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START2030

A Social, Technological and Economic Evaluation of Austria's Renewable Electricity Transformation 2030

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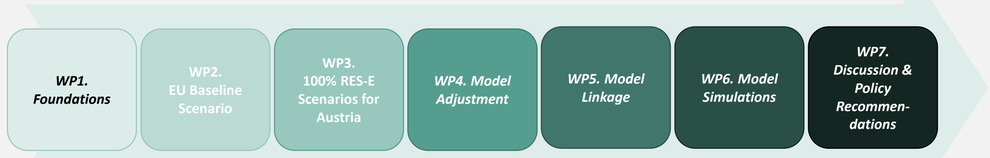
MOTIVATION

- In order to limit climate change to well below 2°C or even 1.5°C above pre-industrial levels as stated in the Paris Climate Agreement a fundamental decarbonisation is required
- Renewable energy sources – and particularly electricity from renewable electricity sources (RES-E) – will play a key role in delivering the aspired emission reductions (together with efficiency improvements and changes in lifestyles)
- Bridging the gap to the 100% target* over the next years will still require ***fundamental*** changes in the Austrian electricity system, entailing considerable investment
- The economic and social impacts of these investments will be significant and might vary substantially depending on which technology mix will ultimately be implemented

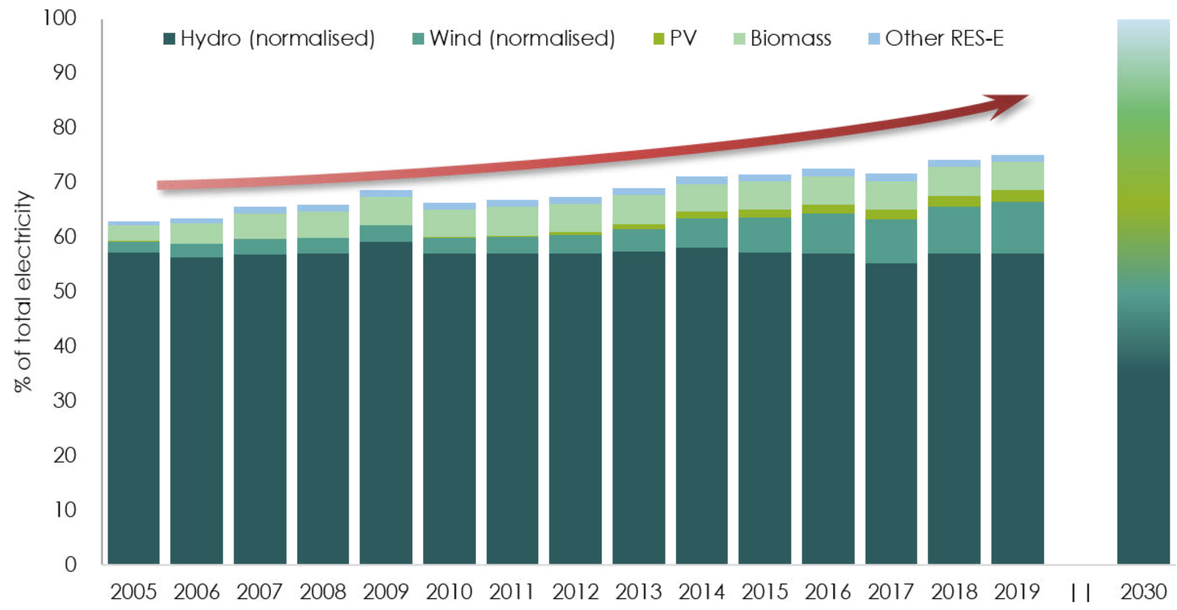
**Control and balancing energy to stabilise grid operation are not included in the calculation of 100% renewable electricity supply*

PROJECT OVERVIEW

- START2030 aims at providing comprehensive analyses of the economic incidence and social impacts of a transition to a 100% RES-E system in Austria by 2030
- Policy scenarios will be analysed to depict the broad range of effects of the transformation towards a 100% RES-E system
- The analysis will deliver insights on the emission impact, the macro-economic and distributional effects of the transformation process as well as on the challenges for the electricity sector
- Policy recommendations on how to mitigate detrimental effects on vulnerable groups will be derived

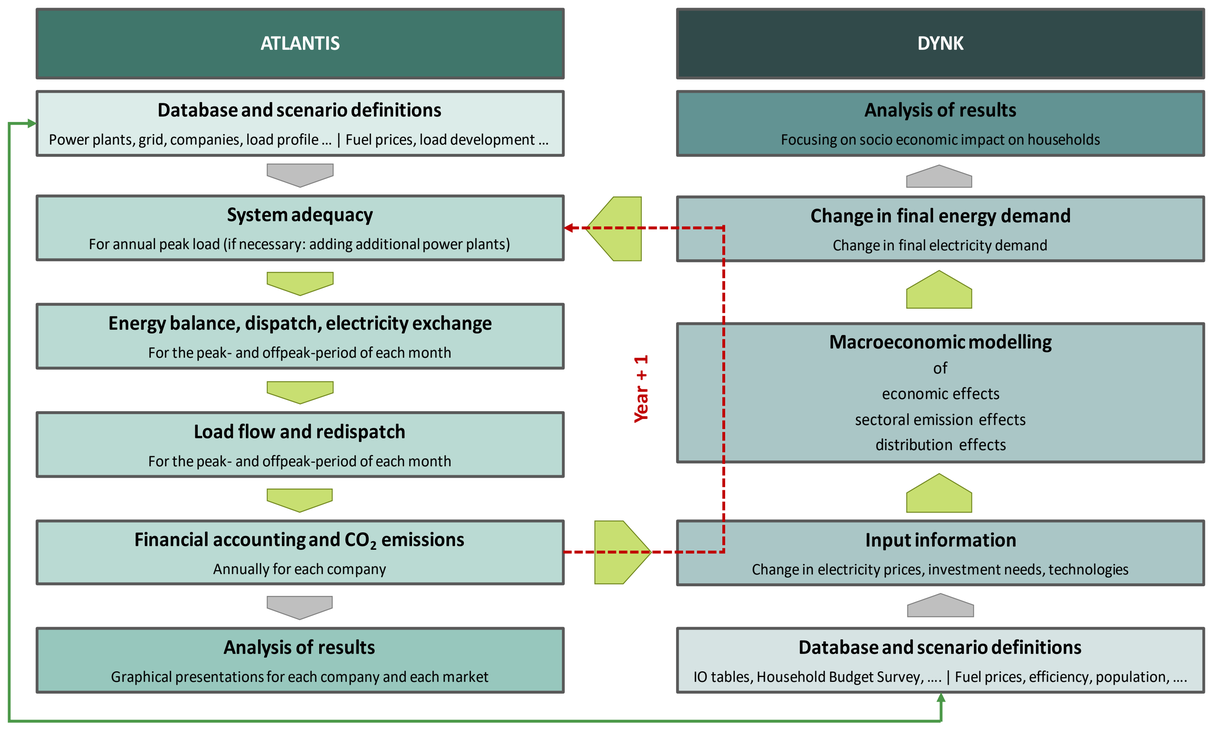


RES-E development in Austria and target for 2030



Own illustration based on Statistics Austria (2020).

Flow chart of the simulations with the combined model system



MODELLING APPROACH

Linking (top-down) macroeconomic model ***DYNK*** (Kirchner et al. 2019) and (bottom-up) partial model of electricity sector ***ATLANTIS*** (Stigler et al. 2016)

- Following Pan (2006), Köhler et al. (2006) and Pan and Köhler (2007)
- Extension of the approach by taking into account all economic feedback mechanisms
  - endogenous final demand
  - commodity price system
  - labor market response etc.
- Execution of the linkage in both directions
- Data exchange until convergence is achieved

PROJECT PROGRESS

WP1. Foundations
- Analysis of strategic energy policy framework in Austria and the EU ✓
- Analysis of RES-E policies in EU Member States ✓
- Compilation of database for model simulations ✓

WP2. EU Baseline Scenario
- Background research on European baseline scenario ✓
- Consolidation of the European baseline scenario
- Implementation of the scenario into ATLANTIS

Joint Stakeholder Workshop (27/04/21)

WP3. 100% RES-E Scenarios for Austria
- Analysis of status quo of RES-E in Austria ✓
- Identification of RES-E potentials in Austria ✓
- Definition of key parameters for RES-E scenarios ✓
- Finalisation of RES-E scenarios

WP4. Model Adjustment

WP5. Model Linkage

WP6. Model Simulations

WP7. Discussion & Policy Recommendations

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