Accelerating clean energy innovation

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PURPOSE: to set out a comprehensive strategy to accelerate innovation in the field of clean energy.

BACKGROUND: the policy measures set out in this document constitute the core of the research and innovation pillar of the Energy Union. They form an integral part of the broader package of "facilitating measures" needed to boost the clean energy transitions, which are outlined the "Clean Energy for All Europeans" Communication.

The European Union is well placed to lead this transition, which received new momentum and direction from the Paris Agreement.

Europe has spearheaded global efforts to fight climate change, has been a driving force in developing renewables, and leads the world in energy-efficiency solutions for industry, transport, buildings.

CONTENT: this Communication lays out a **comprehensive strategy** for the three **main policy levers** the EU can deploy to boost private investment in clean energy innovation.

(1) Create the right business environment for innovation through targeted signals, policies, standards and regulations. The objective is to create incentives for private investment in clean energy research, development and deployment.

Creating the right market conditions for innovation includes putting in place a stable, long-term, transparent and predictable regulatory environment. The Commission is putting forward, together with this Communication, a broad package of legislative and non-legislative measures under the Energy Union:

- the redesign of the European electricity market will support the penetration of renewable-energy sources, allow for effective demand management, and unlock regionally integrated energy markets;
- the Energy Performance of Buildings directive will create incentives for the development of innovations to achieve a European building stock of nearly-zero-energy houses and deliver energy-plus districts by 2050;
- the revised Renewable Energy Directive (RED II) will, inter alia, spur the development of the next generation of renewable-energy solutions in the heating and cooling, transport and electricity sectors;
- Commission proposals to review the EU Emission Trading System (ETS), the Effort-Sharing Regulation, as well as the proposal for the integration of Land Use, Land Use Change and Forestry (LULUCF) into the overall effort to reduce the greenhouse gas emissions will likewise stimulate low-carbon innovation;
- the action plan for the Circular Economy will contribute to increasing energy efficiency and reducing emissions by better using raw materials and recycling secondary raw materials and waste;
- **public procurement** can and should serve as a further powerful instrument to create markets for innovative products.

(2) Financial instruments to boost private sector investment: in 2014, private investments in Energy Union research and innovation priorities are estimated to have reached **EUR 22.9 billion in the EU**. While this number represents an increase compared to previous years, such growth should take place at much faster pace.

The EU disposes of an array of different funding and financial instruments to support low carbon innovation:

- **the European Fund for Strategic Investments (EFSI)** is the key instrument in this regard: the Commission has proposed to extend the duration of the European Fund for Strategic Investments until the end of 2020 and to require that at least 40% of projects in the European Fund for Strategic Investments infrastructure and innovation window should contribute to climate, energy and environment action in line with the COP21 objectives; financial instruments are also available through the European Structural and Investment Funds;

- the European Commission, together with the European Investment Bank (EIB) last year launched the **Energy Demonstration Projects facility** as part of Horizon 2020 InnovFin. It is working towards at least doubling the budget of the InnovFin Energy Demonstration Projects scheme;
- the Commission and the European Investment Bank will set up a Cleaner Transport Facility to support the deployment of alternative energy transport solutions;
- the Commission, through the European Investment Project Portal and other channels, will bring a pipeline of innovative projects to the attention of investors of the relevant Public Private Partnerships supported under Horizon 2020. These partnerships concern the Joint Technology Initiatives on Fuel Cells and Hydrogen, CleanSky, the Single European Sky Air Traffic Management Research, Shift2Rail, and the BioBased Initiative, as well as contractual Public-Private Partnerships, e.g. Green Vehicles and Sustainable Process Industry through Resource and Energy Efficiency.

(3) Better funding of energy science and technology: funding from the EU budget needs to focus on potentially disruptive technologies, innovations, and business models, including breakthrough innovations for the low-carbon economy which are not foreseen in strategic, mission-driven funding.

The Commission intends to deploy more than **EUR 2 billion** from the Horizon 2020 work programme for 2018-2020 to support research and innovation projects in four priority areas:

- decarbonising the EU building stock by 2050: from nearly-zero energy buildings to energy-plus districts;
- strengthening EU leadership on renewables (RES);
- developing affordable and integrated energy storage solutions;
- electro-mobility and a more integrated urban transport system.

This represents a 35% budget increase in annual terms from 2014-2015 levels in these four areas.

(4) Globally: Europe needs to enhance its role as a global climate champion and pioneer of low-carbon and energy-efficient solutions.

The Commission will cooperate with the Member States to ensure that the European Union plays a leading role in the global **Mission Innovation** initiative launched at COP21. It will lead the Converting Sunlight Innovation Challenge to create storable solar fuels and the Affordable Heating and Cooling of Buildings Innovation Challenge.

The **Enterprise Europe Network** will be extended to new third country markets to facilitate business cooperation and technology transfer for SMEs.