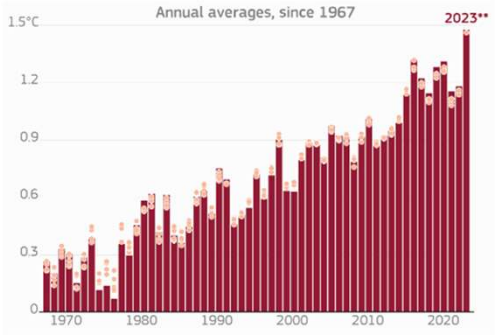
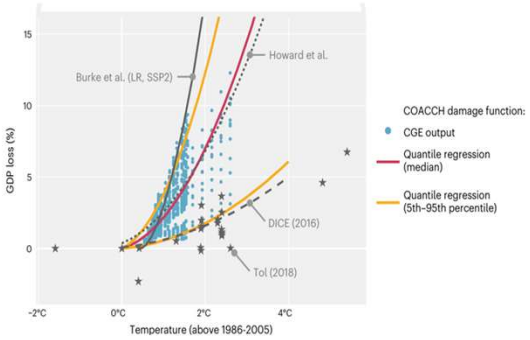
2040 climate target

PRESENTATION TO:
CIVIL DIALOGUE GROUP ON ENVIRONMENT AND CLIMATE CHANGE AND ON THE CAP STRATEGIC PLANS AND HORIZONTAL MATTERS

Thursday, 14 March 2024

The need for global climate action





- Climate change is intensifying rapidly
- Need to cut greenhouse gas emissions sharply and rapidly & prepare for impacts of climate change
- The COP28 & Global Stocktake: parties set minimum expectations for action; the world is moving towards the path taken by the EU

European Commission

The 2040 Target Communication

- Responds to the Climate Law
- Recommends a 90% 2040 climate target
- Presents a vision for the EU beyond 2030
- Fit for 55 framework and other measures agreed for 2030 remain unchanged
- Legislative proposal for the 2040 target & design of the post-2030 policy framework – next Commission

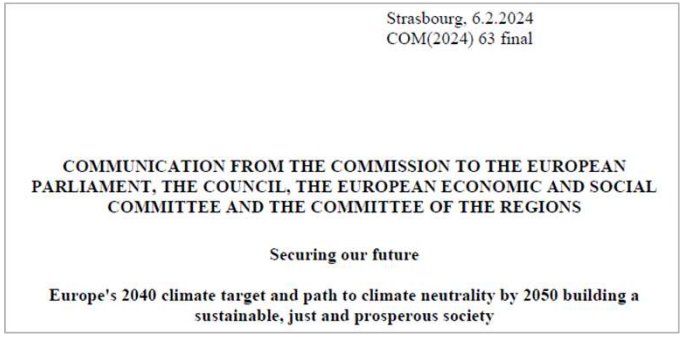
➢ **This Communication launches a debate**

The 2040 Target Communication

1. A Vision beyond 2030
2. Ambitious global climate action
3. The 2040 target and a pathway to climate neutrality
4. Delivering the 2040 target
5. Conclusions and next steps

8 building blocks

Impact assessment

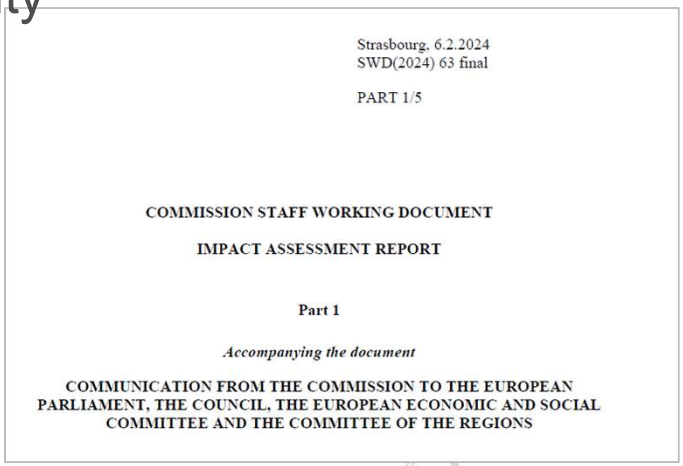


Strasbourg, 6.2.2024
COM(2024) 63 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

Securing our future

Europe's 2040 climate target and path to climate neutrality by 2050 building a sustainable, just and prosperous society



Strasbourg, 6.2.2024
SWD(2024) 63 final

PART 1/5

COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT REPORT

Part 1

Accompanying the document

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

European Commission

Enabling conditions

- The full implementation of the agreed 2030 framework
- Competitiveness of European industry and agriculture
- Greater focus on Just Transition - leaving no one behind
- A level playing field with international partners
- Open Dialogue on the post 2030 framework

4. Delivering the 2040 target

- Delivering the 2040 target depends on full implementation of the 2030 climate and energy framework

- Development of a post-2030 framework & broader policy framework
  - An economy that delivers for people
  - The EU's energy system
  - An industrial decarbonisation deal
  - Decarbonising transport and improving mobility
  - Land, food and bioeconomy
  - A comprehensive investment agenda

4.6 Land, food and bioeconomy

Sustainable and resilient food production and strengthening the bioeconomy sectors

- European farmers and foresters offer vital services for ecosystems, food system and bioeconomy ensuring food security
- More resource-efficient and biodiversity-friendly management of the land sector to increase resilience to the impacts of climate change
- Exploit synergies between climate change mitigation, adaptation and biodiversity
- Strategic Dialogue on the future of EU agriculture & intensifying dialogue with forest stakeholders

Ensuring a fair level-playing field for EU farmers

- Prevent unfair competition and ensure a level playing field with non-EU producers
- Entire food value chain approach; ensure a decent and sustainable income for farmers
- Business opportunities in a sustainable bioeconomy through sustainably sourced bio-based materials, carbon farming and incentives for sustainable practices that generate revenues to support the transition

See Impact Assessment Annex 8: agriculture (1.7), LULUCF (1.8), environmental impacts (1.9.2, 1.9.3)

Based on a detailed impact assessment & corresponding to the advice of the ESABCC

EUROPEAN
COMMISSION

Strasbourg, 6.2.2024
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European Commission

Target levels considered- net GHG reductions in 2040

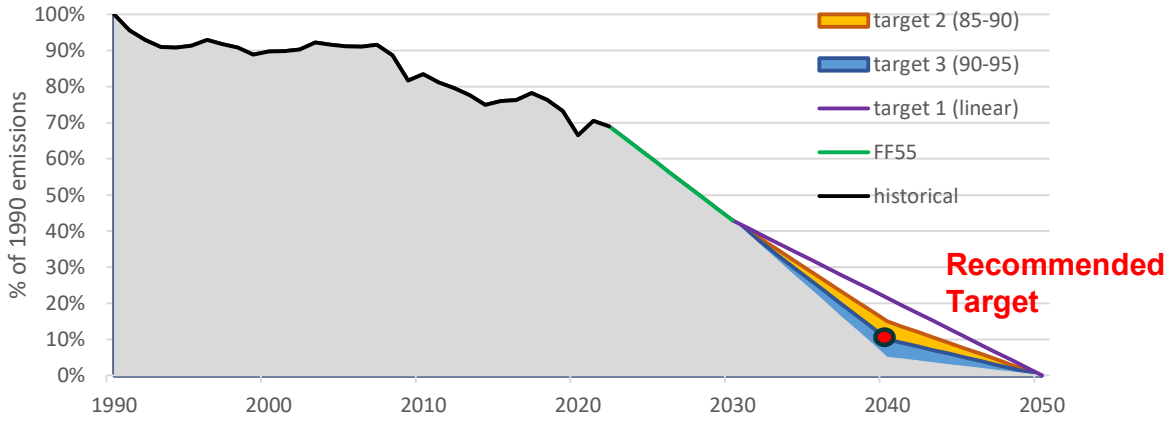
- Target Option 1: up to 80% (linear trajectory 2030-50)
- Target Option 2: at least 85% and up to 90%
- Target Option 3: at least 90% and up to 95%

GHG budget and annual reduction of GHG emissions of each target option

Target	GHG budget 2030-2050 (Gt CO2-eq)	Yearly reductions (% vs 1990 levels)				
		1991-2010	2011-2030	2021-2030	2031-2040	2041-2050
Target level below 75%	More than 23	-0.9%	-2.0%	-2.8%	-1.8%	-2.5%
Target Option 1 (linear, 78%)	21				-2.2%	-2.2%
Target Option 2 (at least 85%)	Up to 18				-2.8%	-1.5%
Target Option 3 (at least 90%)	Up to 16				-3.3%	-1.0%

IA Main document (Part 1/5), Table 3

Profile of the net GHG emissions over 1990-2050



IA Main document (Part 1/5), Figure 4

European Commission

Core policy scenarios

- S1 scenario
  - Up to 2040, relies essentially on the Fit-for-55 energy system trends.
  - **Agriculture follows the Agricultural Outlook 2022**.
  - Beyond 2040, all sectors contribute to the 2050 climate neutrality objective, and all technologies need to be deployed.
- S2 scenario
  - Includes **further reductions of GHG emissions in the land sector** (including non-CO2 emissions in the agriculture sector and carbon removals in the LULUCF-sector).
- S3 scenario
  - Relies on a fully developed carbon management industry by 2040
  - **Further reductions in agriculture compared to S2.**

LIFE variant

- LIFE assesses the impact of a shift in consumption patterns to more sustainable alternatives leading to a more efficient use of natural resources, including a more sustainable food system and associated land use.
- Is not attached to a specific target option and is not used to compare the different target options. It only serves to illustrate how these demand-side driven actions can complement the supply-side technology deployment analysed in the core scenarios.
- In practice, in the analysis, the LIFE variant is set so that it aims at reaching the same overall reductions of net GHG emissions as S3.

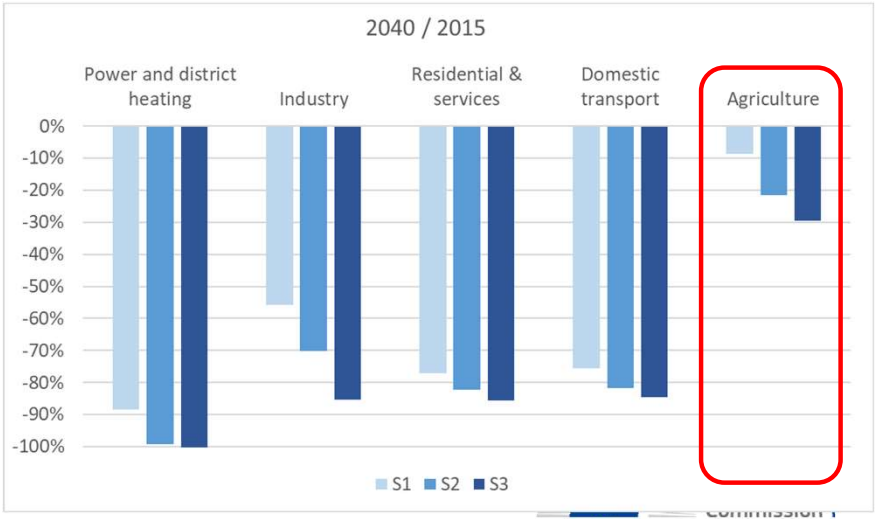
Sectoral net GHG emissions

	2015	2040			2050
		S1	S2	S3	S3**
Reduction vs 1990 - %	-24%	**-78%**	**-88%**	**-92%**	-101%
Net GHG Emissions (target scope)*	3592	1051	578	356	-38
Power and district heating	1031	120	8	-10	-39
Other energy sectors	237	71	45	11	-19
Industry	605	267	181	89	16
Residential & services	519	119	92	75	19
Other non-energy sectors	130	33	26	25	22
Domestic transport	780	190	143	120	7
Agriculture	385	351	302	271	249
Waste management	120	65	52	52	28
LULUCF net removals	-322	-218	-316	-317	-333
International transport (target scope)	107	52	46	41	11
International Transport (memo items)					
	233	124	113	106	27

IA Main document (Part 1/5), Table 5

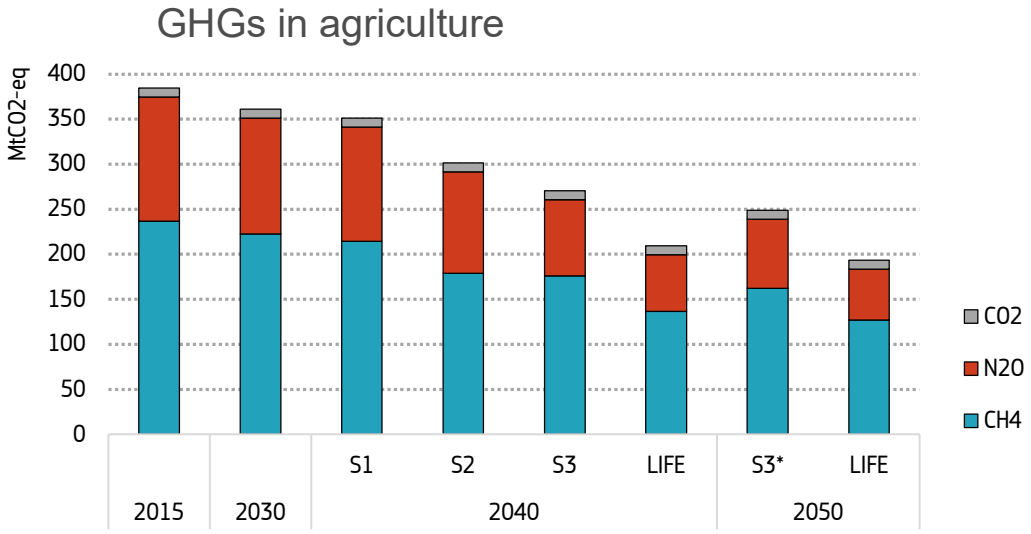
In 2040:

- **S2 leads to -88% vs 1990, and S3 to -92%**
- **Agriculture** emissions decrease ranges 22-30% in S2-S3 (compared to 2015)
- **LULUCF** close to 320 MtCO2-eq in S2-S3



Derived from IA Main document (Part 1/5), Table 5

GHGs in agriculture



Note: CH4 emissions are predominantly from livestock, and N2O emissions are from soils.

IA Annex 8 document (Part 3/5), Figure 84

- Evolution of emissions in **S1** due to existing legislation and projections. (e.g. Agricultural Outlook 2022)
- Additional emission reductions in **S2** largely due to mitigation of CH4 from livestock. (e.g. selective breeding, feed additives, anaerobic digestion with biogas recovery)
- Additional emission reductions in **S3** largely due to mitigation of N2O in agricultural soils. (restoration of drained organic soils, variable rate technology, nitrification inhibitors)

European Commission

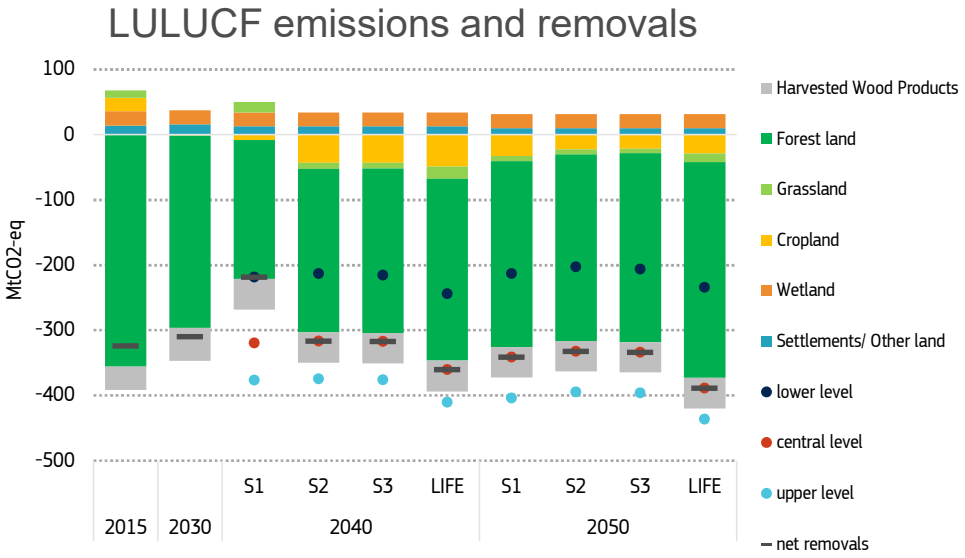
LIFE variant impacts

	total	Change to 2020	Change to S1 - S3 in 2040
Nutrient surplus total [in 1000t]	5,504.794	-49%	-48%
Mineral fertilizer use	5,904	-41%	-44%
Chemical pesticide Use	7307	-39%	-50%
High-diversity landscape features (Set aside and fallow land) - Share of EU's agricultural land	14%		+10 pp*
Share of EU's agicultural land for organic agriculture	25%		

IA Annex 8 (Part 3/5), Table 21
** Discussed I IA, not in original table*

- Based on consumers' dietary change towards more healthy and sustainable food consumption, implementation of the Farm to Fork Strategy, Biodiversity Strategy, and food waste reduction.
- Combined implementation has impacts on agricultural land and farming practices (e.g. nutrient surplus, fertiliser, pesticides, intensity of farming practices).
- Shift from intensive to extensive grazing, livestock numbers decline
- Cuts GHGs and beneficial for biodiversity, and cuts costs to society of meeting recommended 2040 target

LULUCF net removals



IA Annex 8 (Part 3/5), Figure 95

- LULUCF net removals in 2040 range from S1: -220 MtCO2-eq (no specific policy) to S2/S3: -320 MtCO2-eq
- LIFE variant produces higher LULUCF net removals due to agricultural land converted into carbon farming activities resulting in additional 45 MtCO2-eq net removals in 2040.

European Commission

Carbon farming practices

Afforestation and reforestation according to ecological principles

Targeted conversion of **cropland to fallow**, or of set-aside areas to **permanent grassland**

Use of **conservation tillage, catch crops, cover crops** and increasing **landscape features**

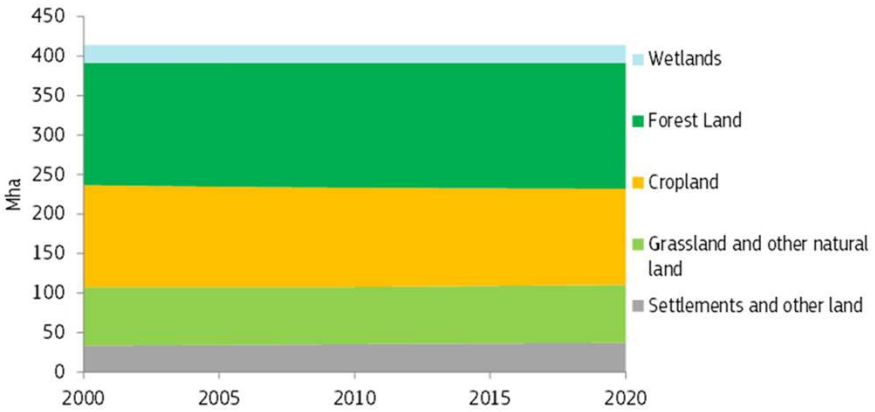
Agroforestry and other forms of mixed farming

Restoration, rewetting and conservation of **peatlands and wetlands**

Blue carbon: coastal wetlands, regenerative aquaculture, marine permaculture

Land use (1/2)

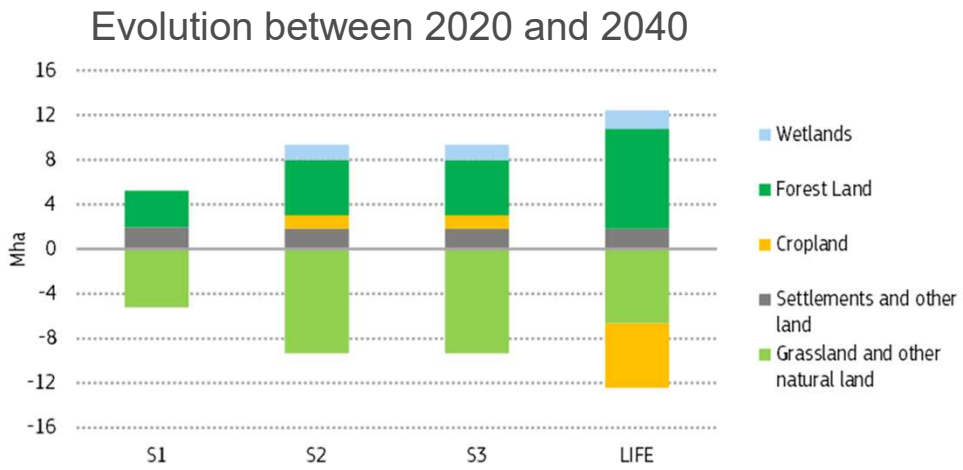
Historical evolution of land use



IA Annex 8 (Part 3/5), Figure 91

- Slow increase in managed forest land (+4 Mha) and land for settlements (+3 Mha) and decline of cropland (-7 Mha) over 2000-2020.
- The area for settlements has been steadily increasing until today. The conversion into settlement land is associated with additional emissions.

Land use (2/2)



IA Annex 8 (Part 3/5), Figure 92

- Reflects bioenergy changes and, more importantly, LULUCF policy
- The projected absolute land use changes remain small in relative terms compared to today (1-3% of the total land) – same order of magnitude as during 2000-2020.
- Until 2040 some grassland (5.2 Mha in S1, 9.3 Mha in S2-S3) transformed into forest land and restored wetlands through additional nature-based removals.
- Increase in cropland of about 1% for lignocellulosic crops is relatively small.

Economic output & employment

- Little difference between scenarios for Agriculture & forestry
- However different patterns between agriculture and forestry
- Limited impact on overall employment; demographic and technological changes will impact the labour market more than climate policies

Economic output, % change vs. 2015

	S1			S2		S3	
	2030	2040	2050	2040	2050	2040	2050
Fossil fuel industries	-32.9%	-59.4%	-73.0%	-63.1%	-72.9%	-65.2%	-73.1%
Energy intensive industries	17.6%	27.6%	39.7%	25.8%	39.4%	25.5%	39.1%
Transport equipment	15.3%	30.8%	43.3%	30.0%	43.1%	29.4%	43.0%
Other equipment goods	21.5%	38.7%	58.6%	38.0%	58.3%	38.3%	58.1%
Consumer goods industries	12.6%	21.3%	31.4%	20.4%	31.3%	19.7%	31.2%
Transport	25.7%	44.5%	68.1%	41.7%	67.9%	40.2%	67.6%
Construction	27.9%	47.9%	70.7%	47.9%	70.3%	48.7%	70.2%
Market services	22.6%	40.5%	62.6%	39.9%	62.4%	39.5%	62.4%
Non-market services	21.3%	38.3%	59.7%	38.0%	59.7%	37.8%	59.7%
Agriculture and forestry	9.7%	33.6%	47.8%	36.6%	47.4%	36.3%	46.3%
Memo:							
GDP	22.8%	40.6%	62.1%	39.9%	61.9%	39.5%	61.8%

Deviation vs. S2

	S1 fragmented	S3 fragmented
GDP (*)	0.5%	-0.2%
Fossil fuel industries	10.2%	-5.6%
Energy intensive industries	1.4%	-0.2%
Transport equipment	0.7%	-0.5%
Other equipment goods	0.5%	0.2%
Consumer goods industries	0.7%	-0.6%
Transport	2.0%	-1.0%
Construction	0.0%	0.5%
Market services	0.5%	-0.2%
Non-market services	0.2%	-0.2%
Agriculture	2.0%	-1.0%
Forestry	-10.9%	0.5%

Economic Output see: IA Annex 8, table 41 + IA main document (part 1/5) Table 14

Employment results see: IA Main (Part 1/5), Table 27

Trade

EU share in global exports (% of world trade)

	2040			2050		
	S1	S2	S3	S1	S2	S3
Fragmented action						
All exports	16.4%	16.2%	16.1%	15.9%	15.9%	15.9%
Energy intensive industries	17.4%	17.1%	17.1%	16.9%	16.8%	16.8%
Transport equipment	25.3%	25.1%	25.0%	24.1%	24.1%	24.1%
Other equipment goods	17.5%	17.3%	17.1%	16.7%	16.7%	16.7%
Consumer goods industries	12.6%	12.5%	12.3%	12.0%	12.0%	12.0%
Market services	22.7%	22.8%	22.7%	21.5%	21.5%	21.5%
Agriculture	7.2%	7.0%	7.0%	6.2%	6.3%	6.3%
Forestry	4.4%	4.3%	4.3%	3.1%	3.1%	3.1%
Global action						
All exports	16.9%	16.7%	16.6%	16.9%	16.9%	16.8%
Energy intensive industries	17.9%	17.6%	17.6%	17.6%	17.5%	17.5%
Transport equipment	25.3%	25.2%	25.0%	24.4%	24.4%	24.3%
Other equipment goods	18.1%	17.9%	17.8%	18.7%	18.7%	18.7%
Consumer goods industries	13.3%	13.2%	13.0%	13.6%	13.6%	13.6%
Market services	21.7%	21.7%	21.7%	19.1%	19.1%	19.1%
Agriculture	7.8%	7.6%	7.5%	6.4%	6.5%	6.9%
Forestry	4.4%	4.3%	4.3%	3.1%	3.1%	3.2%

IA Main document (Part 1/5), Table 15

- Difference in market share of global trade between target options is limited
- Global climate policy (Global action) is a strong general driver
- S3 together with global action has an economic advantage over S1 with fragmented action

European Commission

Thank you!

Useful link:

https://climate.ec.europa.eu/eu-action/climate-strategies-targets/2040-climate-target_en

Relevant sections in the IA

- IA main document (doc 1/5), section 6.1 (GHGs), 6.3 (environmental impacts), 6.4 (socio-economics)
- Full detailed analysis in Annex 8 (doc 3/5), section 1.7 (agriculture), 1.8 (LULUCF), 2 (socio-economics, notably: 2.2.3, 2.3.5, 2.3.6, 2.5)
- Analytical methods described in Annex 6 (doc 2/5)
- Enabling framework: Annex 9, section 4

Thank you

European Commission