

Socially Fair Options for a Climate Neutral Transformation of Housing and Mobility in Austria

Claudia Kettner-Marx (WIFO)

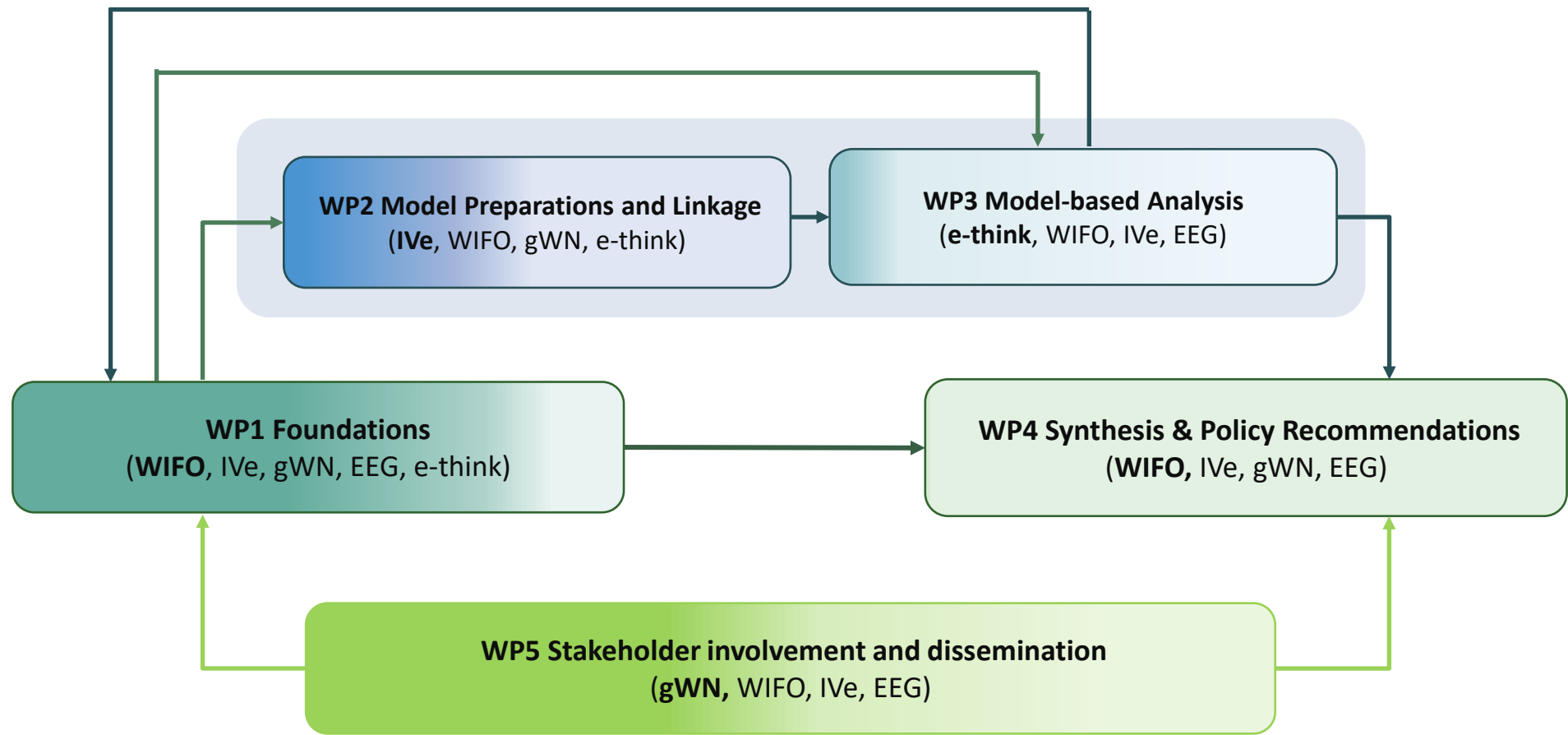
**23. Österreichischer Klimatag, April 13th, 2023,
Montanuniversität Leoben**

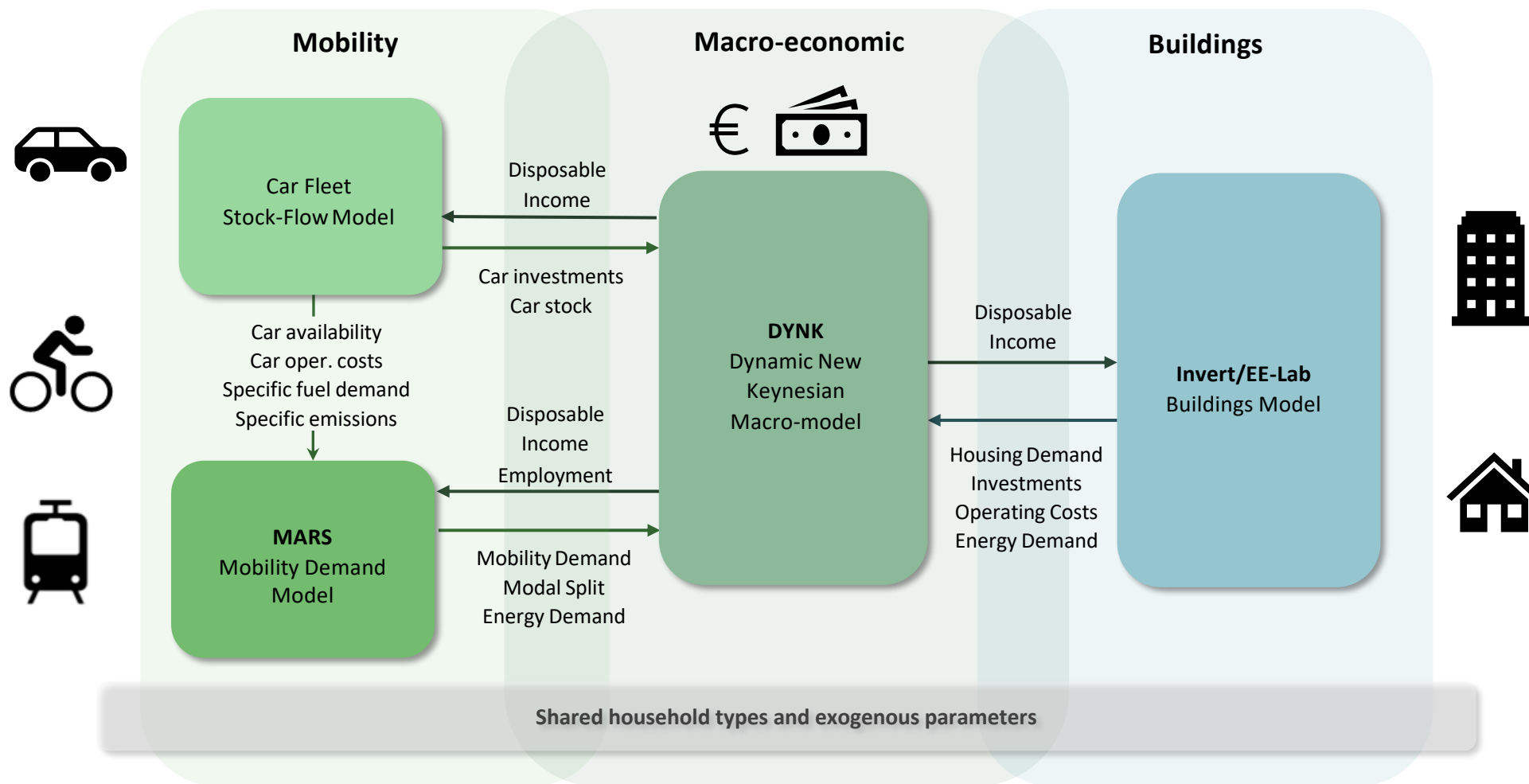
- ▶ The overarching objectives of the project **TransFair-AT** are
 - ▶ to provide comprehensive and innovative model-based analyses of the economic incidence and social impacts of a complete decarbonisation of the sectors residential buildings¹ and passenger transport in Austria by 2040 and
 - ▶ to develop targeted compensation mechanisms to mitigate the burden of these climate policies for particularly vulnerable groups, while ensuring that these compensation mechanisms are consistent with full decarbonisation.

¹ Heat demand only, but including upstream emissions of district heat and power generation.

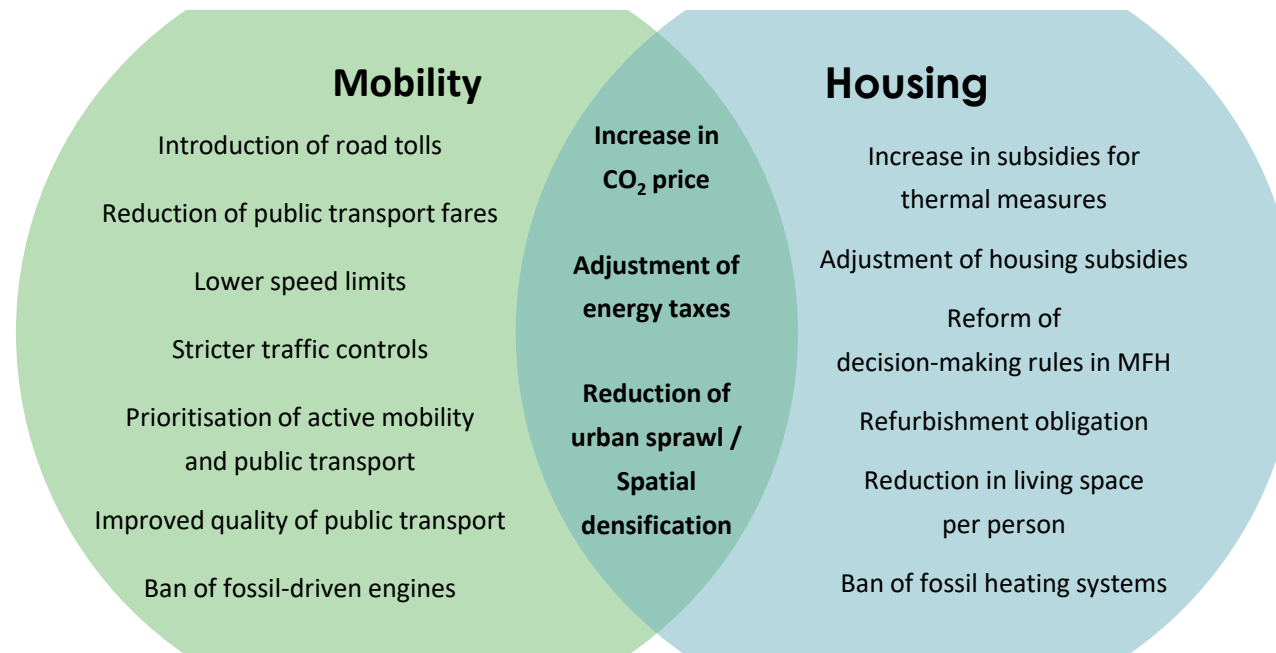
- ▶ Iterative linking of the macroeconomic model DYNK with a vehicle choice model, the transport demand model MARS, and the building stock model Invert/EE-Lab to analyse the emission impact as well as the macroeconomic and distributional effects of the decarbonisation policy scenarios on different household types
- ▶ Definition of a joint household database for all models to translate the distributional effects amongst the different household groups
- ▶ Development of decarbonisation policy scenarios for the housing and mobility sectors to identify socially acceptable mitigation policy pathways
- ▶ Identification and development (and model-based analysis) of compensation mechanisms to mitigate burdens of climate policies for particularly vulnerable groups

Project Structure and Progress





Decarbonisation measures

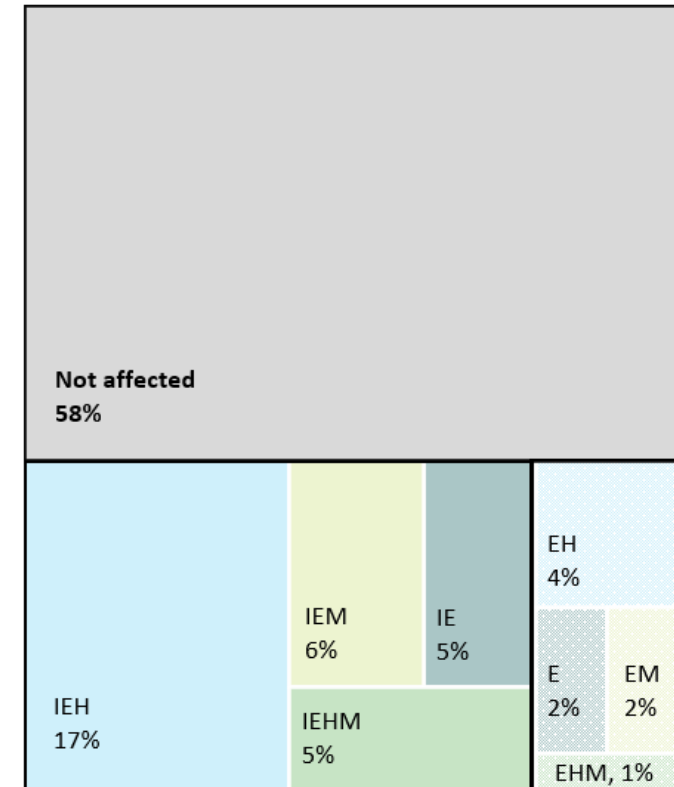
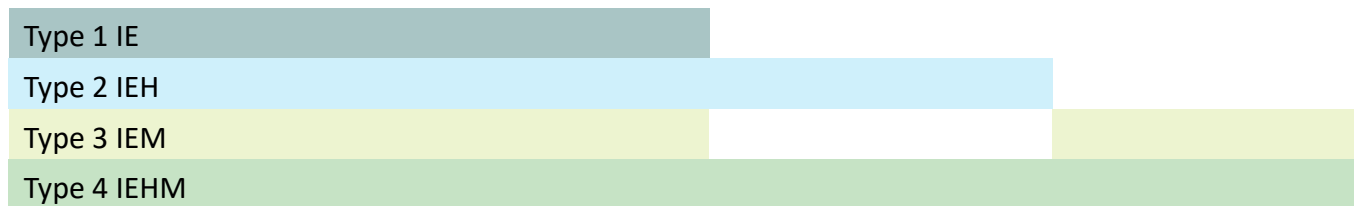


Compensation measures

Increase in infrastructure investments (public transport)	Tax revenue recycling via eco-bonus (lump-sum payment for all or only vulnerable households)	Subsidisation of planning and investments in thermal measures for vulnerable households
Reduction of public transport fares (free public transport)	Increase in existing socially targeted transfers	Legal adjustments (protection against rent increases, rent neutrality)
		Renewable energy (electricity) vouchers

Composite Index

Income Vulnerability	Energy Vulnerability	Housing Vulnerability	Mobility Vulnerability
Equivalised disposable household income below 140% of the national median equivalised disposable income	Use of fossil fuels at home or perceived unaffordability to keep home adequately warm	Legal relationship (rent) or Building type (MFH*)	Household in sparsely populated region



*) MFH ... multi family homes.

**) Potentially at risk of energy vulnerability due to reliance on a fossil heating system.

Household Types in Modelling

Energy	Housing	Mobility	Income				
			Q1	Q2	Q3	Q4	Q5
Fossil heating system	Single-family/ multi-family house	Peripheral					
		Non peripheral					
	Rented flat	Peripheral					
		Non peripheral					
	Owner-occupied flat	Peripheral					
		Non peripheral					
Non-fossil heating system		Peripheral					
		Non peripheral					

Illustrative Case Studies



► Outputs

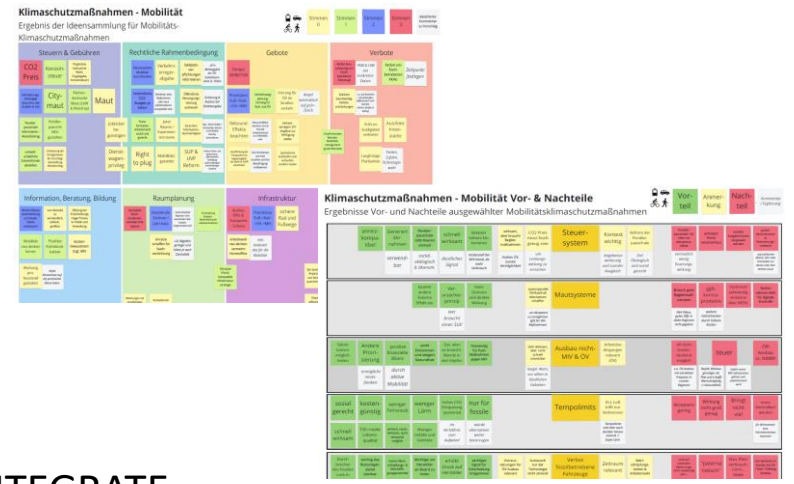
- J. Bock-Schappelwein, C. Kettner, 2023, TransFair-AT Research Brief #1: Households vulnerable to rising energy prices.
- Conference Presentations
 - J. Bock-Schappelwein, Steigende Preise für fossile Brennstoffe: Was zeichnet betroffene Haushalte aus?, Presentation at the 5th ESPANET AUSTRIA Conference, Vienna, 14/09/22
 - P. Pfaffenbichler, Social impacts of decarbonising the Austrian passenger transport system, Presentation at the European Transport Conference, Milan, 6-8/09/23

► Stakeholder Workshops

- Virtual Stakeholder Workshop on household types and policy scenarios, 31/03/22
- Stakeholder Meeting on mobility types and case studies, 26/04/23

► Scientific Advisory Board Meetings and Stakeholder Board Meetings

► Coordination with complementary ACRP projects: NetZero2040, SectorCoup, INTEGRATE



▶ WP 1 Foundations

- ▶ Complete definition of household types and case studies

Stakeholder Meeting 26/04/2023

▶ WP2 Model Preparations and Linkage

- ▶ Finalisation of model linkage
- ▶ Test, refinement and validation of linkage

Expert Workshop on Modelling 17/04/2023
SAB Meeting on Modelling

Exchange with:
NetZero2040, SectorCoup
INTEGRATE, TransFair

Thank you!

Project Team

WIFO

Claudia Kettner-Marx, Julia Bock-Schappelwein, Daniela Kletzan-Slamanig, Mark Sommer, Katharina Köberl-Schmid, Susanne Markytan, Eva Wretschitsch

BOKU - IVe

Astrid Gühnemann, Paul Pfaffenbichler, Lukas Hartwig, Olivia Gold

BOKU - gWN

Mathias Kirchner, Nathalie Spittler

TU Wien - EEG

Lukas Kranzl, Iná Maia

E-think energy

Andreas Müller, Lukas Mayrhofer



<https://transfair.wifo.ac.at/>

Contact: claudia.kettner@wifo.ac.at