

## SECURING THE SMART GRID TOWARDS 100% RENEWABLES

### SUCCESS Project Open Day

#### Panel 1:

- a. Facing Cyber Attacks with NORM & Countermeasures
- b. Implementing SUCCESS Security Solutions (SSS)

Romanian Energy Center organized in Bucharest, during 28th and 29th of June 2018, the conference “Securing the Smart Grid towards up to 100% Renewables”. Attended by more 70 energy specialists, decision and policy makers from Romania and several European countries, the event bridged eight research projects consortia: SUCCESS, RESERVE, SOGNO, NRG5, CROSSBOW, WISEGRID, NOBERGRID and DEFENDER.

The first day of event comprised of three panel discussions and eight specific projects and technology presentations, grid codes and the regulatory and legal issues for RES.

The second day of event included a 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 panel 1 was attended by the following representatives of the partners participating in the consortium of the **SUCCESS project**, and the issues and challenges of implementing this project have been debated.



Moderator: **Ganesh SAUBA** - DNV-GL

Panelists: **Padraic MCKEEVER** – RWTH, **Mihai SANDULEAC** – CRE, **Giampaolo FIORENTINO** – ENGINEERING, **Karen McGEOUGH** – ESB, and **Emil CONSTANTINESCU** - ELECTRICA

The security of critical infrastructures must be maintained so that supplies of power, water or other resources are secured. Modern critical infrastructures are increasingly complex and they are turning into Cyber-Physical Infrastructures because ICT is growing in importance in infrastructure management.

The SUCCESS project is developing an overarching approach to threat and countermeasure analysis with special focus on the vulnerabilities introduced by Smart Meters. The main challenge

is to create the conditions in Europe for the future energy system to be as reliable as today's. Starting from security by design approach and placing resiliency and survivability in focus, a new joint design of Energy Infrastructure and ICT is proposed. Following on the research results, an implementation approach is pursued based on the definition of a New-generation Open Real-time smart Meter (NORM) as a key building block. NORM aims to secure the end nodes of the energy system while providing innovative services in a customer centric grid. At systems level, the project proposes a cloud approach, based on double virtualization. SUCCESS provide concrete guidelines to support the design of energy systems and linked communications networks to guide short, medium and long-term initiatives.

Mihai SANDULEAC from CRE, the initiator of the idea of smart metering NORM in this project presented the results recorded so far by using this smart meter in the Irish, Italian and Romanian trials, demonstrating its usefulness and reliability.



Two panel participants, Karen McGEOUGH from ESB, and Emil CONSTANTINESCU from ELECTRICA, consider this smart meter as a good and desirable solution from DSOs perspective, taking into account the behavior and utility of NORM, based on the tests already made.



There were discussed further tests to be accomplished for a better substantiation of the NORM functionalities, as potential cyber-attacks to be considered and countermeasures. It has also been highlighted the cross countries collaborative approach, as an extremely important element in this context.



According to Mr. Padraic McKeever, The countermeasures include specifications and open source software for Next Generation Open Real time smart Meters and Security Monitoring Centers at DSO and Pan-European levels, secure communications solutions using NFV, LTE and 5G technologies complemented by data privacy studies to ensure the acceptability of the results by consumer.

