





Politiche Europee per l'Energia & Partecipazione italiana a Horizon 2020 e SET Plan

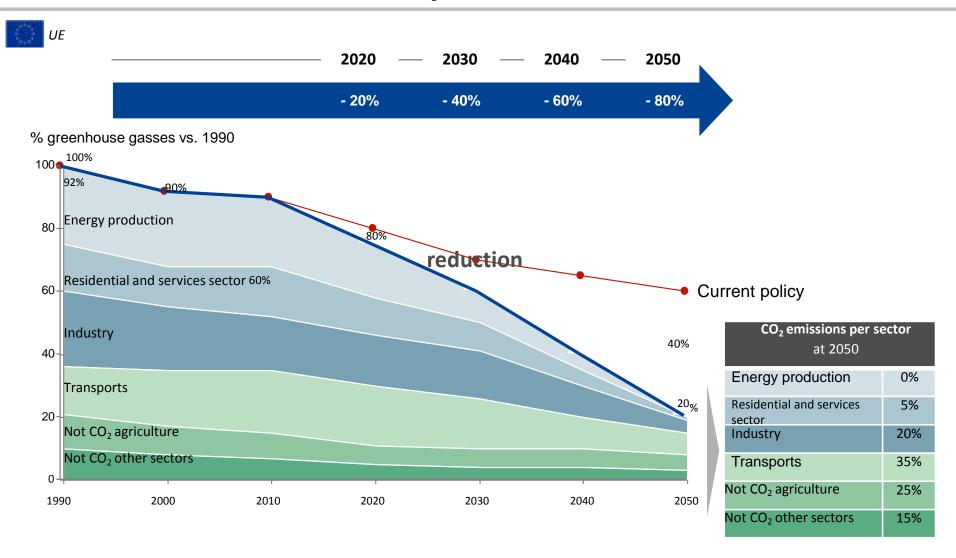
RICCARDO BASOSI

University of Siena

Italian Representative in H2020 Program Committee "Secure, clean and efficient Energy" and MIUR Delegate for SET PLAN & Mission Innovation



The European 2050 low-carbon economy action plan aims for a reduction of greenhouse gasses emissions of 80% compared to 1990



The Clean Energy Package sets new challenging and binding goals at 2030 for the EU countries (Italy SEN 2017)



Energy Efficiency

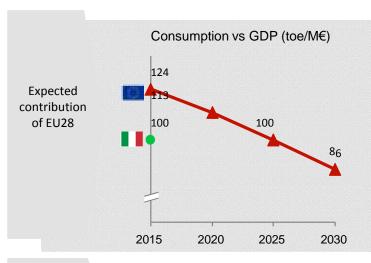
EU goal: **reduction of 30**% and mandatory EE system (1,5% annual saving)

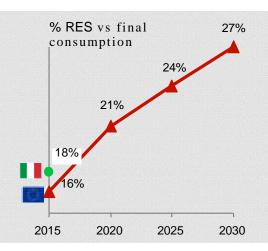
Renewables

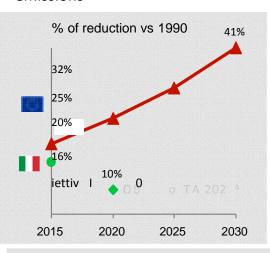
EU goal: installation of renewable energy systems until **30%** of final consumptiom

Grrenhouse gas emissions

Following COP21 agreement, the EU goal is the **reduction of 40%** (vs 1990) of greenhouse gas emissions







Italy at 2015

ш

Italy is a pioneer in the EE policies due to its storical dependency on the energy imports

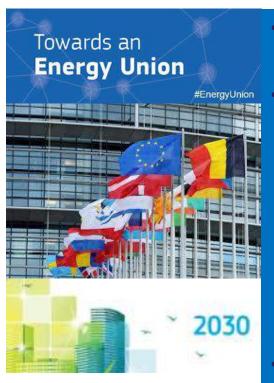
EU average overcame due to the high incentives fot the renewables energy sources

The overcome of the reduction target is due to the recent economic crisis

These goals should are applied at national level



HORIZON 2020 program is a very important contribution to EU policy



- EU Energy Union
- 2030 energyclimate targets
 - +30% RES SHARE
 - +30% energy savings
 - 40% CO2production
- Other EU policies

EU Energy Union

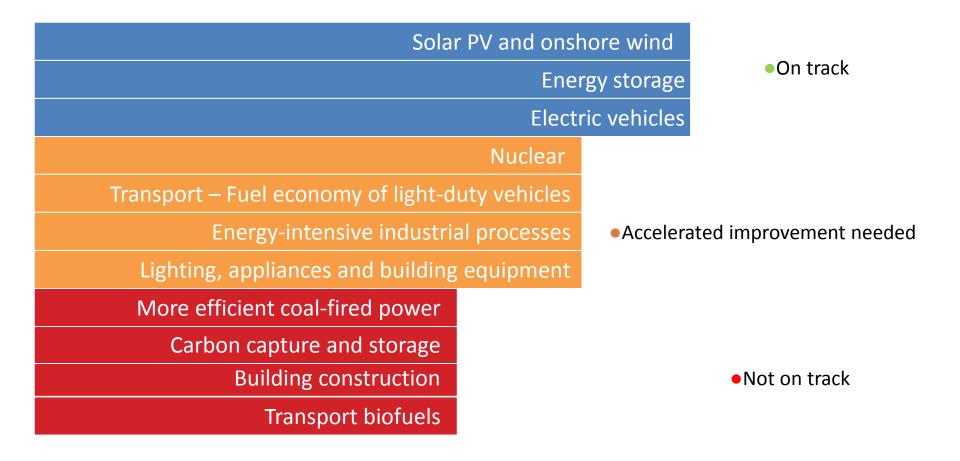
- Energy security, solidarity and trust
- Energy efficiency first
- •Transition to a low-carbon society
- •A fully integrated internal energy market
- •An Energy Union for Research, Innovation and Competiveness

SET PLAN & INTEGRATED ROADMAP(Strategic Energy Technology PLAN)

Research and

The potential of clean energy technology remains under-utilised





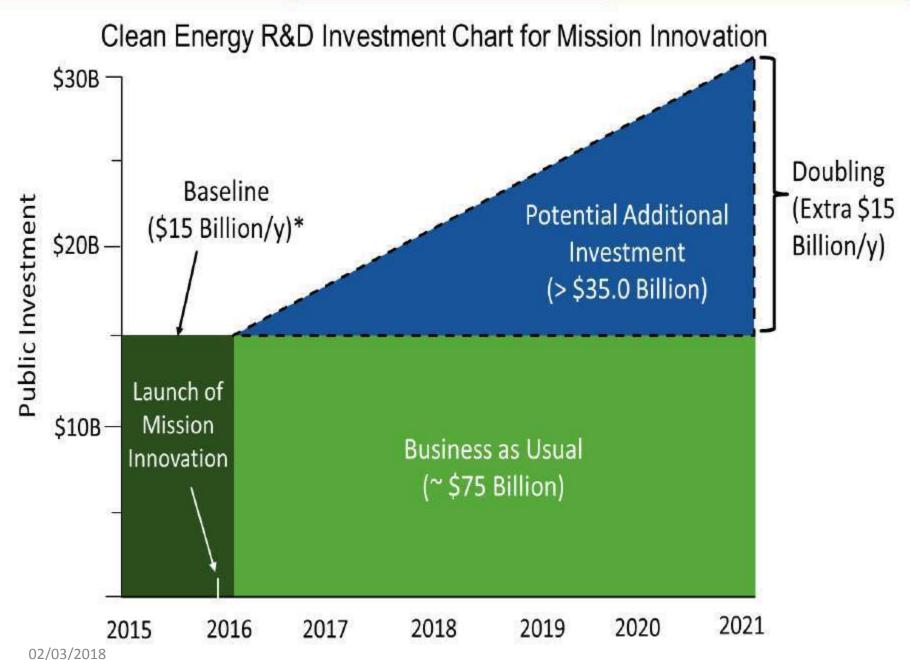
Recent progress in some clean energy areas is promising, but many technologies still need a strong push to achieve their full potential and deliver a sustainable energy future.

MISSION INNOVATION



- → 20 major world economies representing 80% of global energy R&D launched Mission Innovation
- Australia, Brazil, Canada, Chile, China, Denmark, France, Germany, India, Indonesia, Italy, Japan, Mexico, Norway, Saudi Arabia, South Korea, <u>Sweden, United Arab Emirates, United Kingdom, United States</u>, + **EU, Finland**, **Netherland**

Objective: Reinvigorate and accelerate public and private global clean energy innovation and make clean energy widely affordable



^{*} MI Baseline of USD \$15 billion per year in clean energy R&D is compiled from reports of 21 MI Members.



7 Innovation Challenges for MI

- > 7 Innovation Challenges on which to develop international cooperation from the phase of research to the technological demonstration:
 - 1. Smart Grids Innovation Challenge
 - 2. Off-Grid Access to Electricity Innovation Challenge
 - 3. Carbon Capture Innovation Challenge
 - 4. Sustainable Biofuels Innovation Challenge
 - 5. Converting Sunlight Innovation Challenge
 - 6. Clean Energy Materials Innovation Challenge
 - 7. Affordable Heating and Cooling of Buildings Innovation Challenge

Task Force leaded by MISE Min. Calenda with MAE, MATTM, MIUR, MEF and technical support of ENEA, CNR, RSE, ISPRA, OGS and other



Main EU Energy Policy Elements

- 2030 Climate-Energy Package
From 20/20/20 to 27/27/40



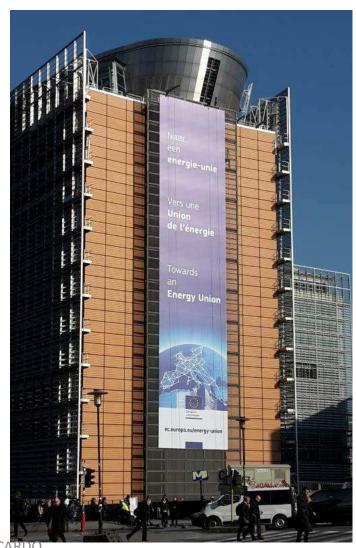
Energy security, solidarity and trust
A fully integrated internal energy market
Energy efficiency first
Transition to a low-carbon society
An Energy Union for Research, Innovation and
Competiveness

Set-Plan & Integrated Roadmap
 HORIZON 2020



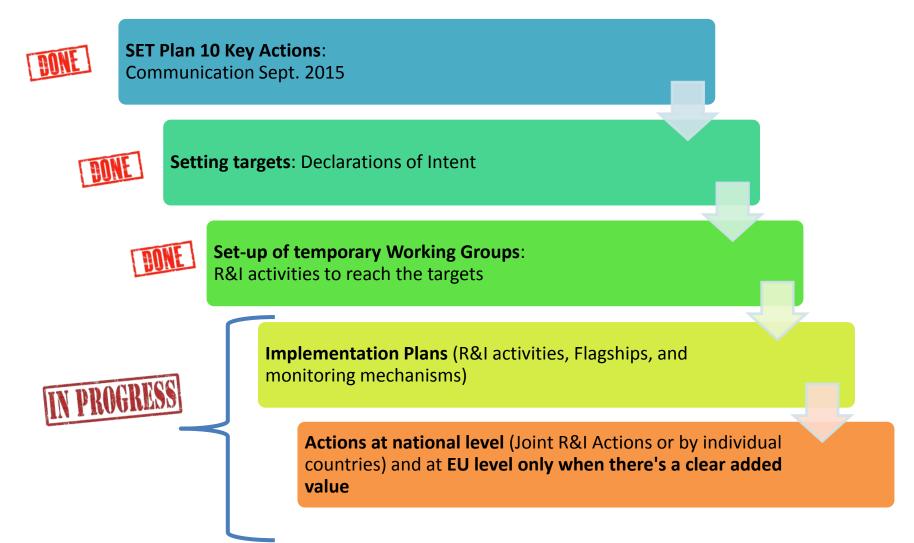
After Paris COP 21
"MISSION INNOVATION"

Clean Energy Package EC COM Nov 30, 2016



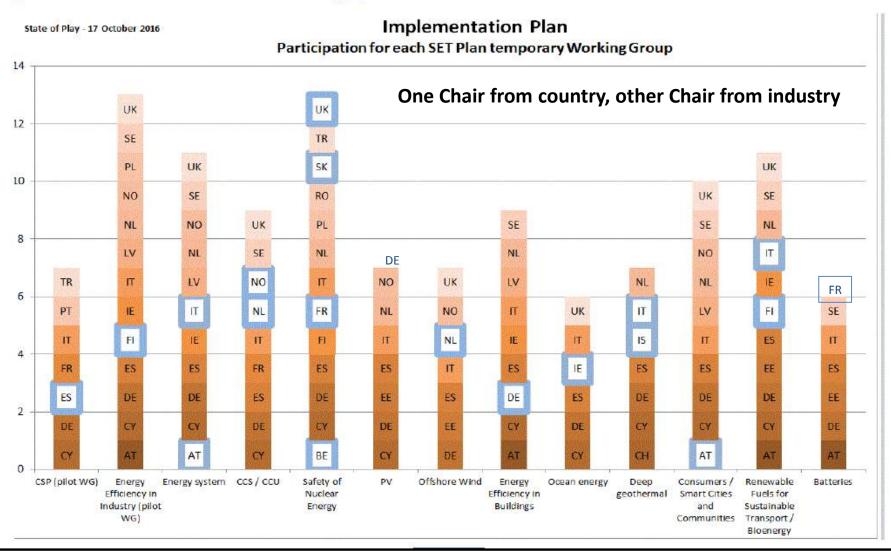
SET Plan Integrated Roadmap ENERGY UNION SET Plan (13 themes) **R&I & Competitiveness** (10 key actions) priorities In origin they were 30 1. Performant renewable T10: Development of renewables technologies integrated in the N°1 in Renewables system T8: System flexibility 2. Reduce costs of technologies 3. New technologies & services T1: Engaging consumers for consumers T2: Smart technologies for consumers **Smart EU Energy System with** 4. Resilience & security of T6: Modernising the electricity grid consumers at the energy system T7: Energy storage T8: System flexibility centre T9: Smart cities & communities T3: Energy efficiency in buildings 5. New materials & technologies for **Efficient Energy** buildings T4: Energy efficiency in heating & cooling **Systems** T5: Energy efficiency in industry & services 6. Energy efficiency for industry 7. Competitive in global battery T7: Energy storage sector (e-mobility) **Sustainable Transport** T13: Biofuels, fuel cells & hydrogen, alternative fuels 8. Renewable fuels 9. CCS/CCU T11: Carbon capture storage/use 10. Nuclear Safety T12: Nuclear energy

10 SET-Plan key actions: implementation



Countries' participation in SET Plan TWGs

Country membership state of play [blue = lead country]

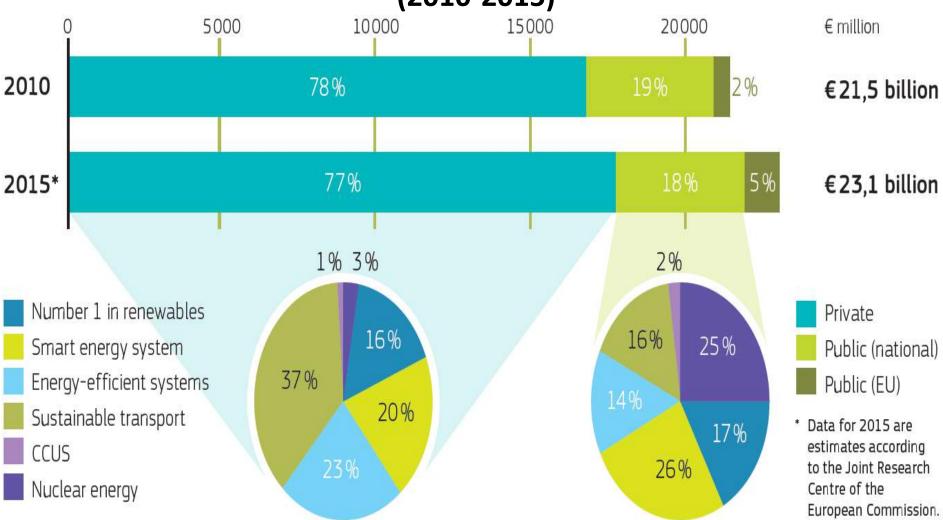


Recall the 10 SET Plan key actions



Energy Union R&I and competitiveness pillar	SET Plan 10 Key Actions	SET Plan Declarations of Intent / Working Groups
N° 1 in renewables	Develop highly performant renewables	Novel PV
	Reduce cost of key renewable technologies	Offshore windCSPOceanDeep geothermal
Smart EU energy system with consumers at the centre	Create new technologies and services for energy consumers	Energy consumersSmart cities and communities
	Increase the integration, security and flexibility of energy systems	Integrated and flexible energy systems
Efficient energy systems	Increase energy efficiency for buildings	Energy efficiency in buildings Heating and cooling in buildings
	Increase energy efficiency in industry	Energy efficiency in industry
Sustainable transport	Become competitive in the battery sector for e-mobility and stationary storage	Batteries for e-mobility and stationary storage
	Strengthen market take-up of renewable fuels and bioenergy	Renewable fuels and bioenergy
Carbon capture storage / use	Step-up R&I activities and commercial viability of CCS/U	Carbon capture storage / use
Nuclear safety	Increase nuclear safety	Nuclear safety

Investment in the Energy Union / SET Plan R&I priorities in the EU (2010-2015)



Data sources: Public (national) investment: International Energy Agency RD&D online data service; Private investment: as estimated by SETIS/Joint Research Centre; EU investment: Directorate-General for Research & Innovation. Note: public (national) and private data for 2015 are estimates.

HORIZON 2020 (78 MLD)



Priorities:

Excellent science

Industrial leadership

Societal challenges



Excellent

science

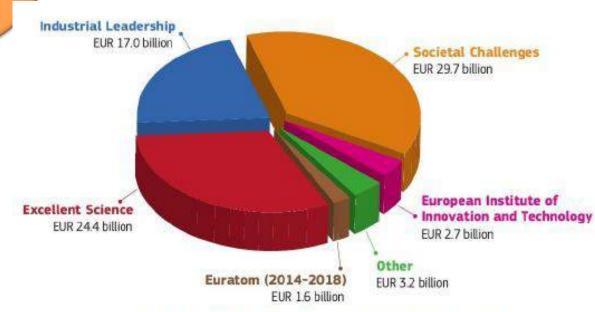
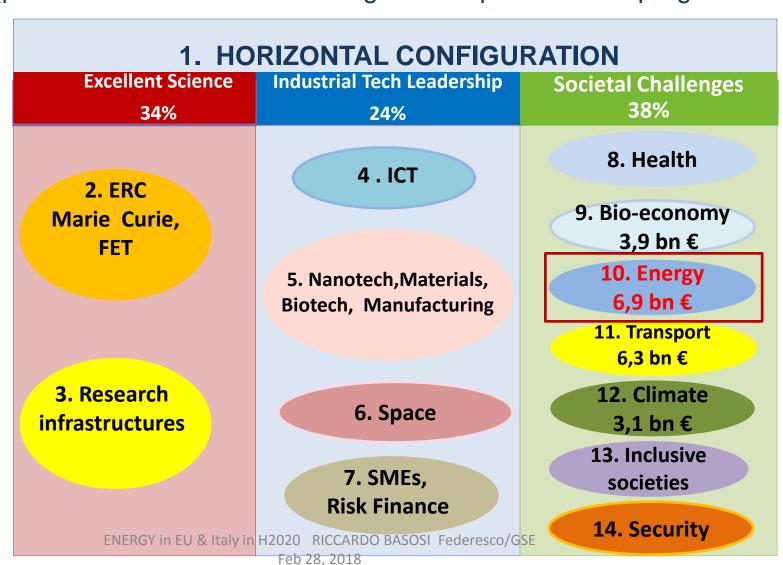


Figure 7: H2020 budget distribution in current prices. Source: EC.

Governance – Horizon 2020

13 PROGRAMME COMMITTEE CONFIGURATIONS

(provide Member States oversight and input into work programmes)



02/03/2018



- Greater emphasis on impact: Society, Industry & Jobs
- More emphasis on innovation
 - H2020 supports <u>all stages in the research and innovation</u> <u>chain</u> including non-technological and social innovation and activities closer to the market
- Broad topics: Proposals may bring together different disciplines, sectors and actors to tackle specific challenges e.g. scientists, industry, SMEs, societal partners, end-users...
- Integration of Research and Innovation Instruments and Simplified list of actions (IA, RIA, CSA)

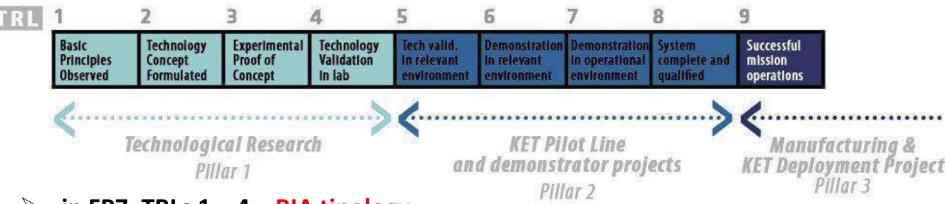


TECHNOLOGY READNESS LEVEL in Horizon 2020



Technology Readiness Levels (**TRL**s)

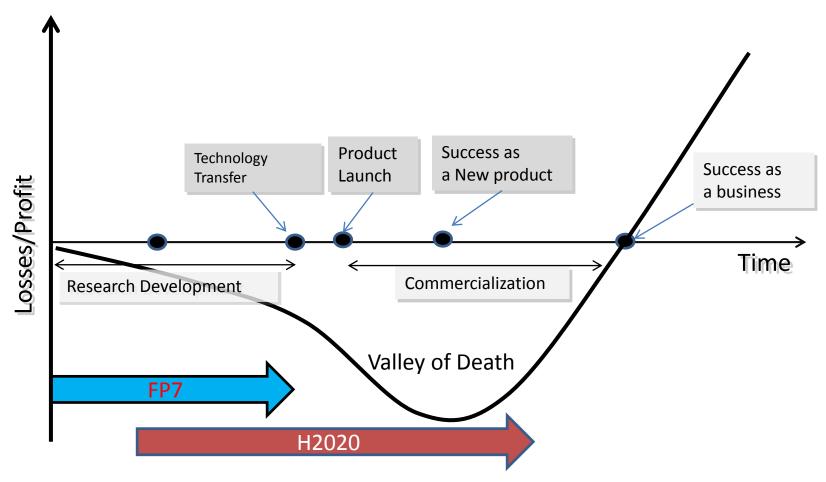
a useful tool in development and deployment of KETs



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

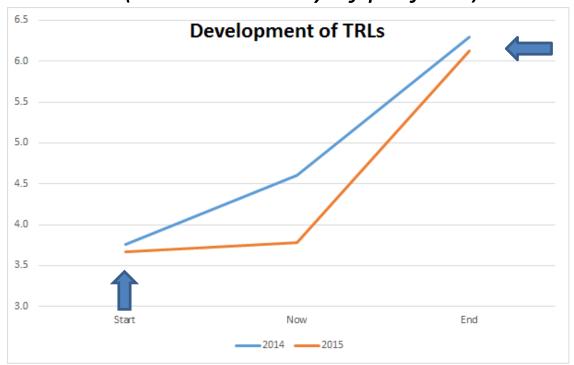


Overcoming the valley of death





Climbing the TRL ladder (Internet survey of projects)

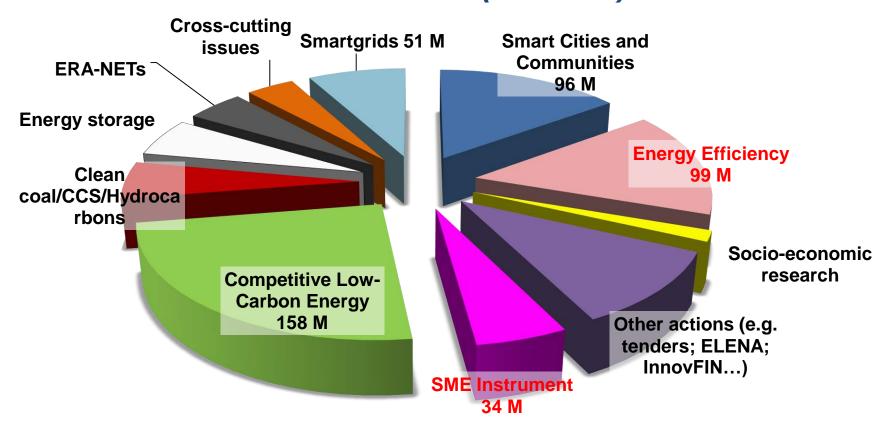


This includes a subset of projects from the survey (69 from 2014, 63 from 2015), where TRL levels were indicated.



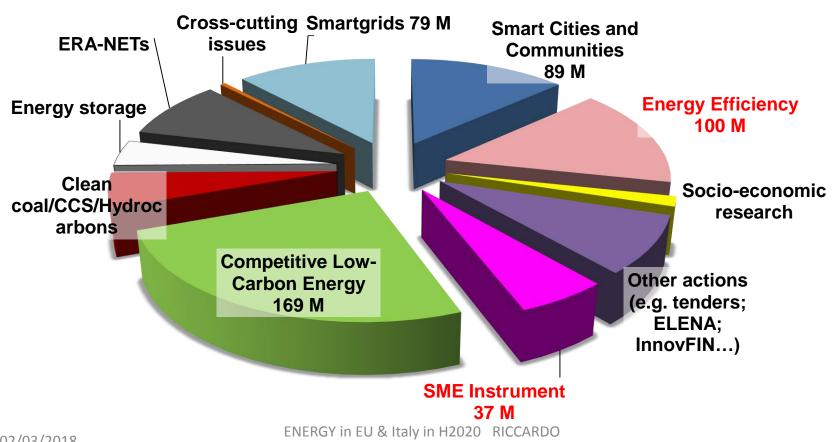


The Horizon 2020 Societal Challenge "Secure, clean and Efficient Energy 2014 Calls (607 M€)





The Horizon 2020 Societal Challenge "Secure, clean and Efficient Energy 2015 Calls (647 M€)

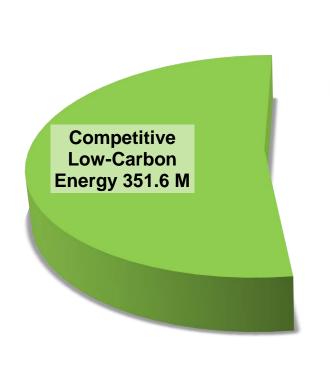


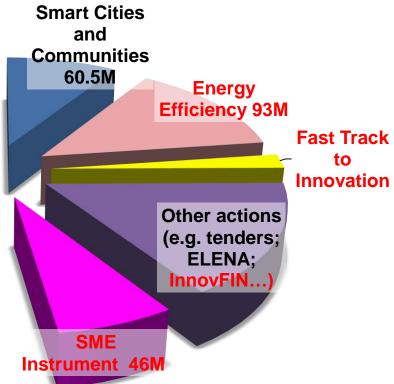
BASOSI Federesco/GSE Feb 28, 2018



The Horizon 2020 Societal Challenge "Secure, clean and Efficient Energy

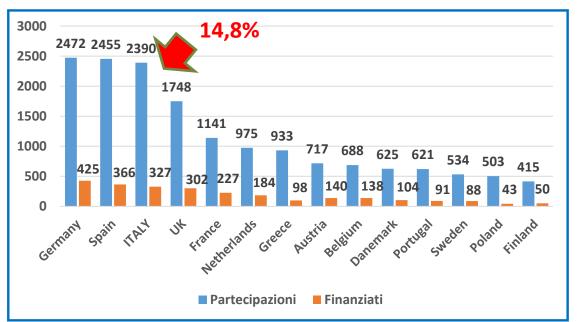
2016 Calls (673 M€ of 1344 M€)





Update information data on the italian participation in the 2014-15-16-17 H2020 energy calls

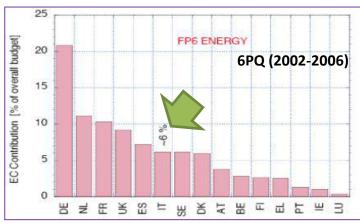
H2020 – Energy calls 2014-2015-2016-17 – Success rate of Italian participants (Last update 30 Nov 2017)



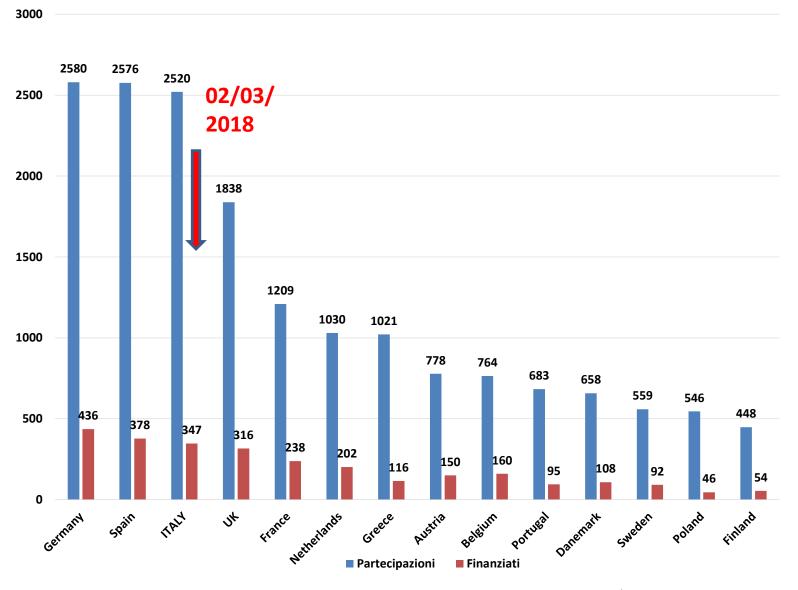
Tot. budget allocato all'IT: 15/11/2017: € 183,8M (SC3) + €15,2M (Str. PMI-Energia e senza FCH)

- Average success rate of IT applicants in first 4 years
- 14,8% increasing from 11,3% (2014) to 18,0% (2017)
- Success rate for coordinators from 9,4% (2014) to 13,3% (2017)
- IT é present in 51,5% of proposals submitted and in 39,3% of those financed

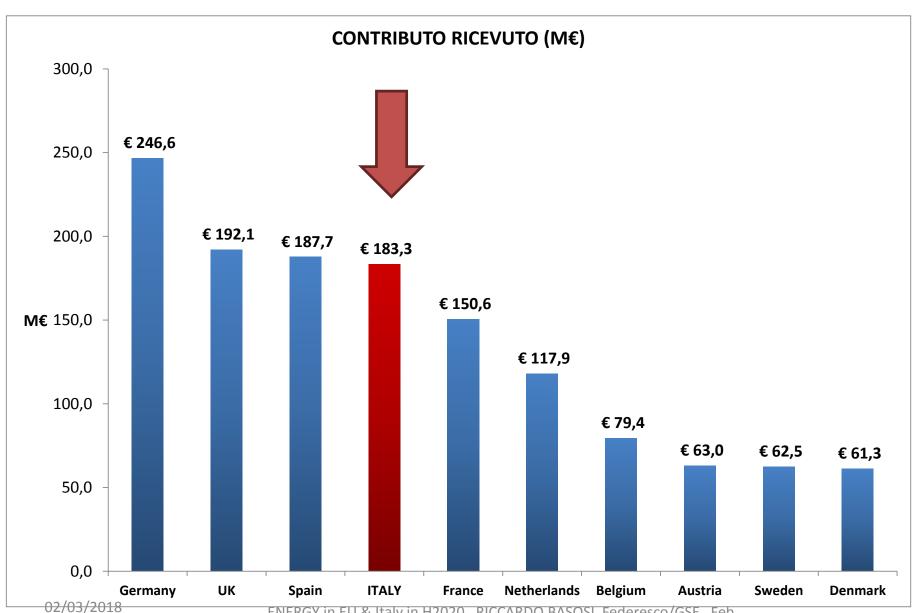




Calls 2014, 2015, 2016 – SC3: Italian Participation and principal competitors



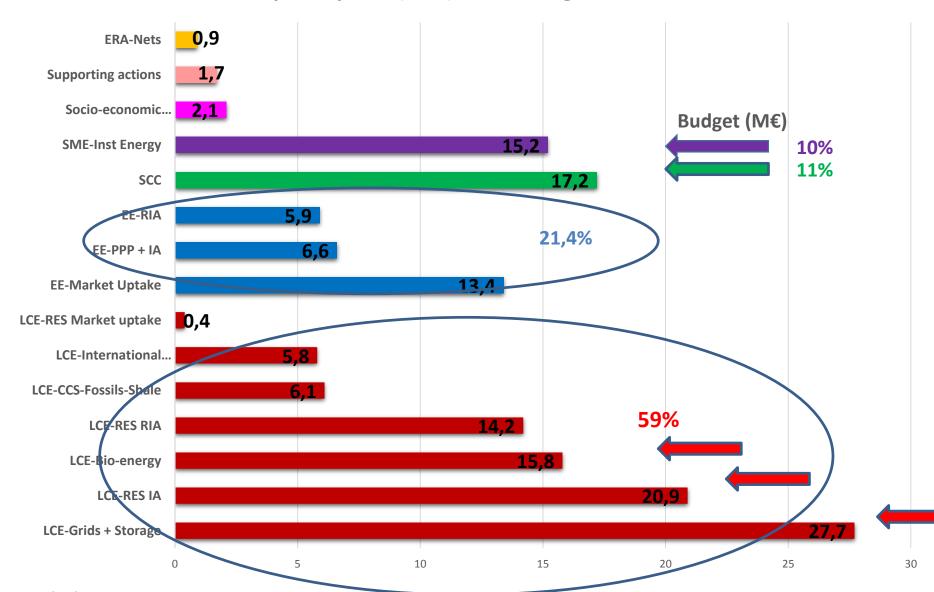
Calls SC3 2014, 2015, 2016 e 2017: ITALIAN and PRINCIPAL CONPETITORS AWARDS



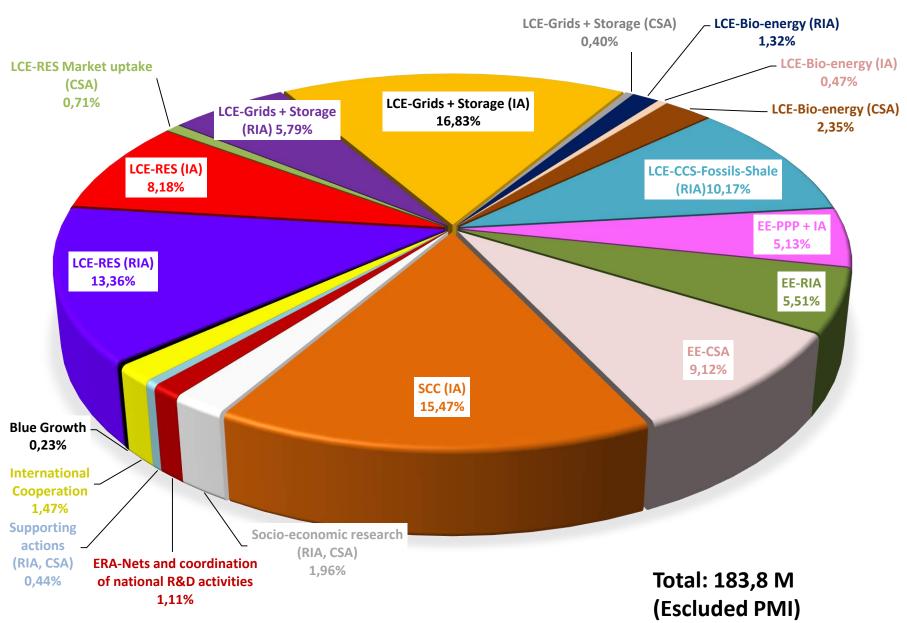
ENERGY in EU & Italy in H2020 RICCARDO BASOSI Federesco/GSE Feb 28, 2018

ITALIAN PARTICIPATION IN H2020 «ENERGY» (2014-15-16)

Funds awarded to italian participants (in %) on EU budget EU for each focus area

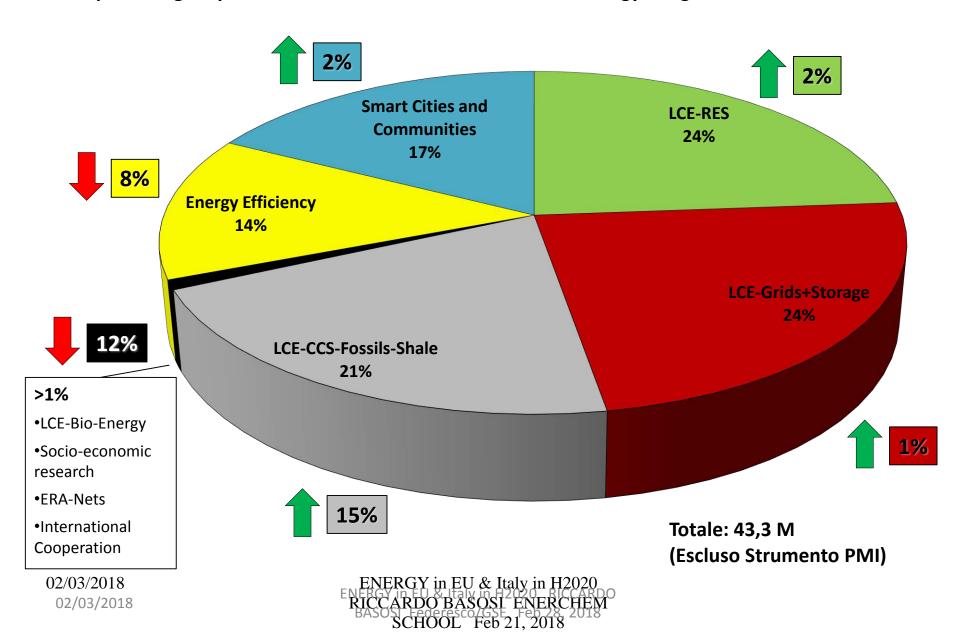


ITALY - BUDGET AWARDED 2014, 2015, 2016 e 2017 per Energy Focus Area

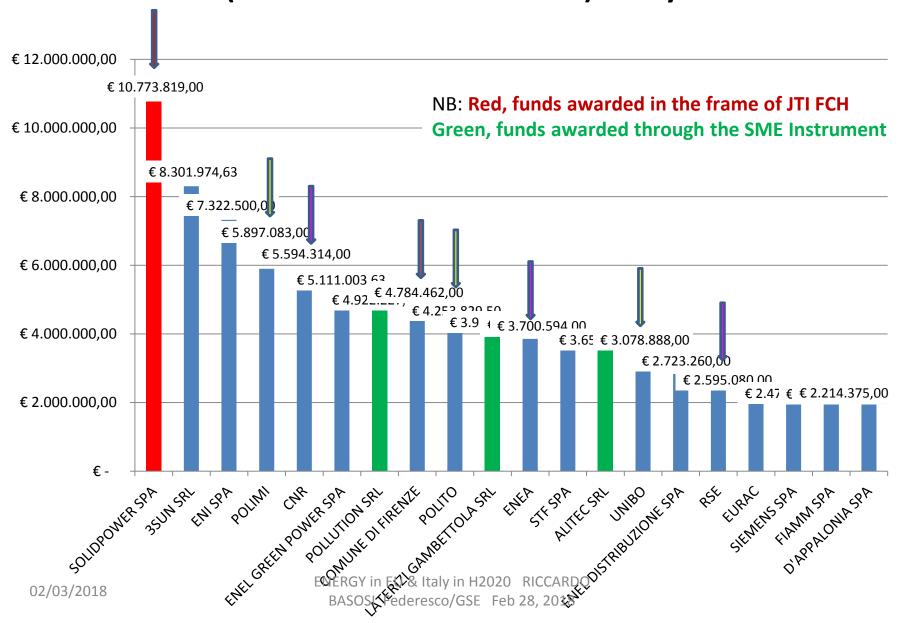


ITALY – AWARDED "ENERGY" BUDGET IN 2017 per Focus Area

The percentage represents the variation from the awarded energy budget in 2014-2015-2016

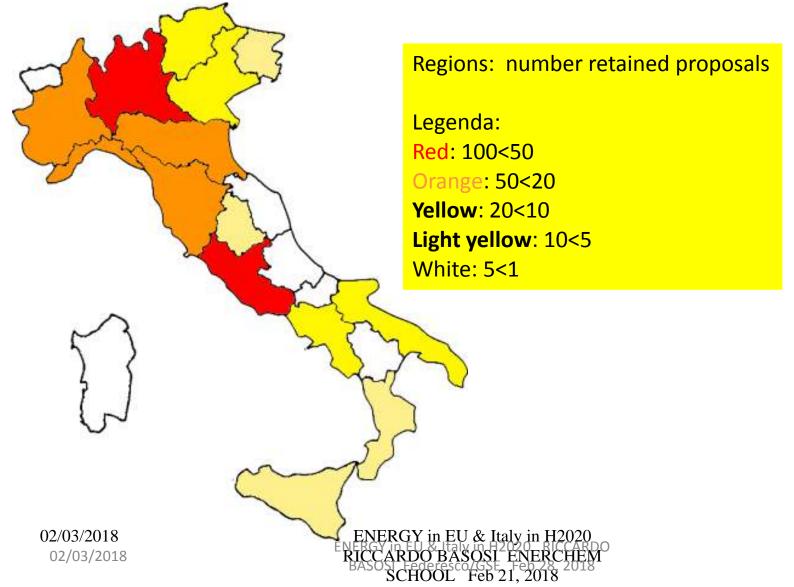


The best 20 actors for funds awarded in calls SC3 2014-15-16 (Instrument SME included) - Italy



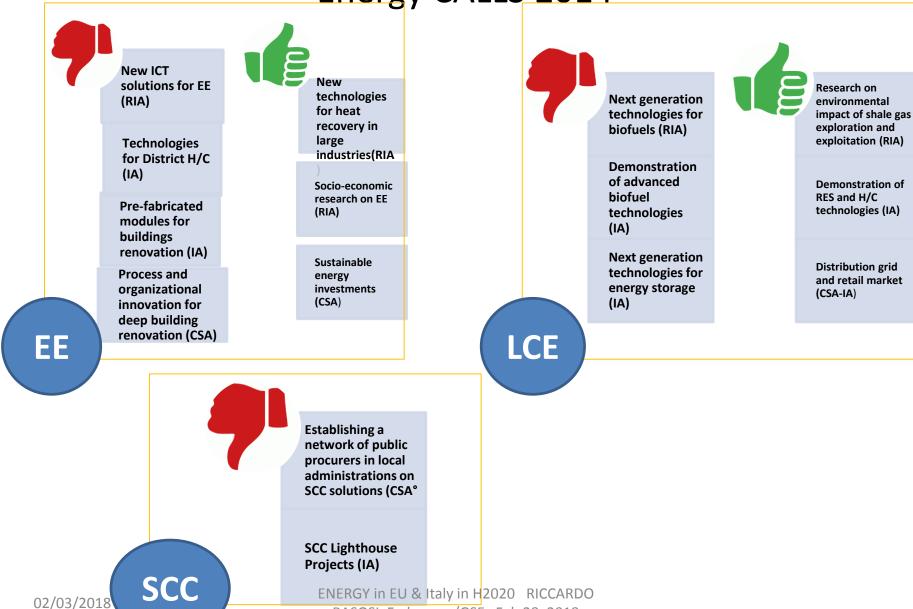
Budget





Summary of Italy Performance

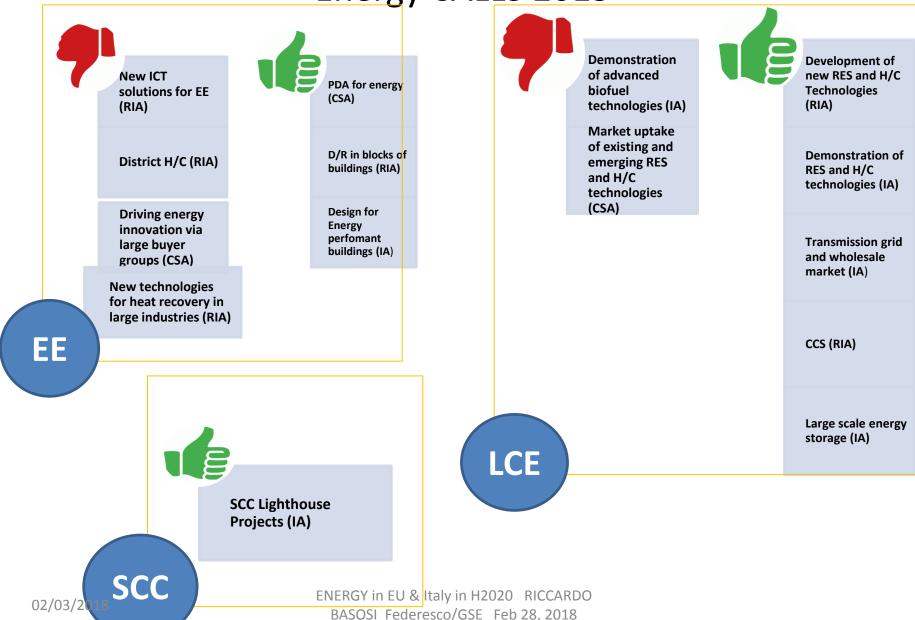




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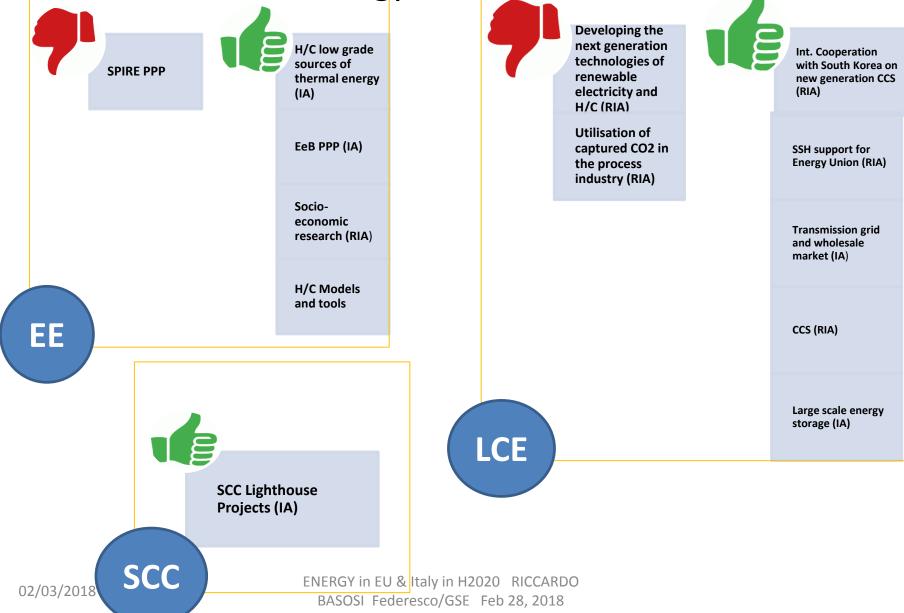
Summary of Italy Performance

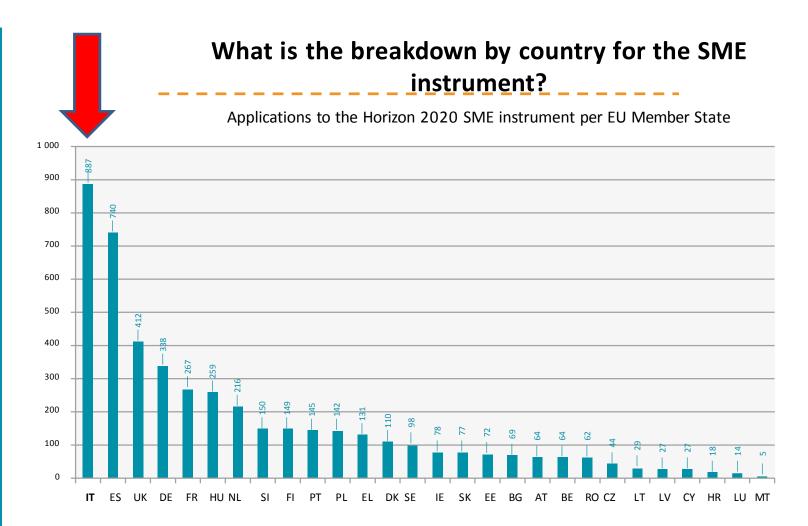




Summary of Italy Performance







SMEs in EU Member States made 4 694 applications to the Horizon 2020 SME instrument. Most of the applications came from the five biggest Member States: Italy, Spain, the United Kingdom, Germany and France.

Instrument SME – Energy 2014, 2015 e 2016 Number of projects awarded for country (Coordinators)



Instrument SME « Energy » 2014, 2015 e 2016 Number of participants for region IT

Phase1 (projects awarded 33)

- Lombardia, 11
- Lazio, 7
- Toscana, Emilia Romagna, 5
- Piemonte, 3
- Calabria, 3
- Trentino-AA, 2
- Liguria, Puglia, Valle D'Aosta 1

Phase1 (not financed beyond threeshold 10)

- Sicilia, 1
- Puglia, 1
- Lombardia, 3
- Lazio, 1
- Toscana, 2
- Veneto, Emilia Romagna1

Phase 2 (projects awarded 10)

- Lazio, 2
- Piemonte, Toscana, Calabria, Campania, Lombardia 1
- Calabria, 1
- Campania, 1
- Emilia Romagna, 3
- Lombardia, 1

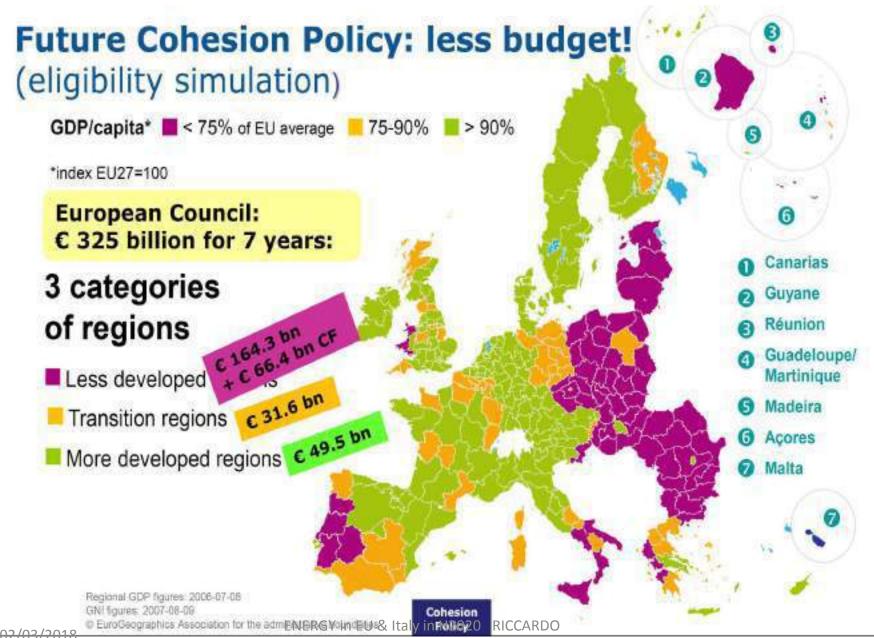
Phase 2 (not financed beyond threeshold 43)

- Lombardia, 18
- Emilia Romagna, 10
- Liguria, Toscana, 2
- Lazio, Puglia, 3
- Piemonte, Trentino-AA, Veneto, Calabria, Sicilia, 1

Nella phase 2-Instrument SME 'Energy', Italian PMI obtained € 13,6 M on € 77,9 M allocated (17,4 % of the EU budget) and 10 projects (beyond threeshold) on 60 awarded, then a total 16,6% to be compared with the EU average success rate 9,6%

Cohesion policy: 11 Thematic Objectives to deliver Europe 2020

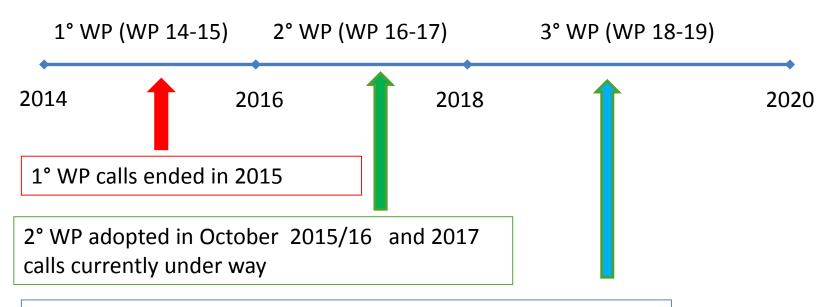
- Strengthening research, technological development and innovation
- Enhancing access to, and use and quality of, information and communication technologies
- Enhancing the competitiveness of small and medium-sized enterprises, the agricultural sector (for the EAFRD) and the fisheries and aquaculture sector (for the EMFF)
 - Supporting the shift towards a low-carbon economy in all sectors
 Promoting climate change adaptation, risk prevention and management
 Protecting the environment and promoting resource efficiency
- Promoting sustainable transport and removing bottlenecks in key network infrastructures
- Promoting employment and supporting labour mobility
- Promoting social inclusion and combating poverty
- Investing in education, skills and lifelong learning
- Enhancing institutional capacity and an efficient public administration



Work Programmes (WP) of Energy Challenge

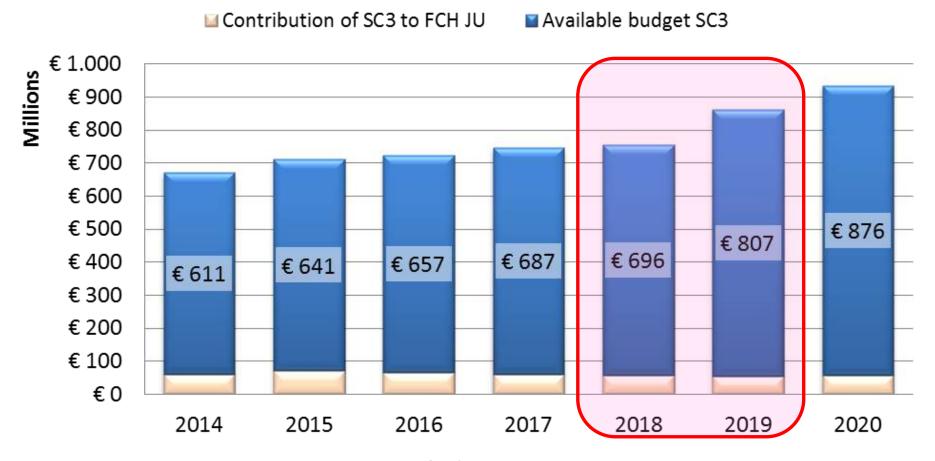
H2020 Programme will develop in 7 years (2014 – 2020)

Challenge Secure, Clean and Efficient Energy activities will develop according to the planning defined by three consecutive Work Programmes



3° WP calls start at end 2017 (final draft of the Program Committee on September, entering into force in January 2018)

Work programme 2014-2020



Thematic areas of WP 2018-20

Energy efficiency

Renewable energy

Energy system (including Smart Cities and Communities)

Decarbonising fossil fuels

Cross-cutting issues

International cooperation
 Socio-economic research

 Market-creating breakthrough energy R&I

efficient energy system

Energy Efficiency









Products



Global Leadership in renewables

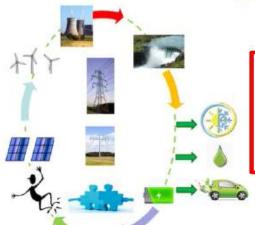


Smart and Clean Energy for Consumers



Smart Cities and Communities





02/03/2018

Smart Citizen
Centered Energy
system



Near-zero CO2 emission from fossil fuel / carbon

intensive industries



Overall Indicative budget for 2018 ~ 540 MEur

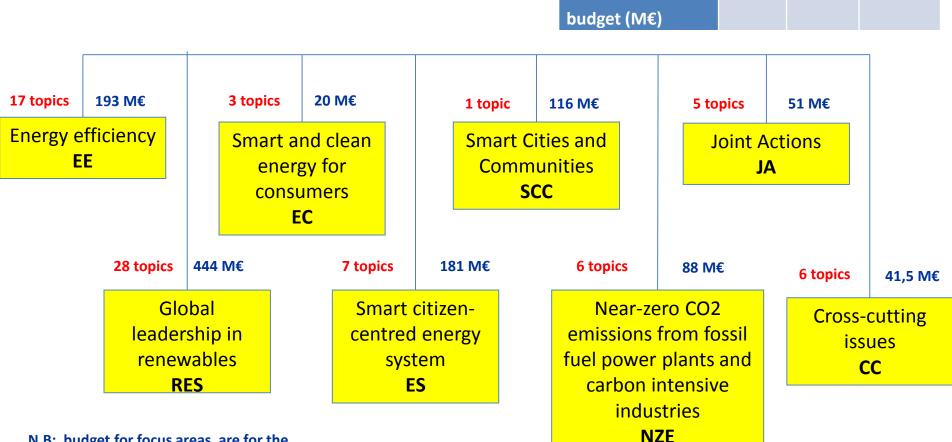


European Commission

5

WP 2018 -2019 – Focus areas

	2018	2019	2020
Overall indicative budget (M€)	696	807	876

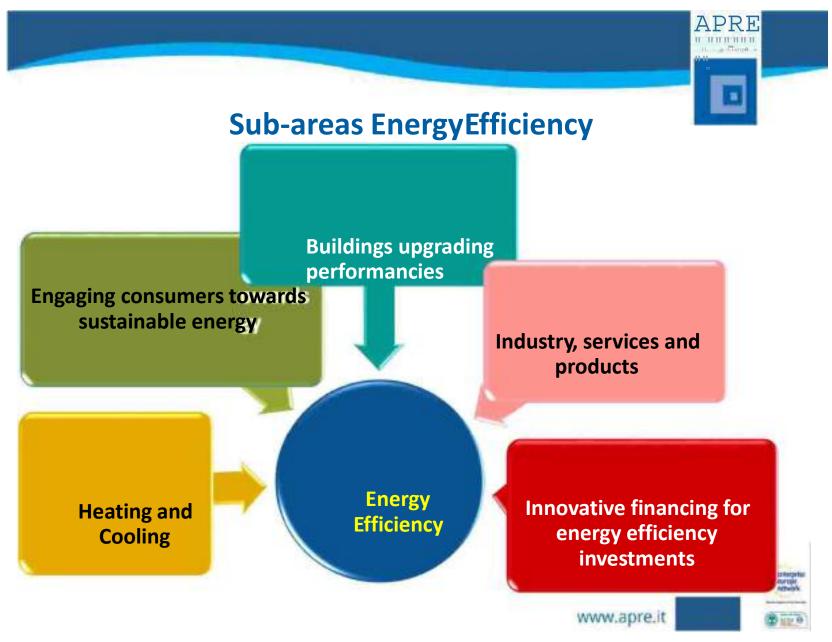


N.B: budget for focus areas are for the biennial 2018-2019

The n° of topics for focus area are related to triennial 2018-2020

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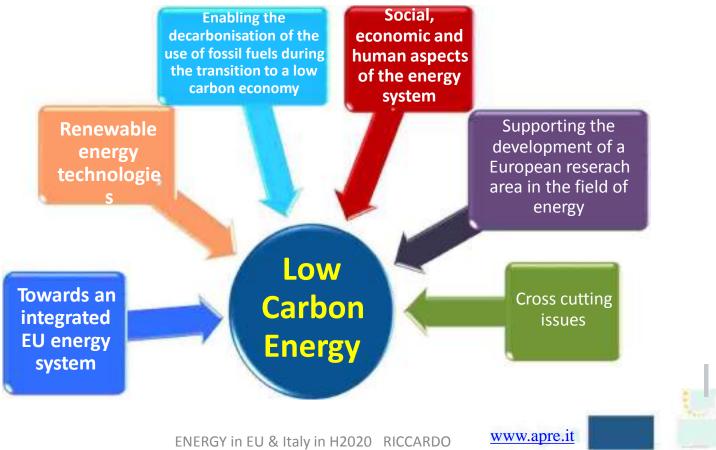
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www.apre.it



Sub-areas Competitive Low Carbon Energy



Energy system holistic approach







Thanks for your attention

riccardo.basosi@unisi.it

pocaterra@apre.it NCP

