



TradeRES

New Markets Design & Models for
100% Renewable Power Systems

D7.6 – Market Web Decision Tool

Deliverable number: D7.6

Work Package: WP7 – Dissemination and Exploitation of Results

Lead Beneficiary: DLR



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 864276

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Document information			
Edition	Date	Dissemination Level	Description
1.0	2024-10-31	Public	Report with a description of the online open-access framework/market design decision-tool.

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Executive Summary

This deliverable presents an online market design decision tool. It provides easy access to the findings of the case studies in Work Package 5 and serves to empower stakeholders and policy makers to assess the impact of market designs on market performance indicators. To this end, the web tool is divided into a static part, which provides a short overview of the project aims, partners and employed models. The web decision tool's dynamic part allows to interactively explore and visualise the findings of the TradeRES case study results for the Netherlands, Germany, Iberian market (MIBEL), and the pan-European case study. For each case study, market performance indicators from different scenarios and for different market designs can be assessed and compared.

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The market design web decision tool

The market design web decision tool is available at the domain <https://webtool.traderes.eu/>. It comprises an attractive and modern single-page design for the static part, see Figure 1. This part of the web tool also features a list of partners, a short introduction of the project and, see Figure 2, an overview of the models that were used to create the results accessible in the dynamic part of the web tool.



Figure 1: Modern design of the TradeRES web decision tool static page.

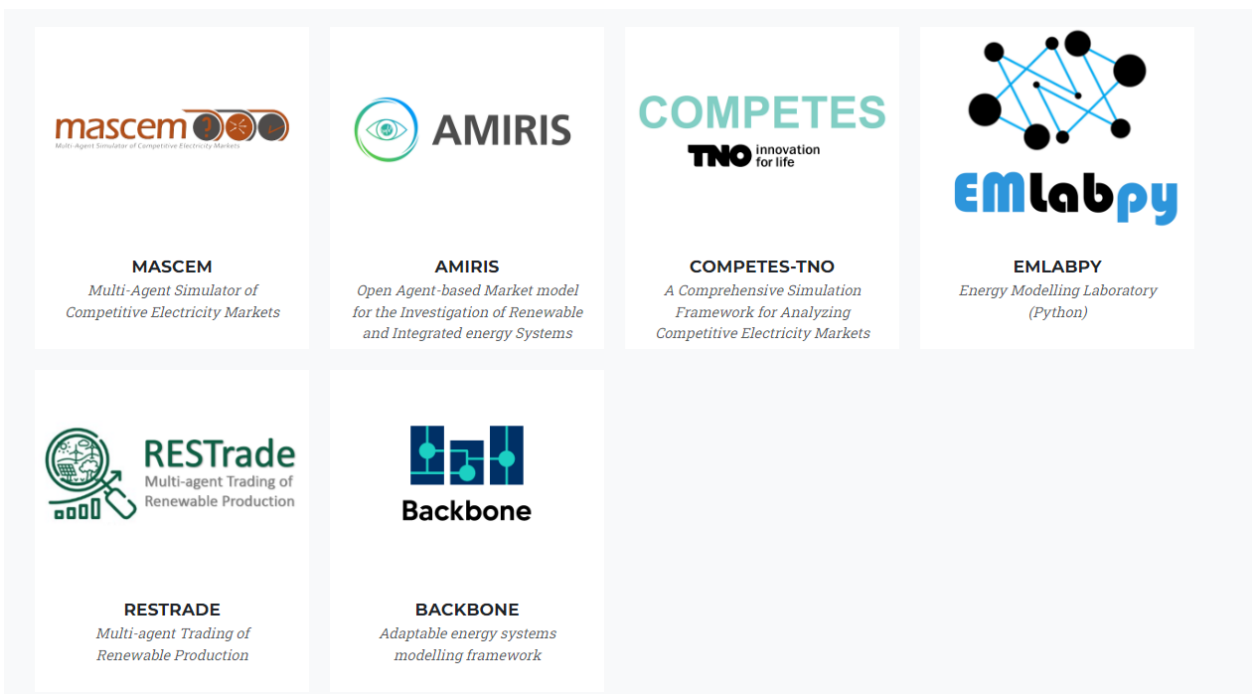


Figure 2: List of models covered in the web decision tool; each icon leads to short model introductions.

For each model, a separate page is available providing a short introduction to the model and linking to corresponding locations like repositories and guides. An excerpt of the model page dedicated to Backbone is shown in Figure 3. Last, but not least, the static part contains an “About” section with acknowledgements and links to TradeRES dissemination channels on X, Facebook, LinkedIn, and Slack.



BACKBONE

Backbone represents a highly adaptable energy systems modelling framework, which can be utilized to create models for studying the design and operation of energy systems, both from investment planning and scheduling perspectives. It includes a wide range of features and constraints, such as stochastic parameters, multiple reserve products, energy storage units, controlled and uncontrolled energy transfers, and, most significantly, multiple energy sectors. Both high-level large-scale systems and fully detailed smaller-scale systems can be appropriately modelled.

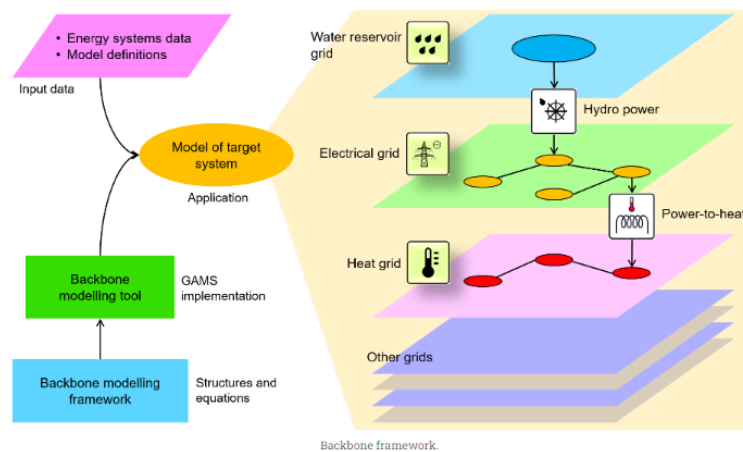


Figure 3: Excerpt of the Backbone model page in the web decision tool.

The dynamic part of the web decision tool, available under the “Analytics” section, is built using [Grafana](#). Grafana is an open-source analytics and monitoring platform widely used to visualise and analyse data in real-time. It allows users to create interactive, customisable dashboards that pull data from a variety of sources, including databases and cloud services. Each case study is assigned an individual result dashboard. This approach is necessary since each case study has different visualization requirements. At the top, users find a selection region, see Figure 4, to choose the corresponding case study and model, hiding the currently active case study.



Figure 4: Selection region in the dynamic part of the web tool to access different case study data; German case study panel with AMIRIS model is not show as it was currently selected.

Users can choose from different market performance indicators (MPIs) via a selection box, see Figure 5. This will bring up the result plots that users can then investigate, see Figure 6. Expandable regions at the top provide short explanations of relevant terms used in the web decision tool, such as case studies, indicators, scenarios, and market designs, see Figure 7. Please note that the graphical representation may differ for each case study and may still be subject to changes if such are requested by case study experts or users of the web decision tool.

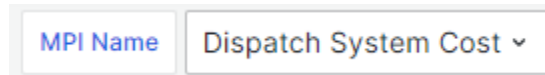


Figure 5: Drop-down menu to select a market performance indicator to assess.



Figure 6: Exemplary result from the MIBEL case study.

Case Study Information

MASCEM + RESTrade : Coupling of models MASCEM and RESTrade

MASCEM is an agent-based simulation and modeling tool developed to study and simulate electricity market operation, developed and applied by ISEP.

RESTrade is an agent-based model for the traditional power and energy balancing markets, developed and applied by LNEG.

For more information, consult [Mascem](#) and [RESTrade](#) on the webtool page.

Figure 7: Expandable region with additional information on selected case study.

Final notes

The demonstrated web decision tool [1] allows stakeholders and policy makers to gain a first overview of the project [2], partners, and models [3]. It enables the user to interactively compare different market designs from several case studies across the energy transition scenarios comprising a time horizon from 2030 to 2050 developed in TradeRES [4]. Thus, it complements the main findings and conclusions from other project deliverables, especially [5], [6], [7], and [8].

Bibliography

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