Work Programme ENERGY 2014-2015: Efficiency and Low Carbon Energy in HORIZON 2020

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"Secure, clean and efficient Energy" e Delegato MIUR per il SET PLAN

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Overall context: EU Funding for Sustainable Energy 2014-2020

- **Horizon 2020:** Some 5.9 billion € to be allocated to research and innovation in "Secure, clean and efficient energy“
- **Cohesion Policy** to allocate some 23 billion € 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
- **Connecting Europe Facility:** Some 5.9 billion € to be allocated to investments in TEN-E infrastructure of highest European added value
- Other **European Structural and Investment (ESI) Funds**:European Agricultural Fund for Rural Development and EU Maritime and Fisheries Fund

Three priorities in Horizon 2020

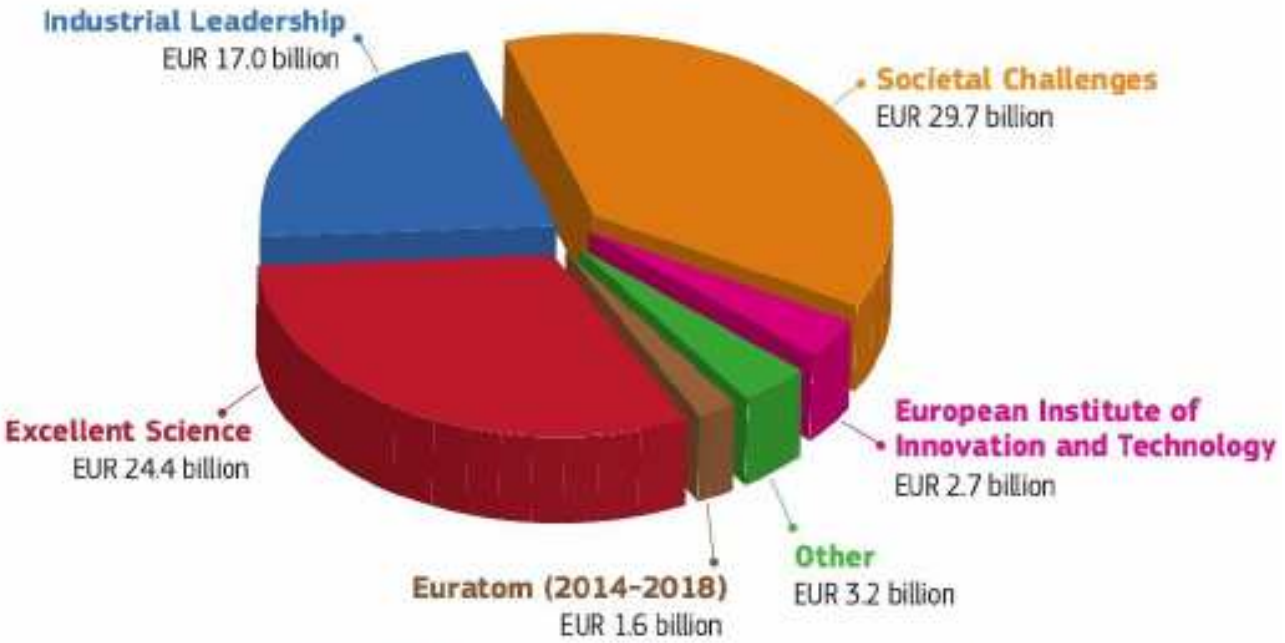


Figure 7: H2020 budget distribution in current prices. Source: EC.

Governance – Horizon 2020

14 PROGRAMME COMMITTEE CONFIGURATIONS

(provide Member States oversight and input into work programmes)

1. HORIZONTAL CONFIGURATION

Excellent Science	Industrial Technologies	Societal Challenges
2. ERC Marie Curie, FET	4 . ICT	8. Health
	5. Nanotech,Materials, Biotech, Manufacturing	9. Bio-economy
3. Research infrastructures	6. Space	10. Energy
	7. SMEs, Risk Finance	11. Transport
		12. Climate
		13. Inclusive societies
		14. Security

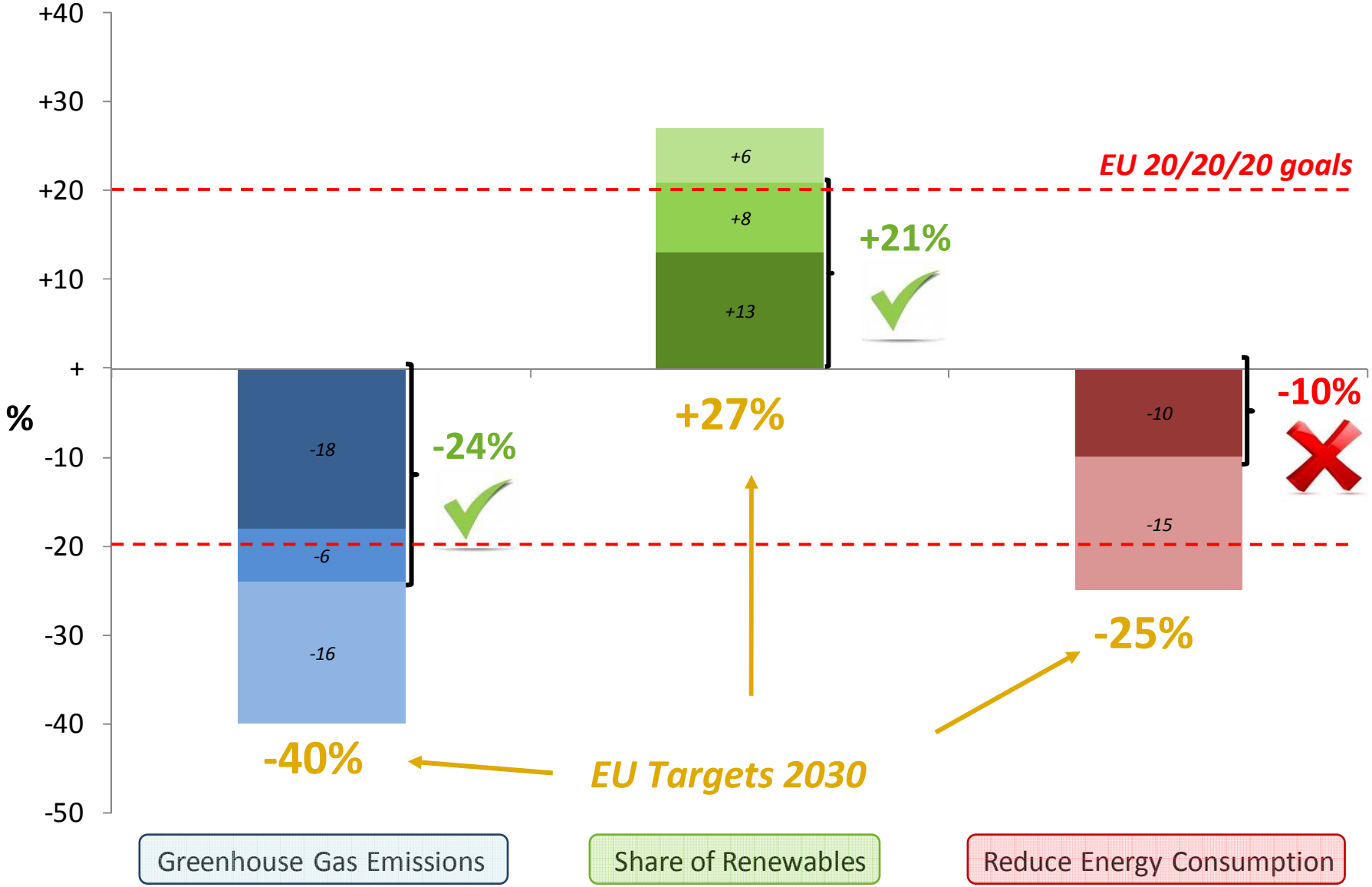
Secure, clean and efficient Energy

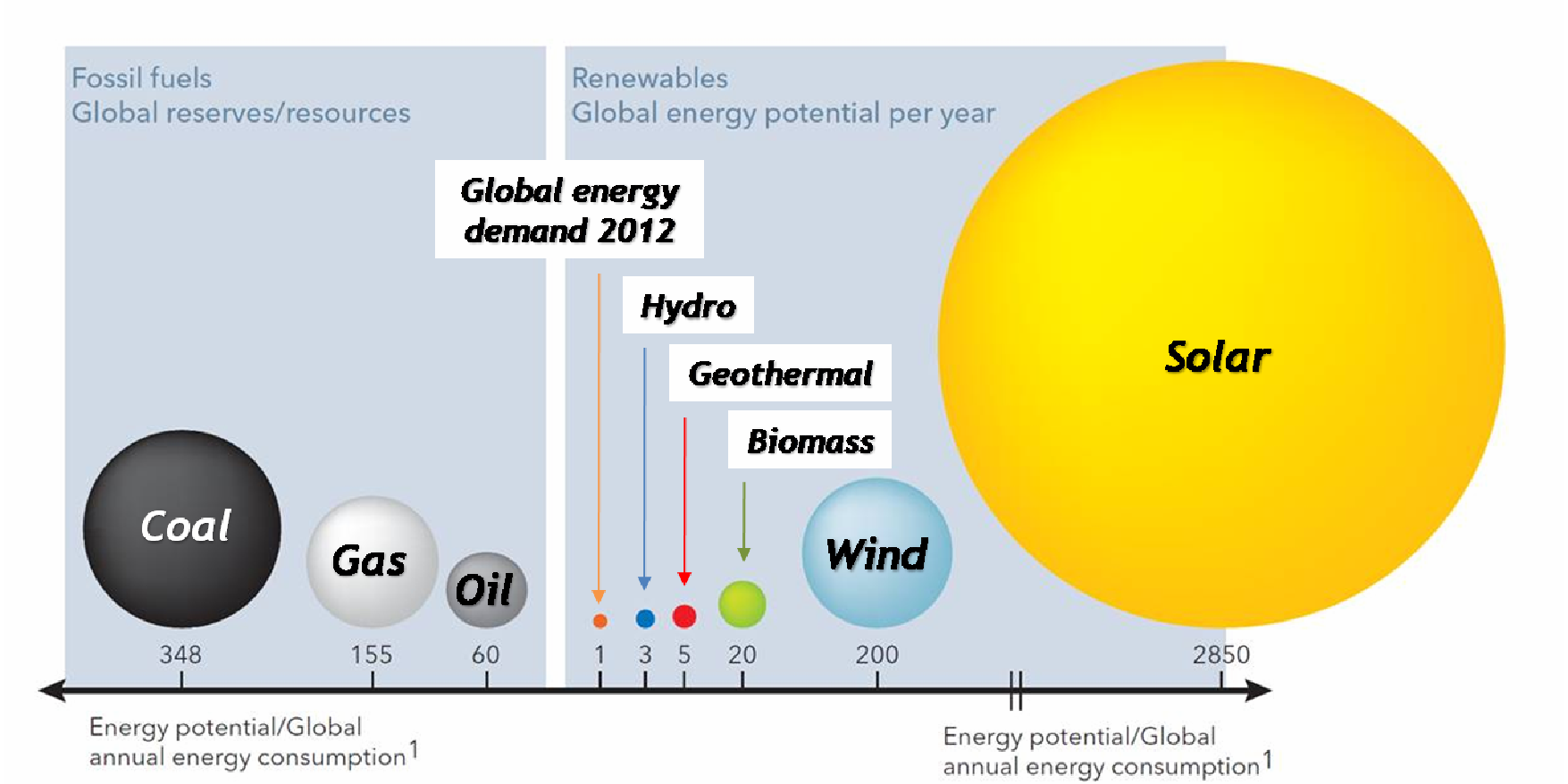
- *2-year work programme (2014, 2015)*
- *Scope: H 2020 = FP7 + market uptake*
- *Challenge-based approach*
- *Cross-cutting approach*

Calls	2014 (M€)	2015 (M€)
Energy Efficiency	97,5	98,15
Competitive Low-Carbon Energy	359,1	372,33
Smart Cities and Communities	92,32	108,18
SMEs & Fast Track to Innovation	33,95	37,26
Part B – other actions	*75*	*61*
TOT	657,87	676,92

EU 2020 goals

Where are we today and progress towards the EU 2030



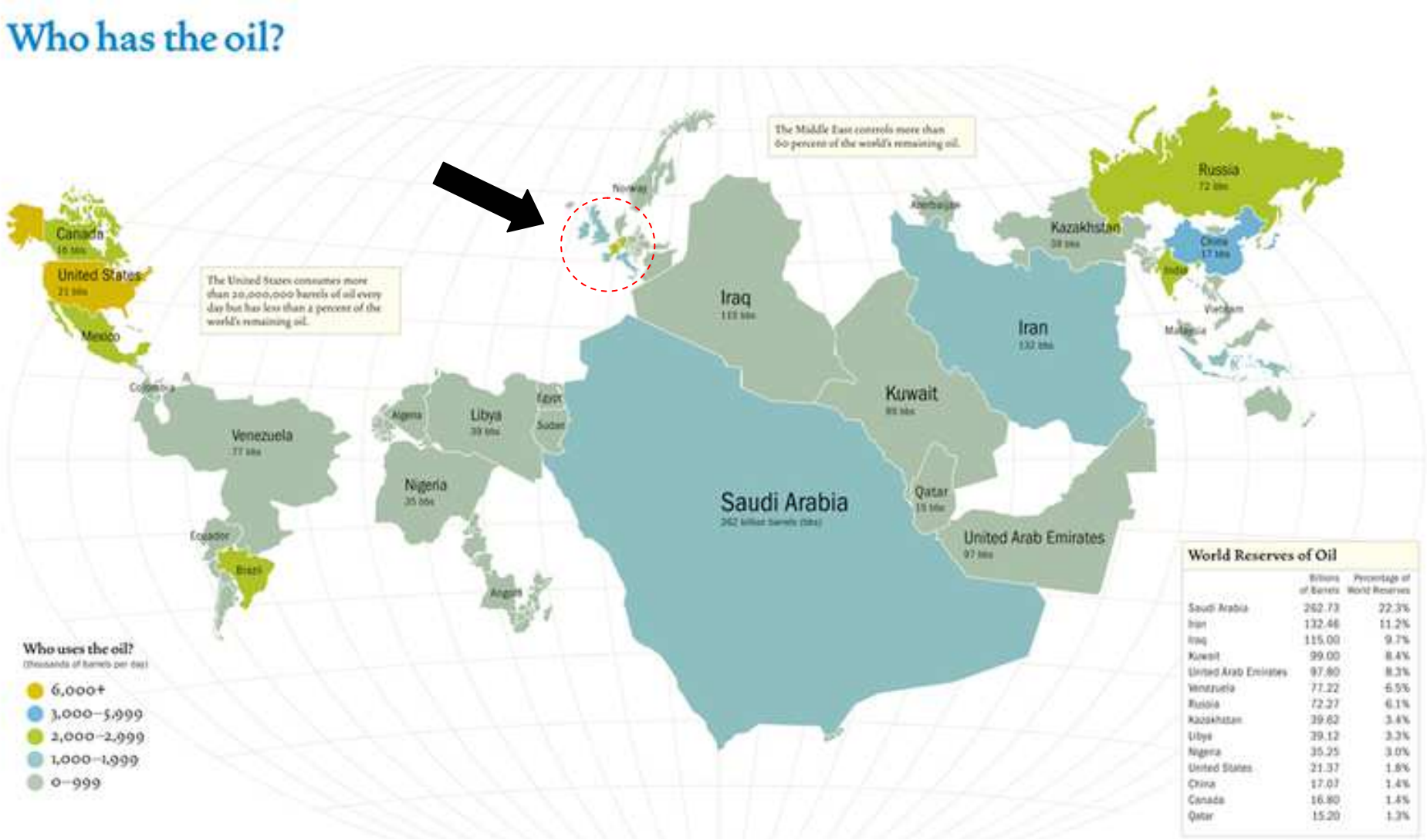


	Energy potential Reserves/Resources[2]	Thereof conventionally utilizable[2]
Coal	~ 135.000 EJ	
Natural gas	~ 60.400 EJ	~ 12.000 EJ
Crude oil	~ 23.000 EJ	~ 9.800 EJ

Global Energy Demand 2012: ~504 EJ

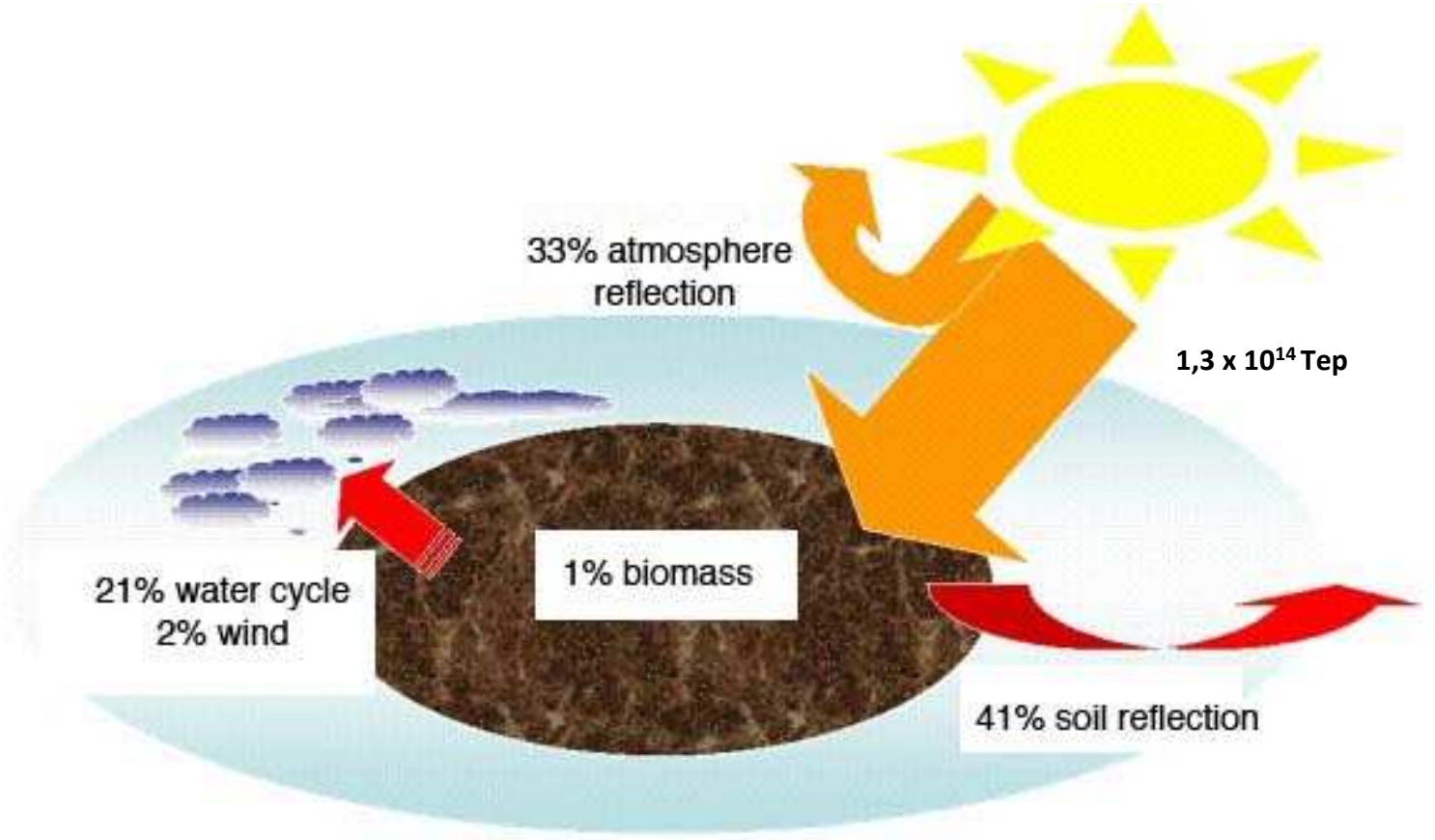
	Energy potential (amount of energy p. a.)[2]	technologically utilizable (state of the art)[2]
Solar radiation	~ 1.111.500 EJ	~ 1.482 EJ
Wind energy	~ 78.000 EJ	~ 195 EJ
Biomass	~ 7.800 EJ	~ 156 EJ
Geothermal	~ 1.950 EJ	~ 390 EJ
Hydro/tide power	~ 1.170 EJ	~ 78 EJ

Crude Oil: dimensions of countries based on reservoir



In the Middle East are located more than 60% of total reservoir

The Flux of Renewable Energy

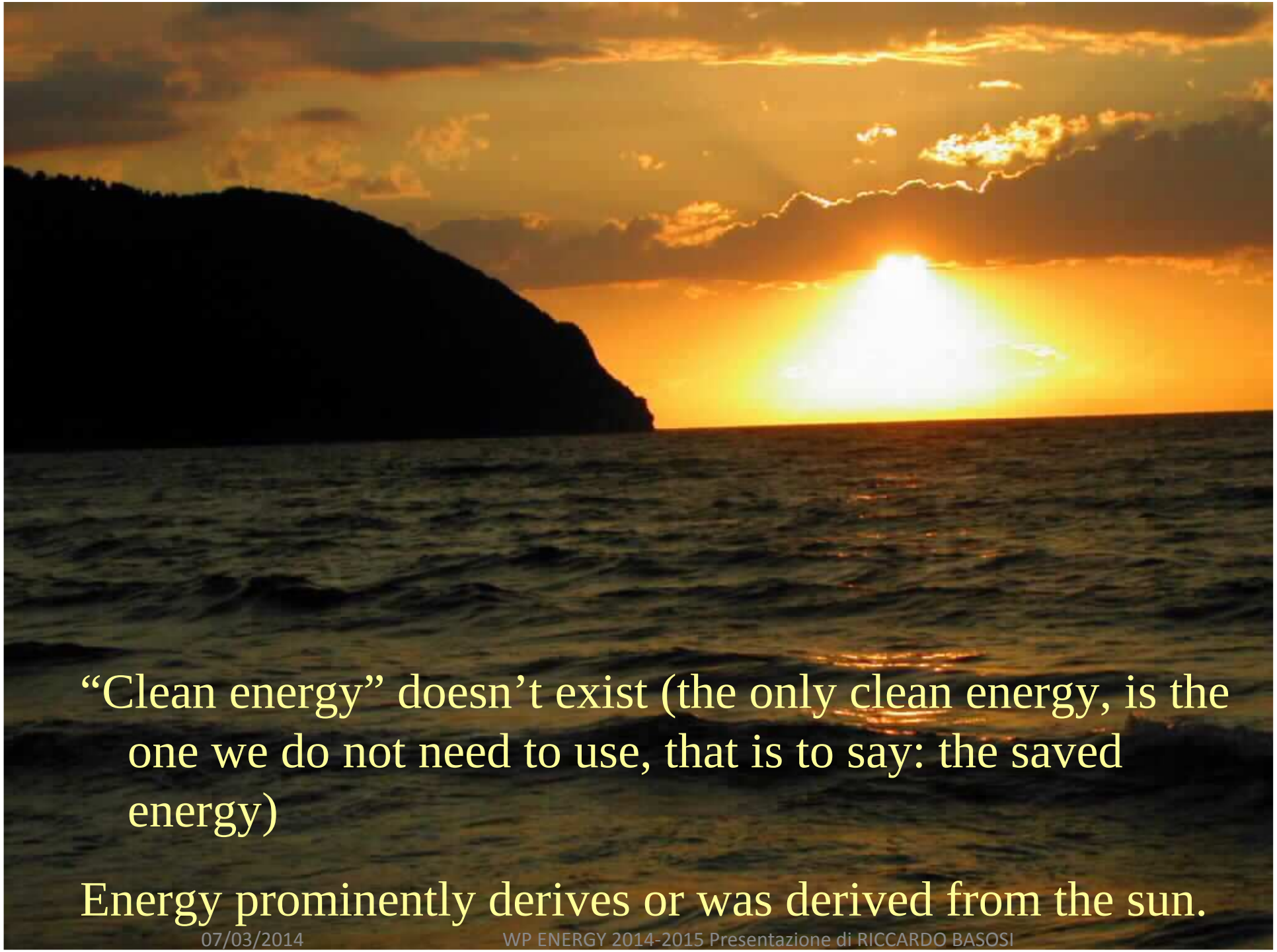


The total annual comsumption of Energy (12000 MTep) is equal to:

1/14000 of total annual flux of solar energy

1/40 of total annual wind potentiality

1/9 of total annual biomass potentiality

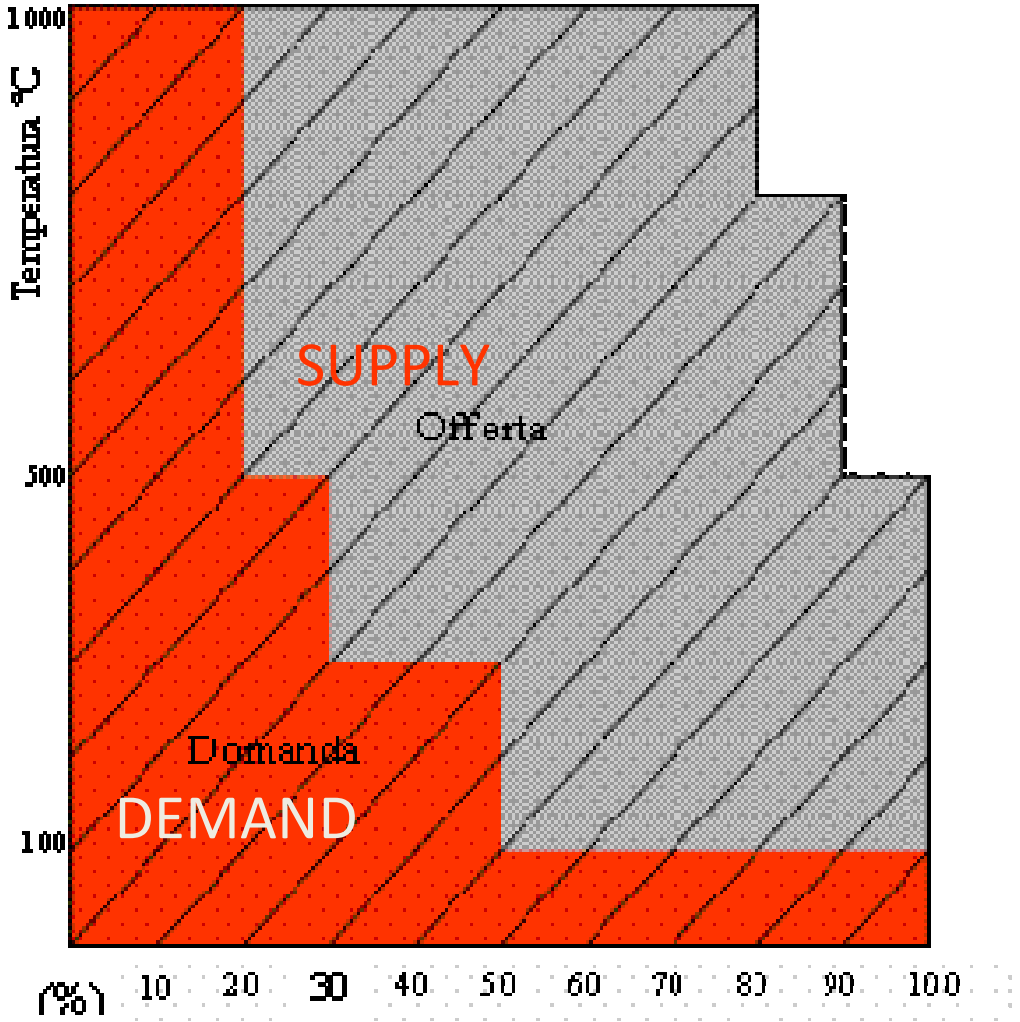


"Clean energy" doesn't exist (the only clean energy, is the one we do not need to use, that is to say: the saved energy)

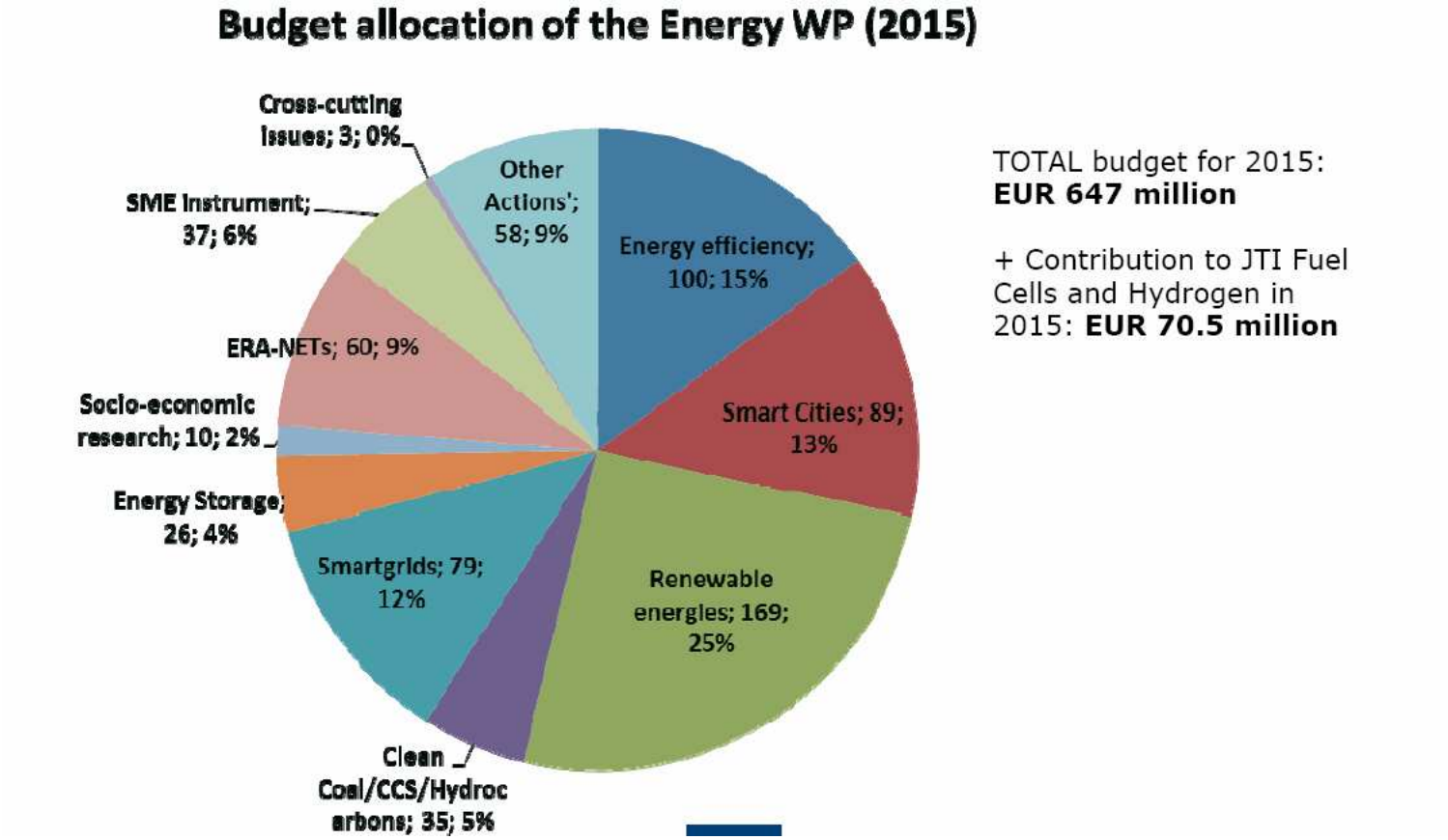
Energy prominently derives or was derived from the sun.

Energy Demand/Supply distribution as a function of End Uses in the Italian Energy System

Electricity is commonly associated with a T > 1000 C°



Energy WP 2014-2015

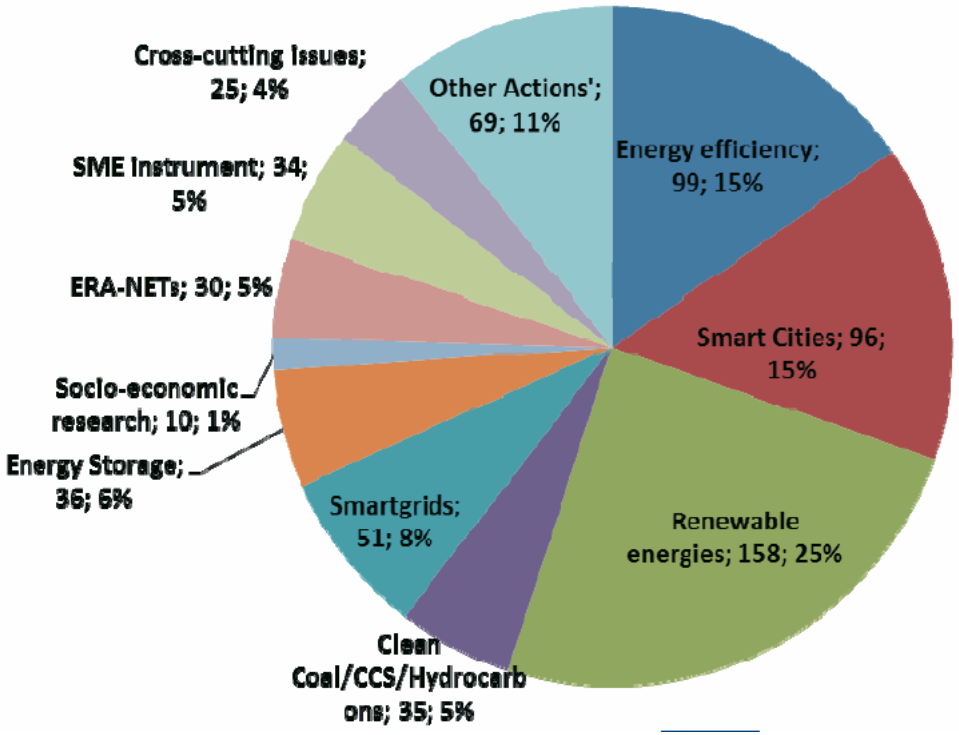


TOTAL budget for 2015: **EUR 647 million**

+ Contribution to JTI Fuel Cells and Hydrogen in 2015: **EUR 70.5 million**

Energy WP 2014-2015

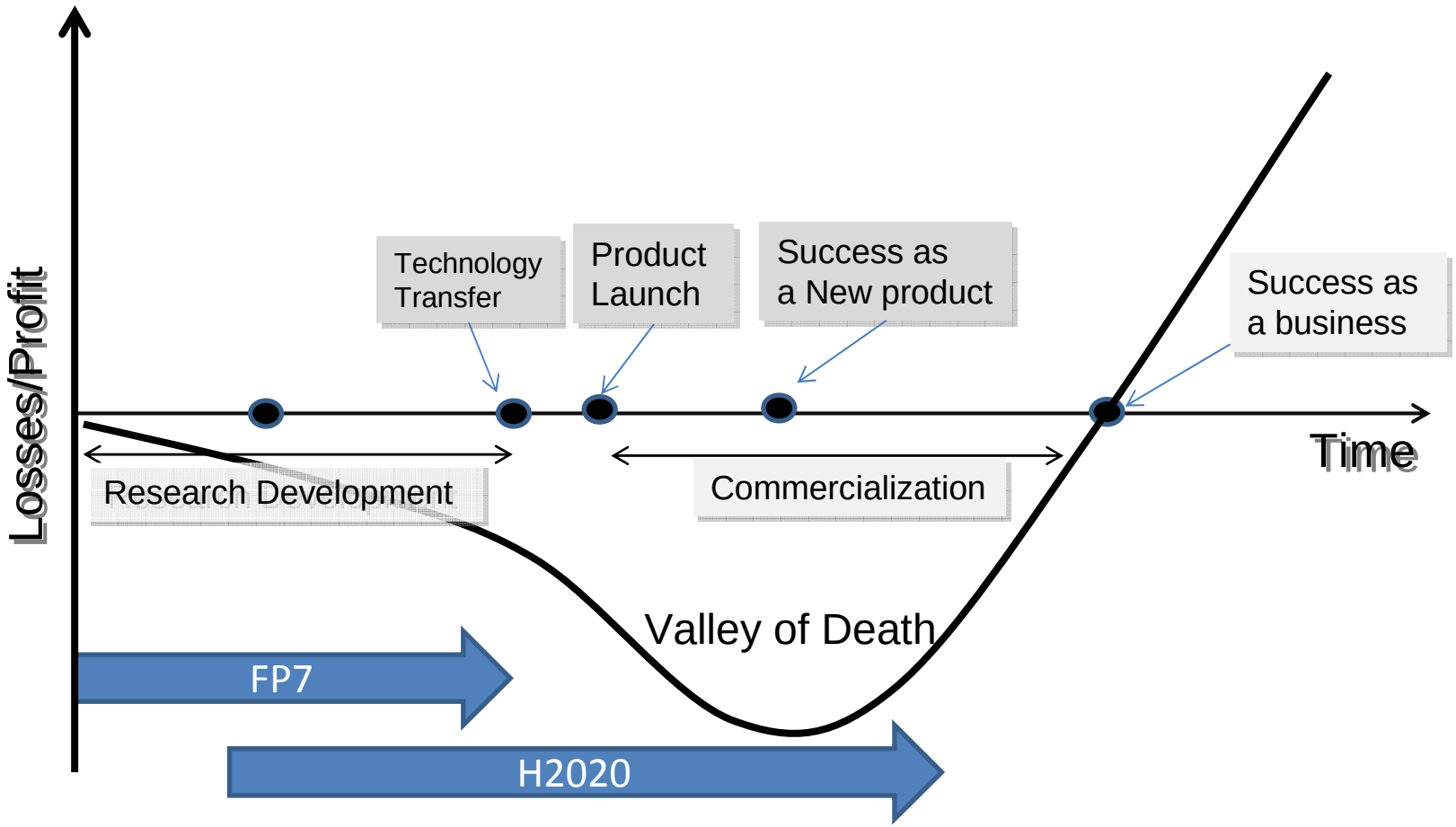
Budget allocation of the Energy WP (2014)



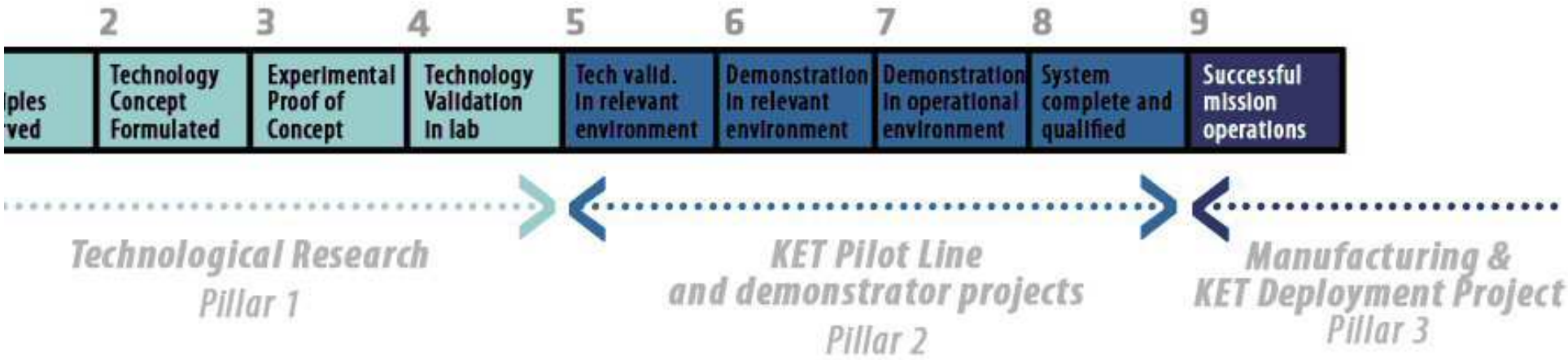
TOTAL budget for 2014: **EUR 607 million**

+ Contribution to JTI Fuel Cells and Hydrogen in 2014: **EUR 60 million**

Overcoming the valley of death



Technology Readiness Levels (TRLs) – a useful tool in development and deployment of KETs



- in FP7: TRLs 1 – 4;
  up to 5-6 in 2012-13 (pilots and demonstrators)
- KETs: TRLs 3/4 – 8; centre at TRLs 5-7

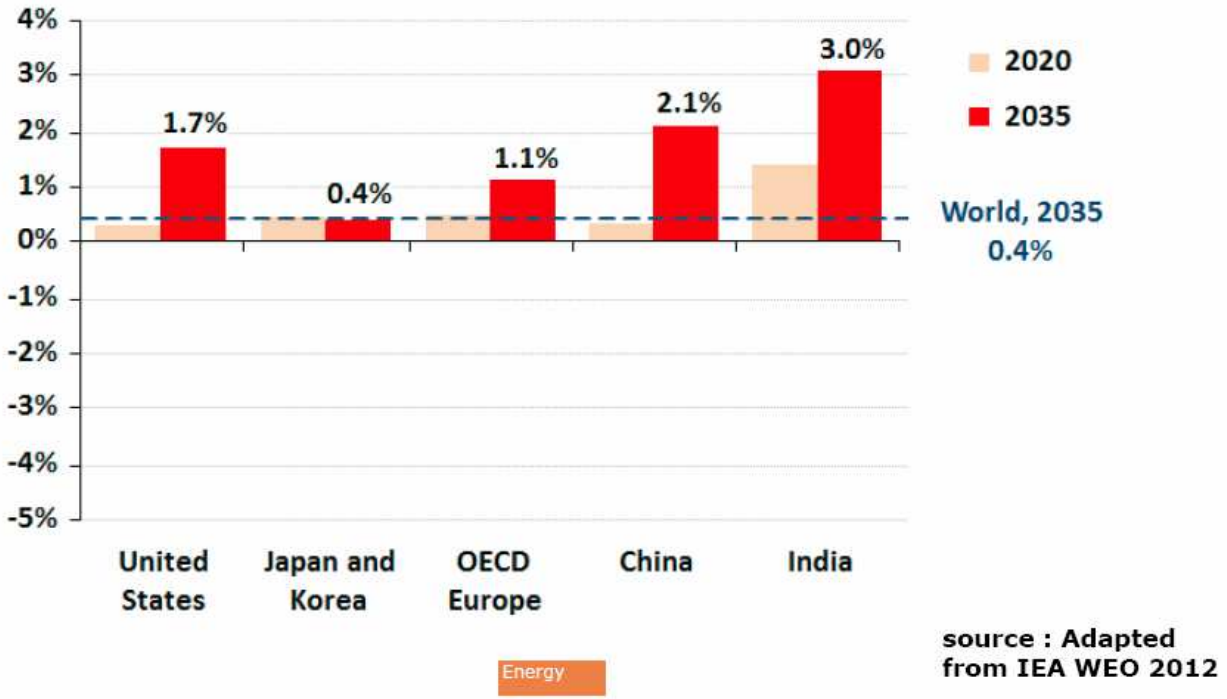
Energy WP 2014-2015

- **Energy efficiency call**

  - **Buildings and consumers**
  - **Heating and cooling**
  - **Industry and products**
  - **Finance for sustainable energy**

Why does Energy Efficiency matter?

Energy Efficiency boosts GDP. Achieving the Efficient World Scenario would give a boost to the global economy of $18 trillion over the Outlook period.



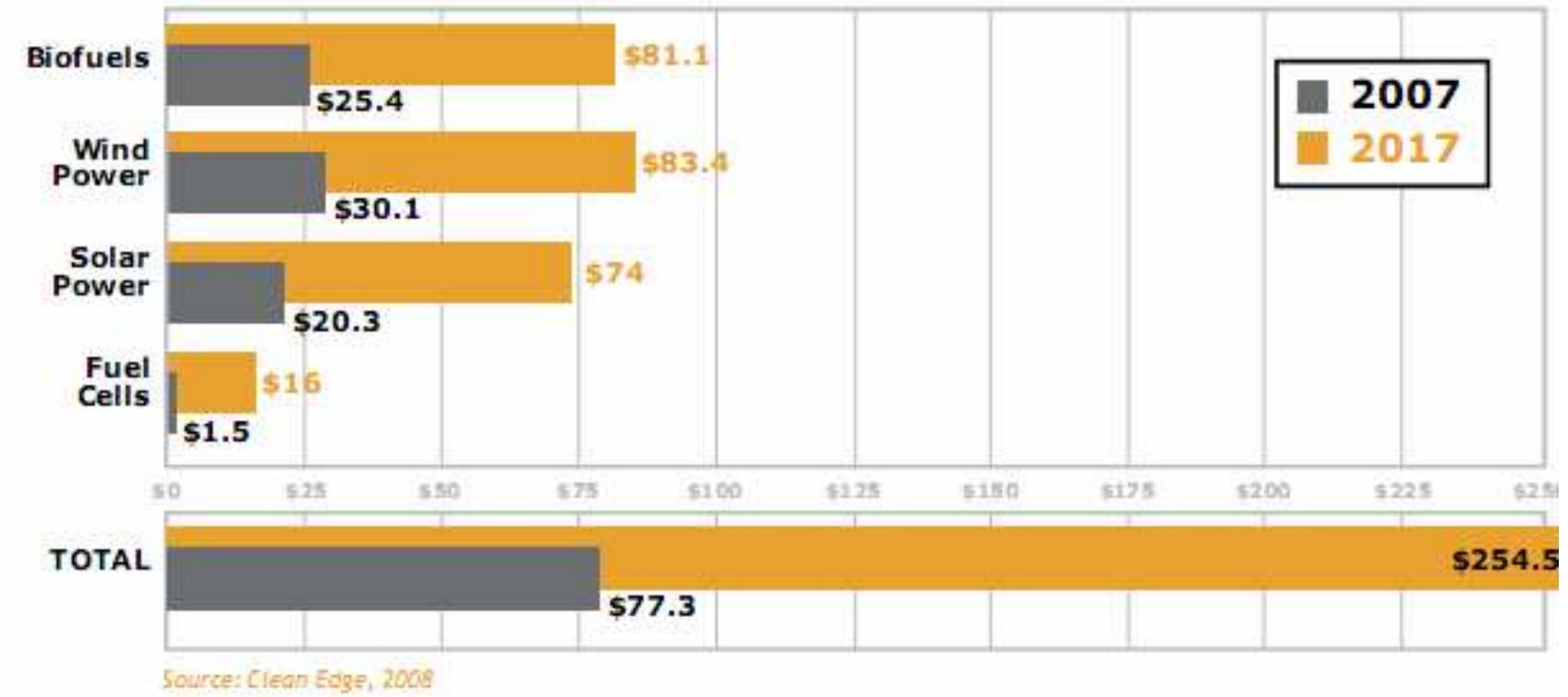
source : Adapted from IEA WEO 2012

Energy WP 2014-2015

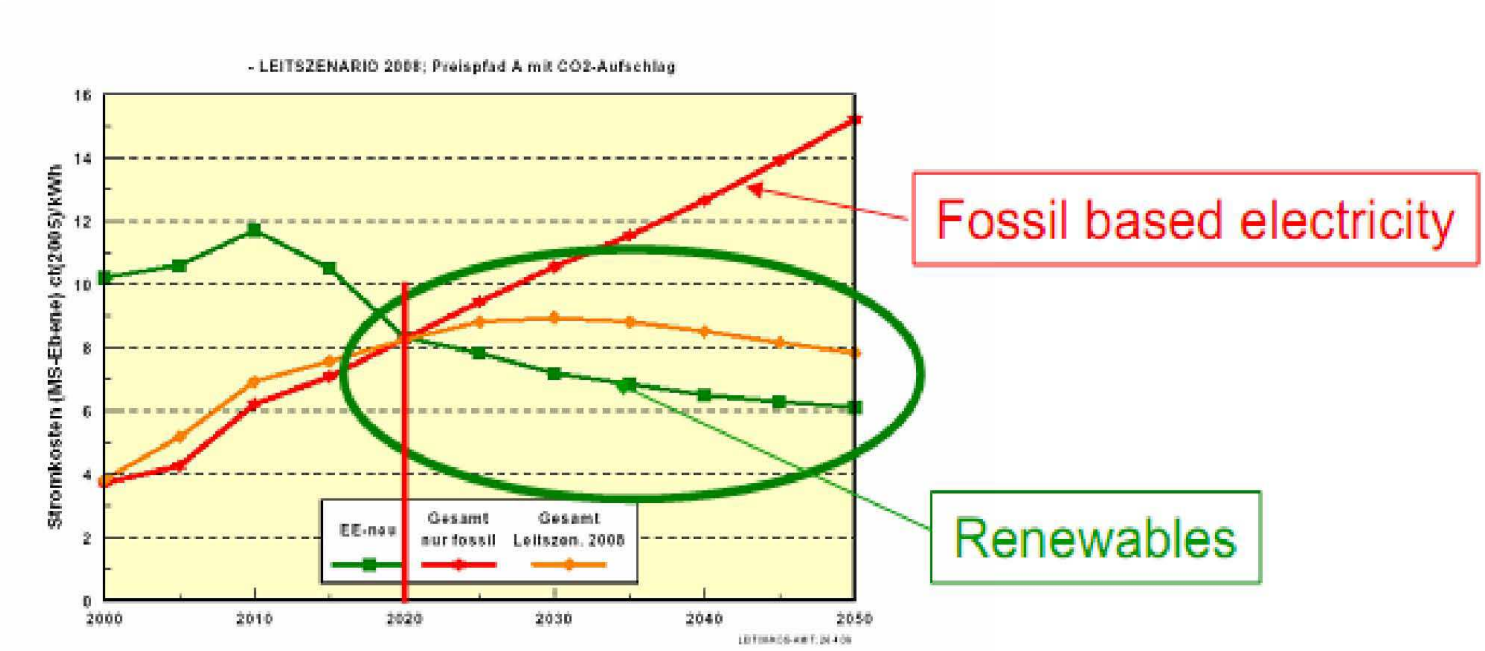
Competitive low-carbon energy

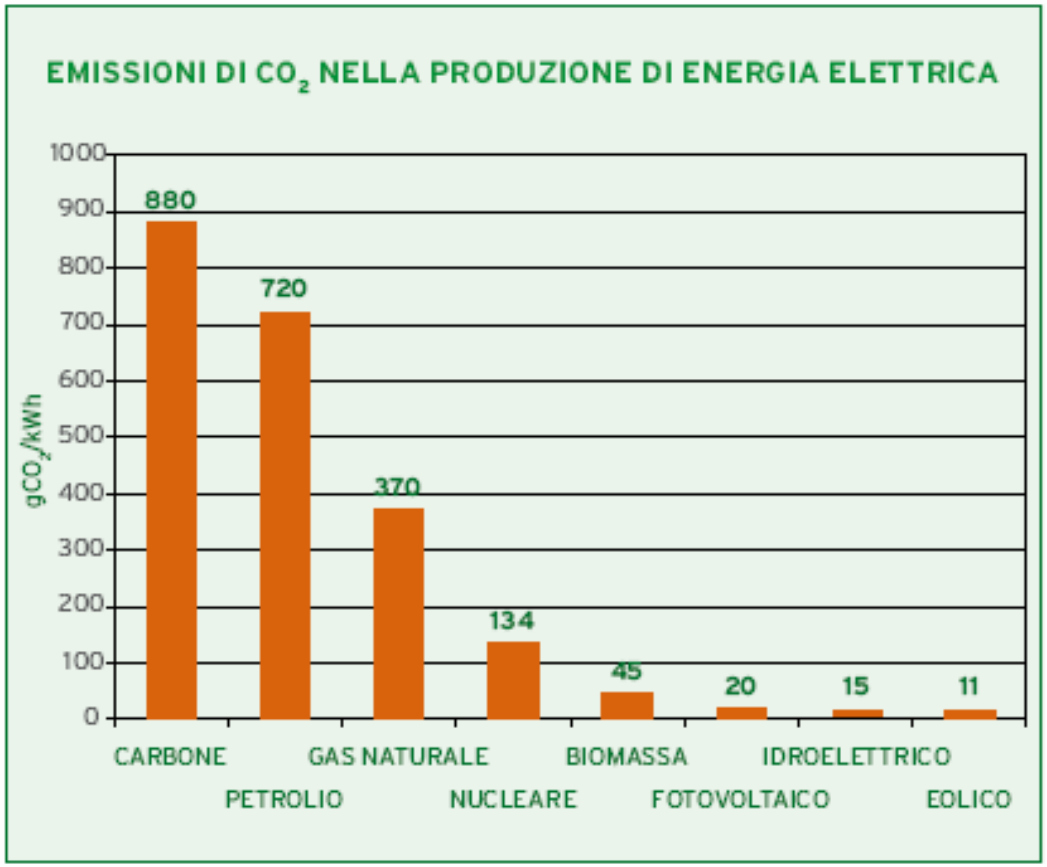
- ***Renewable electricity and heating/cooling***
- ***Modernising the single European electricity grid***
- ***Providing the energy system with flexibility through enhanced energy storage technologies***
- ***Sustainable biofuels and alternative fuels for the European transport fuel mix***
- ***Enabling the sustainable use of fossil fuels in the transition to a low-carbon economy***
- ***Supporting the development of a European research area in the field of energy***
- ***Social, environmental and economic aspects of the energy system***
- ***Cross-cutting issues***

Rinnovabili: 254 miliardi $ nel 2017

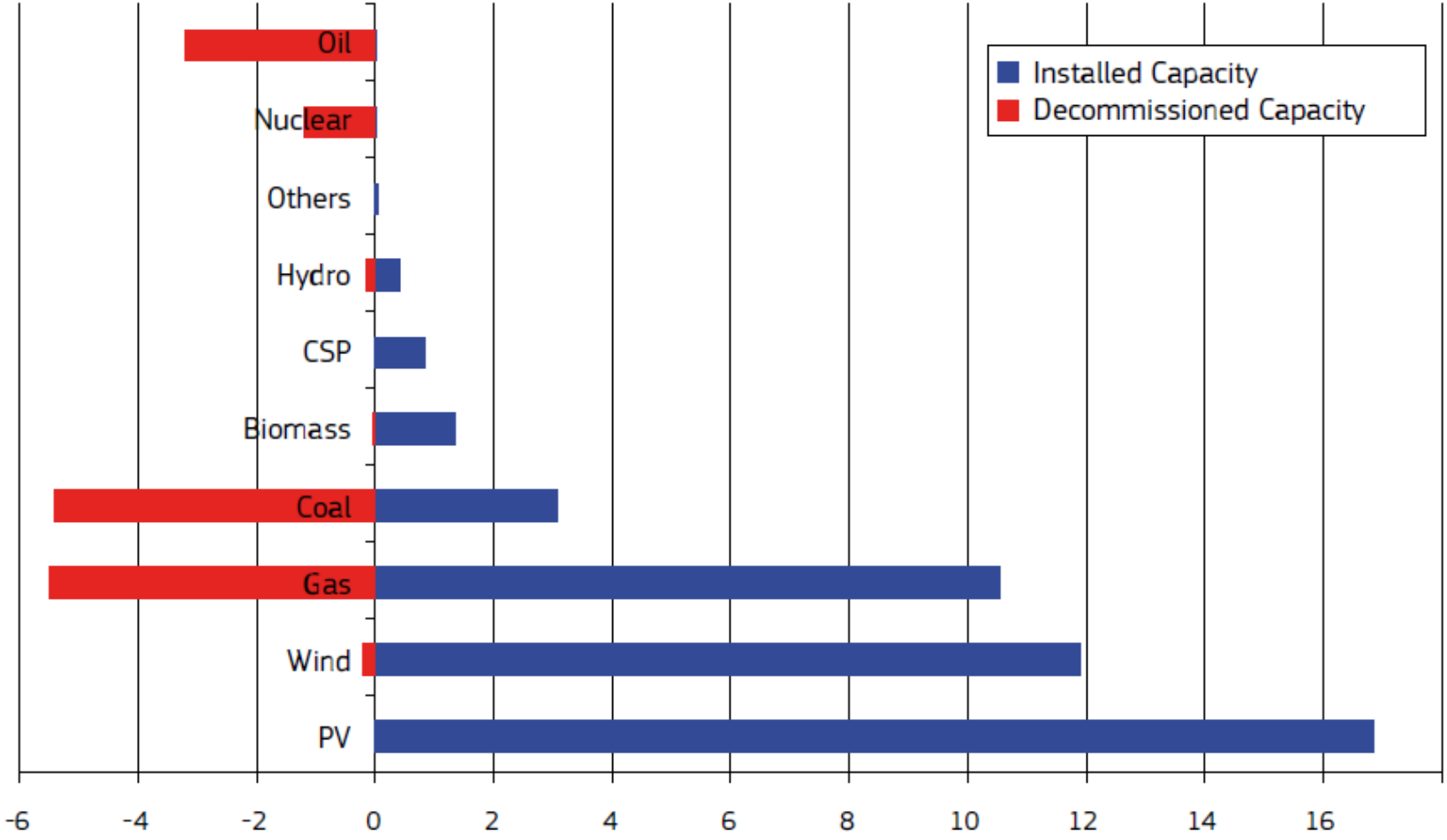


I costi dell'elettricità verde calano, mentre quelli convenzionali aumentano




EMISSIONI DI CO_2 NELLA PRODUZIONE DI ENERGIA ELETTRICA
gCO_2/kWh
1000
900
800
700
600
500
400
300
200
100
0
880
720
370
134
45
20
15
11
CARBONE
PETROLIO
GAS NATURALE
NUCLEARE
BIOMASSA
FOTOVOLTAICO
IDROELETTRICO
EOLICO

POTENZA ELETTRICA INSTALLATA IN EUROPA NELL'ANNO 2012



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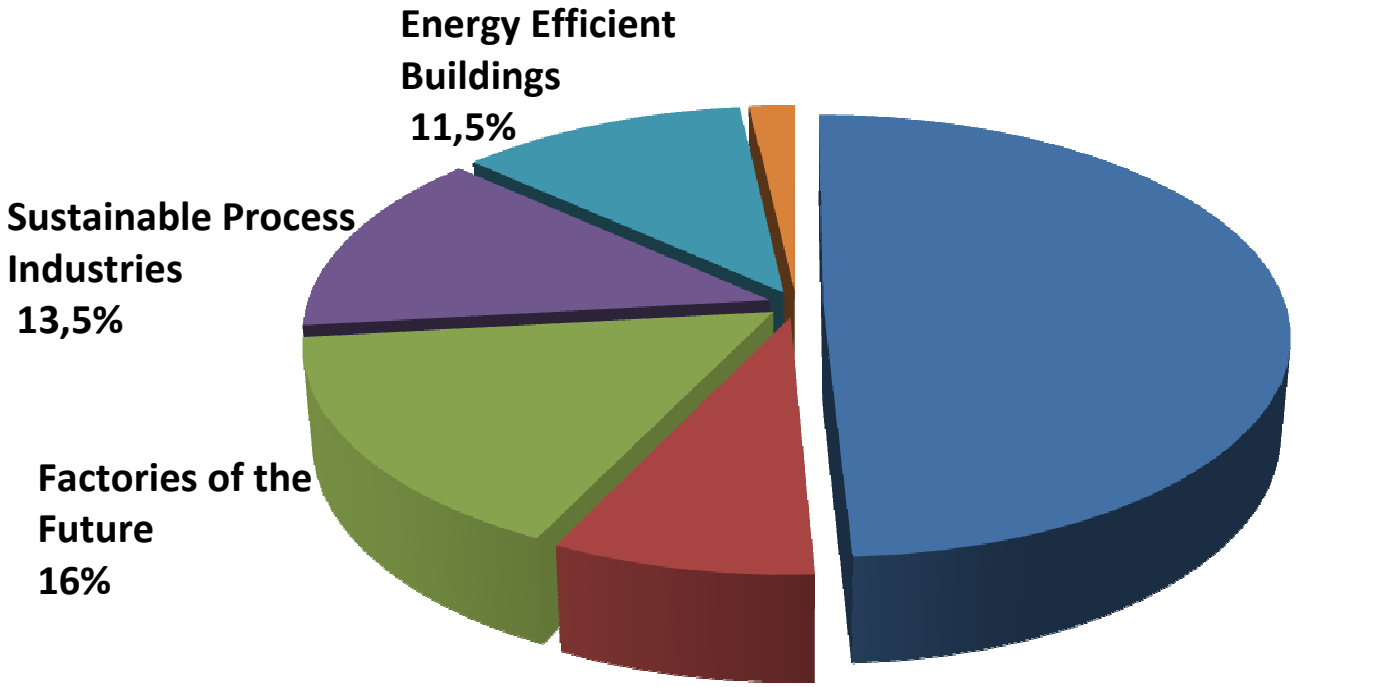
NMP Budget/ Calls 2014-2015

Indicative Budget / year: 515 mln



SET Plan Integrated Roadmap

Energy system holistic approach