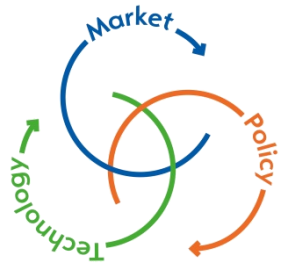




The Energy Storage R&I Activities in the EU's Energy Policy Landscape

Magdalena Andreea STRACHINESCU OLTEANU
Head of Unit

New Energy Technologies, Innovation and Clean Coal
DG Energy – European Commission



The European Union Energy System



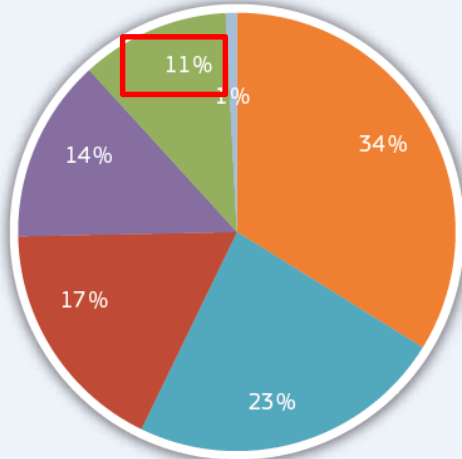
Key figures



Total Primary 2012: 1 682 Mtoe
(Total Primary and Secondary 2012: 1 683 Mtoe)

EU 28

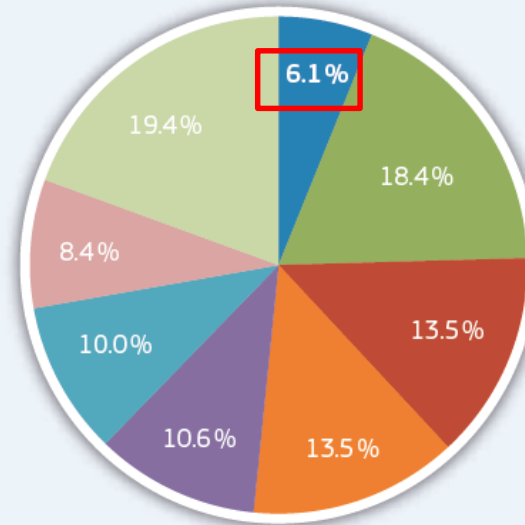
(505 million inhabitants in 2013, ~30% of worldwide GDP)



- Petroleum and Products
- Gas
- Solid Fuels
- Nuclear Heat
- Renewables
- Wastes, Non-Renewable

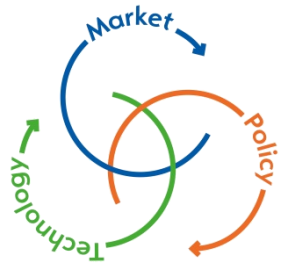
World Energy Production by Region (%)

Total 2011 = 13 202 Mtoe



- EU-28
- China
- United States
- Middle East
- Asia*
- Russia
- Africa
- Rest of the World

- Still a strong reliance on hydrocarbon
- Continuously increasing share of RES

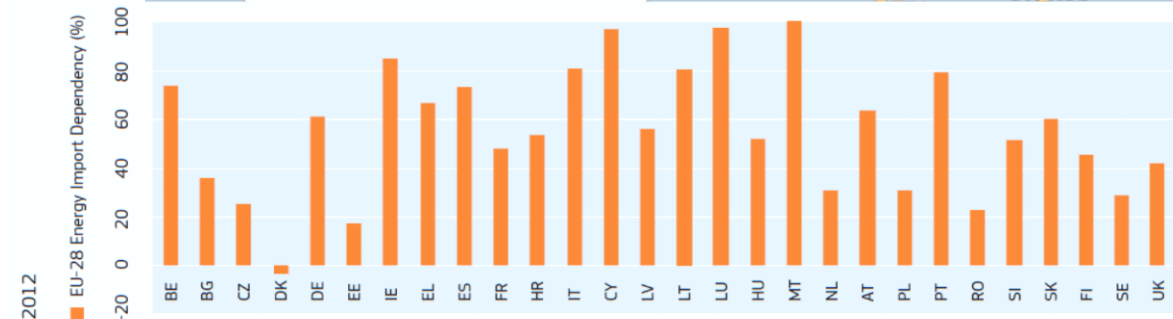


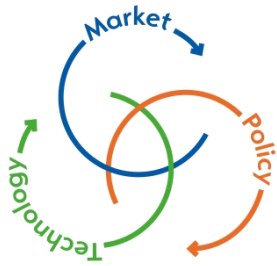
The European Union Energy System



Diverse and fragmented

- + 2014: 28 Member States
- + EU legal framework but national regulations
- + Different energy production sources
- + Different histories, INCO relationship, sources of imports and dependencies
- + Different political priorities (green, shale gas, etc.)
- + Liberalisation makes good but unequal progress
- + Missing corridors between countries





2014 – Decisive year for energy policy



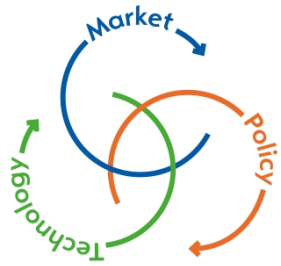
January 2014: **2030 framework for climate & energy**, accompanying documents (on ETS, shale gas etc.) and **energy price and costs report**

May 2014: **EU Energy Security Strategy** including in-depth security analysis

AND: 3 EU summit meetings in 2014 dealing with energy policy



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2030

FRAMEWORKfor**CLIMATE&ENERGY**
#EU2030

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Agreed headline targets 2030 Framework for Climate and Energy

2020

**-20 %
Greenhouse
Gas
Emissions**

**20%
Renewable
Energy**

**20 %
Energy
Efficiency**

2030

**≤ -40 %
Greenhouse Gas
Emissions**

**≥ 27 %
Renewable
Energy**

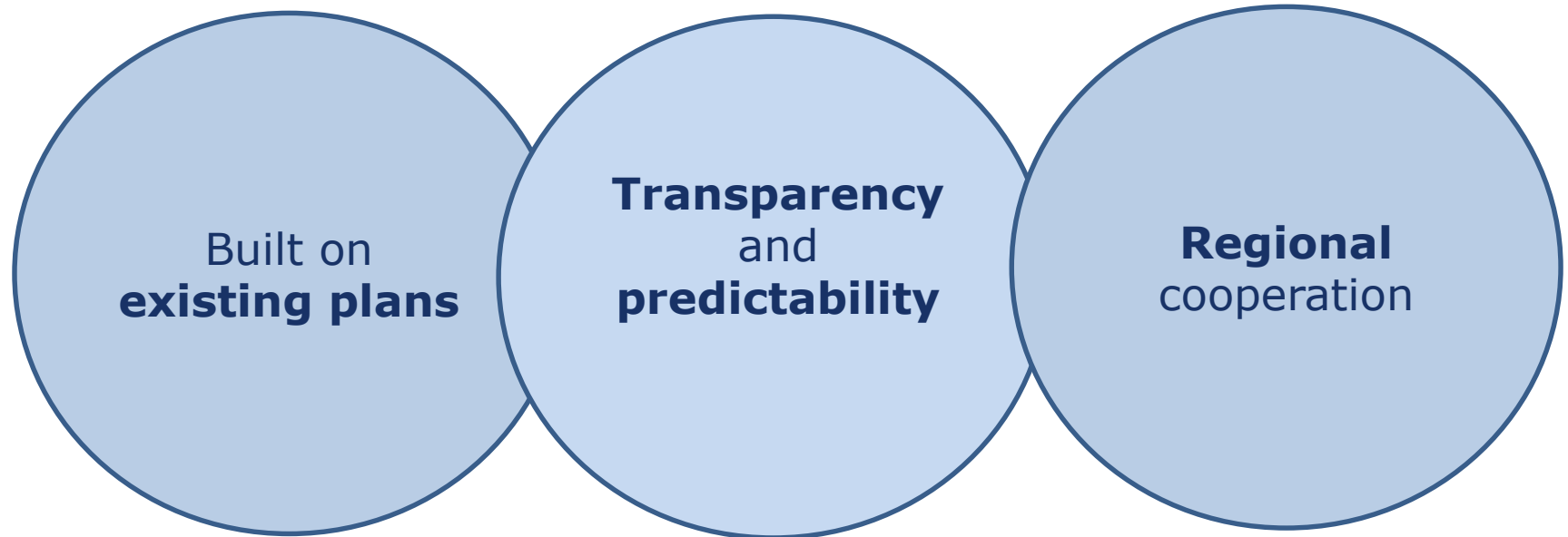
**≥ 27 %*
Energy Efficiency**

* To be reviewed
by 2020, having
in mind an EU
level of 30%

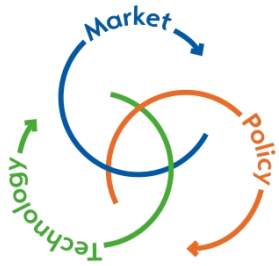
New governance system + indicators



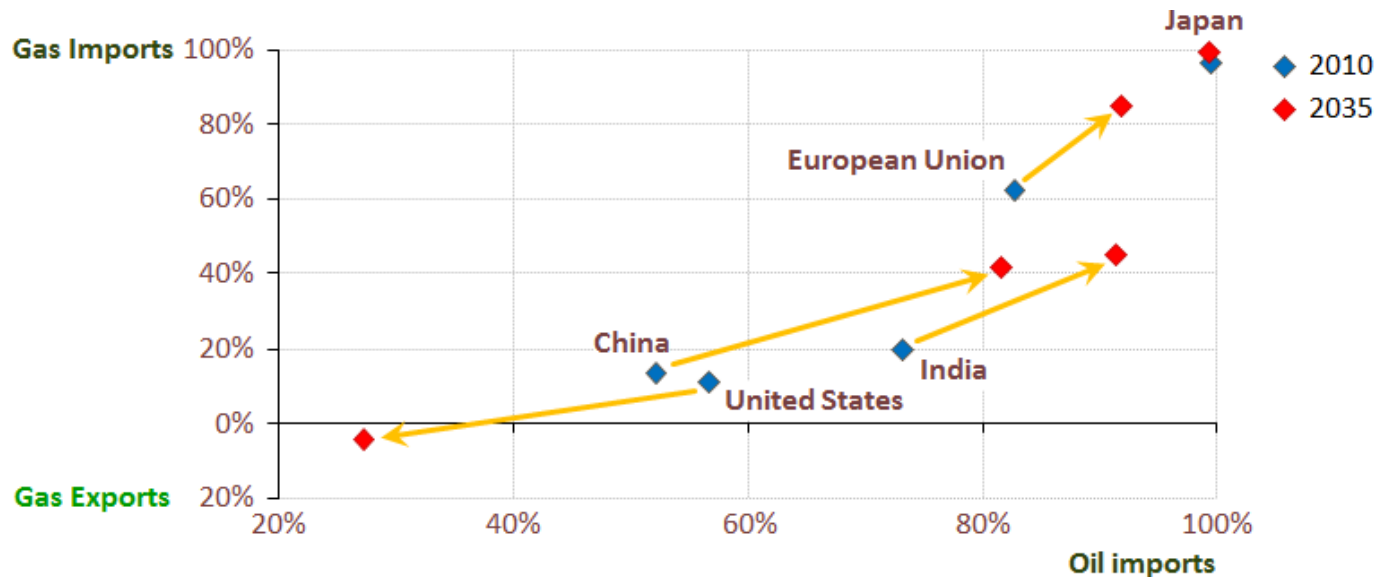
New governance system and indicators



- **Contributes to the attainment of 2030 goals (flexibility)**
- **Systematic monitoring of key energy system indicators**



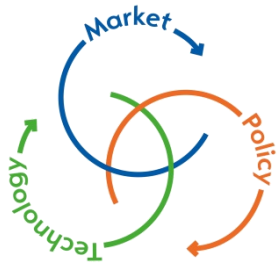
The EU Energy Security Strategy



While dependence on imported oil & gas rises in many countries, the United States swims against the tide

Data Source: Gould, IEA
05/03/2013





The EU Energy Security Strategy

Key actions:

- 1.Immediate actions** for winter 2014/2015 incl. launch of security **stress tests**
- 2.Strengthening of **emergency/solidarity mechanisms**
- 3.Moderating energy demand**
- 4.Building a well-functioning and fully integrated **internal market**
- 5.Increasing energy production** within the European Union
- 6.Further developing **energy technologies**
- 7.Diversifying** external supplies and related infrastructure
- 8.Improving coordination of national energy policies and **speaking with one voice in external energy policy**



The EU Energy Security Strategy

Main messages:

Energy security is inseparable from 2030 climate and energy policy framework.

We need to act now to ensure supplies this winter and in the medium–long term:

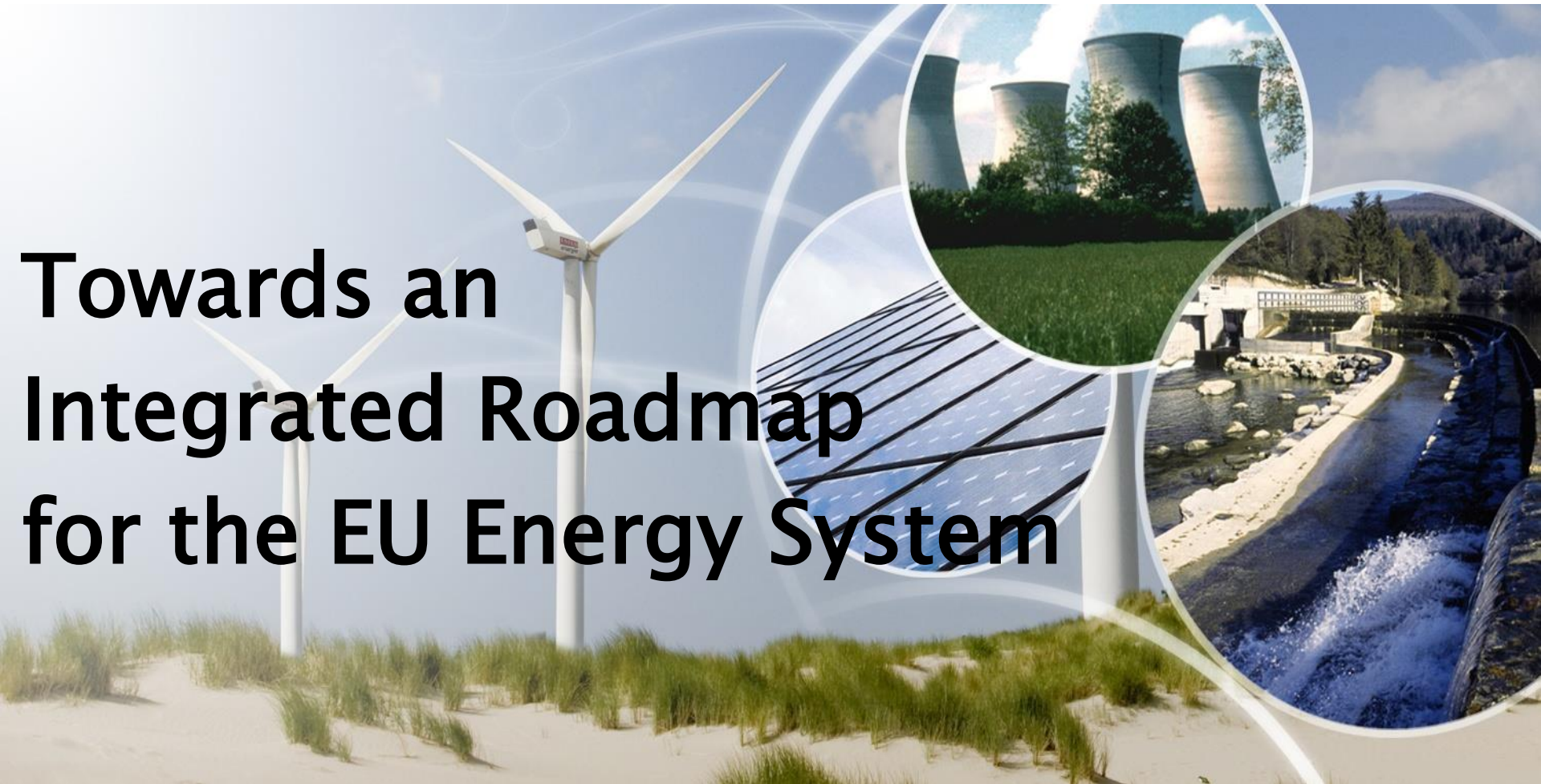
Moderate energy demand	Increase sustainable energy production
Emergency and security mechanisms	Include EU neighbours
More integrated energy market	Intensify our diversification efforts
Accelerate interconnections	Full use of EU financial instruments
Compliance of infrastructure projects	Coordination of national energy policies
Coherent external energy policy	Synergy with foreign policy instruments

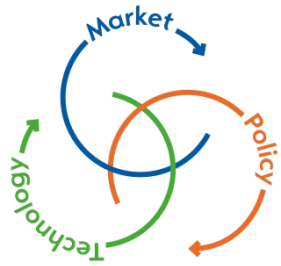


Role of the technology



Towards an Integrated Roadmap for the EU Energy System





2008: The SET Plan



Focus on technologies with market impact up to

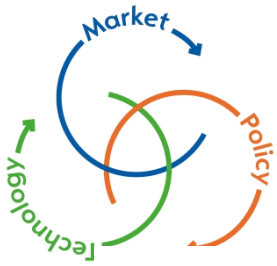
- Wind
- Solar
- Electricity grids
- CCS
- Bioenergy
- Nuclear
- Smart Cities and Communities
- Fuel cells and hydrogen



Focus on longer-term research actions beyond 2020 (set up of EERA)

Objective for 2020

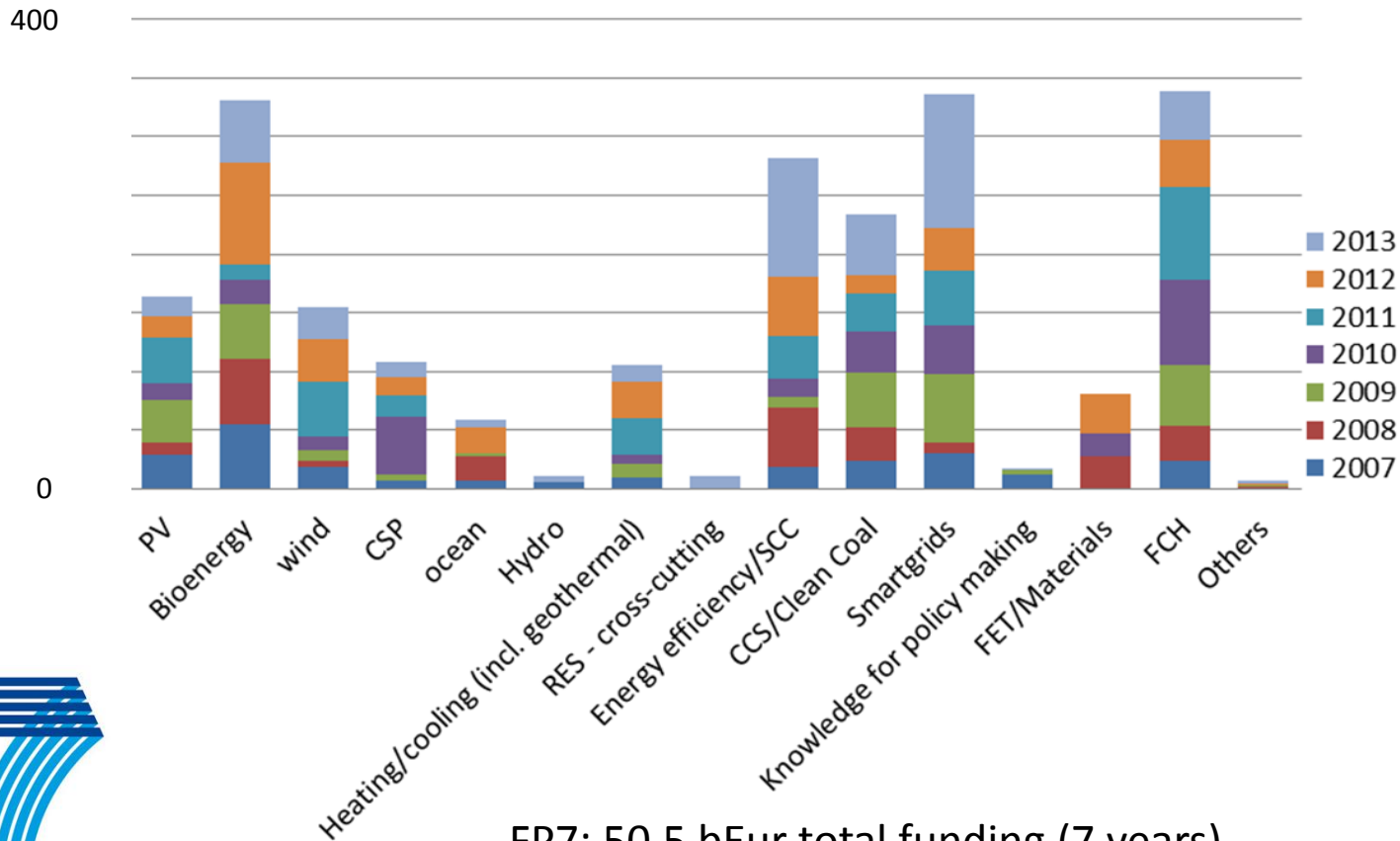
- 20% reduction of CO2 emissions (base1990)
- 20% share of Renewable Energy
- 20% improvement in Energy Efficiency



Implementation: FP7 2007-2013



FP7 Energy Theme - budget allocation per year (2007-2013, M€)

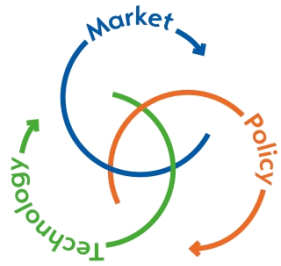


FP7: 50.5 bEur total funding (7 years)
Energy: 2.5 bEur (5%)



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2013: Communication on Energy Technologies and Innovation

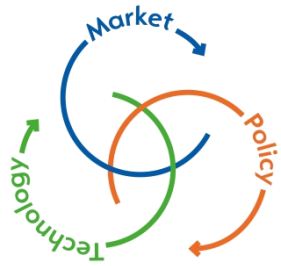


Key Principles

- New challenges post 2020
- From sectors to system
- Bridging R&I with energy policy
- Making better use of existing financial resources
- Keep options open
- Harness endogenous resources

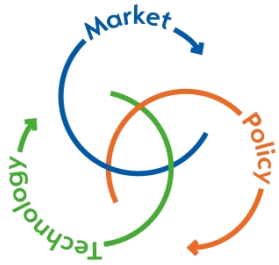


Follow-up



- Integrated Roadmap
- Action Plan –EC and MS financing
- Robust reporting system
- A new coordination structure under the SET plan SG on energy efficiency
- New competences: e.g. non-technological barriers
- External dimension





Challenges and Key Issues



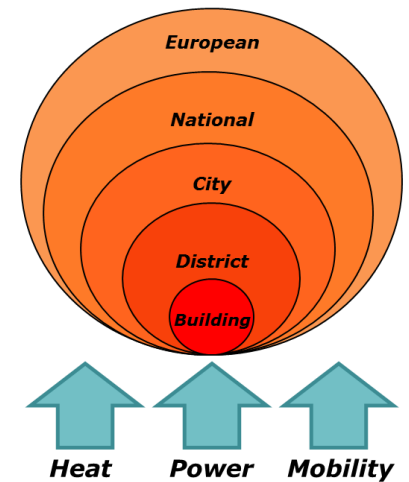
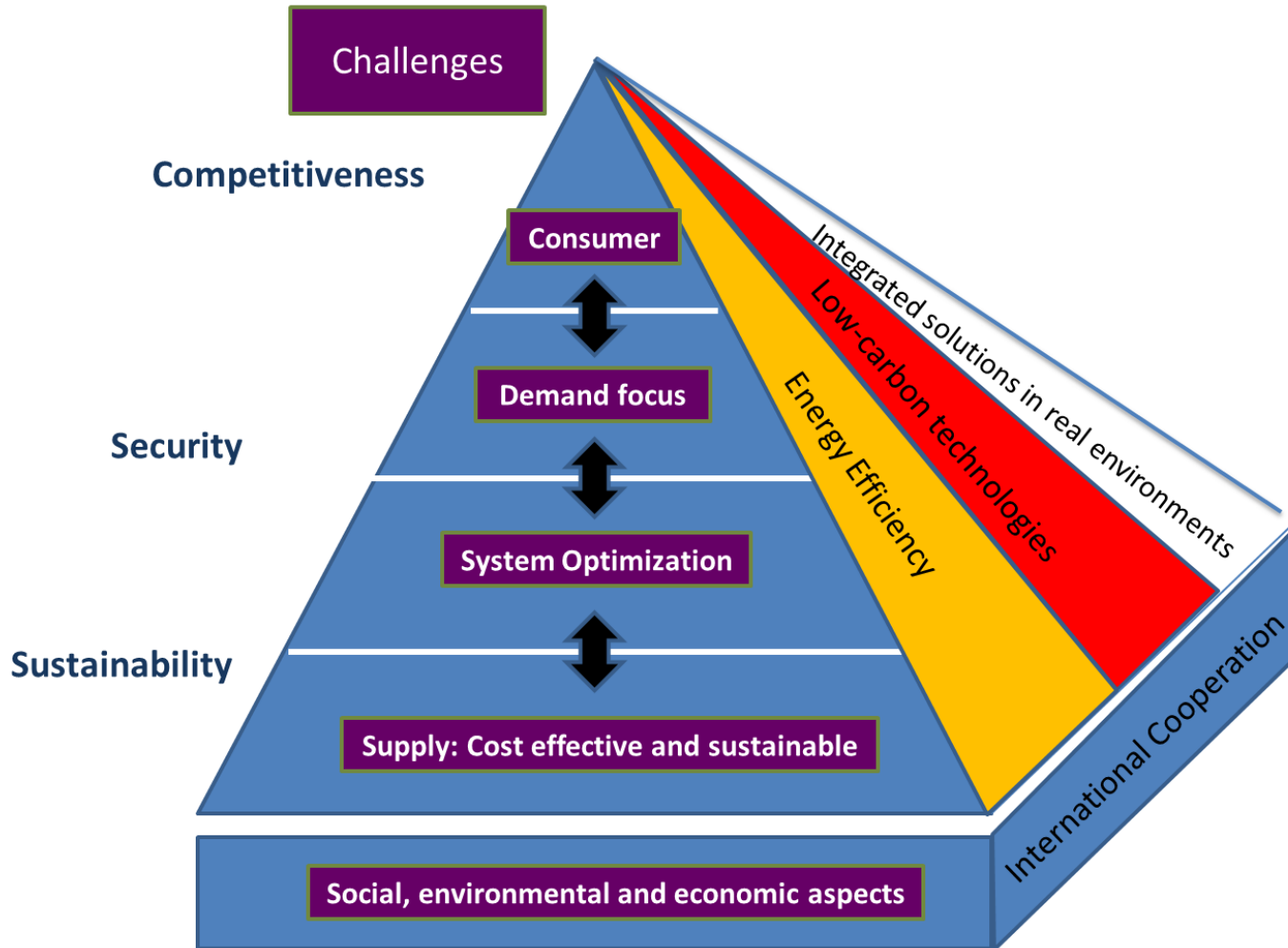
- Cost competitiveness/performance
- System integration (smart interfaces, new capabilities of equipment, new or improved services to system, forecast)
- Supply chains (industrial logistics, maintenance, materials and manufacturing, recycling)
- Non technological aspects (market framework, business models, spatial planning, standards, financing, skills and capacities)
- Societal issues (environment impact, safety, health, social acceptance)

Objectives for 2030 (Climate-Energy package)

- 40% reduction of CO2 emissions (1990)
- 27% share of Renewable Energy
- 27% improvement in Energy Efficiency

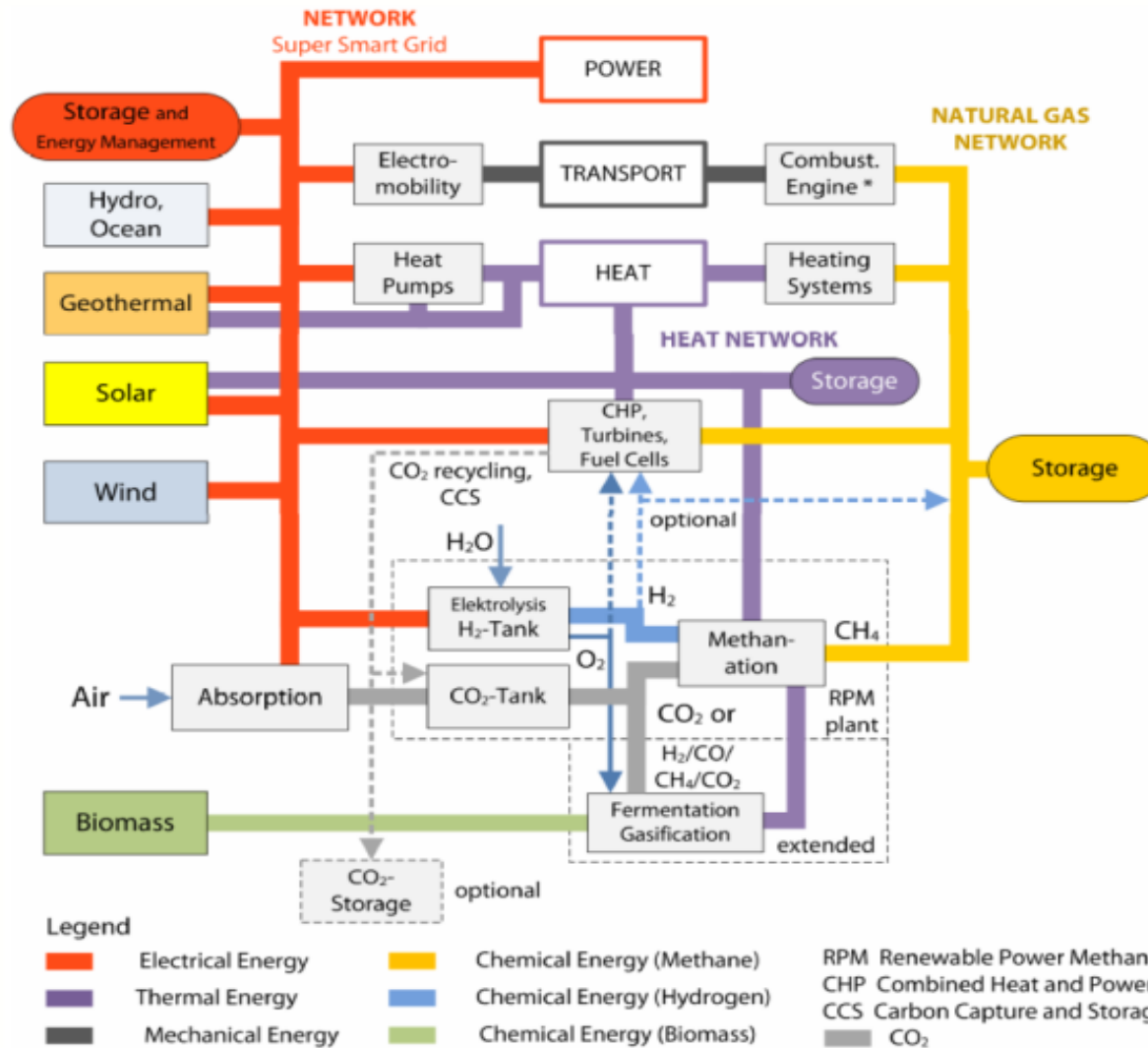


Energy system Holistic approach (I)





Energy system Holistic approach (II)





Implementation: EU



Calls	2014 (M€)	2015 (M€)
Energy Efficiency	97,5	98,15
Smart Cities and Communities	92,32	108,18
Competitive Low-Carbon Energy	359,1	372,33
SMEs and Fast Track to Innovation	33,95	37,26
<i>Part B – other actions</i>	75	61
Euratom Fission	48,3	39,6
<i>Part B – other actions</i>	0,3	15,0

H2020: 70,2 bEur total funding (7 years)

Energy: 5,9 bEur (7,7 %)

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Implementation: EU (II)



Calls	2014 (M€)	2015 (M€)
Competitive Low-Carbon Energy	359,1	372,33
LCE-7: Distribution Grid	60,00	
LCE-8: Local/Small Scale Energy Storage	} 44,15	
LCE-10: Next Generation Energy Storage		
LCE-9: Large Scale Energy Storage		26,00
LCE- 5 : Meshed HVDC off-shore Grid		} 71,28
LCE-6: Transmission grid and wholesale market		

Storage and Grid R&I Activities > 25% of LCE topics



Implementation: EU (storage)



Integrated approach

All demonstration storage projects shall integrate

- Innovative Technology development
- Innovative Business models
- Develop plans for market uptake
- Check existing market barriers and work out proposals for solutions (policy, legislation, regulation, etc.)



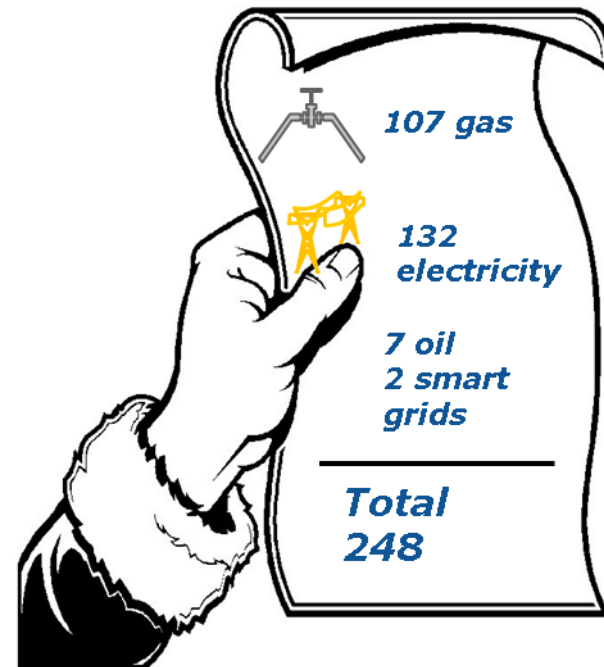
Implementation: EU - CEF



2014-2020

CEF Connecting Europe Facility – 5.8 bn€

First projects





Implementation MS: Regional policy

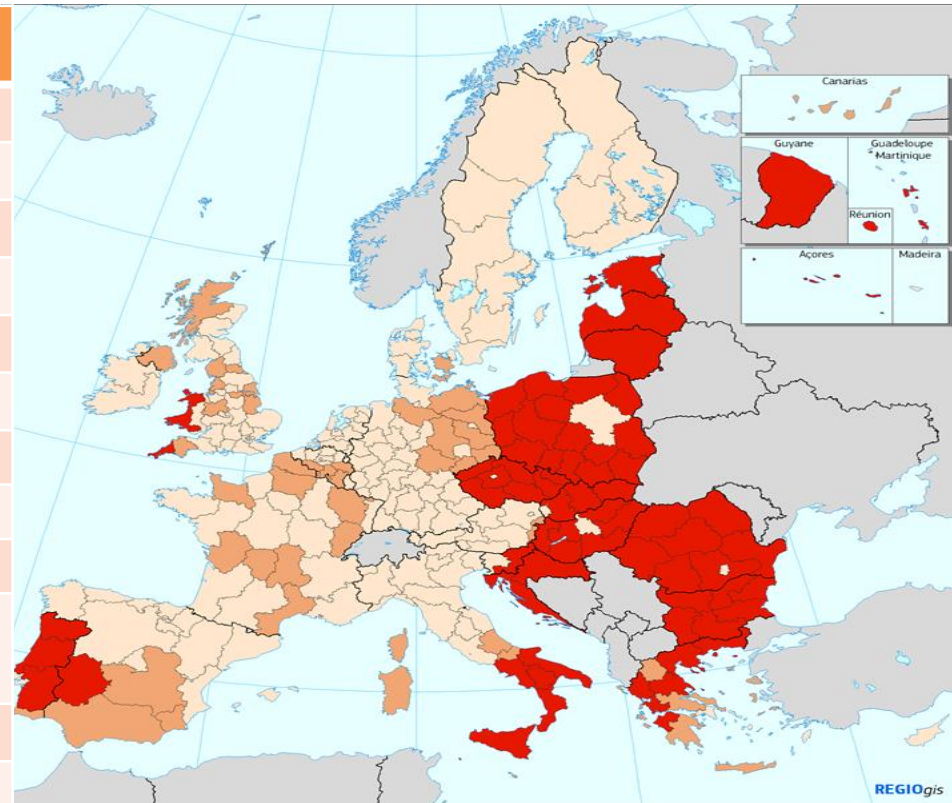


Eligibility map 2014-20

- Less developed region (GDP/head: less than 75%)
- Transition regions (GDP/head between 75% and 90%)
- More developed region (GDP/head: more than 90%)

Cohesion Policy to allocate some 23 billion € (estimate!) to investments in energy efficiency, renewable energy, smart distribution grids and urban mobility, including research and innovation in those areas in complementarity with Horizon 2020

	Billion EUR
Less developed regions	164.3
Transition regions	31.7
More developed regions	49.5
Cohesion Fund	66.4
European territorial cooperation	8.9
<i>Of which</i>	
<i>Cross border cooperation</i>	6.6
<i>Transnational cooperation</i>	1.8
<i>Interregional cooperation</i>	0.5
Outermost regions and northern sparsely populated regions	1.4
Youth Employment initiative	3.0
TOTAL	325.1





The way forward: Integrated Roadmap and Action Plan



Integrated Roadmap	R&I Actions	EU	Joint actions	MSs individually/ regions (cohesion)	Industry
Consumer	X	✓		✓	✓
	X	✓		✓	✓
Demand focus	X	✓	✓		
	X		✓		✓
System Optimisation	X	✓		✓	✓
	X	✓			
Supply	X	✓	✓		✓
	X			✓	
Socio-economic	X	✓			✓
	X		✓		



European
Commission

**Thank you
for your attention**

