



# Decarbonisation of the Czech economy

Czech-Norwegian Cooperation on CCS

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# Green Deal Going Local

Achieving climate  
neutrality

Sustainable transport

Clean, reliable and  
affordable energy

Preserving Europe's  
natural capital

Financing  
the transition

Transition to a  
circular economy

Leave no one behind  
(Just Transition)

A zero-pollution  
Europe

Towards a modernised  
and simplified CAP

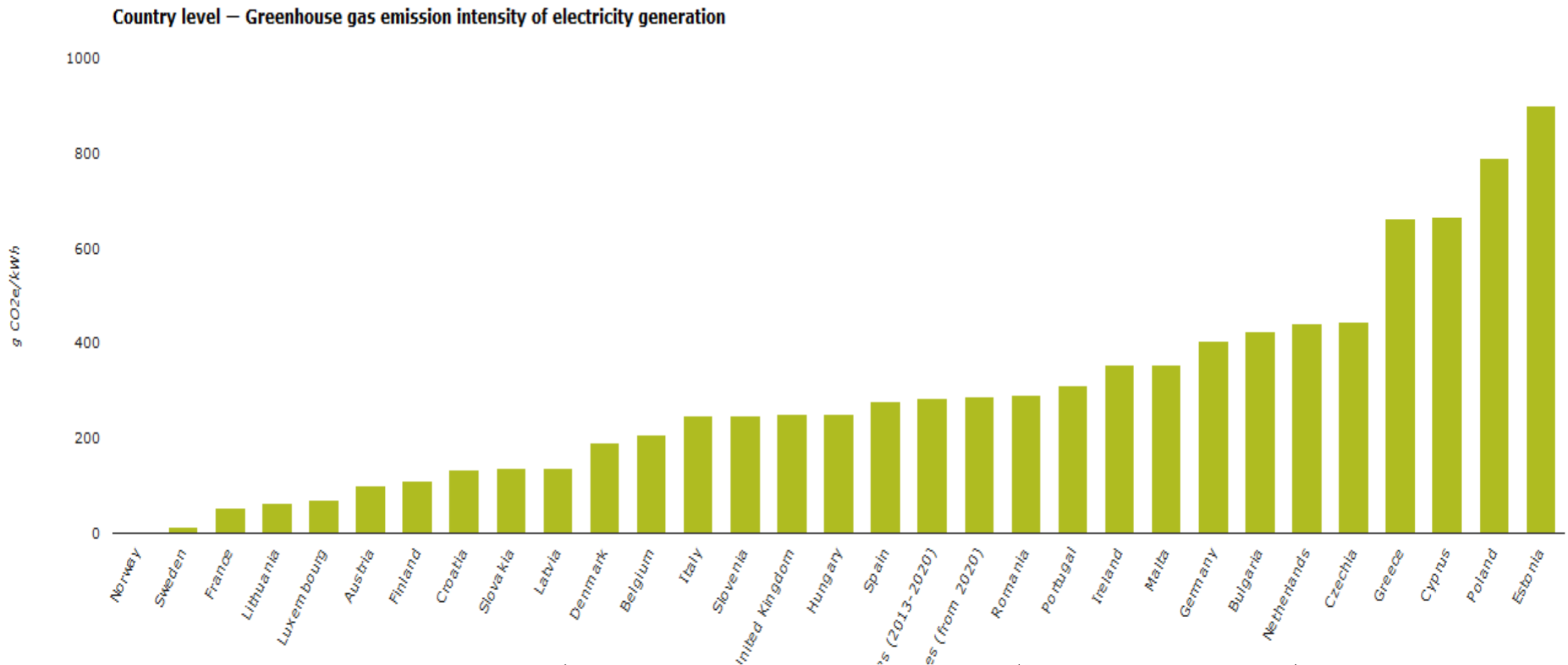
The transformation  
of agriculture  
and rural areas

From farm to fork



# EU/CZ GHG emissions in global context

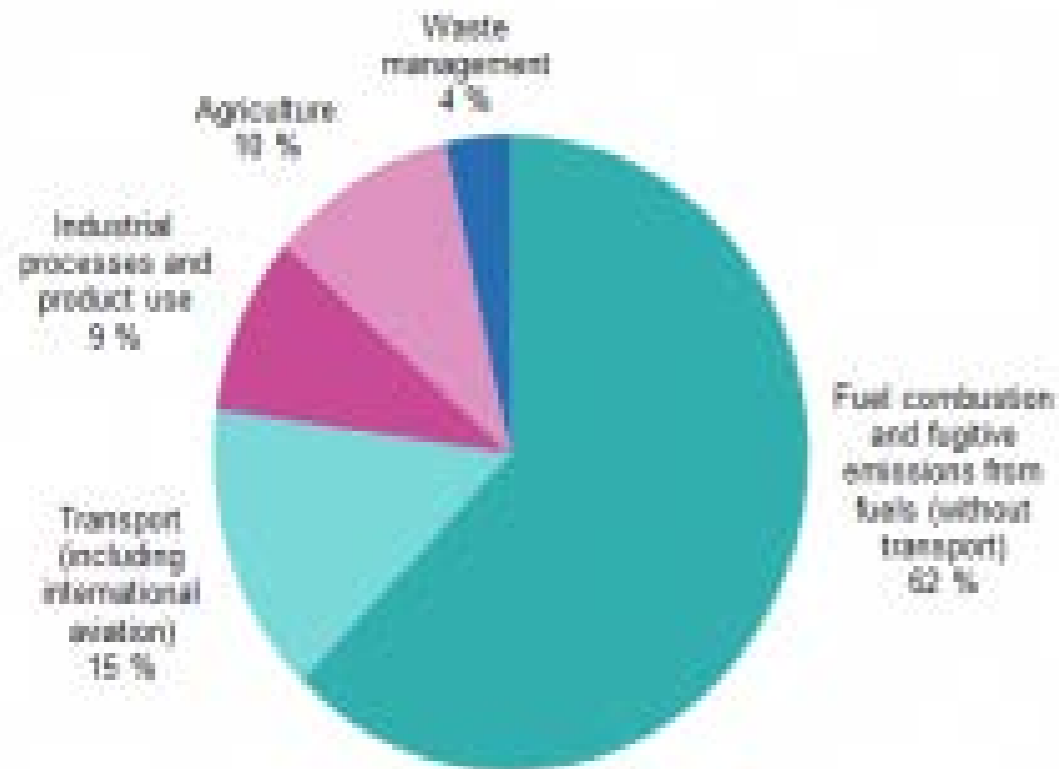
- EU GHG emissions decreased about 21% between 1990 and 2018, in case of the Czech Republic it was 35,2 %.
- The share of the Czech Republic's emissions in EU emissions has decreased from 4,1 % to 3,3 %.
- The EU's share of global GHG emissions is 9%.



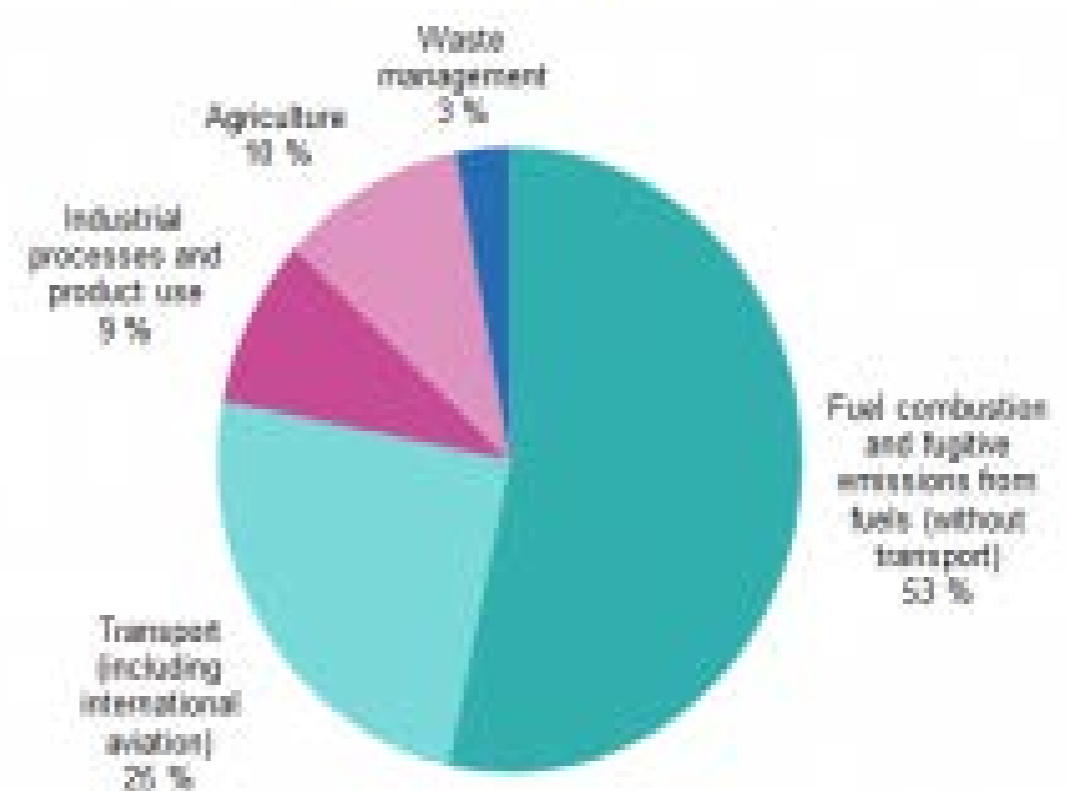
# Sectoral breakdown of EU GHG emissions

## Greenhouse gas emissions, analysis by source sector, EU-27, 1990 and 2018

Greenhouse gas emissions, analysis by source sector, EU-27, 1990



Greenhouse gas emissions, analysis by source sector, EU-27, 2018



Source: European Environment Agency (online data code: [{env\\_air\\_gge}](#))

eurostat 

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2020

-20%  
Greenhouse Gas Emissions

20%  
Renewable Energy

20%  
Energy Efficiency

10%  
Interconnection

20%  
Climate in funding programmes  
2014-2020

2030

(55%)  
≤ -40%  
Greenhouse Gas Emissions

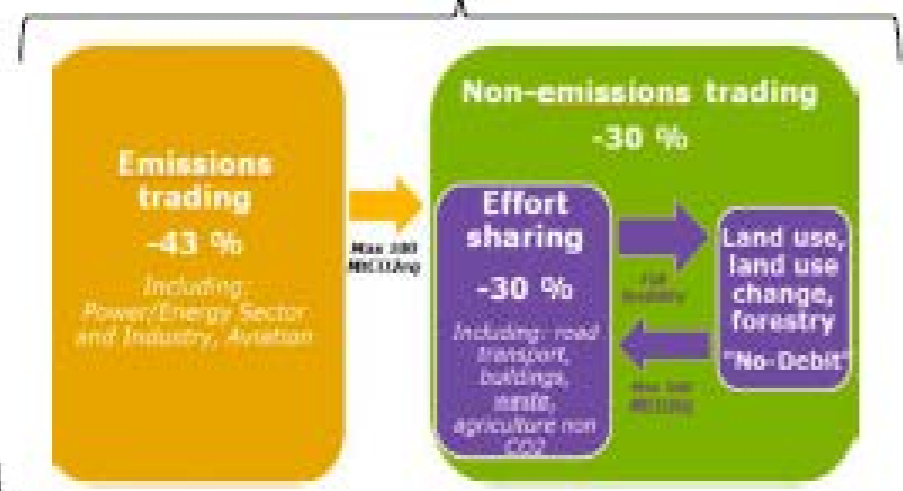
(38 - 39%)  
≥ 32%  
Renewable Energy  
*Upwards revision clause by 2023*

(37-38%)  
≥ 32.5%  
Energy Efficiency  
*Upwards revision clause by 2023*

15%  
Interconnection

(30%)  
25%  
Climate in funding programmes  
2021-2027

(-50%)  
-37.5%  
CO<sub>2</sub> from cars  
Vans: -31%  
Lorries: -30%



- EE Directive
- Buildings
- Ecodesign

# Energy Union and Climate Action Governance (incl. NECPs)

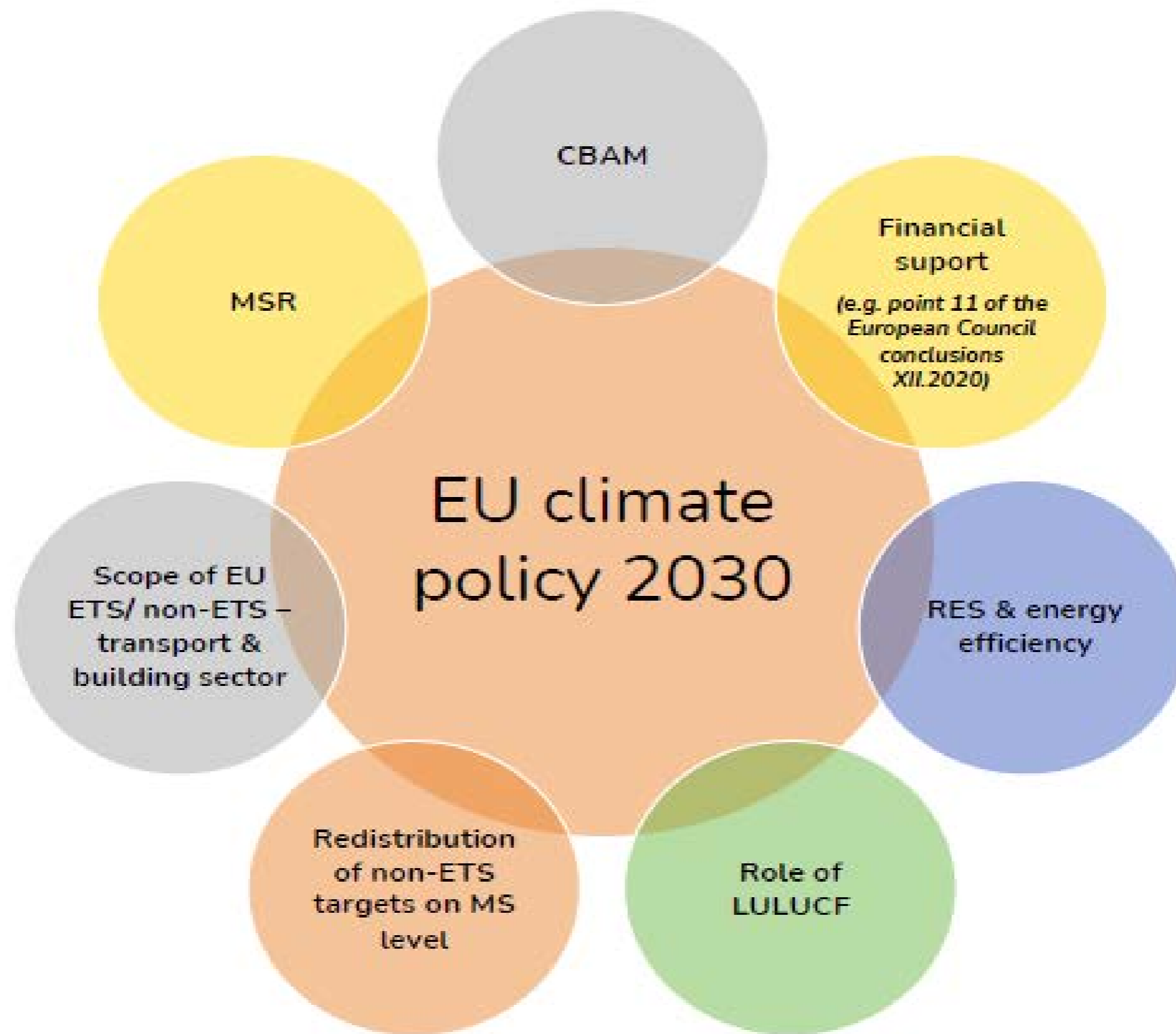
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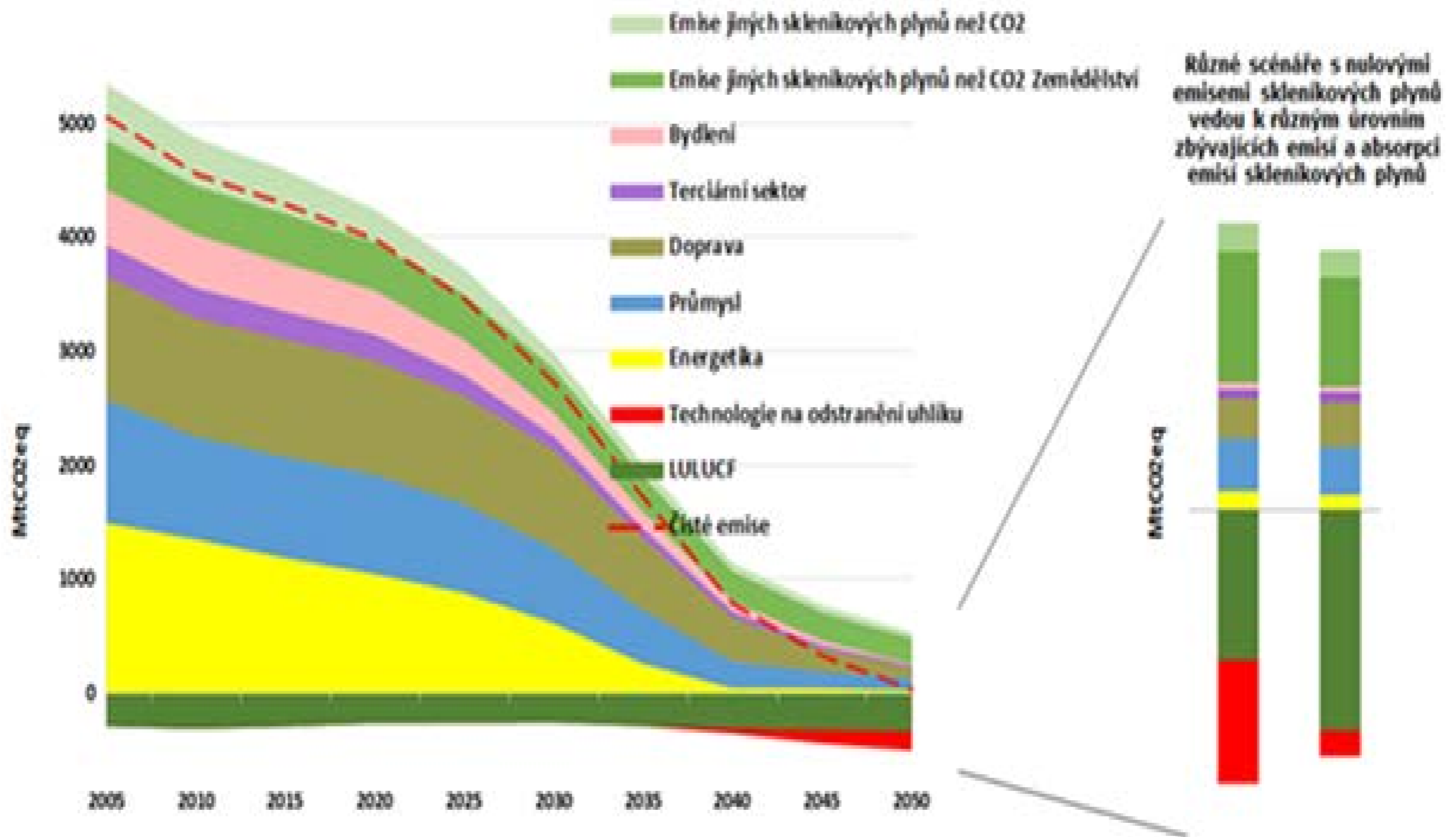
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# CHALLENGES/ NEXT STEPS



# Emission reduction scenarios by 2050





# Pathways to decarbonize the Czech Republic

<https://www.mckinsey.com/cz/our-work/pathways-to-decarbonize-the-czech-republic>

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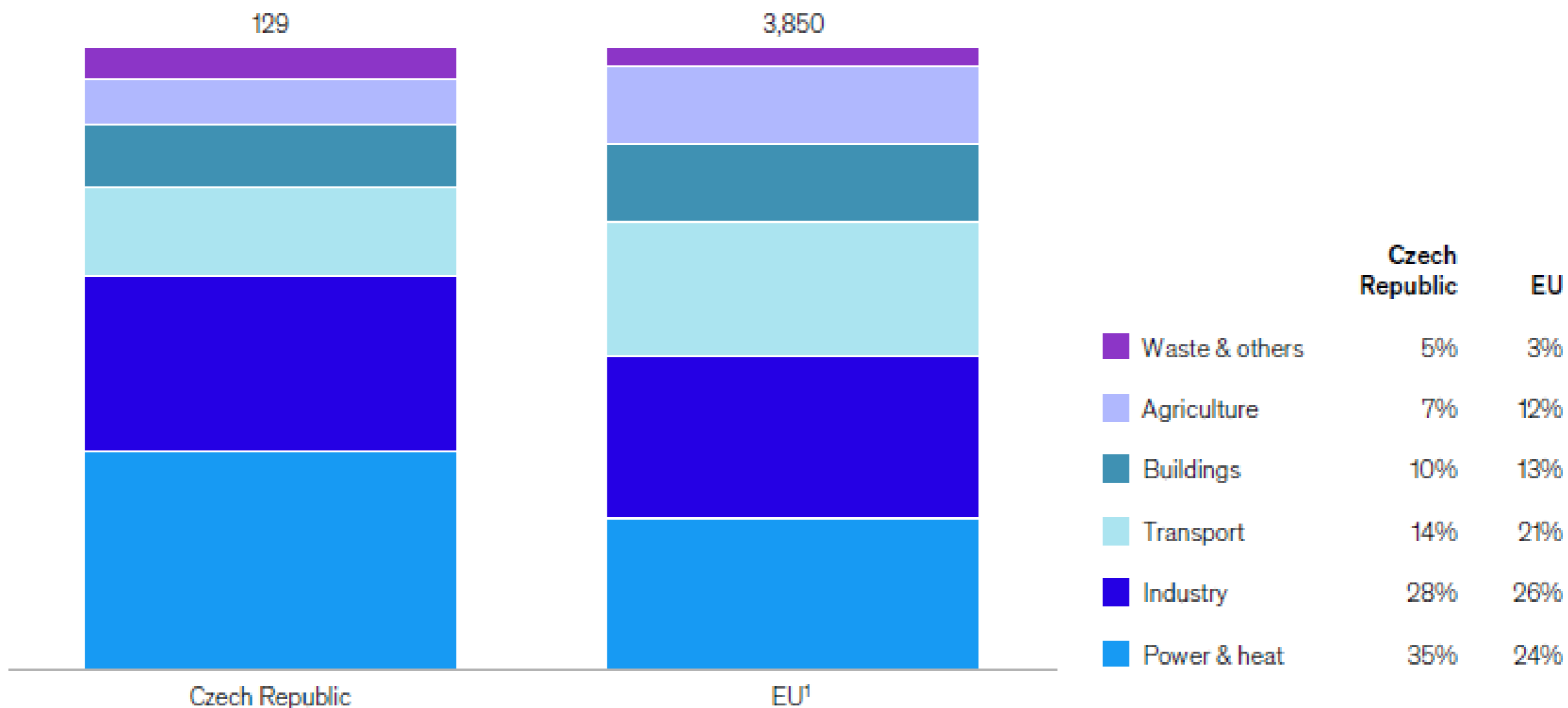
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# Power and heat generation produce a greater percentage of GHG emissions in the Czech Republic than in the rest of the EU

MtCO<sub>2</sub>e; excluding LULUCF, international aviation and transport; 2017



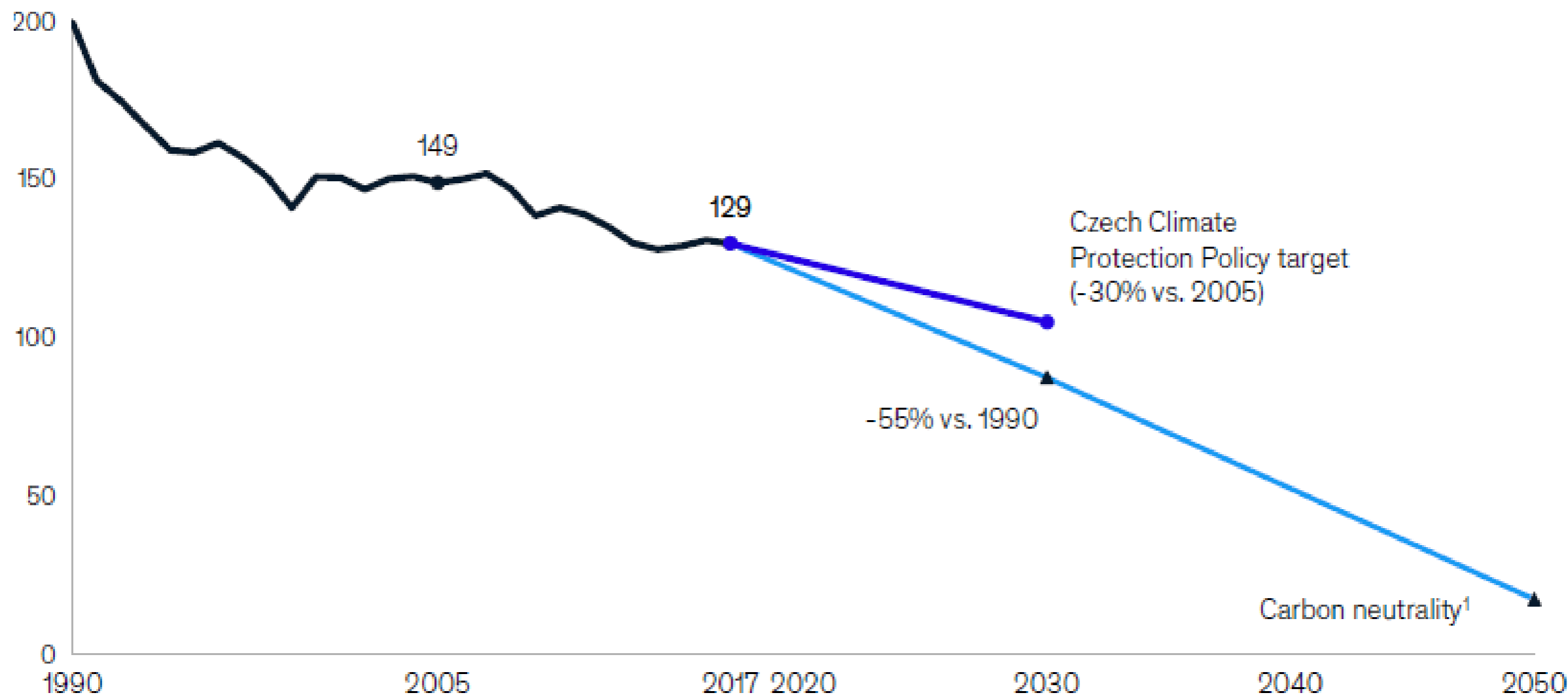
1. Includes EU 27 countries

Source: Eurostat



# The Czech Republic would need to accelerate its decarbonization to achieve a 55% reduction compared to 1990 and achieve net-zero by 2050

MtCO<sub>2</sub>e



Note: Excluding LULUCF

1 Emitted GHG are equal to absorbed GHG

Source: EEA, Vnitrostátní plán ČR v oblasti energetiky a klimatu 2017; European commission; McKinsey analysis

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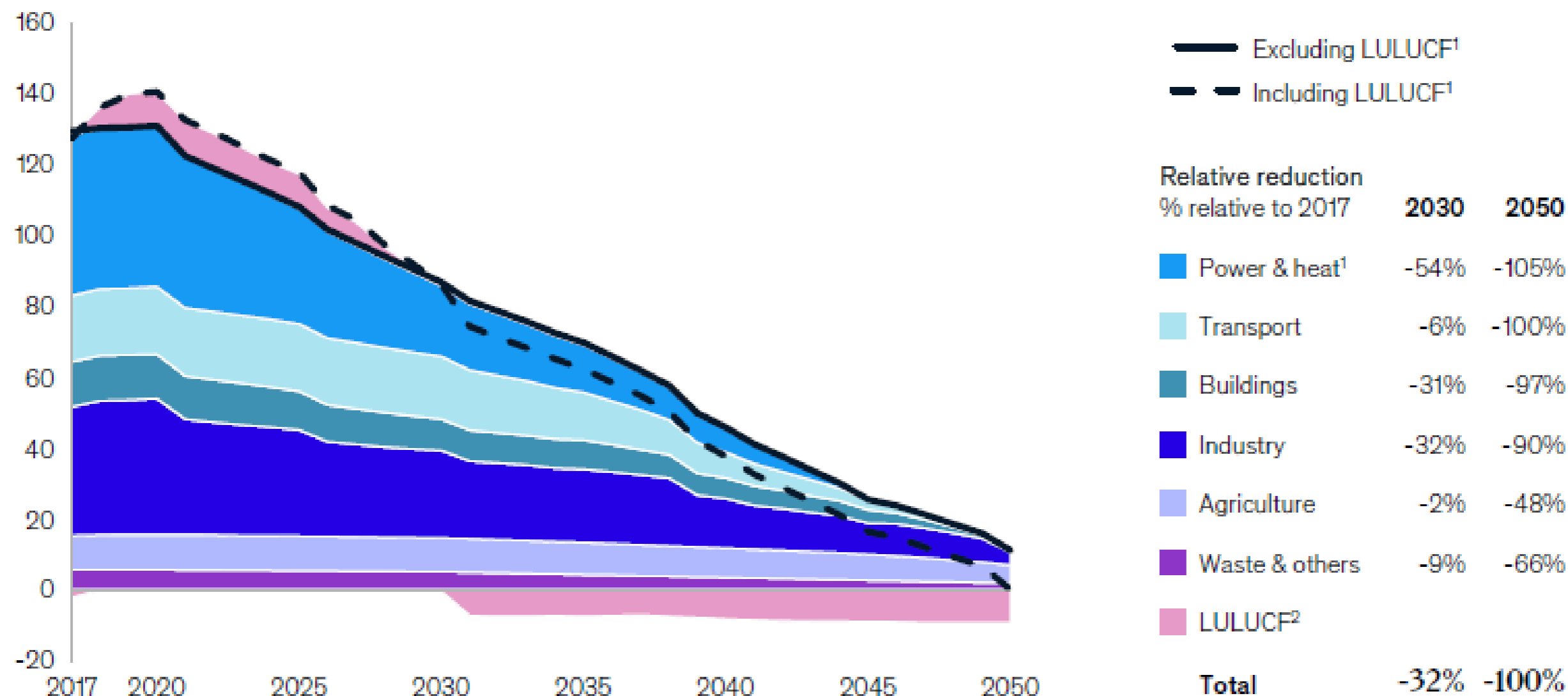
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# Cost-optimal decarbonization path for the Czech Republic

MtCO<sub>2</sub>e



1. Reduction of more than 100% achieved by a combination of biomass and CCS technology
2. Land use, land use change, and forestry serves typically as a carbon sink thanks to carbon absorption in forests and land. Due to the current bark beetle outbreak, LULUCF is expected to be a net emitter for the next ~10 years.

Source: McKinsey analysis

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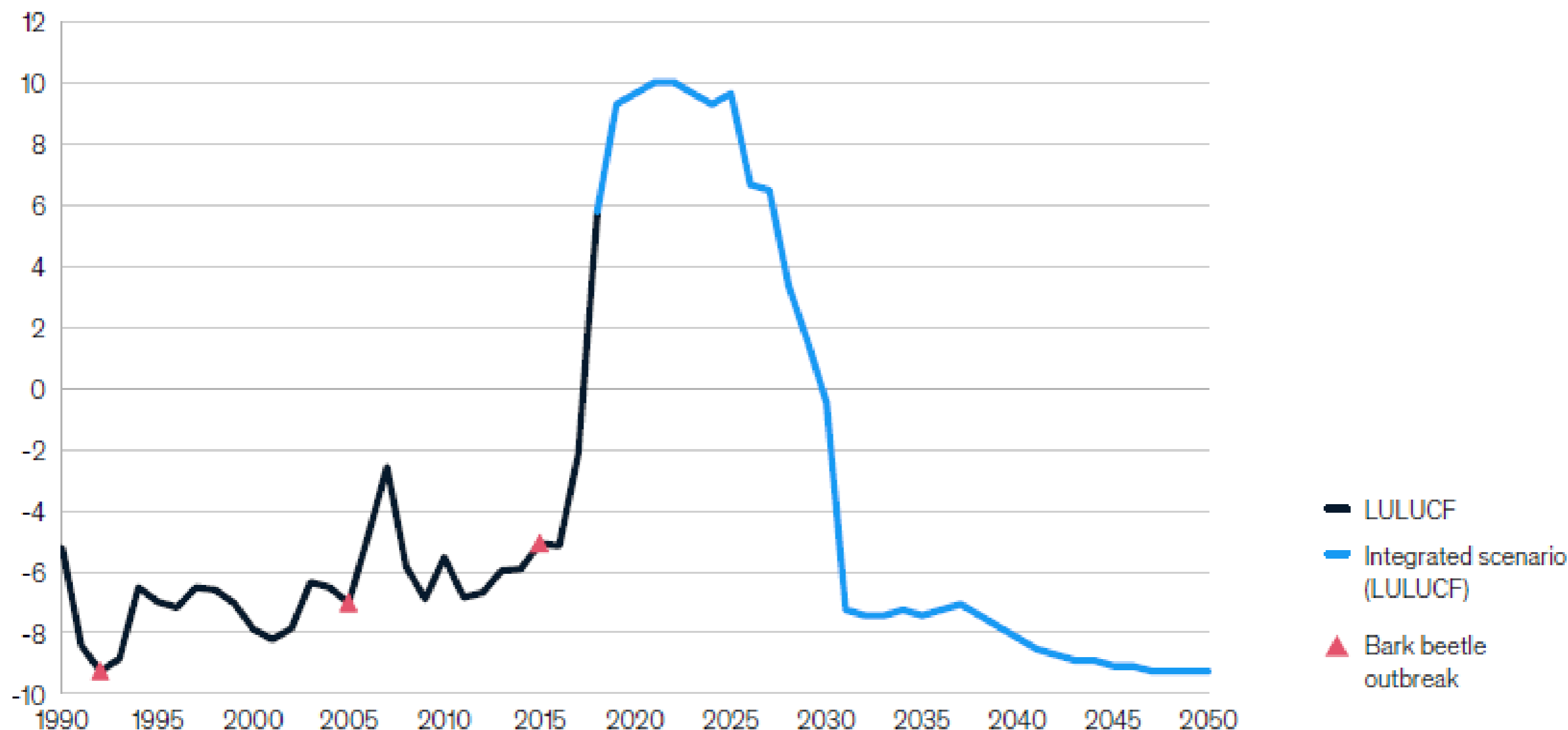
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## As bark beetle outbreaks and salvage logging abate, Czech forests could resume acting as a carbon sink by 2030

MtCO<sub>2</sub>e



Source: National Greenhouse Gas Inventory Report Of The Czech Republic (2018); Expert interviews, Prognosis of Czech Forest Think Tank; National Forest Accounting Plan (2019) ; McKinsey analysis

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# The Czech Republic could lower GHG emissions by 55% with an additional investment of CZK 500 billion over the next decade

MtCO<sub>2</sub>e; incl. LULUCF

2017 net emission baseline

Change in power and heat generation fleet<sup>1</sup>

Scale-down of coal mining and processing

Transportation efficiency and alternative fuels

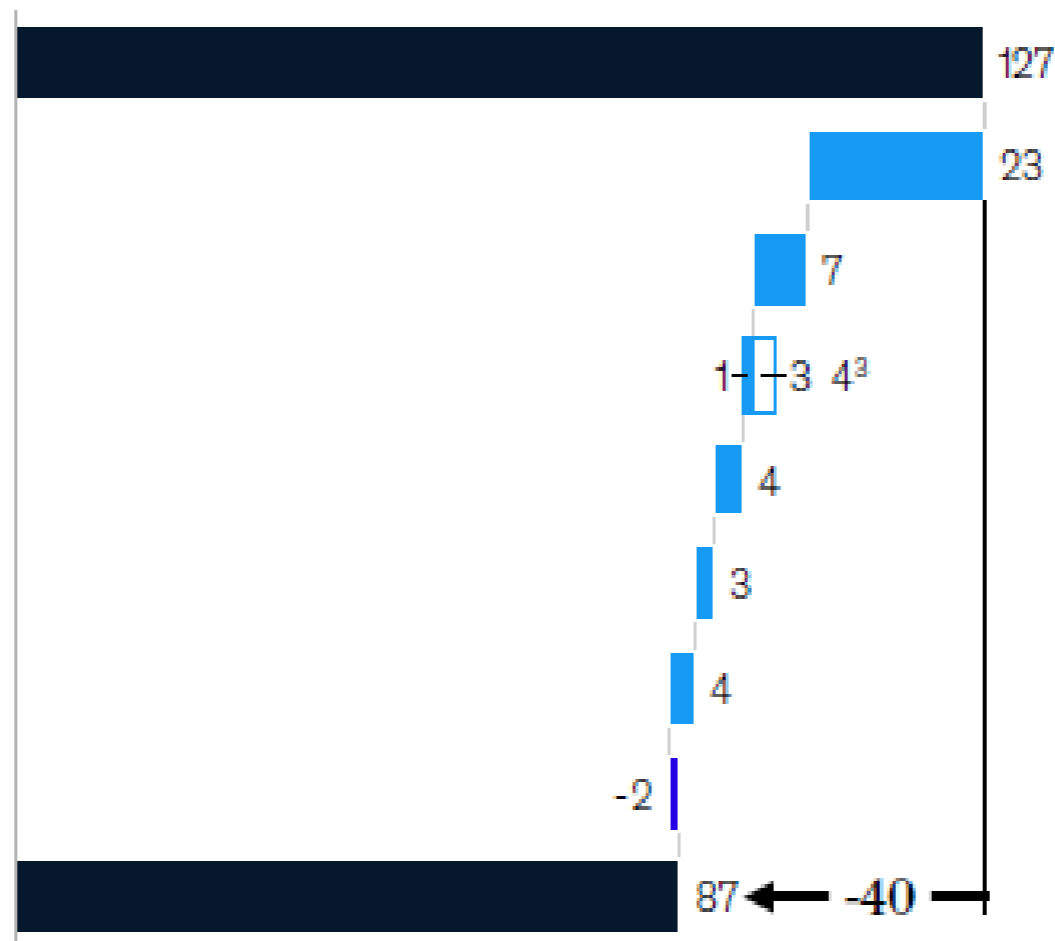
Improvement in buildings sector<sup>2</sup>

Electrification of industry

Other decarbonization levers

Increase in LULUCF due to bark beetle

2030 potential (-55% scenario)



**+CZK  
500 billion**

Total additional investments

- 1 Includes power generation and district heat generation (individual dwelling heating is included in buildings)
- 2 Switching heating methods away from coal; increased insulation levels
- 3 Scenario assumes an increase in emissions by 2030 by 3 Mt due to increased number of kilometers driven

Source: McKinsey analysis

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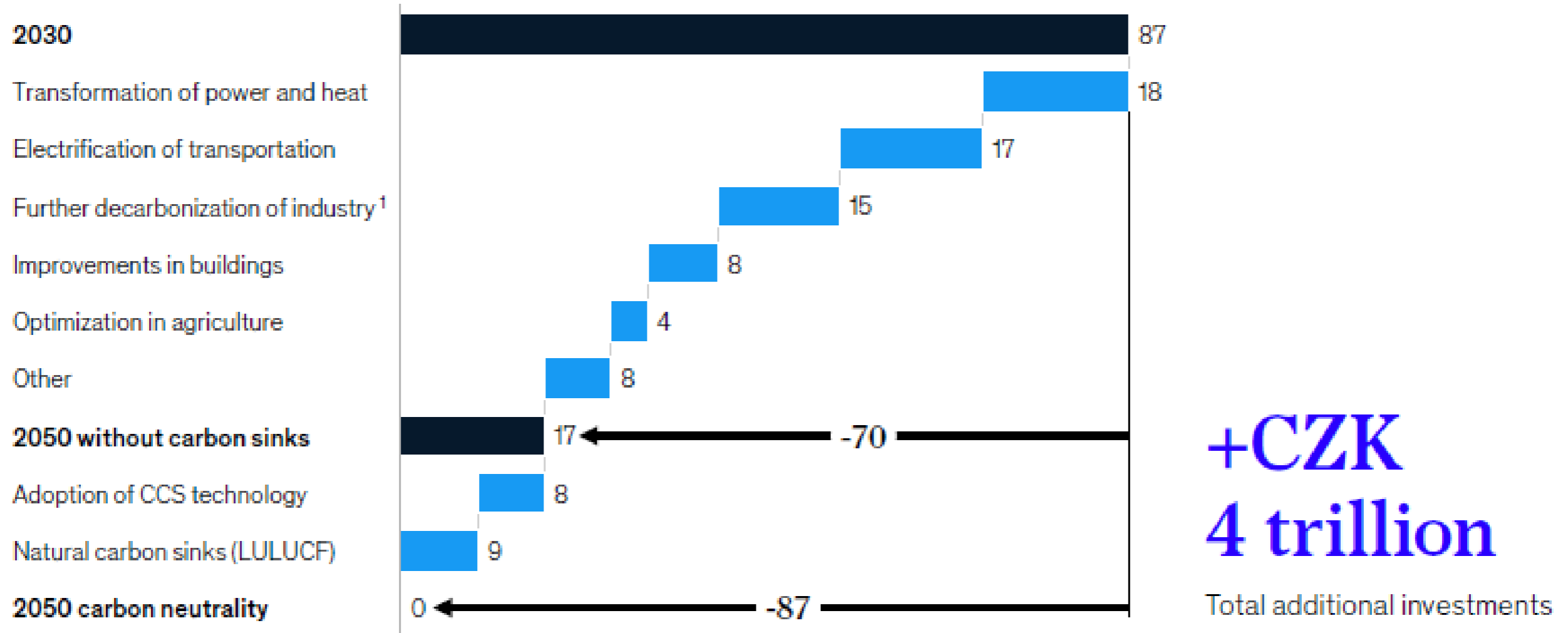
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# Full decarbonization of the Czech economy between 2030 and 2050 would require CZK 4 trillion of additional investments

MtCO<sub>2</sub>e incl. LULUCF



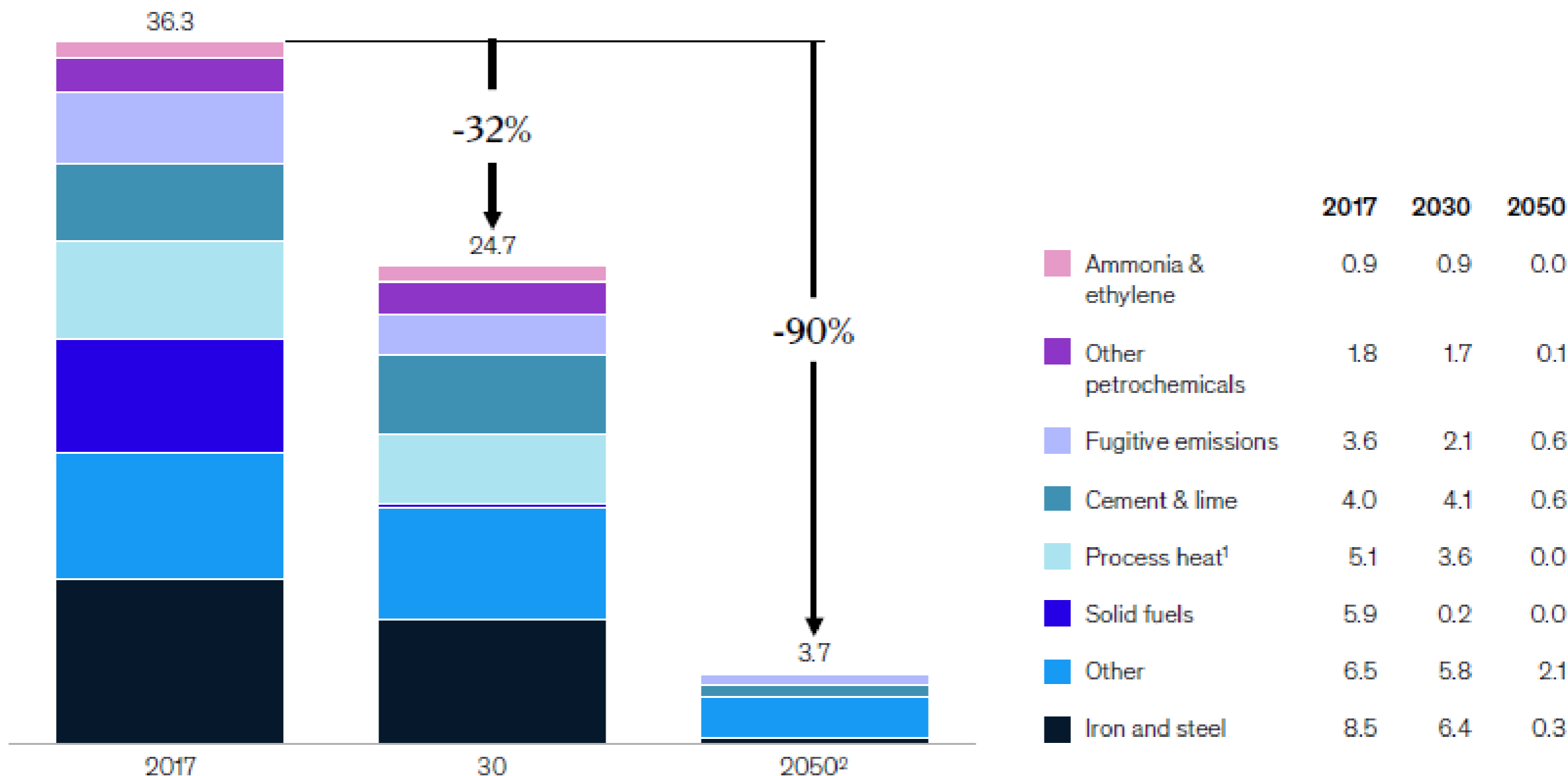
1 Abatement in industry excludes CCS carbon sinks

Source: McKinsey analysis



# Process improvements, CCS, and lower demand for refined fuels would allow the Czech industrial sector to achieve a 90% reduction in GHG emissions by 2050

MtCO<sub>2</sub>e



1 In the rest of the industrial sector

2 Abatement of emissions includes CCS technology

Source: Eurostat; McKinsey analysis





# MdF deployment could mobilise total funding of €9.8-16.2 billion to 2030 (ICF, Enviros)



Modality	Share	MF support	Intervention rate (%)			Total funding mobilised (mEuro)		
	%	(m Euro)	Low	Med	High	Low	Med	High
Mod 1A (10c)	30	1,500	30	40	50	5,000	3,750	3,000
Mod 1B (new RES)	40	2,000	30	40	50	6,667	5,000	4,000
Mod 2A (EU ETS)	10	500	30	40	50	1,667	1,250	1,000
Mod 2B (non-ETS, Prague)	5	250	30	40	50	833	625	500
Mod 3A (Public buildings)	5	250	40	50	60	625	500	417
Mod 3B (Govt buildings)	2	100	50	70	90	200	143	111
Mod 4 (CES)	4	200	40	50	60	500	400	333
Mod 5 (Transport)	4	200	30	40	50	667	500	400
<b>Total</b>	<b>100</b>	<b>5,000</b>				<b>16,158</b>	<b>12,168</b>	<b>9,761</b>

CES = Community Energy Systems



# MdF – Environmental and macroeconomic effects – conclusions (ICF, Enviros)



- **17.5 MtCO<sub>2</sub>** abatement potential: would contribute 40% of 44 MtCO<sub>2</sub> target set in Czech NECP by 2030
- **10.3 PJ** energy efficiency savings: would deliver 30% of Czech NECP target of 29 PJ by 2030
- **3,074 MWe** of new RES deployed by 2030: would exceed Czechia's renewables target by 39% (2,216 MWe over same period)
- Potential for further environmental benefits through achieving technical potentials in Modalities by re-distributing funding
- **Modernization Fund can be expected to support 78,000-112,000 jobs between 2021-2030**



# Questions and answers...

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