

European Energy Research Alliance EERA

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www.eera-set.eu

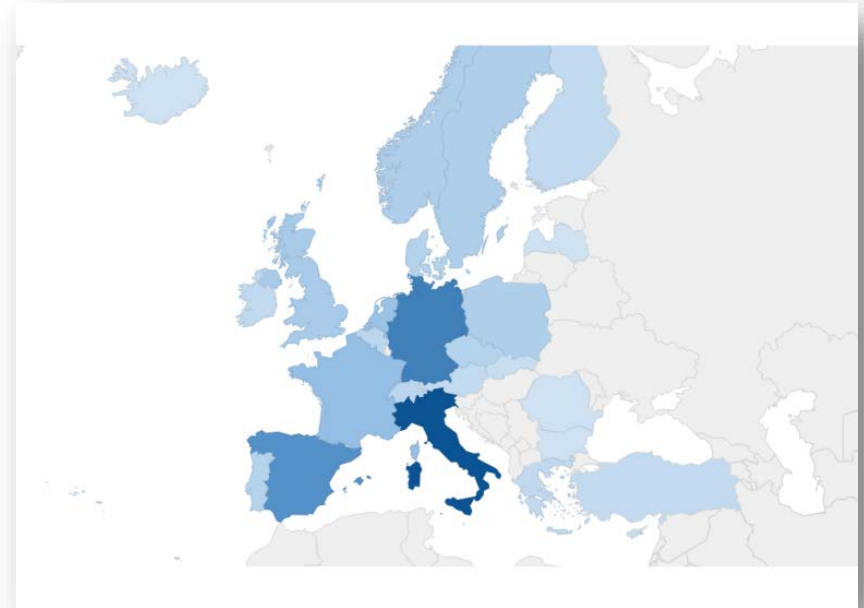


EERA is an official part of
the EU SET-Plan.

<http://setis.ec.europa.eu/>

EERA at a glance

- A cornerstone of the SET-Plan
- Bringing together more than **175 research organizations**
- Covering **23 EU member states** + Iceland, Turkey, Norway and Switzerland
- Organized in 17 Joint Programmes covering the research areas
 - **materials,**
 - **technologies**
 - **and systems**and including policy and social aspects.
- A track record of 90% participation in FP7 projects in energy
- Collaborating with **European industry** through ETIPs and other **partnerships** in the field of energy
- Promoting national research alliances with a track record of 7 national alliances



The darker, the more EERA member.

The role of EERA in the new Set-Plan

- **The 2015 Communication on the Integrated SET-Plan** has given a **new impetus to the role of EERA within the SET-Plan.**

- EERA met the challenge
 - Ready to listen to constructive/critical analysis
 - Regular meetings with EC for better mutual understanding
 - Aim at delivering
 - Strong involvement of all our JPs to deliver on “input papers”
 - Increase our visibility outside and within EERA

- From a diversity of competences towards intelligent integration

Formal meetings with EC

■ A new strategy, adopted in April 2016, reflects the expectations of the role of EERA within the new framework. This role foresees a number of inter-related dimensions, in particular:

1. To play an advisory role
2. To implement SET-Plan actions
3. To act as a SET-Plan ambassador
4. To coordinate the scientific community in the energy sector to produce excellent research
5. To support mobility of researchers and student training programmes
6. To be a “reservoir” of research results/solutions/ knowledge/IP ready to be transferred to industry
7. To provide evidence of EERA's achievements and progress under points 1-6

KPIs for EERA in Energy Union and Set-Plan

Expectation	N°	Indicator
4-Coordinate the scientific community in the energy sector to produce excellent research	1	Number of FTEs active in the energy sector employed by EERA members
	2	Number of EERA members
	3	Number of EERA members participating in each JP
	4	Number of scientific peer-reviewed publications containing the 'EERA' label
5-Support mobility of researchers and student training programmes	5	Number of EERA JPs providing support for the implementation of structured student training
	6	Number of person months of mobility activities
6- Knowledge transfer to industry	7	Number of exploitable EERA research results available on the EERA webshowcase
	8	Number of expressions of interest triggered by the exploitable EERA research results

EERA Strategy and Implementation Plan 2015-2020

Vision

Leading energy research
for competitive and sustainable Europe.

Mission

Deliver on the **SET-Plan** by **connecting and aligning** EU research to **accelerate** the market uptake of low carbon solutions.

Activities

Sharing resources

Implementing programmes

Delivering results

Means

by building **trust**, better use of **infrastructures**, greater **mobility**, and increased **capacity building**.

including **basic and applied research** in order to serve the needs of industry and society.

collaboration
knowledge and technology transfer.

Joint R&I projects and programmes

Common R&I agendas

Exchange of knowledge and information

Key means for implementing EERA and its Joint Programmes

- to optimise research activities and overcome fragmentation -

Sharing resources

- **Exchange** of knowledge and information
- Sharing research **infrastructures**
- **Mobility** of skilful researchers
- Providing high-level **training**

Implementing programmes

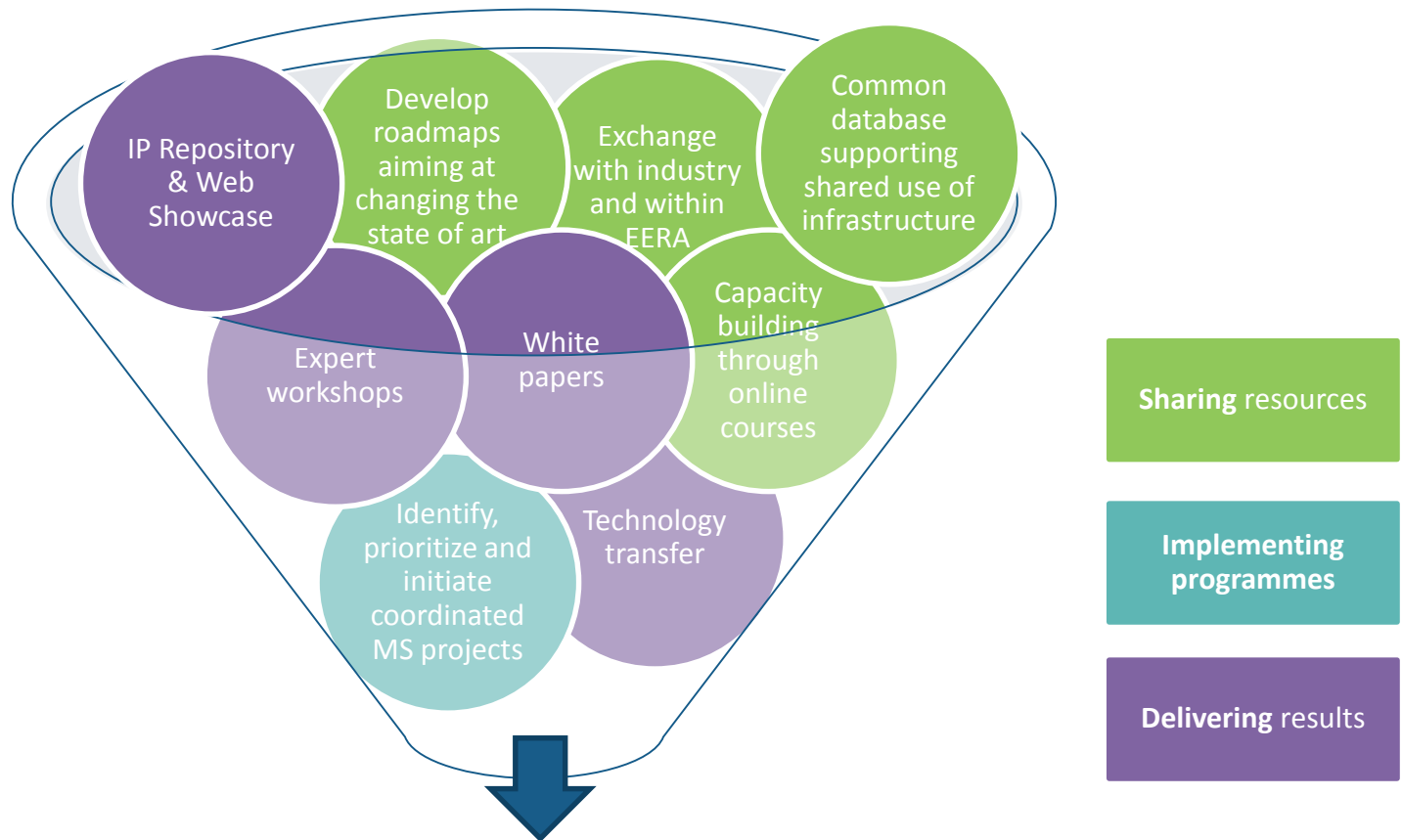
- Performing challenge driven top **research** to serve needs of industry and society
- Influence policies

Delivering results

- **Disseminating** world class results
- Taking experience and knowledge in use by **advisory**
- Objective results identified by **KPI**

Exchange of knowledge, Common R&I agendas, Joint R&I projects and programmes

Prioritized actions for implementing EERA and its Joint Programmes



Performing challenge driven top **research** through **implementing programmes** by co-creating coherent and comprehensive R&D projects and programs

Different means to enhance our JPs visibility

■ JPs hearing

- Launch in 2015
- Incentivize **EC** and **MS** to be part
- Last hearing: 5th of April in Brussels, JPNM and AMPEA

■ Success stories

- Launched in 2016


■ JPs review and evaluation

- 13 JPs have already been reviewed once
- Each JP is reviewed every 3-4 year both on research outcome and alignment of research
- In 2016: Shale gas; E3S ; CCS ; Bioenergy & JPNM

■ Joint Programmes Characterization

Running process for JP Characterization

- **Spring 2016** : Constitution of a working group to write a **draft of criteria**
 - Giving more visibility to **the JPs'** activities, rationalizing their organization
 - **For EERA**: next step toward professionalization
- **May- June 2016**: First criteria defined
- **December 2016**: **Self assessment of the 17 JPs** on the basis of the criteria and analysis of the results.



Coordination of research activities through **exchange of knowledge and information** on national R&D agendas .

On-going collaboration for **common R&I agendas** through harmonization.

Co-creation of new **joint R&I projects and programmes** through using variable mix of funding instruments and tackling cross-cutting topics.

In this new EU Framework, what roles can EERA and its JPs play?

■ Advice role

- thanks to the building of communities gathering the best EU researchers
- thanks to the systemic approach allowed by the intrinsic structuration of EERA (no silo effect)

JPs already involved in the Integrated Roadmap, in the input papers and willing to continue to provide their expertise when required.

■ Excellent research

- “EERA label” for EU **projects** and **publications**

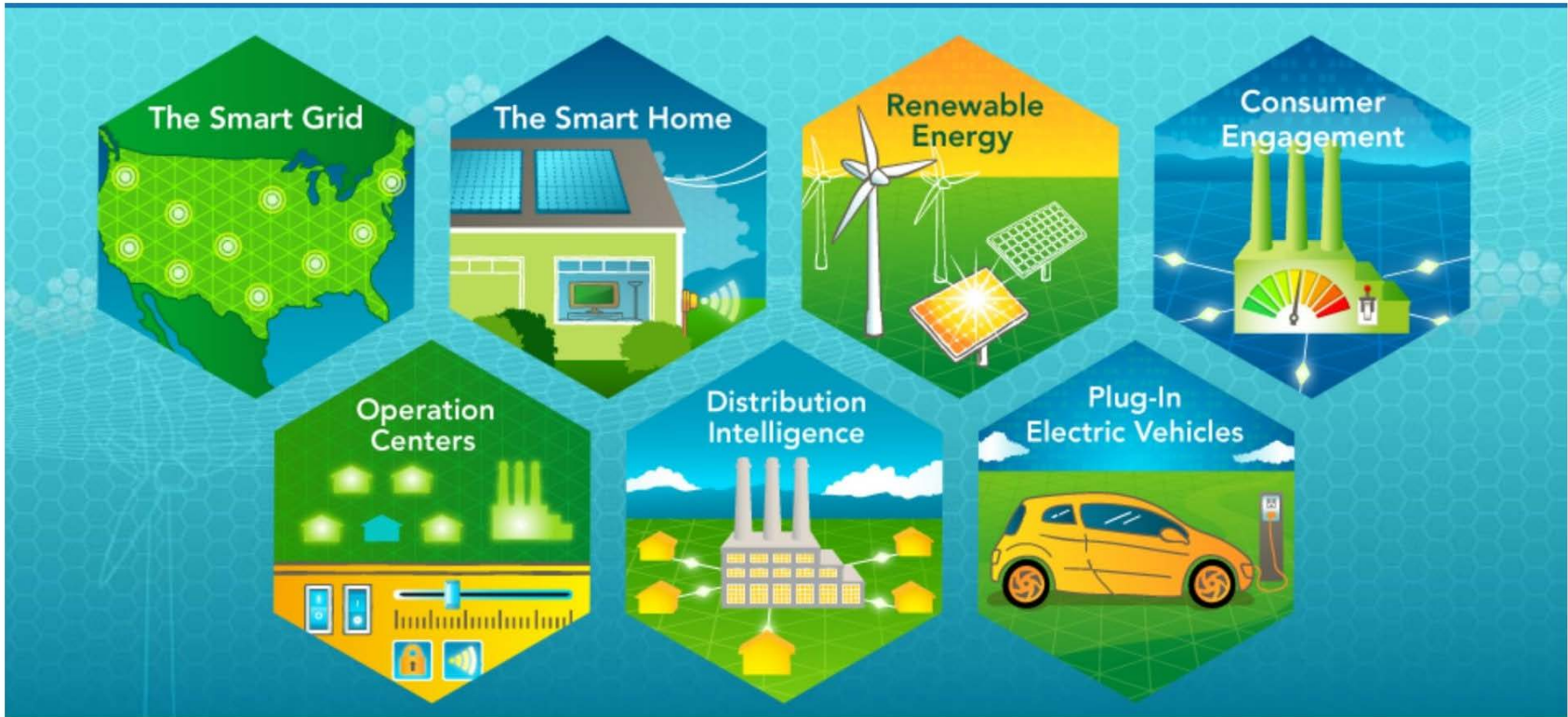
■ EU research coordination and structuration

- Task force on mobility Scheme
- Strengthening links between national and European programmes

Today: Integrated research projects, ECRIAs

Tomorrow: to be defined jointly

Smart Grids – the paradigma of systems integration



The exemple of need to communicate between JP

Smart grid

Why smart?

- Unlike recent past

- Changing from a patchwork nature to a set of integrated systems involving all from generation to consumption

- Recently digital Technologies allows two-way communication



The Smart Grid

■ How?

- More efficient
- Quicker restoration
- Reduced management costs
- Reduced peak demand
- Increased integration of RE
- Better integration of customer RE
- Improved security
- Capacity to save money

The Smart Grid

— How?



— Giving control to the costumers

- Save as you like
- Produce own energy

The Smart Grid

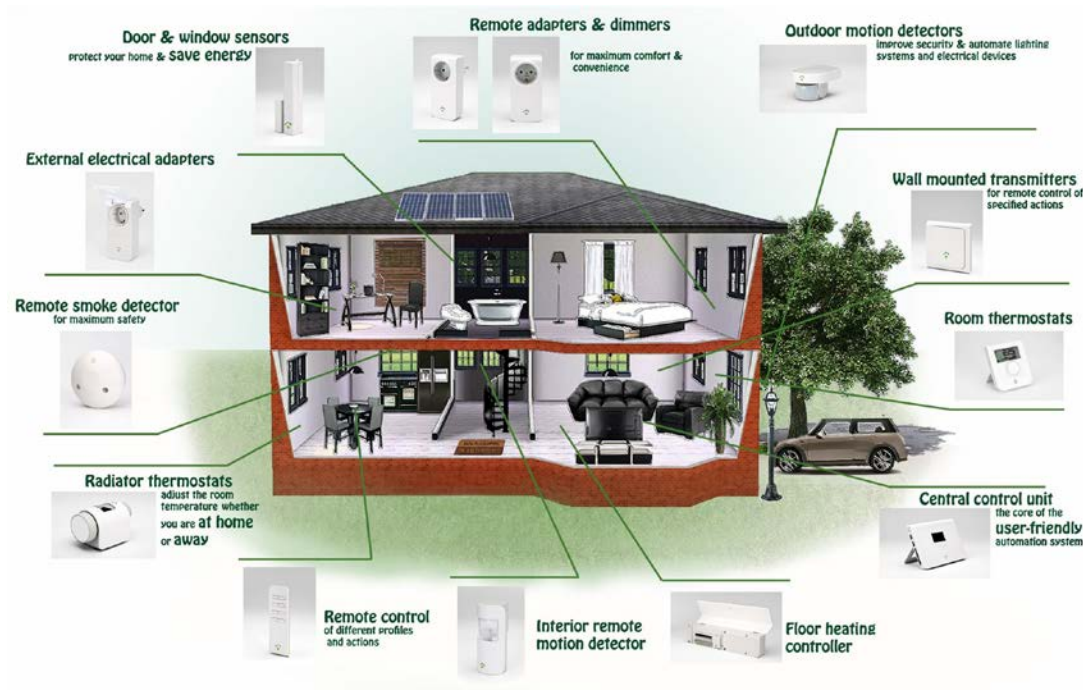
■ How?



■ Building and testing the smart grid – millions of pieces to put together

The Smart Home

- Smart meters
- Smart appliances
- Prosumer



Smart Home

— Have as EMS to use on your smart phone



— Consumers engagement

Control your home wherever you are

Integrate renewable energy

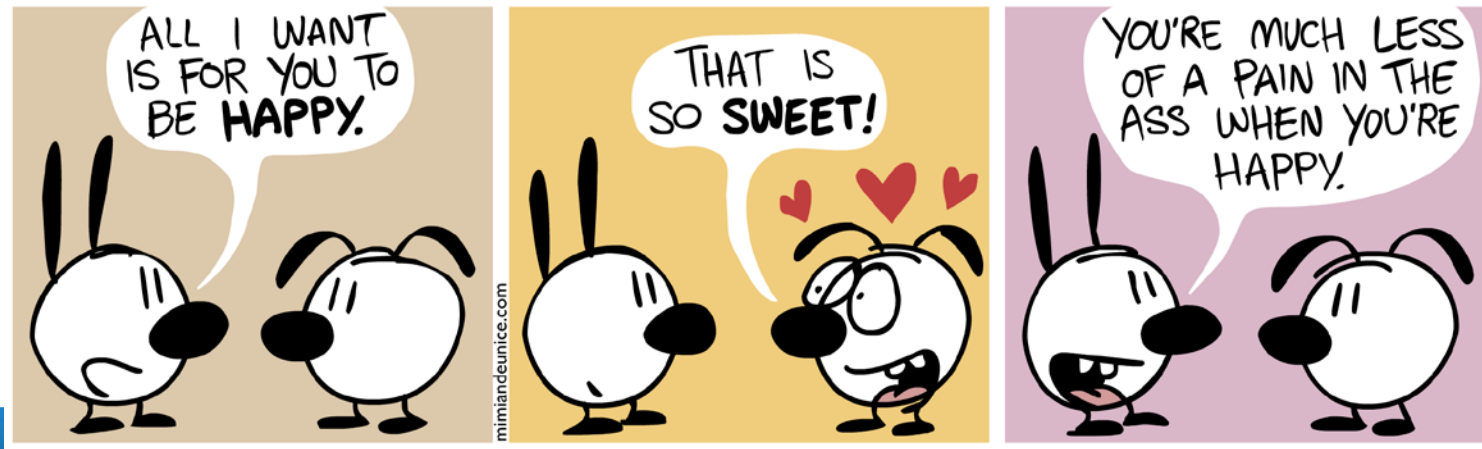
- Integrate non fossil resources
- Make better use of them
- Store energy
- Optimize the mix
 - Sun
 - Wind
 - Water
 - Biomass
 - underground
- Ability to take care of big issues while taking care of the smallest detail



Consumers engagement

■ SG enables opportunity

- To save energy
- Reduce the bill by producing and maybe sell
- Time-of-use pricing
- Sell ancillary services with your own storage (PEV) or shaving consumption pattern



Distribution Intelligence



Heigh Ho...

Grid operation centers

- Fast communication technologies like PMU make the snap shot of the system
- Observability
- New means of control and measurement facilitate “self-healing”
- Reliability
- Mixed AC DC networks



Plug-in Electric Vehicles

- Transport ~1/3 emissions
- Green charge
- Stored energy
- Smart infrastructure
- Awareness



EERA Joint Programme technology portfolio

- supporting the SET Plan -

MATERIALS

TECHNOLOGIES

SYSTEMS

AMPEA
Advanced Materials and Processes for Energy Application
2011

Materials for Nuclear
2010

Bioenergy
2010

FCH
Fuel Cells and Hydrogen
2011

Energy Storage
2011

Smart Cities
2011

Geothermal
2010

Wind Energy
2010

Smart Grids
2010

Energy efficiency in Industrial Processes
2015

Ocean Energy
2011

CSP
Concentrated Solar Power
2011

2010

CCS
Carbon Capture and Storage
2010

E3S
Economic, environmental and social impacts
2013

Shale Gas
2013

PV
Photovoltaic Solar Energy
2010

Energy System Integration
2015

Name of the JP

Date of launch

Thank you