

SECURING THE SMART GRID TOWARDS 100% RENEWABLES

SUCCESS Project Open Day

Panel 2:

- a. Network codes, governance and regulatory issues for the transition towards 100% RES; Priorities on network codes updates
- b. TSOs-DSOs relationship changing

Romanian Energy Center organized the International Conference “Securing the Smart Grid towards up to 100% Renewables” on 28th and 29th of June 2018 in Bucharest. More than 70 energy specialists, decision and policy makers from Romania and several European countries actively participated to the debates bridging together eight H2020 Research Development and Innovation Projects Consortia: SUCCESS, RESERVE, SOGNO, NRG5, CROSSBOW, WISEGRID, NOBERGRID and DEFENDER.

Intensive discussions during the first day of event included three focused Panel Discussions and presentations related to eight specific RD&I projects addressing technology, grid codes, regulatory and governance issues for RES.



The second day of event included a dedicated trip to two pilot sites as part of the SUCCESS Project Romanian trial, one in Stalpu – Buzau County and the other one in Ploiesti – Prahova County.

The second Panel focused on the **RESERVE Project** and it was attended by a group of regulatory and network codes specialists, including the representative of the Romanian regulatory authority ANRE as well representatives from both TSOs and DSOs:



Moderator: **Mihai PAUN** - CRE

Panelists: **Mirela DIMA** – CEZ, **Doina ILISIU** – TRANSELECTRICA, **Thorsten GROSS** – AVACON, **Ion DUMITRU** – ANRE, **Sneha MANOHARA** – VDE, and **Dan PREOTESCU** – CRE.

Future energy systems will use renewable energy sources to minimize CO2 emissions. Currently large generators powered by fossil fuel turbines maintain the stability and quality of energy supplies through their inertia. The inertia of these generator-turbine groups gives providers a significant time window in which to react to network events. We urgently need to find ways to stabilize energy systems with up to 100% RES (where inertia is often lost due to power converter mediated energy transfer) to generate “RESERVEs” so that society can relax in the knowledge that it has a stable and sustainable energy supply.

“RESERVE is addressing this challenge by researching new energy system concepts, implemented as new system support services enabling distributed, multi-level control of the energy system using pan-European unified network connection codes” explained Mihai PAUN – Vice-President CRE while introducing the Project.

“Within RESERVE project it was created a pan-European multi-site simulation test-bed, bringing together the best facilities in Europe. RESERVE results include published models of system support services, innovative architectures for the implementation of the services, performance tests on the above-mentioned pan-European real-time simulation, and live, test-beds, a model for pan-European unified network connection codes and actions to promote results to standardization organizations, all of which maintain the RESERVE in energy systems” he added.



The panel participants discussed the topics proposed in the panel and provided answers to the following moderator's questions:



- What kind of framework is needed to allow the transition towards 100% renewables?
- Should the power community develop a specific network code for storage or is it better to continue the present approach?
- Do you consider useful the incentives for encouraging investments in storage?

Considering the context of the RESERVE project presented in the introductory phase of panel discussions by the moderator Mihai Paun of CRE, as well as the panelists' own experiences and perceptions, the following information and points of view were highlighted within the panel discussions:

- Even if 100% of RES does not seem to be a very close moment in time, there is a strong dynamic of the penetration of RES in the energy system, new estimates and targets appear dynamically, and this target becomes more and more clearly outlined at the horizon; in this context, both DSOs and TSOs activities need to be reconsidered, both types of entities will have to face new challenges and flexibility is a key issue to consider;



- Data were presented demonstrating that even in the present time there are short periods of time, which accumulate 6-7 days a year, when the proportion of 100% RES in the energy system is reached;
- Resistance to change is a fact that we are all aware of when talking about changing regulations; the first reaction is to avoid, from both DSOs and TSOs

perspectives, but a set of regulations needs to change and measures to be taken for properly responding to the new reality which is increasingly making its way into the energy market.

In view of the above mentioned, the following assessments, requirements and solutions have been brought to the fore:



- renewable energy sources certainly generate high benefits, but their proper management generates extra costs (for example, the operating costs of transmission and distribution operators will be higher); regulatory authorities will be in a position to provide support to operators for the abovementioned resilience to change (generated by objective factors, that is, additional costs) to be removed;

- it has been appreciated that Virtual Power Plant initiatives are welcome, being very important in reaching the 100% RES target;
- regulators must also consider and provide a framework for the emergence of flexible products on the market, in particular allowing energy producers to sell what they produce
- the regulatory framework must be stable, reliable, and intuitive at the same time to allow DSOs to properly run the necessary investments;
- the need for incentives to support investments in storage, as well as other support solutions will be needed, from the perspective of what regulators can do to overcome resistance to change.



The possible changes in the network codes have been discussed, and the following were mentioned:

- a special focus must be on requirements for storage, as part of generation;
- in the situation up to 100% RES in the energy system, we are not only talking about possible updates, but profound structural changes (changes in the architecture of network codes, given the prosumer's role, microgrids, etc.).

