ITALIAN NATIONAL AGENCY FOR NEW TECHNOLOGIES, ENERGY AND SUSTAINABLE ECONOMIC DEVELOPMENT

Research and Innovation
for Sustainable Development

European Energy Research Alliance (EERA) – l'iniziativa, le sue finalità, la struttura organizzativa e l'attuale posizionamento nelle politiche di R&D Europee

Padova, 9 Settembre 2015

Massimo Busuoli
ENEA – EU liaison office

Agenda

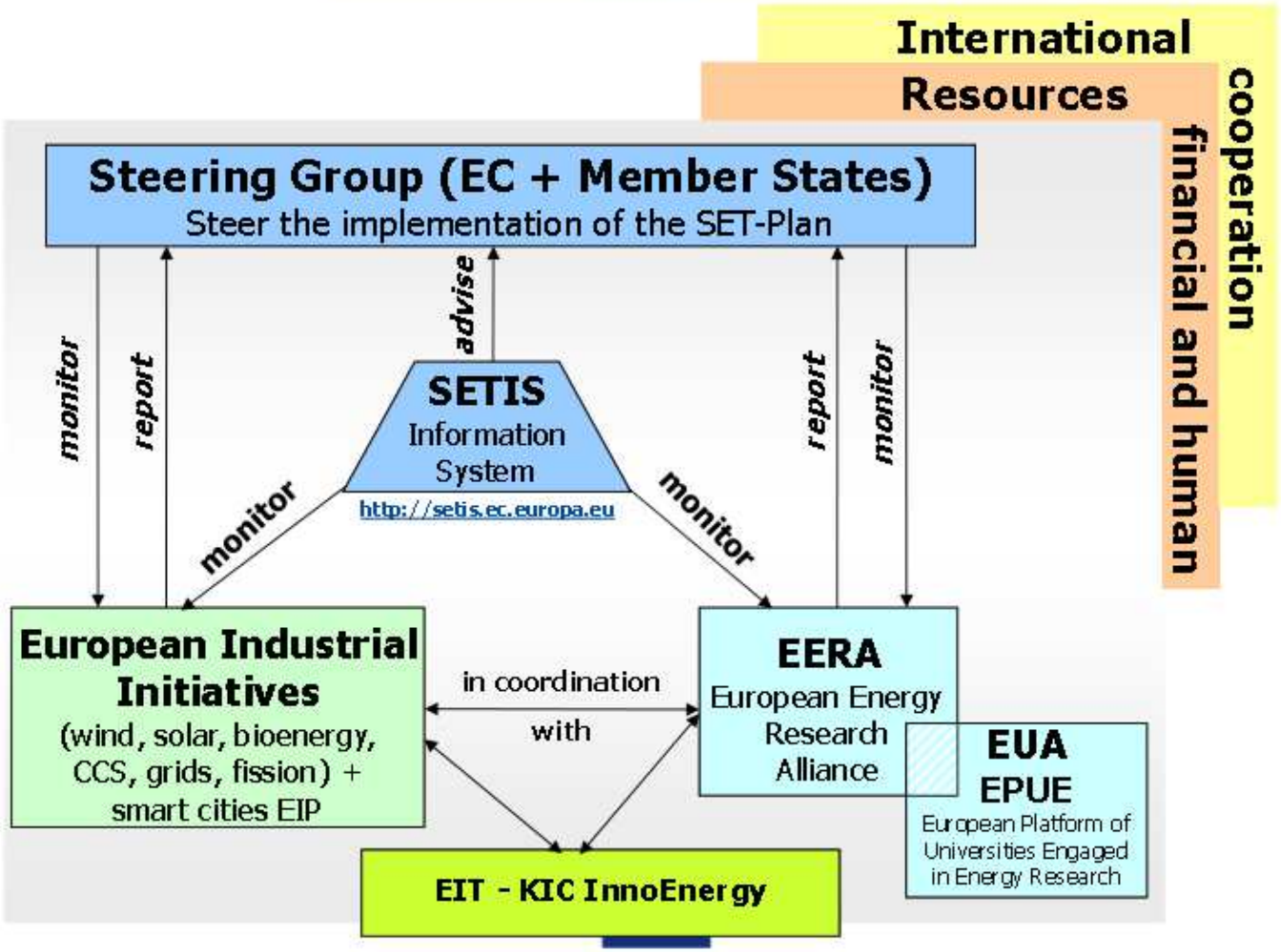
- Introduzione sul SET Plan
- EERA – European Energy Research Alliance
- Nuova strategia SET Plan (EC Comm., Integrated Roadmap, Action Plan)
- Link utili

The SET Plan

SET Plan adopted in 2008

- ***Focus on technologies with market impact up to 2020 (set up of EIIs) - roadmaps***
  - Wind
  - Solar
  - Electricity grids
  - CCS
  - Bioenergy
  - Nuclear
  - Smart Cities and Communities
  - Fuel cells and hydrogen
- ***Focus on longer-term research actions beyond 2020 (set up of EERA)***
- ***Financing***

SET Plan status



EERA – European Energy Research Alliance

About EERA

- A public research alliance, established in 2008
- A cornerstone of the Strategic Energy Technology Plan (SET-Plan)
- Bringing together 250 research organisations
- Working together in 16 Joint Programmes
- Collaborating with European Industry
- With global outreach
- And aligning national research

EERA governance

4 levels of governance

EERA General Assembly

- Supreme governing body of the Association
- Approval of the EERA budget and annual accounts
- Fora for discussing activity plan of the Association

EERA Executive Committee

- Governance and oversight of EERA
- Relations with EU Commission and Member States on EERA policy and development

The EERA Secretariat

- Day to day management of EERA
- Support and liaise with all EERA bodies and the European Commission

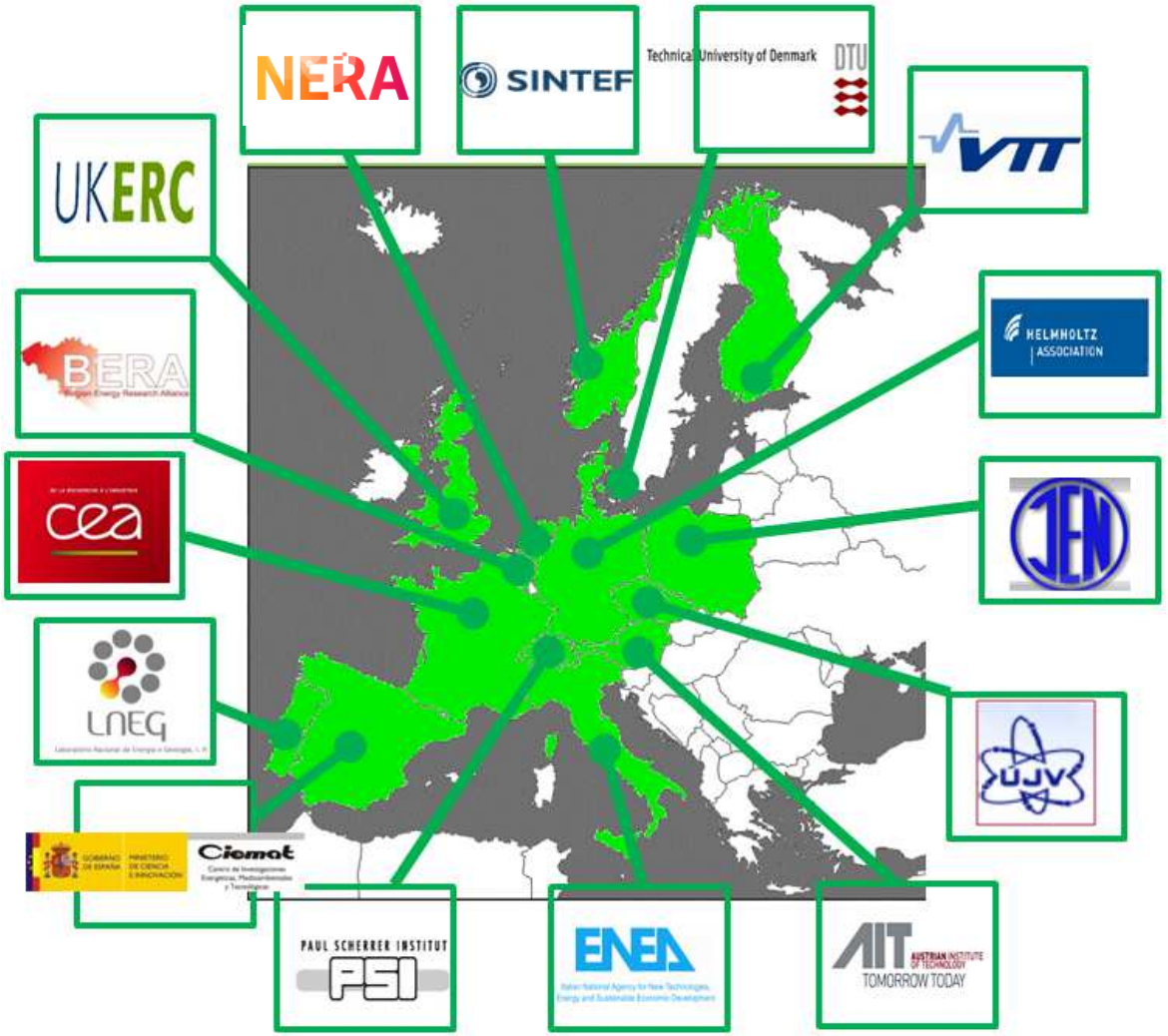
The EERA Joint Programmes

- Management of the individual EERA JPs
- Technology/field specific liaising with the European Commission and SET-Plan stakeholders
- Technology specific links to Member States

15 EERA Executive Committee Members

Supported by :

EUA European University Association



EERA has 16 Joint Programmes

JPs launched in 2010

- Bioenergy ≈ 327*
- CCS ≈ 361*
- Geothermal ≈ 408*
- Mat. For Nucl. ≈ 198*
- Wind Energy ≈ 162*
- Smart Grids ≈ 144*
- PV ≈ 162*

JPs launched in 2011

- AMPEA ≈ 522*
- CSP ≈ 132*
- Energy Storage ≈ 430*
- FC&H2 ≈ 160*
- Ocean Energy ≈ 45*
- Smart Cities ≈ 212*

JPs launched in 2013

- Environmental, economic and social impact "E3S" ≈ 194*
- Shale gas ≈ 181*

JPs under development

- Energy Efficiency in Industrial Processes (**recently approved!**)
- Energy Systems Integration

*FTEs (Full-time equivalent)

EERA governance

EERA Executive Committee

- Gianpiero Celata (ENEA) sits in the ExCo

The EERA Secretariat

- Coordinated by ENEA

The EERA Joint Programmes

- ENEA is present in 15 out of 16 JPs, it coordinates 1 JP, it co-coordinates 2 JPs

Italian participation in EERA JPs

Research centers and Foundations	Universities	Companies
CHOSE (Center for Hybrid and Organic Solar Energy) CNR CRS4 CSM ENEA Fondazione Ugo Bordoni INGV OGS Radiolabs RSE FBK	Bocconi University Politecnico di Milano Politecnico di Torino Roma Tre University Universita Politecnica delle Marche University Milano-Bicocca University of Bari University of Bologna University of Chieti University of Ferrara University of Messina University of Milan - Bicocca University of Naples University of Padova University of Pisa University of Rome University of Siena University of Udine University of Palermo University of Parma University of Bergamo University of Perugia University of Torino University of Trieste Univrsity of Firenze	CMR ENEL ENERGEA Ericsson Loccioni Telecom

Joint Programming principles

What kind of cooperation can be foreseen?

- Harmonisation of research programmes
  - Exchange of information
  - Exchange of personnel
  - Common strategy to tackle (new) research questions
    Too many topics for a single institute
    Avoid duplication, ensure complementary of programmes
    Agree on who does what (and share results)
- Facilities
  - Sharing of facilities
  - Building new joint facilities
    Owned by multiple institutes

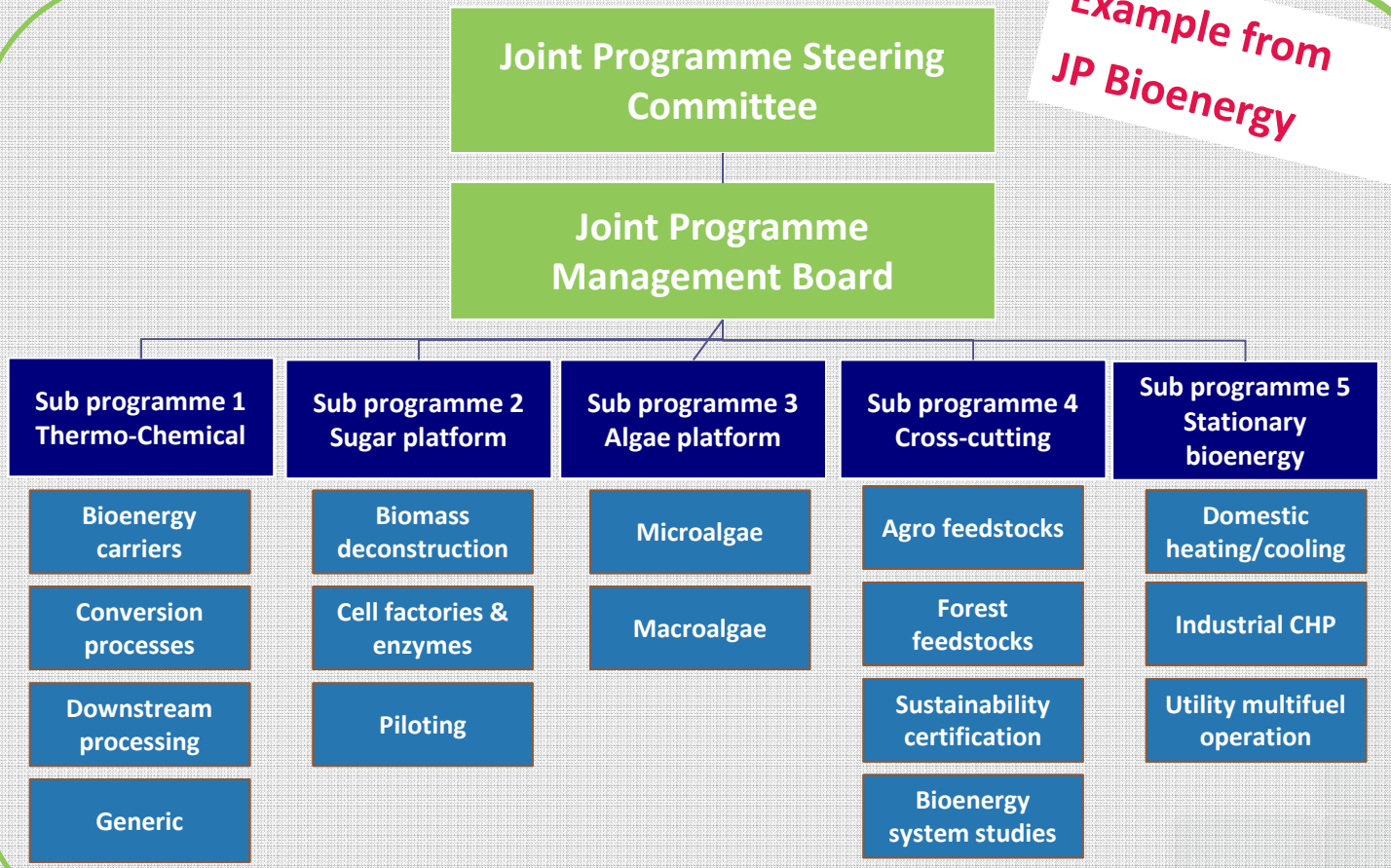
} A breakthrough

Joint Programme basics

Long-term strategy and work plan

- Agreed Description of Work
- Agreed Objectives and Milestones
- Agreed Division of Tasks

Example from JP Bioenergy



Examples of JPs

JP Bioenergy

Coordinated by Juan Carrasco, CIEMAT (ES)

34 partners from 15 EU countries

5 sub-programmes

Joint report with European Industrial Bioenergy Initiative on long-term R&D needs for bioenergy

International cooperation with Latin-America (Sugar platform)

JP Smart Grids

Coordinated by Luciano Martini, RSE s.p.a. (Italy)

36 partners from 16 EU countries

- 5 sub-programmes
- Coordination of the research with stakeholders including ENTSO-E, EDSO4SG, EEGI and ETP SG
- International collaboration: USA, China, Australia, Japan, IEA, ITU
- And:

Smart Grids IRP

Cooperation with industry

EERA supports European industry in strengthening competitiveness and

JP level cooperation

EERA JPCs liaise regularly with existing EIIs/participate in meetings

Companies as associate participants

Project level cooperation

Individual companies/sector organisations are project partners in EERA IRP

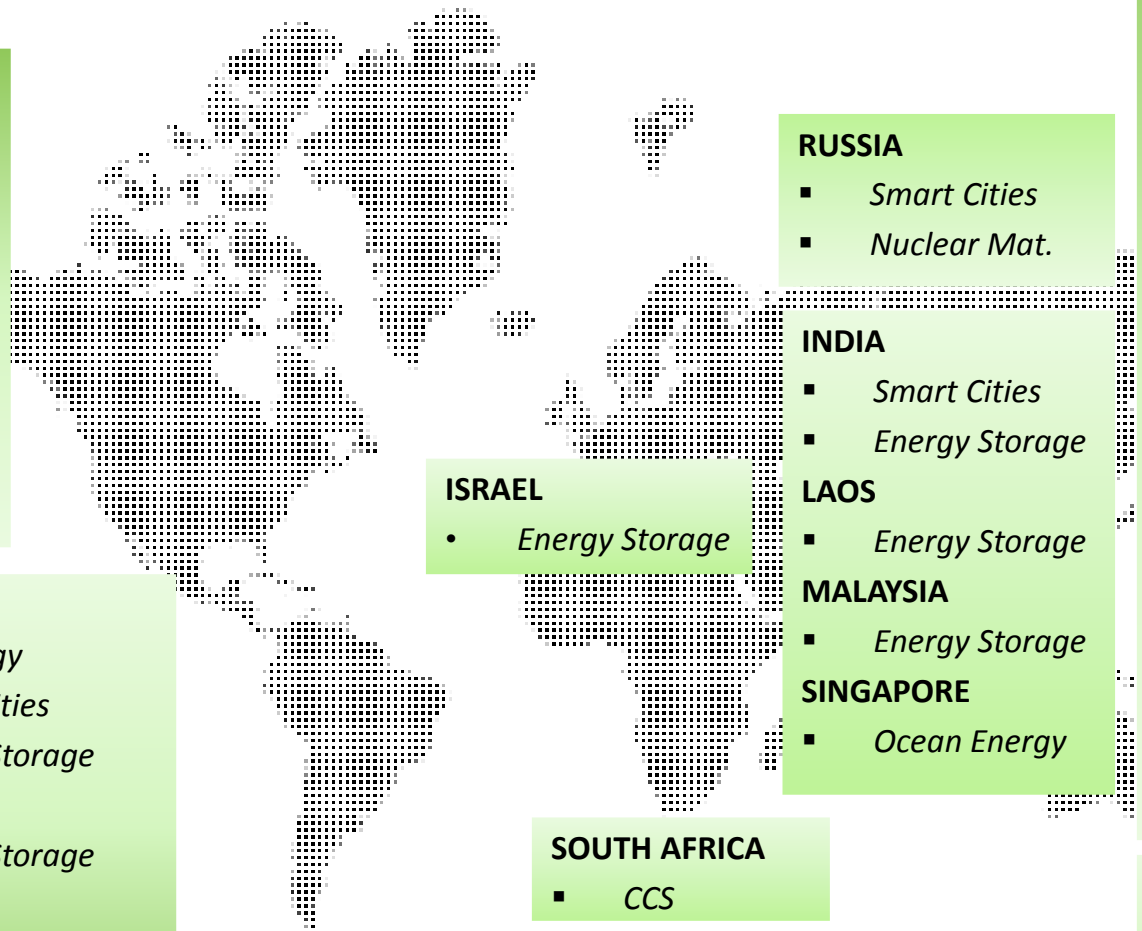
The Industrial Initiatives within the SET-Plan are:

- Wind (The European Wind Initiative)
- Solar (The Solar Europe Initiative - photovoltaic and concentrated solar power)
- Electricity Grids (The European Electricity Grid Initiative)
- Carbon Capture & Storage (The European CO2 Capture, Transport and Storage Initiative)
- Nuclear Fission (The Sustainable Nuclear Initiative)
- Bio-energy (The European Industrial Bioenergy Initiative)
- Smart Cities (Energy Efficiency - The Smart Cities Initiative)

plus

- Fuel Cells and Hydrogen (Joint Technology Initiative)
- Nuclear Fusion
  - ITER (International)
  - F4E (Community)

Examples of International Cooperation



US/CANADA
- *AMPEA*
- *Ocean Energy*
- *Fuel Cells/H_2*
- *Smart Grids*
- *Geothermal*
- *Mat. Nuclear*
- *Solar PV*
- *CC*
- *En*

BRAZIL
- *Bioenergy*
- *Smart Cities*
- *Energy Storage*

CHILE
- *Energy Storage*

COLUMBIA
- *Energy Storage*

VENEZUELA
- *Energy Storage*

ISRAEL
- *Energy Storage*

SOUTH AFRICA
- *CCS*

RUSSIA
- *Smart Cities*
- *Nuclear Mat.*

INDIA
- *Smart Cities*
- *Energy Storage*

LAOS
- *Energy Storage*

MALAYSIA
- *Energy Storage*

SINGAPORE
- *Ocean Energy*

JAPAN
- *Geothermal*
- *Smart Grids*
- *Solar PV*
- *Fuel Cells/H_2*
- *Energy Storage*
- *Nuclear Mat.*

CHINA
- *Smart Cities*
- *Solar PV*
- *CCS*
- *Energy Storage*
- *Nuclear Mat.*

SOUTH KOREA
- *Fuel Cells/H_2*
- *Ocean Energy*
- *Energy Storage*
- *Nuclear Mat.*

TAIWAN
- *Ocean Energy*

AUSTRALIA
- *CCS*
- *Energy Storage*

NEW ZEALAND
- *Geothermal*

Ongoing EERA strategy process

- After delivering a 1st position paper in 2014, EERA is currently working to elaborate a more detailed strategy on:
  - *Relations of EERA with its stakeholders, including industry*
  - *Deliverables expected by our stakeholders,*
  - *Best suited model for governance,*
  - *How to contribute to the alignment of national programs with Set-Plan priorities?*
  - *Sharing of research infrastructure, exchange of researchers and exchange of knowledge*
- The publication of the strategy and implementation plan for EERA is foreseen in the next months (first outline recently presented at the PR meeting on 2nd June and discussed at the SSM, 24-25 June in Amsterdam).

New SET Plan Strategy
COM on ETI - Key principles

ENEA
ITALIAN NATIONAL AGENCY FOR NEW TECHNOLOGIES, ENERGY AND SUSTAINABLE ECONOMIC DEVELOPMENT

Communication on Energy Technologies and Innovation COM(2013) 253 - 2 May 2013

***SET Plan** as the **core strategy to deliver on the energy challenge** - provides the reference point for EU, national, regional and private investments in energy R&I*

*However, needs reinforcing, to **respond to the new challenges** such as:*

- *system integration,*
- *industrial leadership,*
- *new and emerging technologies,*
- *to better consolidate R&I capacity and resources across Europe.*

New SET Plan Strategy
COM on ETI - Key conclusions

Implementing Actions

- ***Integrated Roadmap***
- *Action Plan*
- *Robust reporting system*
- *A new coordination structure under the SET plan SG on energy efficiency*
- *New competences: e.g. non-technological barriers*
- *External Dimension*

Integrated Roadmap: Background

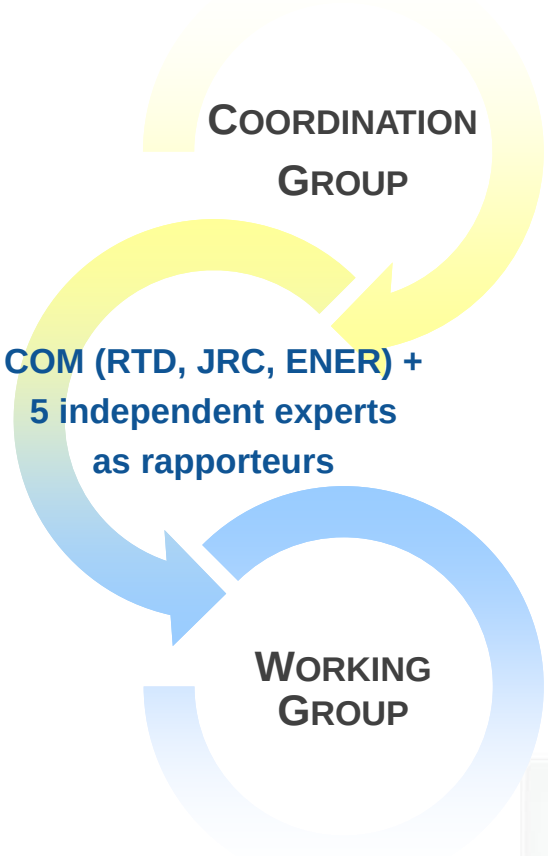
Objectives:

1) Prioritise the **development of innovative solutions** which will respond to the needs of the European energy system by 2020, 2030 and beyond (Security, Competitiveness, Sustainability)
2) Concretely it will put forward key research and innovation actions to be undertaken in the **next 6 years**, through:
   - ✓ A challenge-based approach for the content
   - ✓ Cover the entire R&I chain (Actions and Actors)
   - ✓ Bring R&I and energy policy more closely together
   - ✓ An expert-based, open and transparent approach for its making

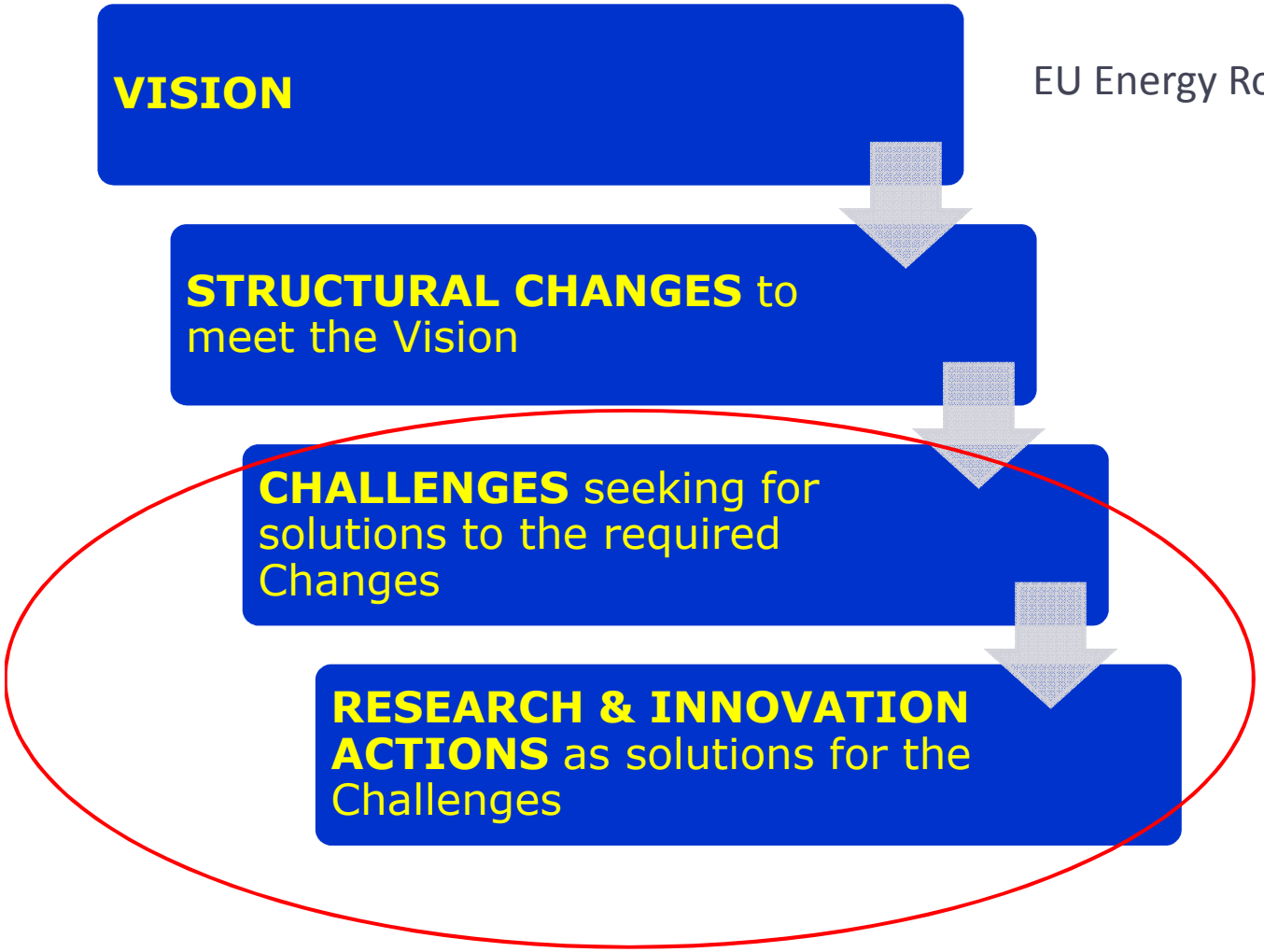
Integrated Roadmap: Working modalities and process

Organisation of the work - *through:*

- *Coordination Group*
- *Working Group*
- *Independent rapporteurs*



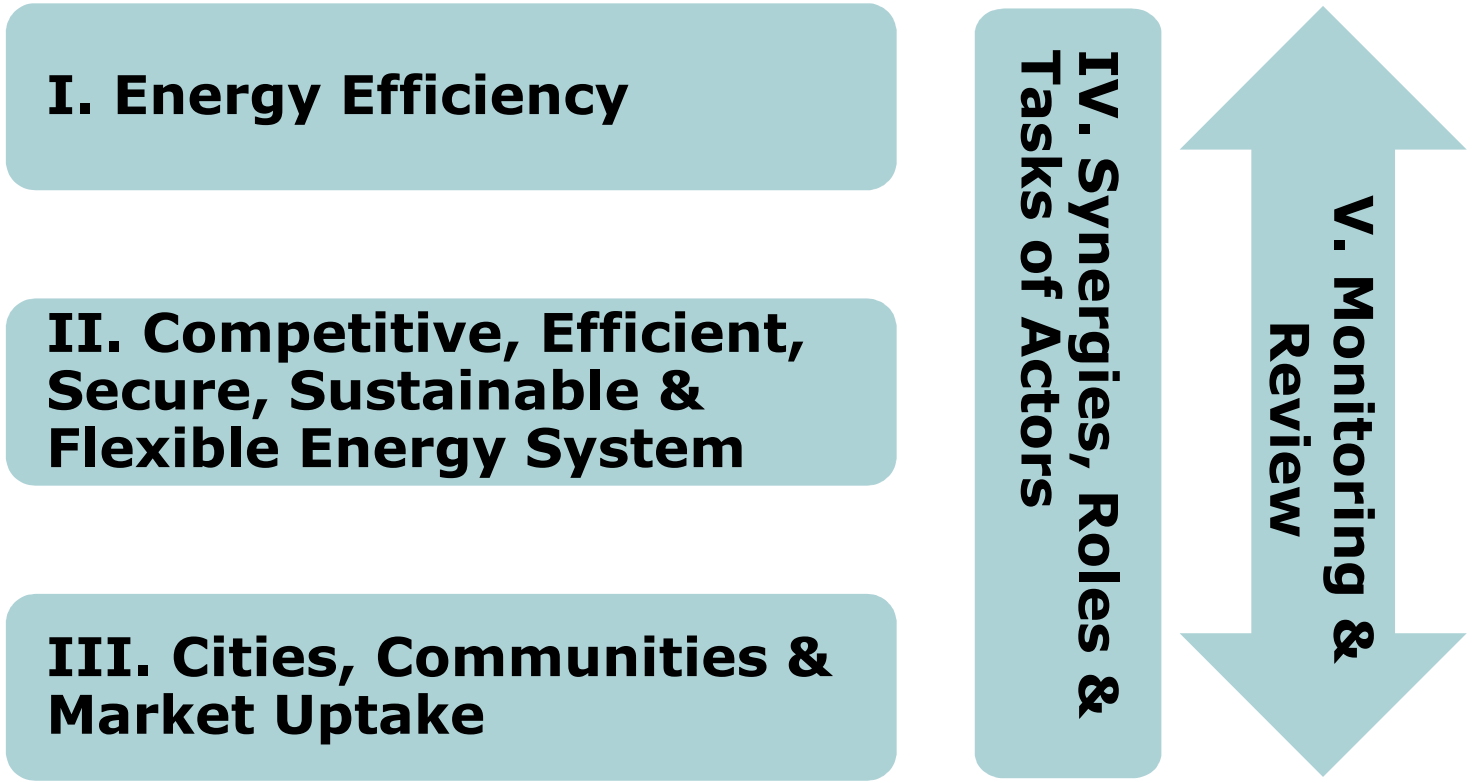
Integrated Roadmap: From vision to R&I actions



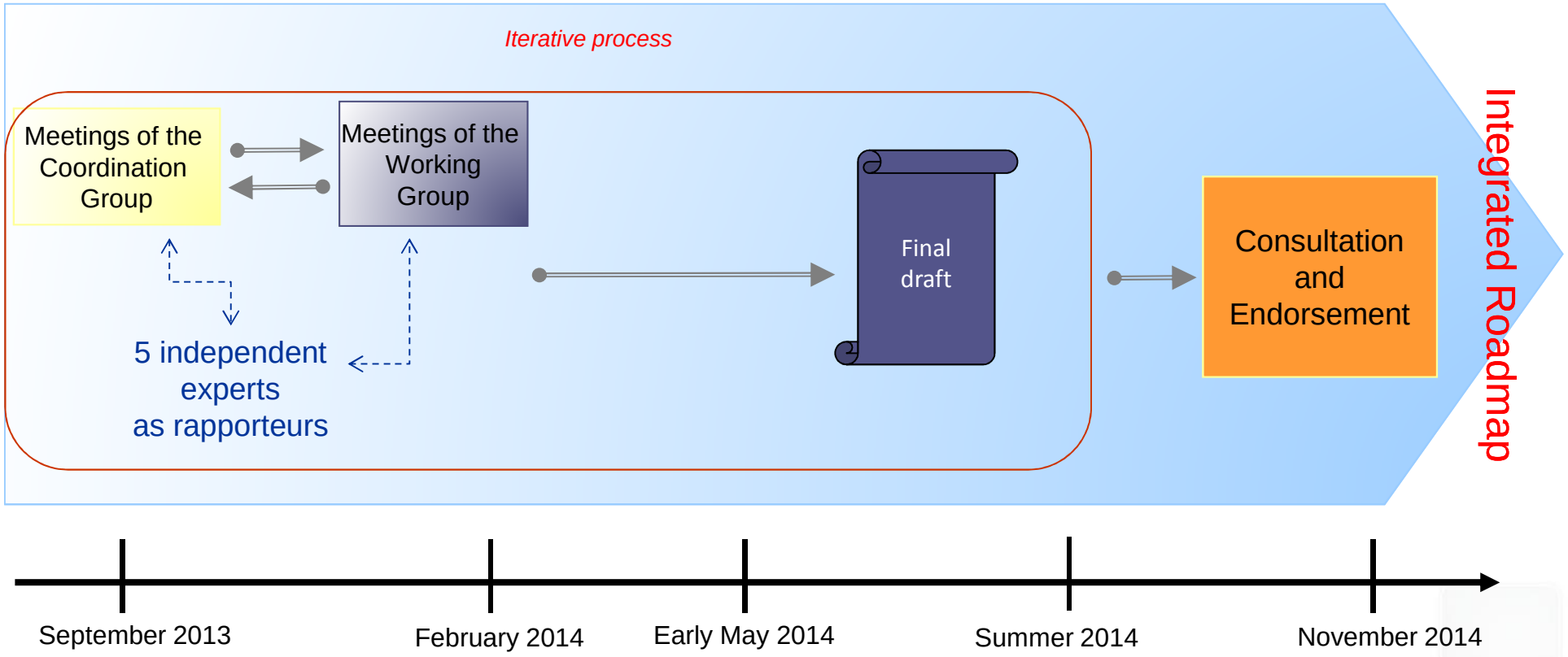
EU Energy Roadmap 2050

Main short term focus

Integrated Roadmap Structure



Integrated Roadmap: Process & timelines



Integrated Roadmap: Background

EERA role

- EERA chair sitting in the Coordination Group
- 3 EERA experts involved in the Working Group
- EERA secretariat helping in collecting and aggregate the inputs coming from EERA JPs

The Action Plan

Implementing Actions

- *Integrated Roadmap*
- ***Action Plan***
- *Robust reporting system*
- *A new coordination structure under the SET plan SG on energy efficiency*
- *New competences: e.g. non-technological barriers*
- *External Dimension*

Guiding Principles – COM ETI

The **Action Plan** will:

- ✓ lay down coordinated and/or joint investments by individual Member States, between Member States and with the EU for the implementation of the *Integrated Roadmap*.
- ✓ These investments should go ***beyond grant programmes*** and **include financial engineering instruments** and procurements.
- ✓ The Action Plan will follow a *flexible approach* and contain **different modes of implementation** such as alignment of Member States and EC funding on priorities identified in the Integrated Roadmap and **joint investments** between Member States or/and with the European Union.
- ✓ It should cover *institutional funding* and research capacities – i.e. from MS and major R&D actors like European Energy Research Alliance (EERA).

➔ Expected to be released in the course of 2015 (together with a new EC Communication).

Useful links

SET Plan: http://ec.europa.eu/energy/en/topics/technology-and-innovation/strategic-energy-technology-plan

Integrated Roadmap and Action plan: https://setis.ec.europa.eu/set-plan-process/integrated-roadmap-and-action-plan

EERA (European Energy Research Alliance): http://www.eera-set.eu/