UNFCCC SB60 - BONN, GERMANY

SIDE EVENT : INFORSE - FRAUNHOFER - NEGAWATT - SE

Sat. 8 June, 2024 - 11:45 - 13:00, Room Berlin

Decarbonisation through sufficiency lifestyle: How much? How to support? 100% renewables

FULFILL

Founded by the European Union

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UNFCCC SB60 Side Event, Bonn, Germany - 8th June 2024

Decarbonisation through sufficiency lifestyle:
How much? How to support? 100% renewables

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Fundamental decarbonisation through sufficiency by lifestyle changes

What sufficiency can contribute? Results of input-output model

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SESAM – Politecnico di Milano, Eurac Research

8th June 2024, UNFCCC SB60, Bonn, Germany

FULFILL project has received funding from the European Union's Horizon 2020 research and innovation programme.

Objective

To analyze the potential contribution of lifestyle changes and to assess the system-wide impacts of upscaled sufficiency-based lifestyle changes on climate, economy, and society at the European level.

Specific goal:

To **quantify the effects of sufficiency** on **greenhouse gas emissions**, macroeconomic indicators, energy use, and resource consumption through the use of an **input/output model**.

Data from 5.3/6.1 and previous WP

Input data provided by Negawatt for 6 sufficiency measures

- Diets
- Sharing spaces in housing
- Moderate car sizing
- Sharing products*
- Biking
- Flying less

for 5 countries

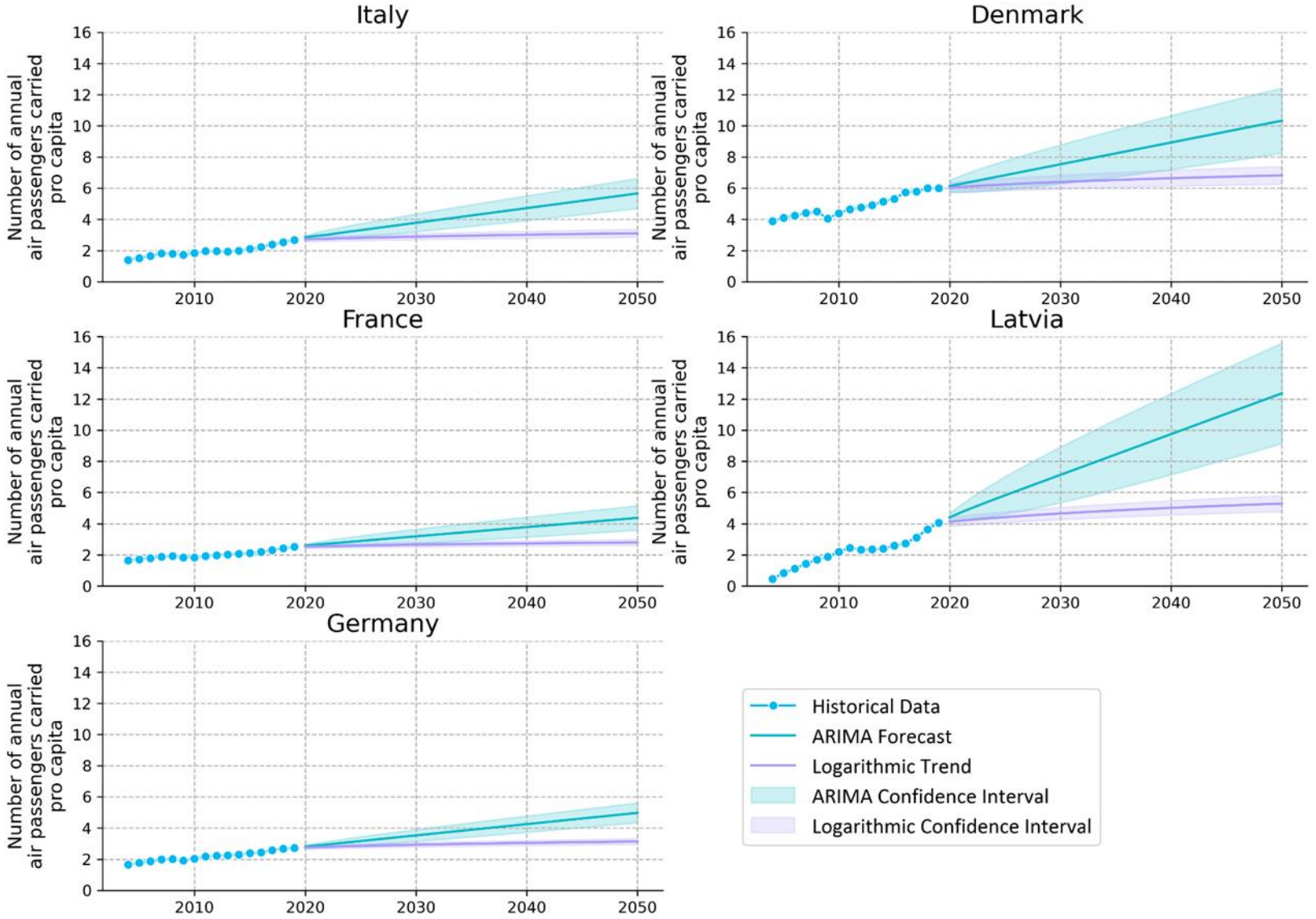
- Italy
- France
- Germany
- Latvia
- Denmark

Country	Year	Transition	% impact policies	Share of people willing to reduce animal products consumption	Share of willing people actually changing	Resulting share[7]
Denmark	2025	2021->2025	0%	26%	48%	12%
	2030	2025->2030	5%	27%	50%	14%
	2035	2030->2035	25%	32%	58%	19%
	2040	2035->2040	45%	37%	67%	25%
	2045	2040->2045	73%	43%	78%	34%
	2050	2045->2050	100%	50%	90%	45%

Modelled sub-indicators regarding diets for men in Denmark (D5.3)

*only washing machines are considered

Reference scenarios - example flying less



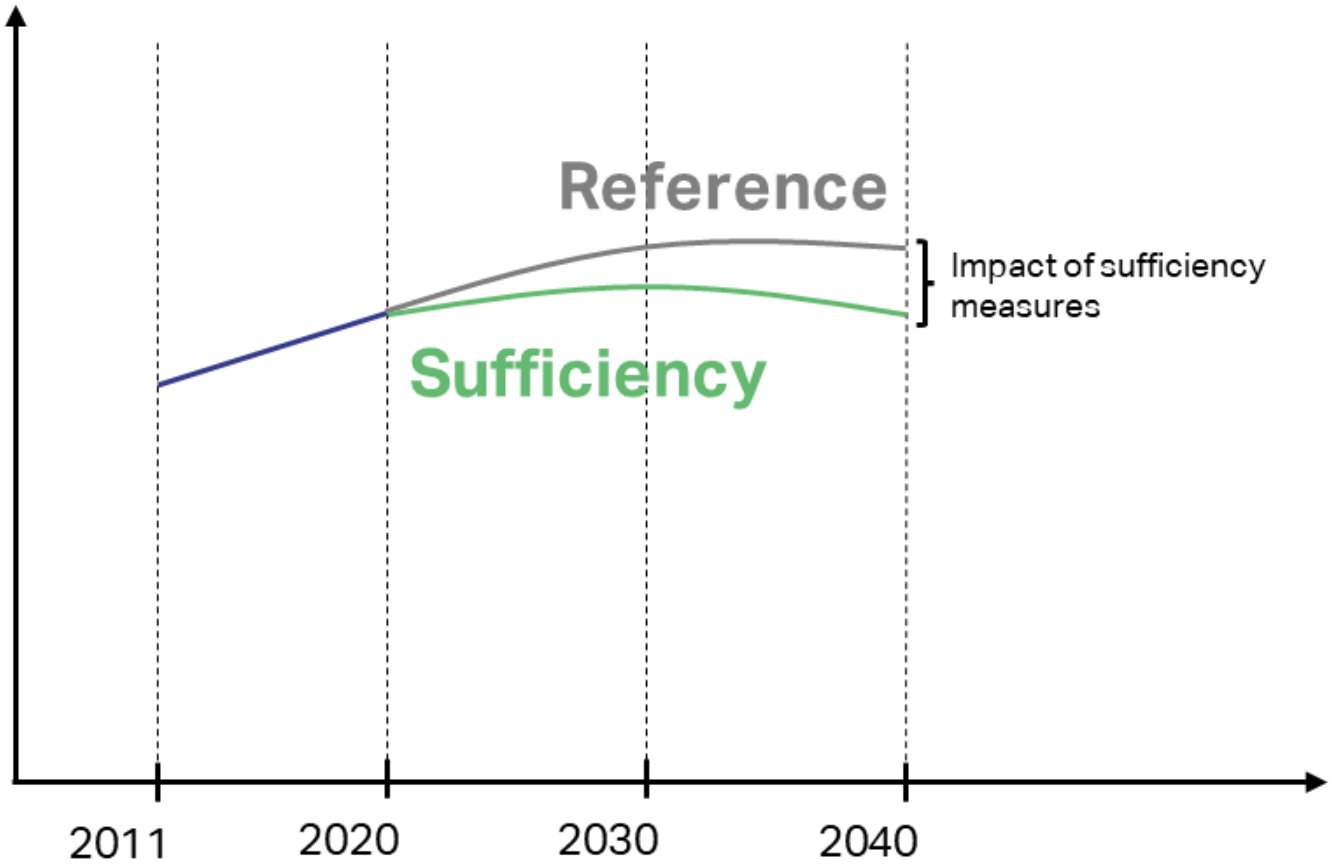
*

Data source: Eurostat, Annual air passenger carried pro capita by reporting country. Link: Statistics | Eurostat (europa.eu)

Sufficiency versus Reference scenario

Qualitative representation of how impact assessment results are reported for each sufficiency measure.

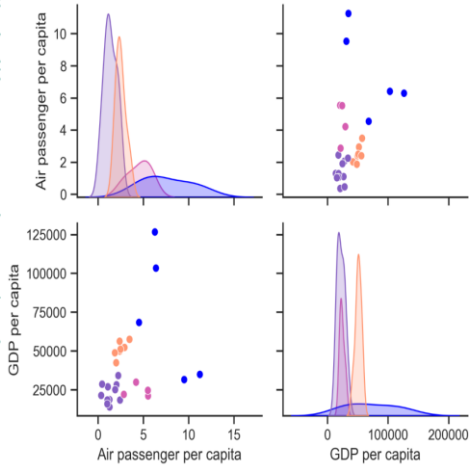
Emissions in sufficiency scenario are lower than in the reference scenario but might be higher or lower of the status quo today in dependence of the development trend over the last years

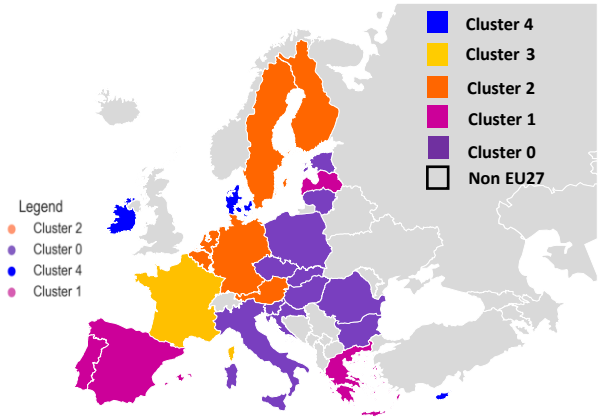


Methods and materials

Preprocessing of data for MARIO

- Sufficiency trends for 5 countries (Italy, France, Germany, Latvia, Denmark)
- Evaluation of business as usual trends for 5 countries
- Clustering analysis to extend results to all EU countries





Input/output Macro-economic modelling

INPUT

- Input-Output (IO) database
- Description of sufficiency measure
- Additional information on scenarios

MARIO:
Open Python-based objective programming for easing IO analysis

PROCESSING

Automatizing the application of each sufficiency measure in multiple scenarios

OUTPUT

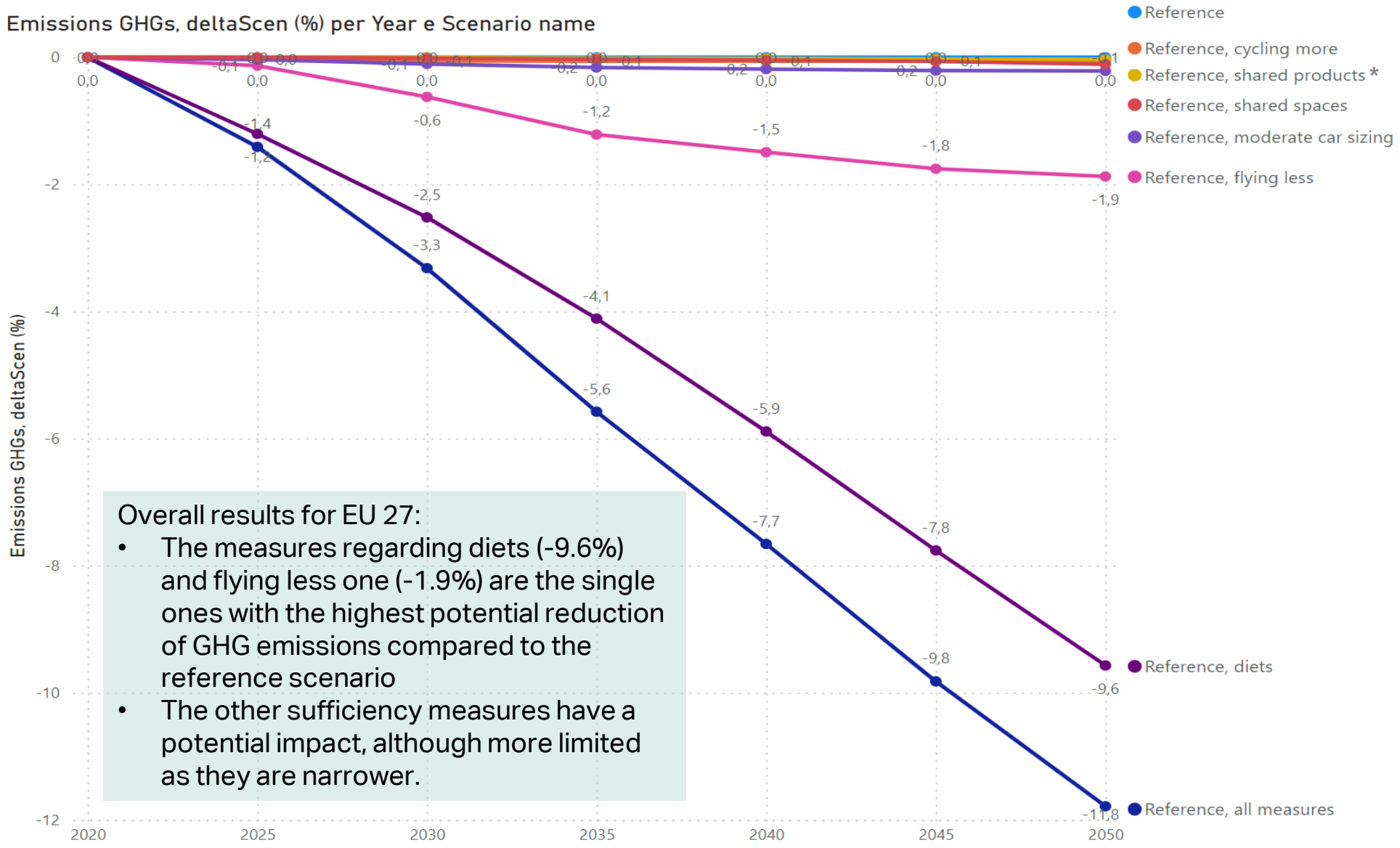
- Aggregated results (products, activities, regions, …)
- Results visualization

Economic indicators

Use of energy and resources

Emissions of greenhouse gases

Results – relative GHGs reduction



Overall results for EU 27:

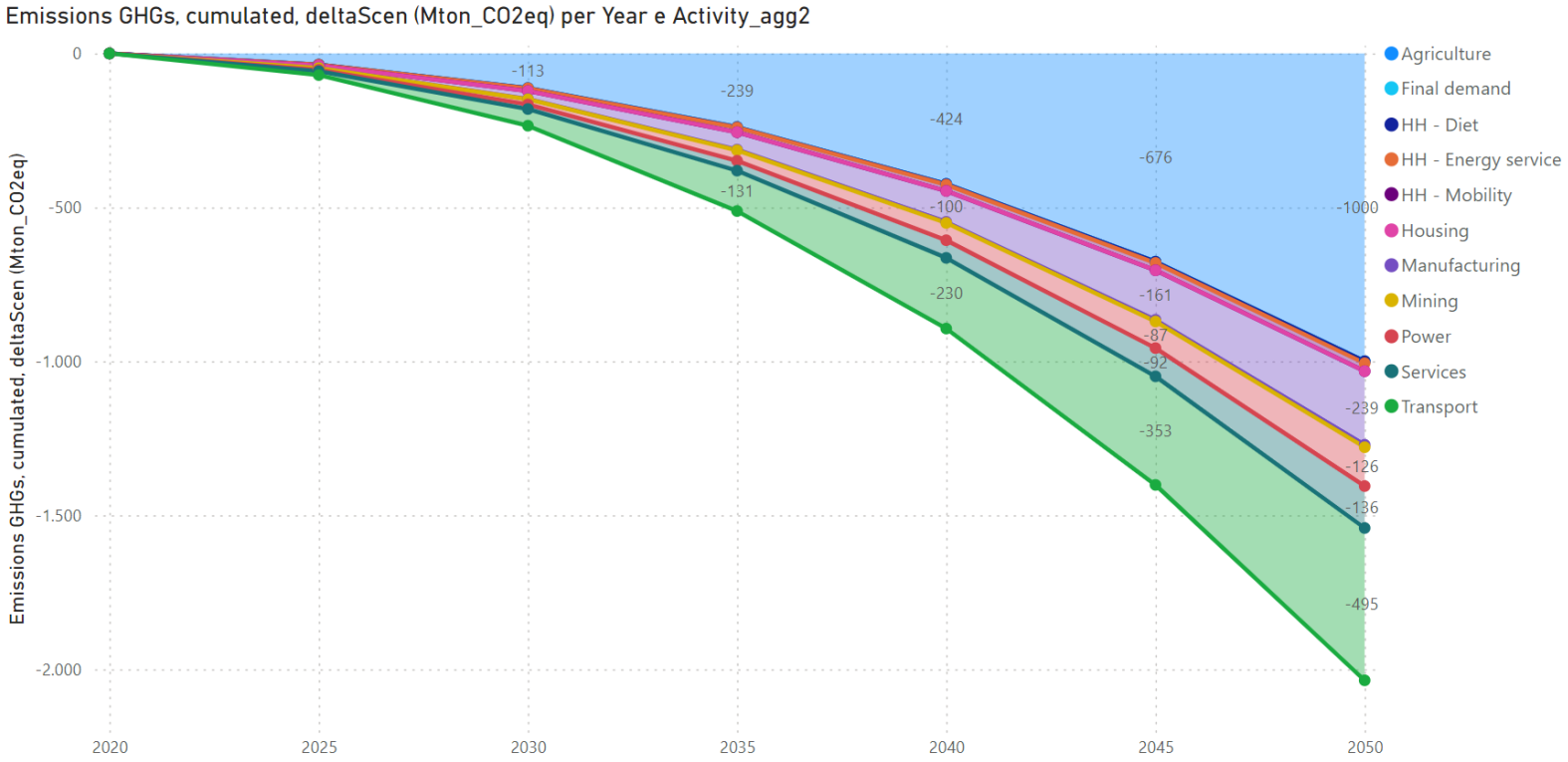
- The measures regarding diets (-9.6%) and flying less one (-1.9%) are the single ones with the highest potential reduction of GHG emissions compared to the reference scenario
- The other sufficiency measures have a potential impact, although more limited as they are narrower.

*only washing machines are considered

Results – cumulative GHGs reduction

Overall results for EU 27:

- Overall, **from now to 2050 about 2 Gton** of CO_2 equivalent can be saved thanks to these measures
- >90% of this is due to **diets** (1.5 Gton) and **flying less** (0.4 Gton)
- Main impact is on the following sectors: Agricolture, manufacturing and transport.

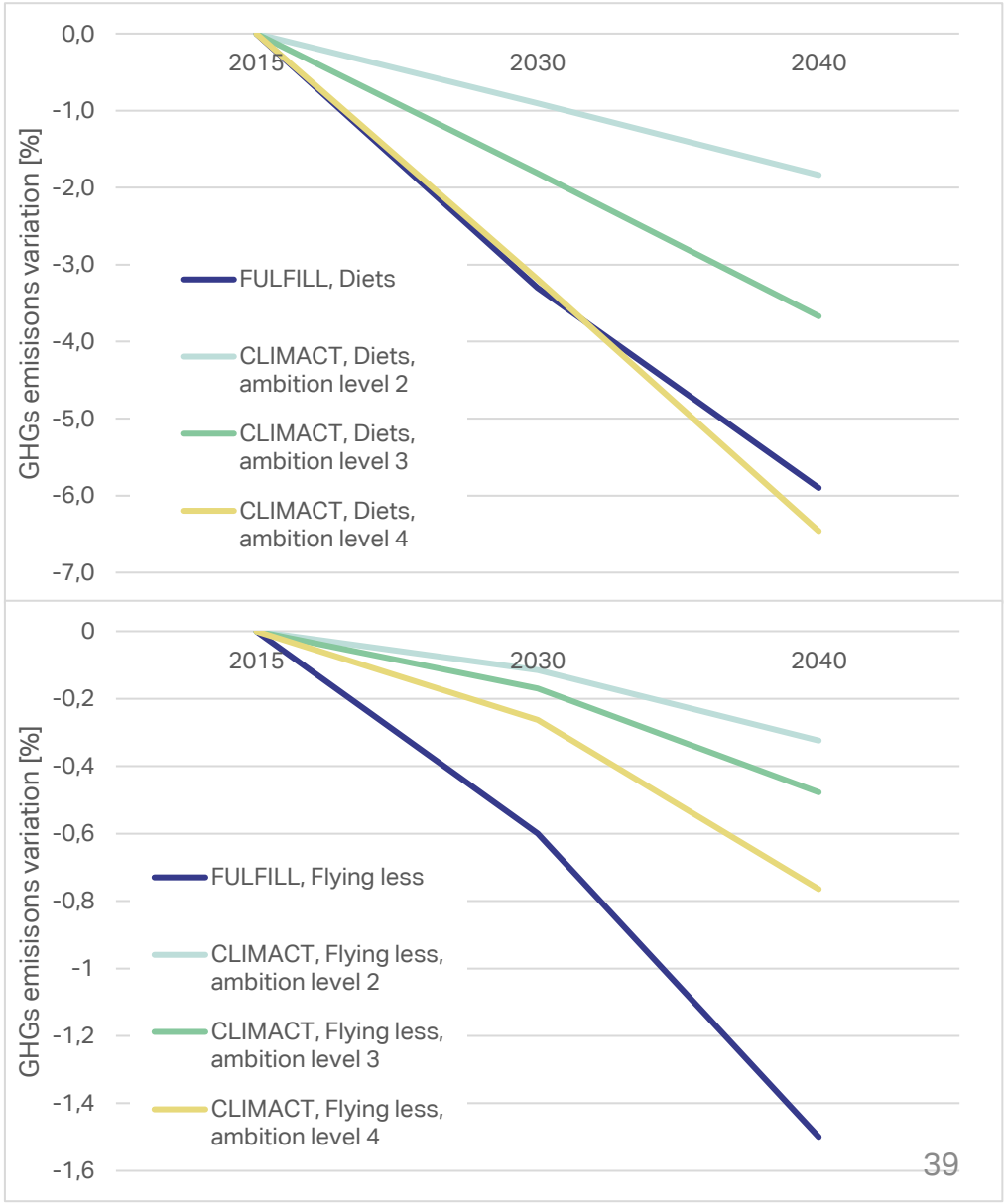


Discussion of the results

In order to understand the **robustness of our results** we made **a comparison** with the results provided by **CLIMACT 2050 Pathways Explorer** [1].

This has been performed for the following sufficiency measures: **Diets** and **Flying less**

The **results are in line** in the case of **«diets»** and **more ambitious** in the case of **«flying less»** than the **CLIMACT scenario ambition level 4.**



[1] CLIMACT, 2050 Pathways Explorer (climact.com)

Conclusions

- **Sufficiency measures** have been selected to be relevant for this evaluation: Diets, Sharing spaces in housing, Moderate car sizing, Sharing products, Biking, and Flying less. For each of them a **reference scenario** and a **sufficiency scenario** have been found (for **5 countries**)
- A **clustering analysis** has been used to **extend** what has been found for these 5 countries to all EU27
- These data have been used as input of **MARIO** (input/output **macro-economic model**) applied at global level with a particular focus on EU27

- Results show that, **from now to 2050 about 2 Gton** of CO_2 equivalent can be saved thanks to these sufficiency measures.
- **>90%** of the assessed potential is due to **diets** (1.5 Gton) and **flying less** (0.4 Gton).

- **Other sectors have a limited impact** as well based **on the increasing use of renewables** in the sectors. Further potential would need to be assessed by broadening the scope of other sufficiency measures
- Most affected sectors are **agriculture**, **manufacturing** and **transport**.

Thank you for your attention

Final Event of FULFILL project

September, 18th 2024
presentation of findings + networking

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More info: www.fulfill-sufficiency.eu
www.inforse.org/SB60.php
www.unfccc.int

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