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Austria's path to climate neutrality:

Identifying a cross-sector integrated framework and incentive design, distributional and budgetary implications

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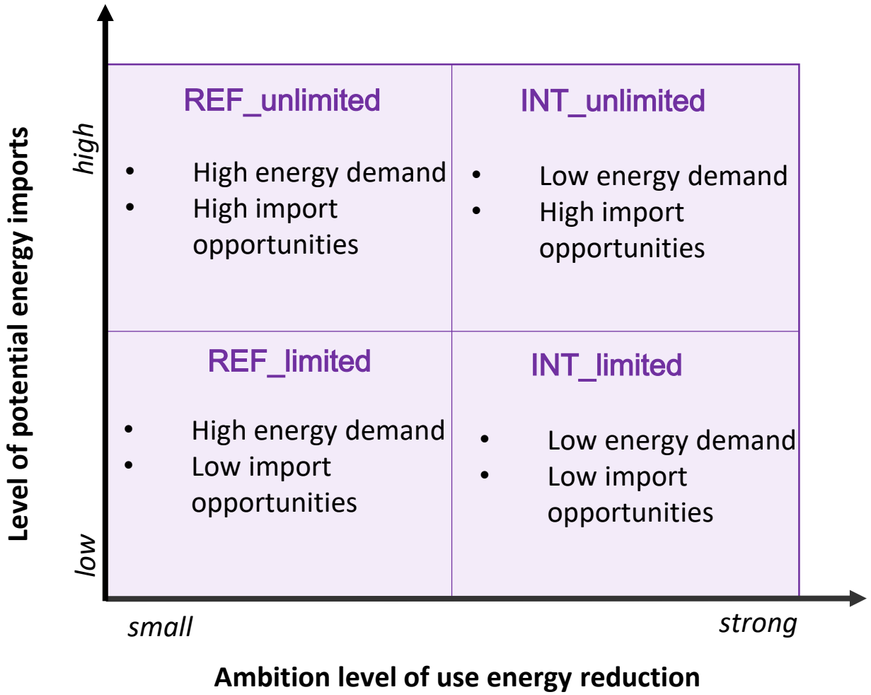
Storyline and scenario development

Four different net-zero emissions scenarios

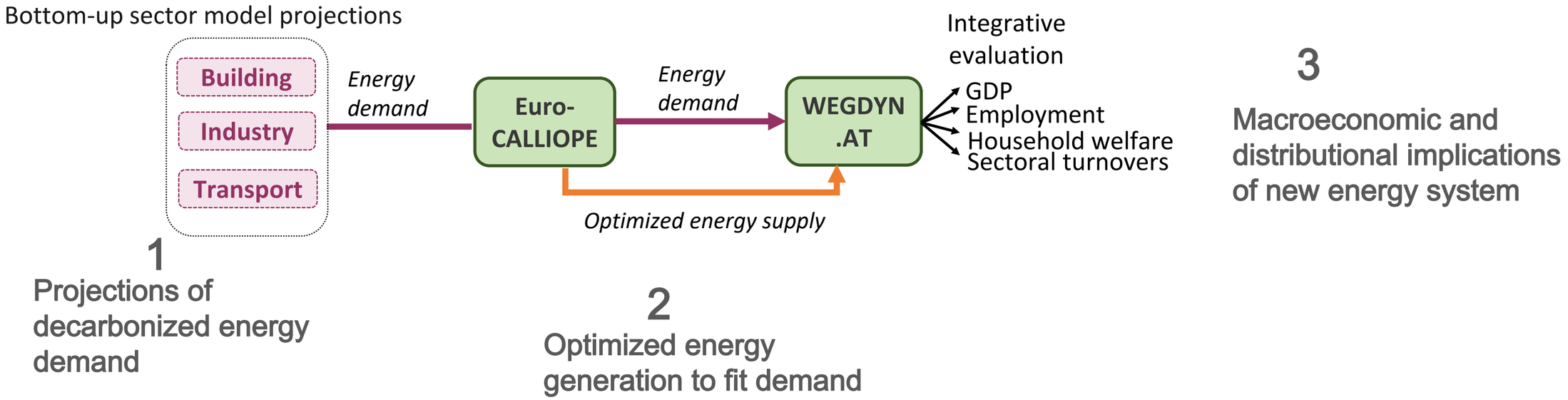


Net-zero emission Austria: 100% renewable energy demand and a net-zero balance of CO2 emissions

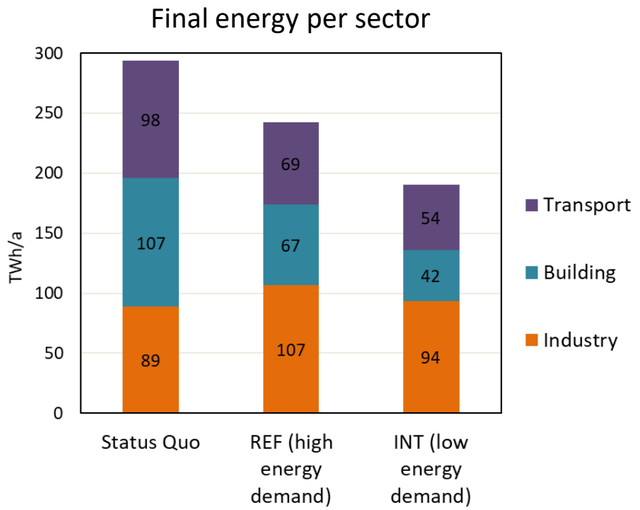
- **Comparison of structurally different decarbonisation scenarios** to assess:
  - Energy demand of building, transport, industry sectors
  - Structure of the energy system (e.g. imports, generation mix)
  - Macroeconomic effects (welfare, GDP, prices, sectoral output, employment, imports)
  - Distributional implications for households
  - Implications and requirements for the financial markets
  - Innovation potential in Austria
- **Co-created** policy conclusions and packages
  - Consistent cross-sector pathways & necessary framework conditions
  - How to finance a capital intensive transition?
  - How to foster aggregate economic supply elasticity (enough specialized labor, …)

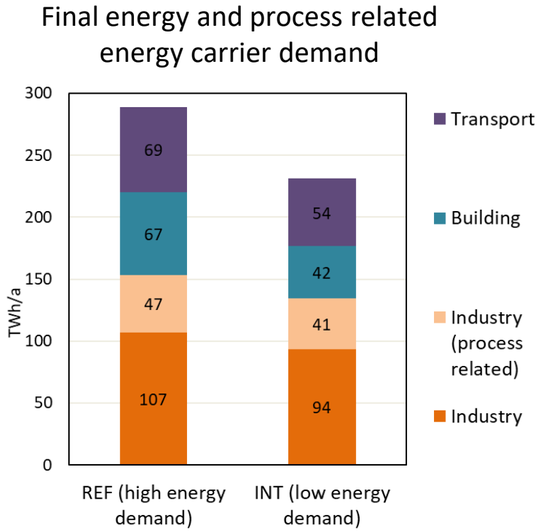
Implications for energy system, macroeconomy and distributional indicators (I)

- Stepwise, soft-link of the energy-system model Euro-Calliope and the Austrian macroeconomic CGE model WEGDYN-AT
- By including bottom-up sector model details for buildings, transport and industry

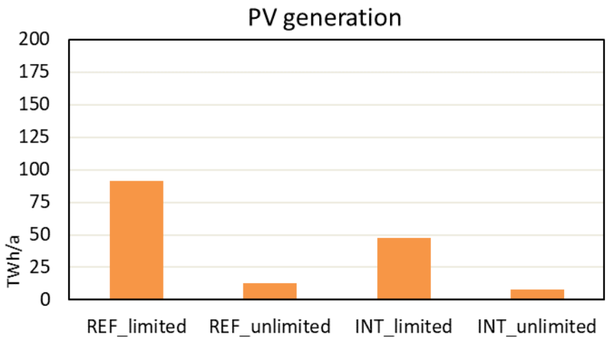


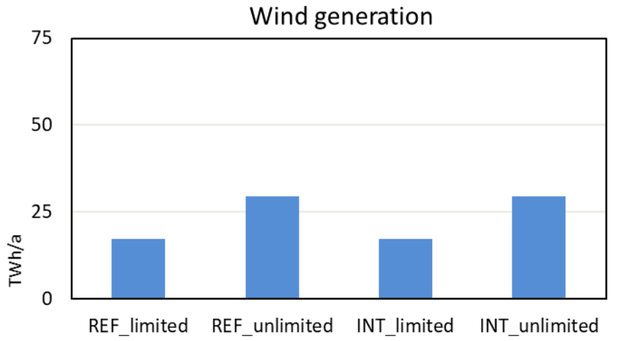
Implications for energy system, macroeconomy and distributional indicators (II)





- Demand of synthetic gas, synthetic fuel and biomass increases in industrial processes significantly
- Electrification in all sectors (building, transport and industry)
- Depending on the level of energy consumption and import strategies, challenges for domestic generation arise.
  - This is particular relevant for potential domestic production of synthetic gas (hydrogen, methane) and synthetic fuels

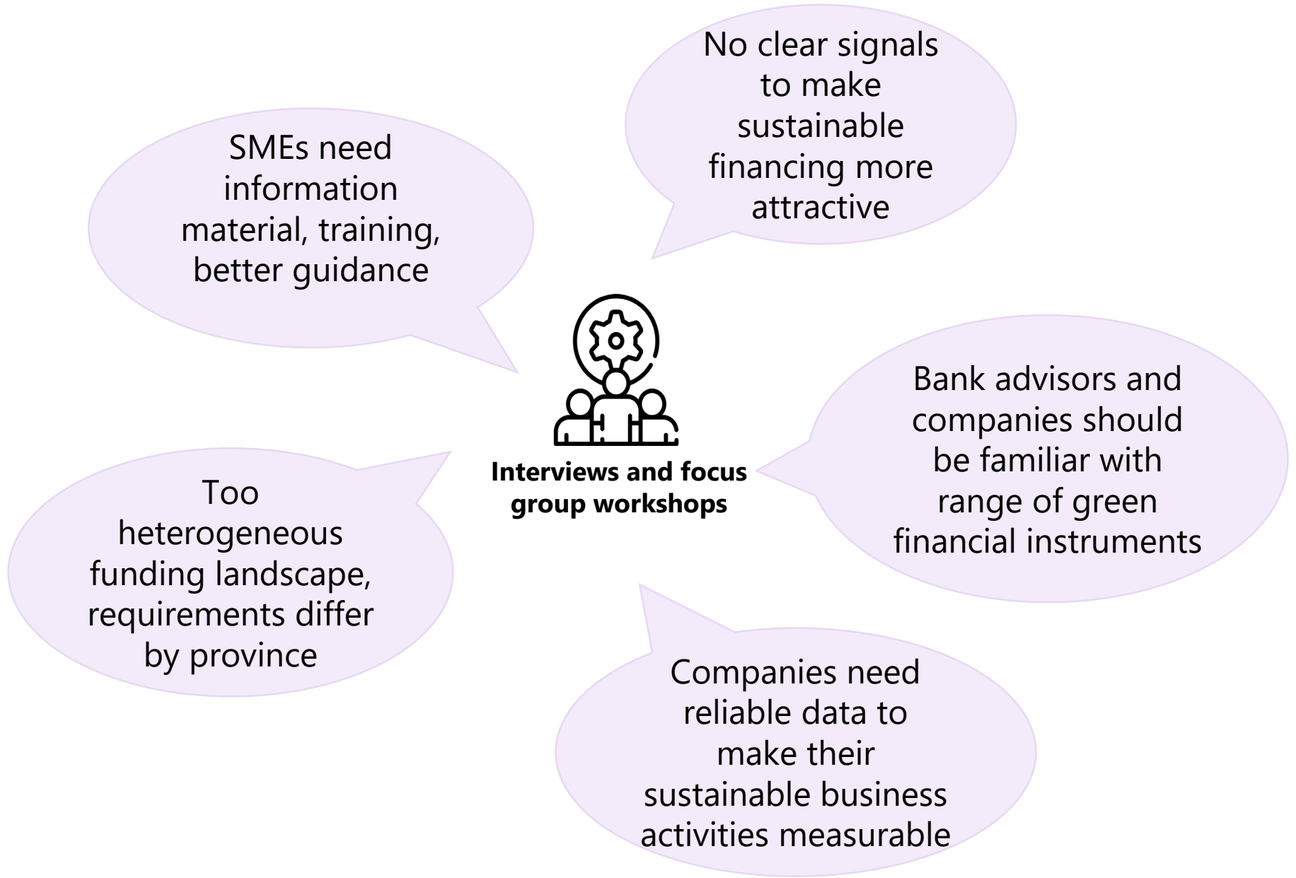




*preliminary results

Implications for the financial market

- Financing the climate transition requires efficient cooperation between the real economy, the financial sector and the public sector.
- Focus on nexus between the real economy and the financial sector, especially for small and medium-sized enterprises (SMEs).
- Series of interviews and workshops to explore whether and how SMEs can more easily access financing for green investments
- Creation of a mapping-table of financial instruments that can accelerate the transition



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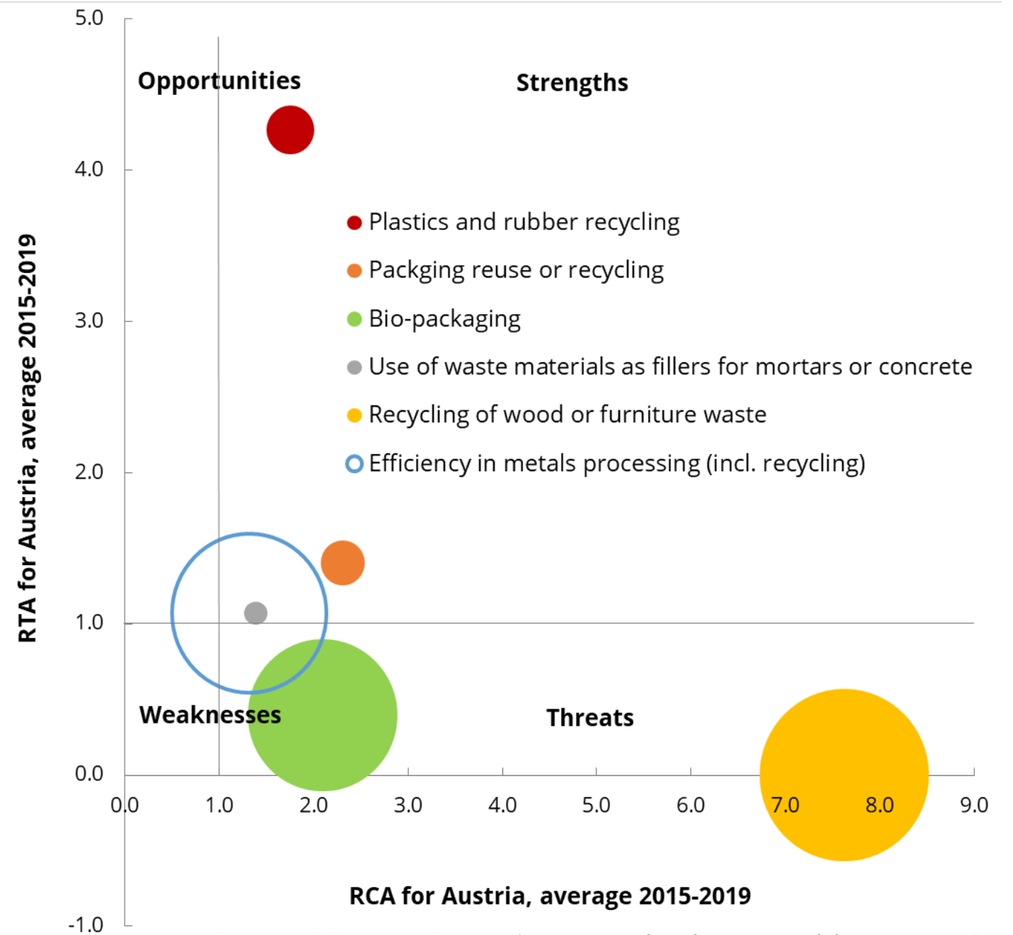
Analysis of innovation potential

- Austria's innovation performance in key circular economy technologies was investigated using a combination of patent and trade data
- From these data, indices of revealed comparative advantage in technology (RTA) and trade (RCA) were constructed
- RCA > 1 for all technologies (with data available) indicates a competitive economic basis
- RTA < 1 indicates innovative disadvantage cf. ROW
  - ➢ R&D support policies to strenghten innovation
- RTA > 1 indicates innovative advantage cf. ROW
  - ➢ Implementation subsidies (UFI) or standards to foster diffusion of existing technologies.



RCA & RTA > 1: Patenting & trade above world average → innovative & trade advantage; RCA & RTA < 1: Below world average, innovation & trade disadvantage.

Stakeholder interaction and co-generation

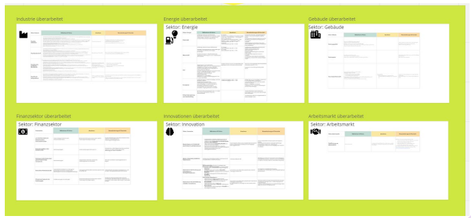
1st Co-generation workshop in Vienna (November 2022)

2nd Co-generation workshop in Vienna (April 2024)

Quarterly Newsletter series

Active representation at national events

Presentations at international conferences



Homepage with regular updates

Feedback and discussion with SAB members

Focus groups on special topics (finance)

Qualitative interview for scenario specification

Feedback loops via interactive miro-board

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Take-away messages

- Circular economy transformation and energy demand reduction **enhance** welfare and value added
- Without domestic energy demand reduction Austrian **dependence on** (expensive) **energy imports** becomes **excessive**
- **Financial sector needs** in-depth cooperation **with real economy** transition experts to implement effective green finance instruments (so far finance supply larger than “certified” projects).

For further detailed information (Newsletter, project details, first results, …):
see https://wegcwp.uni-graz.at/integrate/

Next steps

- Completion of quantitative modelling: Evaluation of energy system effects, distributional implications
- Quantitative modelling results will continue to feed into the interactive stakeholder process
- Within a stakeholder workshop on April 19th, 2024 in Vienna scenarios and results will be further refined
- Formulation of integrated policy packages based on quantitative and qualitative insights
- Working papers, policy briefs and Journal submissions
- Continuation of the Newsletter series (as co-creation instrument & cutting edge resource for stakeholders)

Thank you!

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We work for tomorrow

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