



European Commission initiatives on CCS -update from the research perspective

HORIZON 2020

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Europe 2020 – smart, sustainable and inclusive growth

EU energy policy targets - sustainability, competitiveness and security of supply

Horizon 2020 - a Common Strategic Framework for research and innovation focusing on research excellence, competitiveness and societal challenges

Energy research and innovation

- **Strategic Energy Technology Plan (SET-plan)**
Joint programming, Public Private Partnerships (PPPs)



SET-Plan – the technology pillar of EU energy and climate change policy

Objective

To accelerate the development of a portfolio of low carbon technologies leading to their market take-off

Governance

Steering Group – European Commission and Member States

- supported by the SET-Plan Information System **SETIS**

Implementation

- 1) European Energy Research Alliance (EERA)
- 2) European Industrial Initiatives (EIIs)
- 3) European Energy Education and Training Initiative

CCS in the SET plan



European Industrial Initiative (EII) on CCS

- Launched in June 2010
- EC, MS and industry committed to support:
 - The Technology Roadmap 2010-2020
 - The Implementation Plan 2010-2012
 - A new Implementation Plan is under preparation for 2013-2015

EERA

- The CCS Joint Programme was launched in Nov. 2010
- 40 members from 14 MS, 270 py/year,
two sub-programmes: CO2 Capture and CO2 Storage

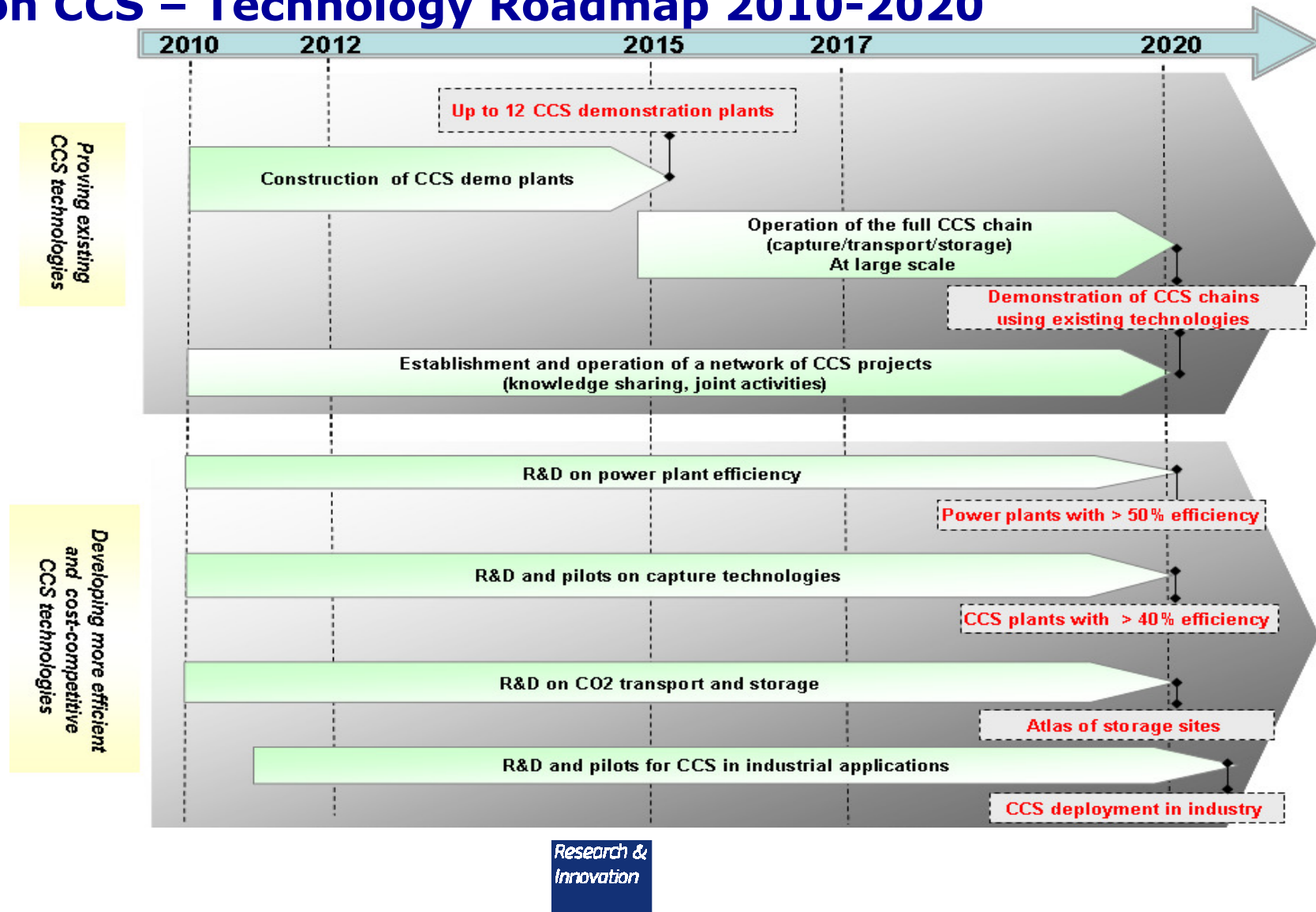
European Energy Education and Training Initiative

- Kick-off of the Working group on CCS was on 7 March 2012-
final report completed



European
Commission

EII on CCS – Technology Roadmap 2010-2020



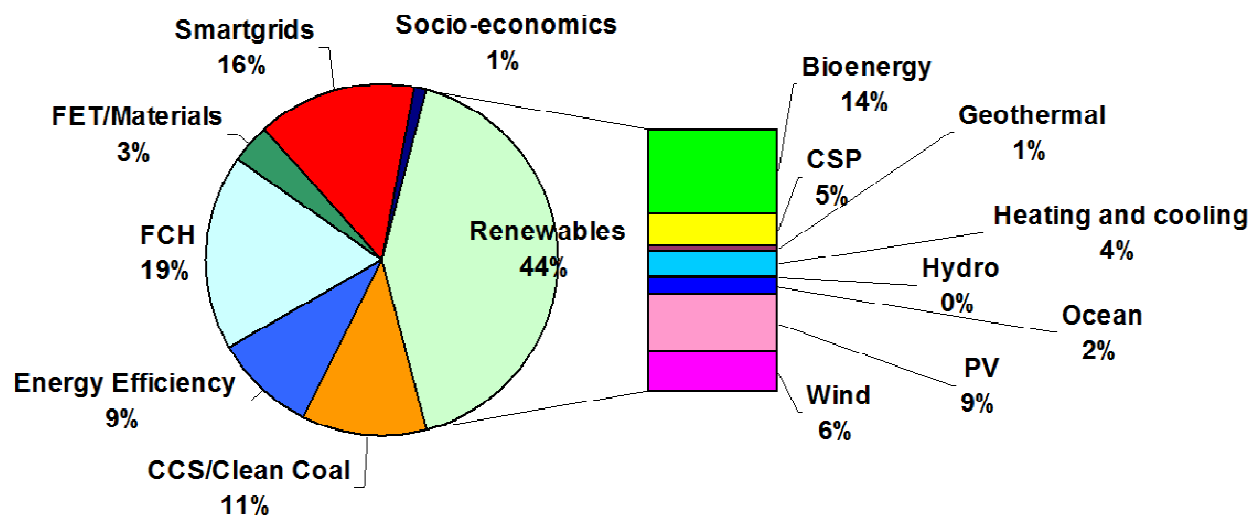
FP7 in support of CCS



FP7 : 2.3 b€ for Energy for 2007-2013

✓ ***Around 160 M€ spent up to 2011 for CCS and Clean Coal***

Distribution of budget (projects and contributions 2007-2011)



FP7 2012 projects under negotiation budget ~ 20 M€

FP7 ENERGY-2013-budget for 4 CCS topics: 28,5M€

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FP7 support to CCS in 2013 continues

FP7 ENERGY -2013-1 call; indicated budget around 28,5M€:

- **Scale-up of advanced high-efficiency capture processes (2x8M€)**
 - **New generation high-efficiency capture processes - twinning with Australia**
 - **Mitigation and remediation in case of leakage of CO₂ from geological storage**
 - **Combined underground coal gasification and CCS (targeted opening to SA, AU, USA, India, China)**
-
- **Publication of the call -10 July 2012**
 - **Closure - 28 November 2012 (one stage call)**

International Cooperation on CCS



- EC Membership of international level:
 - **Carbon Sequestration Leadership Forum (CSLF)**
 - **International Energy Agency (IEA)**
 - **Global CCS Institute (GCCSI)**
- Established bilateral S&T cooperation:
 - **China – NZEC project, participation in FP6 & FP7**
 - **India – OPTIMASH project on Clean Coal**
 - **Australia – EC visit in Dec. 2011**
 - **Twinning in FP7 2013 call on high efficiency capture processes**
 - **EU-Australia dialogue 15 October 2012**



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*The EU Framework
Programme for
Research and Innovation
2014-2020*

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The Multiannual Financial Framework 2014-2020: Commission's proposals 29 June 2011

Key challenge: stabilise the financial and economic system while taking measures to create economic opportunities

1. Smart & inclusive growth (€491bn)



2. Sustainable growth, natural resources (€383bn)

3. Security and citizenship (€18.5bn)

4. Global Europe (€70bn)

5. Administration (€62.6bn)

**Total:
€ 1,025bn**

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What is Horizon 2020

- **Commission proposal for a 80 billion euro research and innovation funding programme (2014-2020)**
- **A core part of Europe 2020, Innovation Union & European Research Area**

What's new

- **A single programme** bringing together three separate programmes/initiatives*
- **Coupling research to innovation** – from research to retail, all forms of innovation

* *The 7th Research Framework Programme (FP7), innovation aspects of Competitiveness and Innovation Framework Programme (CIP), EU contribution to the European Institute of Innovation and Technology (EIT)*



Three priorities:

1. Excellent science
2. Industrial leadership
3. Societal challenges



Priority 1: Excellent Science

Proposed funding (million euro, 2014-2020)

<i>European Research Council</i> Frontier research by the best individual teams	13 268
<i>Future and Emerging Technologies</i> Collaborative research to open new fields of innovation	3 100
<i>Marie Curie actions</i> Opportunities for training and career development	5 572
<i>Research infrastructures (including e-infrastructure)</i> Ensuring access to world-class facilities	2 478

Priority 2: Industrial leadership

Proposed funding (million euro, 2014-20)

<i>Leadership in enabling and industrial technologies</i> (ICT, nanotechnologies, materials, biotechnology, manufacturing, space)	13 781
<i>Access to risk finance</i> Leveraging private finance and venture capital for research and innovation	3 538
<i>Innovation in SMEs</i> Fostering all forms of innovation in all types of SMEs	619 complemented by 6 829 (expected 15% of societal challenges + LEIT) and 'Access to risk finance' with strong SME focus



Priority 3. Societal challenges

Proposed funding (million euro, 2014-2020)

<i>Health, demographic change and wellbeing</i>	<i>8 033</i>
<i>Food security, sustainable agriculture, marine and maritime research & the bioeconomy</i>	<i>4 152</i>
<i>Secure, clean and efficient energy*</i>	<i>5 782</i>
<i>Smart, green and integrated transport</i>	<i>6 802</i>
<i>Climate action, resource efficiency and raw materials</i>	<i>3 160</i>
<i>Inclusive, innovative and secure societies</i>	<i>3 819</i>

****Additional €1 788m for nuclear safety and security from the Euratom Treaty activities (2014-2018). Does not include ITER.***



Horizon 2020 will be simpler

1. A single set of rules

- Adapted for the whole research and innovation cycle
- Covering all research programmes and funding bodies
- Aligned to the Financial Regulation, coherent with other new EU Programmes

2. One project – one funding rate

- Maximum of 100% of the total eligible costs (except for actions close to market, where a 70% maximum will apply)
- Indirect eligible costs: a flat rate of 20% of direct eligible costs

3. New forms of funding aimed at innovation: pre-commercial procurement, prizes, dedicated loan and equity instruments



Simplification: Rules for Participation

4. Simpler rules for grants

5. Fewer, better targeted controls and audits

6. Improved rules on intellectual property

Beyond the Rules: further simplified provisions in the Grant Agreement and implementing procedures to facilitate access to Horizon 2020 (e.g. common IT platform).

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Some general principles

- **Excellence:** continue to allocate funding on the basis of competitive calls, selecting only the best projects.
- **Clear division of labour** between cohesion policy and Horizon 2020.
- **Openness:** will remain as the most open funding programme in the world. EU interests will be protected better. A strategic approach to international cooperation
- **Partnering:** Public-Private and Public-Public



Key challenge "secure, clean and efficient energy" (1)

- **Objective:** to make the transition to a reliable, sustainable and competitive energy system, in the face of increasingly scarce resources, increasing energy needs and climate change.
- **Broad lines of activities:**
 - (1) Reducing energy consumption and carbon footprint by smart and sustainable use
 - (2) Low-cost, low-carbon electricity supply**
 - (3) Alternative fuels and mobile energy sources
 - (4) A single, smart European electricity grid
 - (5) New knowledge and technologies
 - (6) Robust decision making and public engagement
 - (7) Market uptake of energy innovation



Key challenge "secure, clean and efficient energy" (2)

- **Support the implementation of the SET-Plan**
- **Partnering with European stakeholders important to share resources and implement jointly**
- **Strong synergies needed** with the other societal challenges as well as with the other parts of Horizon 2020 such as Nuclear energy under the Euratom treaty, 'Excellence Science', 'Industrial leadership' and EIT

CCS in Horizon 2020



The aim will be to enable the commercial deployment of CCS technologies for fossil fuel power plants and other carbon-intensive industries going into operation after 2020.

Support will be given, in particular, to demonstrate the full CCS chain for a representative portfolio of different capture, transport and storage technology options.

➤ This will be accompanied by innovative research to further develop:

- more competitive capture technologies, improved components, integrated systems and processes**
- safe geological storage and**
- rational solutions for the large-scale re-use of captured CO₂**



Next steps

- Ongoing:** Parliament and Council negotiations on the basis of the Commission proposals
- Ongoing:** Parliament and Council negotiations on EU budget 2014-2020 (including overall budget for Horizon 2020)
- Mid 2013:** Adoption of legislative acts by Parliament and Council
- 1/1/2014:** **Horizon 2020 starts**

Looking ahead



- **Horizon 2020: continuation of public research efforts on CCS (and CCUS) as part of the SET plan priorities**
- **Interaction between research/pilot scale CCS projects and demo projects is important**
- **Further stakeholder interaction is needed in order to extend CCS to other carbon-intensive industries**
- **Continuation of international cooperation efforts on CCS and Clean Coal research**
- **Knowledge sharing at international level has to be continued and further promoted**
- **Public awareness and acceptance of CCS**



Thank you for your attention!

Find out more:

www.ec.europa.eu/research/horizon2020

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