HORIZON 2020
The EU framework programme for research & innovation

Diana Spiteri - MCST

Mentoring Visit – Croatia

13-14 May 2013
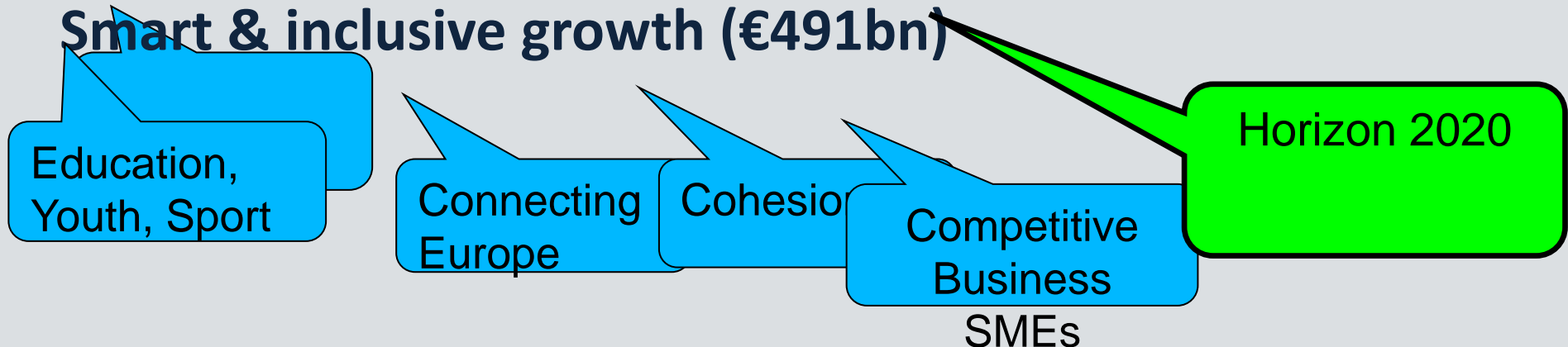
C-ENERGY+ Connecting Energy NCPs.
A Pro-Active Network of National Contact
Points in the Seventh Framework
Programme under the Energy Theme

The Multiannual Financial Framework 2014-2020:

Commission's proposals of 29 June 2011
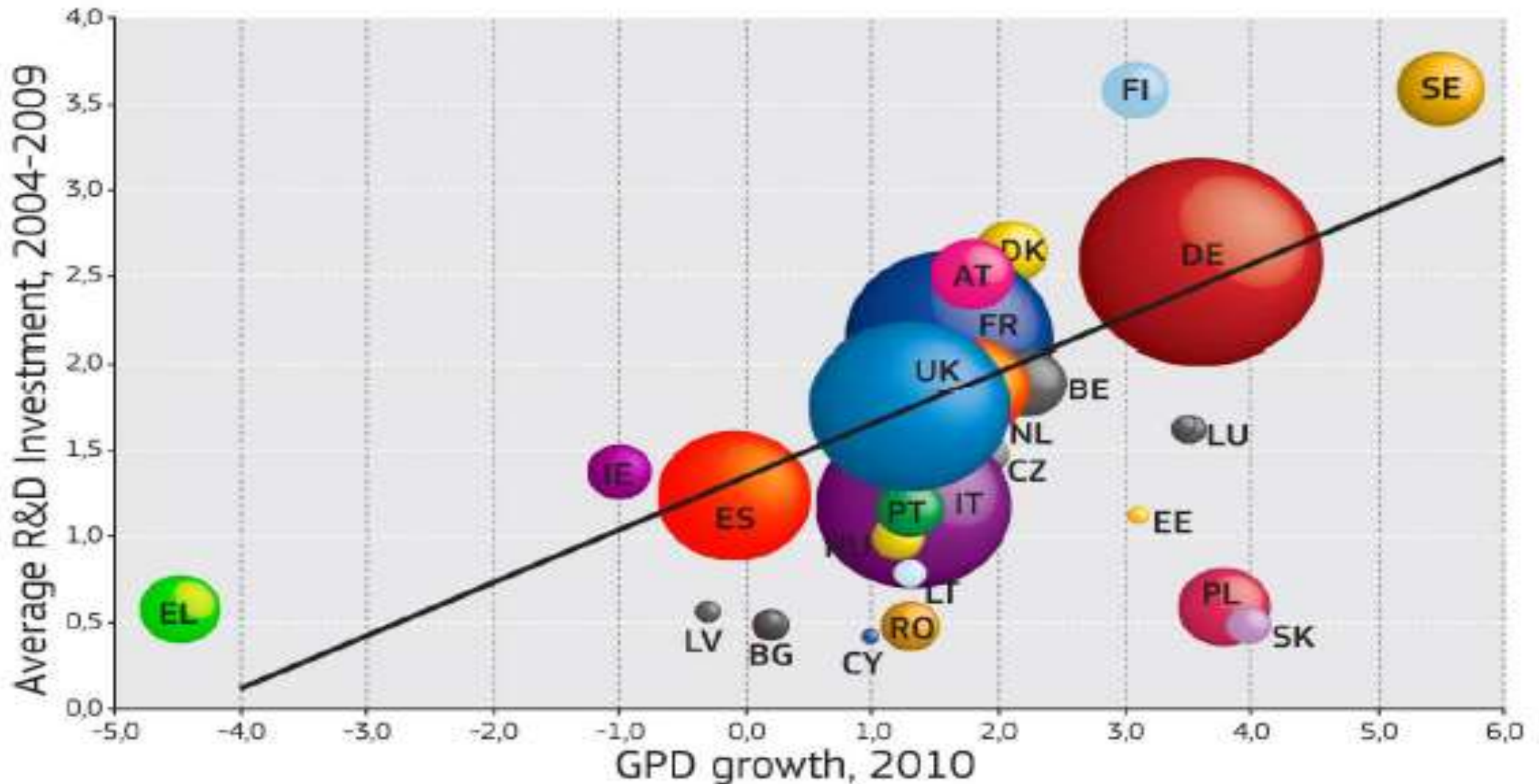
1. Smart & inclusive growth (€491bn)

Education, Youth, Sport

Connecting Europe

Cohesion

Competitive Business
SMEs

Horizon 2020

- **2. Sustainable growth, natural resources (€383bn)**
- **3. Security and citizenship (€18.5bn)**
- **4. Global Europe (€70bn)**
- **5. Administration (€62.6bn)**

in 2011 prices

Total:
€ 1,025bn

Impact of R&D on economic recovery

What is Horizon 2020

- Commission proposal for a €80 billion R&I funding programme (2014-2020)
- Part of proposals for next EU budget, complementing Structural Funds, education, etc.
- A core part of Europe 2020, Innovation Union & European Research Area:
  - **Responding to the economic crisis** to invest in future jobs and growth
  - **Addressing peoples' concerns** about their livelihoods, safety and environment.
  - **Strengthening the EU's global position** in research, innovation and technology

What's new

- **A single programme** *bringing together three separate programmes/initiatives**

- **More innovation**, *from research to retail, all forms of innovation*

- **Focus on societal challenges** *facing EU society, e.g. health, clean energy and transport*

- **Simplified access**, *for all companies, universities, institutes in all EU countries and beyond.*

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

www.c-energyplus.eu

Three priorities:

1   Excellent science

2   Industrial leadership

3   Societal challenges

Priority 1 - Excellent science

Why:

- World class science is the foundation of tomorrow's technologies, jobs and wellbeing

- Europe needs to develop, attract and retain research talent

- Researchers need access to the best infrastructures

Proposed funding (million €, 2014-2020)

European Research Council *Frontier research by the best individual teams*	15008
Future and Emerging Technologies *Collaborative research to open new fields of innovation*	3505
Marie Curie actions* *Opportunities for training and career development*	6503
Research infrastructures (including e-infrastructure) *Ensuring access to world-class facilities*	2802

Priority 2 - Industrial leadership

Why:

- Europe needs more innovative SMEs to create growth and jobs

- Strategic investments in key technologies (e.g. advanced manufacturing, micro-electronics) underpin innovation across existing and emerging sectors

- Europe needs to attract more private investment in research and innovation

Proposed funding (million € 2014-2020)

Leadership in enabling and industrial technologies (*ICT, nanotechnologies, materials, biotechnology, manufacturing, space*)	15580 of which 500 for EIT
Access to risk finance *Leveraging private finance and venture capital for research and innovation*	4000
Innovation in SMEs *Fostering all forms of innovation in all types of SMEs*	700

Priority 3 - Societal challenges

Why:

- EU policy objectives (climate, environment, energy, transport etc) cannot be achieved without innovation

- Breakthrough solutions come from multi-disciplinary collaborations, including social sciences & humanities

- Promising solutions need to be tested, demonstrated and scaled up

Proposed funding (million € 2014-2020)

Health, demographic change and wellbeing	**9077** of which 292 for EIT
Food security, sustainable agriculture, marine and maritime research & the bioeconomy	**4694** of which 150 for EIT
Secure, clean and efficient energy*	**6537** of which 210 for EIT
Smart, green and integrated transport	**7690** of which 247 for EIT
Climate action, resource efficiency and raw materials	**3573** of which 115 for EIT
Inclusive, innovative and secure societies	**4317** of which 138 for EIT

*Additional €1 064m for nuclear safety and security from the Euratom Treaty activities (2014-18). Does not include ITER.

www.c-energyplus.eu

Role of the EIT and JRC in Horizon 2020

Three priorities to be supported by:

European Institute of Innovation and Technology (EIT) *Combining research, innovation & training in Knowledge and Innovation Communities*	1542 + 1652*
Joint Research Centre (JRC)** *Providing a robust, evidence base for EU policies*	2212

* Second tranche pro rata from LEIT and Societal challenges (subject to review)

**Additional €724 m for the JRC to be funded from the Euratom Treaty activities

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 direct 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. SIMPLE EVALUATION CRITERIA

➢ *Excellence – Impact - Implementation (Excellence only, for the ERC)*

4. NEW FORMS OF FUNDING aimed at innovation: pre-commercial procurement, inducement prizes, dedicated loan and equity instruments.

5. INTERNATIONAL PARTICIPATION: facilitated but better protecting EU interests.

Rules for Participation: *what's new? (2)*

6. SIMPLER RULES FOR GRANTS: broader acceptance of participants accounting practices for direct costs, flat rate for indirect costs, no time-sheets for personnel working full time on a project, possibility of output-based grants.

7. FEWER, BETTER TARGETED CONTROLS AND AUDITS

 ➢ Lowest possible level of requirements for submission of audit certificates without undermining sound financial management;

 ➢ Audit strategy focused on risk and fraud prevention.

8. IMPROVED RULES ON INTELLECTUAL PROPERTY

 ➢ Balance between legal security and flexibility;

 ➢ Tailor-made IPR provisions for new forms of funding;

 ➢ A new emphasis on open access to research publications.

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

Broader access

- For **SMEs** - *dedicated SME projects to address societal challenges and enabling technologies.*

- For all **regions** – *tailored support to policy learning, twinning, networking, complementing Structural Funds.*

- For **international partners** – *broad access to Horizon 2020 ("mainstreaming"), strategic initiatives where there is mutual benefit.*

- For **all forms of innovation** - *social innovation, services, pilots, stimulating demand through public procurement, standard setting.*

Contributing to the European Research Area (ERA)

- ERA framework proposal in 2012 to create a single market for knowledge research and innovation.

- Complemented by Horizon 2020:
  - Boosting support to ERA priorities – mobility, infrastructures, knowledge transfer, policy learning
  - Stronger partnerships with Member States and private sector to invest more efficiently
  - Taking account of gender, ethical issues, researcher careers and open access to results

Energy R&I in Horizon 2020

- Energy research and innovation, an important part of Horizon 2020:

    – Included as a **key challenge 'Secure, clean and efficient energy'** under the societal challenges' block of Horizon 2020

    – **Separate but complementary programme for nuclear energy activities** adopted under the Euratom Treaty

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)

- **Specific implementation aspects:**
  - Support the **implementation of the SET-Plan**
    - SET-Plan roadmaps, implementation plans and governance structure
  - Partnering with European stakeholders important to share resources and implement jointly
    - Existing EIIs may be turned into formalised PPP (case by case basis)
    - Support may be given, including with MSs, to alliances of public research performers, in particular, the EERA
    - International coordination actions shall support the SET-Plan priorities
  - SETIS mobilised to develop, together with stakeholders, **KPIs**
  - Improve **coordination of relevant Union Programmes, initiatives and policies** (e.g. Cohesion policy and the Emissions Trading Schemes mechanisms)

KEY CHALLENGE 'SECURE, CLEAN AND EFFICIENT ENERGY' (3)

- **Complementarities and cross-cutting actions:**
  - Energy research and innovation to be **implemented across the Horizon 2020**

  - **Strong synergies needed with the other societal challenges** as well as **with the other parts of Horizon 2020** such as 'Excellence Science' and 'Industrial leadership'

  - **A strong link with the EIT needed** to expand the knowledge, competence and innovation base and to accelerate the diffusion of low-carbon technologies into national research, education and innovation systems

Thematic scope of the Energy Challenge
(according to the Horizon 2020 Specific Programme)

- **Reducing energy consumption and carbon footprint by smart and sustainable use**
  - New concepts, non-technological solutions, technology components and systems for buildings, cities/districts, industry and individuals

- **Low-cost, low-carbon electricity supply**
  - innovative renewables, efficient and flexible fossile power plants (*including natural gas?*) and carbon capture and storage, or CO2 re-use technologies

- **Alternative fuels and mobile energy sources**
  - bio-energy; power and heat; surface, maritime and air transport; hydrogen and fuel cells; new options

Thematic scope of the Energy Challenge
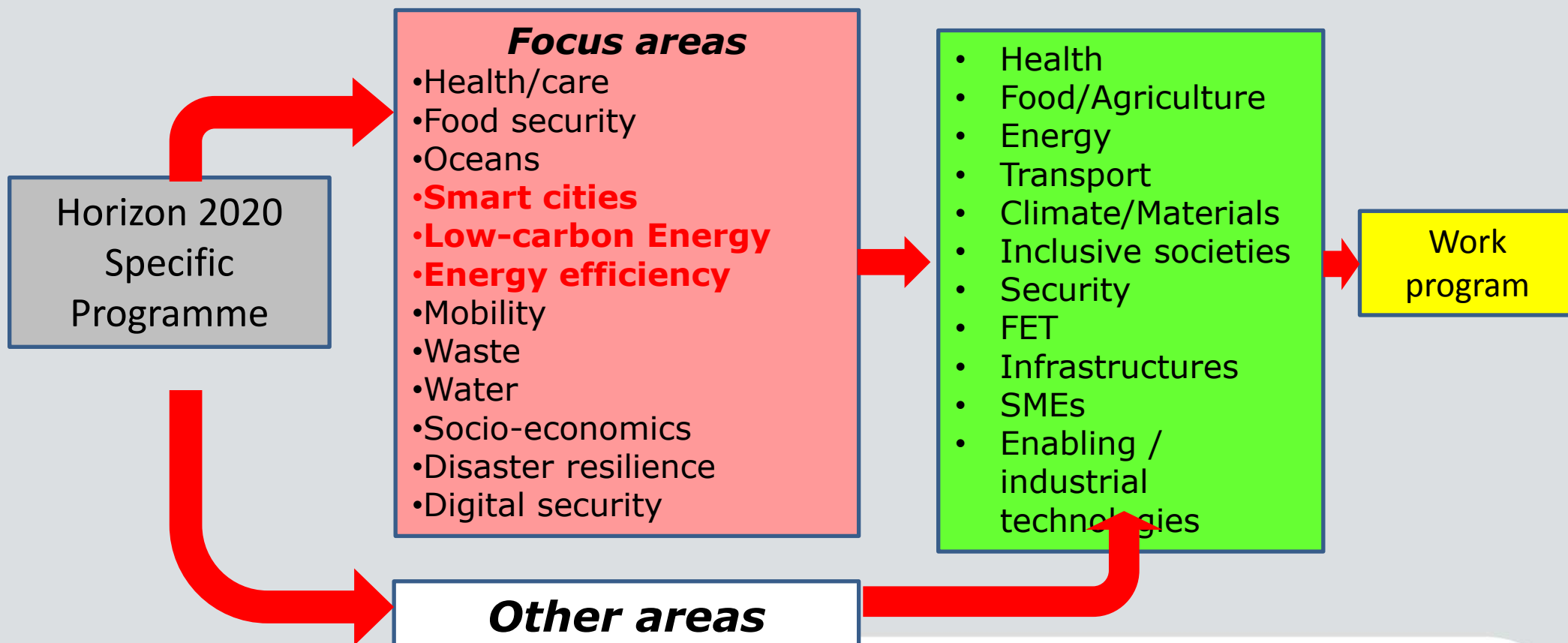## (according to the Horizon 2020 Specific Programme)

- **A single, smart European electricity grid**
  - smart energy grid technologies, including storage; systems and market designs to plan, monitor, control and safely operate interoperable networks; standardisation issues; emergency conditions

- **New knowledge and technologies**
  - multi-disciplinary research for energy technologies (including visionary actions)

- **Robust decision making and public engagement**
  - tools, methods, models and perspective scenarios for a robust and transparent policy support

- **Market uptake of energy innovation**
  - applied innovation; promotion of standards; non-technological barriers; smart and sustainable use of existing technologies

Thematic context

Legal base	Strategic Programme	Horizon Groups

Horizon 2020 Specific Programme

Focus areas
- Health/care
- Food security
- Oceans
- **Smart cities**
- **Low-carbon Energy**
- **Energy efficiency**
- Mobility
- Waste
- Water
- Socio-economics
- Disaster resilience
- Digital security

- Health
- Food/Agriculture
- Energy
- Transport
- Climate/Materials
- Inclusive societies
- Security
- FET
- Infrastructures
- SMEs
- Enabling / industrial technologies

Work program

Other areas

Competitive low-carbon energy

Low cost, low carbon energy supply
• Renewable energy (e.g. solar energy, marine energy, geothermal energy, RES heating and cooling, bio-electricity)
• Carbon Capture and Storage (including re-use of CO2)

Alternative fuels and technologies
• Biofuels
• Fuel cells and hydrogen-based systems

Smart European electricity grid
• Electricity grids
• Demand response
• Energy storage

Smart cities and communities

- Energy efficient and smart buildings and neighbourhoods
- Smart digital services for better-informed citizens
- Identification, optimisation and integration of flows (data, energy, people, goods)
- Smart and sustainable digital infrastructures
- Smart and sustainable energy systems and smart mobility services

➢ Research and development of advanced technological solutions
➢ Validation of new business cases and financing models, standardisation, scalability and replicability of the solutions, user acceptance and engagement
➢ Scaling up through partnerships established under the EIP on Smart Cities and Communities.

Energy Efficiency

- **Buildings** (highly energy efficient buildings, renewable heating and cooling, integrated solutions including design, technology, construction and behavioural change; sustainable refurbishment focused on health/comfort; building automation /control including ICT based energy management tools)

- **Industry** (optimisation of the use of materials, resources and processes and synergies between Industries)

- **Market uptake** (removal of non-technology barriers through capacity building, policy implementation measures and investment mobilisation support; support for EU companies to capture emerging markets)

Other areas / Horizontal issues

- **Socio-economic research**

- **New knowledge and technologies**

- **International Cooperation**
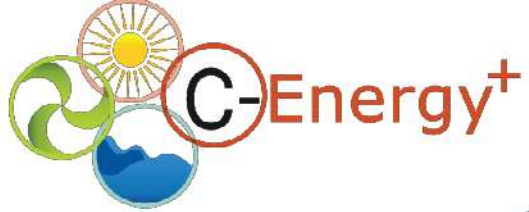
Find out more:

www.ec.europa.eu/research/horizon2020

Horizon 2020 State-of-play

What happened so far

- Commission proposal for next Multiannual Financial Framework 2014-2020 adopted on 29.6.2011

- Commission proposals adopted on 30.11.2011 (Framework Regulation, Specific Programme, Rules of Participation, Euratom)

- Discussions in the Council (Research Working Group, Council meetings) and in the European Parliament (various Committees - ITRE)

- The following EU bodies have already delivered their opinions:

  - Committee of the Regions (28.3.2012)

  - European Economic and Social Committee (28.3.2012)

  - Court of Auditors (19.7.2012)

What happened so far

- The Council reached a "partial general approach" on the Framework Regulation on 30 May 2012 (SP and Rules for Participation still under discussion)

    - Most important modifications in the scope of the Energy challenge:

        - inclusion of fossil power plants (including those with natural gas) and CO2 re-use technologies under the heading "Low-cost, low carbon electricity supply"

        - profile of standardisation, environmental and socio-economic impacts has been increased

- Parliament ITRE committee voted on the H2020 report on 29.11.

Council 'partial general approach'

– (a) Reducing energy consumption and carbon footprint by smart and sustainable use

– (b) Low-cost, low-carbon electricity supply:
Activities shall focus on research, development and full scale demonstration - of innovative renewables, efficient and flexible fossil power plants (including those using natural gas) and carbon capture and storage, or CO2 re-use technologies (...)

– (c) Alternative fuels and mobile energy sources

– (d) A single, smart European electricity grid
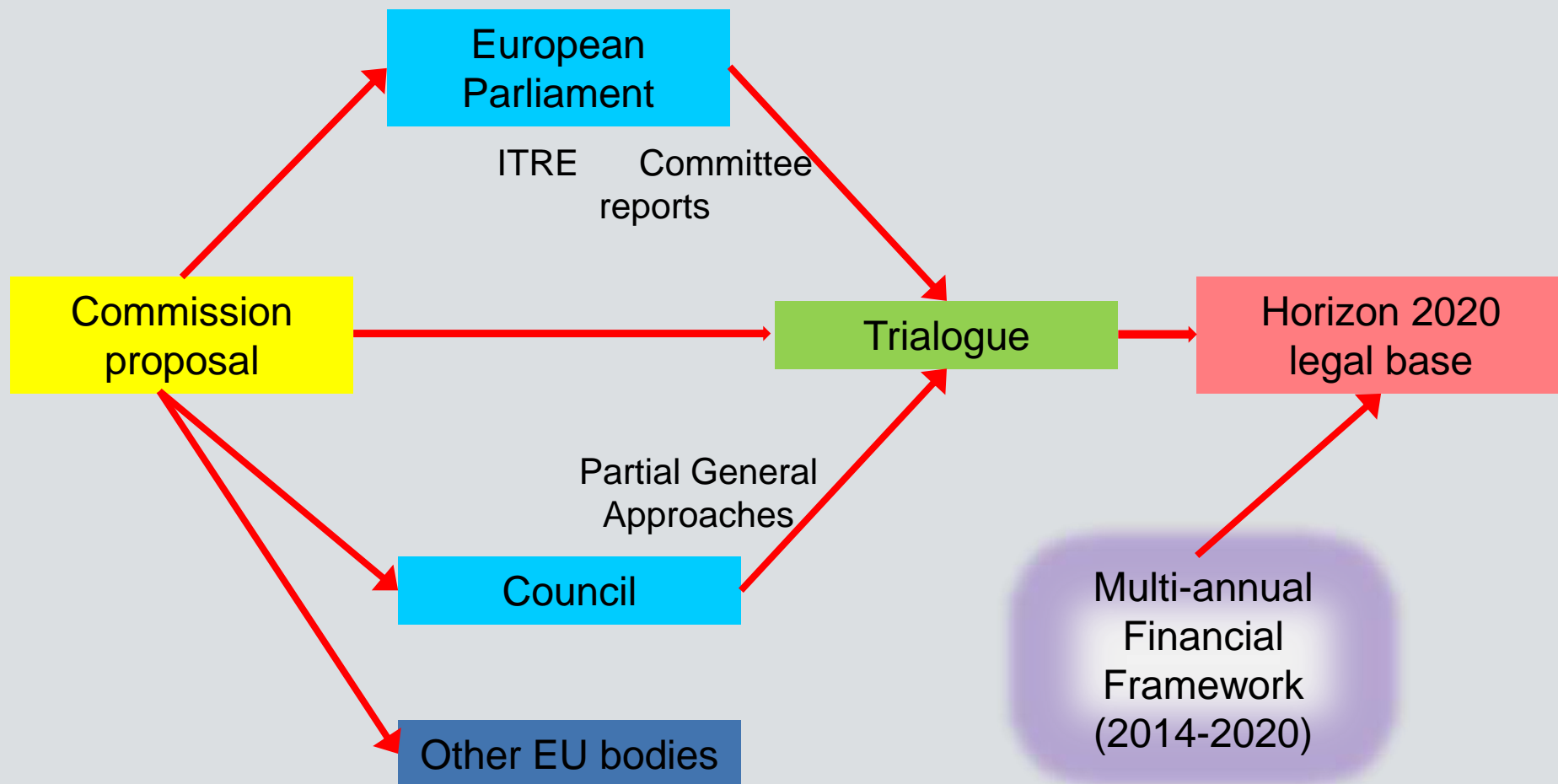
– (e) New knowledge and technologies

Council 'partial general approach'

- (f) Robust decision making and public engagement: Activities shall focus on the development of tools, methods, ~~models~~ and ~~models~~perspective scenarios for a robust and transparent policy support, including activities on public ~~acceptance and~~ engagement, user involvement, environmental impact, and sustainability assessment improving the understanding of energy related socio-economic trends and prospects.

- (g) Market uptake of energy innovation

What will happen next?

- Negotiations on MFF 2014-2020 continue (agreement probably soon)

- Once agreement on MFF, Council and Parliament will finalise legislative process of H2020

- SET-Plan conference on 7/8 May 2013 in Dublin

- By end 2013 - Adoption of legislative acts by Parliament and   Council on Horizon 2020

- 1 January 2014 Launch of H2020 & first calls

Overview of the legislative process: Co-Decision

European Parliament

ITRE   Committee reports

Commission proposal

Trialogue

Horizon 2020 legal base

Partial General Approaches

Council

Multi-annual Financial Framework (2014-2020)

Other EU bodies

First Horizon 2020 work programme

Basic principles:

- 2-year work programme (2014-15)

- One single work programme including all H2020 pillars

- Challenge-based approach

- Cross-cutting actions

Timeline:

– Spring 2013: Internal discussions on priorities

– Draft work programme: Summer 2013

– Formal consultation with Member States (PC): Autumn 2013

– Adoption of WP, publication of calls for proposals: 01/01/14

www.c-energyplus.eu