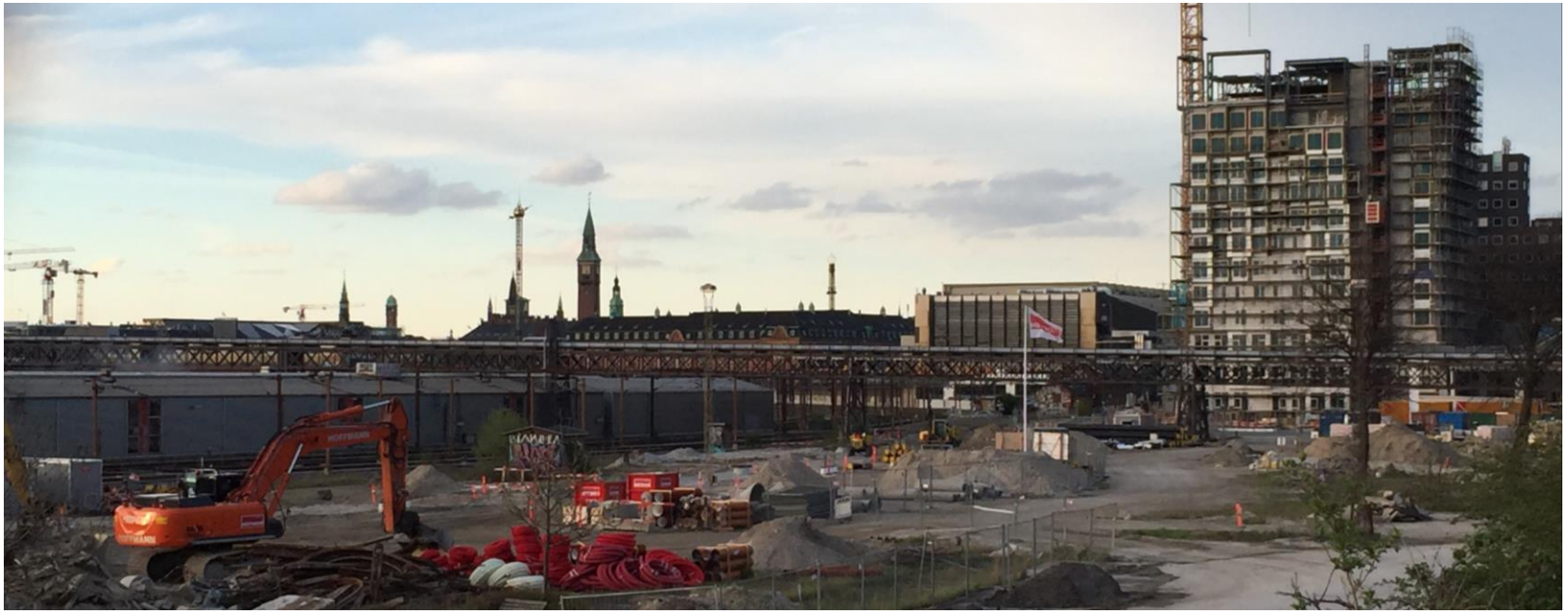
Danish Energy Agency

Energy Policy and Development
With focus on energy efficiency

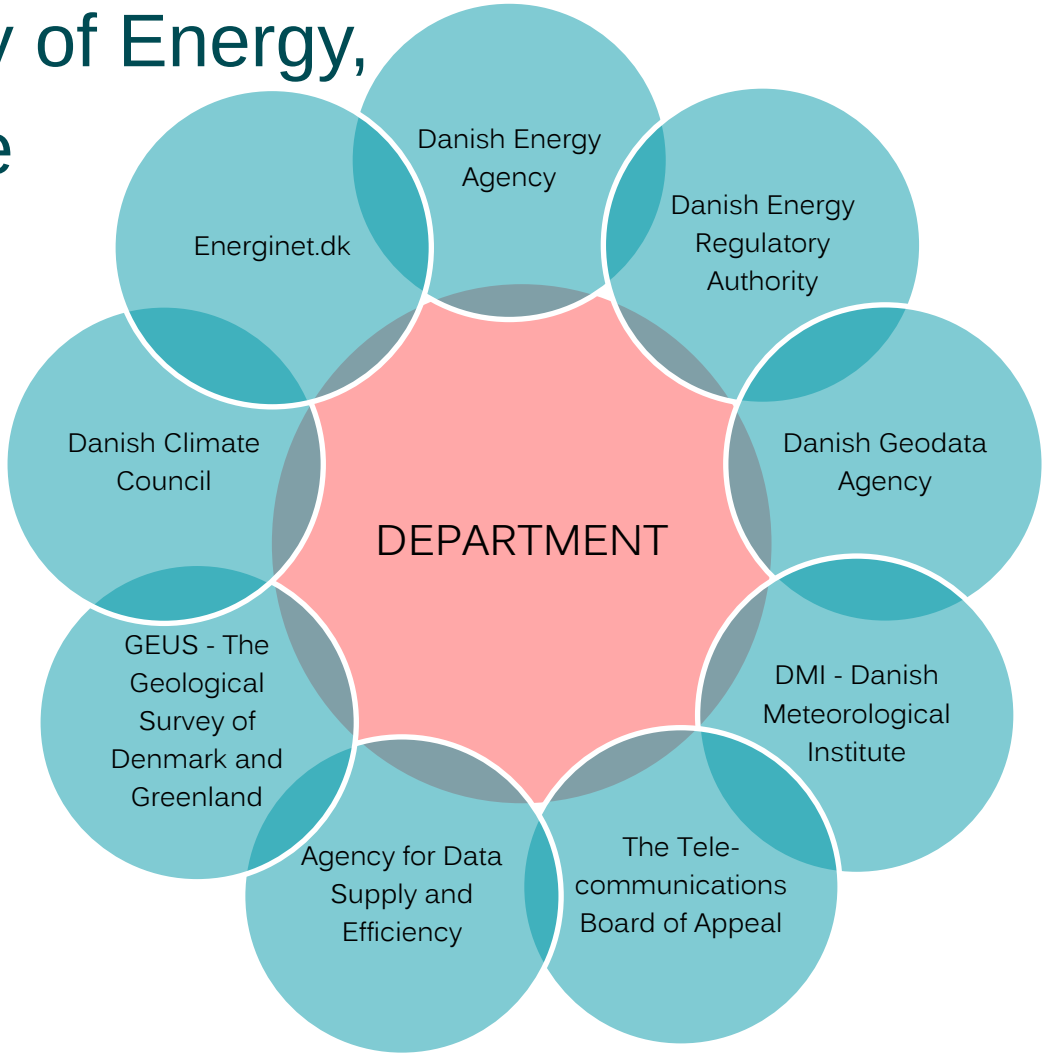


Helle Momsen Fredslund, Advisor

The Danish Ministry of Energy, Utilities and Climate

- Ensuring security of supply
- Responsible for national and international efforts to prevent climate change
- Contribute to the global efforts to reduce CO2 emissions
- Governmental goals towards Denmark being independent of fossil fuels in 2050

The minister: Lars Christian Lilleholt



The Danish Energy Agency

Main Task

The Danish Energy Agency engages **nationally** and **internationally** in **production, supply and consumption of energy** as well as the efforts to **reduce emissions of greenhouse gases**.

The Danish Energy Agency was established in **1976** and has about 360 employees.

Danish Energy Agency

Danish Energy Agency (DEA)

Key areas of responsibility in policy and regulation

Focus areas

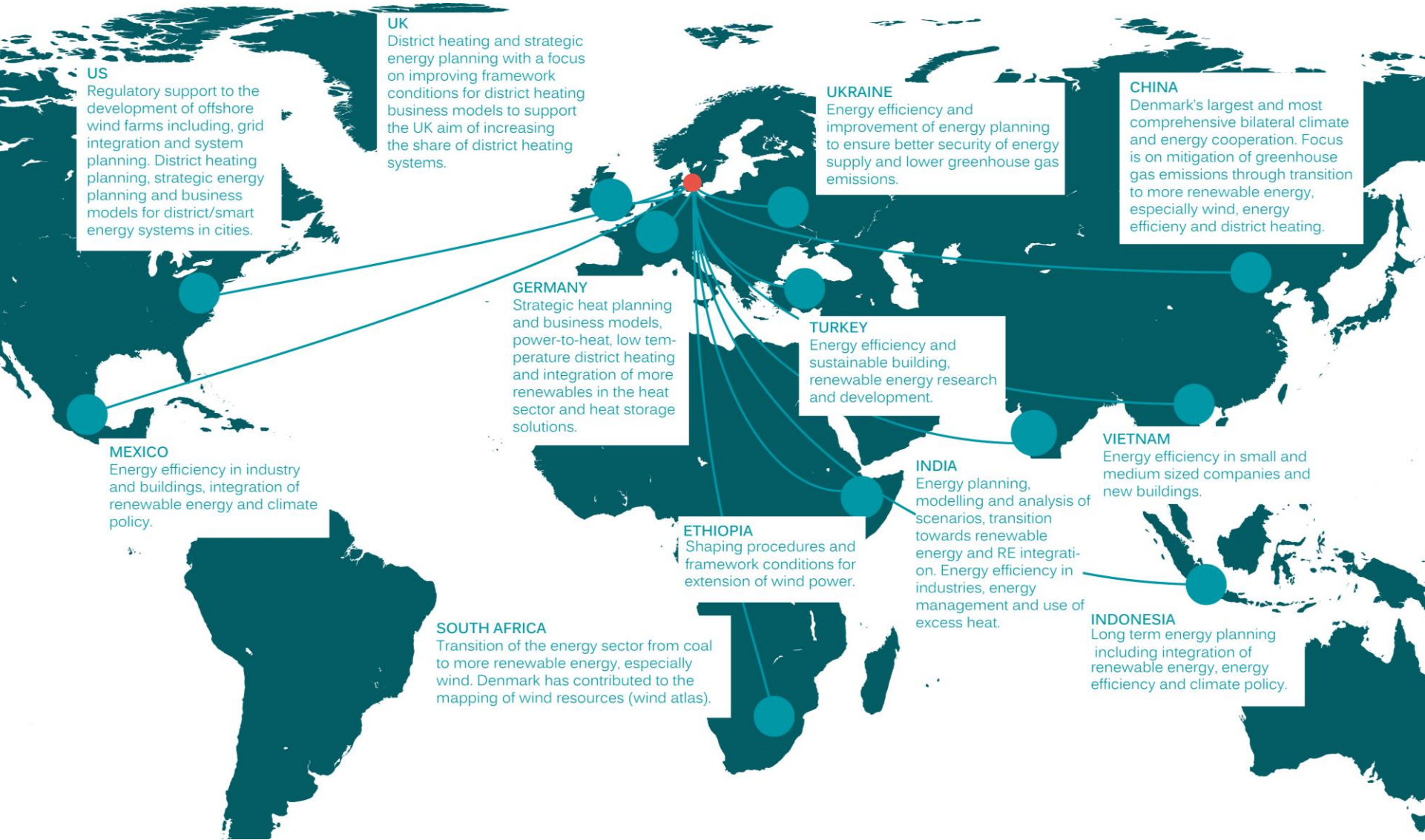
- Policy formulation, revision and implementation
- Market design
- Analysis of the energy sector
- Regulation and supervision
- Data collection & statistics

Examples

- The Danish Energy Agreement of March 2012 (guidelines across party lines towards 2050)
- Long term energy system scenarios on 100% RE in 2050 and 100% RE in heating and electricity in 2035
- Ongoing review and update of the Danish taxes, subsidies and incentive structure in the energy market

Danish Energy Agency

Partner Countries



EE in Denmark - overview

De-coupling energy consumption and economic growth

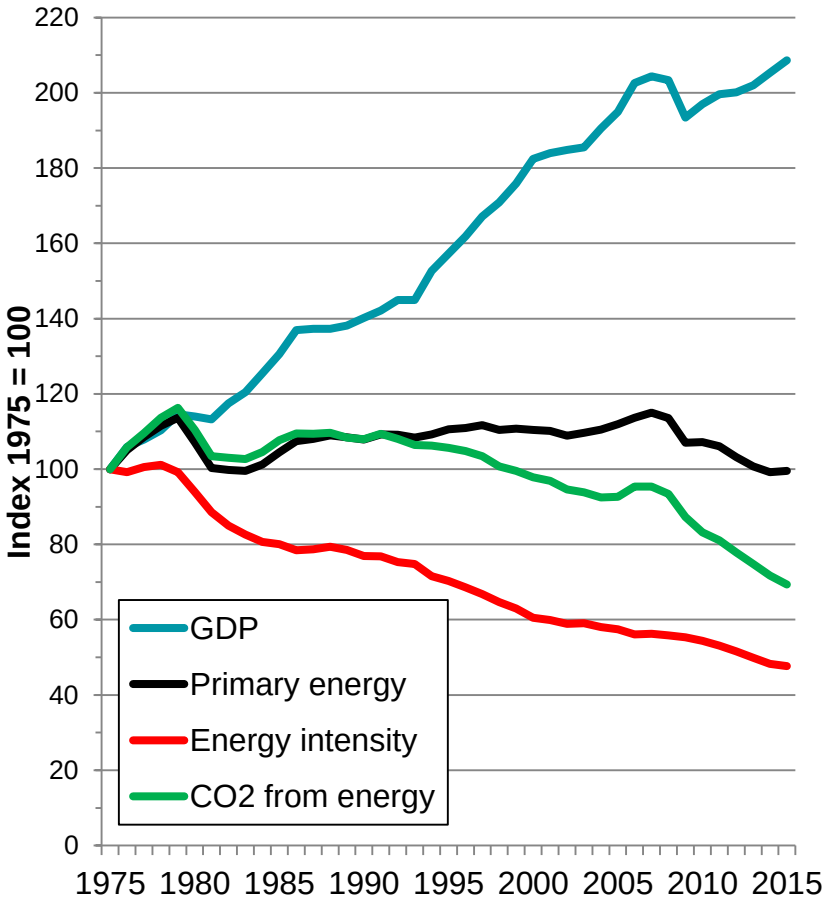
- Also under the economic crises since 2008

Strong EE improvements

- End-use EE
- More efficient energy supply

Less carbon intensity the last 20 years

- The share of renewables has increased



Energy efficiency has delivered

The de-coupling is closely linked to increased energy efficiency

End-use efficiency

- Better insulation of buildings
- More efficient appliances etc.
- Higher efficiency in industries

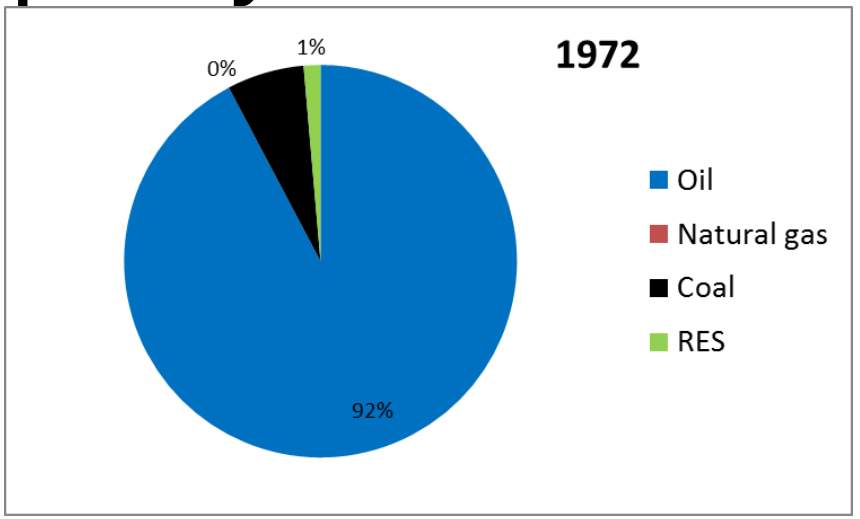
Efficiency of energy supply

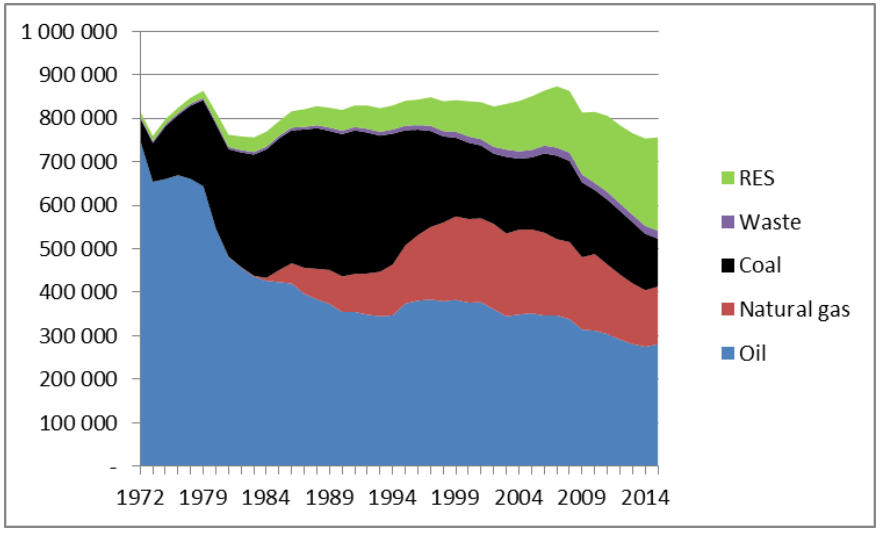
- Especially increased use of combined heat and power production – CHP
- More efficient power plans and individual boilers
- More renewable (wind)

Danish Energy Agency

Long-term stable policy framework

- Several energy plans
  - First in 1976
- All major policy decisions have been taken by broad coalitions
- Combination of policies and measure
  - Taxes on energy
  - Subsidies
  - Planning
  - Regulation
  - Information

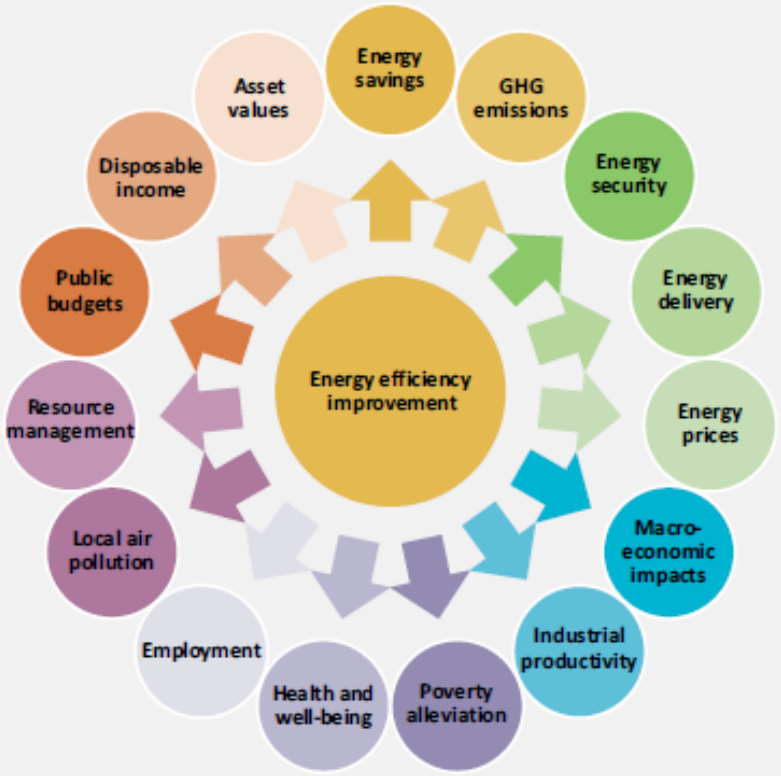




Danish Energy Agency

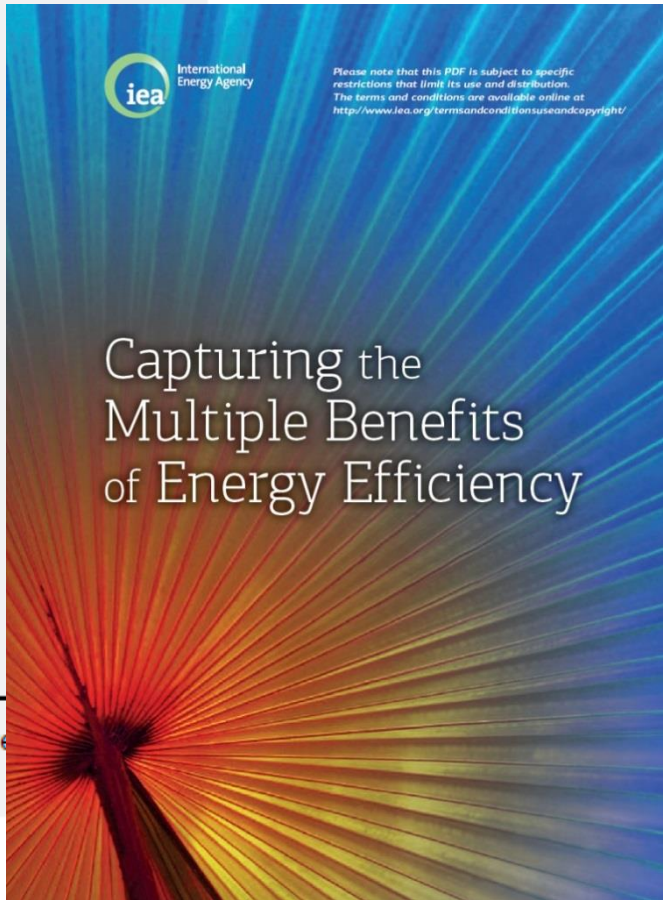
EE has many benefits

Figure ES.2 The multiple benefits of energy efficiency improvements



Note: This list is not exhaustive, but represents some of the most prominent benefits of energy efficiency identified to date.
Source: Unless otherwise noted, all material in figures and tables in this chapter derives from IEA data and analysis.

Key point A multiple benefits approach to energy efficiency reveals a broad range positive impacts.



Danish Energy Agency

Measures in Denmark

Danish Energy Agency

Main EE measures in Denmark

- Taxes on energy and CO2
  - Incentives to reduce consumption
- Regulation
  - Standards, norms, etc.
  - Especial buildings and products – and cars, etc.
- Information, campaigns, etc.
  - Both to end-users and to installers, etc
- Help to implement savings
  - Obligations for energy providers, subsidies, etc.
  - Especially existing buildings and private enterprises
- Combinations are important

Danish Energy Agency

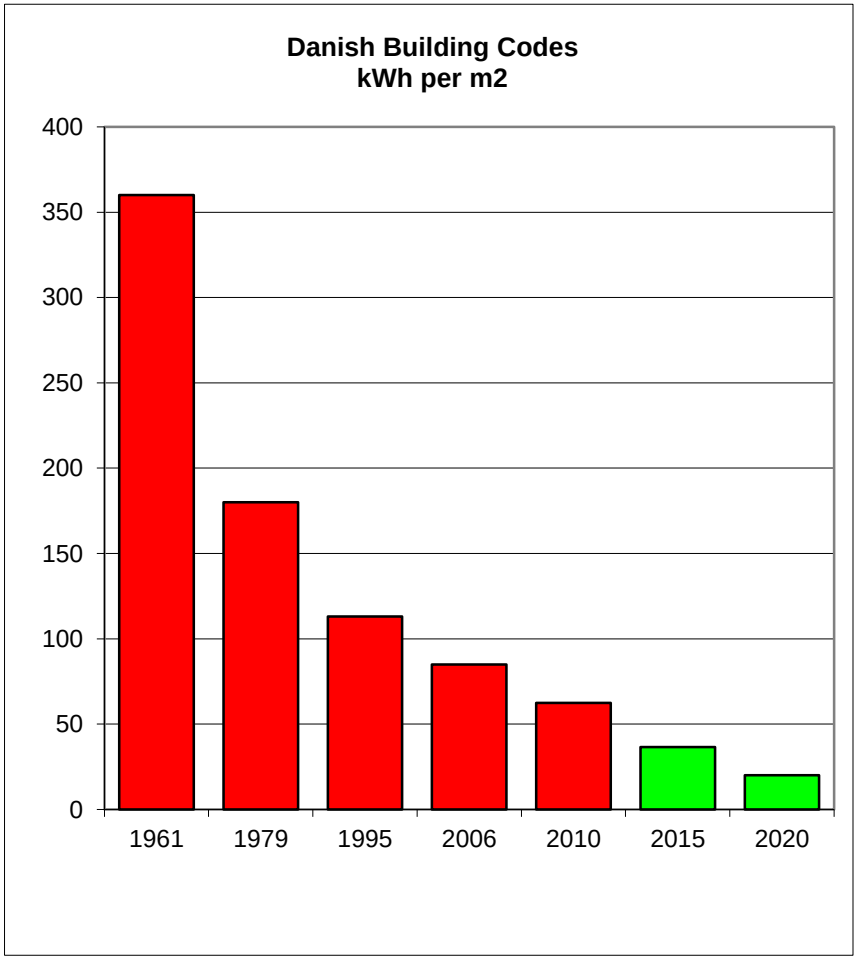
Products and appliances

- EU regulation and global cooperation
- Minimum energy performance standards (MEPS) remove all the bad products
- Labelling promote the good
- Deliver big savings
  - Very cost-effective

Danish Energy Agency

New buildings

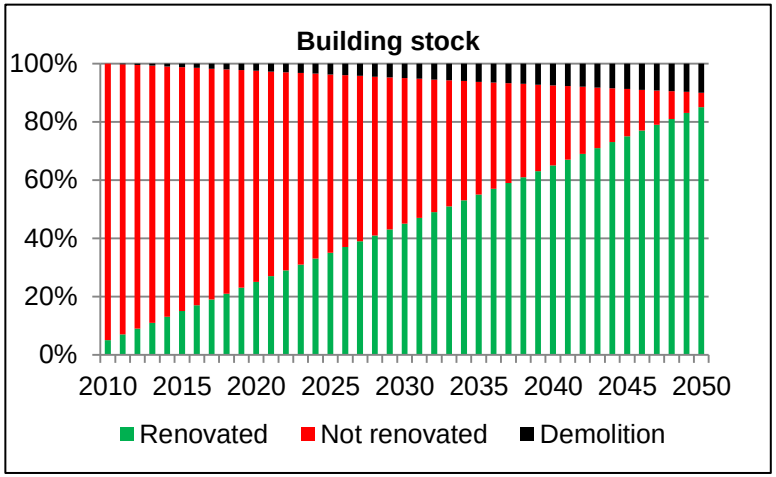
- Building codes have been strengthen several times
  - Important to announce new codes early
- From 2020 shall al new buildings be nearly zero energy
  - Very low consumption
  - Use of renewable energy
- Enforcement important



Danish Energy Agency

Existing buildings

- Energy renovation has to be part of all renovations
- Components and holistic
- Combination of measures
  - Strong requirements in building code
  - Enforcement
  - Make it easy
  - Financing and economic incentives



Danish Energy Agency

Energy efficiency obligations

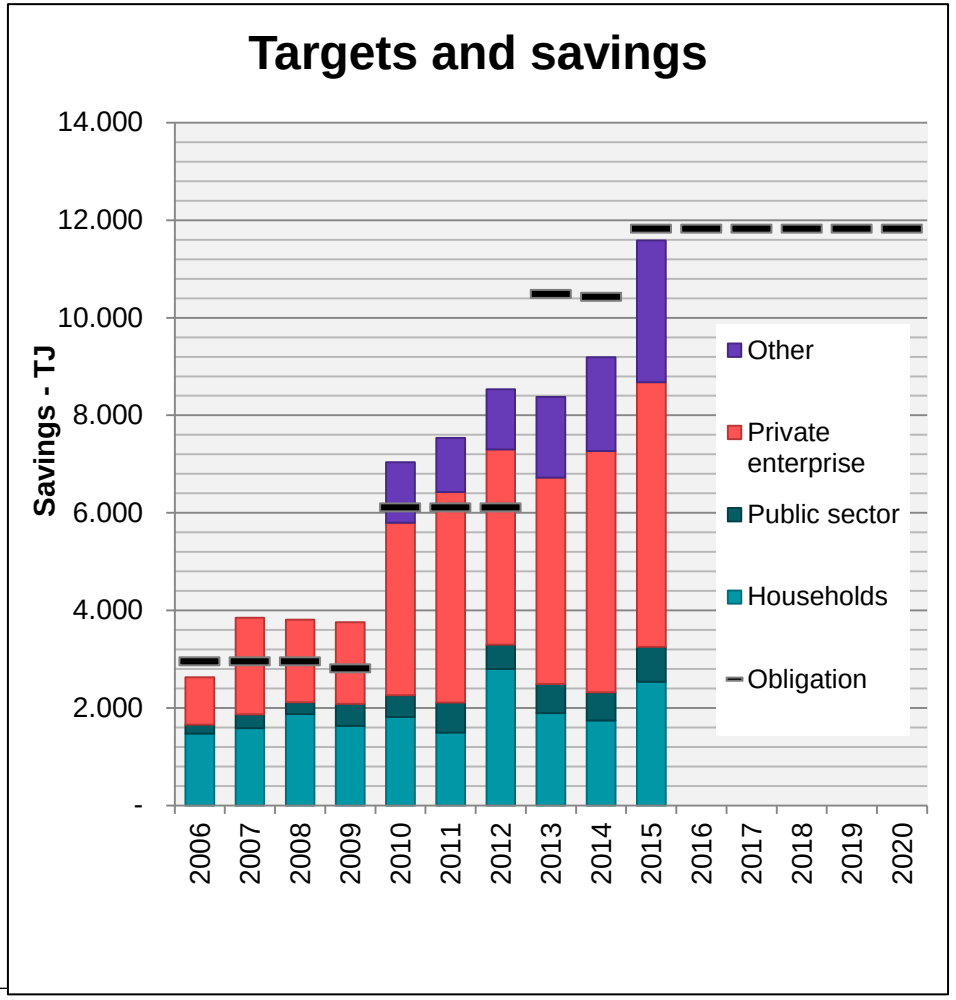
Annual saving target

- Distribution companies (electricity, gas, DH, oil)
- Only realized savings
- Large freedom to deliver
- Have to be involved before start of realization

Financed by the tariffs

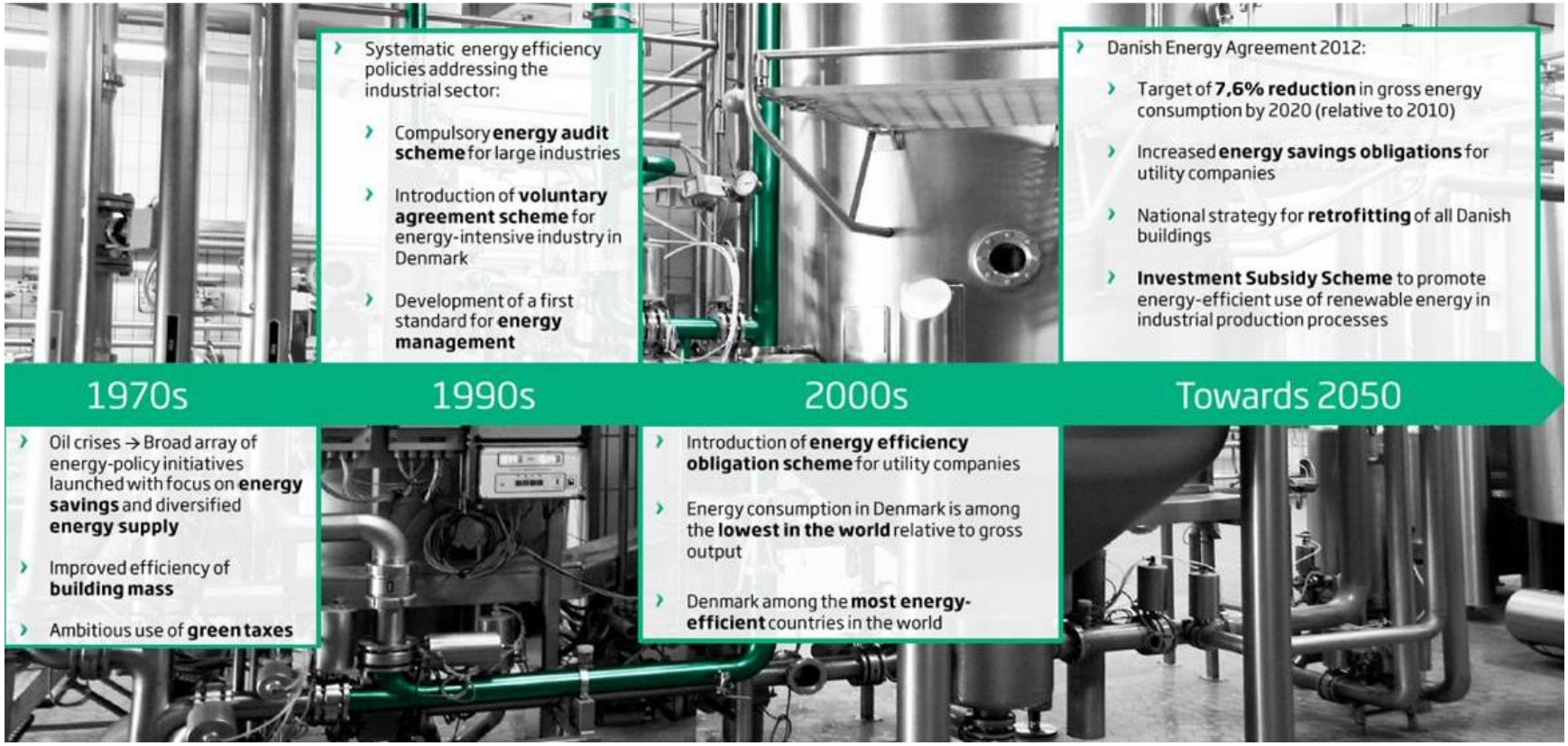
– Not from the state budget

Cost-effective measure



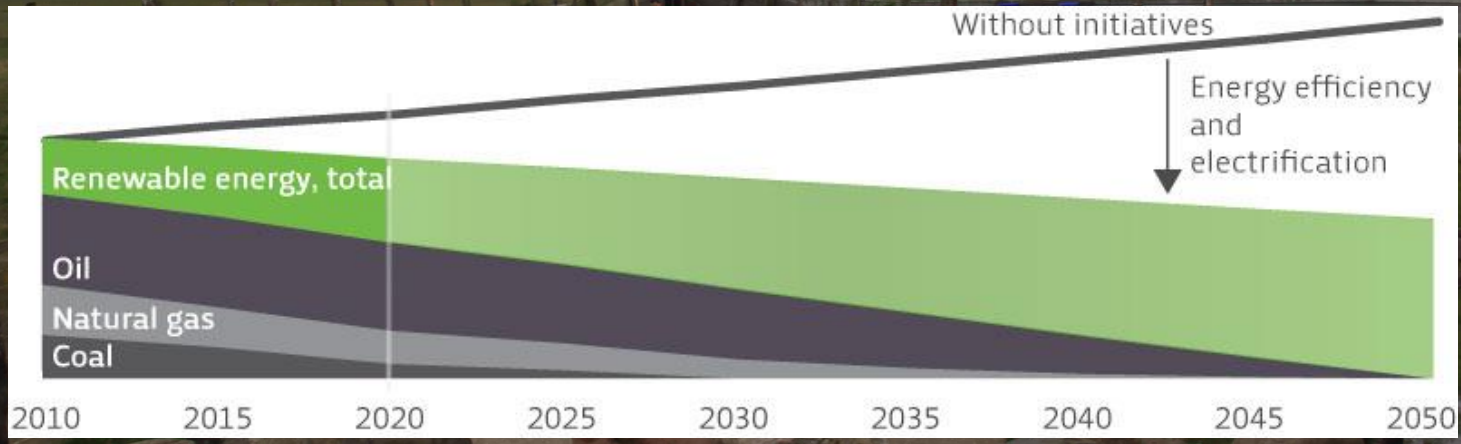
Danish Energy Agency

Energy Efficiency Policy steps towards Denmark's green transition



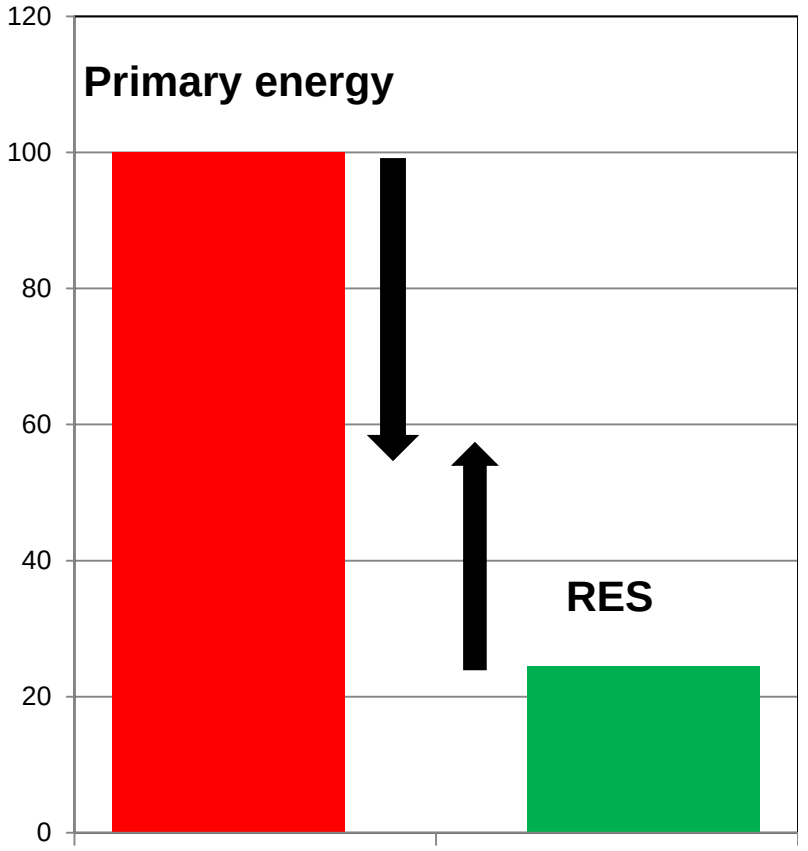
Danish Energy Agency

Development until 2020 – and 2050



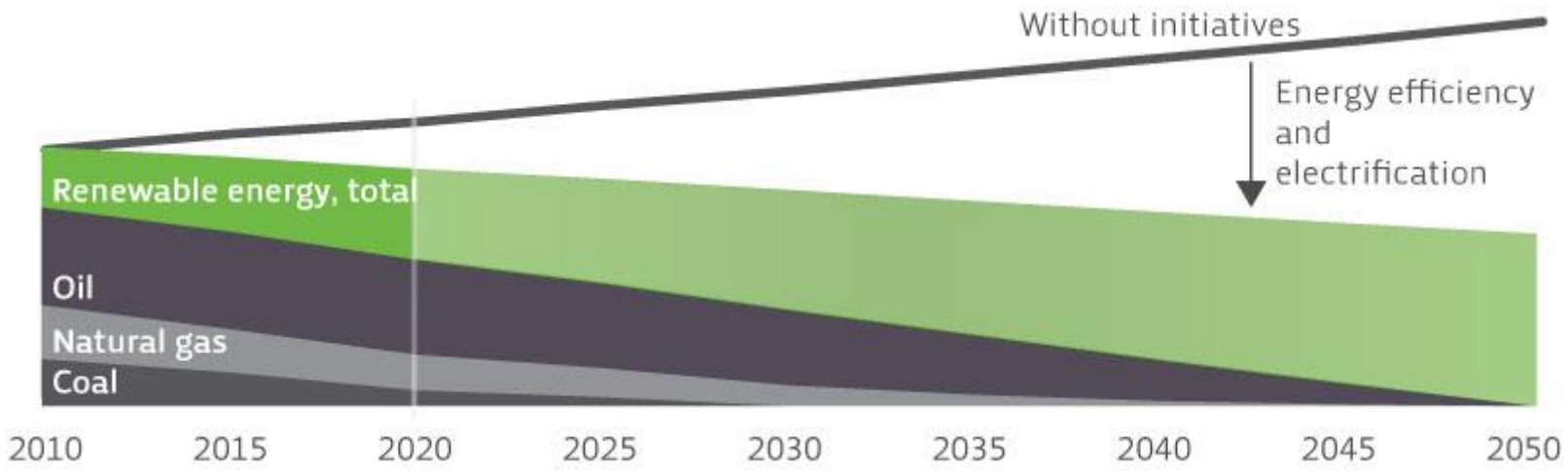
Energy Efficiency – the main solution

- 80-95 pct. reduction of EU's GHG in 2050
  - No emissions from fossil fuels
- Energy security
  - Scarce resources
  - Also biomass
- Competitiveness
  - Increased energy prices
  - More robust
  - Higher energy productivity




ACCELERATING GREEN ENERGY
TOWARDS 2020
2020
The Danish Energy Agreement of March 2012

Independent of fossil fuels in 2050



- Strong improvement of energy efficiency in all sector
  - Includes electrification

Increased use of renewable energy

Results in 2020

These are the headline results for 2020:

2020

More than 35% renewable energy in final energy consumption

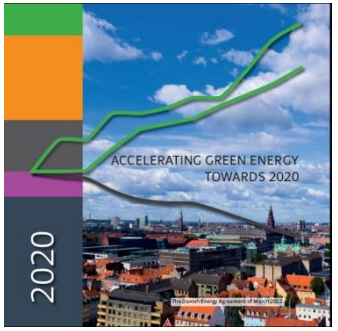
Approximately 50% of electricity consumption to be supplied by wind power

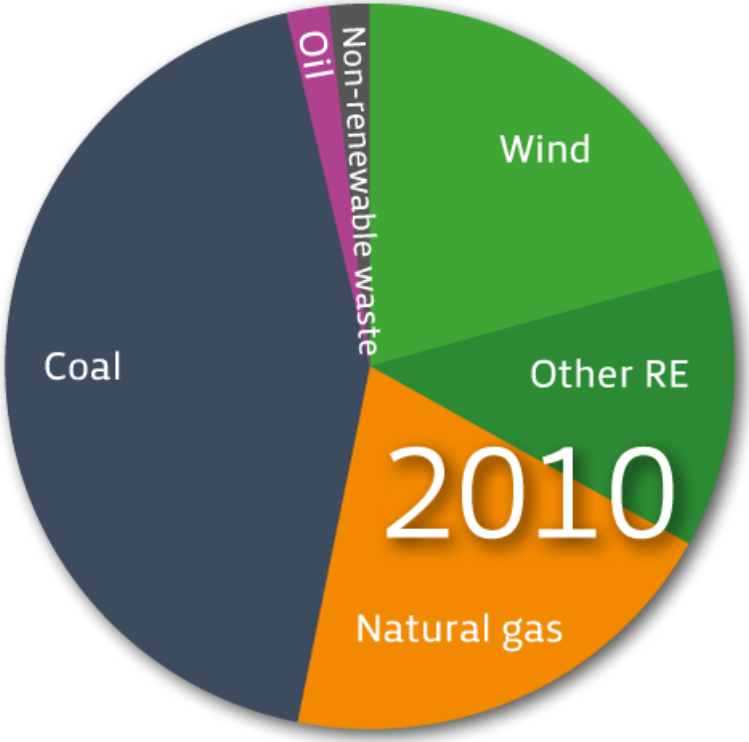
2020

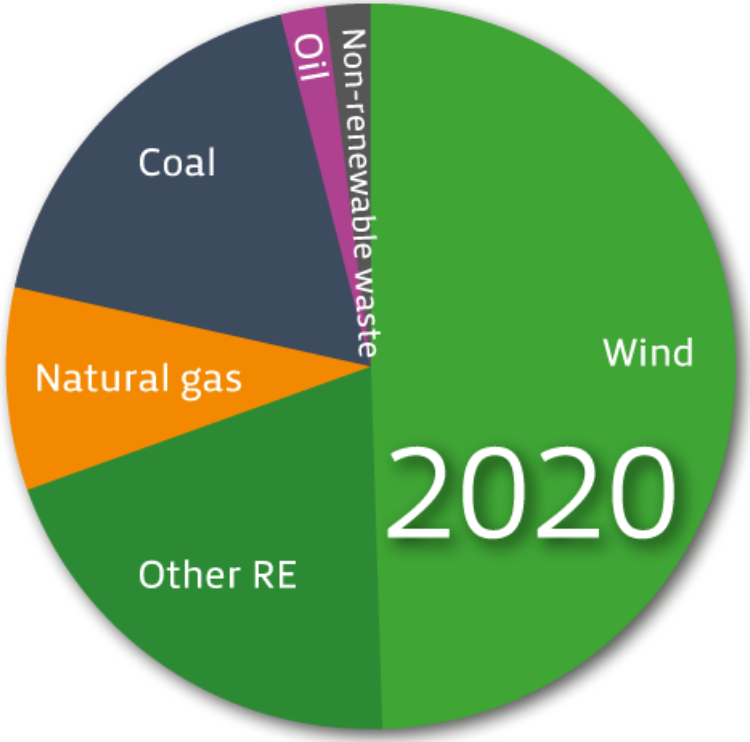
7.6% reduction in gross energy consumption in relation to 2010

34% reduction in greenhouse gas emissions in relation to 1990

Electricity consumption



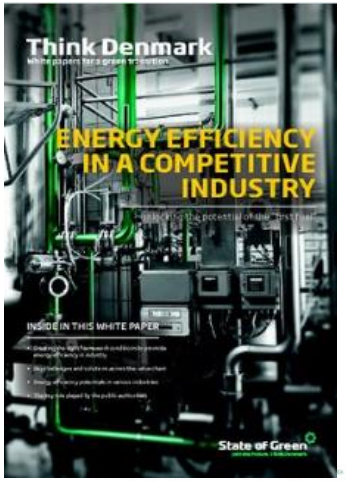




Conclusion

Key points

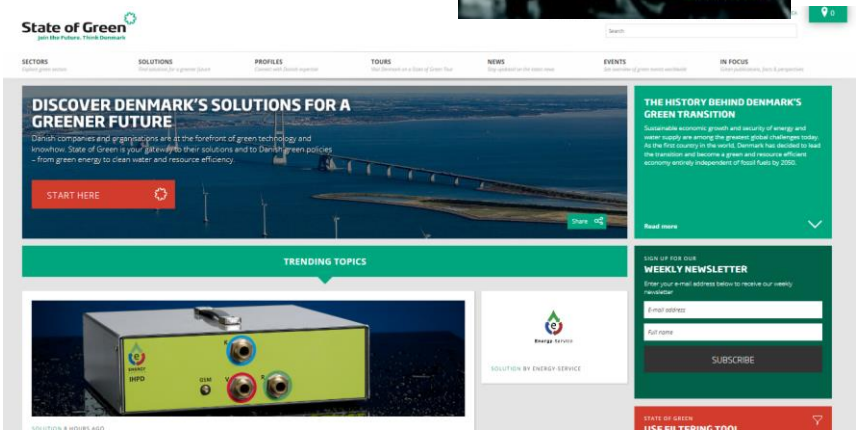
- De-carbonization of the energy sector necessary
- Energy efficiency is an important element
- Policies are needed
  - The marked will not deliver by itself



More information:

- Danish Energy Agency: https://ens.dk/en/our-responsibilities/global-cooperation

- Explore green solutions: www.stateofgreen.com



Thank you for your attention

- Helle Momsen Fredslund,
  with input from Peter Bach, Danish Energy Agency