CHINA'S POWER SECTOR DEVELOPMENT

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Official goals on track

CHINA — Summary of pledges and targets

Climate Action Tracker

PARIS AGREEMENT	Ratified	Yes
	2030 unconditional target(s)	Peak CO2 emissions latest by 2030 Non-fossil share: 20% in 2030 Forest stock: + 4.5 billion m³ by 2030 compared to 2005 Carbon Intensity: -60% to -65% below 2005 by 2030 [33–47% above 2010 by 2030 excl. LULUCF for peaking and non-fossil targets] [36–53% above 2010 by 2030 excl. LULUCF for carbon intensity targets]
	Coverage	Economy-wide
	LULUCF	Unclear how LULUCF is included
COPENHAGEN ACCORD	2020 target(s)	Carbon intensity: -40% to -45% below 2005 by 2020 Non-fossil share of energy supply: 15% in 2020 Forest cover: +40 million ha by 2020 compared to 2005 Forest stock: + 1.3 billion m³ by 2020 compared to [26% above 2010 by 2030 excl. LULUCF for non-fossil target] [26–37% above 2010 by 2030 excl. LULUCF for carbon intensity targets]
	Condition(s)	None
LONG-TERM GOAL(S)	Long-term goal(s)	None

Official goals on

China

CHOOSE UPDATE TO VIEW 19 Sep 2019

SHARE

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		[26–37% above 2010 by 2030 excl. LULUCF for carbon intensity targets]
	Condition(s)	None
LONG-TERM GOAL(S)	Long-term goal(s)	None

4°C+ WORLD | **< 4°C WORLD** | < 3°C WORLD | < 2°C WORLD | < 1.5°C WORLD | << 1.5°C WORLD

CRITICALLY INSUFFICIENT | **HIGHLY INSUFFICIENT** | INSUFFICIENT | 2°C COMPATIBLE | 1.5°C PARIS AGREEMENT COMPATIBLE | ROLE MODEL

Commitments with this rating fall outside the fair share range and are not at all consistent with holding warming to below 2°C let alone with the Paris Agreement's stronger 1.5°C limit. If all government targets were in this range, warming would reach between 3°C and 4°C.

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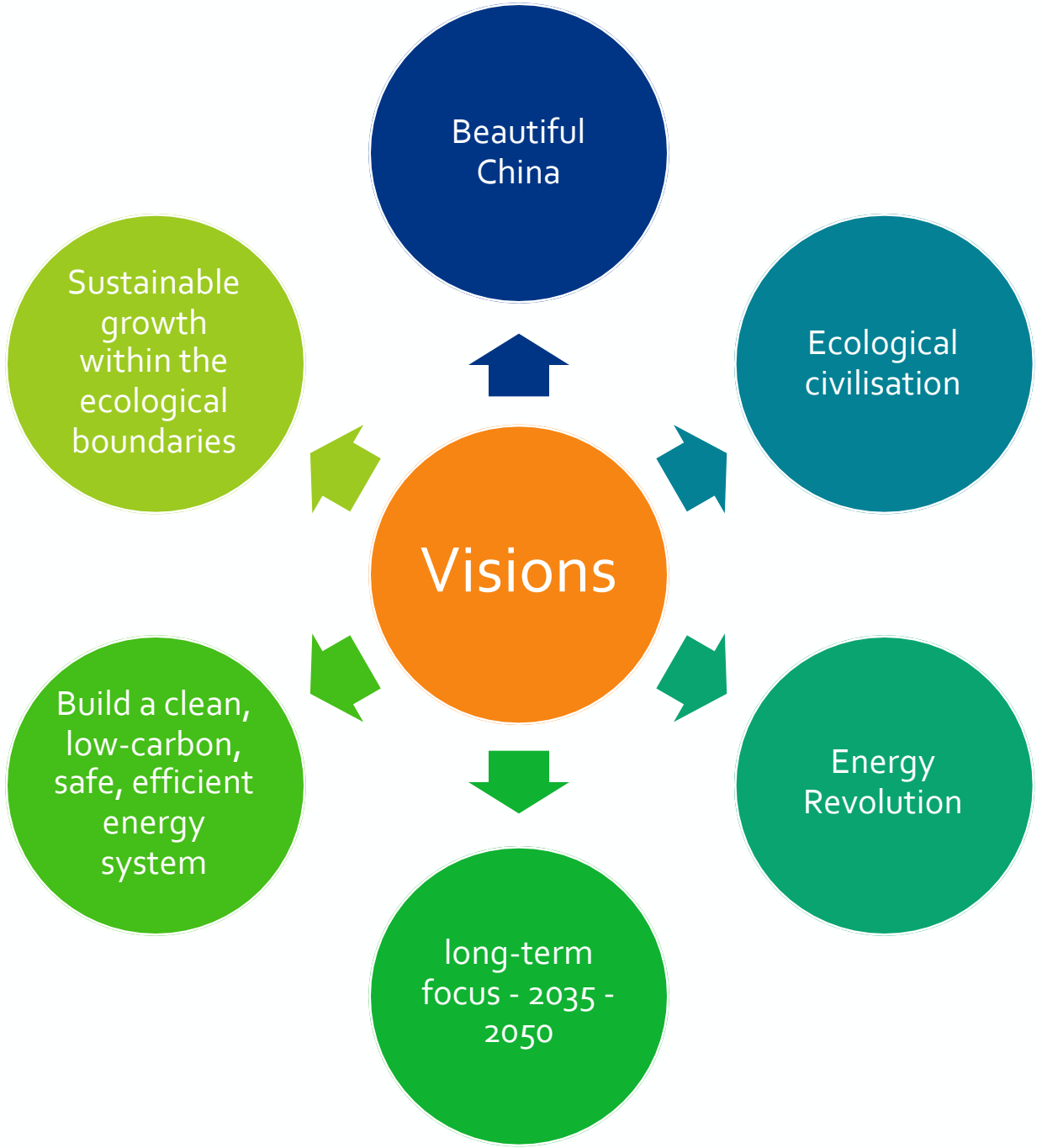
The Chinese vision for the energy transition

A clean, low-carbon, safe, efficient energy system



China's energy system towards 2050

The presentation is based on multiyear research, studies and reports for the whole Chinese energy system made by ERI/CNREC.

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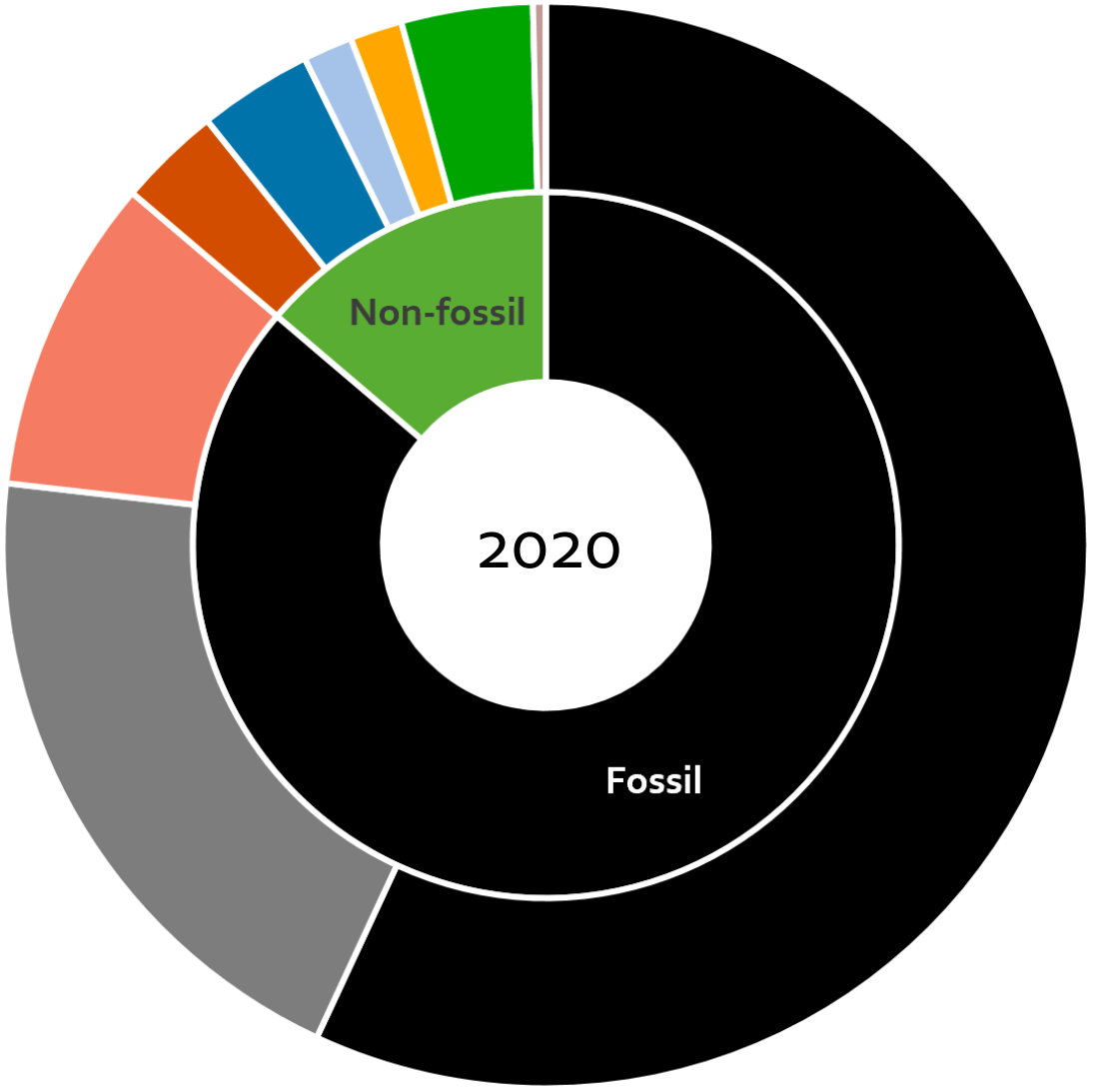
Fuels in primary energy consumption

The current Chinese energy system is dominated by fossil fuels - coal, oil and natural gas.

In 2018 fossil fuels covered 90% of the total energy consumption and in 2020 the fossil fuel share will be 86%



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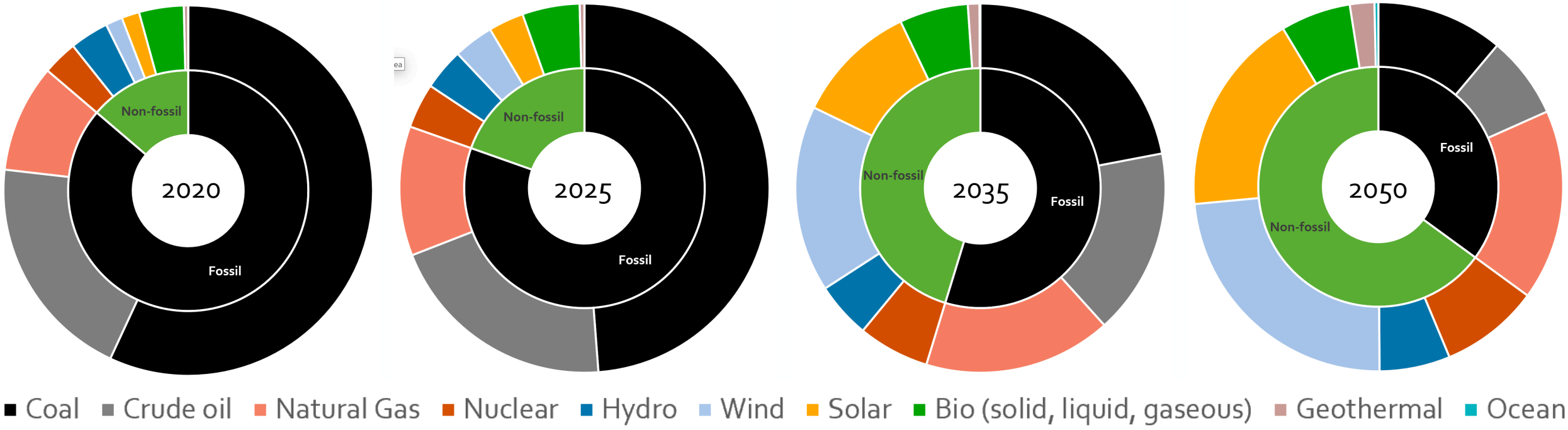
Decarbonisation pathway

- The Chinese energy system can be decarbonised within the next 30 years in a "Below 2 degree scenario"
- In 2050 the fossil fuel share will be 35% (coal 11%, oil 7% and natural gas 16%)



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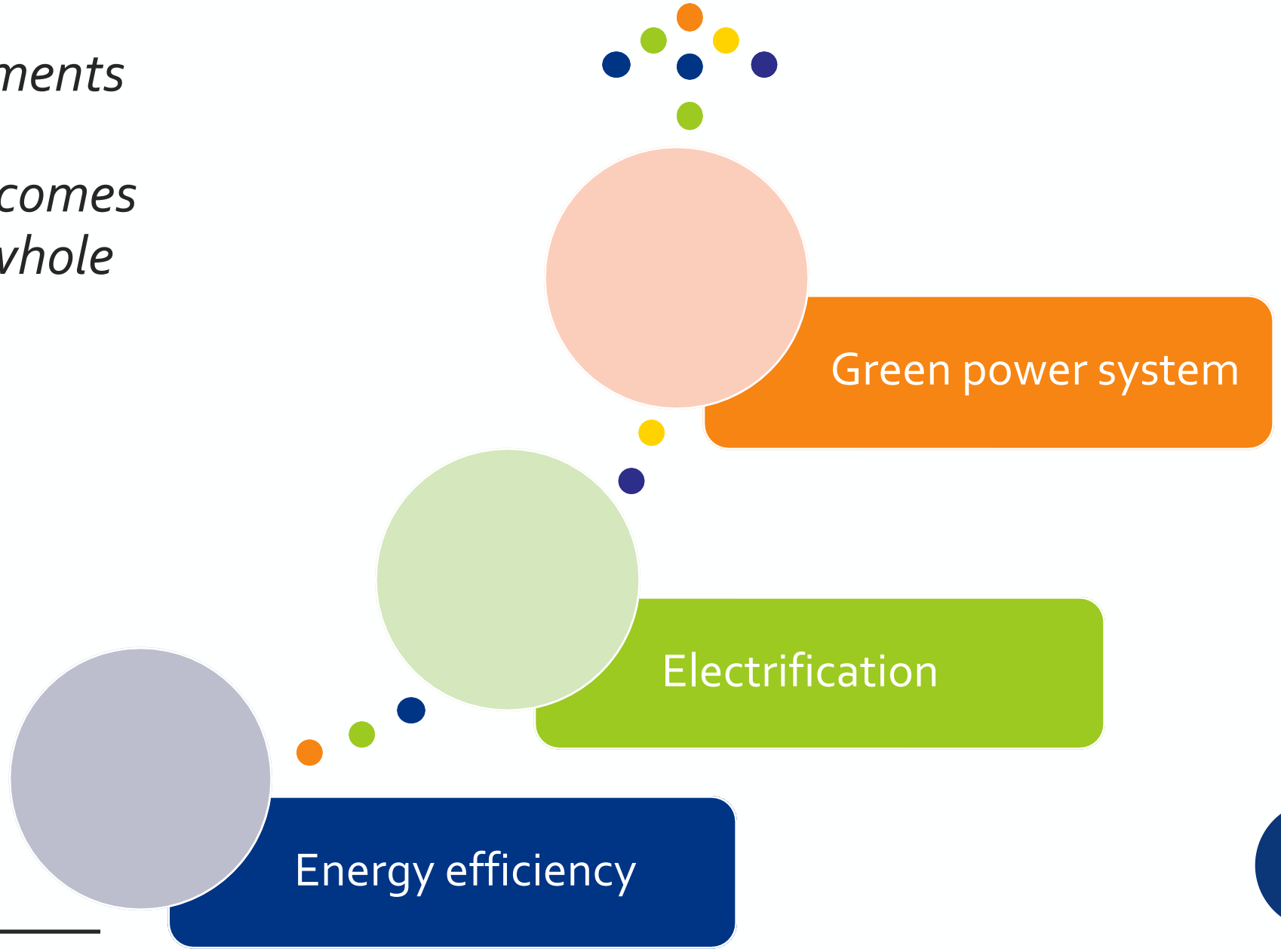
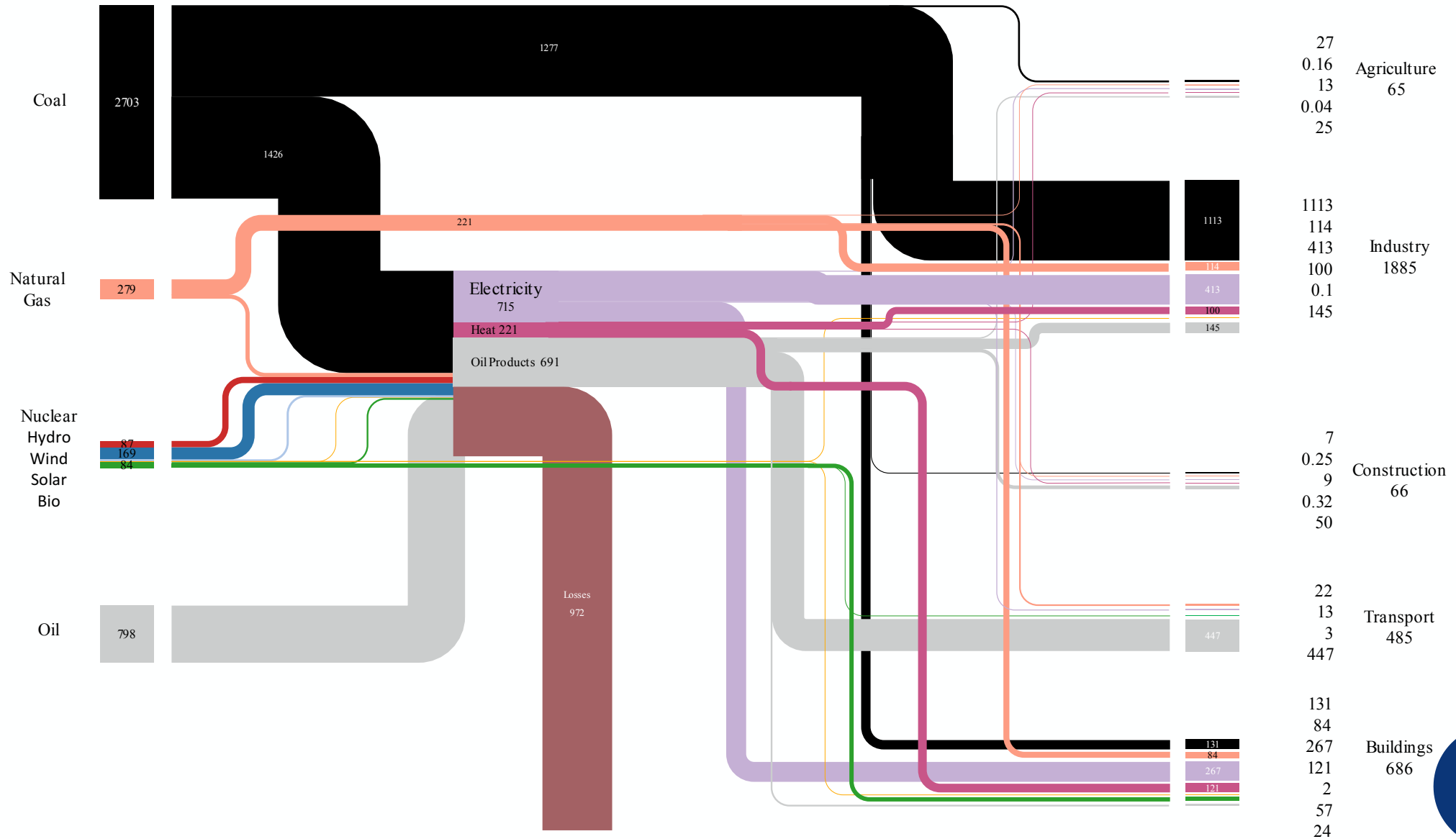
Energy transition elements

The power system becomes the backbone of the whole energy system



2016 Energy flow chart （Mtce）



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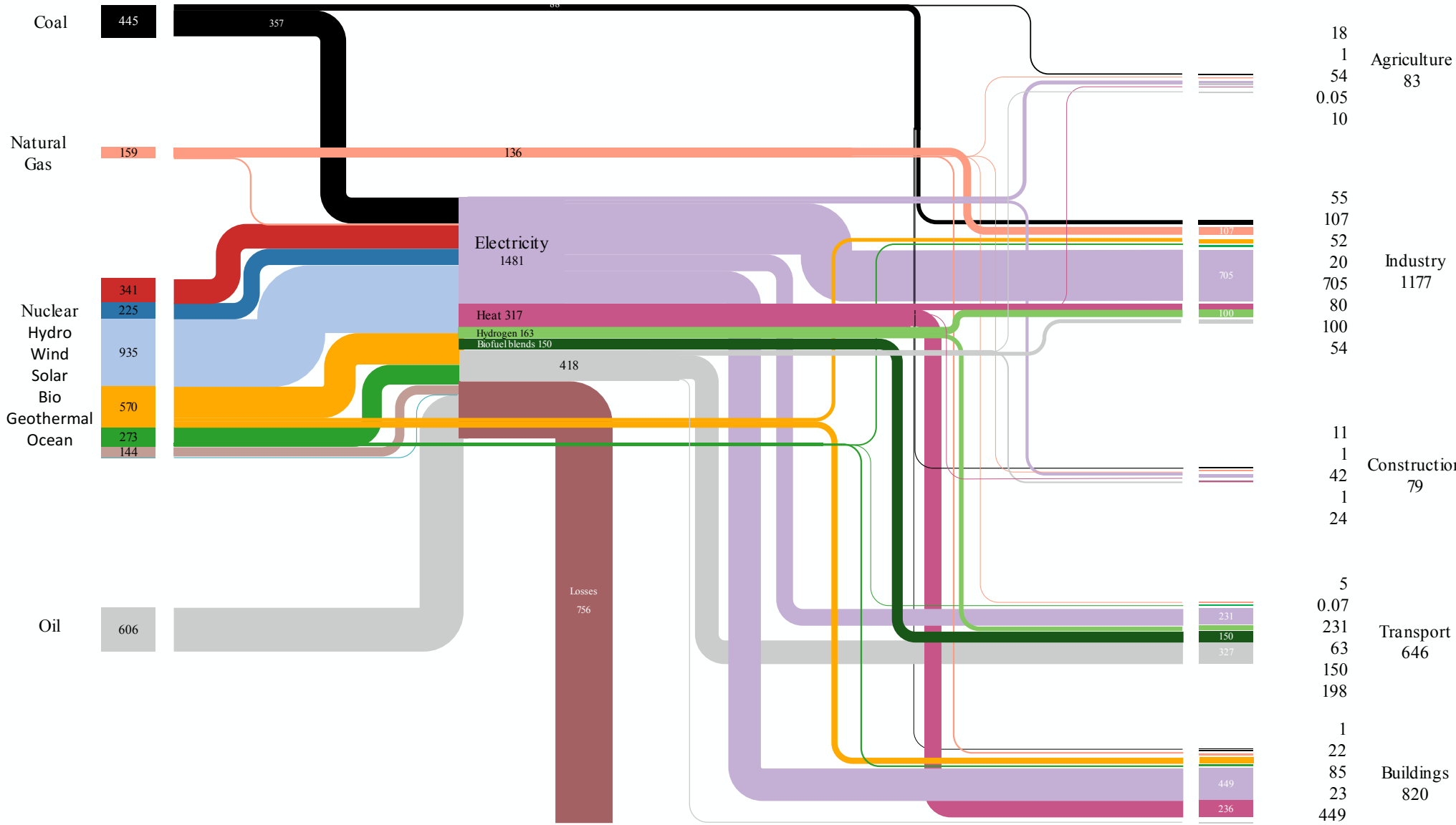
Coal | Oil | Electricity | Nuclear | Wind | Bio | Hydrogen
Natural Gas | Losses | Heat | Hydro | Solar | Geothermal | Ocean | Biofuel blends

2050 Energy flow chart Below 2°C（Mtce）



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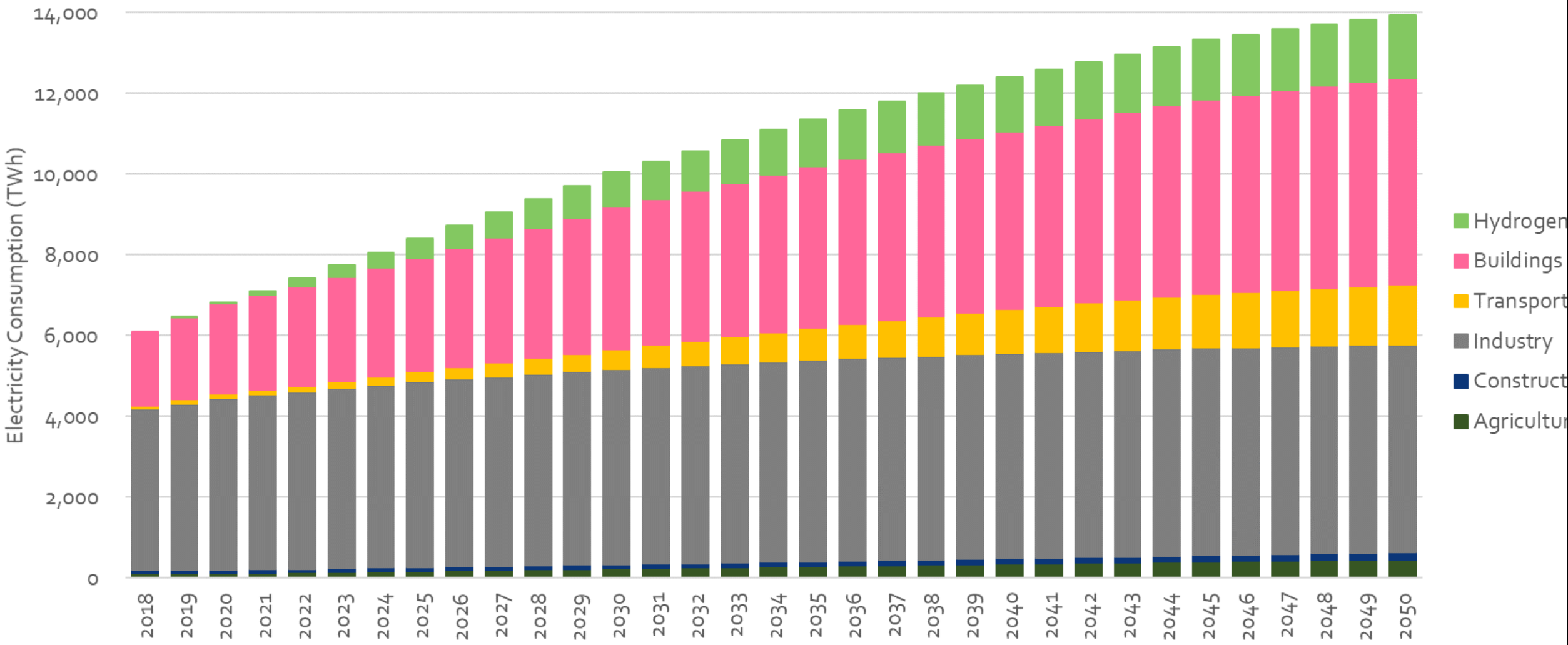
Electricity consumption development (GW)



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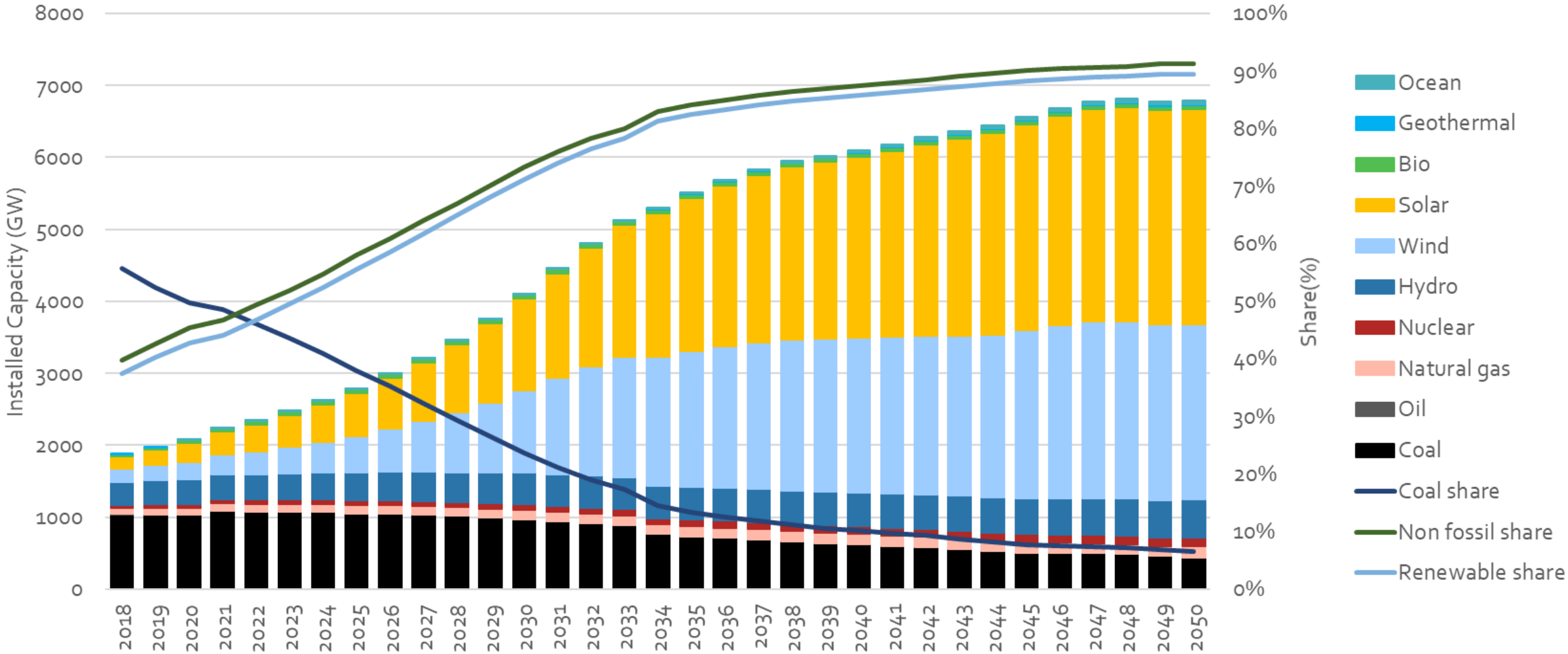
Power system capacity development (GW)



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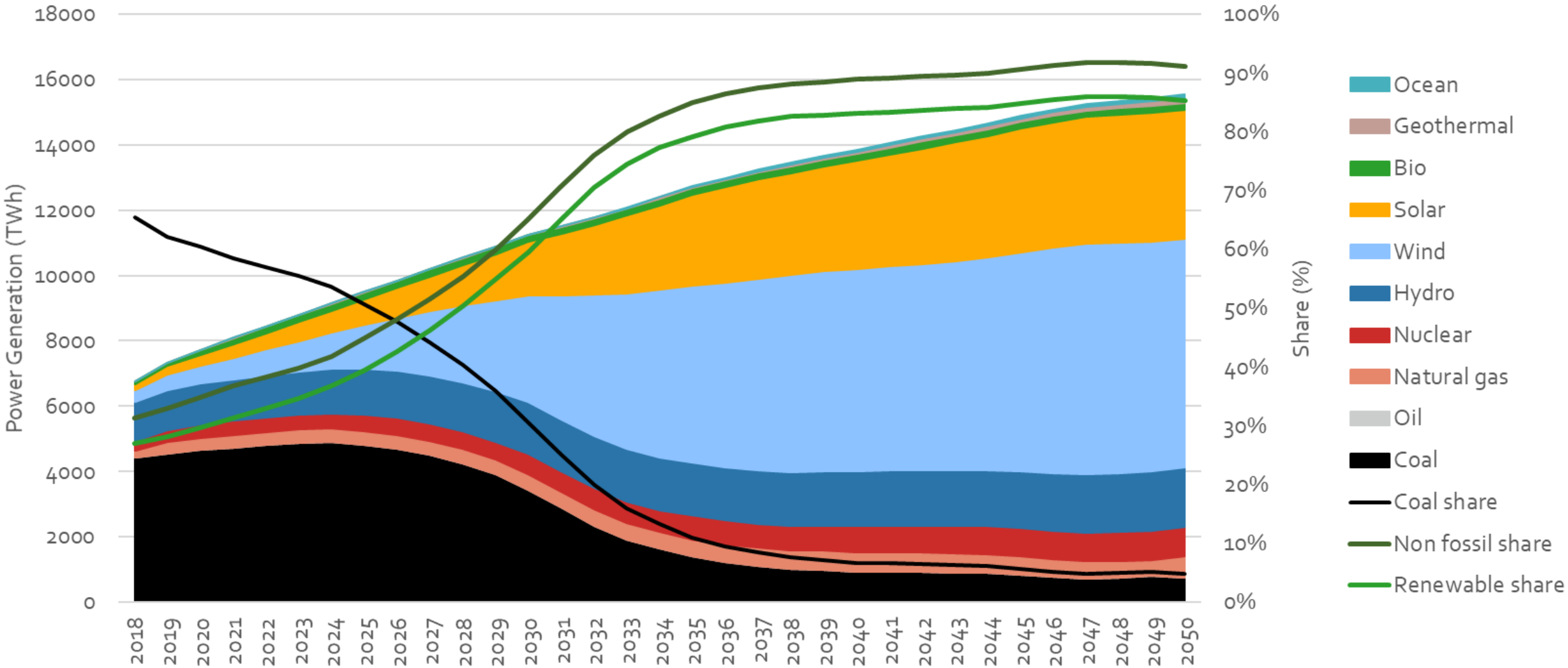
Power system generation development (TWh)



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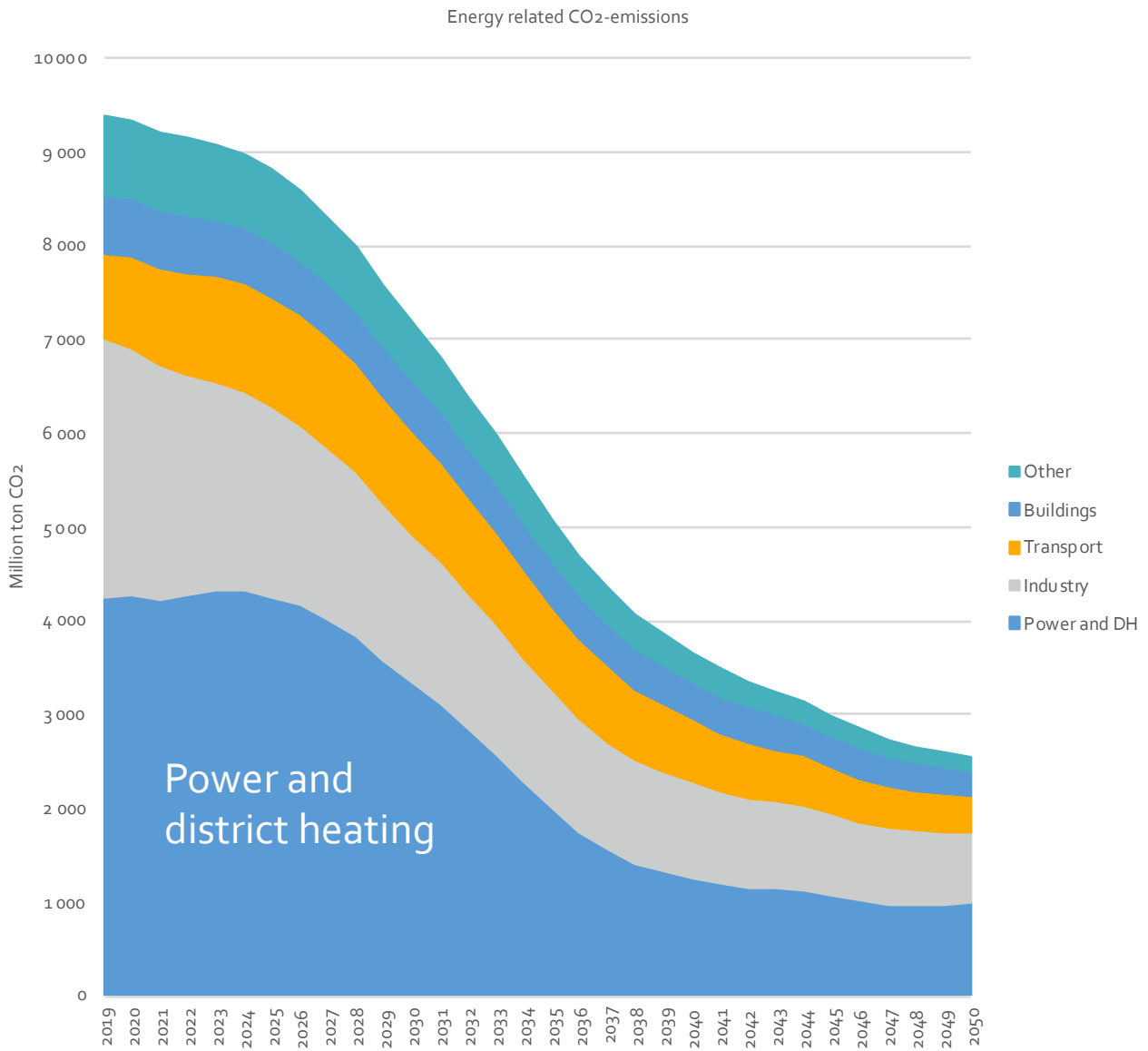
CO2 emission from energy consumption



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Key policy drivers are in place

- Restrictions on coal consumption
- Mandatory RE shares
- Power market and power sector reform
- Emission trading system
- Coal power flexibility
- Transformation of RE subsidies

Key policy drivers are in place

But the implementation is challenging

- Restrictions on coal consumption
  - But new coal power plants are still approved
- Mandatory RE shares
  - But weak targets
- Power market and power sector reform
  - Pilots initiated, but no clear uniform direction
- Emission trading system
  - No incentives for RE
- Coal power flexibility
  - But no or weak economic incentives
- Transformation of RE subsidies
  - Risk of losing momentum

Priorities in the 14-5 plan period

- Promote deployment of renewable power
  - Reduce risk elements and institutional barriers
  - Set clear and ambitious capacity targets for the development of wind and solar and use the mandatory RE share system to reach the target
  - Use power markets (wholesale and retail) to integration variable production from wind and solar power

Priorities in the 14-5 plan period

- Control coal power
  - Improve the ETS to better reflect the external costs of emission to encourage switch from coal to RE power
  - Stop for approval of new coal fired power plants
  - Give economic incentives for coal power flexibility through the power market and markets for ancillary services
  - Carefully develop transitional arrangements to move towards a market based dispatch with no additional support to coal power

Priorities in the 14-5 plan period

- Develop integrated, long-term planning of the power system
  - to develop the right infrastructure and to tune the incentives for the market players
  - involve stakeholders

Priorities in the 14-5 plan period

- Change mindset to the "New Normal" in the power sector
  - RE is or will soon become cheaper than coal and other fossil fuels
  - Climate crisis will be a key driver for the development
  - Electrification will create new market opportunities but only if the generation is green
  - The old, protected system will be replaced by cost-efficient market based dispatch
  - Flexibility is key for generation and consumption

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