OneNet Open Call WS| January 11th, 2022

Detailed power system analysis with Geographic Information system (GIS) implementation

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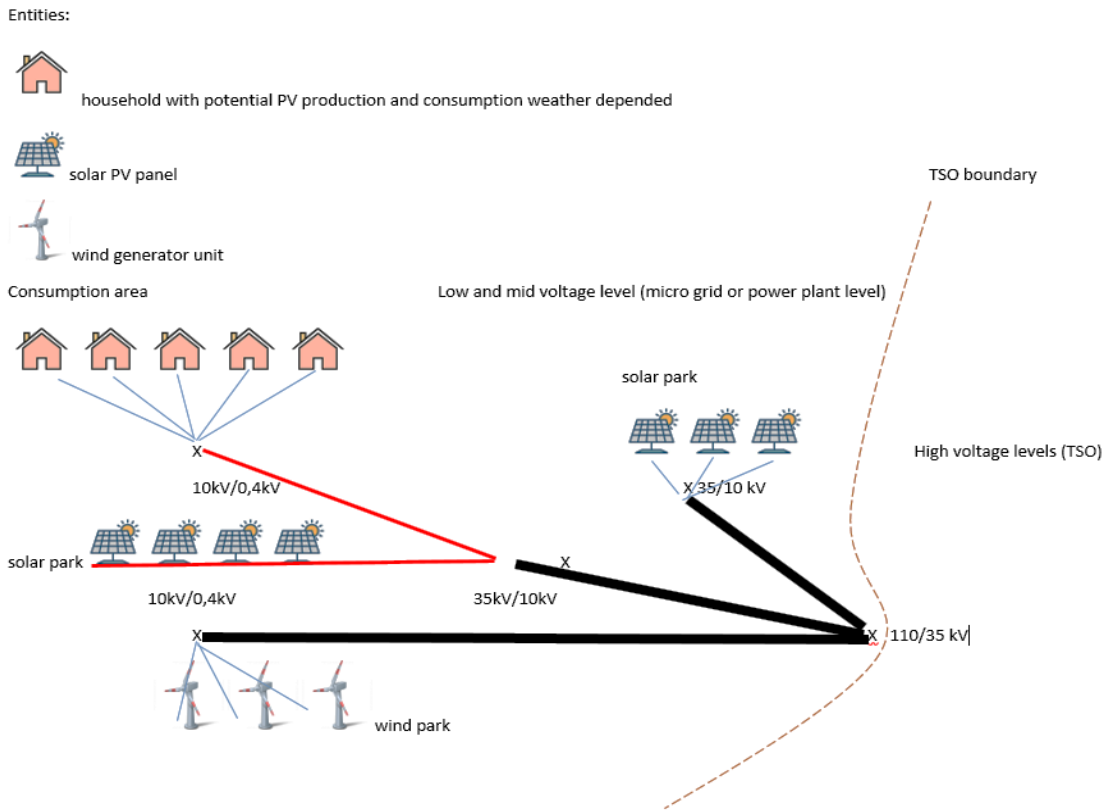
Power system deep-grid modelling and analysis

- Deep-grid modelling and analysis of the power system of the region of interest (Crete island and Peloponnese), including both TSO and DSO grid simulation models that will be available.
- In order to allow deep-grid analysis, it is necessary to model the system to the lowest level entity:
  - DSO MV/LV substation (e.g. 10/0.4 kV);
  - commercial/industrial/residential building possessing its own MV/LV substation.
- Entity's model depends on its demand behavior and the total power generated by the distributed energy resources (DERs) connected to it.
- The latter is affected by:
  - the type of DER;
  - weather forecast;
  - geographical data;
  - DER network topology;
  - their availability data...

Power system deep-grid modelling and analysis



<u>Expected outcome:</u> Development of a model of the network starting from the lowest level entities for the predefined set of Points of Interest and provision of the different levels of aggregation for the higher level users: DSOs, TSOs and/or RSCs.

GIS server and visualization of simulation results

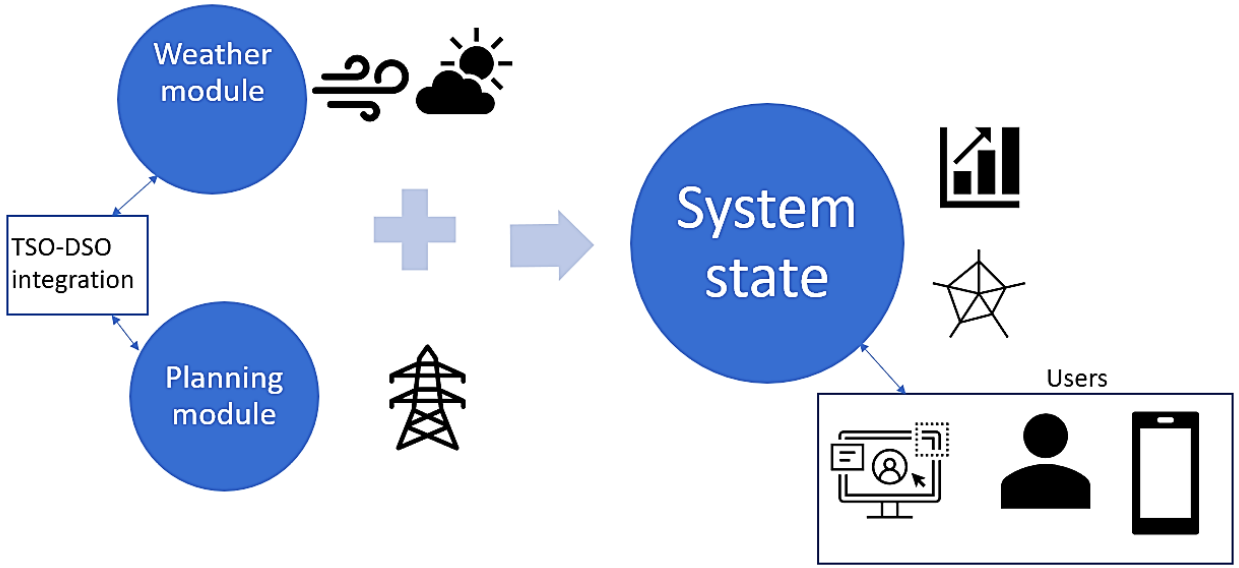
- Geographic visualization of simulation results and establishment of the link to other services that are developed under the *f*-channel platform via GIS technologies.

- GIS technology integrates:
  - common database operations such as query and statistical analysis;
  - unique visualization and geographic analysis benefits offered by maps.

- These abilities distinguish GIS from other information systems and make it valuable to a wide range of public and private enterprises for explaining events, predicting outcomes and planning strategies.

- Spatial query (retrieving the wanted set of data from a map layer by working with the map features) will be implemented for purpose of easier calculation and better User Experience.

GIS server and visualization of simulation results



<u>Expected outcome:</u> Fully functional GIS server incorporated with the comprehensive power system analysis toolbox on EIG infrastructure with possibilities for further development and maintenance by EIG.

THANK YOU FOR YOUR ATTENTION!