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DRAFT REPORT

on accelerating clean energy innovation
(2017/2084(INI))

Committee on Industry, Research and Energy

Rapporteur: Jerzy Buzek

CONTENTS

	Page
MOTION FOR A EUROPEAN PARLIAMENT RESOLUTION	3
EXPLANATORY STATEMENT	8

MOTION FOR A EUROPEAN PARLIAMENT RESOLUTION

on accelerating clean energy innovation (2017/2084(INI))

The European Parliament,

- having regard to the Commission communication of 30 November 2016 entitled ‘Accelerating Clean Energy Innovation’ (COM(2016)0763),
- having regard to the Commission communication of 15 September 2015 entitled ‘Towards an Integrated Strategic Energy Technology (SET) Plan: Accelerating the European Energy System Transformation’ (COM(2015)6317),
- having regard to the Commission communication of 25 February 2015 entitled ‘A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy’ (COM(2015)0080), and to its resolution of 15 December 2015 entitled ‘Towards a European Energy Union’¹,
- having regard to the Commission communication of 15 December 2011 entitled ‘Energy Roadmap 2050’ (COM(2011)0885), and to its resolution of 14 March 2013 on the Energy Roadmap 2050, a future with energy²,
- having regard to the Commission communication of 3 March 2010 entitled ‘Europe 2020. A strategy for smart, sustainable and inclusive growth’ (COM(2010)2020),
- having regard to the Commission proposal for a regulation of 30 November 2016 on the Governance of the Energy Union, and in particular the ‘research, innovation and competitiveness’ dimension of the Energy Union therein, most notably Article 22 on ‘Integrated reporting on research, innovation and competitiveness’ (COM(2016)0759),
- having regard to Regulation (EU) No 1291/2013 of the European Parliament and of the Council of 11 December 2013 establishing Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020)³,
- having regard to the Commission communication of 18 July 2017 entitled ‘Strengthening Innovation in Europe’s Regions: Strategies for resilient, inclusive and sustainable growth’ (COM(2017)0376),
- having regard to the Commission communication of 22 November 2016 entitled ‘Europe’s next leaders: the Start-up and Scale-up Initiative’ (COM(2016)0733),
- having regard to Rule 52 of its Rules of Procedure,
- having regard to the report of the Committee on Industry, Research and Energy, and the opinions of the Committee on the Environment, Public Health and Food Safety and the Committee on Transport and Tourism and the Committee on Regional Development

¹ Texts adopted, P8_TA(2015)0444.

² Texts adopted, P7_TA(2013)0088.

³ OJ L 347, 20.12.2013, p. 104.

(A8-0000/2017),

- A. whereas research and innovation constitute a distinct dimension of the EU's Energy Union, with energy R&D&I a key driver of the EU's industrial leadership, global competitiveness, sustainable growth and job creation, as well as of the EU's overall energy security, by reducing dependence on energy imports;
 - B. whereas the EU is a global leader in high-value, low-emission energy innovation and emerging clean technologies;
 - C. whereas a fully functioning internal energy market is essential for further stimulating R&D and maximising the market uptake of new technologies across all EU regions by providing economies of scale and regulatory and investment certainty, thereby enabling the EU to reap the full potential of energy innovation and fostering efficiency, a sustainable technology-neutral use of indigenous sources, and storage and transport solutions;
 - D. whereas the EU's energy policy and financing instruments should primarily focus on a gradual transition to high-efficiency, low-emission systems and avoid setting technology-specific benchmarks that distort market mechanisms;
 - E. whereas the life-cycle assessment (LCA) of energy sources and technologies should be taken as reference when addressing concrete policies and incentives aimed at fostering low-emission solutions at EU level;
 - F. whereas energy-related research and innovation was recognised as a priority area under FP7 and Horizon 2020;
1. Welcomes the Communication setting the framework for accelerating the EU's clean energy innovation;
 2. Recognises that the successful deployment of energy innovation is a multidimensional challenge that encompasses supply chain, value chain, human capital, regulation, innovation and industrial policy issues; stresses that this challenge requires the engagement of citizens – consumers and prosumers – as well as a wide ecosystem of stakeholders, including academia, research and technology organisations (RTOs), start-ups, energy and construction companies, mobility providers, service suppliers, equipment manufacturers, IT and telecoms companies, financial institutions, public authorities at all levels, NGOs, educators and opinion leaders;
 3. Considers that a cost-effective energy transition towards environmentally friendly, consumer-oriented and more digitalised, decentralised systems requires research and the deployment of innovation in all energy system sectors, including non-technology specific, systemic solutions; recognises that this transition is fostering new organisational models, particularly in energy generation, transmission, distribution and storage, business and needs management, as well as service provision; underlines the role that large-scale pilot projects can play in deploying systemic energy innovation;

Coherence of EU actions

4. Notes that research and innovation in energy crucially depends on predictability and certainty, which require long-term policy vision, sustained targeted incentives and patient equity capital in order to attain the necessary critical mass for market deployment; welcomes the focus on key technologies, as confirmed in the Strategic Energy Technology Plan (SET-Plan) and Commission communication; stresses, however, the need for greater prioritisation of cross-cutting, systemic innovation in energy, as innovation is not only technology-driven;
5. Urges the Commission and the Member States to put in place mechanisms for coordinating EU and national research and energy innovation programmes in order to foster synergies and avoid duplication, to ensure the most effective use of existing resources and infrastructure in all Member States, and to maximise the market uptake of new technologies and innovations across all EU regions; believes that including relevant information in national energy and climate plans could be conducive to that aim;
6. Stresses the need for greater coherence between the relevant funds, including structural funds, dedicated to technology-neutral energy projects, and for the existing financing instruments at EU and Member State level to be made more comprehensible; calls on the Commission to provide mapping of different funding and financing instruments and considers that the possibility of pooling the various instruments should be assessed;
7. Calls on the Commission to propose a focused, long-term, technology-open energy-industrial strategy as an integral part of the EU strategy and action plan for a consistent and comprehensive energy dimension of the EU's industrial policy;
8. Recognises links between digitalisation, IT technologies and energy research and innovation; calls on the Commission to ensure coherence between symbiotic aspects of the Energy Union, the Digital Single Market and cybersecurity strategies;
9. Calls on the Commission to set up a dedicated inter-service team that would, inter alia:
 - (a) identify the relevant stakeholders in the EU's wider energy innovation ecosystems, at all levels;
 - (b) reinforce existing stakeholder fora on energy research and innovation and establish new ones where necessary; provide tools for inter-sectoral, inter-disciplinary and inter-regional exchanges, including on energy innovation projects, national and local long-term energy innovation policies, joint investment opportunities, the appropriation of the energy transition by citizens and grass-root initiatives;
 - (c) establish a compendium of best practices, policy and financing instruments in energy, including PPPs, public procurement and tax incentives, exchange and information mechanisms, communication tools and campaigns, as well as operational guidelines on mobilising clean energy innovation, deployment and prosumer involvement, so as to ensure that the EU can adequately support all stages of the innovation cycle, and ultimately provide a practical toolkit for the Member States, local authorities and stakeholders;

- (d) examine ways of drawing up innovation-friendly, streamlined and flexible rules for participation in FP9 and ESIF regulations, with the aim of better aligning them;
 - (e) advise the European institutions on coherent procurement practices, fostering a more extensive deployment of energy innovation; help define concrete targets in the public procurement of innovative solutions at European level;
 - (f) draw up concrete proposals with a view to establishing an effective one-stop-shop advisory structure for innovators on financing energy innovation via funds and instruments available at EU, Member State and EIB level;
10. Urges the Commission to strengthen the innovation capacity component of competitiveness proofing in impact assessments and apply the Research & Innovation Tool to all new energy policy proposals;

Long-term financing certainty

11. Reiterates Parliament's call for an increased overall budget of EUR 120 billion for FP9 and urges the Commission to increase by 50 % the proportion of energy-related financing under FP9 from the corresponding H2020 level, so as to ensure sufficient funding to support effective implementation of the Energy Union;
12. Recognises the role of the SET-Plan, the Knowledge Innovation Community (KIC) InnoEnergy and the relevant Joint Technology Initiatives (JTIs) in driving energy innovation; stresses the need to better connect these various frameworks together with, inter alia, the InnovFin initiative, the EFSI and the proposed Pan-European Venture Capital Fund(s)-of-Funds programme (VC FoF) as part of a coordinated, focused investment strategy in clean energy innovation that would help early-stage projects and start-ups effectively overcome the 'valley of death' and reach the market maturity levels needed for global expansion; considers that effective incentives for investment in energy innovation, by means of national investment funds and pension funds, could play a crucial role in mobilising the necessary equity capital;
13. Acknowledges the role that the European Innovation Council (EIC) could play in helping coordinate the various strands of a coherent investment strategy in clean energy innovation; requests more information about the EIC's structure and consistency with existing instruments supporting innovation;
14. Considers that citizen-driven energy innovation opens untapped opportunities for innovation financing; calls on the Commission to explore effective ways to promote energy innovation crowdfunding and to consider the setting up of a clean energy innovation crowd equity fund;

The EU's global leadership

15. Recognises the role that the Paris Agreement could play in fostering global efforts for accelerated clean energy innovation; calls on the Commission to explore means by which capacity-building measures under the Agreement can help strengthen energy innovation ecosystems in developing countries;

16. Calls on the Commission to exploit the full potential of the Mission Innovation initiative by seeking synergies with initiatives such as the Breakthrough Energy Coalition and with global equity and investment funds, and through a possible coordinated division of labour in energy innovation on a global scale;
17. Calls on the Commission to assess the possibility of enhancing the promotion of clean energy technology exports within the Deep and Comprehensive Free Trade Areas (DCFTA), including through a dedicated support facility and focused assistance from EU delegations in third countries;

Citizen-driven energy innovation

18. Believes that accelerating clean energy innovation requires Europeans to undergo a change in their mindset that would transcend simple awareness of energy issues and move towards a deeper understanding of the behavioural changes and new consumption patterns needed to meet the pressing challenges of sustainable growth, so as to reap the advantages of the digital revolution and innovation in all fields and succeed in energy transition;
19. Recognises the need for systemic education and engagement schemes designed to enable society to fully engage in the transformation of the energy system and enable Europeans of all ages to gradually progress from awareness and understanding to active involvement and taking a guiding role; calls on the Commission, the Member States, local authorities and the private sector to promote conscious consumer choices and energy-related citizens' engagement through, inter alia, EU-supported awareness campaigns, comprehensive information on energy bills and price comparison tools, the promotion of cooperative sharing schemes, participatory budgets for energy-related investments, tax and investment incentives, as well as by steering technological solutions and innovations;
20. Urges the Commission and the Member States to assist EU regions in taking coordinated steps to incentivise energy innovation at local and trans-regional level with the aim of developing coherent strategies;

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21. Instructs its President to forward this resolution to the Council, the Commission and the Member States.

EXPLANATORY STATEMENT

I. Introduction

Modern economies are undergoing a profound transition in the way they produce, transmit, store and use energy. This transition is founded on three elements: most fundamental is the need for affordable, reliable and secure energy to power our economic growth; over the long-term, continued economic growth requires ever more sustainable use of available resources; finally, new technologies - including more recently those driven by the digital revolution - offer vast new opportunities to redesign entire energy systems.

European Union has been a global leader of this energy transition which remains for the EU a key to building its global comparative advantage. Since 2005, this has been reflected in a number of strategic documents, with subsequent European Council Conclusions and Commission's efforts leading to the adoption of the 2020 Climate and Energy Package. The broader socio-economic implications of EU's energy transition fed into the 'Europe 2020' Strategy as well as the 2030 Climate and Energy framework and the EU's 2050 Energy Strategy. With the comprehensive proposal for Energy Union Framework and the subsequent legislation of 2016 and 2017 which is being implemented or is in the process of adoption, the EU has put in place the necessary building blocks to successfully navigate this profound energy transition.

In this context, with ever more economies embracing and seeking advantages brought by the energy transition, EU's ability to accelerate clean energy innovation is a matter of overarching importance. It is clear as the Union strives to ensure its global industrial competitiveness, sustainable growth and high-value jobs for its citizens, while making the transition to high-efficiency, low-emission economy and strengthening its overall energy security and independence from imports.

The fundamentals to build on are solid. 2017 Global Cleantech Innovation Index ranks five EU Member States among the top 10 countries on emerging clean technology innovation. This proportion is roughly sustained throughout the rankings, with 11 EU Member States in top 20 and 20 EU Member States found in the group of 40 countries analysed worldwide. EU's global leadership in high-value inventions in climate change mitigation technologies is also reflected in the data published by the European Patent Office. At the same time, the available statistics show that only five EU Member States are responsible for some 80% of patented innovation in that field. As regards renewable energy, according to the 2016 data published by the International Renewable Energy Agency, EU is responsible for nearly 21% of global renewable energy capacity, making it the world leader in per capita terms and being only surpassed by China in absolute terms. Yet emerging economies in Asia in particular are quickly catching up, and already today the EU remain behind many of its main competitors and below the global average as regards its RES capacity factor. All these clearly show some of the yet untapped potential for the EU as a whole to make a significant leap towards strengthening its leadership in clean energy innovation.

Recognising these horizontal implications and the changing energy landscape, the rapporteur welcomes European Commission's Communication on 'Accelerating Clean Energy Innovation', published as part of the 'Clean Energy for All Europeans' Package. The rapporteur is convinced that to make a major leap in energy research and successful deployment of innovation, the EU needs policies and instruments that are light and responsive

- to the rapidly changing landscape and particularly emerging technologies - but at the same time create predictability and long-term certainty to mobilise the necessary investment. He would like to stress that a fully functioning Internal Energy Market is essential for further stimulating energy-related research and successful deployment of innovation.

II. Main points identified by the rapporteur

II.1. Coherence of EU actions

The rapporteur recognises the need for life-cycle assessment (LCA) - in generation, transmission, distribution, storage, use as well as recycling or other utilization of residue - of energy sources and technologies when addressing concrete policies and incentives aimed at low-emission solutions at EU level. Acknowledging the broad positive implications of targeted actions in the area of energy efficiency as well as sustainable technology-neutral use of all indigenous sources available in the EU - from renewables to clean coal technologies - the rapporteur believes that greater prioritization should be given to horizontal, systemic innovation in energy, reaching across all sectors of the energy system. This is necessary to fulfil EU's sustainable development aims as enshrined in Article 3 of the Treaty on European Union and effectively ensure the Member States' right to determine the choice of their energy mix, as stated Article 194 of the Treaty on the Functioning of the European Union. This approach has been reflected throughout the report.

The rapporteur is of the opinion that ensuring the overall coherence of cross-policy regulatory framework is one of the key factors in boosting energy innovation. This is about stable, long-term policy vision that brings together its different strands - including Structural Funds - and private schemes. Improved financial consultancy and advisory services for innovators are also crucial. The rapporteur is further persuaded of the need for effective coordination of EU and national programmes to avoid duplication and ensure most effective use of existing research infrastructure and resources.

II.2. Long-term financing certainty

The rapporteur recognises the crucial role that the next Framework Programme (2021-2027) will play in accelerating technology-neutral, clean energy innovation. In this context he reiterates the Parliament's call for increased overall FP9 budget of €120bln and further proposes to increase energy-related financing by 50% as compared to Horizon 2020. This in effect should more than double EU's investment in energy research and innovation under the Framework Programme. This proposal must be complemented by greater alignment and blending of EU's existing investment instruments, as well as private equity capital, where citizen's direct engagement should be explored.

II.3. EU's global leadership

Coordinating efforts with global partners, through Mission Innovation as well as the various coalitions and initiatives mobilised by the Paris Agreement is an important element of leveraging globally EU's energy innovation leadership. The rapporteur is convinced of the need to multiply investment in energy innovation also by exploring the prospects of division of work among leading countries in this area, as well as by promoting EU's exports of clean energy technologies.

II.4. Citizens-driven energy innovation

The rapporteur fully endorses the view that citizens must play the central role in energy transformation and in driving innovation. With energy systems becoming more dispersed and centred on prosumers, the energy landscape in general is becoming more democratic. This is true not only in production and consumption, but in new services and solutions, as well as in designing and applying energy innovation. The rapporteur believes that EU's efforts at accelerating clean energy innovation will only succeed if it fully recognises the mindset transition that Europe will have to make. This is no longer a matter of better awareness and understanding of policies and processes. With IT technologies and digitalisation fostering decentralisation of systems and opening ever new ways of engaging citizens, Europeans of all ages will also gradually become more actively involved in steering energy innovation. As with all social processes, this will be a long one and it must be properly addressed through systemic education and engagement schemes. InnoEnergy Knowledge and Innovation Community at the European Institute of Innovation and Technology has already commenced work in the area of social appropriation of energy, and the rapporteur is strongly convinced that this process will play an increasingly important role in the coming years and thus should be embraced and fully supported.

Energy system is the blood stream to much of human activities. Effects of its transformation will reach well beyond economics. Mobilising EU's unique potential to innovate across all energy sectors, and perhaps particularly in systemic solutions, offers the best chance for turning the challenges of the profound energy transformation into a springboard for secure and sustainable growth, EU's global industrial leadership, as well as a key building block of an engaged, knowledge-based society of tomorrow. And more profoundly, with the aims of EU's energy transition, this can be Europe's contribution to the 'tomorrow' we want next generations of Europeans to live in.