2040 target: in search of efficient milestones on the road to 2050

2040 Climate Target: A discussion with the industry

Brussels, 19.03.2024

EC scenarios up to 2040

S1

- **Up to 80% (-78,5%)**
- S1 reflects **the linear trajectory** of net emissions reductions between the current 2030 climate target (55%) and the 2050 climate neutrality target.

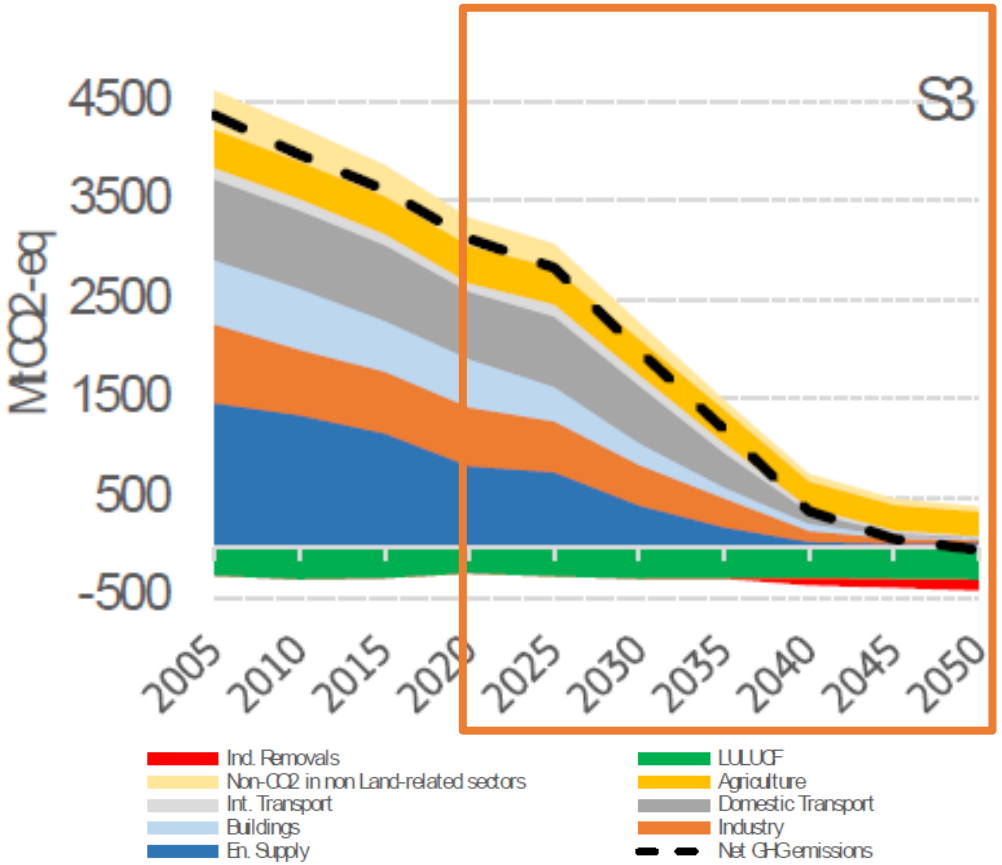
S2

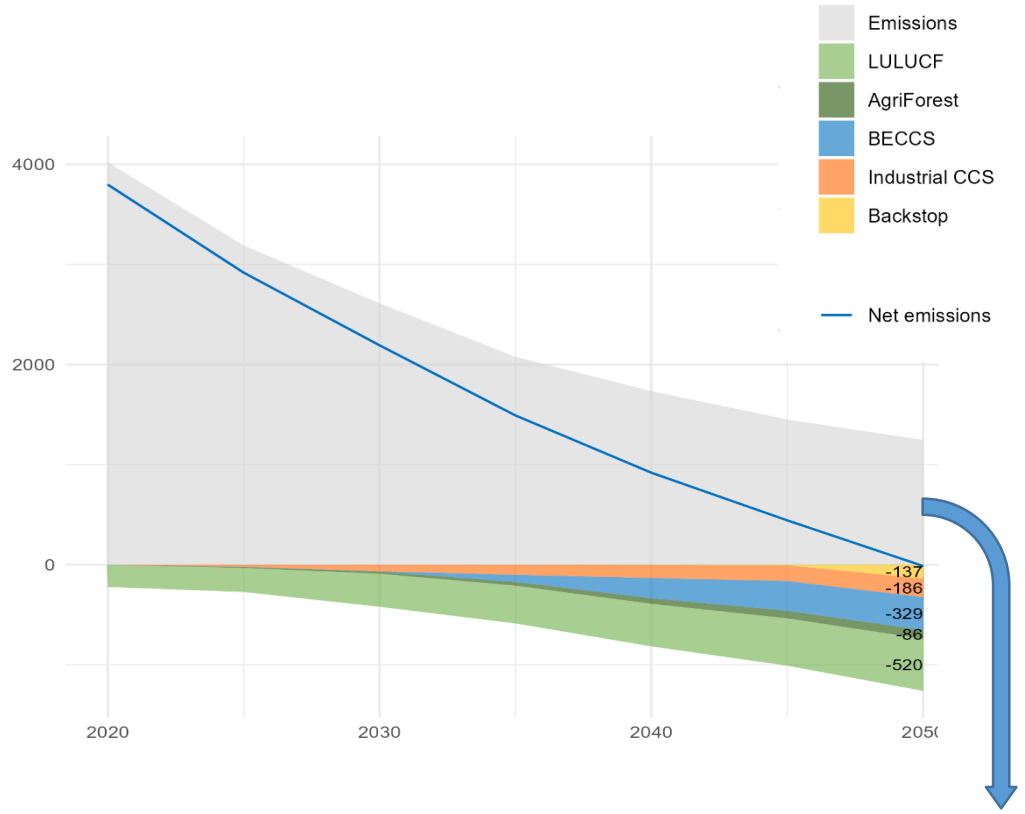
- **85-90% (-88%)**
- S2 reflects the level of emission reductions that would be achieved in the event **of an extension of the current climate policy framework** (Fit for 55 package).

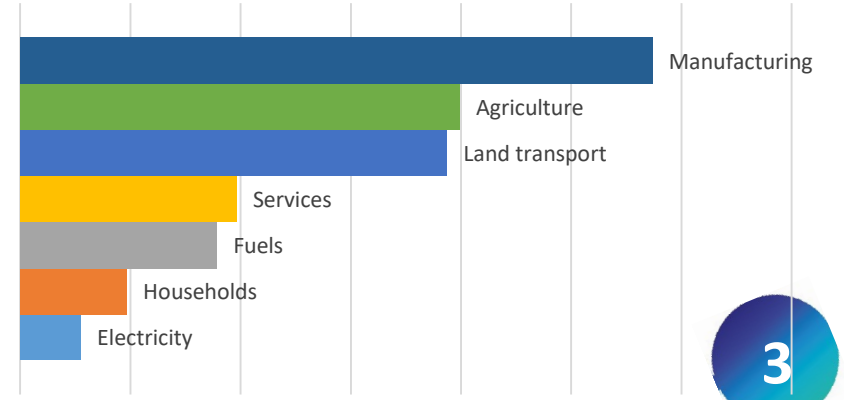
S3

- **90-95% (-92%)**
- S3 consists of **a fully developed industrial CO2 management system** by 2040, CCUS covering all industrial process emissions and significant CO_2 sequestration, higher production and consumption of e-fuels.

EC's Impact assessment vs. CAKE analysis

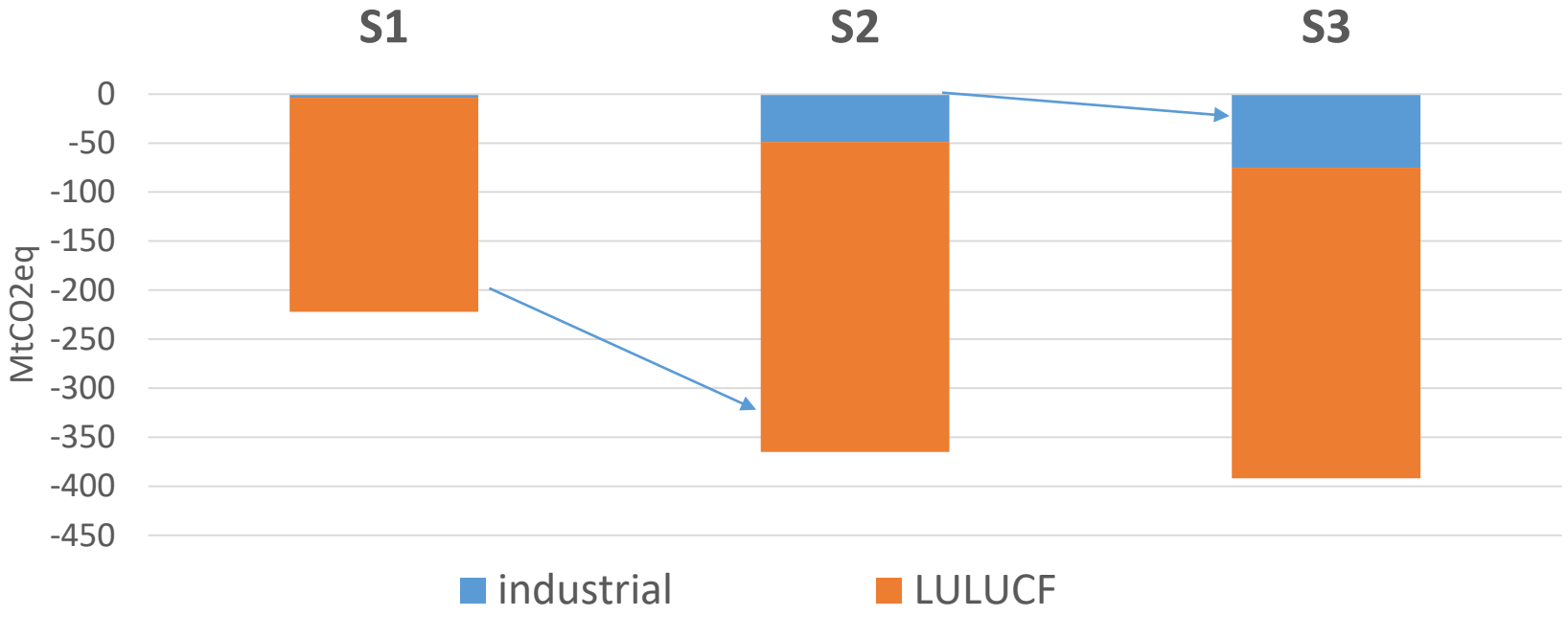






- The highest reductions are: energy, transport and industry.
- The role of removals is undoubted
- Not only agriculture with unavoidable emissions

Carbon removals 2040 – key to net zero



- Achieving the EU reduction targets unfeasible without CO_2 removals
- The technological leap between the scenarios is large
  - even more than 50%

EC's impact assessment on prices of CO_2 and electricity

- Marginal reduction cost for particular ETS coverages:
  - Scenario S1 – as ETS is now,
  - Scenario S2 – non-CO_2 industry and waste emissions included in ETS,
  - Scenario S3 – ETS for all sectors (one emission price).

- Electricity prices - no differentiation between scenarios - verification is hampered by the lack of a breakdown of these prices by country or average price by economy.

Table 4. Carbon values applied on emissions in the different sectors (excl. LULUCF)

EUR/tCO2-eq	2040				2050
	S1	S2	S3	LIFE	
Energy and industry CO2 (PRIMES model) and non-CO2 covered by the ETS (GAINS model)	160	240	290	250	470
Non-CO2 from sectors other than agriculture (GAINS model)	0	240	290	250	470
Non-CO2 from agriculture (GAINS model)	0	55	290	250	470

Note: Expressed in EUR'2023.

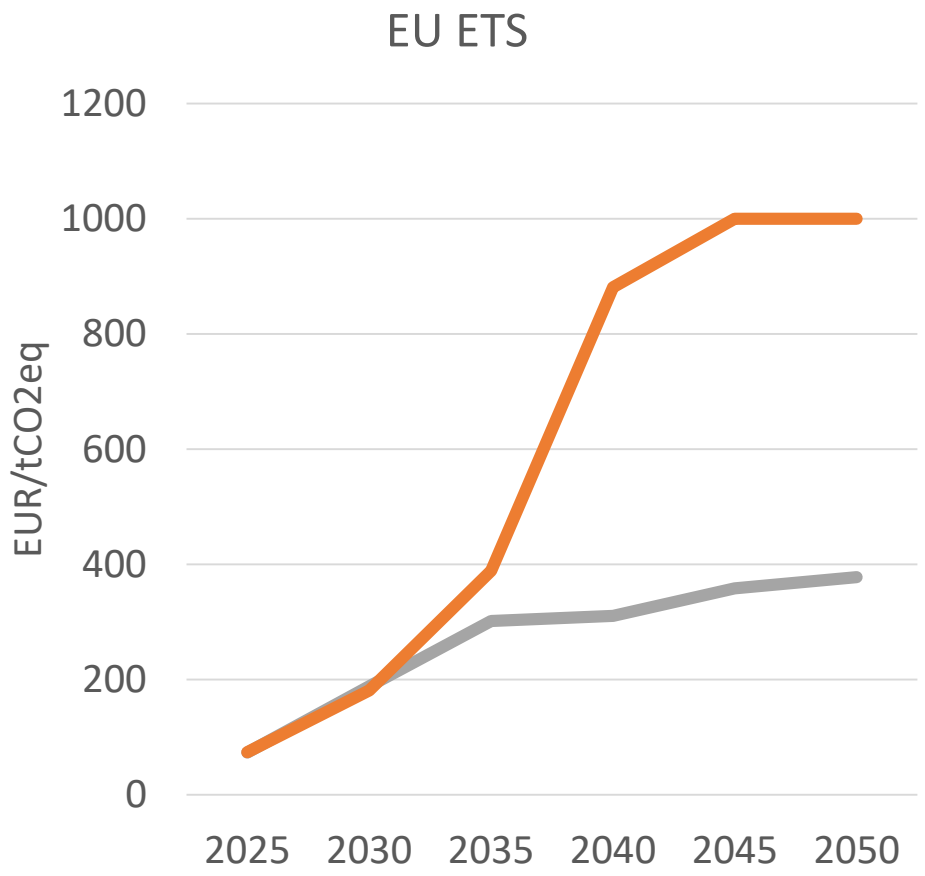
Table 36: Average final price of electricity for industry

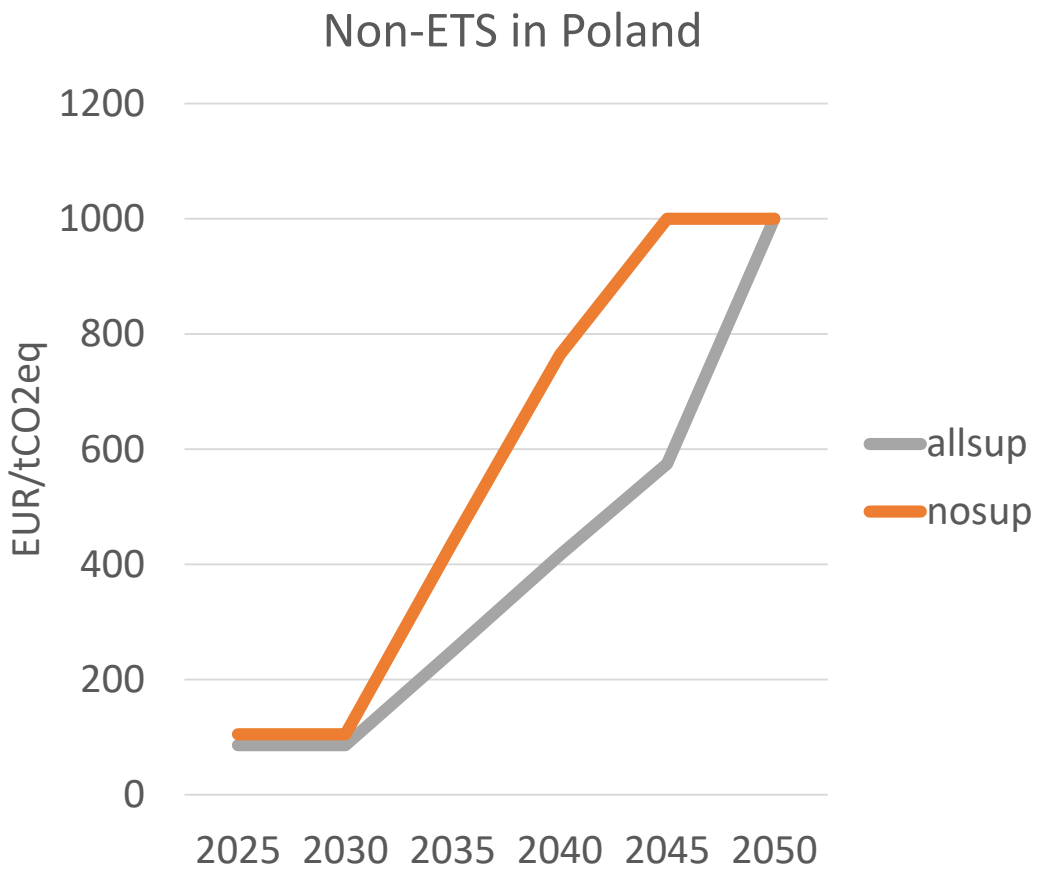
EUR23/MWh	2030	2040	2050
	S1, S2, S3, LIFE	S1, S2, S3, LIFE	(S2)
Industry	133	130-131	131

Note: The electricity prices shown here reflects the evolution of the average electricity production costs to supply industry (i.e., considering their load profile) as well as the taxes applied to the sector.

Source: PRIMES.

Emission shadow prices in scenarios with (sup) and without (no-sup) support/pricing of removals





Source: CAKE results

Enormous investment needs

- Investments in **industry** are to be **6x higher** than in the last decade
- Annual investment needs for the **energy system** (excluding transport) - at least 3% of GDP between 2031 and 2050.
- Revenues from EU ETS auctions over the period 2031-2050 are estimated at EUR 1.5 trillion, representing **only 11% of the total investment needs of the energy sector alone**.
- **Risk of delay** in the development of new technologies and access to alternative fuels.
- **Maintaining strategic autonomy** is extra cost.
- Though discussion on **EU or national budgets** (military expenditure)
- Solution for financing sources: **Private**

Some reflection / conclusions

- **Target**
  - CAKE analysis results -**75%** (w/o LULUCF)/**83% (**w LULUCF) reduction in 2040 as a cost-efficient net-zero path.
- **Removals**
  - Key role for the net-zero.
  - Need for introduction of pricing schemes for removals on a large scale = drop in carbon prices in all EU sectors (sectors with very high mitigation costs might purchase the additional EUAs instead of highly costly decarbonisation options).
  - Lower EU ETS prices reduce the distortionary impact of climate policy on the economy (lead to an increase in GDP and consumption).
- **International policy context**
  - Too ambitious 2040 targets = no flexibility for international negotiations.

Thank you!

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LIFE VIIEW 2050

Centre for Climate and Energy Analyses

National Centre for Emissions Management
Institute of Environmental Protection
National Research Institute

Project entitled „The impact assessment of the EU Emission Trading System with the long-term vision for a climate neutral economy by 2050 (LIFE VIIEW 2050 – LIFE19 GIC/PL/001205)" is co-funded by the Life Programme of the European Union and the National Fund for Environmental Protection and Water Management.

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