

ROMANIAN ENERGY CENTER Association's OBJECTIVES AND ROLE IN EU Projects

Solutions and Business Models for the European Smart Grid

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Romanian Energy Center - CRE

- 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.

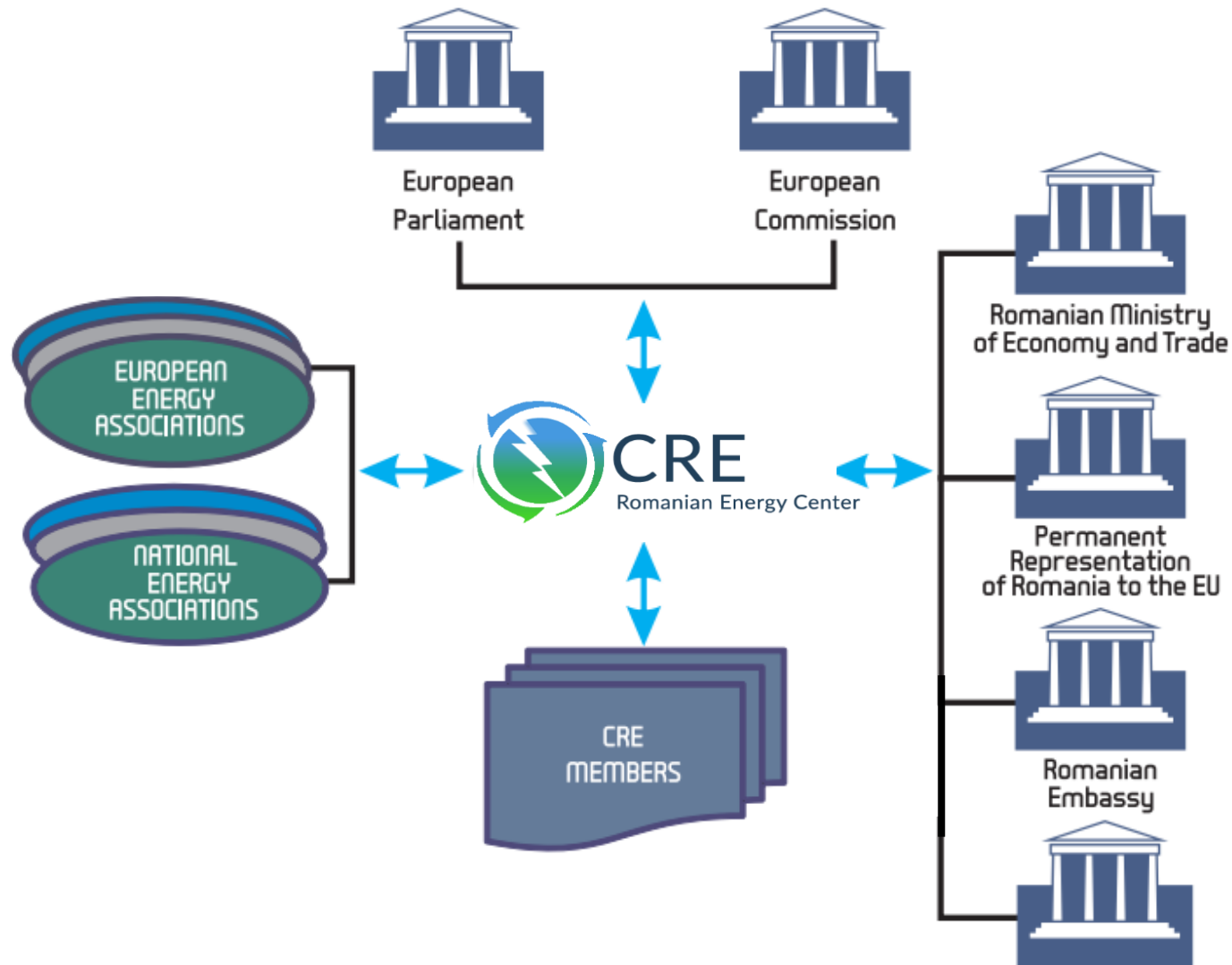
MEMBERS - CRE

17 Members: Public and Private Sector

- ADREM INVEST
- BIOENERGY
- CEZ România
- Complexul Energetic Oltenia
- CONPET
- ELECTRICA
- ECRO
- E.ON România
- Electroalfa
- ENERGOBIT
- EXIMPROD
- INSTITUTUL DE STUDII SI PROIECTARI ENERGETICE
- ROMGAZ
- TRACTEBEL ENGINEERING – GDF SUEZ
- TRANSELECTRICA
- TRANSGAZ
- ȚUCA ZBARCEA & ASSOCIATES



Romanian Energy Center - CRE



Romanian Energy Center - CRE



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 – China CEEC

CRE's Position Papers

 Energy is Information - Information is Power Poziția Centrului Român al Energiei Privind STRATEGIA ENERGETICĂ NAȚIONALĂ A ROMÂNIEI 28 Ianuarie 2015, București	 Energy is Information - Information is Power Aprobarea Memorandumului de Înțelegere între Guvernul României și Guvernul Republicii Moldova privind realizarea proiectelor necesare interconectării rețelelor de gaze naturale și energie electrică între Republica Moldova și România Document de Poziție al asociației CENTRUL ROMÂN AL ENERGIEI Octombrie 2015	 Energy is Information - Information is Power EUROPEAN COMMISSION PUBLIC CONSULTATION ON RISK PREPAREDNESS IN THE AREA OF SECURITY OF ELECTRICITY SUPPLY Answer Paper By the ROMANIAN ENERGY CENTER October 2015, Bucharest	 Energy is Information - Information is Power EUROPEAN COMMISSION PUBLIC CONSULTATION ON A NEW ENERGY MARKET DESIGN Answer Paper By the ROMANIAN ENERGY CENTER October 2015	 Energy is Information - Information is Power Poziția Centrului Român al Energiei Privind PROGRAMUL DE REGLEMENTĂRI ALE ANRE 2016 Document de Poziție al asociației CENTRUL ROMÂN AL ENERGIEI Octombrie 2015	 Energy is Information - Information is Power Poziția Centrului Român al Energiei Referitoare la Proiectul de Lege pentru aprobarea Ordonanței de Urgență privind Guvernanța Corporativă a Întreprinderilor Publice nr. 109/2011 Document de Poziție al asociației CENTRUL ROMÂN AL ENERGIEI Octombrie 2015
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](#))

ROMANIA ENERGY DAY 2017

“Regional cooperation, a key driver for the Energy Union: Mechanisms and initiatives for the energy industry and policy makers”

6th Romanian ENERGY DAY, Bruxelles, 30-31 May 2017

- **OBJECTIVE** – **To Inform** the representatives of EU institutions in Bruxelles and **to contribute to EU decision making process** on energy priorities, projects and programs in **Central and South-East Europe and 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;**
- **Extended specialised media coverage** → e.g. EURACTIV, Calea Europeana, Energynomics.ro, Brussels – Expert.eu



CENTER FOR DIALOGUE AND COOPERATION IN ENERGY (CDCDE), 16+1



Cooperation between China
and Central and Eastern European Countries

中国—中东欧国家合作

**16+1 represents the economic cooperation enhancement format
between China and Central and Eastern European Countries**

Priority Domains/ Committees	Renewable Energy Sources	Smart Grids	Energy Efficiency	Coal	Nuclear Energy
Investments and Finance	WG	WG	WG	WG	WG
Commercial Cooperation	WG	WG	WG	WG	WG
Research and Development	WG	WG	WG	WG	WG
Legislation and Regulation	WG	WG	WG	WG	WG

ROMANIAN ENERGY STRATEGY 2016-2013

with an Outlook towards 2050

- **3 KEY OBJECTIVES:**

- Energy Security
- Competitive Energy Markets
- Clean Energy

- **6 STRATEGIC OPERATIONAL OBJECTIVES:**

- Diverse and balanced energy mix
- Competitive and regionally integrated energy markets
- Lower energy poverty
- Decarbonization
- Increase energy efficiency
- Better governance

EU PROJECTS - CRE PARTNER



**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**

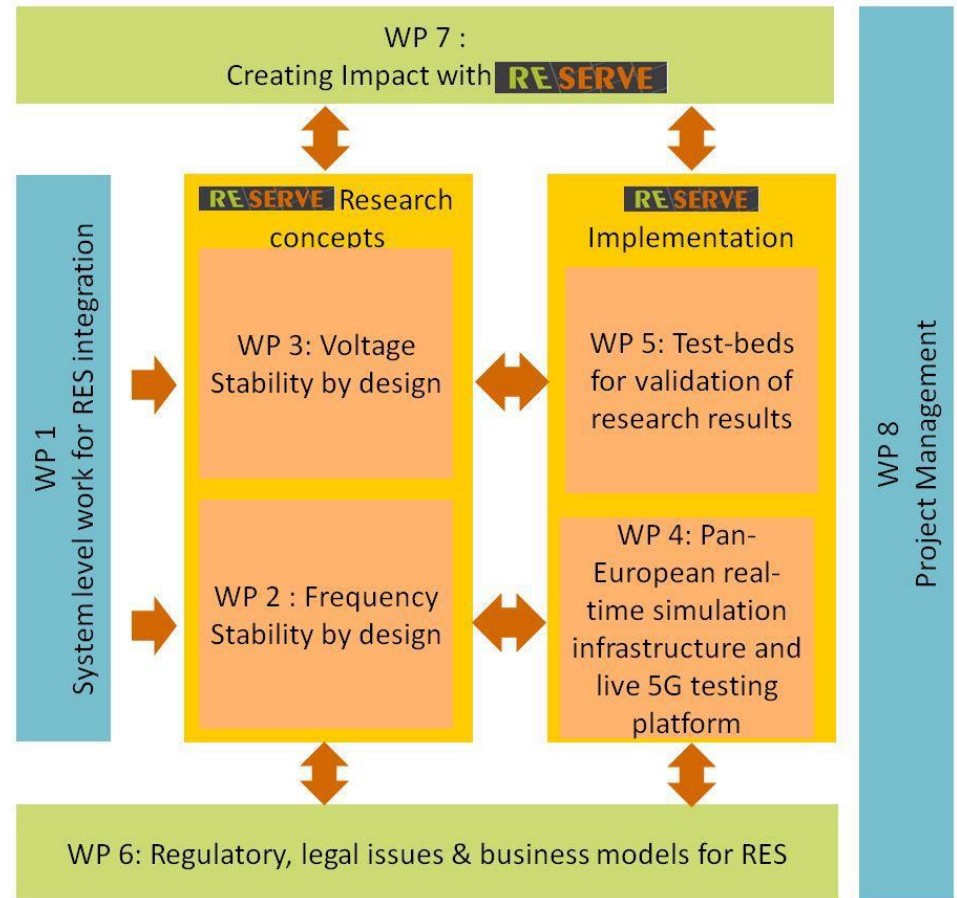


**CROSS BOrder management of variable
renewable energies and storage units
enabling a transnational Wholesale market**

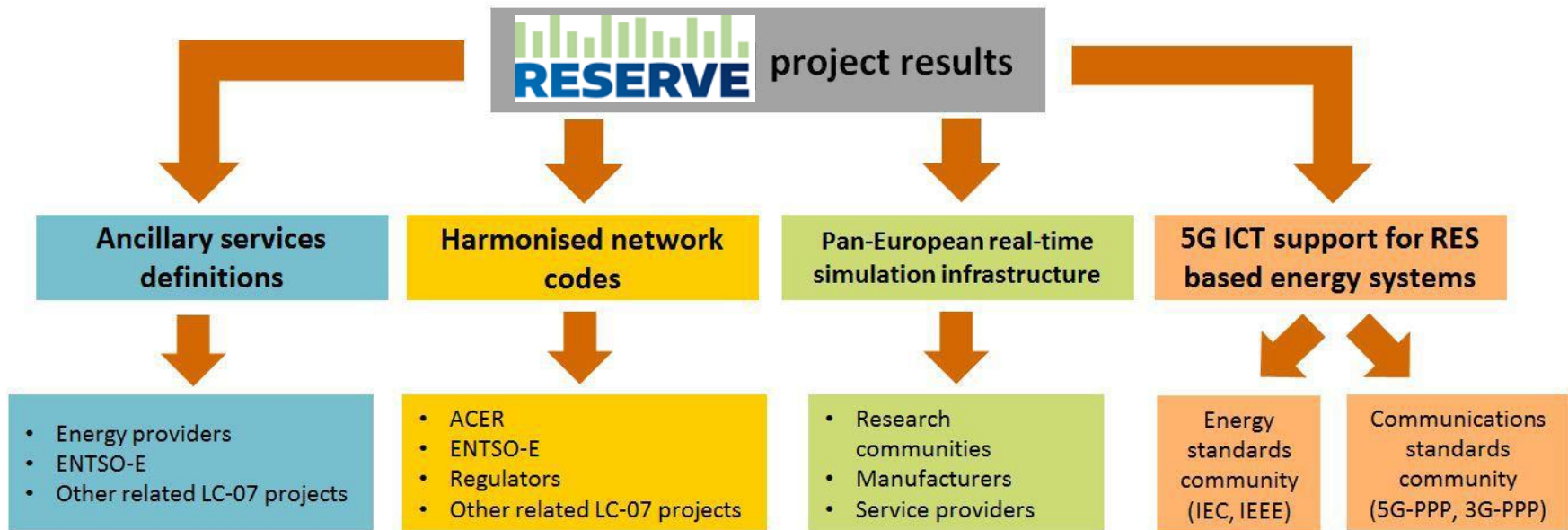


RE-SERVE Project: Solutions towards 100% RES

- 3-years project (10/2017-09/2020)
- 11 partners from 4 countries (RO, DE, IT, IR)
- 8 work packages
- **CRE: Regulatory, Legal & Business Models for RES**
Leader, Task Leader, participate in other WPs



RE-SERVE Project: results are relevant for EnR



1st Stakeholder Workshop: 23 June 2017, Bucharest

- Title: **Milestones Toward 100% RES for all Europeans**
- **Stakeholders Meeting Conference & Workshop** under **EUSEW 2017**
- Around **50 participants** from industry, utility, research and regulation
- **ANRE is invited** to participate
- **[LINK](#)**



Milestones Toward 100% RES for all Europeans Stakeholders Meeting Conference & Workshop

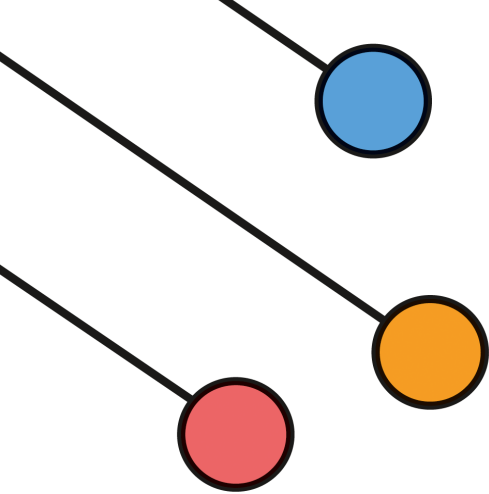
23 June 2017, 09:00-15:00

Radisson Blu Hotel, Bucharest, Romania

A **Joint Event** between the **RE-SERVE** project and the Romanian Energy Center to promote the two main themes of the Energy Days, integration of renewables and energy efficiency.

Objective: Consultation with stakeholders on the preliminary results of the European RE-SERVE Project and dissemination of results towards to a wider national and international audience.





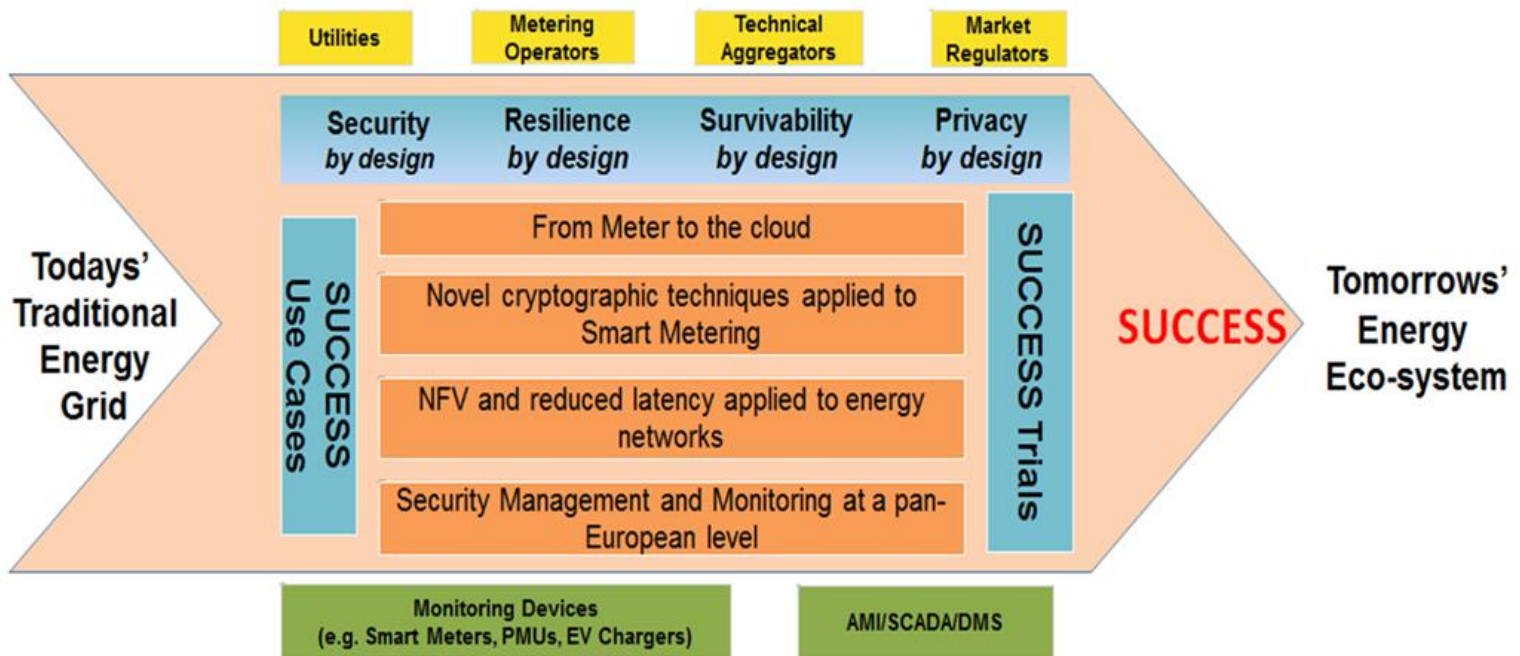
- Work Programme objective addressed: **H2020-DRS-2015**
- Topic addressed: **DRS-12-2015**
- Topic (1): **Critical Infrastructure “smart grid” protection and resilience under “smart meters” threats**
- **Research and Innovation Action (RIA)**

SUCCESS OBJECTIVE

- The Success Project will develop a comprehensive approach to **threat and countermeasure analysis** for Smart Energy networks with special focus on the **vulnerabilities introduced by Smart Meters**.
- The project will design, develop and validate a **novel holistic adaptable security framework in small scale field trials**. When next generation real time scalable unbundled smart meters are deployed in smart electricity grid, **the risks of potential cyber threats and attacks will be significantly reduced**.

HOW?

- **SUCCESS** will achieve this objective by encapsulating the key challenges of **Security, Resilience, Survivability** and **Privacy** in 3 use cases which will demonstrate the success concepts



THE SUCCESS SUMMARY

CHALLENGES OF SMART GRID PROTECTION	SUCCESS APPROACH TO SECURING ENERGY	EVALUATION AND TRIALS OF THE SUCCESS PLATFORM	BEYOND SUCCESS - EXPLOITATION AND IMPACT!
 • Decentralisation of energy systems • Increasing e-vehicle use • Dispatchable Distributed Energy Resources	 • Scalable Security, Resilience & Survivability • Securing devices & communications • Pan-European Attack detection • Ethical Data	 • Solutions field trials with 3 DSOs • Hackathon to challenge security • Validation with prosumers • Building on FIWARE energy trial infrastructure	 • The Next Gen. Open Real-time meter (NORM) • Contribution to standards • Better services for prosumers • DSO uptake of our security solutions
2016	2017	2018 (End of project)	2018+

The Role of the Romanian Energy Center - CRE in SUCCESS Project

- Securing Smart Devices
- Securing Smart Infrastructure
 - Pan-European Security Monitoring Centre
- Demonstrations, field trials and evaluations of Solutions for Secure Solutions for Smart Metering
 - Romanian Trial (Leader: DSO ELECTRICA, Participant: CRE)

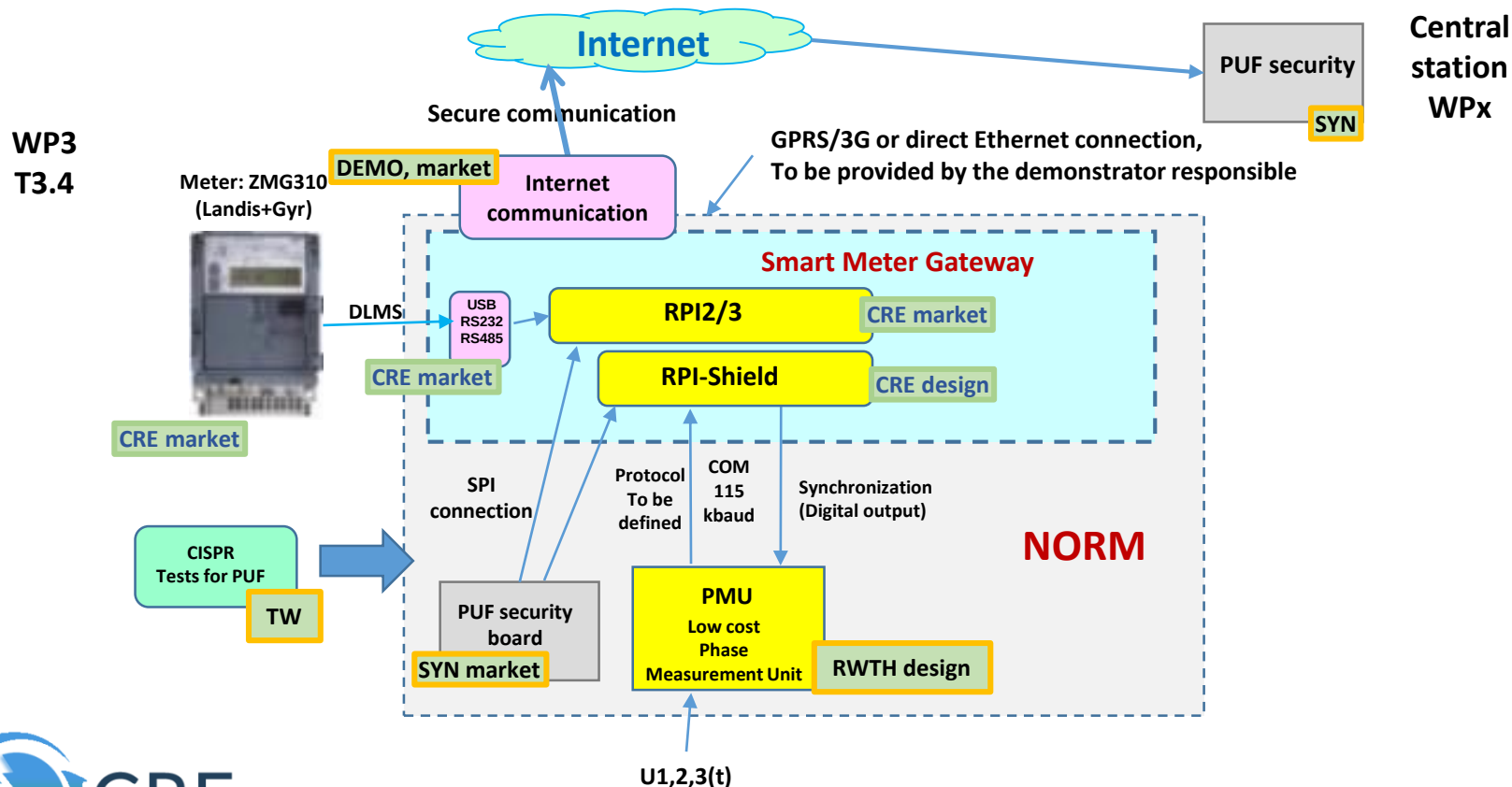
www.success.eu



NORM - “New-generation Open Real-time smart Meter”

T3.4 - Development of next generation Smart Meter for trials (NORM)

NORM in SUCCESS – Tasks for Hardware development and tests

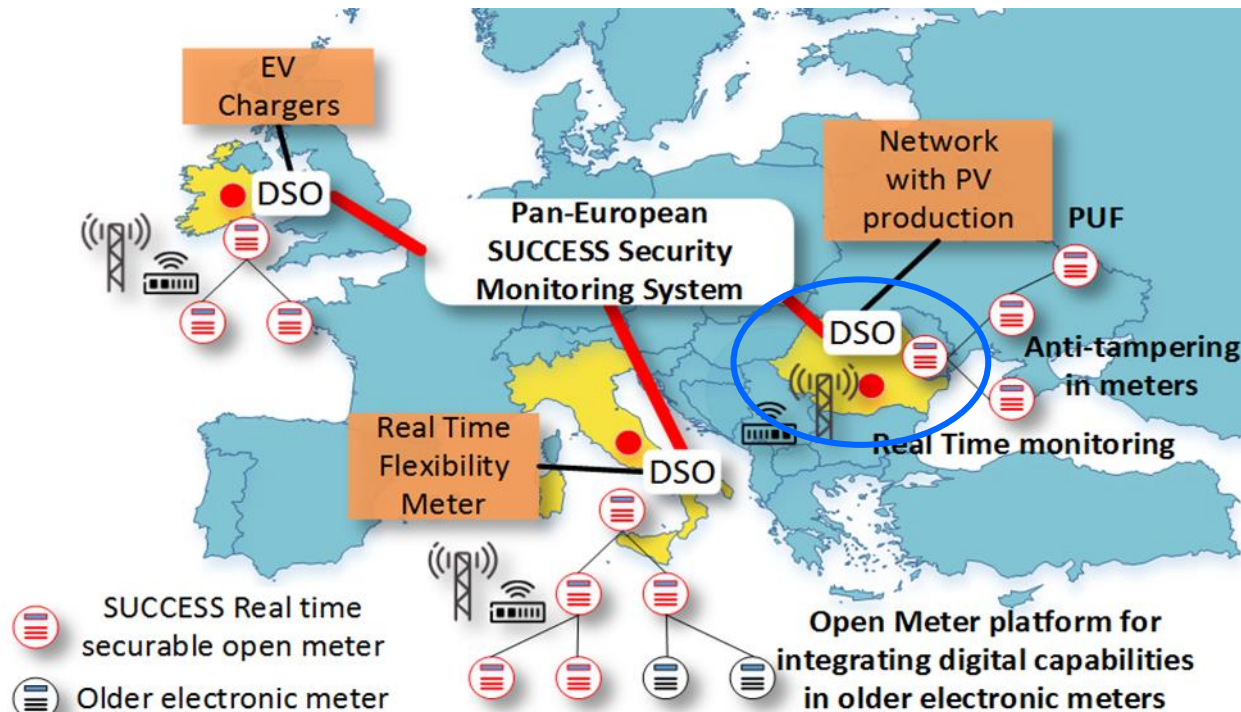


The Role of CRE and ELECTRICA in SUCCESS Project

ELECTRICA demo site

Site: 5-10 metering points in an MV network with massive renewables production (PV, maybe also wind) DSO network with temporary power injection from MV back in HV network

Testing: Real-time monitoring using 5-10 NORMs
Assessment of low cost PMU part of NORM
PUF related tests → Physically Unclonable Functions (PUFs)



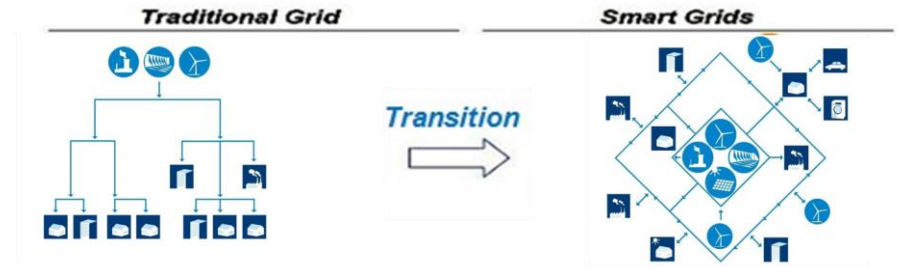
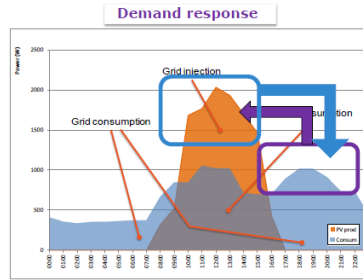


Wide scale demonstration of Integrated Solutions and business models for European smart GRID

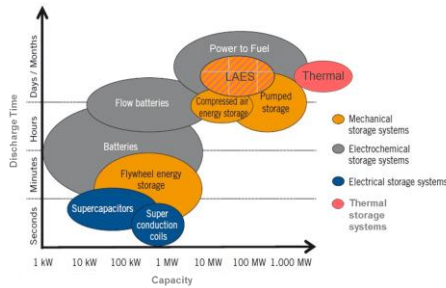
WiseGRID has two intertwined and equally important strategic goals:

- Successfully putting in the market (24 months after project completion) a set of solutions and technologies which increase the smartness, stability and security of an open, consumer-centric European energy grid, with an enhanced use of storage technologies and a highly increased share of RES.
- Significant impact in the business and innovation activities of the consortium - with a planned ROI for the partners of less than 30 months after commercialization of WiseGRID products and services starts, contributing to the creation of jobs, the access to new energy services of citizens and public/private organizations, the saving of CO₂, and the increase of RES, among other impacts

Demand Response,



Smartening the Distribution Grid,



The Smart Integration of Grid Users from Transport

CRE contribution is distributed within all main components, from Regulation approach to bussines models and from definition of technical inputs like: requirements, use cases and system architecture to development of a Big Data Management tool to manage all proposed applications within the wise tools.

The Role of CRE in WiseGRID

- Smart Grids and energy market regulation, business models and social aspects
- WiseGRID Use cases, requirements and KPIs definition
- WiseGRID Big Data processing
- Open, secure and flexible architecture, data privacy and standards
- RESCO services and advanced models for Smartening The Distribution Grid
- WiseGRID Cockpit
- Integration and deployment of WiseGRID ecosystem
- Large scale demonstration activities of the integrated WiseGRID
- Technical evaluation and socio-economic impact assessment
- Business models and overcoming local barriers
- Project coordination and IPR management
- Dissemination, communication and cooperation activities

The WiseGRID Cloud based Big Data Infrastructure

- **Sensors**
- **Distributed energy resources**
- **Smart devices**
- **Distribution grid assets**



- **Smart grid management**
- **Demand response optimization**
- **Storage based VPPs configuration**
- **EV transportation management**

CROSSBOW

The European Project CROSSBOW - CROSS BOrder management of variable renewable energies and storage units enabling a transnational Wholesale market → Consortium including 8 TSOs in the Central and South-Eastern European Region (Greece, Bulgaria, Romania, Serbia, Croatia, Montenegro, Macedonia, Bosnia Hertzegovina).

CROSSBOW will propose the shared use of resources to foster cross-border management of variable renewable energies and storage units, enabling a higher penetration of clean energies whilst reducing network operational costs and improving economic benefits of RES and storage units.

CROSSBOW OBJECTIVES

To demonstrate a number of different, though complementary, technologies, offering **Transmission System Operators higher flexibility and robustness** through:

- 1) **A better control of cross-border balancing energy at interconnection points.**
- 2) **New storage solutions** – distributed and centralized-, offering ancillary services to operate Virtual Storage Plants (VSP)
- 3) **Better ICT and Communications** - e.g. better network observability, enabling flexible generation and Demand Response schemas
- 4) **The definition of a transnational wholesale market**, proposing fair and sustainable remuneration for clean energies through the definition of new business models supporting the participation of new players –i.e. aggregators - and the reduction of costs.

CROSSBOW PARTNERS



FINAL REMARKS

- CRE is actively involved in a number of different, though complementary, EU Projects, offering its Members higher visibility and access to new innovative technologies and business solutions;
- CRE is promoting its Members in wide International Consortia with high - diverse expertise and knowledge
- Promote investments and innovation in the Romanian Power Sector
- Offer support as Official Partner of ANRE during 2017 European Energy Network - EnR Presidency
- Prepared to continue supporting the Romanian Electricity, Oil and Gas Industry and to consolidate the European dimension of this key industrial sector
- Ready to contribute to the ROMANIA'S 2019 EU COUNCIL PRESIDENCY

THANK YOU!

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Consolidating the European dimension of the Romanian Power Sector

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