# A low demand scenario for Europe modeled in PyPSA-EUR

Muhammad Umair Tareen, Sylvain Quoilin, Sébastien Meyer, Paolo Thiran , Aurelia Hernandez, Antoine Laterre

Openmod Workshop Grenoble , March 26, 2024

# Background

**IPCC WGR AR6 report, "the world is currently not on track to meet either 1.5C° or 2C° climate target"**

## Challenges

- Carbon Budget
- Investment Costs
- Capacity Requirements

## Technical solutions

- Renewable energy technologies
- Improving energy efficiency
- CCS

## Possible solution often overloked

- Energy sufficiency

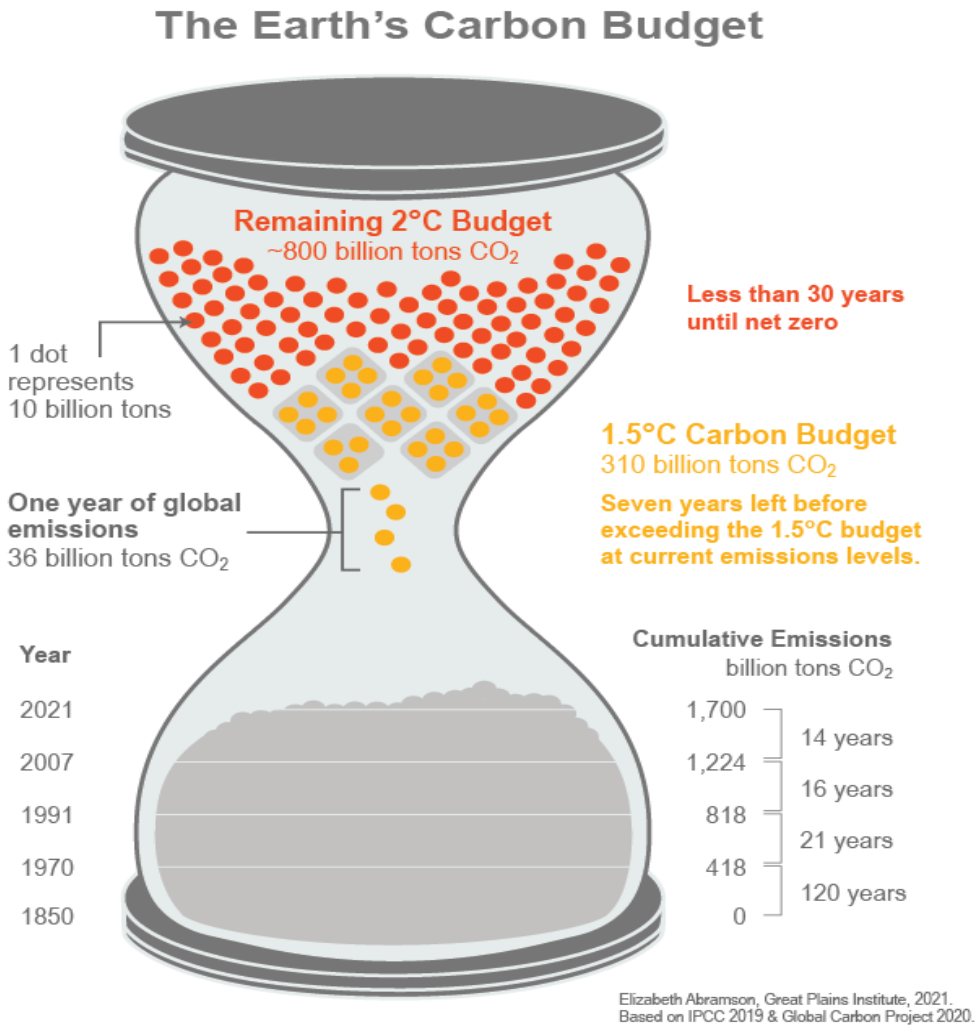
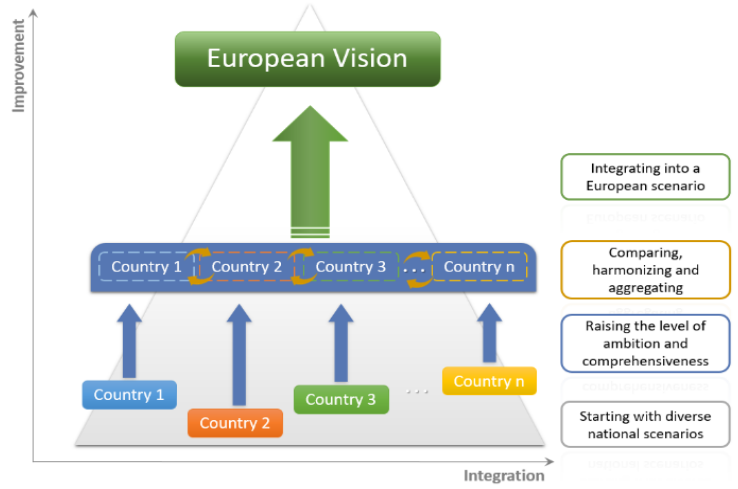



Image credentials: Great plains institute,2021

# CLEVER Scenario

## CLEVER EU SCENARIO





**2050**


## CLEVER SUFFICIENCY AND EFFICIENCY ASSUMPTIONS (BE)

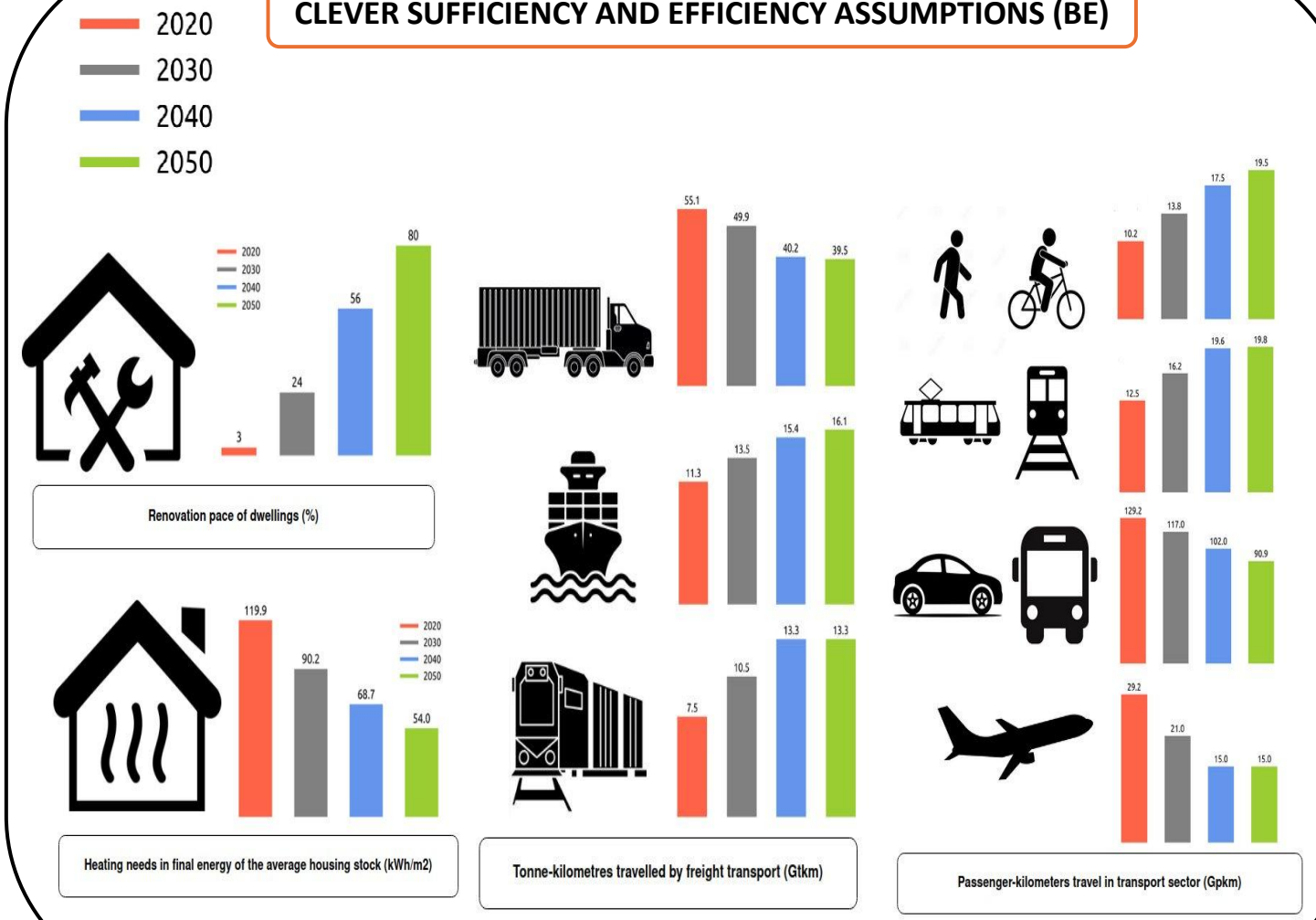





Image credentials: Clever – A Collaborative Low Energy Vision for the European Region – Final Report, June 2023

# Methodology

How to simulate the effect of energy sufficiency measures in a well-established integrated energy system model with an hourly time resolution?

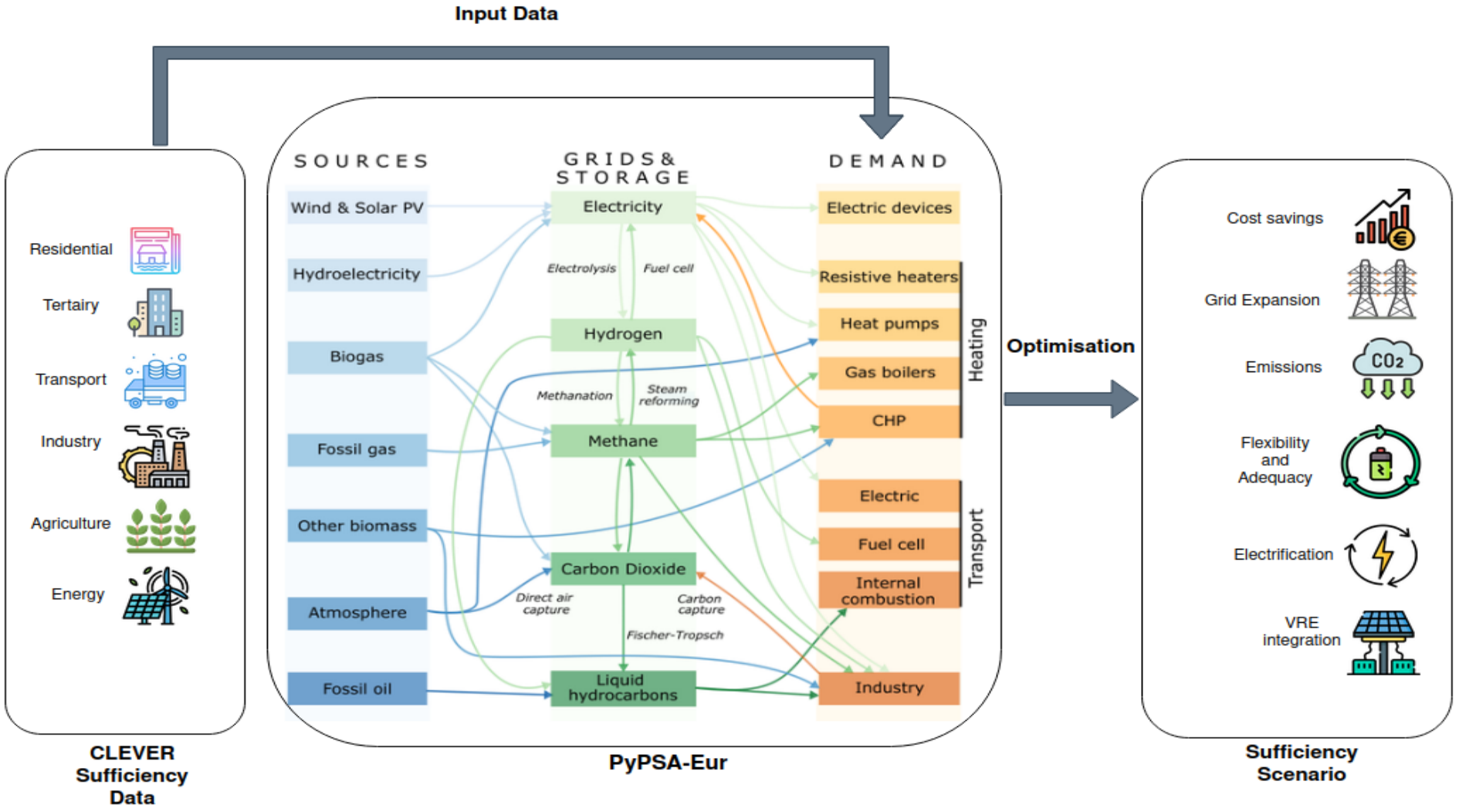


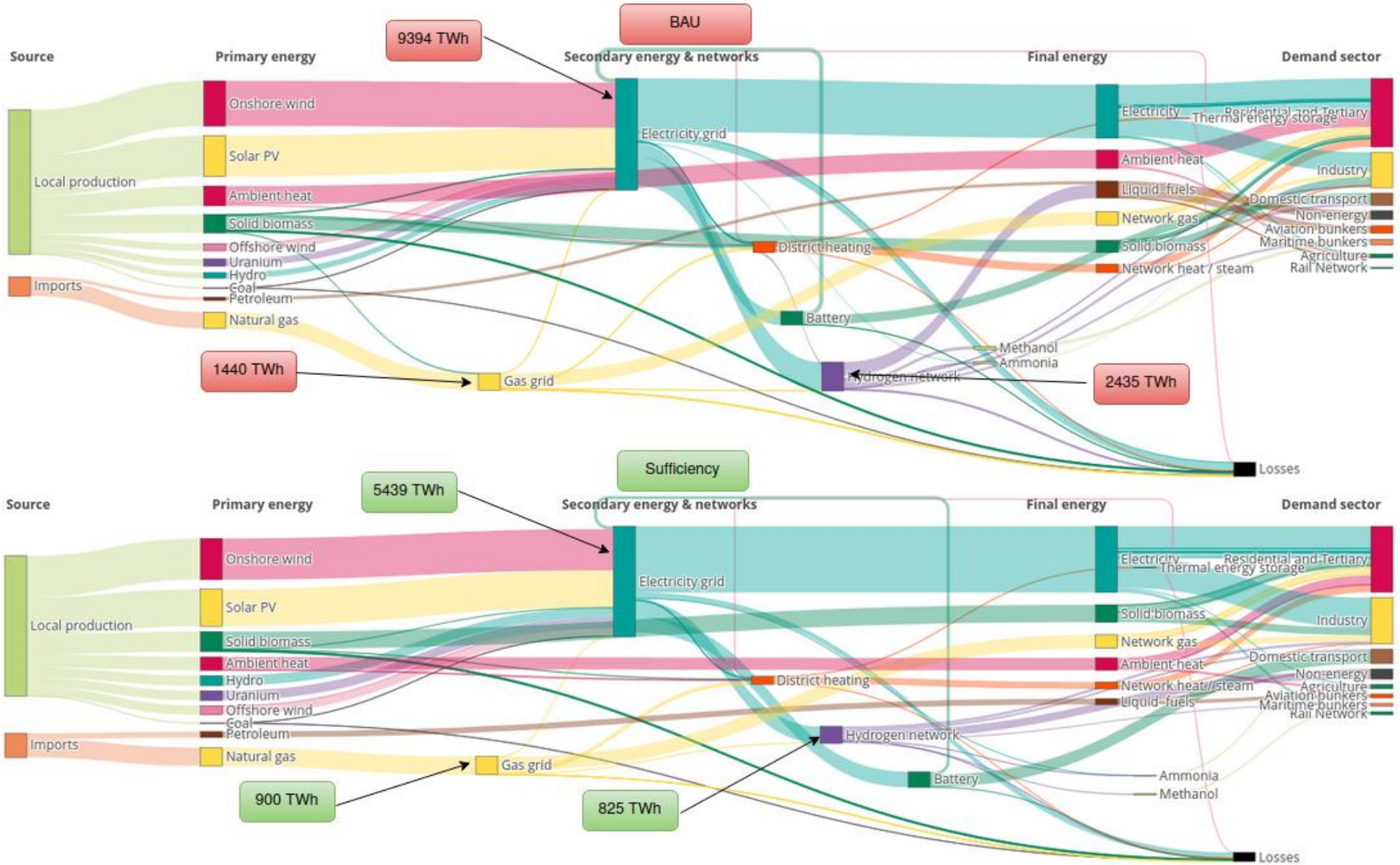

Image credentials: PyPSA-EUR

# Results

**Carbon Budget**

**Costs**

**Capacity Requirements**



# Thank you

**Sylvain Quoilin** squoilin@uliege.be
**Muhammad Umair Tareen** muhammadumair.tareen@uliege.be

GitHub *https://github.com/UmairTareen/pypsa-eur*