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

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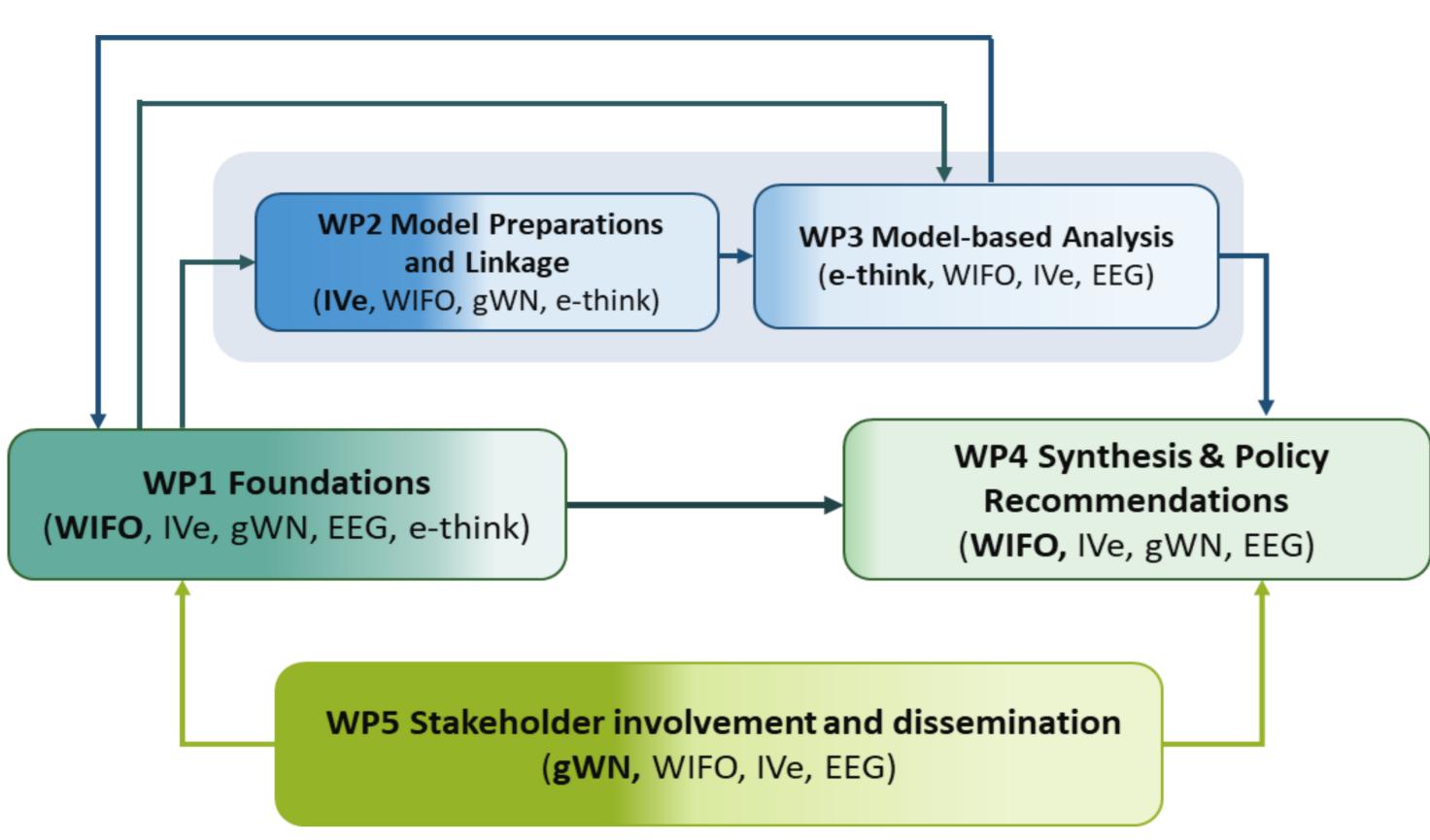
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MOTIVATION

The Austrian government strives for achieving greenhouse gas neutrality by 2040. The introduction of policy instruments to decarbonise housing and mobility will affect different household groups to a diverse extent depending on several (socio-economic) aspects.

The (presumed) regressivity of policy instruments (most notably fiscal measures) in the areas mobility and housing very often impedes an evidence-based discussion on the political level and is used as an argument against the implementation of respective measures, especially in times of low economic development as during the COVID-19 crisis or the current energy crisis.

PROJECT STRUCTURE AND PROGRESS



CURRENT ACTIVITIES

FIRST RESULTS

WP1 Foundations

Complete definition of household types and case studies

WP2 Model Preparations and Linkage

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

PROJECT OBJECTIVES

The overarching objectives of the project TransFair-AT are

- 1. 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
- 2. 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.

SUB-GOALS

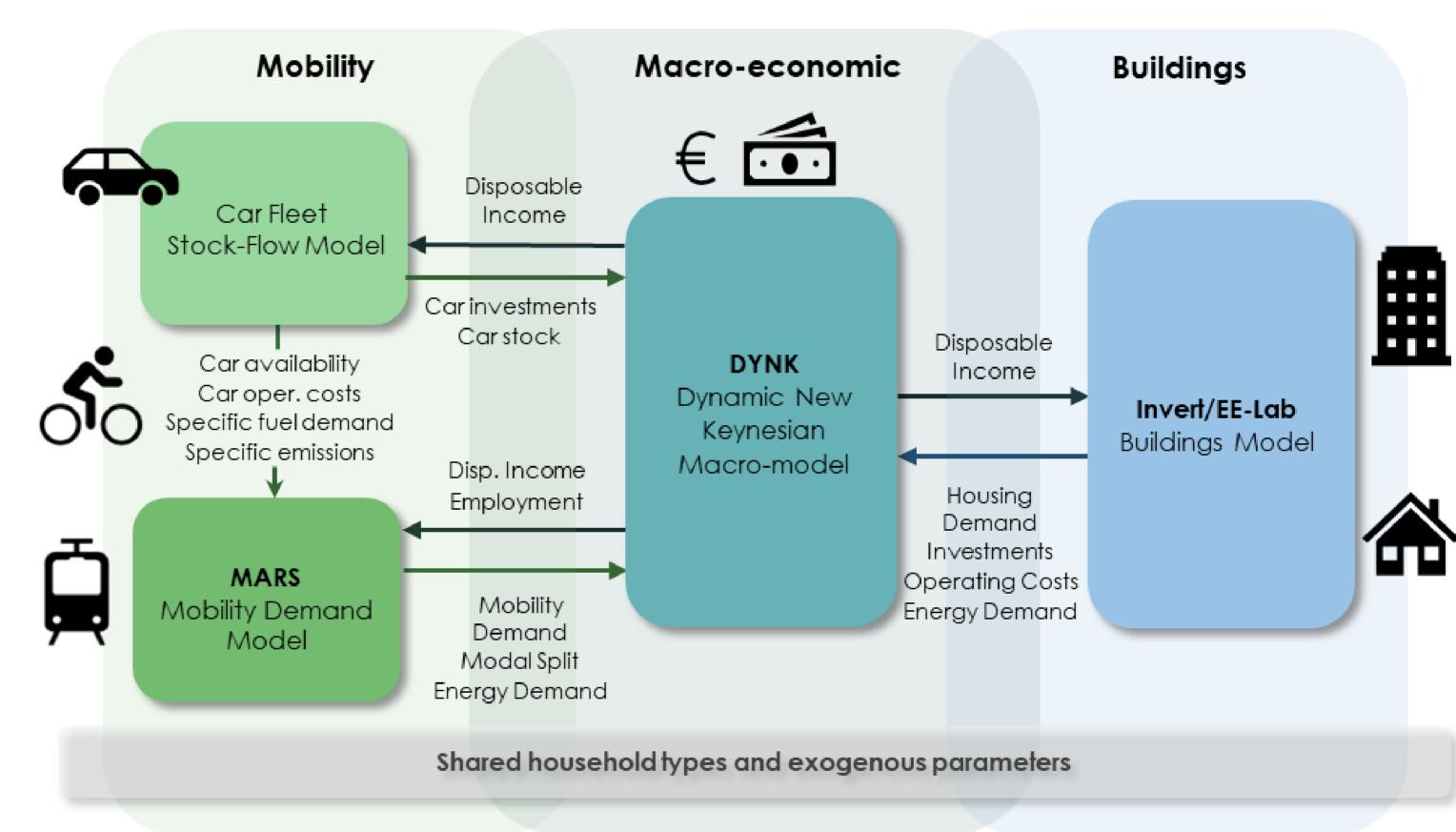
¹ Heat demand only, but including upstream emissions of district heat and power generation.

Close cooperation with

relevant stakeholders

- 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 modelbased analysis) of compensation mechanisms to mitigate burdens of climate policies for particularly vulnerable groups

MODELLING APPROACH



Policy Measures Decarbonisation measures Mobility Housing Increase in Introduction of road tolls Increase in subsidies for CO₂ price thermal measures Reduction of publ. transp. fares Adjustment of housing subsidies Adjustment of Lower speed limits energy taxes Reform of Stricter traffic controls decision-making rules in MFH Prioritisation of active mobility Reduction of Refurbishment obligation and public transport urban sprawl / Reduction in living space Improved quality of public Spatial per person transport densification Ban of fossil heating systems Ban of fossil-driven engines

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

Vulnerable Household Types Composite Index **M**obility <u>H</u>ousing Income <u>E</u>nergy **Vulnerability Vulnerability** /ulnerabilit Equivalised Use of fossil fuels disposable household at home Legal relationship income below Household in or Not affected 140% of the (rent) perceived sparsely 58% national unaffordability populated or to keep home Building type region median adequately (MFH*) equivalised disposable warm IEM income 17% EHM, 1% Type 1 IE vulnerable Type 2 IEH Type 3 IEM Type 4 IEHM *) MFH ... multi family homes. **) Potentially at risk of energy vulnerability due to reliance on a fossil heating system.

Household Types in Modelling Income Mobility Energy Housing Q1 Q2 Q3 Q4 Q5 Single-family/ Peripheral multi-family Non peripheral house Peripheral Fossil Rented flat heating system Non peripheral Peripheral Owneroccupied flat Non peripheral Peripheral Non-fossil heating system Non peripheral Case Studies





PROJECT OUTPUTS

- J. Bock-Schappelwein, C. Kettner, 2023, TransFair-AT Research Brief #1: Households vulnerable to rising energy prices.
- J. Bock-Schappelwein, C. Kettner, 2022, Steigende Preise für fossile Brennstoffe: Was zeichnet betroffene Haushalte aus?, 5th ESPANET AUSTRIA Konferenz, Vienna
- P. Pfaffenbichler, Social impacts of decarbonising the Austrian passenger transport system, European Transport Conference, Milan, 6-8 Sept. 2023



















