

Project Vision

We support the spread of knowledge and experience on a global scale, addressing the challenges of the energy systems of 2030 and beyond.

Objectives

To develop a secure and open-source platform that integrates a set of optimization tools for operating, planning and maintaining assets of power systems. To support TSOs and DSOs in improving and coordinating their systems from a technical, economic and environmental standpoint.



Expected Results

- To enable accelerated dissemination of the tools among a wide range of research institutions within and outside of the project consortium;
- To help TSO's and DSO's to better manage their networks;
- To provide valuable data for the scientific community and EU energy industry;
- To attest the relevance of the developed solutions.

The European project ATTEST - Advanced Tools Towards cost-efficient decarbonisation of future reliable Energy SysTems will create the necessary conditions for the development of the European electrical networks of the future and prepare the infrastructures for the solutions that are emerging.

By 2023, there will be an energy integration platform and a set of 12 optimisation tools for electricity grid operators energy producers and distributors. The developed algorithms will favour 'clean' or low emission technologies. The integration of digital solutions at European level will support an equitable, optimised and efficient energy network, with a balanced environmental impact of energy production among all countries.



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 attest-project.eu

The advanced toolbox for smarter energy systems

ATTEST smarter energy



Zagreb Demo

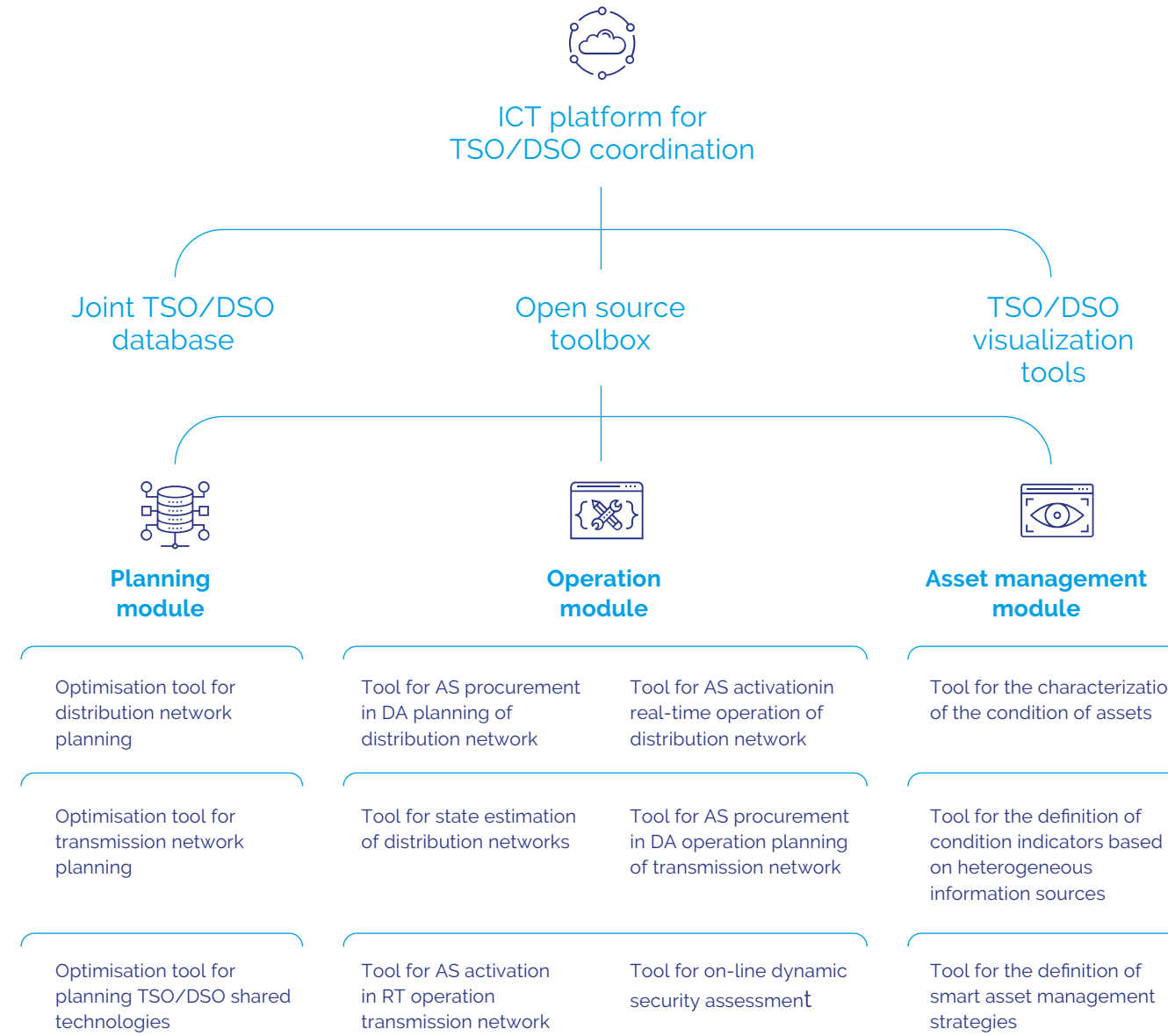
The Skyscraper building of the University of Zagreb Faculty of Electrical Engineering and Computing (UNIZG-FER) and the Headquarters building of Croatian Power Utility (HEP) are connected to the 10 kV network and provide a level of demand response with meaningful effects to the DSO and, with a degree of upscaling, to the TSO.

Koprivnica Demo

This demo includes the entire 35 kV, 20 kV and 10 kV distribution networks in the Distribution Area Koprivnica. As opposed to the Zagreb demo, where tools will be tested with buildings providing flexibility, in this demo flexibility will be provided by DSO assets, namely OLTC transformers, capacitor banks, network reconfiguration and DG.

Northwestern Croatia Demo

In this part of the network there is a notable number of generation units important for the Croatian power system (thermal, hydro, and wind power plants). This is also a very important part of the network because of the transition power flows towards north-west: Krk, Lošinj and Dunat are nodes geographically located on islands.



Planning module

Optimization tool for distribution network planning
To produce flexible, adaptive network investment strategies that use demand side flexibility as a means to maximise network capacity, also considering environmental and economic impacts.

Optimization tool for transmission network planning
To develop optimized strategies for the transmission network to be adaptively upgraded in consideration of the new sources of uncertainty and flexibility that may emerge in different areas of the network.

Optimization tool for planning TSO/DSO shared technologies
To assess the benefits from the installation of TSO/DSO shared technologies to be managed in a coordinated way to simultaneously provide flexibility to both distribution and transmission networks.

Operation module

Tool for ancillary services procurement in day-ahead operation planning of the distribution network
To support the DSO on the procurement of ancillary services and mitigate renewables uncertainty.

Tool for ancillary services activation in real-time operation of the distribution network
To optimize the activation of flexibility and maintain the distribution network operating in a safe mode.

Tool for state estimation of distribution networks
To allow estimating the operating state of the network with minimal available information.

Tool for ancillary services procurement in day-ahead operation planning of transmission network
To enable the TSO to procure ancillary services on a 24-h ahead basis.

Tool for ancillary services activation in real-time operation of transmission network
To maintain the transmission network operating in a safe mode when forecasting errors occur.

Tool for on-line dynamic security assessment
To perform a security assessment of transmission networks considering static and dynamic constraints.

Asset management module

Tool for the definition of condition indicators based on heterogeneous information sources
To define a set of harmonised, easily measurable and comparable life indicators for different types of assets based on characterization of their condition.

Tool for the definition of condition indicators based on heterogeneous information sources
To translate the results obtained from the previous tool into a set of harmonised, easily measurable and comparable life indicators for different types of assets.

Tool for the definition of smart asset management strategies
To evaluate the assets under different perspectives, defining asset priority lists to allow optimized decisions taking into account not only CAPEX but also OPEX costs.

