



The Role of Innovation for Cybersecurity Solutions towards Digitalizing the Power Sector

Mihai PAUN, Vice-President

Digital skills & Industry 4.0 Conference

3D Augmented Reality Expo București | 13th of October 2020, 13 October 2020



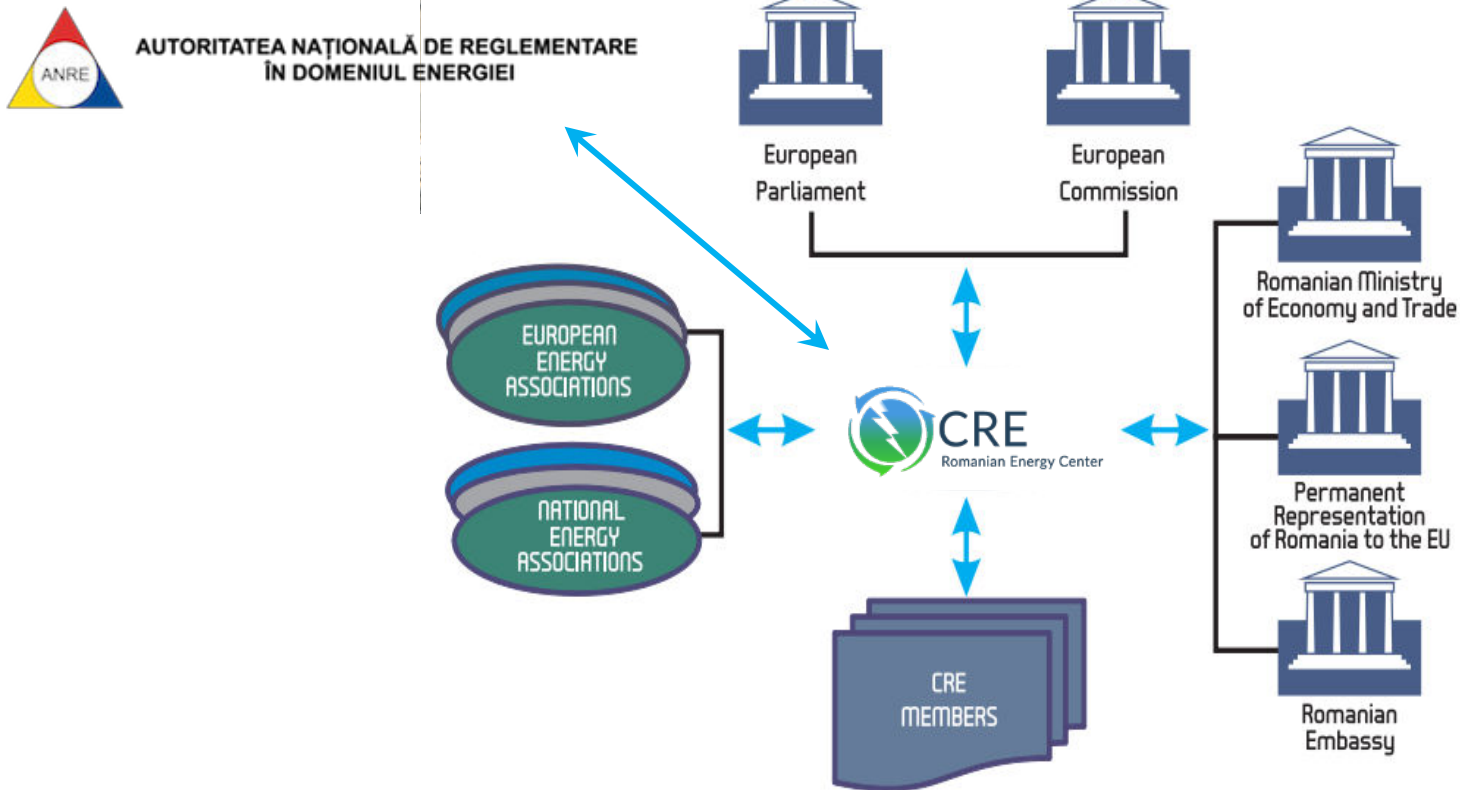
- The Romanian Energy Center is a **non-governmental and non profit Association** representing the interest of state-owned and private companies operating in the Romanian Energy Market, in relation with EU and National Institutions;
- Active in all relevant areas including: **electricity, oil and gas, coal, renewables, energy equipment and services plus R&D&I, and Legal assistance;**
- CRE contributes to the European and National **decision-making process**, promotes infrastructure investments and supports the transition to a decarbonized energy system.

25 Members - Public and Private Sector

- ADREM INVEST
- BIOENERGY
- CEZ România
- Complexul Energetic Oltenia
- CONPET
- ELECTRICA
- ECRO
- ELECON
- E.ON România
- ELECTROALFA
- ENEL România
- ENERGObIT
- EXIMPROD
- HIDROELECTRICA
- INSTITUTUL DE STUDII SI PROIECTARI ENERGETICE
- NUCLEARELECTRICA
- ROMGAZ
- ROMPETROL
- TELEKOM
- TRACTEBEL ENGINEERING – GDF SUEZ
- TRANSELECTRICA
- TRANSGAZ
- TUCA ZBARCEA & ASSOCIATES



CRE: INTERACTIONS & REPRESENTATION





Position papers to Romanian and European Energy Policy consultations



EU Projects

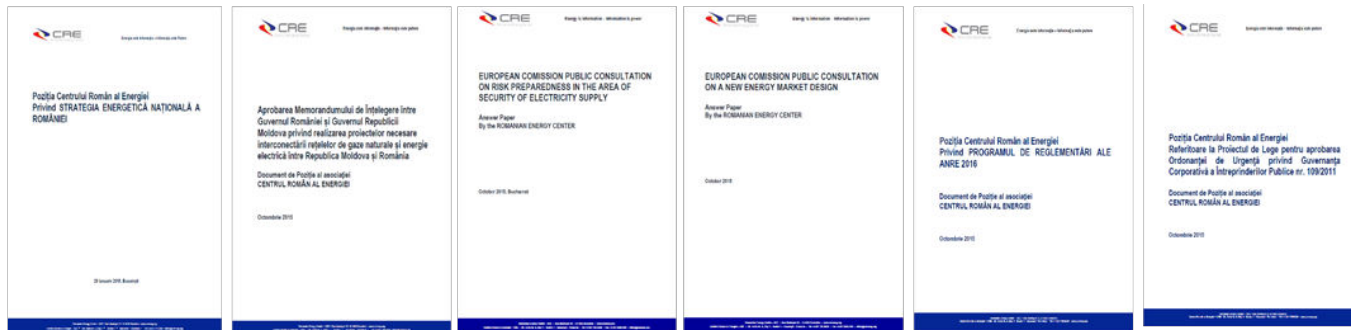


Events in Romania and Brussels



Coordinator of the Center for Dialogue and Cooperation 16+1 (CEE Countries + China)

CRE POSITION PAPERS



**Romania's
National
Energy
Strategy**

**MOU
Between
Romania's
Government
and
Republic of
Moldova**

**Risk
Preparedness
in the Area of
SOS**

**New Energy
Market
Design**

**Regulation
Programme of
ANRE 2016**

**Corporate
Governance
– Law
109/2011**

- Position Paper of CRE on the Preparation of the New EC Directive on Renewables after 2020 ([Link](#))
- Position Paper of CRE on the Modification of Energy Efficiency Law ([Link](#))

“THE EUROPEAN GREEN DEAL AS THE KEY RECOVERY MECHANISM AND GROWTH STRATEGY FOR THE EU”

9th Romanian ENERGY DAY, On-line Video Conference 20th October 2020

OBJECTIVE – To Inform the representatives of EU institutions in Bruxelles and **to contribute to EU decision making process** on energy priorities, projects & programs in **Central and South-East Europe & in Romania;**

- **To Facilitate investments in energy infrastructure, to support Energy Market Integration and to increase energy security in the Region;**
- **To proactively contribute to the development of HV electricity, oil and gas corridors and to increase interconnection capacity in the Region;**



EUROPEAN PROJECTS – CRE IMPLEMENTATION

CRE – TOP 10 OUT OF OVER 2500 ROMANIAN ENTITIES
IN THE H2020 RESEARCH AND INNOVATION PROGRAM OF THE EUROPEAN COMMISSION



Renewables in a
Stable Electric Grid



SUCCESS - Securing
Critical Energy
Infrastructures



Wide scale demonstration of
Integrated Solutions and
business models for
European smart GRID



Enabling Smart
Energy as a Service
via 5G Mobile Network
advances



CROSS BOrder management of variable
renewable energies and storage units
enabling a transnational Wholesale market



SOGNO - Service
Oriented Grid for the
Network Of the Future



EXPERIENȚE ÎMPREUNĂ.

WISEGRID CONSORTIUM RECEIVES 'GOOD PRACTICE OF THE YEAR' AWARDS FROM COMMISSIONER FOR ENERGY, MIGUEL ARIAS CAÑETE

*Technology
and
Design*

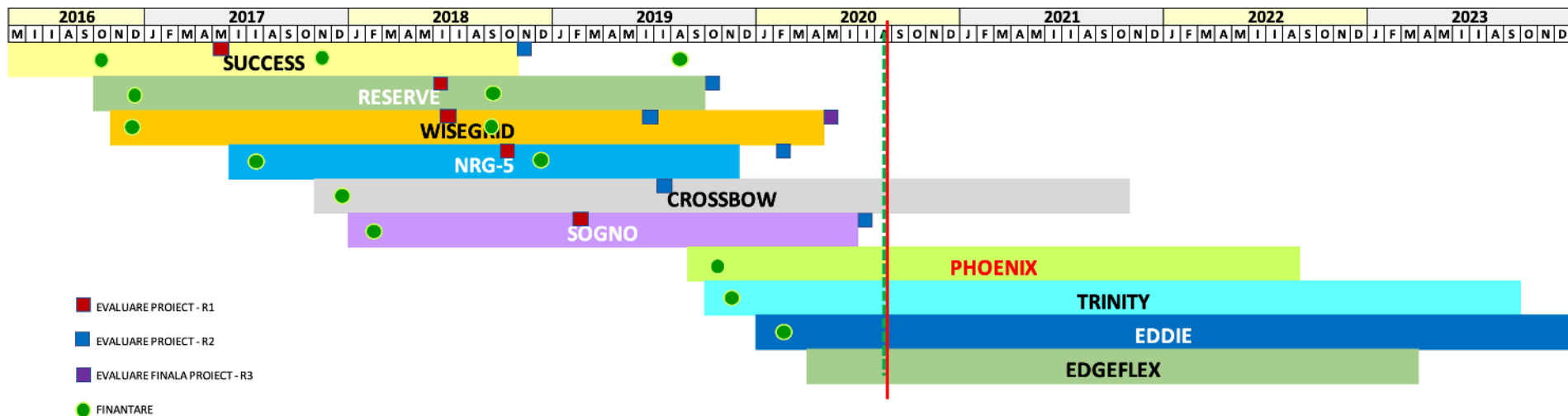


WISEGRID CONSORTIUM WINS 'TWO EU SUSTAINABLE ENERGY AWARDS FROM COMMISSIONER FOR ENERGY, MIGUEL ARIAS CAÑETE

- The Best Project in the **Business and Citizen's choice categories**, winning **two EU Sustainable Energy Awards**.
- The prizes recognise outstanding **Innovation In Energy Efficiency And Renewables**
- *European Sustainable Energy Week 5 June Brussels (EUSEW 2018)*



PROIECTE EUROPENE – PERIOADE DE IMPLEMENTARE



SUCCESS Project: Securing Critical Energy Infrastructures



Together with

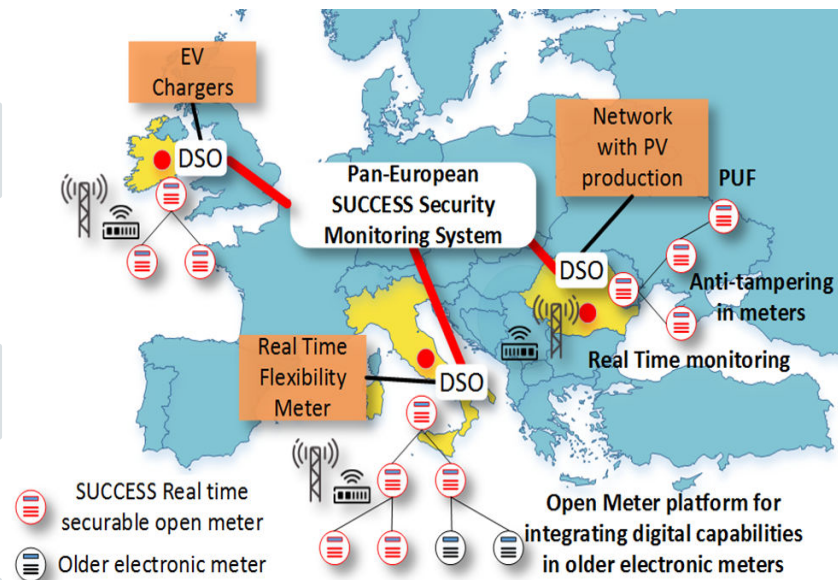


PROJECT DESCRIPTION & THE ROLE OF CRE

SUCCESS Project – Critical Infrastructure “smart grid” protection and resilience under “smart meters” threats

- 30 months project (05/2016-10/2018)
- 16 partners from 9 countries (RO, DE, IT, NL, IR, GR, SW, FN, BE)
- 7 work packages

CRE role: Securing Smart Devices and Infrastructure; demonstrations, field trial and solutions evaluation; development of the next generation smart meter NORM (Task Leader, and participant in other WPs)



Demo Trials: IT, IR, and RO

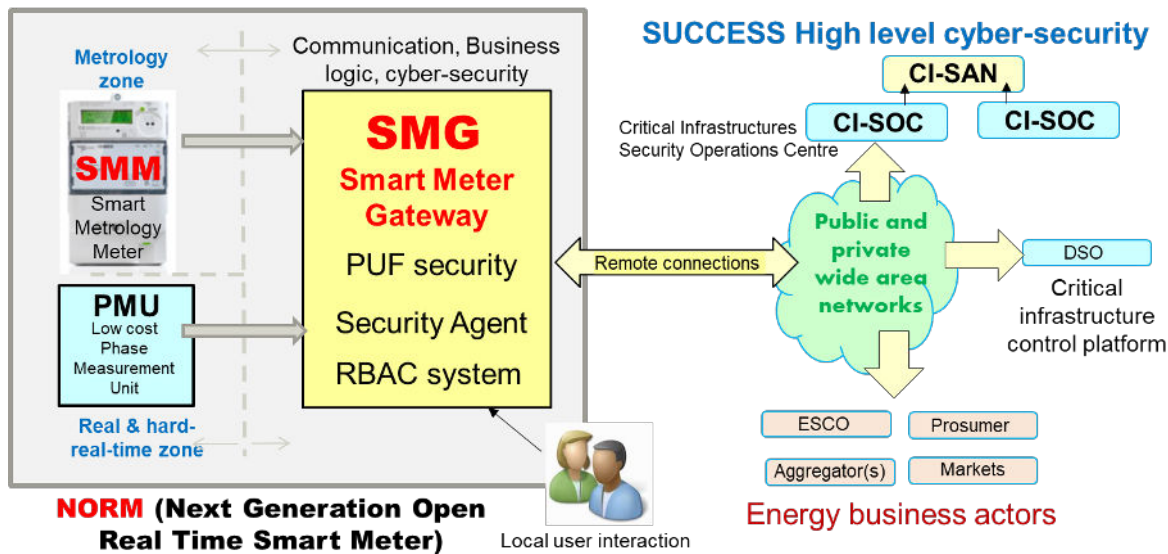
IMPLEMENTING Key SUCCESS Results

- **SUCCESS has been the Right Project at the Right Time** – cyber-security has constantly grown in importance → the interest of Industry representatives in **SUCCESS results** has grown during the project
- **Constant Dialog** with key industry representatives in EU & Romania and **Presentation of SUCCESS Project solutions for Securing the Smart Grid towards 100% Renewables**
- CRE Members address the next decade's **challenges for the electricity grids** and **provide insights and solutions** through **Innovative Projects and Demonstrators** → e.g. **SUCCESS**

ACHIEVEMENTS – CRE AND ITS PARTNERS

NORM development – an evolved Smart Meter concept for the future:

- Task leader: CRE
- Partners: RWTH, SYNELIXIS, TEAMWARE, ENGINEERING, ERICSSON



18-19.09.2018

NORM deployment, Meeting in Terni

Local user interaction

© success 2018 All rights reserved.

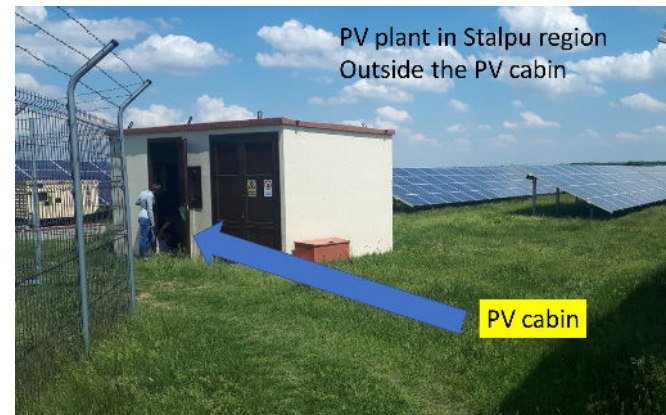
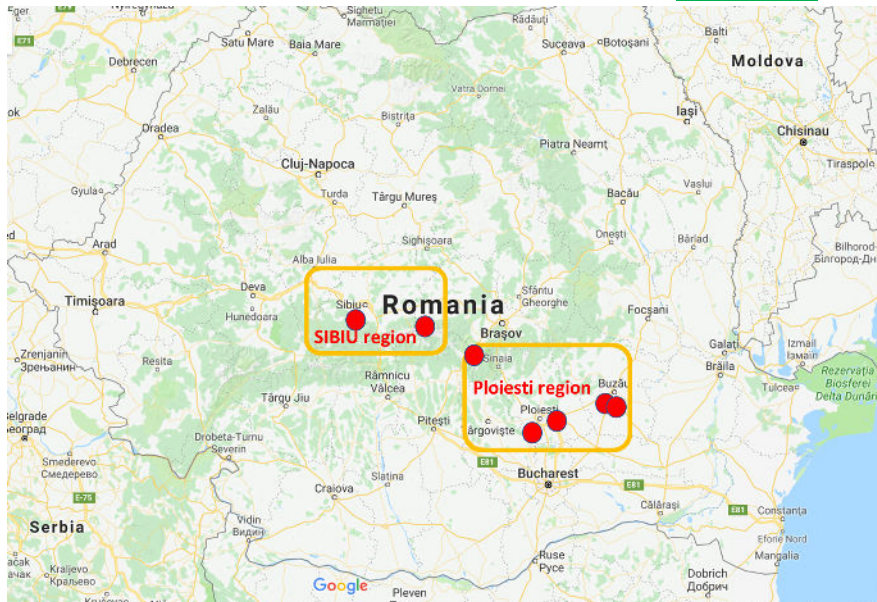
Slide No. 7.

ACHIEVEMENTS – CRE AND CRE MEMBERS

Romanian Trial on Networks with high Renewables penetration:

- Task leader: **ELECTRICA**
- Partner: **CRE**
- Support: **EXIMPROD**

[**LINK VIDEO**](#)



All 7 x NORM metering points have been deployed in networks with renewables:

- One metering point in Sibiu / Balea Lac region (**Hydro**)
- One metering point in Sibiu / Talmaciu region (**PV**)
- Two metering points in Buzau / Stalpu region (**PV Plants**)
- Two metering points in Ploiesti region (**microgrids with PV production**)
- One metering point in Ploiesti / Busteni region (**microgrid with Hydro production**)

SYNERGIES FOR IMPLEMENTING SUCCESS Results

- CRE promotes exploiting Synergies amongst the Telecoms, Energy and Transport sectors in terms of ICT, digitalization and infrastructures
- CRE encourages Close Collaboration amongst these sectors in order to use resources efficiently and effectively.
- CRE supports more interaction with DSOs to present results of **SUCCESS** to them individually to help them to understand **what they can do with the results of SUCCESS** and how they can **evolve their own business** using the results



PHOENIX Project: Electrical Power System's Shield against complex incidents and extensive Cyber and Privacy Attacks



PHOENIX

ELECTRICAL POWER SYSTEM'S SHIELD AGAINST COMPLEX INCIDENTS AND EXTENSIVE CYBER AND PRIVACY ATTACKS



PHOENIX



DELGAZ

e-on | România

3rd Party



LINK VIDEO

Duration:

36 Months

Project started:

1 November 2019

EC Funding:

8 Mio EUR

EDDIE Project: EDucation for DIgitalisation of Energy



Main Features "EDDIE" Project

- ✓ The EDDIE project aims to **create a Sector Alliance and collaborate with energy stakeholders such as industry, education, training providers and European organizations to develop a Blueprint for the digitalization of the European Energy sector** → **improving the competitiveness of the European Energy sector**

Expected Results:

- ✓ **Proactive identification** of skills and knowledge gaps.
- ✓ **Development of a methodology** to assess skills gaps which could be reused to other sectors.
- ✓ **A stakeholders' map of the Energy sector** with skill profiles.
- ✓ The implementation of the **Blueprint Strategy**.

PROJECT DESCRIPTION & THE ROLE OF CRE

EDDIE Project: Blueprint Strategy for the Digitalisation of the Energy value chain (BSDE). The **BSDE** is an industry-driven strategy that will meet and anticipate the skills' demands for the sustainable growth and digitalisation for the European Energy sector

- 48 months project
- 17 partners from 10 countries (RO, DE, IT, ES, BE, CZ, FR, SW)
- 8 work packages

Main CRE role: Coordination of the activities on Impact creation: Dissemination, Standards & regulations, Exploitation (WP Leader, Task Leader, and participant in other WPs)

TRAINING



**EDGEFLEX Project: Providing flexibility
to the grid by enabling VPPs to offer
both fast and slow dynamics control
services**

EDGE*FLEX*

EDGEFLEX – SHORT PROJECT INTRODUCTION

EdgeFLEX Project is about revising the VPP concept having the context of exponential grows of renewables through digitization and the use of 5G technology

10 partners from 6 countries (Romania, Germany, Italy, Ireland, Slovenia, Switzerland)

It is about re-positioning of VPPs that need to support not only the promotion of intermittent renewables (RES) but also the integration of all Distributed Energy Resources (DER) into the full scope of grid operations

Main role of CRE within EdgeFLEX project:

- ✓ To trigger further innovation processes, identifying new opportunities for using 5G-powered, Dynamically Controlled VPPs to optimise our energy systems and accelerate the de-carbonisation of energy, shaping new business models applicable to this context
- ✓ To ensure that project results fit the needs of all types of stakeholders and feed into standardisation, policy and governance processes for rapid uptake and global visibility

Thank you for your attention!

Mihai PAUN
Vice-President
Romanian Energy Center

mihai.paun@crenerg.org

