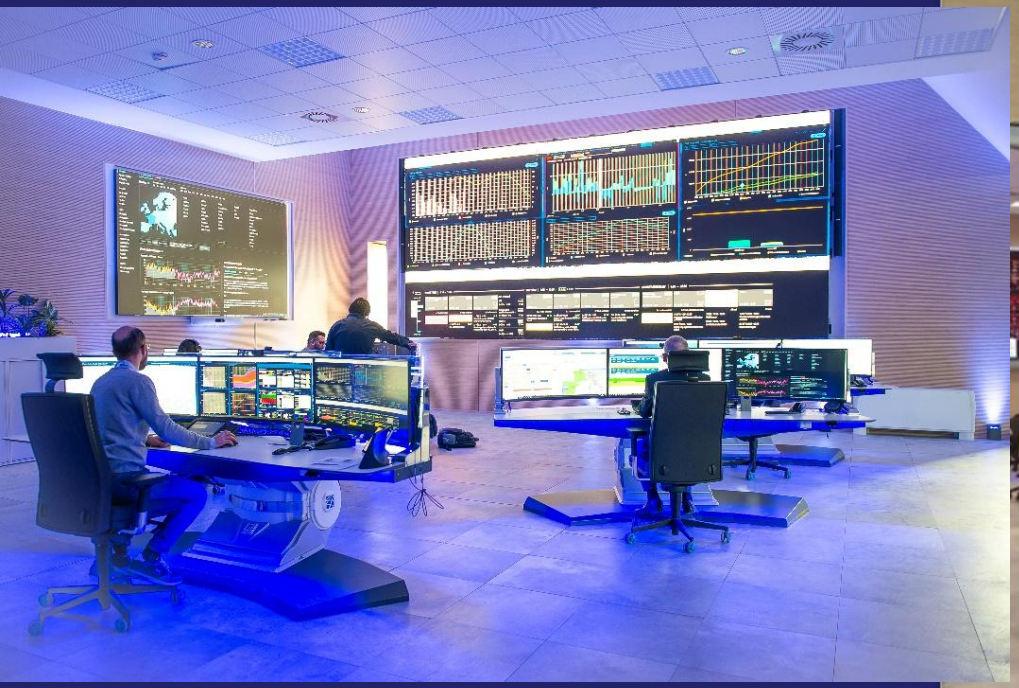
Market Operation Room

Visit at Terna Rome – Palmiano

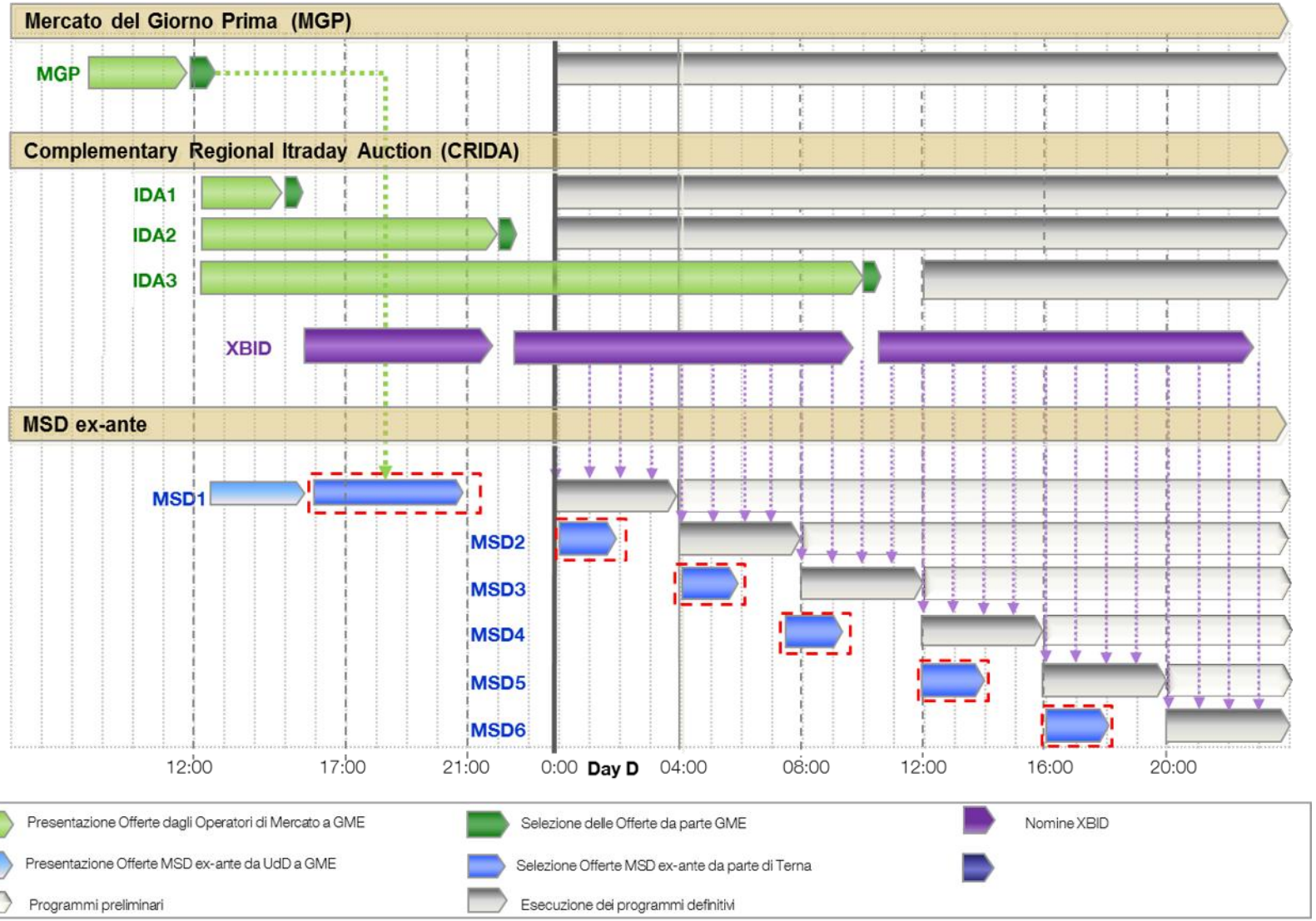
22 May, 2026

Terna
Driving Energy



50,010Hz

MSD ex-ante - Timings



- 1 **Day Ahead Market**
- **3** ID Markets **(IDA) from** D-1 to D
- **Contiunous trading** stopped just during IDA runs.
- **Compulsory nomination in H-1** of the traded quantites on each unit

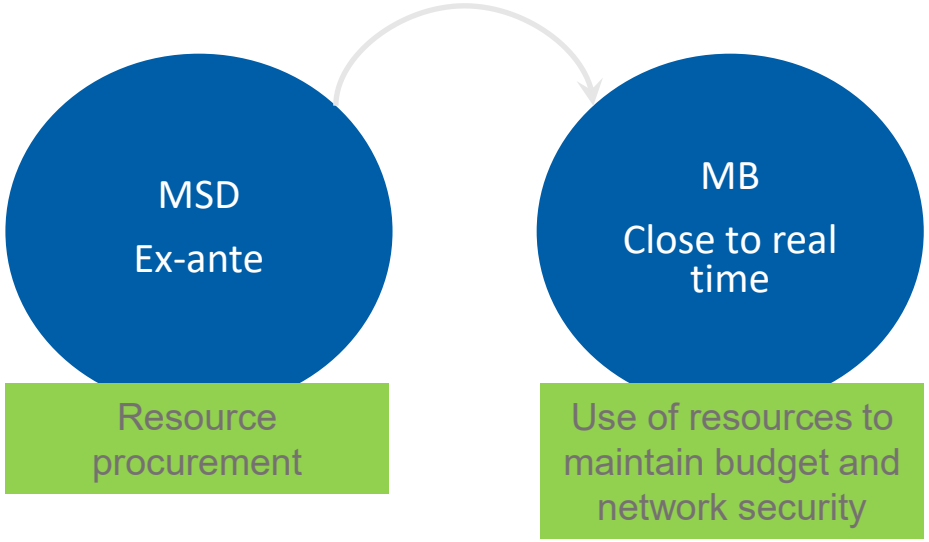
- **6 steps for** MSD ex-ante
- ***unit-based market***
- MSD ex-ante takes as **reference program** The one of the last energy market session
- In MSD ex-ante Terna procures the resources as a variation in the control programs.
- To ensure the security and the adequacy on the electrical grid, MSD ex-ante provides as an output **constraints** on the following markets.

The Ancillary Services Market – MSD Steps

- Terna, as TSO, is responsible for the safe and adequate operation of the national transmission grid
- To have the necessary resources, Terna uses the ancillary services market (MSD)
- Terna is the **central counterparty (central dispatching)** for the MSD trading

MSD ex-ante or **MSD programming steps**

Terna verifies Energy Market outcomes, procures any additional resources (reserves, congestion resolution, etc.), and imposes constraints for subsequent Energy Market sessions



MB (balancing market) or **real time hendling step of MSD** Terna ensures the instantaneous balance of Demand and Supply and grid security, using available resources

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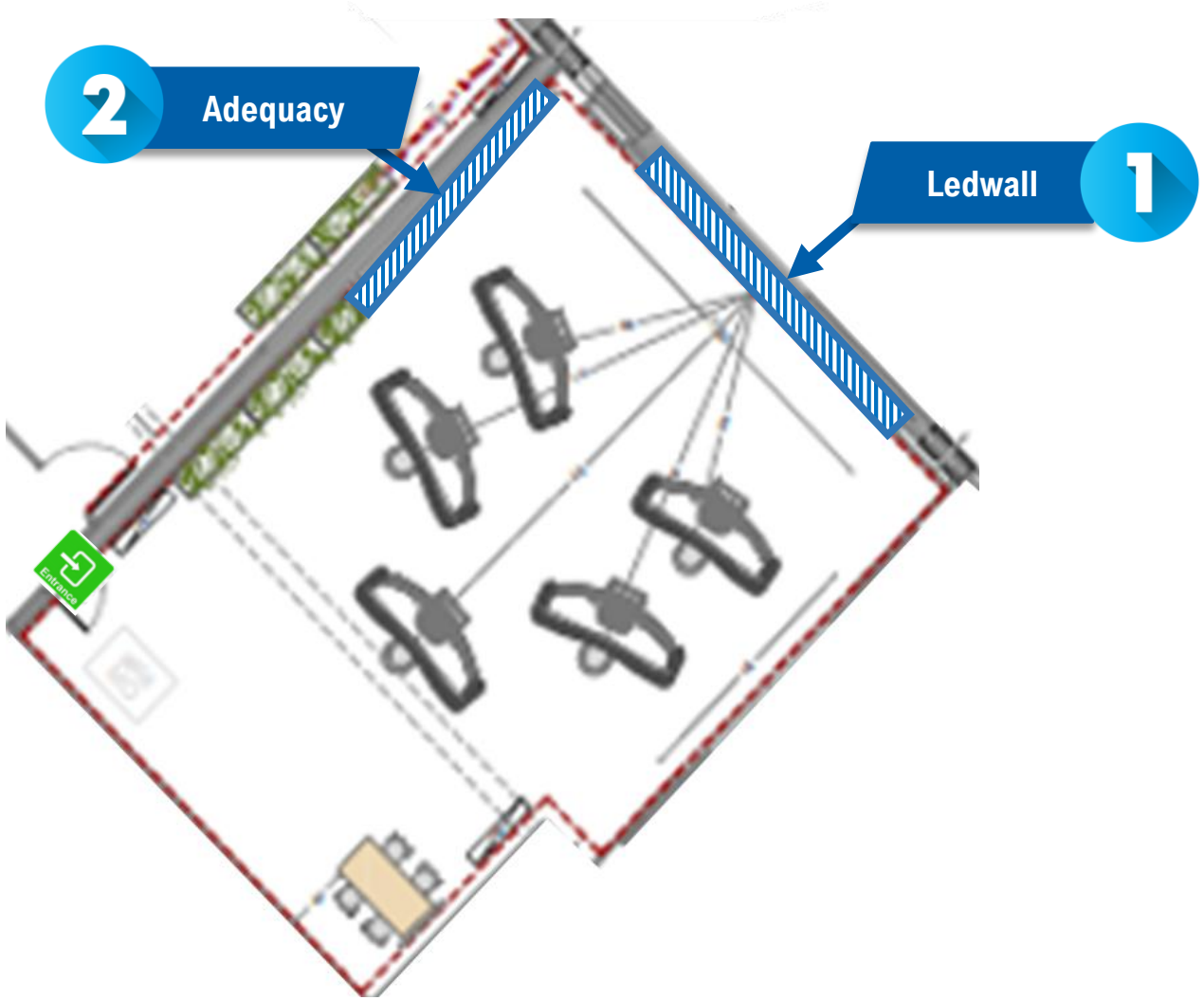
Navigator



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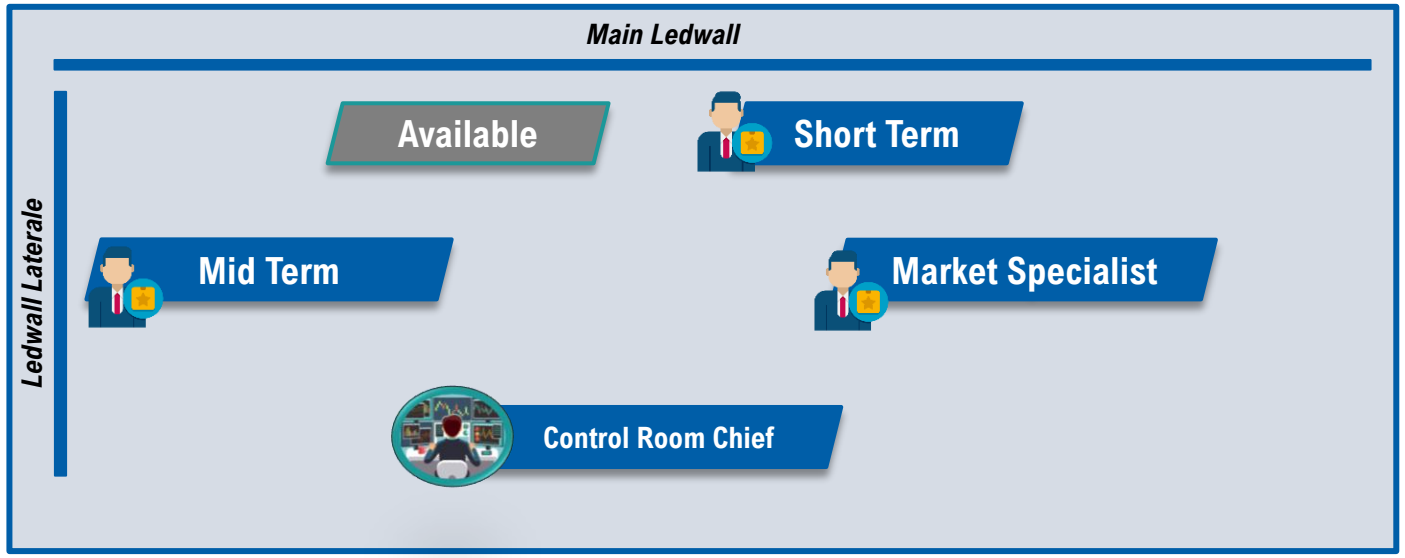


Mid Term

- Energy market management (day ahead, intraday), definition of MSD programs and feasibility intervals
- SEN operational adequacy assessments (up to D+2)

Security Specialist

- Identification of risks/opportunities for energy supplies and services
- Procurement optimization

Short Term

- Management of European platforms for the market, forecasting of needs and RES, sizing of reserves

CONTROL ROOM CHIEF

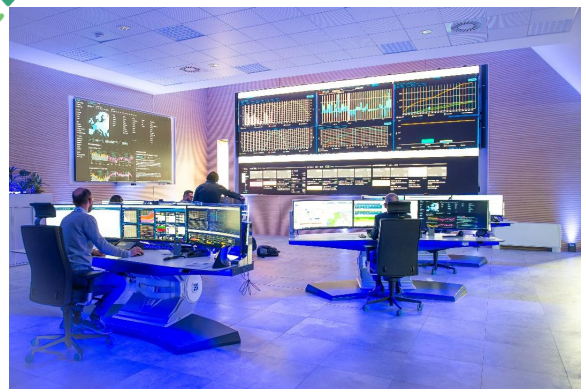
- ***Supervision and coordination***
- ***Market Risk Management***
- ***Evaluation of excellent supplies***

OUR MISSION

- The MO room oversees processes, tools and strategies, to ensure the optimal supply of dispatching services in compliance with safety and adequacy constraints

OUR OPERATIONS

- Creation of **market scenarios** on the forecast horizons necessary for operating activities
- Ensuring Terna's compliance with the **European electricity market** (DayAhead and Intraday market) and the European balancing platforms
- Define the best **operating strategies** on the market for the Dispatching Service on the Balancing market with a view to maximizing efficiency and minimizing risk



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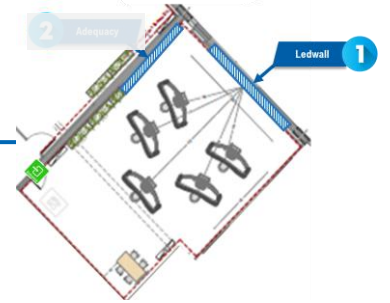
Functional Market Forecasts for the Dispatching Service

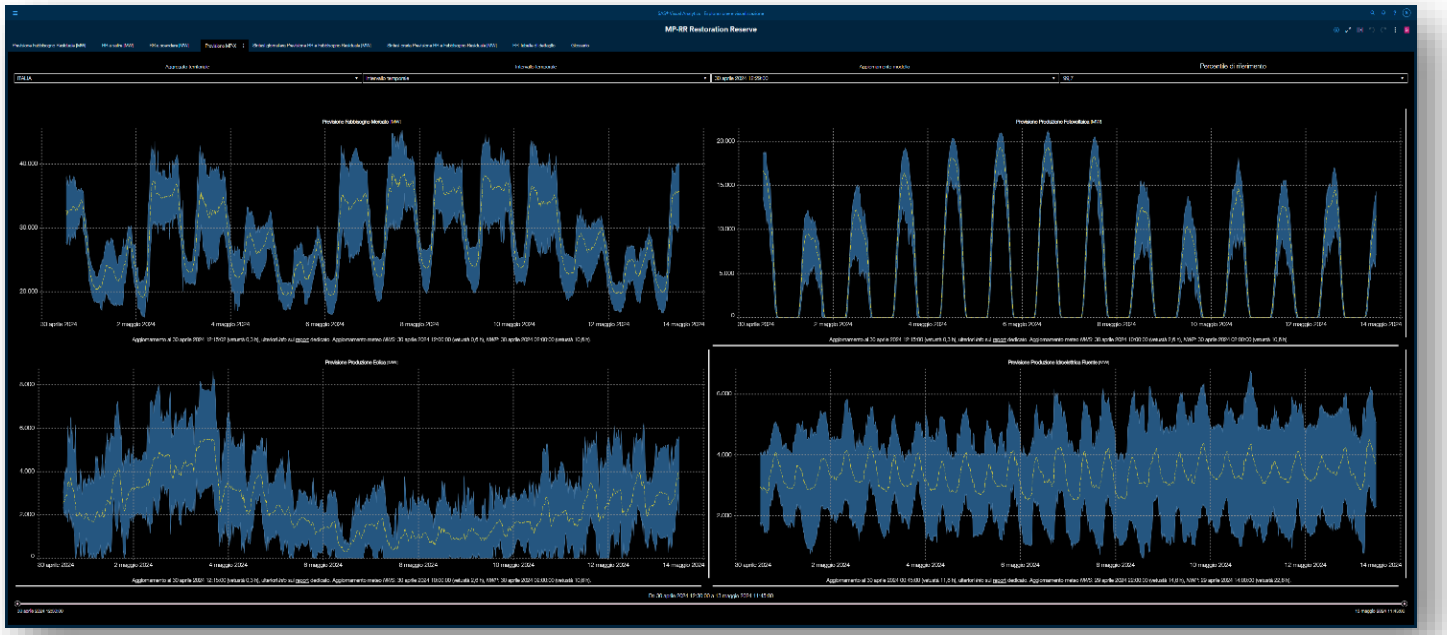


Scope

It represents the section dedicated to the forecasts of **renewable sources** and the **needs functional** to the advance management of the National Electricity System

Main features

- Forecast time horizon of **up to 14 days**
- **15-minute** time resolution
- **Hourly rolling update** frequency
- **National, zonal and regional** spatial resolution



Note: The dotted line highlights the forecast at the fiftieth percentile or the most likely forecast that will be the given input, while the confidence bands, represented as an area around the line, show the uncertainty range of the forecasts.

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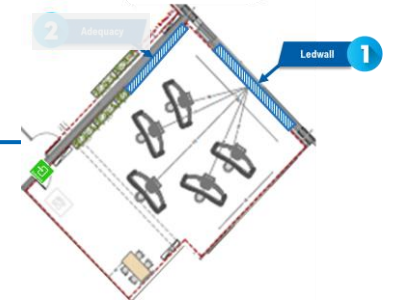
Electricity Demand Forecast



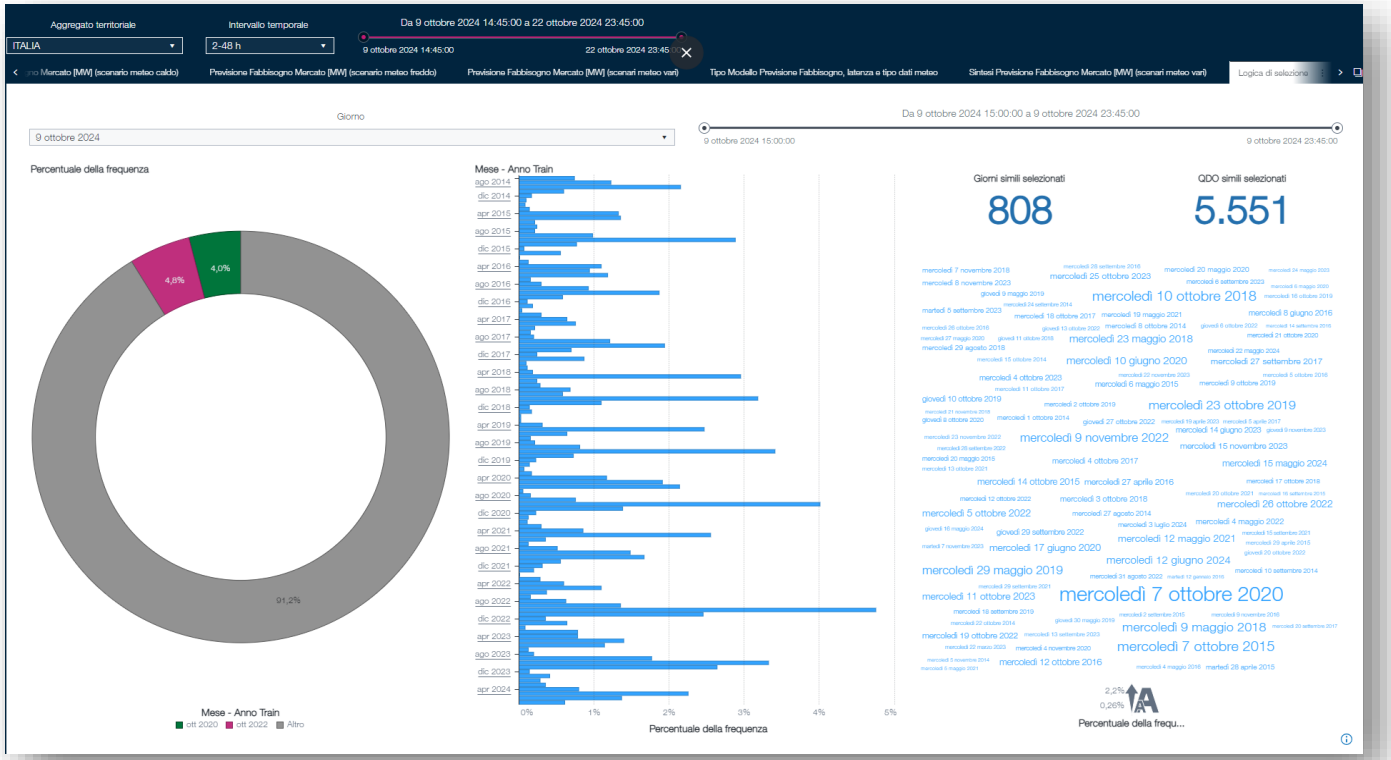
Scope

It allows you to view the **selection of the algorithm** by highlighting "**similar**" **days** of the past in terms of type of day, expected electricity consumption, expected weather conditions.

Main features

- Historical archive of over **10 years**
- Update every **15 minutes**
- Advanced clustering algorithm for the **identification of "special" days**
- Identification of **exogenous** and **endogenous** factors

Interface of the Demand Forecasting Tool – Selection Logics



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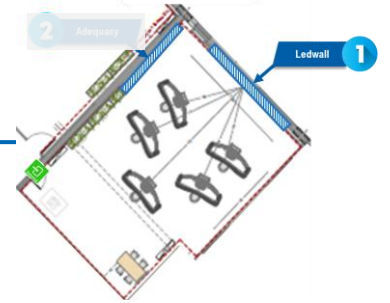
MCE algorithm



Scope

Supporting the optimal supply of the energy market, taking into account the expected operating scenarios, security constraints, and economic transactions.

Main features

- Visualization of the results of the algorithm through **Key Performance Indicators** (KPI), useful for measuring the quality of the output by measuring **execution times** and the "**optimality gap**".

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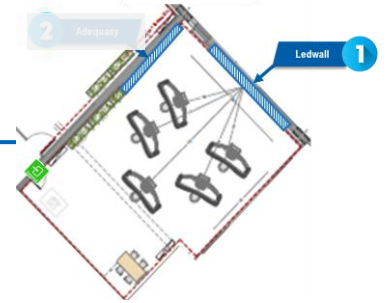
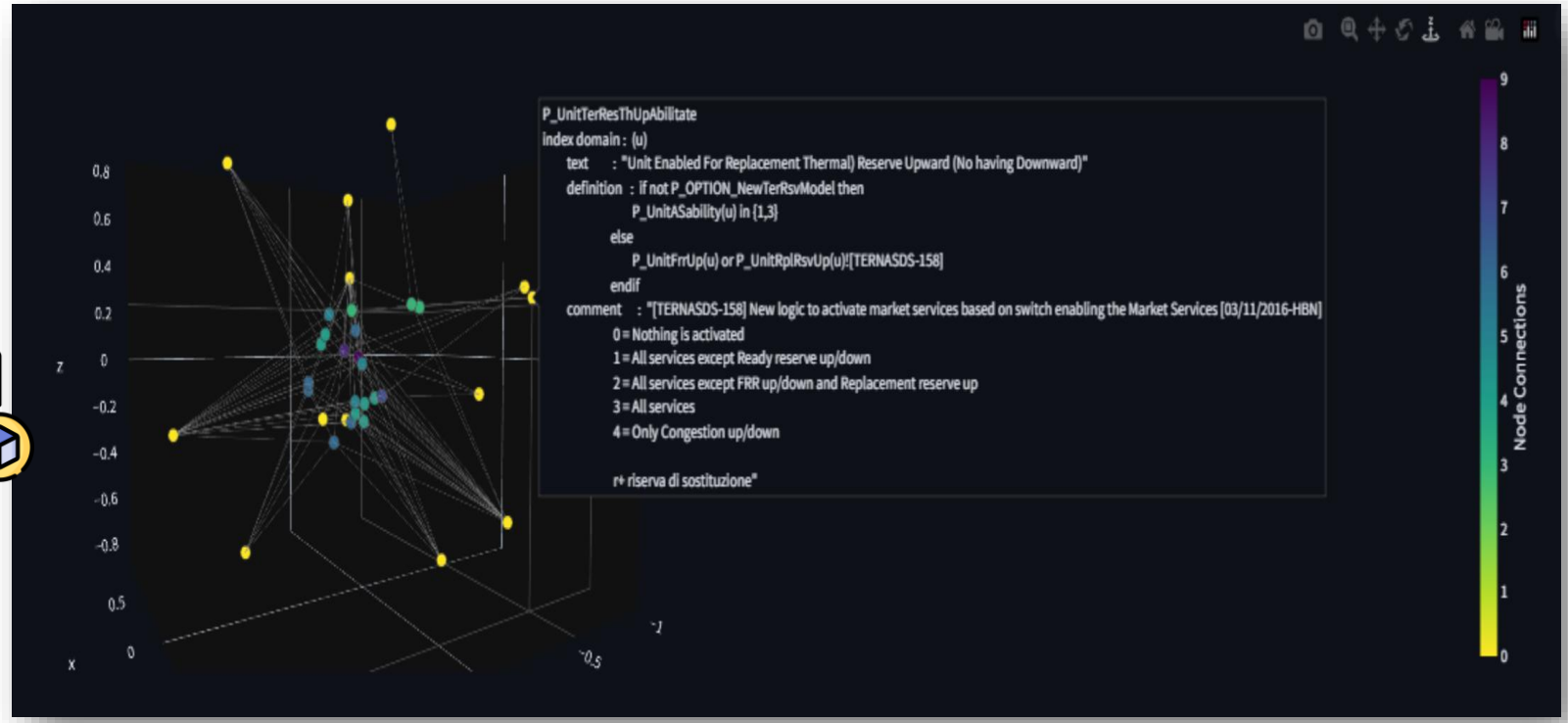
MSD Optimization Module



Scope

Support for the management of the scenarios that most stress the energy system, allowing to explore the relationships between the variables of the optimization algorithm in support of actions useful for solving problems related to production and consumption constraints.



Main features

- **Ability to navigate the algorithm structure to understand the relationships between variables and the constraints that restrict solutions.**
- **Ability to identify through the interface the constraints that limit the algorithm's solutions.**

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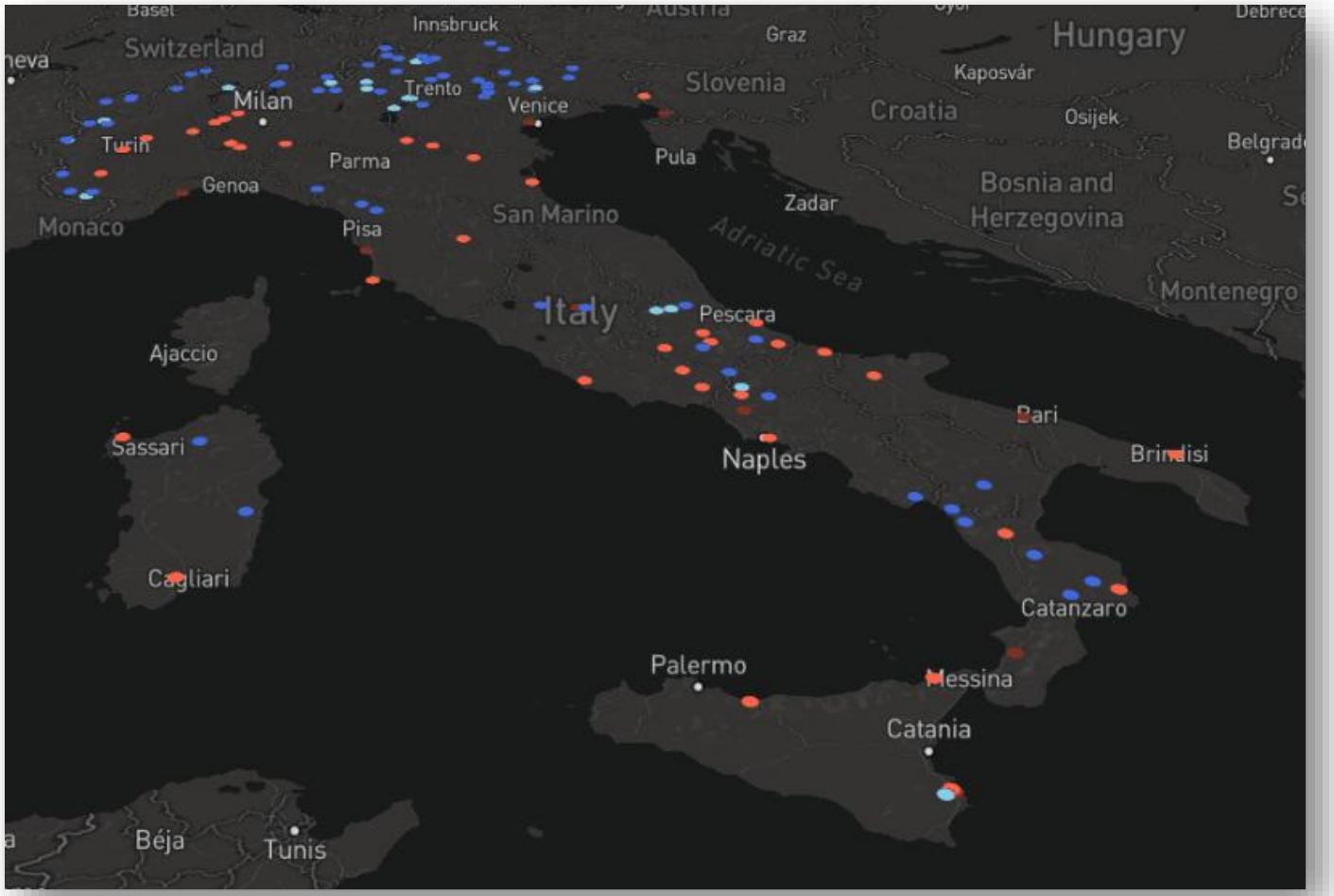
Unit Commitment

Scope

Allow operators to view and verify the **distribution** of **energy production** on the national territory, downstream of the solution identified by the algorithm.

Main features

- **Summary** of the **Unit Commitment** on the **Italy map** and visualization of the location of production in the different time periods.



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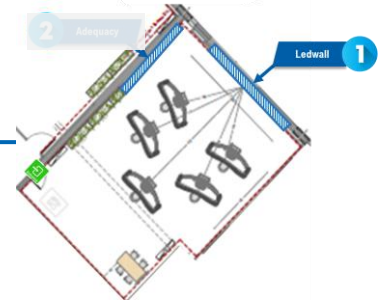
Focus on Movements



Scope

Allow operators to view **changes to the energy inputs of production plants** in a detailed and organized way, differentiating between those in which the input will be increased or reduced compared to previous markets.

Main features

- **Tabular interface** that allows the visualization of the **individual** production **plants,** with the **detail** of the **type of handling** (increased or reduced input)

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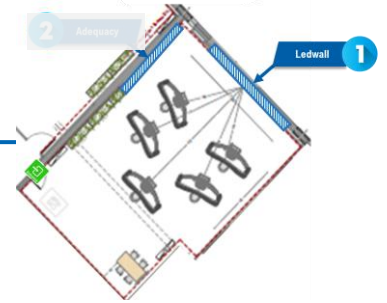
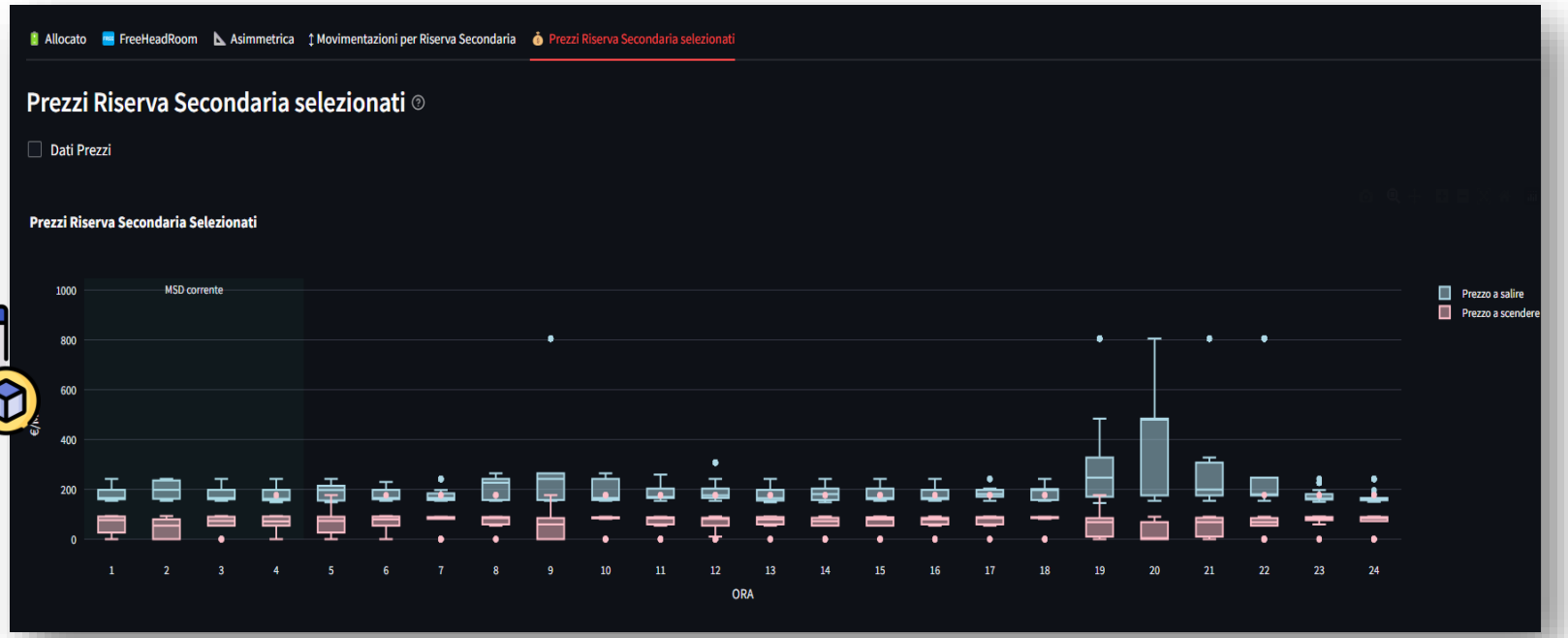
Secondary Reserve Price Module



Scope

It allows you to view a **summary of the efficiency of the prices** accepted in the pay-as-bid market and analyze their volatility based on the hours and the different types of plants, to support operational decisions in the energy market.



Main features

- Ability to **view a detailed** summary of the **efficiency** of **accepted prices**
- **Monitoring** of **price volatility** at different times of the day and between the various types of plants

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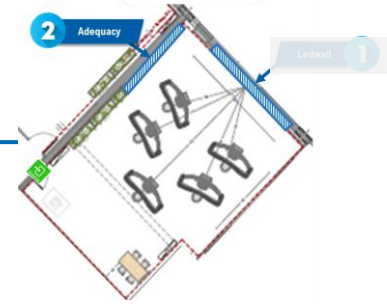
Focus on Hydroelectric Storage Systems

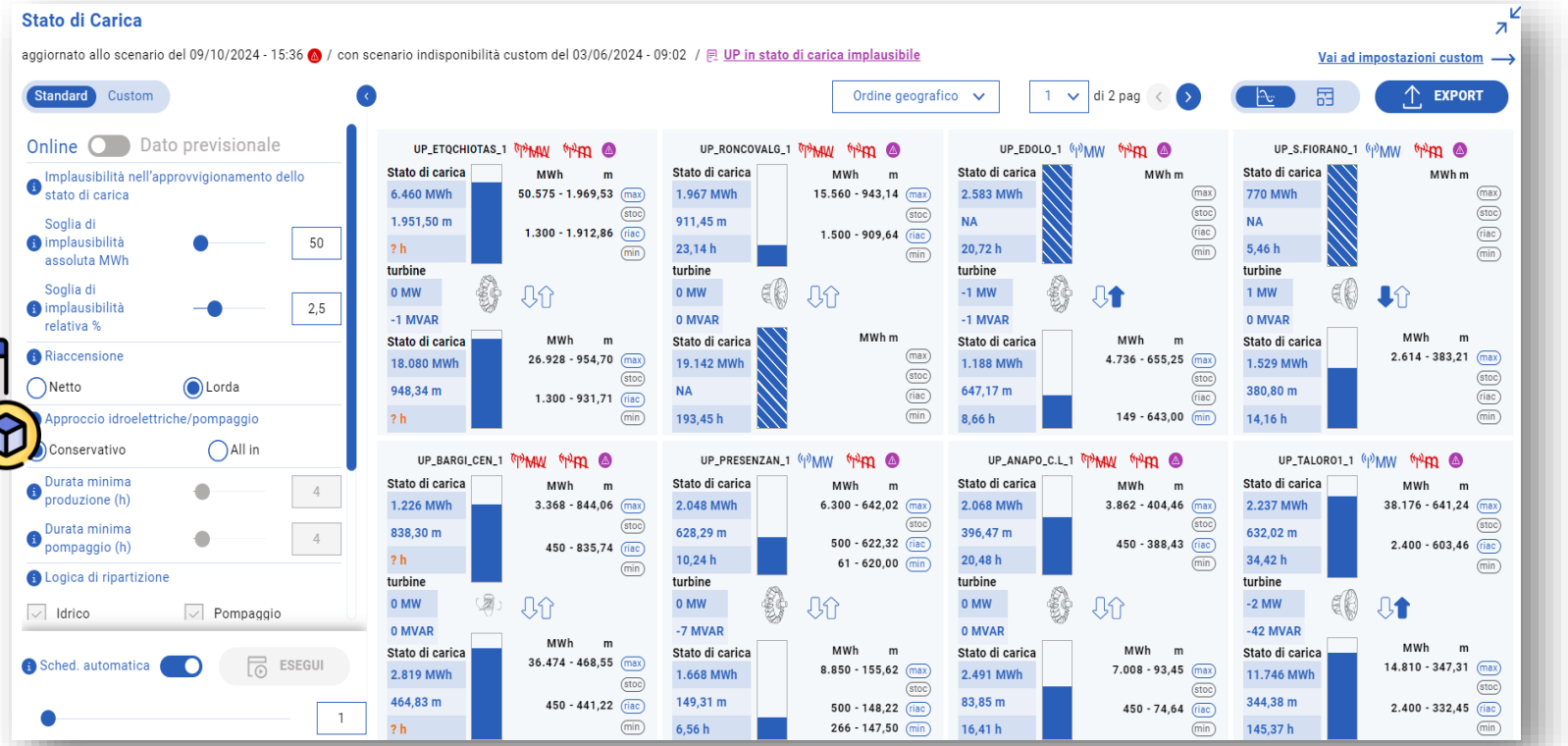


Scope

The aim is to provide operators with a **dedicated tool to monitor hydroelectric storage systems,** which are key resources due to their high flexibility, allowing efficient management of these units.

Main features

- **Graphical display** of the **state** of the pumping **reservoirs** and the **quota** required for the **re-ignition service**
- Display of the **current operating status on the systems**
- Scenario **update every 5 minutes**



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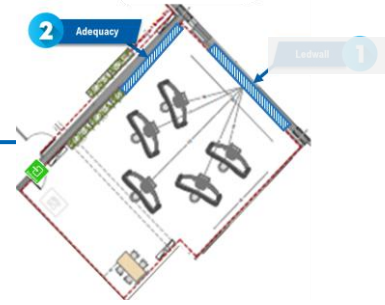
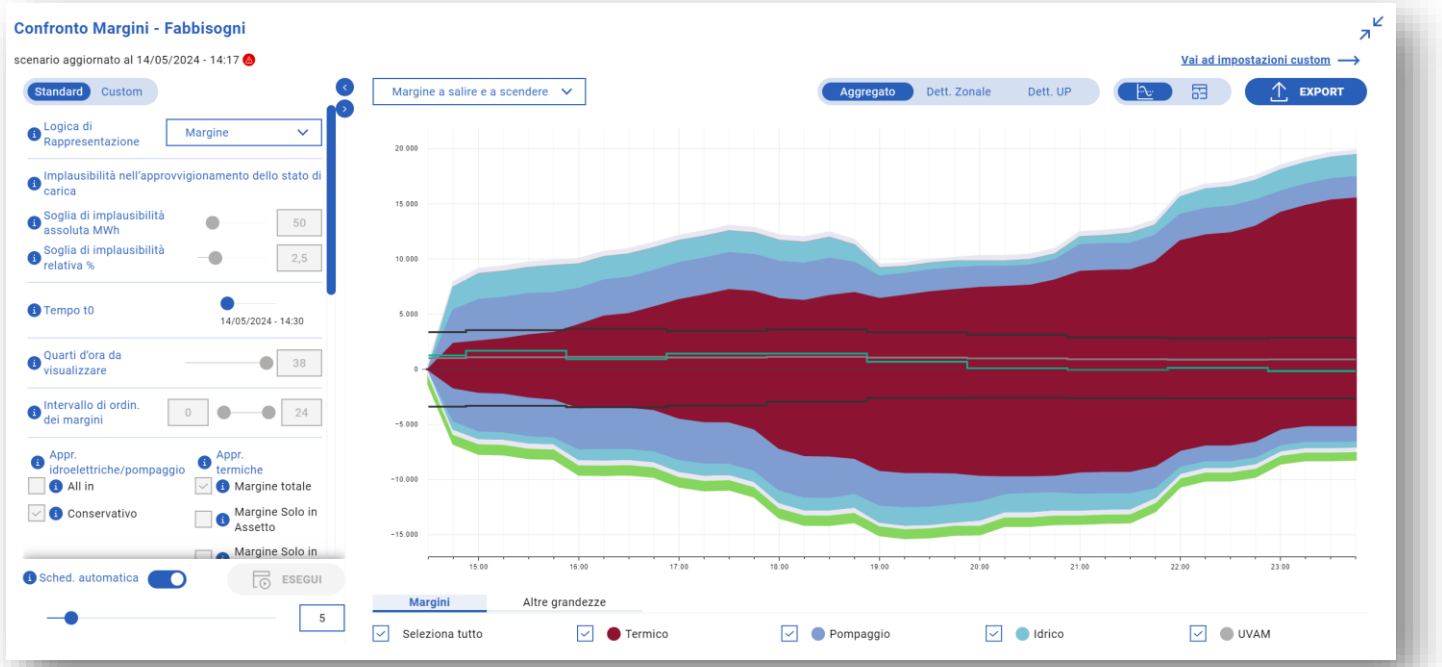
Adequacy Module



Scope

Ability to constantly **monitor** the **resources available** in the energy system, evaluating their trend over time and intervening if necessary to ensure the correct functioning of the system.

Main features

- **Graphical display** of margins with **15-minute granularity and detailed by source**
- **Scenario update** every **5 minutes**
- Possibility of **investigate** the different **spatial** and **temporal solutions.**