



The role of sufficiency in climate mitigation and European energy and climate policies

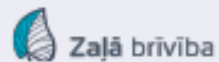
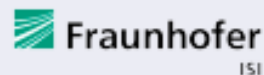
- Proposals and examples from real world and from research.
 - Based on the FULFILL project on sufficiency

Gunnar Boye Olesen and Judit Szoleczky
INFORSE-Europe

INFORSE-Europe – Sustainable Energy Seminar –
September 25-27, 2024. Talsi, Latvia

FULFILL

Fundamental decarbonisation
through sufficiency by lifestyle changes



Research conducted in 5 EU countries + India



>21000
citizens
surveyed



50
sufficiency citizen
initiatives studied



3
citizen science
workshops
carried out



Input-output models
used to quantify effects
of sufficiency measures



16
sufficiency policies
analysed



4
countries' NECPs
analysed



160
interviews
conducted



>30
project
publications

FULFILL

*Fundamental
decarbonisation
through
sufficiency
by lifestyle changes*

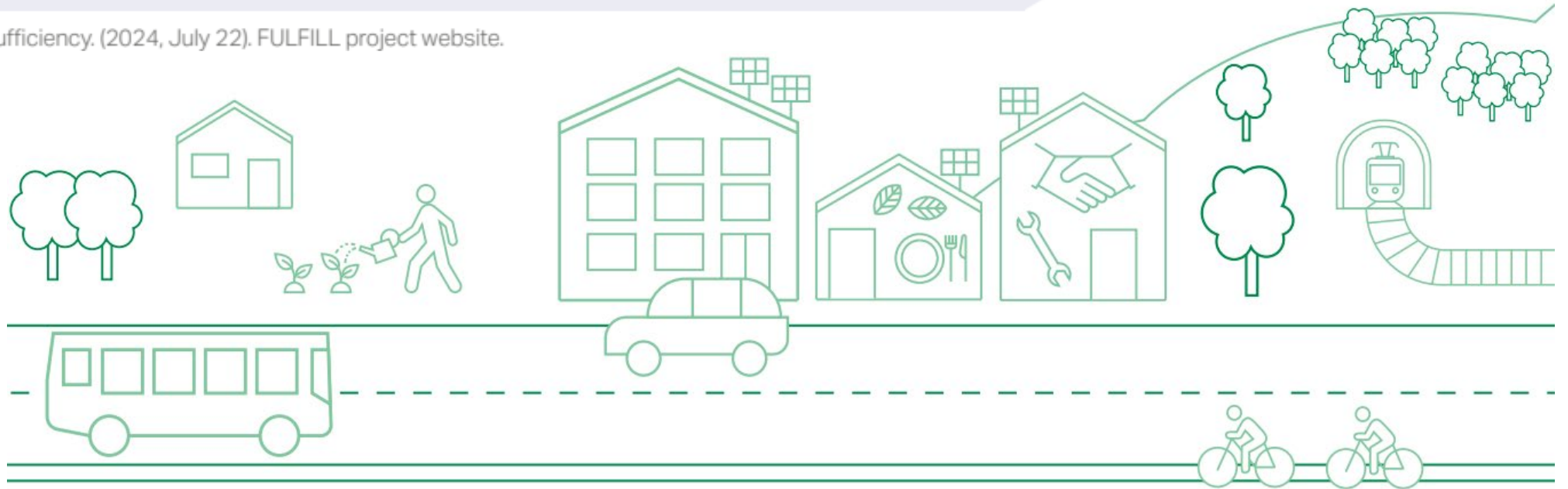


<https://fulfill-sufficiency.eu/our-research/>



Sufficiency is about creating the social, infrastructural, and regulatory conditions for changing individual and collective lifestyles in a way that **reduces energy demand** and greenhouse gas emissions to an extent that they remain within planetary boundaries, and simultaneously contributes to **societal wellbeing**.

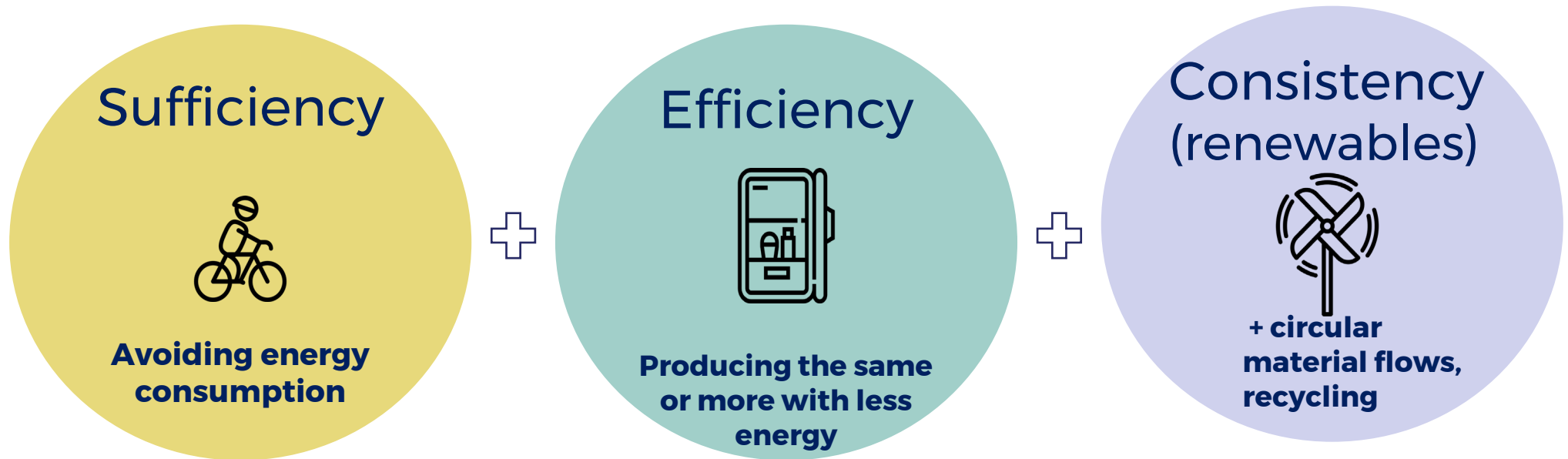
Sufficiency - Fulfill Sufficiency. (2024, July 22). FULFILL project website.



“Sufficiency policies are a set of **measures and daily practices** that **avoid demand** for energy, materials, land and water while **delivering** human **well-being** for all within planetary boundaries.”

(IPCC 2022. Summary for Policymakers, p. 41)

Sustainability strategies



Examples

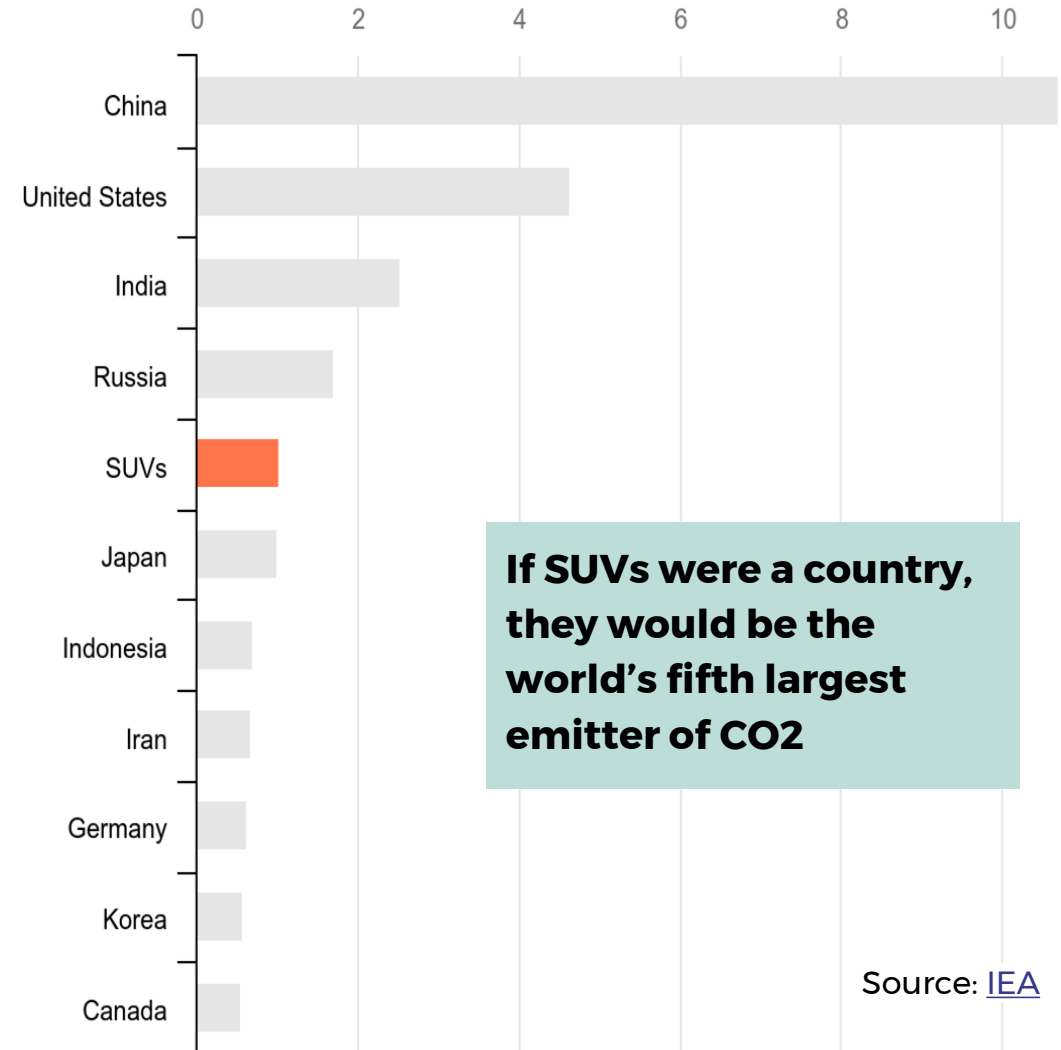
Take the car with combustion engine	cycling, public transport, car sharing, work from home	electric car	electric car with renewable electricity
Heat all rooms at 22°C with fossil fuel boiler	put the heating to 19°C , heat less rooms	invest in building renovation	install a renewable heating system (e.g. heat pumps)

Why do we need sufficiency?

- SUVs accounted for 48% of global car sales in 2023.
- **Trend towards heavier, less efficient vehicles largely nullifies recent global gains in car emissions and energy use.**
- SUV's: responsible for over 20% of the growth in global energy-related CO2 emissions in 2023
 - ~ 20% more emissions than an average medium-sized car
 - more critical materials and parking space in constrained urban areas
 - pedestrian safety



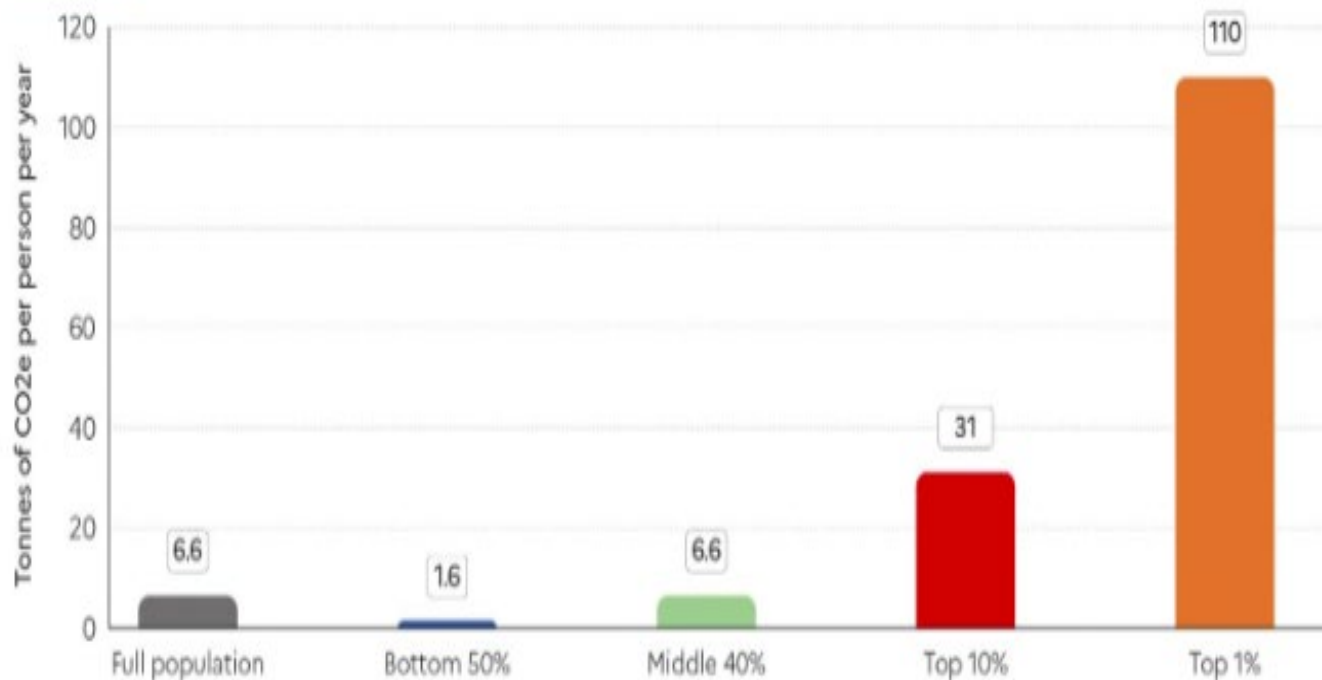
Source: [Pexels](#)



Source: [IEA](#)

Global carbon emissions worldwide by group, 2019

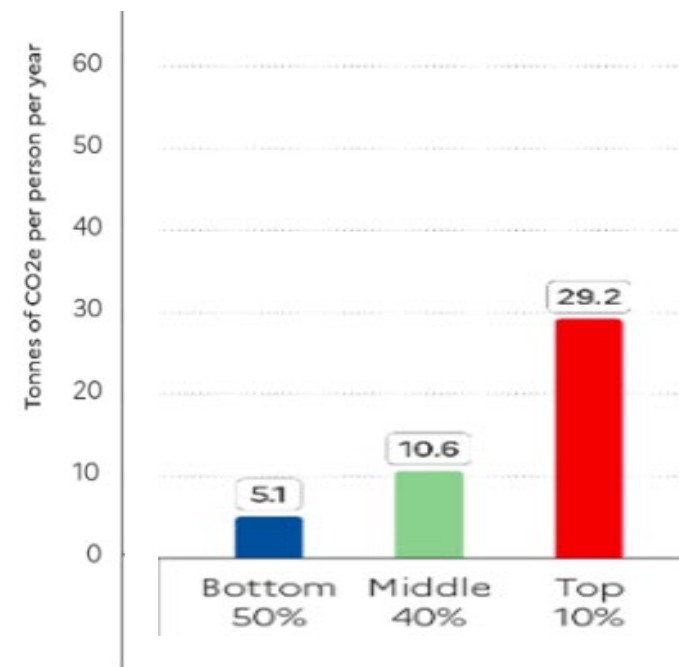
Figure 6.5a Global carbon inequality, 2019: emissions by group



Interpretation: Personal carbon footprints include emissions from domestic consumption, public and private investments as well as imports and exports of carbon embedded in goods and services traded with the rest of the world. Modeled estimates based on systemic combination of tax data, household surveys and input-output tables. Emissions split equally within households.

Carbon Inequalities

Per capita emissions, Europe, 2019



Source: Chancel, L., Piketty, T., Saez, E., Zucman, G. et al. World Inequality Report 2022, World Inequality Lab [wir2022.wid.world](https://www.wid.world)

The potential of sufficiency

Wellbeing for all within planetary boundaries



Source: Kate Raworth, 2012, [Doughnut Economics Action Lab](#)



- a more resilient Europe
- less costs and more competitiveness
- reduce energy system costs
- facilitated achievement of our climate and energy targets
- healthier ecosystems
- a better quality of life for all
 - Healthier diets
 - More active lifestyles
 - Improved air quality
 - Decreased loneliness...

Sufficiency Video



Changing infrastructures



Source: @EmmanuelSPV



Source: @CarlosMorenoFr



Source: Franceinfo



Fundamental decarbonisation
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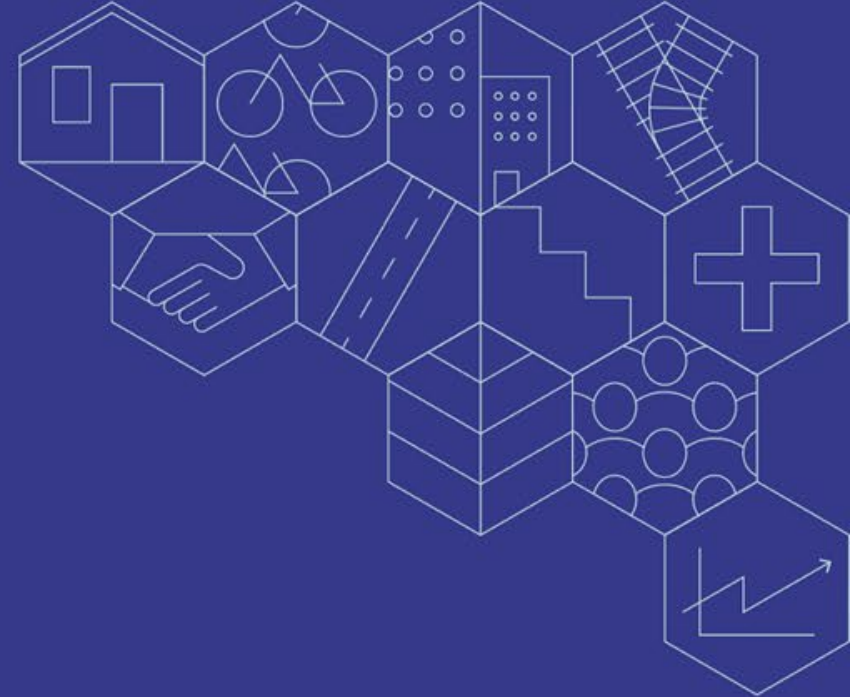
Sufficiency at the Local Level

Finding from Fiona Breucker, Jacques Delors Institute &
Mélanie Bourgeois, Energy Cities

18/09/2024



This project has received funding from the European
Union's Horizon 2020 research and innovation
programme under grant agreement No 101003656



Mobility



Bike / Cargo-Bike Rentals
Car-Free Living
Ride-Sharing
Car-Sharing
Public Transport
Culture
Transition Town

Food



Food Sharing
Urban Gardening
Packaging
Community Supported
Agriculture
Food Saving

Justice
Environmental education
Health
Co2 Reduction

Consumption

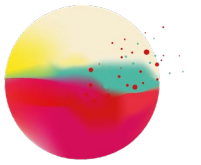


Repairing (Repair Café etc..)
Re-Use
For-Free-Shops
Sharing

Housing



Building refurbishment
Conversion
Housing projects
Communal Living
Ecovillage
Tiny Houses
Low Tech
Energy Consumption
Transition Town



ENERGYCITIES

Brussels (BE): Shifting economy



shifting
economy.brussels 
ENSEMBLE, VERS L'ÉCONOMIE DE DEMAIN

Freiburg (DE): Flat exchange scheme

•

WIE UND WARUM TAUSCHEN?



Dauerhafter Tausch
Wir bieten nur dauerhafte Tauschangebote an. Kein Urlaubstausch.



Größer gegen Kleiner
Sie haben ein Zimmer zu viel? Andere haben ein oder mehr Zimmer zu wenig.



Kleiner gegen Größer
Sie haben ein Zimmer zu wenig? Andere haben ein oder mehr Zimmer zu viel.

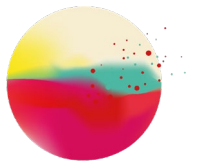


Gleich gegen Gleich
Sie wollen endlich einen Tapetenwechsel? Das wollen andere auch.



Innerhalb
Vielleicht Tauschplatz

[JETZT TAUSCHEN](#)



ENERGYCITIES

Metropole of Lyon (FR)



Water

- Progressive pricing
- Reduce leaks

→ Reduce by 50% water supply



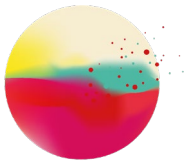
Energy

- New energy performance contracts
- Lower temperature in building & reduce public lights
- Urban densification



Ads & materials

- End of outdoor and metro advertising screens
- 75% reduction in the size and number of advertisements



ENERGYCITIES

Food focus

- Helsinki (FI): Halve the use of meat and dairy in municipal procurement by 2025.
- Liege (BE): Green Deal Cantine Durable & Ceinture Aliment-terre Liégoise since 2015.



In the 24 communes of the Liège Metropole, 38 organisations (schools, crèches, hospitals, businesses) have signed up to the Green Deal for Sustainable Canteens, representing a total of **11,240 lunch meals served every day.**



**MANGER
DEMAIN**

GREEN DEAL
Cantines Durables

A decorative background on the left side of the slide consists of a vertical column of hexagons. Each hexagon contains a white line-art icon. The icons include a wrench and saw, a factory with a sun, a document with a checklist, a house, a bicycle, a sun with rays, a factory with smoke, a person, a hand holding a heart, a staircase, and a house with a chimney.

Sufficiency Initiatives - Conclusions

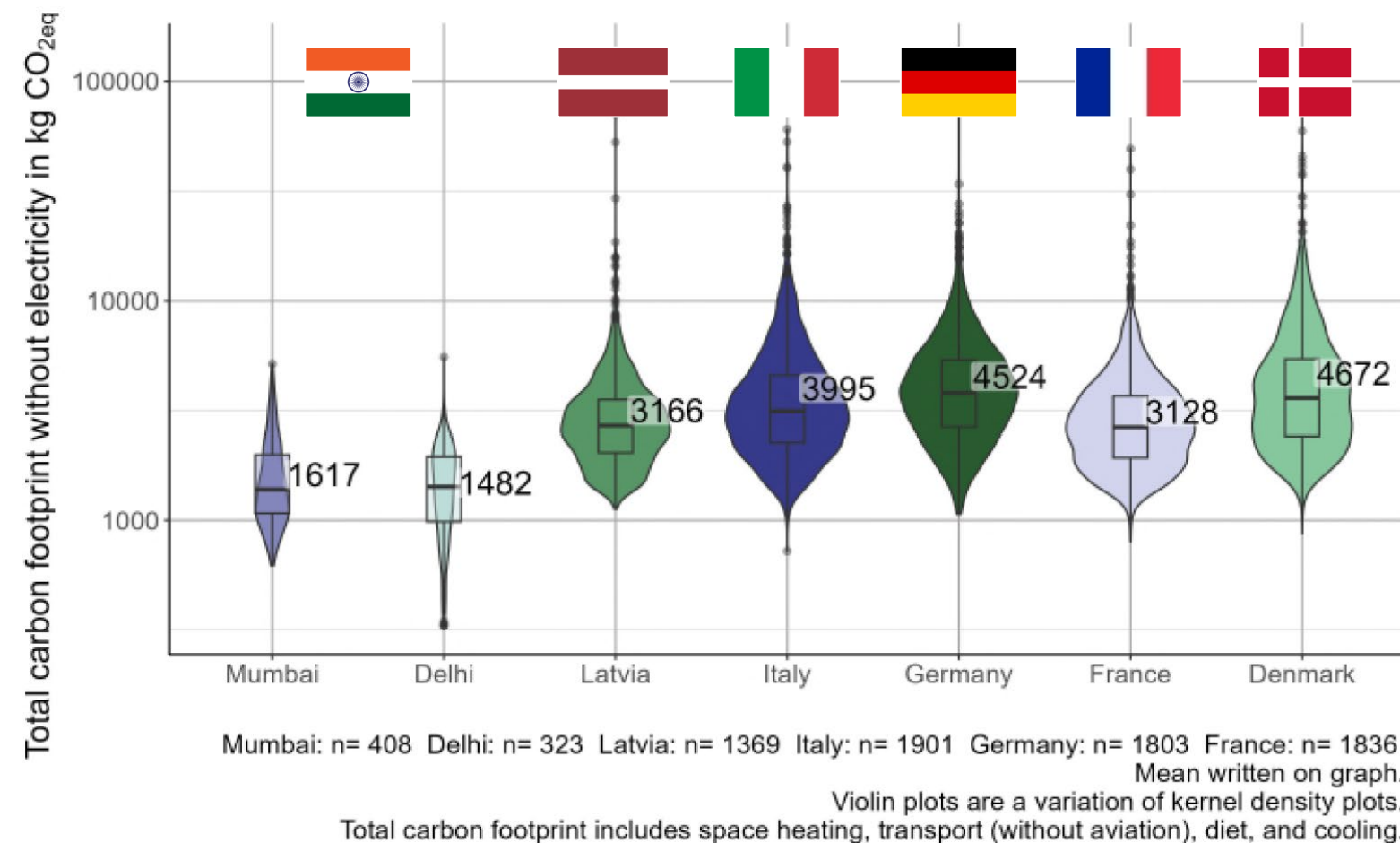
Positive Impact

- **provision of infrastructure (small scale)**
- **offer multiple benefits for those involved**
 - health benefits, education, skills, sense of belonging, financial advantages
- **influence on social norms and values**

Yet, limited support

- **BUT: at odds with current systems**
- **Need of formal support, resources, legitimacy**
 - overcoming regulatory and legal hurdles
 - aligning goals

Identifying sufficiency: current lifestyles of 9500 Europeans + 3000 Indians



*Electricity (EU)
3-6%

Diet
44-69%

Well-Being

Heating (EU)/
Cooling (IND)
14-36%

Transport
8-30%

European citizens and sufficiency - everyday experience

Very sufficient 3-4% per country

Very low in emissions
in all behavioural
domains and high in
well-being

Female, higher income,
supporting sufficiency-
oriented lifestyles and
environmental identity

Partly sufficient 8-9% per country

Very low in emissions
in some behavioural
domains and below
average overall as well
as high in well-being

Eco-friendly, support
for environmental
policies

Deprived 12-14% per country

Very low in emissions
in all domains and low
in well-being

More often female, low
income, not working
full-time

*"I always say that
participating to
this initiative gives me a lot
of energy". (Woman, 47,
Italy, reduced consumption)*

Living in a tiny
house allows me to
be less a slave to
work." (Woman, 25,
France, tiny house)

Well-being as consequence and
motivator

Time availability

Income and affluence

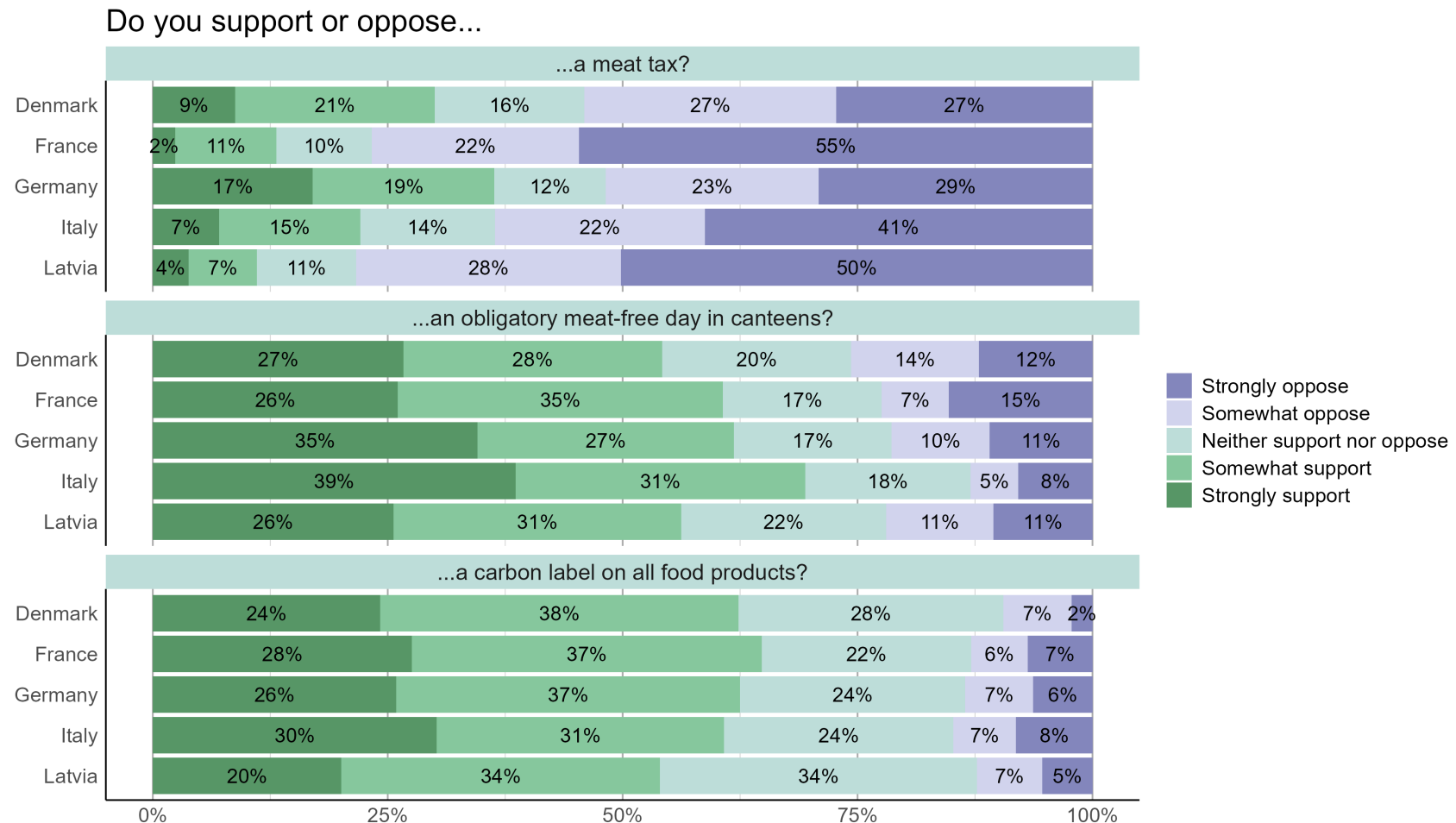
Sufficiency as a side-effect in
joining initiatives and unknown as
a concept

Perceived as a potential threat
among low-income



No or weak link between well-being and sufficiency

European citizens and sufficiency - perceptions on policies



Percentage of Respondents

Housing policies: DK: n=786, FR: n=784, DE: n=763, IT: n=774 and LV: n=535

Diet policies: DK: n=810, FR: n=798, DE: n=776, IT: n=824 and LV: n=578



Fundamental decarbonisation
through sufficiency by lifestyle changes

Social Impact Assessment

Risks & Benefits from implementing sufficiency policies

From Dr. Manuel Bickel, Wuppertal Institute

18th of September 2024



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101003656



Results: Benefits from Sufficiency

Benefits to 'Health'

- **Increase in 'Cycling'** partially sufficient for **reduced mortality**, if it increases physical activity and/or reduces use of cars with internal combustion engines
- **Car-pooling** sufficient and **smaller car-sizes** partially sufficient for **reduced mortality** if they decrease or replace fossil fuelled mobility
- **Reducing meat consumption** partially sufficient for **reduced mortality**, if it leads to a more balanced diet
- **Worktime reductions** partially sufficient for **reduced mortality** if it reduces stress and/or long working hours for vulnerable groups

Benefits to 'Poverty Mitigation'

- **Increase in cycling** and **car-pooling** partially sufficient for **poverty mitigation** if it reduces transport-related expenditures of low-income households
- **Sharing of products** or **space** partially sufficient for **poverty mitigation** if they reduce the monthly expenditures for housing (including capital costs) among low-income households



Results: Risks from Sufficiency

Main Insights

- The **broad and non-targeted implementation** of policies towards ‘**Cycling**’, ‘**Eating Less Meat & Dairy**’ and ‘**Working Less**’ might lead to the **exclusion of vulnerable groups**. Especially women with children and low-income households might not be able to participate for economic, but also more pragmatic reasons. This is why the **needs, preferences, and economic capabilities** of these groups **should be taken into account** for policy design.
- Similarly, policies towards ‘**Flying Less**’ and ‘**Product-Sharing**’ require **less intervention** but would **benefit from a similar policy design**. Especially the former is also associated with indirect economic losses for the tourism sector.
- **Car-pooling, car-sizing and space-sharing** are associated with **the fewest risks** regarding any of the five dimensions, with some of the risks considered to be non-avoidable (such as disease transmission during car-pooling).



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Sufficiency policies

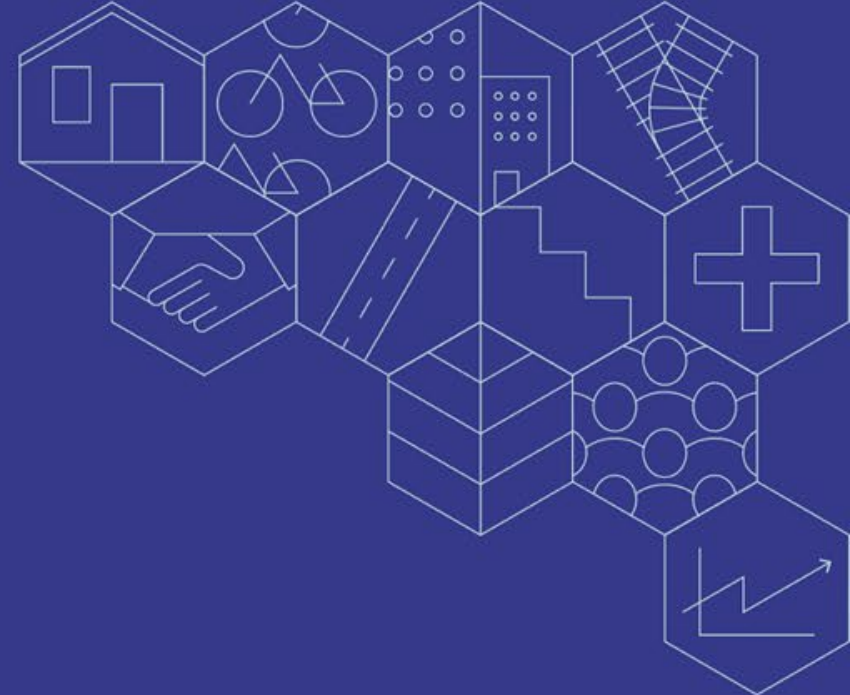
Based on Yves Marignac, Association négaWatt

Energy expert and spokesperson
yves.marignac@negawatt.org

18/09/2024



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Sufficiency policies: car sizing

Car industry
manufacturers

Car fleet
users

Households
(≠ categories)

Market

Increasing
share targets

Labels

Life cycle CO2 &
energy labelling

Regul.

Weight / size
targets in fleets

Tarifs

Progressive
motorway toll

Sub.

Support car-
sharing schemes

Info.

Raise awareness
re. weight impact

Market

Standards re.
material contents

Labels

Weight / size
criteria

Fiscal.

Weight / size
malus-bonus

Tarifs

Progressive
parking toll

Sub.

Support EU micro-
car EV industry

Info.

Build breaking
positive narrative



+ EU/national goals
for greening vehicles

+ Increasing pressure
re. material resources

+ Social awareness
re. climate / greening

+ Urban / spatial
planning constraints

+ Need to transform
funding schemes

Enablers

± Individual / social
priority re. road safety

± High cost of EVs
re. just transition

± Influence of
advertisement

Mixed

- Complex calculation
and traceability

- Lock-in of a tailpipe
CO₂ free only prism

- World trade rules,
free market

- Lobby of car industry
(business models)

- Lack of awareness
on weight/size impacts

- Link to social status,
freedom, masculinity...

Barriers

Sufficiency policies: change in diet

Six case studies of local / national policies and the related dynamics

- Denmark**
 - Plant based/climate friendly meals in public kitchens and canteens
- France**
 - Vegetarian menus in schools and public cafeterias
- Germany**
 - Veggie-Day
 - VAT reduction
- Italy**
 - Green Mondays: Vegan Menu at Bolzano's Hospital Canteen
- Latvia**
 - Policies supporting vegetarian diets at schools

Background: what drives/hinders the policy

Policy: nature, objectives and status

Context: policy consistency and adequacy, policy enforcement, public participation

Evaluation: climate and cobenefits, transformative power, social acceptance

Potential

Policies

Enablers and barriers

- | | |
|--------------------------|---|
| Low Short term | Labels informing on nutrition and environment |
| Low Short term | Campaigns to promote healthy & sustainable diets |
| Medium Short term | Implement food & climate education in schools |
| Low Mid term | Train professions in contact with the public to inform |
| Mid term | Free nutritionist check-up once a year |
| Medium Long term | Access to healthy and sustainable food in social protection systems |
| Medium Short term | Implement vegetarian options in catering |
| Medium Mid term | Regulate food marketing and advertisement |
| Mid term | Environmental objectives for food industries |
| Mid term | Redirect subsidies towards alternatives |
| Strong Long term | Fair taxation and redistribution on food |

- Ethical concern**
re. breeding / killing of animals
- Environmental concerns**
- Health concerns**
- Concern re. antibiotics**
- Fear of nutritional deficiencies**
- High cost of animal products**
- Cost of fruits, vegetables, and vegetarian products**
- Aversion to meat**
- Taste enjoyment of animal products**
- Lack of knowledge**
of plant-based recipes as alternatives
- Low availability of alternatives**
in stores, restaurants, collective catering
- Social acceptability**
(sharing meals with others)
- Masculinity norms**

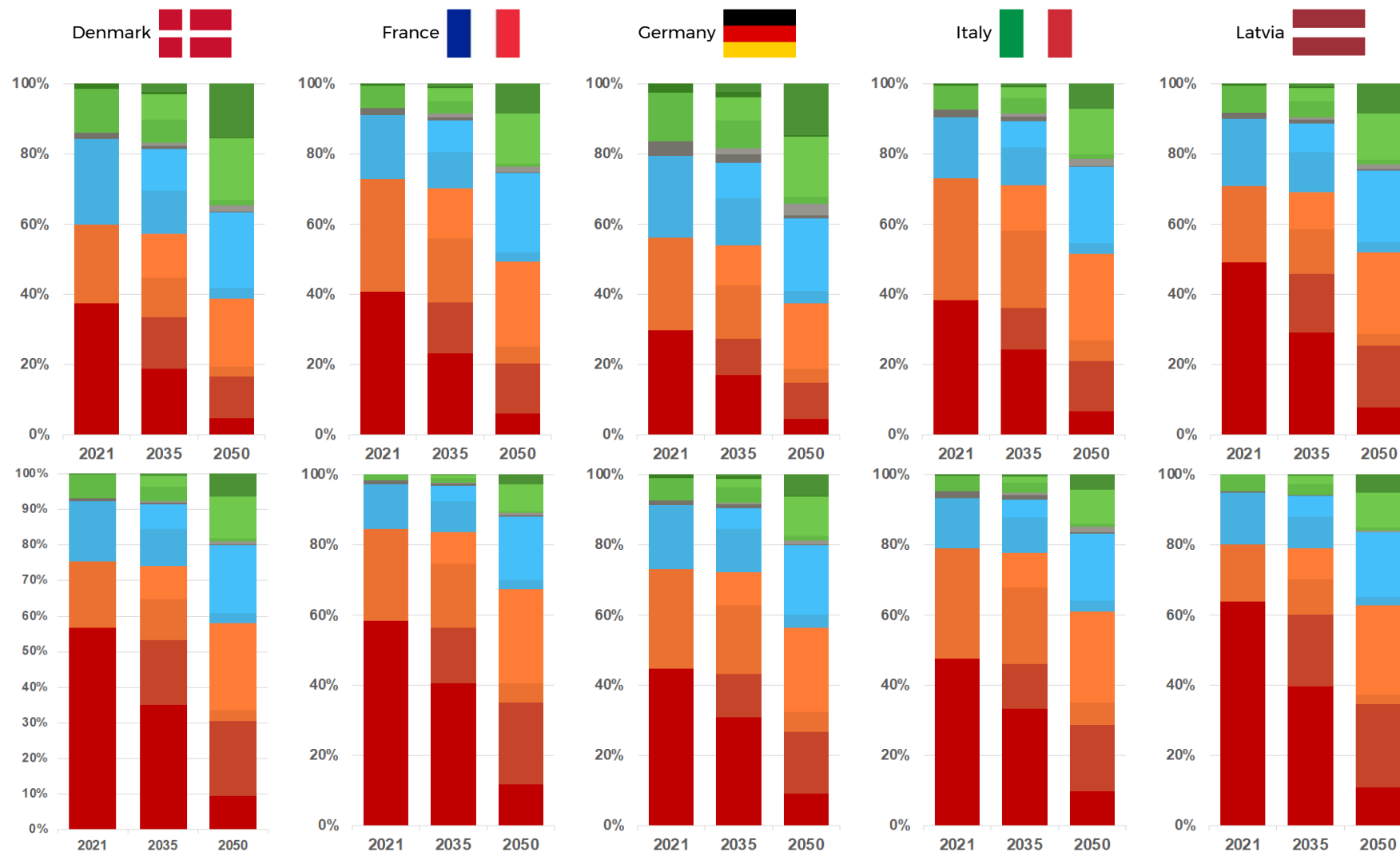
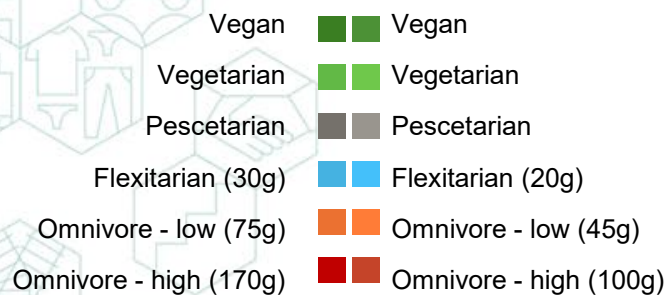
Sufficiency policies: change in diet

♀ Women

♂ Men

2020-type diets

2050-type diets





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Fundamental decarbonisation
through sufficiency by lifestyle changes

Quantification of sufficiency measures and contribution to EU climate targets

From Wolfram Sparber, E. Schau, M.G. Prina, F. Beltrami
N. Golinucci, L. Rinaldi, F. Tonini, M.V. Rocco,

Eurac Research, Politecnico di Milano
18th September 2024, Brussels

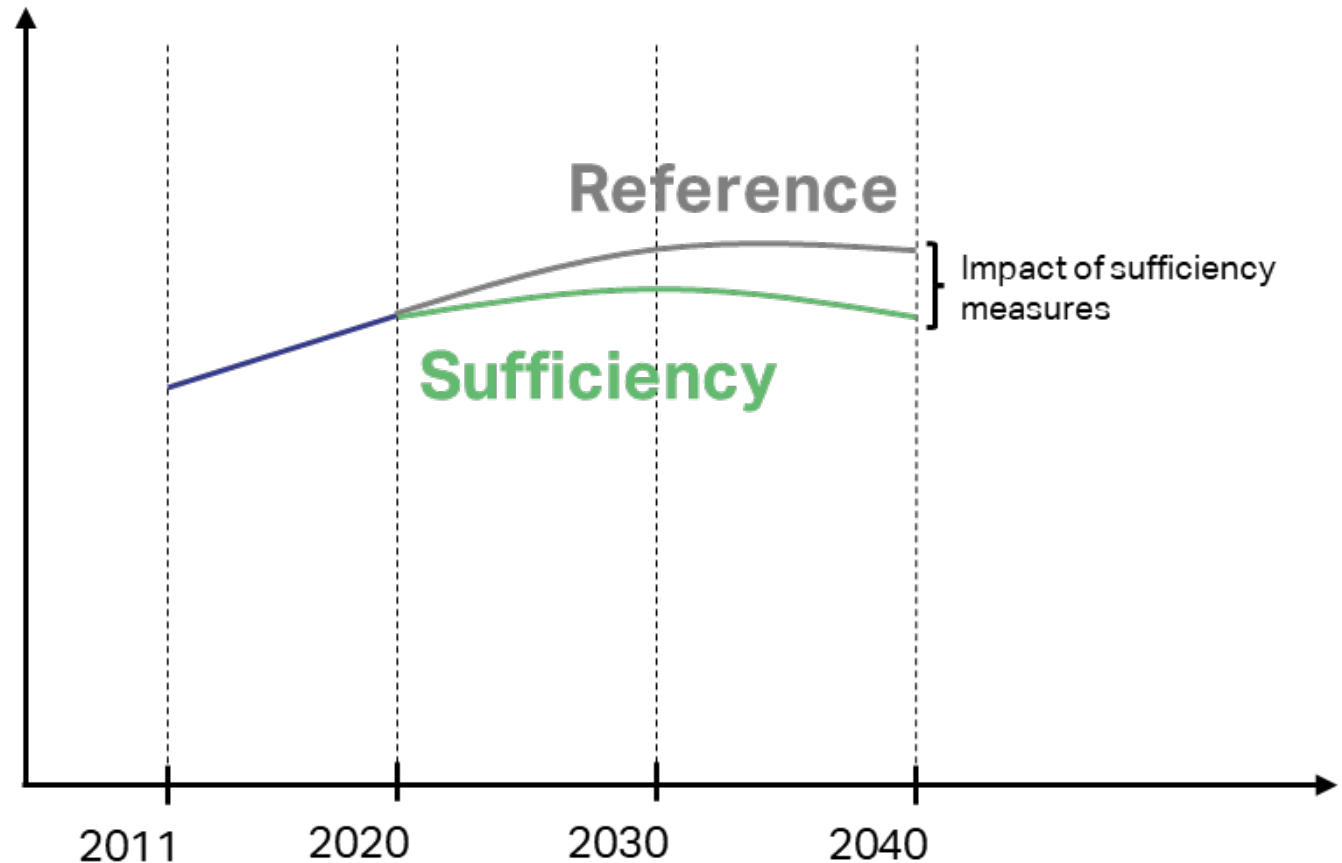


Sufficiency versus Reference scenario

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

Global
GHG
[Gton]



Results – GHG reduction relative to reference

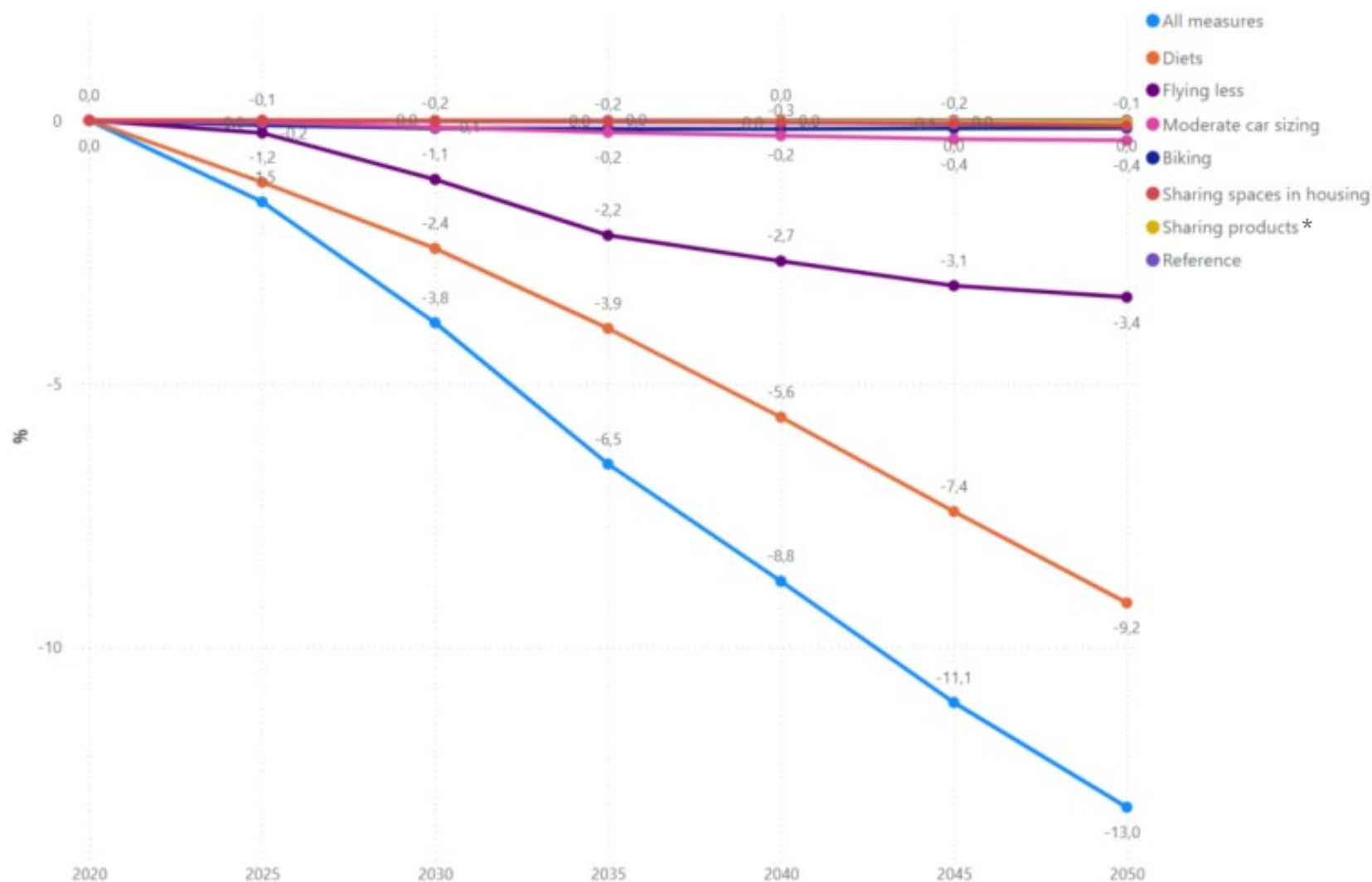
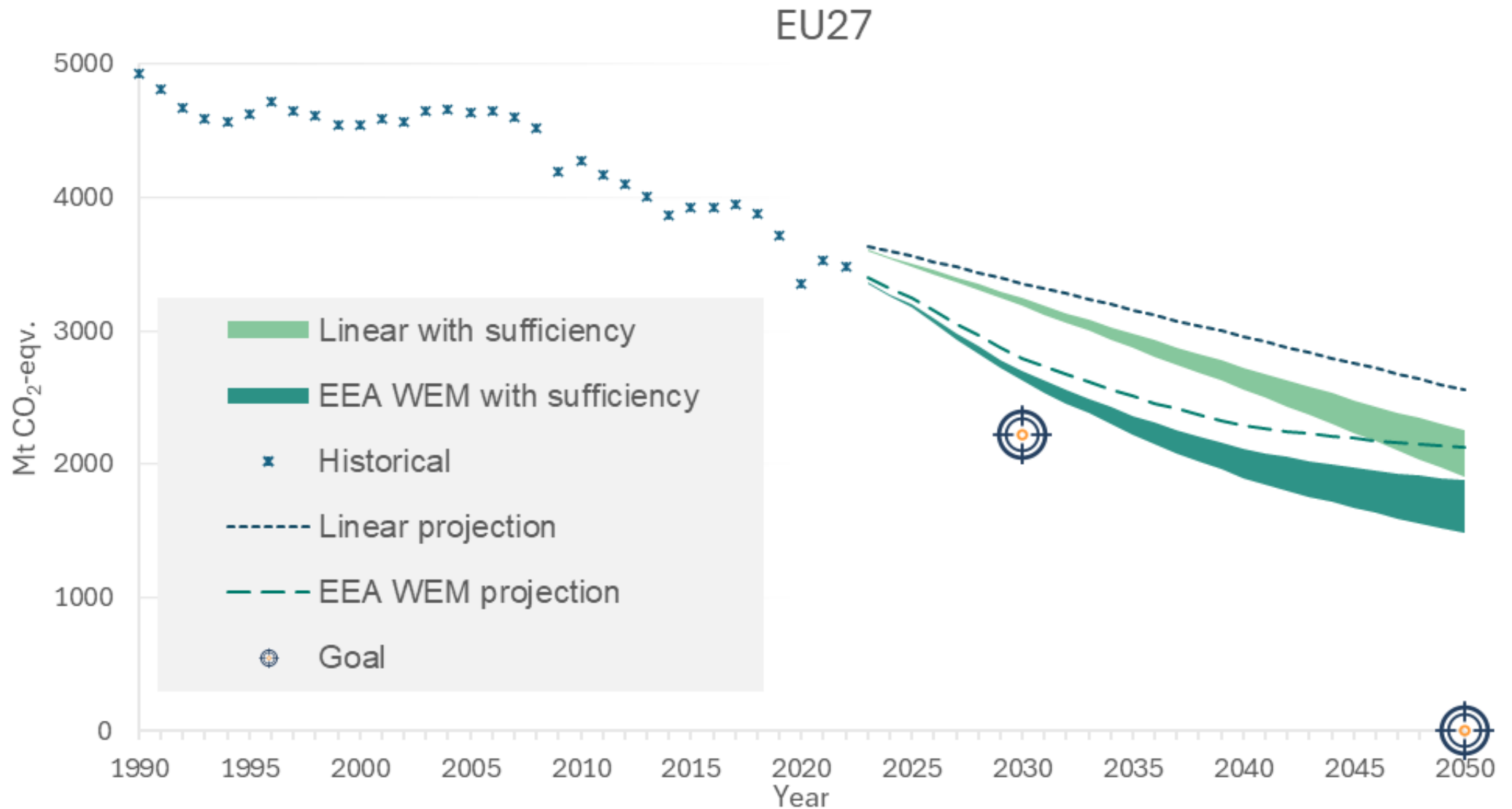
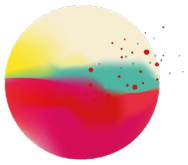


Figure 29. Relative reduction of GHG emissions brought by each sufficiency scenario assumption in the EU with respect to Reference scenario

*only washing machines are considered

Results – EU 27





ENERGYCITIES

Resilient and Resource wise Europe manifesto

- An EU strategy for sufficiency
- Dedicated section in the future National Energy and Climate Plans & Governance regulation
- Sectoral measures: mobility, building, urban planning, materials and waste, water, fiscal rules...



The manifesto is still open for new signatories and signatories have foreseen further common activities.



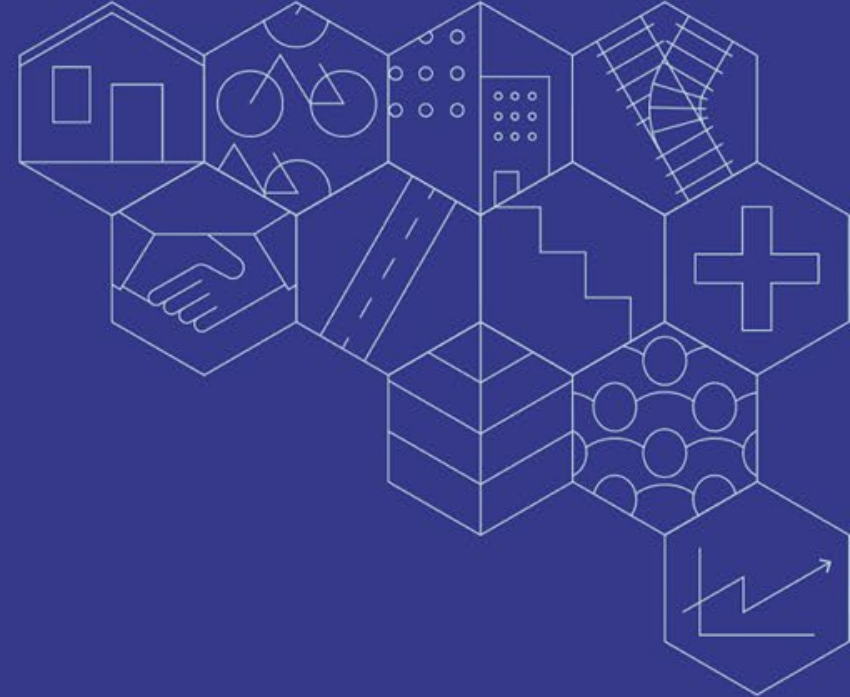


Fundamental decarbonisation
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Sufficiency in the NECPs

- analysis covering four EU countries

Gunnar Boye Olesen, INFORSE-Europe



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EU is developing one NDC (National Determined Contribution) for the Paris Agreement.

The NDC for 2035 with update for 2030 is to be submitted 9-12 months before COP30 in 2025 (before March 2025)

Each of the 27 EU countries (+Ukraine) are developing their own NECP (National Energy & Climate Plan),

The NECPs shall add up to the EU NDC.
Drafts NECPs were ready in 2023, final versions submitted (from) June 30, 2024

The 4 countries and the sectors analysed for sufficiency in NECPs

NECPs of
Denmark
France
Germany
Italy

Activities
Buildings 
Mobility 
Products 
Diets 

**Policies for 30 sufficiency measures
searched in NECPs**

Sufficiency in National Energy & Climate Policies (NECPs), 4 countries

Country	Sufficiency in NECP 2024
Denmark	Buildings: Moving electricity use in time Energy advice including behavioural change Mobility: Bicycling paths, Aviation tax Products: Packaging tax, Direct re-use station requirement Diets: (none)
France	Buildings: temperature regulation, limit light, move el. use Mobility: Employer pgm, carpooling, train support, aviation tax and limits, bicycles support, bicycle paths, support rail freight, speed limits Products: green claims reg., repair label Diets: plant protein promotion, vegy choice in canteens. 20% organic food in canteens, halving food waste, 8% vegetable farming

Sufficiency in National Energy & Climate Policies (NECPs)

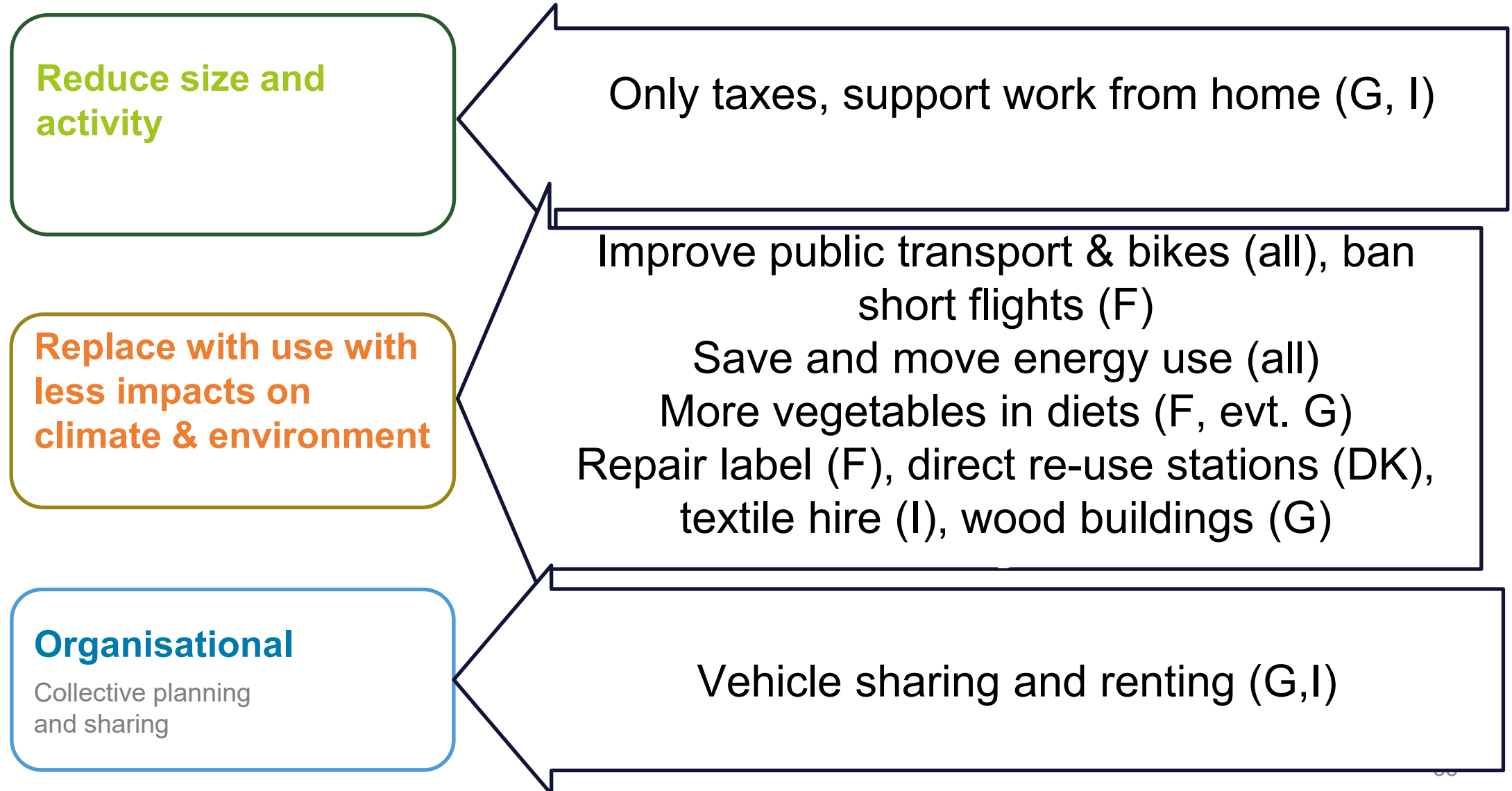
Country	Sufficiency in NECP 2024
Germany	Buildings: Energy saving campaign with advise on behavioural change, electricity check low income people, dynamic tariffs to move electricity use in time Mobility Public transport expansion, favourable tickets (49€), tax reietf for rental bicycles, bicycling paths, promote rail freight aviation tax, Gigabit strategy to improve work from home Products: Promote timber buildings Diets: preparing sustainable nutrition strategy
Italy	Buildings: Energy saving campaign with advise on behavioural change, dynamic tariffs to move electricity use in time (dynamic tariffs on water) Mobility Public transport expansion, tax credits for cargo bicycles, bicycling paths, promote work from home, car pooling, shared vehicles (cars, bicycles etc.) Products: Right to re-use and repair, promote hire of textile products Diets: (none)



What is New in 2024 NECPs

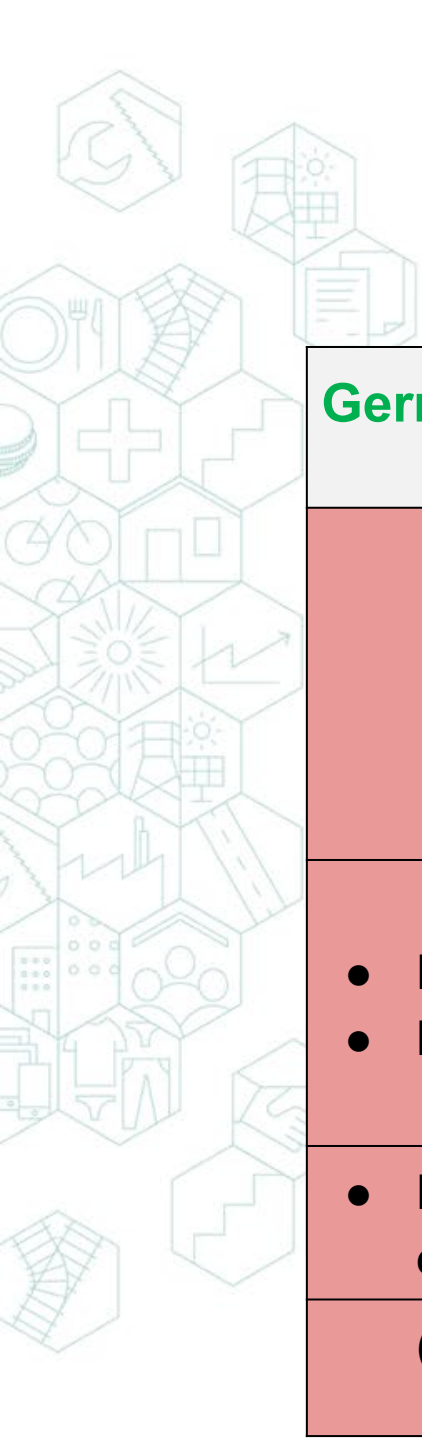
- **Denmark:** 11 new and amended policies, none on sufficiency, several sufficiency policies not quantified
- **France:** Policies still the same, but sufficiency included in scenario with additional measures (e.g. 6,6 MtCO₂ out of 51,6 MtCO₂ reduction of transport emissions)
- **Germany:** New energy change campaign including energy change dialogues with citizens
- **Italy:** Action Plan on Sustainable Consumption and Production (NAP) under preparation, but other new policies do not include sufficiency

Sufficiency policies in NECPs, overview



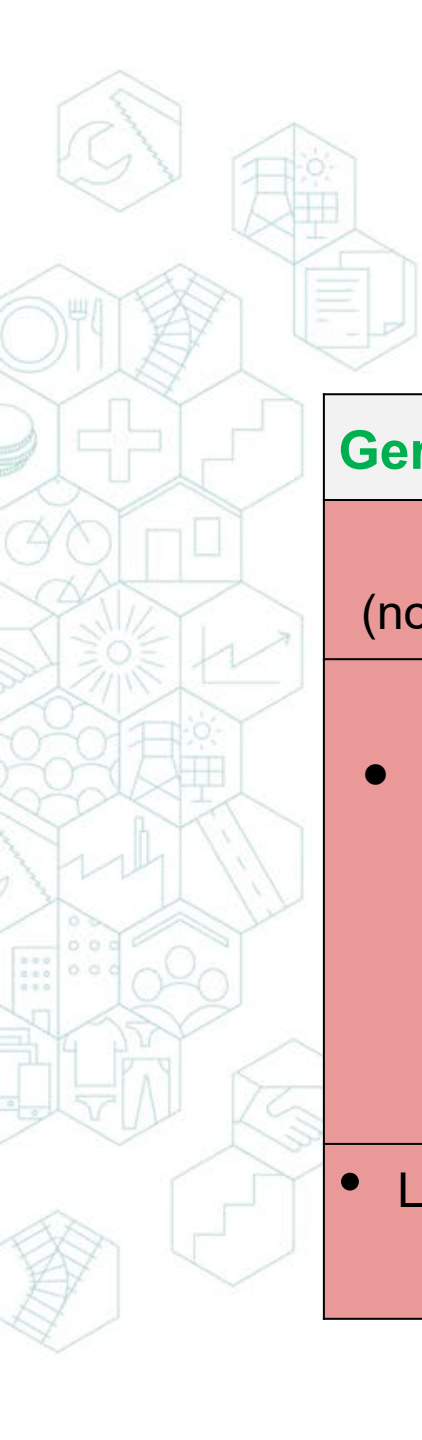
Overview of sufficiency in NECPs

- Of 30 types of sufficiency policies identified, 7 used in Denmark, 10 in France, 5 in Germany, 9 in Italy
- Many sufficiency policies not strongly implemented
- Local sufficiency regulations can inspire new national policies
- National sufficiency policies are quite different and countries can inspire each other
- With less than 1/3 of sufficiency policies used, there is a big potential for increased climate action with more and stronger sufficiency policies



Sufficiency in NECP vs. Proposals: German Buildings

German NECP, 2024	Proposals for more sufficiency
REDUCE (no measures to reduce building or dwelling sizes)	• Promote co-housing • Promote sharing dwelling, renting rooms • Assist moving to smaller dwellings • Promote well planned tiny house developments
LOWER IMPACT • Energy Advice services • Low-income energy advice, electricity	• Label for energy efficient behaviour • Moderate temp in public buildings • Lifeline tariffs of energy
• Dynamic electricity tariffs to move electricity use in time	
(Local limits of parking in cities)	• Reduce requirements for parking



Sufficiency in NECP vs. Proposals: German Diets

German NECP, draft 2023	Proposals for more sufficiency
REDUCE (no measures to reduce food use)	• Strategy to reduce food waste
LOWER IMPACT • Prepare nutrition strategy for sustainable diets	• Promote plant based diets, information, campaigns • Vegetarian meals in canteens, one option always and some days as only option • 19% VAT on meat, 0% VAT on vegetables
• Limit livestock to 2/ha	

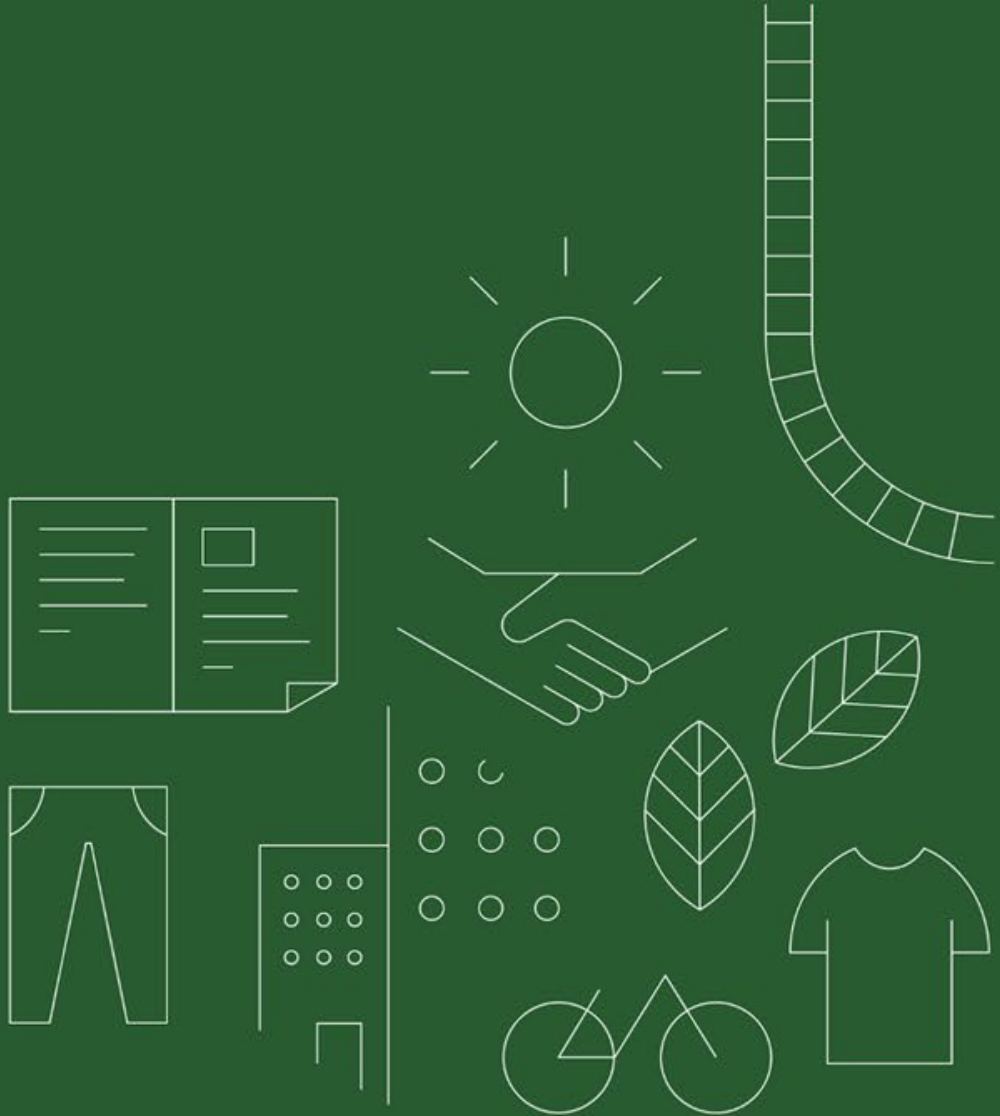


2023 NECP drafts were not adding up to EU 55% target

EU 2030 target is 55% GHG reductions 1990-2030

**NECPs (2023 drafts) are adding up to 51% reduction 1990-2030
(European.Commission)**

Sufficiency policies **can help EU meeting the emission gap**



Let's keep in touch!

<https://fulfill-sufficiency.eu/>

<https://www.inforse.org/europe/FULFILL.htm>



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