The role of technologies in the Danish energy transition

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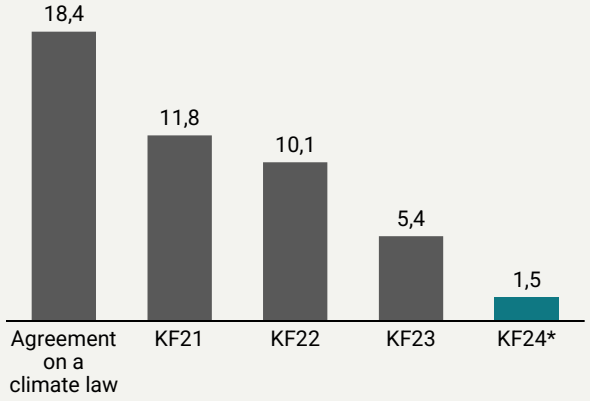
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Klima-, Energi- og Forsyningsministeriet

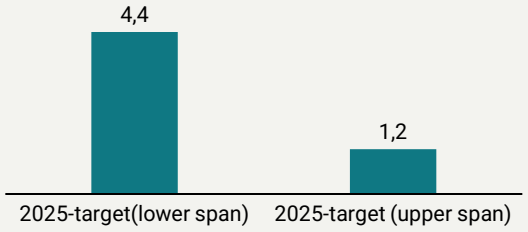
The Climate Act's targets

- The 2030 gap has been reduced by 1.5 million tons of CO_2e with political agreements, technological developments, model improvements etc. since 2019.
- Reaching of the target of the agriculture sector can eliminate the remaining gap.
- In order to achieve the 2030 target, it is important that the many climate agreements are implemented as agreed upon and potential risks are handled.
- Green technologies to help meet climate targets.

Estimates for the emission reduction gap to achieving the target of 70 pct. reduction in 2030.



Meeting the target of 50-54 pct. reduction in 2025

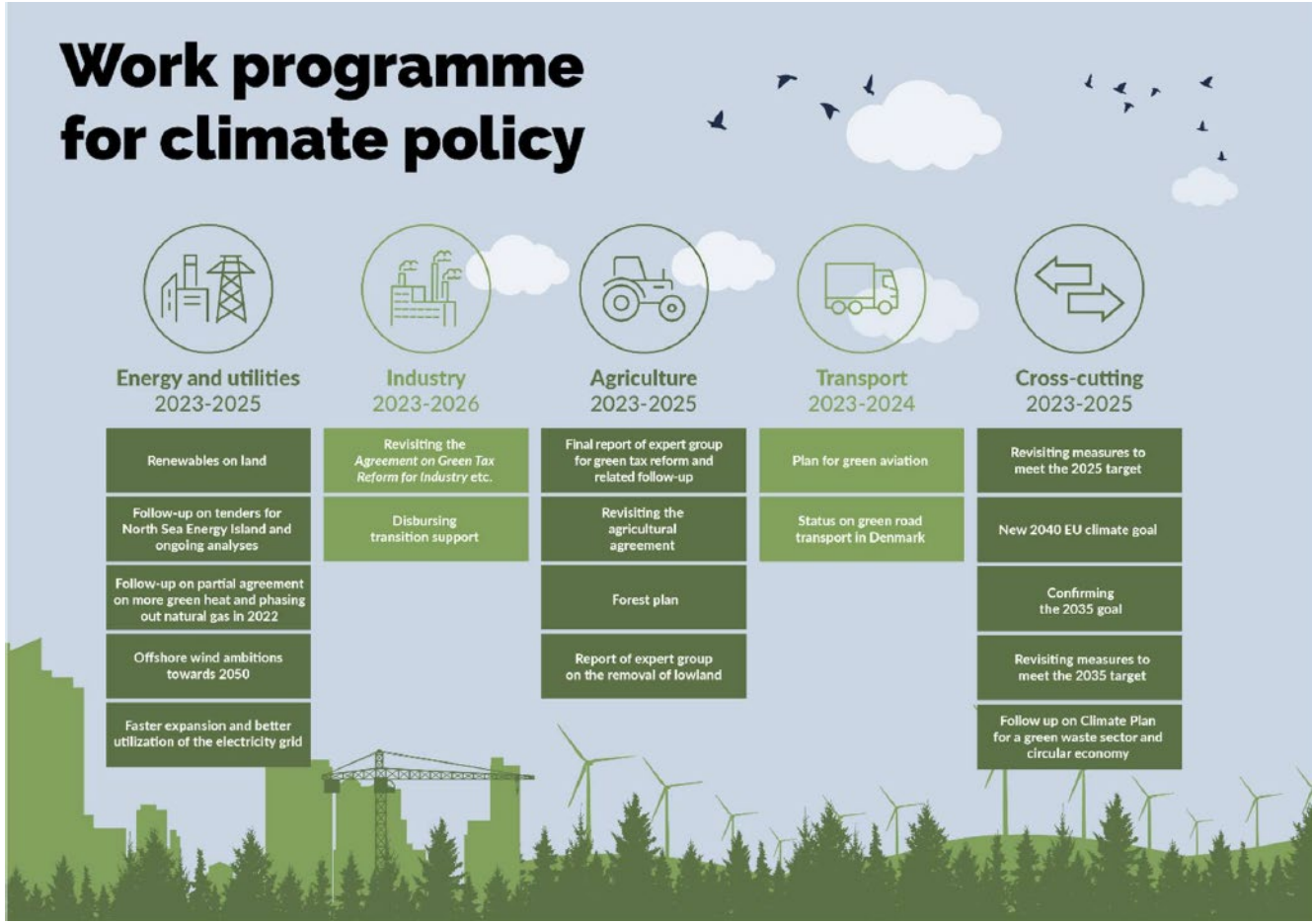


*The figure includes the partially estimated effects of diesel and road tax from the *Agreement on partial implementation of the Green Fund* and the partially estimated effect of the transition subsidy from *the Agreement on implementation of the transition subsidy from the Green Tax Reform for Industry etc.*

Source: Climate Status and Outlook 2024 (KF24)

THE GOVERNMENT'S WORK PROGRAMME

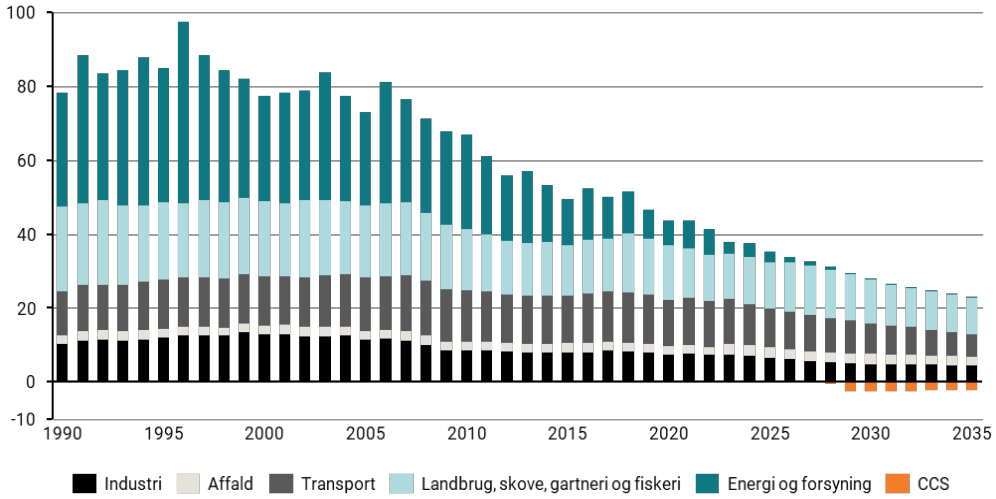
- With the *Climate Program 2023*, the government has presented a comprehensive green work program that contains the building blocks for achieving the climate targets.
- The government's work program has been designed to ensure that the majority of the relevant decisions leading to a reduction of 70 pct. in 2030 (compared with 1990) will be decided by 2025 at the latest.
- In addition to meeting national climate targets, transforming the energy sector is also important – the focus is on expanding renewable energy and developing technologies such as CCS.



Development across sectors

- Total emissions are expected to decrease significantly by 2035.
- Previously, the energy sector accounted for the largest share of emissions. By 2030, it is estimated that agriculture, forestry, horticulture and fisheries, incl. their energy consumption, will account for around 46 pct. of emissions, followed by around 33 pct. from the transport sector.
- Industry's share of emissions is estimated to be stable, while the waste sector's share is estimated to increase from around 5 per cent to around 10 per cent of total emissions.
- Emissions from the transport sector have remained relatively unchanged for a number of years, but are expected to decrease significantly towards 2035.
- From 2025, CCS is expected to contribute negative emissions through CO_2 capture.

Development of CO_2e emissions and removals across sectors (1990-2035)



Technological solutions to climate mitigation

Green research strategy, missions, EUDP etc.

- In 2020, the government launched a national green research strategy, that support a coherent effort from research to commercialization to support the achievement of the climate targets.
- The Energy Technology Development and Demonstration Programme (EUDP) funds work on demonstration of new green energy technologies. Since 2007, EUDP has supported more than 1200 projects with app. 6.2 billion DKK.
- The government has launched an initiative on green research and innovation aims to strengthen efforts for green research and innovation.

Agricultural technology

- Feed additives e.g. Bovaer
- Tent covering with floating layers (manure storing)
- Biochar by pyrolysis (permanent storage in agricultural soils)

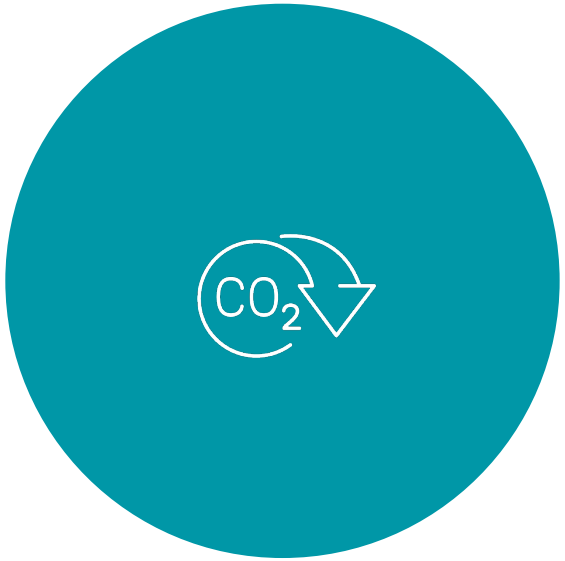
Reneable energy

- After 2030 we will have reached 100 pct. “green” electricity in Denmark. Politically a framework has been created for massive expansion of onshore and offshore wind power.
- The plans place demands on storage technologies and must be considered alongside future security of supply.

CCS

- Since 2020, a broad political majority support CCS as vital to achieving Danish climate targets.
- CCS should be used in hard-to-abate sectors and to gain negative emmissions.
- DK has set aside approx. 37 billion DDK (5 billion EUR) to support storage of 2.9 mio. tons p.a. in 2030
- DK aims to be a European hub for CO_2 storage, storing both onshore and offshore.

Priorities for renewable energy



To achieve our ambitious climate goals we need to change our energy systems (among other things). Increased electrification is central to this in many sectors.



After 2030 we will have reached 100 pct. “green” electricity in Denmark. That will enable us to supply Europe with green and secure energy.



To ensure security of supply we need to be independent of foreign powers' fossil fuels in a way that also considers affordable prices on electricity and heating and stable supply.

Questions

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