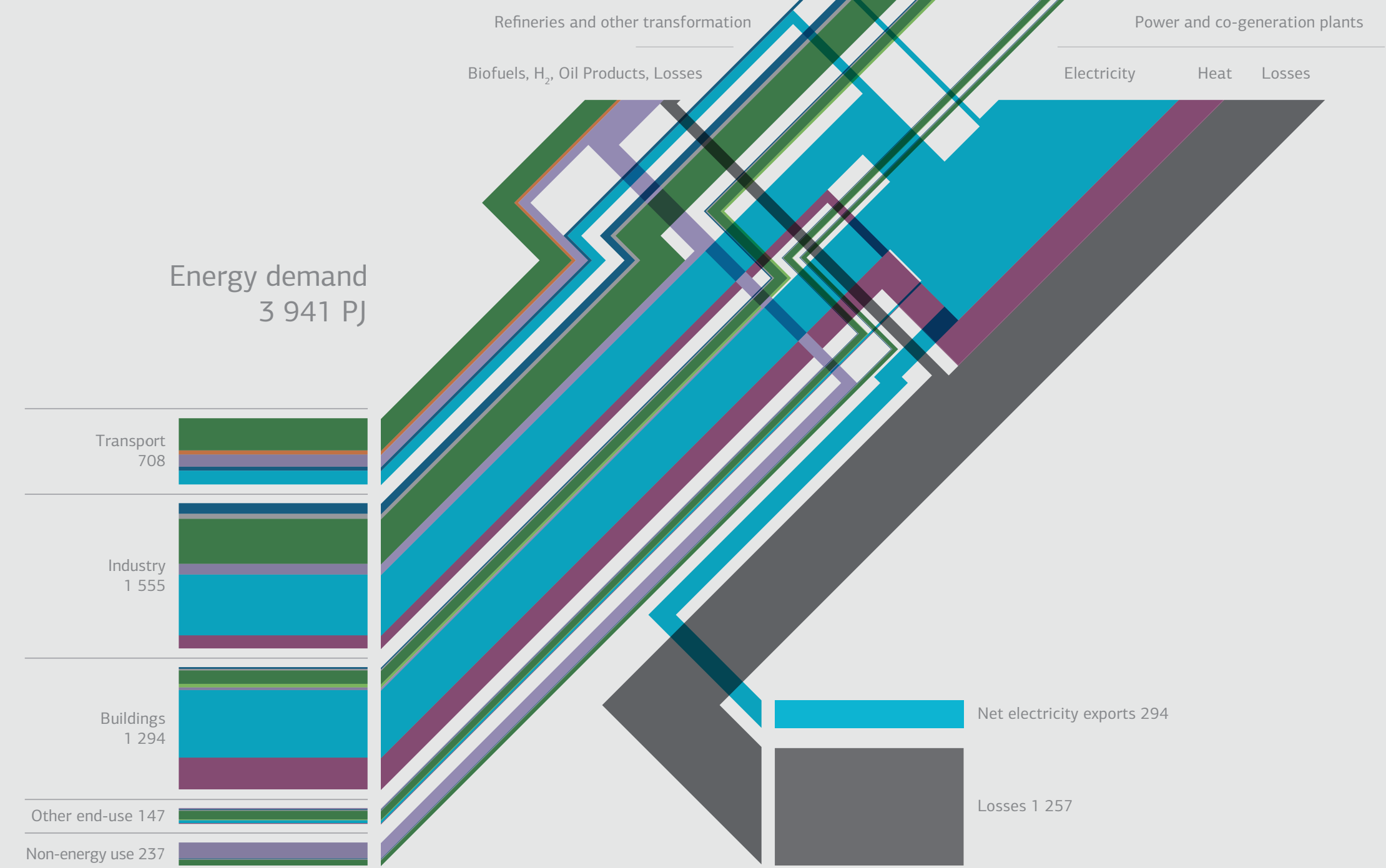
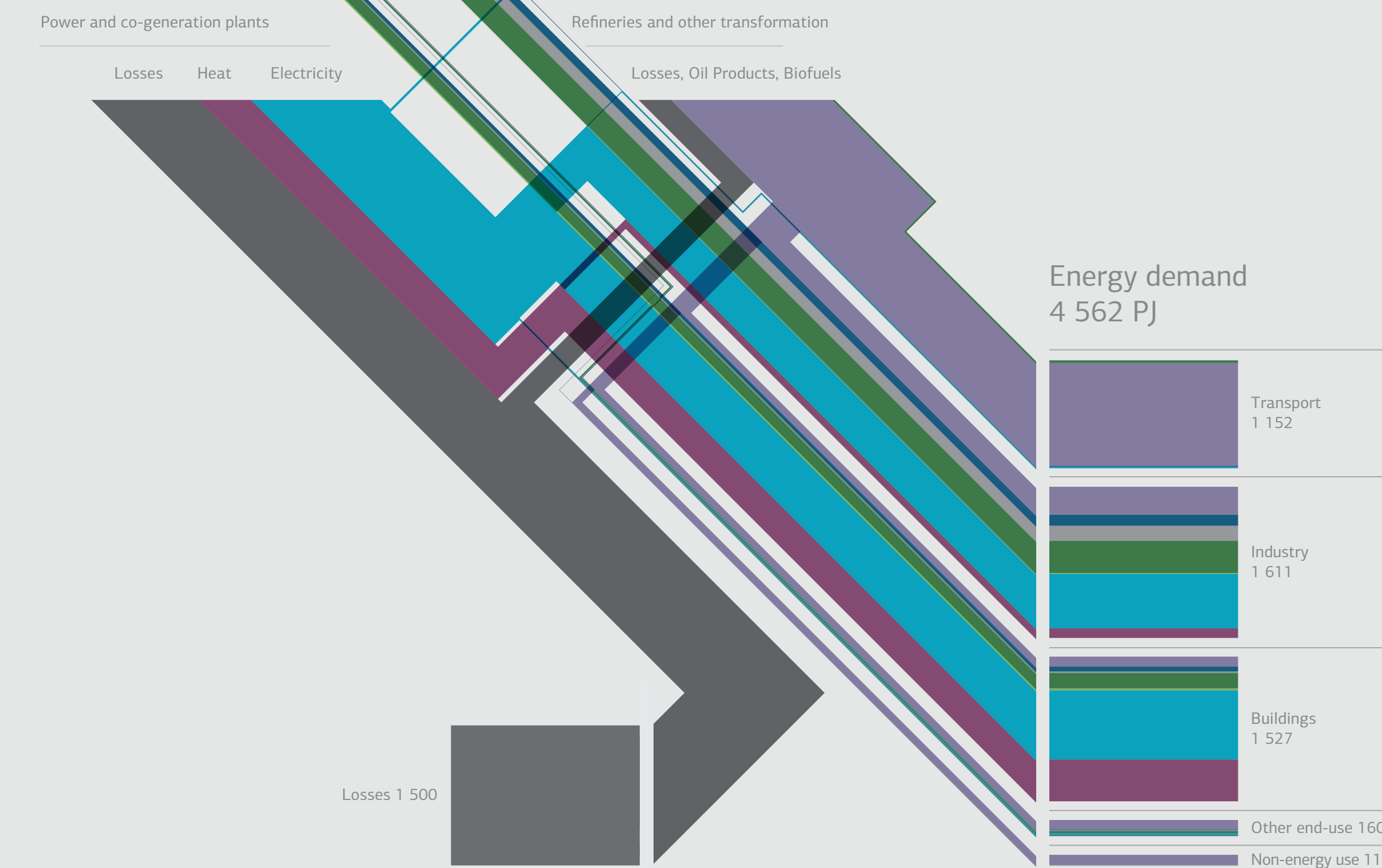
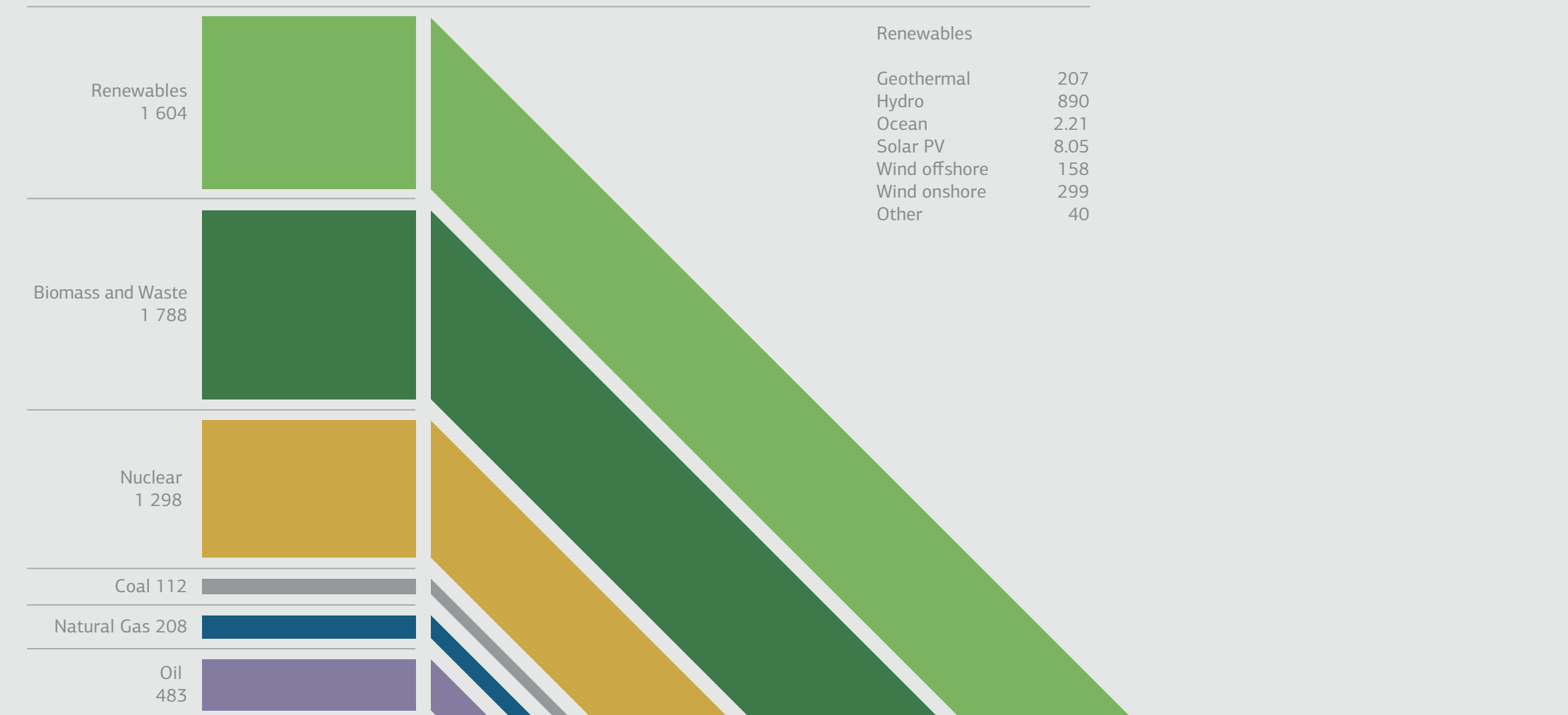
2010

Energy supply 5 993 PJ



2050

Energy supply 5 493 PJ



Nordic Energy Flows

Comparison between 2010 and 2050 in the Carbon-Neutral Scenario (CNS), all values in petajoules (PJ)

Energy flows derive from IEA data and analysis. Flow widths are proportional to flow magnitudes; flows smaller than 8 PJ are represented with the same width to improve readability. Totals may not equal the sum of their components due to rounding.

	Freight		Passenger	
	2010	2050	2010	2050
Air	13	11	121	101
Heavy road	177	75	28	36
Light road	101	76	486	214
Rail	15	31	5	15
Sea	176	181	20	20

	2010	2050
Aluminium	173	137
Cement	29	22
Chemicals and petrochemicals	300	232
Iron and steel	185	128
Pulp and paper	512	443
Other industry	407	593

	Residential		Services	
	2010	2050	2010	2050
Appliances and misc. equipments	155	188	197	233
Cooking	20	25	-	-
Lighting	47	49	57	26
Space cooling	17	20	14	15
Space heating	538	374	243	179
Water heating	112	114	52	74