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REPORT

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

Committee on Industry, Research and Energy

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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 Paris Agreement under the United Nations Framework Convention on Climate Change ratified by the European Union on 4 October 2016,
- 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,

¹ Texts adopted, P8_TA(2015)0444.

² OJ C 36, 29.1.2016, p. 62.

³ OJ L 347, 20.12.2013, p. 104.

- 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 (A8-0005/2018),
- A. whereas research, development and innovation constitute a distinct dimension of the EU's Energy Union, with energy R&D&I being key drivers of the Union's industrial leadership, its global competitiveness, its sustainable growth, job creation, as well as the overall energy security of Member States and the Union, by reducing dependence on energy imports and fostering an efficient and sustainable use of all energy sources;
- B. whereas the EU remains a global leader in high-value, low-emission energy innovation, including in energy efficiency, renewables and in emerging clean technologies, giving the EU a solid basis to make a further leap in clean energy research and innovation, including in development of batteries for e-mobility and energy storage; whereas ambitious, targeted climate and energy policies, particularly through the 2030 climate and energy framework, as well as the energy roadmap 2050, have been key drivers of this leadership; whereas, in this context, the Paris Agreement substantially increased the level of global ambition and of signatories' concrete commitments on climate change mitigation; whereas the EU must further remain ambitious in its policies and instruments in order to send the right investment signals and not lose its global leading market position in clean energy research and innovation;
- C. whereas progress in energy efficiency and renewable energy-based innovations and R&D are key to the EU's future competitiveness, including Europe's industry; whereas the EU will become 'the world number one in renewables' only through the deployment of cost-effective innovations and intensified R&D efforts in this specific sector; whereas implementation of the 'energy efficiency first' principle needs to be underpinned by a robust innovation policy at European level, notably related to system integration;
- D. whereas a fully functioning and competitive internal energy market, with an appropriate regulatory framework and infrastructure, is essential for further stimulating R&D&I and maximising the market uptake of new clean technologies across all EU regions by providing economies of scale and regulatory and investment certainty, thereby enabling the Union to reap the full potential of technology-neutral energy innovation that fosters efficiency, a low-emission and sustainable use of energy sources and decentralised generation, storage and transport solutions and technologies;
- E. whereas innovation in clean energy should also contribute to providing an affordable energy supply to European consumers by helping them enjoy lower energy tariffs and more control over their energy consumption and production and offering them products and services that consume less energy;
- F. whereas the energy policy and financing instruments of the EU and its Member States, including relevant public investments, should be designed to take full advantage of accelerating technical developments, and should primarily focus on a gradual transition to clean, highly efficient, low-emission energy systems; whereas, due to market, technological or scientific uncertainty, funding from the private sector is often either insufficient or unavailable; whereas the EU needs to send strong and consistent signals and create incentives, in order to provide investor certainty and boost private investment

in clean energy innovation, R&D and deployment;

- G. whereas innovation is driven first and foremost by innovators and market demand; whereas the Commission should focus its efforts primarily on creating an enabling framework for innovators, ranging from simplifying access to research financing to turning knowledge into commercially viable products; whereas partnerships between researchers and relevant industrial partners can be helpful in this context;
- H. whereas energy subsidies affect market prices, masking the true costs of energy from different sources and the true cost of energy-related technologies, thus negatively impacting the conditions for research and investment in clean energy innovation, as well as its eventual deployment; whereas, while the use of subsidies should be progressively phased out this use should, in the meantime, be limited to temporary instruments aimed at creating a level playing field and a competitive market facilitating the uptake of new clean technologies, especially in the areas of energy efficiency and renewables;
- I. whereas the life-cycle assessment (LCA) of greenhouse gas emissions from energy sources, distribution networks and technologies should be taken as a reference when addressing concrete policies and incentives at EU level aimed at fostering clean, low-emission, energy-efficient solutions and technologies, including the sustainable sourcing of raw materials and minerals; whereas focus should be put on those clean energy innovations that have direct relevance to citizens and prosumers, allowing their participation in the energy transition and making the transition itself more affordable;
- J. whereas energy-related research and innovation was recognised as a priority area under FP7 and Horizon 2020, and should continue to be one under FP9, given the Union's commitments within the Energy Union and under the Paris Agreement, so as to leverage public and private R&D funding more effectively, and to help lower the investment risks of most prospective innovation in clean energy, particularly in energy efficiency and renewables;
- K. whereas the transport sector represents one third of the EU's energy consumption, holds enormous potential for energy efficiency and carbon emissions reduction, and should therefore play a vital role in the transition towards new energy solutions and to a low-carbon society;
- 1. Welcomes the Commission communication setting the framework for accelerating the EU's clean energy innovation; stresses the need for a regulatory and financing framework for energy innovation that is coherent with the EU's energy roadmap 2050 and its commitments under the Paris Agreement, and that fosters the efficient and sustainable use of all energy sources, thus resulting in energy savings and wider benefits, including in the areas of health, safety, and air and water quality, while at the same time ensuring the Union's industrial competitiveness, its security of energy supply and compliance with the EU treaty obligations, as well as a comprehensive response to environmental concerns; recognises that the framework for accelerating the EU's clean energy innovation is an integral part of a wider set of legislative proposals set out in the 'Clean Energy for All Europeans' package and should therefore reinforce its various elements, the Union's commitments made under the Paris Agreement and the wider Energy Union legislation and principles, particularly those reflected in the 2030 climate and energy framework and the 2050 roadmap, while respecting the provisions of

Articles 191 and 194 TFEU;

2. Recognises that the successful deployment of energy innovation is a multidimensional challenge that encompasses both supply- and demand-side value chains, human capital, market dynamics, regulation, innovation and industrial policy issues; stresses that this challenge requires the engagement of citizens – both consumers and prosumers – as well as a wide ecosystem of stakeholders, including academia, research and technology organisations (RTOs), SMEs, start-ups, energy and construction companies, mobility providers, service suppliers, equipment manufacturers, IT and telecoms companies, financial institutions, Union, national, regional and local authorities, renewable energy communities, NGOs, educators and opinion leaders; highlights the value of new business models that use innovative digital technologies to, inter alia, optimise self-generation, storage, exchange and self-consumption of on-site clean energy and increase access to renewables, including for households in energy poverty;
3. Considers that a cost-effective energy transition towards environmentally friendly, consumer-oriented and more digitalised and decentralised systems with active prosumers and prosumer communities requires research and the deployment of innovation across all energy system sectors, including non-technology-specific and systemic solutions, inter alia ones aimed at efficiency and decentralised energy generation; recognises that this transition is fostering new organisational models, particularly in energy generation, transmission, distribution and storage, electro-mobility, business and needs management, and service provision; recognises the need for common standards in order to foster a connected and digitalised energy system; underlines the role that sustainable large-scale pilot projects, including community-based ones, can play in deploying systemic energy innovation;
4. Recalls that energy efficiency should be a cross-cutting horizontal priority in the research and innovation policy of the EU that applies to all sectors and is not limited to energy-related projects and that systematically promotes and incentivises the production of more energy-efficient processes, services and goods, while implementing the ‘energy efficiency first’ principle throughout the full energy chain, including energy generation, transmission, distribution and end-use;
5. Recognises the importance of further liberalising European energy markets, notably by removing obstacles to free price formation and phasing out energy subsidies, in order to facilitate further innovation and the deployment of new technologies which lead to more sustainable energy use and which foster an emerging supply of renewable energy, and to create a level playing field and a competitive market capable of delivering a better deal for energy consumers, prosumers, communities and businesses;

Coherence of EU actions

6. Notes that clean energy R&D&I crucially depends on a stable market and on the predictability and certainty of a regulatory framework, which require an ambitious and deliverable long-term policy vision, including energy- and climate-related goals and commitments, sustained targeted incentives and patient equity capital in order to create a level playing field among technologies, thus facilitating innovation, easing energy supply, lowering market entry barriers and making it easier for clean energy innovation to attain the critical mass necessary for market deployment; welcomes and encourages

the focus on key technologies, as confirmed in the Strategic Energy Technology Plan (SET-Plan) and the Commission communication; reiterates the provisions of Article 194 TFEU and notes that they must be reflected in policy and financial instruments supporting clean energy innovation; stresses the need, however, for greater prioritisation of cross-cutting, cross-sectoral, systemic innovation in energy, as well as the promotion of education and entrepreneurship, since innovation is not only technology-driven; underlines the need for this systemic approach to be able to effectively integrate different solutions available or under development, particularly with regard to energy efficiency and the integration of renewables; calls for European technology and innovation platforms to be used to help identify prospective clean energy innovation meriting targeted support;

7. Urges the Commission and the Member States, and, where relevant, regional authorities, to put in place mechanisms for coordinating EU, national and regional research and energy innovation programmes in order to foster synergies and avoid duplication, thus ensuring the most effective use of existing resources and infrastructure, as well as of energy sources available in the Member States, in order to maximise the market uptake of new technologies and innovation and to promote new business models across the EU; believes that including relevant information in integrated national energy and climate plans could be conducive to that aim; stresses in this context the importance of promoting best practices and information exchange, as well as streamlining the rules on participation in energy innovation programmes for all organisations, enterprises, universities and institutes, both from the EU and from third countries;
8. Welcomes the Commission's commitment to continue to fund fundamental research through Horizon 2020 and the European Research Council; stresses the need to further enhance the funding of collaborative research under Horizon Societal Challenges in the field of energy, but also streamlining energy innovation in the other societal challenges; notes the Commission's proposal to strengthen market-creating innovations by setting up a European Innovation Council in addition to the Start-up and Scale-up Initiative, thereby contributing to the fostering of breakthrough innovations that can capture and create new markets; believes that the creation of market-based financing instruments (such as loans and equity) should not be to the detriment of grants funding that enables non-profit and public actors, such as academia, universities and civil society, to participate in transnational European projects of high value;
9. Remains concerned about the large number and complexity of existing financial instruments and stresses the need for greater coherence between the relevant funds, including structural funds, dedicated to clean energy projects, and for the existing financing instruments at EU and Member State level to be made more comprehensible; calls on the Commission to map the different funding and financing instruments along the value chain and considers that the possibility of pooling the various instruments should be assessed, while taking care not to undermine their complementarity; further considers that some Member States lack the capacity to develop support actions for energy-related innovation, in particular through national financial support schemes, and, in this respect, calls on the Commission to further reinforce these capacities while ensuring a coherent and simplified EU financing framework in clean energy innovation;

10. Calls on the Commission to carry out an evaluation of the performance of its energy-related financial instruments and funds, and to provide a ‘fast track’ response to improve the instruments if specific instances of gridlock, incoherence or a need for amelioration are identified and to adapt the aforementioned instruments and funds to the new EU energy targets;
11. Calls on the Commission to propose, as part of the Union’s industrial policy, a focused, long-term and technology-neutral energy dimension, based on high energy efficiency, further market liberalisation and greater transparency to help avoid investments in stranded assets; stresses that this dimension should be an integral part of the Union’s industrial policy strategy and action plan; stresses the role of innovative processes and technologies in improving emission performance by energy-intensive industries; calls on the Commission to put energy and resource efficiency at the forefront of research and innovation, and encourages the Member States to make accountable investments from ETS auctioning revenues into energy efficiency and sustainable, low-emission technologies; highlights the creation of an Innovation Fund to support innovation in low-carbon technologies and processes during ETS Phase IV; considers vital the promotion of a system of open innovation where industry and companies pool their various expertise and jointly develop high-quality sustainable solutions; recognises the role of the Clean Energy Industrial Competitiveness Forum in the deployment of key energy innovation, including in the photovoltaic and wind sectors, but also possibly for, inter alia, storage solutions, carbon capture and storage and energy-producing bio-processes; welcomes the Commission’s commitment and support to industry-led initiatives to promote the EU’s global leadership in clean energy and low-emission technology solutions;
12. Recalls that the photovoltaic industry must be at the heart of European industrial policy to meet the demands of a growing global market in a context where the bulk of photovoltaic cells and modules are nowadays manufactured outside the European Union, mostly in China; stresses the need for the EU to be fully integrated into the new investment cycle in order to maintain its leadership in R&D on photovoltaic manufacturing machinery, as well as on some other segments such as inverters, raw materials, building-integrated photovoltaics, operations and maintenance and on the balance of systems; further emphasises the need to maintain its expertise in system integration such as small-scale photovoltaic solutions for developing countries;
13. Urges the Commission and the Member States, when addressing the energy sector and other related sectors, to step up their efforts in support of innovation in sustainable sourcing of raw materials, better product design, recycling, reuse and cascade use of existing metals and materials in the context of the circular economy and energy savings;
14. Recognises links between digitalisation, IT technologies and energy research and innovation, in particular as regards improved data collection, interoperability, associated data security and privacy guarantees; considers that distributed ledger technologies, such as the blockchain system, can play a role in improving the efficiency of energy-related processes and in fostering citizens’ engagement in the energy system transformation, including through peer-to-peer energy trading; calls on the Commission, to this end, to encourage this initiative, to improve its regulatory framework, and to ensure coherence between related aspects of the Energy Union, the digital single

market, cybersecurity strategies and the European Data Protection Framework, so as to reinforce the Union's capacity to be at the forefront of this new trend;

15. Calls on the Commission to set up a dedicated inter-service team that would, inter alia:
- (a) enable new common research and innovation policy planning, in order to ensure consistency, coherence and avoid frequent changes of priorities;
 - (b) identify the relevant stakeholders in the EU's wider energy innovation ecosystems, at all levels and across all sectors, including offshore wind and other renewable energy technologies;
 - (c) identify existing stakeholder forums on energy research and innovation, especially on energy efficiency and renewables; promote the formation of clusters, integration into international value-creation networks, investment and innovation; 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-roots initiatives;
 - (d) incentivise public authorities at all levels to develop capital raising plans and provide incentives to clean energy innovation in order to foster investor trust and trigger the mobilisation of private capital;
 - (e) 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 and technical assistance 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;
 - (f) examine ways of drawing up innovation-friendly, streamlined and flexible rules for participation in FP9 and ESI Funds regulations focusing on achieving a greater long-term impact, with the aim of better aligning them, of avoiding any waste of applicants' resources and of promoting innovation excellence right across Europe;
 - (g) establish a mechanism with the aim of supporting a transnational energy start-up ecosystem, including a European incubator system in order to ensure that the introduction of energy innovation and business models on the market overcomes the 'valley of death' in the innovation cycle;
 - (h) increase synergies with Horizon 2020 and other funding initiatives to strengthen research and innovation capacity building for low-performing regions in the EU;
 - (i) 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;
 - (j) 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 European Investment Bank level, as well as from other potential private sources; enhance technical assistance by aggregating information on private and public funding possibilities and guide applicants to the most appropriate funding mechanism, notably in the field of energy efficiency where the aggregation of small projects into broader portfolios is indispensable;

(k) identify ways of introducing into EU public procurement legislation incentives to promote innovative energy solutions in the public sector;

16. Stresses that public procurement can be an innovation driver as well as fostering more sustainable growth, as also recognised by the Sustainable Development Goals; points out that the choice of sustainable products, services and public works is essential and can create lead or new markets for innovative products; welcomes the Commission's initiative under the Start-up and Scale-up Initiative to introduce measures on EU procurement to, among other things, encourage Member States to set ambitious innovation buying targets; further stresses the role that local and regional authorities can play in setting a good example, as well as engaging in the exchange of good practices in forums such as the Covenant of Mayors;
17. 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 and the review of existing legislation, without undermining the effectiveness of legislation;
18. Requests the Commission to ensure that its work on innovation on the one hand, and standards and interoperability on the other, is fully joined up so that the EU achieves global leadership in setting standards in clean energy 'Internet of Things'-integrated sectors; welcomes, as an example in this context, the development of the new European standard for smart appliances (Saref) that will potentially create a new EU-based reference language for energy-related data allowing home devices to exchange information with any energy management system;
19. Recalls that energy innovation policies have to be in line with the EU commitment to conserve and enhance CO₂ sinks while preserving biodiversity, especially in forests, on land and in seas;
20. Encourages the relevant Member States to contribute adequately to meeting the EU's 3 % GDP target for R&D; notes that an overall increase *to* 3 % would additionally bring in more than EUR 100 billion per year for research and innovation in Europe; recalls that two-thirds of R&D funding is expected to come from the private sector;

Long-term financing certainty

21. Reiterates its call for an increased overall budget of at least EUR 120 billion for FP9 and urges the Commission to increase the proportion of related financing for sustainable, low-emission energy projects under FP9 by at least 50 % over and above the corresponding Horizon 2020 amounts, so as to ensure sufficient funding to support

EU's energy transition and the effective implementation of the Energy Union; calls, in particular, for the financial resources under FP9 to be strengthened in order to stimulate breakthroughs and market-creating innovation, especially by SMEs and start-ups; stresses the importance of strong excellence criteria for turning the EU into a global centre for innovation, research and leading technologies, including 'blue skies' research; points to the results of the interim evaluation of Horizon 2020 showing that, as of 1 January 2017, the programme was below target with regard to climate and sustainability spending; welcomes the increase in Horizon 2020 funding for Energy Societal Challenge under the 2018 budget, yet remains deeply worried about cuts to energy projects under the Connecting Europe Facility, which it deems incompatible with the aims of the Energy Union;

22. Reiterates the need to improve the quality of investments financed by the European Fund for Strategic Investments (EFSI) and to focus in particular on incentives for better geographical allocation, taking into account the current imbalance in the geographical coverage of EFSI and the specific needs of less developed and transitional regions; recognises the need for cooperation with national promotional investment banks, investment platforms and eligible financial intermediaries through a possible delegation of the use of the EU guarantee to them; calls for a substantial reinforcement of the role and the capacity of the European Investment Advisory Hub, notably through a local presence and a proactive role in the preparation of projects;
23. Believes that FP9 should support initiatives such as '100% renewable cities', involving cities and local administrations which aim to substantially increase renewable energy capacity for electricity, mobility, heating and cooling in cities through innovation projects, which could potentially include smart grids, energy system management, activities to enable sector coupling and encourage the use of electric vehicles, etc.;
24. 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, start-ups and SMEs 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;
25. Recalls that first of a kind (FOAK) projects are highly risky and the supply of equity and debt is at much lower levels than is the case for the financing of proven low-carbon technologies; calls on the Commission, to this end, to remove the remaining regulatory obstacles and propose the establishment of a SET-FOAK Equity Fund;
26. Acknowledges the role that the European Innovation Council (EIC) could play in helping early stage companies to find funding and proposes that it play the role of coordinating 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;

27. Considers that citizen-driven energy innovation requires lower barriers for market entry and opens untapped opportunities for innovation financing; calls on the Commission to explore effective ways to promote energy innovation through, inter alia, crowd-funding and to consider the possibility of setting up an energy innovation crowd equity fund; considers that new and diverse ways of financing should be additional and complementary to the existing ones;
28. Emphasises the importance of advancing smart grid technology, as well as the promotion and integration of bottom-up decentralised generation, including through clusters and cooperative schemes; calls on the Commission to support these areas of clean energy innovation with financial mechanisms, including those that mitigate risk for private investments and reduce burdens on public investments in the modernisation of energy systems; welcomes, moreover, the Commission's intention to increase its use of inducement prizes as a valuable tool for fostering bottom-up, breakthrough innovations;
29. Stresses that, in order to encourage a bottom-up approach to innovation, the uptake of small scale applications (e.g. NegaWatt, on-site generation, local storage, among other things) should be promoted, and their clustering and aggregation fostered to attract more investments and increase affordability, with particular attention to low-income households or multi-occupancy buildings;

The EU's global leadership

30. Recalls the aims of the Paris Agreement in fostering global efforts for accelerated clean energy innovation; underlines the need to continue funding research and data collection on climate change; calls on the Commission, in line with the Sustainable Development Goals (SDGs), to explore different modalities with which to assist developing countries and emerging economies in their energy transition, through, inter alia, capacity-building measures, help in reducing the capital costs of renewables and energy-efficiency projects, fostering possible technology transfer, and providing solutions for the development of smart cities, as well as remote and rural communities, thus strengthening energy innovation ecosystems in developing countries and helping them deliver on their commitments under the Paris Agreement; welcomes, in this respect, the newly established European Fund for Sustainable Development;
31. Calls on the Commission to exploit the full potential of the Mission Innovation initiative, so that its members can honour and deliver on their commitment to double annual spending on clean energy R&D between 2015 and 2020; stresses the importance of seeking synergies with other global initiatives, such as, inter alia, the Breakthrough Energy Coalition, and with global equity and investment funds; welcomes, in this respect, the Union's leadership in the Converting Sunlight Innovation Challenge and the Affordable Heating and Cooling of Buildings Innovation Challenge; calls, in this context, for exploring the possibility of coordinated division of labour in energy innovation on a global scale;
32. Calls on the Commission to develop a comprehensive export strategy for sustainable, clean energy technologies and systemic solutions, including a dedicated support facility

and focused assistance from EU delegations in third countries; underlines in this context the role that Deep and Comprehensive Free Trade Areas (DCFTA) can play in the implementation of such a strategy;

33. Calls on the Commission and the Member States to conduct a thorough examination of patent registration procedures and requests the removal of unnecessary administrative burdens, which slow down the process of the market penetration of innovative products and affect the EU's role as a leader in the clean energy transition;

Citizen-driven energy innovation

34. 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, especially in energy savings and new production and consumption patterns, needed to meet the pressing challenges of sustainable growth and reap the advantages of the digital revolution and innovation in all fields, so as to ultimately succeed in the energy transition; notes that innovation can enable citizens to play a more active role in energy generation, including by feeding self-generated energy into the grid, and in contributing to a more efficient use of energy by reducing consumption at household level, thus decreasing both emissions and bills;
35. Stresses the necessity of strengthening Europe's knowledge base and reducing fragmentation by promoting excellence in science and education, with a view to creating research centres at the international forefront of academic excellence; emphasises the need to develop a strategy which will ensure that Europe attracts foreign talent while simultaneously maintaining contacts with top European talent abroad; recognises that a qualified workforce gives Europe a great advantage and is a major motor for developing investments in R&D&I;
36. Recognises the importance of fully democratic involvement of European citizens and communities as an essential part of a successful energy transition; stresses in parallel that the effective implementation of this transformation requires openness, transparency and a level playing field and must be founded on fair competition;
37. Believes in the potential of innovation in clean energies and energy efficiency to create new and better jobs; considers that, in order to manage a successful transition to a sustainable decarbonised economy, there is a need to ensure that labour markets can respond adequately to the new demands of innovative clean energy systems;
38. Calls on the Commission to pay more attention in its R&D initiatives to the link between innovation in energy systems and new professional profiles, education needs, jobs and training requirements;
39. Recognises the need for systemic education and engagement schemes designed to enable society to fully engage in the transformation of the energy system and to enable Europeans of all ages to gradually progress from awareness and understanding towards active involvement and empowerment; calls on the Commission, the Member States, regional and local authorities and the private sector to promote informed consumer choices and the engagement of citizens in energy-related matters through, inter alia,

awareness campaigns, comprehensive and accessible information on energy bills and price comparison tools, the promotion of self-generation, demand-response and cooperative sharing schemes, participatory budgets and crowd-funding for energy-related investments, and tax and investment incentives, as well as by steering technological solutions and innovations; calls on the Commission, the Member States and relevant authorities to identify best practices in addressing households in energy poverty;

40. Believes that regions and cities have a crucial role to play in enhancing sustainable energy models; recognises the vital role of regions, cities and towns in promoting ownership of the energy transition and in pushing climate and energy-related innovation from the bottom; notes that regions and urban areas are most suitable for testing and implementing integrated solutions with the direct involvement of citizens; stresses, in this respect, the role of the Covenant of Mayors, with its aspiration to foster the global exchange of best practices and the possible pooling of resources and investments; notes that rural areas also provide space for innovation that can overcome challenges such as remoteness or demographic change, as well as the provision of new services;
41. Urges the Commission and the Member States to assist regional and local authorities in taking coordinated steps to incentivise energy innovation at local and trans-regional level with the aim of developing coherent strategies; underlines that energy transition will have a drastic impact on employment in some regions of the European Union and, in that context, stresses that there should be a particular focus on regions facing the challenges of phasing out lignite, coal and other solid fossil fuel-based energy generation and on the mining industries in response to a decision by a Member State, the local authorities or the industry, or in response to other circumstances; underlines the need to support these regions in the development of inclusive, local and just transition strategies and in addressing societal, socio-economic and environmental impacts along with the reconversion of sites; highlights the financial options for providing such support through the partial use of ETS auction revenues, as well as through the Modernisation Fund to be set up for the period 2021-2030; considers that inclusive stakeholder processes should develop how best to attract alternative innovative businesses, start-ups, and industries with the aim of building a sustainable regional economy, boosting people's dignity and helping to replace electricity generation capacity with renewables or energy efficiency solutions; calls for research and innovation policies to focus on how to revitalise the regions concerned in terms of sustainable employment and growth perspectives, in particular where the retirement of energy generating capacity from lignite, coal or other solid fossil fuels is linked to mining activities;
42. Calls on the Commission to assist in empowering local and regional authorities in the deployment of clean energy innovation, such as smart cities, e-mobility and smart and micro-grids, as well as in the market penetration of renewables, depending on their level of maturity, and to help these authorities meet the challenges faced in advancing the energy transition, such as citizens' engagement; encourages the exchange of best practices, the pooling of investments and better assessment of the bankability of projects, and the development of financing strategies such as business cases and the use of public procurement and loans;

43. Believes that the transport sector holds enormous potential and should play a vital role in the transition and encourages the Commission to support existing funding for electric vehicles infrastructure deployment; calls on the Commission to continue to support and develop further initiatives such as the Europe-wide electromobility initiative and the Fuel Cells and Hydrogen Joint Undertaking;
44. Encourages the Commission to recognise the benefits of hydrogen mobility, as well as the sectoral coupling between the transport and the electricity sectors and to create incentives for new business models in similar areas, such as smart charging and vehicle-to-grid triggers, which would allow the owners of electric vehicles to sell to the power system in a flexible manner; calls on the Commission to ensure the financing of innovation aimed at the development of hydrogen storage and advanced long-term storage solutions for electric vehicles, the development of a hydrogen charging infrastructure, as well as infrastructure and plug-in solutions, including charging infrastructure for electric vehicles; encourages the Member States and local authorities to take further initiatives, such as fiscal incentives in relation to the market penetration of electric and hydrogen vehicles, tax reductions and exemptions for the owners of electric and hydrogen vehicles, as well as various other initiatives in relation to the promotion of the use of electric vehicles, such as price reductions, bonus payments and premiums for the buyers of electric vehicles, and the creation of free parking spaces for electric vehicles;
45. Notes the major efforts being made under the EU's Horizon 2020 research and development programme with a view to achieving a 60 % reduction in GHG emissions in the transport sector by 2050 compared with their 1990 level⁴; recalls that EU research and innovation programmes are a key enabler of the market uptake of energy, ICT innovation and intelligent transport systems; calls on the Commission, in future, to focus the available funding more clearly on interconnected strategic priorities, such as low-emission mobility, alternative fuel charging infrastructure and integrated urban transport, with particular attention to all polluting emissions, to noise reduction, road safety, congestion and bottlenecks, and in compliance with the principle of technological neutrality; points also to the importance of developing advanced biofuels, increasing the share of rail transport and cycling;
46. Welcomes the fact that the Commission will support the market uptake of innovative clean energy solutions through public procurement and the revision of the Clean Vehicles Directive, and recognises the potential benefit to public transport authorities and operators, bus manufacturers, industry suppliers, energy providers, national and international associations and research centres; calls on the Commission to come forward swiftly with proposals to this effect;
47. Encourages the setting-up of a Strategic Transport Research and Innovation Agenda, with roadmaps drawn up in consultation between the Member States and the Commission, and also local and regional authorities and operators, and a corresponding governance mechanism, to support research, innovation and the deployment of new technologies in the transport sector and to encourage low-emission mobility, all of which are much needed; calls for the conclusions of these roadmaps to be included in

⁴ As set out in the Commission's White Paper of 28 March 2011 entitled 'Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system' (COM(2011)0144).

the Commission's annual work programme;

48. Calls for an integrated and coordinated approach to take account of the urban dimension of EU and national policies and legislation, and for the development of Sustainable Urban Mobility Plans (SUMP) in order to support, enable and encourage the Member States to improve the health and quality of life of citizens and the state of the environment in urban areas; encourages the development of Cooperative Intelligent Transport Systems (C-ITS) and autonomous vehicles and the deployment of communicating infrastructures to guarantee the high capacity and low latency needs for a 5G network; calls for active efforts to reduce the disparities and improve cooperation between urban and rural areas and between more developed regions and those lagging behind when it comes to infrastructural quality;
49. Recognises the importance of the new European Consensus on Development signed in June 2017, which sets out a common vision and framework of action for the EU and its Member States in the field of development cooperation; notes that, for the first time, the 17 SDGs and associated targets to be achieved by 2030 are universally applicable to all countries, in view of the EU commitment to take the lead in implementing them; observes that the Consensus brings Union development policy into line with the 2030 Agenda for Sustainable Development and identifies important measures in the area of sustainable energy and climate change;
50. Recalls that Article 8 of the Common Provisions Regulation (CPR) lays down that 'the objectives of the ESI Funds shall be pursued in line with the principle of sustainable development', with the EU's aim of preserving, protecting and improving the quality of the environment, and with its commitments under the Paris Agreement;
51. Recalls that the Partnership Agreements and programmes under the CPR aim to promote resource efficiency, climate change mitigation and adaptation, and the horizontal principles of partnership, multi-level governance, non-discrimination and gender equality;
52. Considers that synergies between EU policies should be strengthened through a unified and consistent EU position on anti-dumping measures, in order to ensure that the manufacturing industry takes full advantage of the energy transition;
53. Recognises the vital role of regions, cities and towns in promoting ownership of the energy transition worldwide and in pushing for climate- and energy-related bottom-up innovation; calls for the application of the same environmental quality standards for all energy technology entering the EU market; expresses its concern about the safeguarding of urban green areas;

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54. 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.

25.10.2017

OPINION OF THE COMMITTEE ON THE ENVIRONMENT, PUBLIC HEALTH AND FOOD SAFETY

for the Committee on Industry, Research and Energy

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

Rapporteur: Stefan Eck

SUGGESTIONS

The Committee on the Environment, Public Health and Food Safety calls on the Committee on Industry, Research and Energy, as the committee responsible, to incorporate the following suggestions into its motion for a resolution:

1. Acknowledges that the European Union is one of the global leaders and largest public funders of clean energy; considers that research and innovation, with over EUR 10 billion in funding in this area, are key to supporting Europe's global competitiveness and leadership in advanced energy technologies and energy efficiency solutions;
2. Considers that citizens – as consumers, producers and providers – represent the main channel for society's uptake of low-carbon innovative solutions, which have a substantial impact on levels of green energy consumption; calls therefore on the Commission and the Member States to focus more efforts on facilitating and enhancing citizens' access to such solutions, including at domestic and particularly community level; supports, in this regard, the Commission's intention of decarbonising the EU's building stock by 2050, as it is alone responsible for over 40 % of the Union's final energy demand; expresses concerns about the tools and financial support available to achieve this major challenge set out in the Commission's communication;
3. Welcomes the fact that the Commission has reaffirmed its ambition to speed up the transition towards a competitive low-carbon economy by putting forward a comprehensive strategy on incentives for private investments, tailored financial instruments and financing towards research and innovation; welcomes, in this regard, the Commission's decision to invest more than EUR 2 billion of the total 2018-2020 Horizon work programme funds in clean energy research and innovation, electro-mobility, decarbonisation of building stock and integration of renewables;
4. Points out that research and innovation help make Europe a better place to live and work,

encouraging competitiveness and boosting growth and job creation; observes that actions to speed up clean energy innovation should be strongly encouraged by promoting public and private investment and EU industrial competitiveness, while mitigating the social impact of the transition to clean energy;

5. Stresses the key role of climate and clean energy policies as drivers of innovation in the real economy; recalls that binding standards and targets have fostered EU leadership in eco-innovation and is concerned that, without the stepping up of current climate and clean energy policy ambition, the EU is already losing its lead market position in new technologies and conceptual innovations;
6. Acknowledges that increased funding for research projects will lead to cost reductions and a more competitive European energy storage industry; encourages the Member States to pool their resources for carrying out large-scale projects on low-carbon innovation in order to improve the cooperation between key European research stakeholders; believes that this will speed up the coordination of these stakeholders, making them more competitive;
7. Emphasises the potential of Carbon Capture and Storage as an innovative solution to effectively reduce emissions from fossil energy use in industrial processes;
8. Recalls that regulatory quality and public sector integrity are two dimensions of public governance that are critically important for investment in clean energy innovation and infrastructure; supports more intensive implementation of different financial instruments for the uptake of innovative clean energy solutions, by both public and private organisations; takes note of the gaps in the private financing of innovative technologies and encourages the better use of public resources in order to improve inward private investment;
9. Stresses the importance of the EU Urban Agenda, and welcomes the political shift towards municipal and regional authorities of the power to make green investments, facilitating cooperation in this field; stresses the importance of the Global Covenant of Mayors for Climate and Energy, given the essential involvement of local and regional authorities in making the transition to a low-carbon economy;
10. Notes that our seas and oceans provide a vast renewable source of energy, particularly along the Atlantic seaboard, and could also become major sources of clean energy; observes that marine renewable energy, which includes both sea winds and the ocean itself, offers the EU an opportunity to generate economic growth and job creation, enhance the security of its energy supply and boost competitiveness through technological innovation;
11. Stresses that public water and sewerage utilities are energy intensive and also contribute to greenhouse gas emissions from untreated sewage; notes the need to promote consistent policies in the circular economy, particularly in view of the vital importance of the energy-water nexus, by using water more efficiently, reducing energy consumption and encouraging the provision of materials with market value, the introduction of new automation systems and efficient and accessible data systems, and innovation and new technologies;

12. Highlights the importance of ensuring that, in the future, a European low-carbon transition will be geared to the interests of all, focusing primarily on the needs of consumers, SMEs and public services; encourages public procurement of innovative low-carbon solutions;
13. Recommends stepping up efforts to invest in research and innovation, in the technological and health-related education of pupils and students and in cooperation within the knowledge triangle (education, science and business), including on renewable energy sources and energy efficiency and their impact on the environment and on citizens' health;
14. Considers that European water and energy policies should be linked, encouraging cooperation and closer integration with other industrial sectors, promoting innovative funding models and using more renewable energy instead of fossil fuels for the urban water cycle without sacrificing reliability and efficiency;
15. Stresses that the burden of environmental degradation, air pollution and health costs resulting from extracting and burning fossil fuels must be a matter for all stakeholders; considers that fossil fuel subsidies present a major obstacle to clean energy innovation and insists on redirecting such resources to financing clean energy innovation and uptake; calls on the Commission and the Member States to jointly develop a roadmap for the phasing out of fossil fuel subsidies by 2020, to be replaced by commensurate subsidies for domestic and community-based clean energy projects, with strict timelines and country-specific and measurable outcomes;
16. Notes the 'Clean Power' package presented by the Commission on 30 November 2016, introducing a regulatory framework for renewables and the internal energy market to ensure security of supply and energy efficiency in the European Union beyond 2020; regrets, however, that this package leaves subsidies for fossil fuels and nuclear power untouched and fails to introduce rules for the internalisation of external costs generated by those activities;
17. Highlights the importance of energy savings and energy efficiency in the context of clean energy innovation; stresses that energy efficiency needs to be considered as regards production of fuels/energy as well as in in-use terms;
18. Recalls the Parties' commitment as part of the Paris Agreement to conserve and enhance forest sinks and notes the limited potential of bioenergy as its use can have negative climate, eco-system service and other environmental impacts;
19. Recognises the importance of the new European Consensus on Development signed in June 2017, which sets out a common vision and framework of action for the EU and its Member States in the field of development cooperation; notes that, for the first time, the 17 Sustainable Development Goals (SDGs) and associated targets to be achieved by 2030 are universally applicable to all countries, in view of the EU commitment to take the lead in implementing them; observes that the Consensus brings Union development policy into line with the 2030 Agenda for Sustainable Development and identifies important measures in the area of sustainable energy and climate change;
20. Recognises the importance of manure processing, bio-fermentation and nutrient enhancement for the farming economy and energy transition in the Union and the Member States, for example through the production of green gas, electricity and heat, and the

resulting energy savings, improvements in air and soil quality and reduction of emissions;

21. Points out that energy poverty affects around 54 million EU citizens (10.8 % of the EU population), who were unable to heat their homes adequately in 2012; calls on the Commission to promote a vigorous policy of energy efficiency in buildings, which account for the largest share (40 %) of energy consumed in the EU, by encouraging renovation works, with the long-term aim of decarbonising the EU's buildings, which currently leave much to be desired in terms of energy efficiency.

INFORMATION ON ADOPTION IN COMMITTEE ASKED FOR OPINION

Date adopted	12.10.2017
Result of final vote	+: 55 -: 1 0: 3
Members present for the final vote	Marco Affronte, Pilar Ayuso, Zoltán Balczó, Catherine Bearder, Ivo Belet, Biljana Borzan, Lynn Boylan, Paul Brannen, Soledad Cabezón Ruiz, Nessa Childers, Birgit Collin-Langen, Miriam Dalli, Seb Dance, Mark Demesmaecker, Stefan Eck, José Inácio Faria, Karl-Heinz Florenz, Francesc Gambús, Elisabetta Gardini, Gerben-Jan Gerbrandy, Arne Gericke, Jens Gieseke, Julie Girling, Sylvie Goddyn, Françoise Grossetête, Andrzej Grzyb, Jytte Guteland, Jean-François Jalkh, Benedek Jávor, Karin Kadenbach, Kateřina Konečná, Urszula Krupa, Jo Leinen, Peter Liese, Norbert Lins, Rupert Matthews, Valentinas Mazuronis, Susanne Melior, Gilles Pargneaux, Piernicola Pedicini, Julia Reid, Daciana Octavia Sârbu, Annie Schreijer-Pierik, Renate Sommer, Ivica Tolić, Nils Torvalds, Adina-Ioana Vălean, Damiano Zoffoli
Substitutes present for the final vote	Herbert Dorfmann, Luke Ming Flanagan, Elena Gentile, Merja Kyllönen, Ulrike Müller, Christel Schaldemose, Bart Staes, Keith Taylor
Substitutes under Rule 200(2) present for the final vote	John Howarth, Răzvan Popa, Sven Schulze

FINAL VOTE BY ROLL CALL IN COMMITTEE ASKED FOR OPINION

55	+
ALDE	Catherine Bearder, Gerben-Jan Gerbrandy, Valentinas Mazuronis, Ulrike Müller, Nils Torvalds
ECR	Mark Demesmaeker, Arne Gericke, Julie Girling, Urszula Krupa, Rupert Matthews
EFDD	Piernicola Pedicini
GUE/NGL	Lynn Boylan, Stefan Eck, Luke Ming Flanagan, Kateřina Konečná, Merja Kyllönen
PPE	Pilar Ayuso, Ivo Belet, Birgit Collin-Langen, Herbert Dorfmann, José Inácio Faria, Karl-Heinz Florenz, Francesc Gambús, Elisabetta Gardini, Jens Gieseke, Françoise Grosselet, Andrzej Grzyb, Peter Liese, Norbert Lins, Annie Schreijer-Pierik, Sven Schulze, Renate Sommer, Ivica Tolić, Adina-Ioana Vălean
S&D	Biljana Borzan, Paul Brannen, Soledad Cabezón Ruiz, Nessa Childers, Miriam Dalli, Seb Dance, Elena Gentile, Jytte Guteland, John Howarth, Karin Kadenbach, Jo Leinen, Susanne Melior, Gilles Pargneaux, Răzvan Popa, Christel Schaldemose, Daciana Octavia Sârbu, Damiano Zoffoli
VERTS/ALE	Marco Affronte, Benedek Jávor, Bart Staes, Keith Taylor

1	-
EFDD	Julia Reid

3	0
ENF	Sylvie Goddyn, Jean-François Jalkh
NI	Zoltán Balczó

Key to symbols:

+ : in favour

- : against

0 : abstention

24.11.2017

OPINION OF THE COMMITTEE ON TRANSPORT AND TOURISM

for the Committee on Industry, Research and Energy

on Accelerating Clean Energy Innovation
(2017/2084(INI))

Rapporteur: Isabella De Monte

SUGGESTIONS

The Committee on Transport and Tourism calls on the Committee on Industry, Research and Energy, as the committee responsible, to incorporate the following suggestions into its motion for a resolution:

- A. whereas the transport sector represents one third of the EU's energy consumption, holds enormous potential for energy efficiency and carbon emissions reduction, and should therefore play a vital role in the transition towards new energy solutions and to a low-carbon society; whereas, in order to do so, advanced innovative storage solutions and infrastructure based on alternative sources, as well as digital innovation, are needed to support tourism businesses and smart mobility services, in particular SMEs, start-ups and new business models in the transport sector;
 - B. whereas the transport sector has a pivotal role to play in the implementation of the Paris Climate Agreement and its goal of limiting the global rise in temperature to well below 2°C; whereas decarbonisation of the transport sector relies on further deployment of renewable energies, and therefore strong links between energy and transport, as well as effective integration between the European industrial fabric and scientific research, are necessary in order to achieve sectoral integration in full respect of the principle of technological neutrality;
 - C. whereas the increased promotion and support of energy efficiency, renewable energy technology and electric mobility, alongside digitalisation, intelligent transport systems and intelligent infrastructure that optimises energy generation, will accelerate the transition to a competitive low-carbon economy, supporting jobs, growth and investment, and boost European economies;
1. Welcomes the Commission's communication⁵ and the actions proposed therein, including

⁵ COM(2016)0763.

the Commission and the European Investment Bank's intention to set up a Cleaner Transport Facility, such as the current Green Shipping Facility, in order to support the deployment and development of, and innovation in, new alternative energy transport solutions; also welcomes the role of the European Fund for Strategic Investments (EFSI) in mobilising private investments in this field; underlines that public-private partnerships and joint undertakings in the field of research, development and innovation (such as the Joint Technology Initiative on Fuel Cells and Hydrogen) could reduce the risk factor, thus creating the right incentives and conditions to attract investors in clean energy;

2. Calls on the Commission to evaluate the infrastructure needs for the deployment of alternative fuels, in order to address all specific energy challenges according to the various transport sectors, including railways, light-duty and heavy-duty road vehicles, and aviation, maritime and waterway transport;
3. Strongly believes that in order to meet the EU's renewable energy deployment goals, policymakers urgently need to strengthen investment conditions, not only regarding investment policy but also competition, trade and financial market policy; recalls that investment conditions are among the main factors holding back investment and innovation in renewable energy and that the broader investment environment should not contradict investment and innovation in renewable energy;
4. Underlines the importance of supporting and incentivising the most promising innovations and state-of-the-art technologies in Europe, in the framework of a bottom-up, user-centred, technology-neutral and interdisciplinary approach, at the intersection of energy, the transport industry and digital technologies, in particular those technologies that deliver significant greenhouse gas (GHG) savings from a life-cycle point of view (including hydrogen and electric vehicles); welcomes the work of the European Research Council in the field of fundamental research and the Commission's initiative to set up a European Innovation Council; believes that synergies between trans-European transport, telecommunications and renewable energy networks should have stronger support within the future multiannual financial framework (MFF);
5. Notes the major efforts being made under the EU's Horizon 2020 research and development programme with a view to achieving a 60 % reduction in GHG emissions in the transport sector by 2050 compared with their 1990 level⁶; recalls that EU research and innovation programmes are a key enabler of the market uptake of energy, ICT innovation and intelligent transport systems; calls on the Commission, in future, to focus the available funding more clearly on interconnected strategic priorities, such as low-emission mobility, alternative fuel charging infrastructure and integrated urban transport, with particular attention to all polluting emissions, noise reduction, road safety, congestion and bottlenecks and in compliance with the principle of technological neutrality; points also to the importance of developing advanced biofuels, increasing the share of rail transport and cycling;
6. Welcomes the fact that the Commission will support the market uptake of innovative clean energy solutions through public procurement and revision of the Clean Vehicles Directive, and recognises the potential benefit to public transport authorities and

⁶ As set out in the Commission's White Paper entitled 'Towards a competitive and resource-efficient transport system' (COM(2011)0144).

operators, bus manufacturers, industry suppliers, energy providers, national and international associations and research centres; calls on the Commission to come forward swiftly with proposals to this effect;

7. Encourages the setting-up of a Strategic Transport Research and Innovation Agenda, with roadmaps drawn up in consultation between the Member States and the Commission, and also local and regional authorities and operators, and a corresponding governance mechanism, to support research, innovation and the deployment of new technologies in the transport sector and to encourage low-emission mobility, all of which are much needed; calls for the conclusions of these roadmaps to be included in the Commission's annual work programme;
8. Underlines the need to share and scale up best practices and the exchange of information between Member States on smart, sustainable and inclusive urban projects; also underlines the benefits of stricter post-2020/2021 CO₂ standards in line with EU decarbonisation objectives as a driver for innovation and efficiency; calls for an integrated and coordinated approach to take account of the urban dimension of EU and national policies and legislation and for the development of Sustainable Urban Mobility Plans (SUMP) in order to support, enable and encourage the Member States to improve the health and quality of life of citizens and the state of the environment in urban areas; encourages the development of Cooperative Intelligent Transport Systems (C-ITS) and autonomous vehicles and the deployment of communicating infrastructures to guarantee the high capacity and low latency needs for a 5G network; calls for active efforts to reduce the disparities and improve cooperation between urban and rural areas and between more developed regions and those lagging behind when it comes to infrastructural quality;
9. Notes that transport represents almost a quarter of the EU's GHG emissions and is the main cause of air pollution in cities; points out that buses are a significant part of any public transport system and are the only public transport mode in many EU cities, and that the electrification of buses alongside the other numerous sustainable alternative fuel solutions represents a promising opportunity to reduce the carbon footprint of EU public transport services;
10. Emphasises that if we want to have clean transport, we must also be able to generate clean energy; considers that electric vehicles supplied by coal-fired power plants simply do not fit in with the concept of a carbon-free economy;
11. Emphasises that any investments in research and development for the future technologies needed for clean and carbon-free mobility must be accompanied by a basic requirement to change energy inputs;
12. Supports the overarching goals set by the Commission, particularly the need to prioritise energy efficiency, including a single smart EU electricity grid, to give more financial support, particularly to SMEs and to the tourism industry, and to adopt clean-energy policies and taxation schemes in order to accelerate the transition to low-emission alternative energy sources; encourages the Member States to join the Mission Innovation Initiative and to increase their clean energy research expenditure in the forthcoming years; urges the Commission to invest also in targeted communication campaigns seeking to raise awareness of the energy production cycle, the challenges facing research in this area, and the risks associated with a non-sustainable consumption model;

13. Notes that, for transport, it is clear that electricity generated from renewable sources and other alternative and sustainable energy sources are promising substitutes for fossil fuels; underlines, however, that significant investment will be needed to develop the required infrastructure; recalls that it is important to recognise that some sectors will have a more difficult time than others in switching or even transitioning to cleaner energy alternatives; emphasises the need to intensify research into innovative renewable energy systems in transport, for example using solar and wind energy for ships and linking renewable energy sources with electric rail networks, and, even though aviation is likely to remain dependent on liquid hydrocarbon fuels for the foreseeable future, into solutions that cover the aviation value chain which could help to minimise the environmental impacts of manufacturing and innovation.

INFORMATION ON ADOPTION IN COMMITTEE ASKED FOR OPINION

Date adopted	23.11.2017						
Result of final vote	<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">+:</td> <td style="text-align: right;">33</td> </tr> <tr> <td>–:</td> <td style="text-align: right;">2</td> </tr> <tr> <td>0:</td> <td style="text-align: right;">5</td> </tr> </table>	+:	33	–:	2	0:	5
+:	33						
–:	2						
0:	5						
Members present for the final vote	Lucy Anderson, Marie-Christine Arnautu, Georges Bach, Deirdre Clune, Michael Cramer, Luis de Grandes Pascual, Andor Deli, Isabella De Monte, Ismail Ertug, Jacqueline Foster, Dieter-Lebrecht Koch, Merja Kyllönen, Miltiadis Kyrkos, Bogusław Liberadzki, Peter Lundgren, Marian-Jean Marinescu, Gesine Meissner, Cláudia Monteiro de Aguiar, Renaud Muselier, Markus Pieper, Salvatore Domenico Pogliese, Gabriele Preuß, Christine Revault d'Allonnes Bonnefoy, Dominique Riquet, Massimiliano Salini, Jill Seymour, Pavel Telička, Wim van de Camp, Janusz Zemke, Roberts Zīle, Kosma Złotowski, Elżbieta Katarzyna Łukacijewska						
Substitutes present for the final vote	Jakop Dalunde, Mark Demesmaeker, Jill Evans, Maria Grapini, Peter Kouroumbashev, Jozo Radoš, Olga Sehnalová						
Substitutes under Rule 200(2) present for the final vote	Juan Fernando López Aguilar						

FINAL VOTE BY ROLL CALL IN COMMITTEE ASKED FOR OPINION

33	+
ALDE	Gesine Meissner, Jozo Radoš, Dominique Riquet, Pavel Telička
GUE/NGL	Merja Kyllönen
PPE	Georges Bach, Deirdre Clune, Andor Deli, Dieter-Lebrecht Koch, Elżbieta Katarzyna Łukacijewska, Marian-Jean Marinescu, Cláudia Monteiro de Aguiar, Renaud Muselier, Markus Pieper, Salvatore Domenico Pogliese, Massimiliano Salini, Luis de Grandes Pascual, Wim van de Camp,
S&D	Lucy Anderson, Isabella De Monte, Ismail Ertug, Maria Grapini, Peter Kouroumbashev, Miltiadis Kyrkos, Bogusław Liberadzki, Juan Fernando López Aguilar, Gabriele Preuß, Christine Revault d'Allonnes Bonnefoy, Olga Sehnalová,
Verts/ALE	Janusz Zemke Michael Cramer, Jakop Dalunde, Jill Evans
2	-
EFDD	Peter Lundgren, Jill Seymour
5	0
ECR	Mark Demesmaecker, Jacqueline Foster, Roberts Zīle, Kosma Złotowski
ENF	Marie-Christine Arnautu

Key to symbols:

+ : in favour

- : against

0 : abstention

8.12.2017

OPINION OF THE COMMITTEE ON REGIONAL DEVELOPMENT

for the Committee on Industry, Research and Energy

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

Rapporteur: Monika Smolková

SUGGESTIONS

The Committee on Regional Development calls on the Committee on Industry, Research and Energy, as the committee responsible, to incorporate the following suggestions into its motion for a resolution:

1. Recalls that Article 8 of the Common Provision Regulation (CPR) lays down that ‘the objectives of the ESI Funds shall be pursued in line with the principle of sustainable development’, with the EU’s aim of preserving, protecting and improving the quality of the environment, and with its commitments under the Paris Agreement; stresses, in that regard, the need for greater coherence between the EU’s sectoral and funding policies; urges the Commission and the Member States to involve cities, regions and civil society, giving them an active role in drawing up and implementing specific measures;
2. Recalls that the Partnership Agreements and programmes under the CPR aim to promote resource efficiency, climate change mitigation and adaptation, and the horizontal principles of partnership, multi-level governance, non-discrimination and gender equality;
3. Recalls that the European Structural and Investment Funds (ESI Funds) provide important opportunities for energy innovation and its market deployment and in this way can play an important role in Europe’s energy transition; welcomes the Commission’s intention to put in place targeted financial instruments to achieve the right balance between grants and financial instruments and underlines that public-private partnerships (PPPs) and joint undertakings in the field of research, development and innovation could encourage private sector investments in clean energy; emphasises that support for regions and cities under the ESI Funds must be stepped up in the area of the energy transition; points out, specifically, that economic support and resources for the implementation of local energy renovation programmes should be increased; urges the Member States and the Commission to stop direct or indirect support for distorting

or environmentally harmful subsidies, in order to redirect financial flows towards clean energy research; recalls the EU's 2020 strategy pledge to prioritise energy efficiency and renewable-based initiatives;

4. Notes the overall progress in the implementation of the Europe 2020 goals as regards the renewable energy transition; underlines, however, that the results vary significantly among different Member States; points out that increased investment in clean energy-related scientific endeavours could help both in achieving set tasks and producing tangible outcomes; recalls that binding standards and targets can address climate change and environmental concerns, ensure the sustainable security of supply and maintain the EU's competitive advantage in the field of climate-friendly energy technologies; underlines that most of the clean energy technologies used currently (for example, wind and solar power) are highly dependent on variable natural factors that may compromise the stability of energy supply in separate regions or even Member States, and calls, therefore, for adequate attention to be paid to the interconnectivity of electricity grids, power reserve balancing, storage and other measures necessary for a fully functional common energy market; calls for investment in both research and innovative projects to be focused in particular on renewable energy cooperatives, renewable energy decentralisation and self-generation initiatives, and on innovative action on the part of SMEs; points out, in addition, the importance of maintaining territorial balance in the EU and of providing more extensive support for regions and cities that are less developed in this sense;
5. Considers that the smart specialisation approach (resulting in over 120 research and innovation strategies for smart specialisation), as set up by the reformed cohesion policy for 2014-2020, should be further developed; encourages also, in this context, the setting up of interregional partnerships, including on energy, with a particular focus on cross-border cooperation projects; stresses the need to improve information for beneficiaries at local and regional level in order to ensure the greatest possible involvement of small and medium-sized enterprises active in this field, along with young entrepreneurs, as well as cooperation with universities to ensure swift implementation of innovative solutions; stresses that continuous and reinforced cohesion policy is required in the post-2020 period if the EU's clean energy goals are to be achieved;
6. Emphasises the special characteristics of and opportunities provided by certain territories, such as the outermost regions, when it comes to innovation in clean energy; underlines, in this context, that additional support is needed for less developed, remote and rural regions to ensure energy convergence across all the EU regions;
7. Insists on the importance of a bottom-up, multidisciplinary and technology-neutral approach involving all relevant stakeholders – local, regional and national authorities, universities and SMEs – in order to stimulate research, development and innovation, in terms of both technology and partnerships under the umbrella of the European Innovation Council, which can contribute with innovative products, in particular through start-up and scale-up measures for SMEs; stresses that to ensure successful energy transition, regional and local authorities and stakeholders, including smaller ones, should be involved in the policy-making process at the early stage;
8. Is concerned about the variety and complexity of the existing financial instruments

(Horizon 2020, ESI Funds, European Fund for Sustainable Development, European Fund for Strategic Investments, etc.), which could be used as an additional tool only for those sectors in which they have proven to be more appropriate than grants for achieving cohesion policy objectives, and insists that efforts be made to simplify and coordinate these instruments so that regional and local authorities and small project promoters can access funding sources more easily and thus contribute to overall economic, social and territorial cohesion; emphasises that the instruments should be tailored to the specific needs of different regions; points out that in order to enhance synergies and mitigate the complementarity of EU funds, the one-stop advisory facility and the European Investment Project Portal should be further developed, with a view to directing potential investors towards suitable financing instruments; underlines that the simplification and leveraging of EU financial instruments through the mobilisation of private investment alone will not be sufficient, and that EU public funding will be required to cover necessary and ambitious infrastructure projects, given the difficulties in accessing financial instruments and the complexity of the procedures, which have been cited by beneficiaries as key obstacles; notes that there should be no mandatory target for the use of financial instruments in post-2020 cohesion policy; supports the idea of increasing climate-related spending in cohesion policy after 2020;

9. Stresses the need for a stable, sustainable, transparent and predictable regulatory environment for the development of innovative projects, with thematic and geographical allocation of resources and more straightforward dissemination of innovations to citizens; takes the view that Member States have a key role to play in the field of energy transition and stresses the need to coordinate research and innovation measures geared towards energy transition at EU level to meet the EU's energy targets; emphasises the importance of investing more energy in the transition of less developed regions so that they can exploit the potential of clean energy and the circular economy in order to ensure swift cohesion; encourages the Member States to join the Mission Innovation initiative and increase their research spending; believes that future ESI Fund planning should be better integrated with the national energy and climate plans for 2030;
10. Considers that the Urban Agenda for the EU is an important tool to engage cities and also to promote energy transition in the EU, and stresses the importance of incentives for innovation in the field of the energy efficiency of buildings, with a view to reducing energy consumption to a minimum in 2050; calls for a flexible, tailor-made approach in the implementation of the Urban Agenda, providing incentives and guidance to fully exploit the potential of cities; notes that regions and urban areas are most suitable for testing and implementing integrated energy solutions in direct connection with citizens; considers that synergies between EU policies should be strengthened through a unified and consistent EU position on anti-dumping measures, in order to ensure that the manufacturing industry takes full advantage of the energy transition;
11. Welcomes the forthcoming revision of the Energy Performance of Buildings Directive; calls, nevertheless, on Member States to launch further initiatives to improve conditions for energy-poor households; sees improved energy efficiency as an opportunity for the creation of new jobs, in particular in the building sector; recommends, therefore, that the bioeconomy be promoted, especially among young entrepreneurs active in the sector;
12. Underlines the need to extend the Investment Plan for Europe to SME funding as far as

possible, which should be adapted to their requirements;

13. Believes that citizens should be at the centre of the energy transition and that a more decentralised bottom-up, user-centred energy system, in which consumers, local energy communities, cities and small-start-ups can participate and push future developments and innovations, represents a driver for innovation; endorses efforts, therefore, to support and harmonise the technological education of children and young people in the EU; notes the importance of administrative capacities and civic awareness with regard to the end goals and possibilities of involvement in clean energy transition;
14. Stresses the importance of identifying and tackling excessive bureaucracy and unfair market practices given their negative impact in the early stages of revolutionary emerging technologies;
15. Recognises the vital role of regions, cities and towns in promoting ownership of the energy transition worldwide and in pushing climate- and energy-related bottom-up innovation; calls for the application of the same environmental quality standards for all energy technology entering the EU market; expresses its concern about the safeguarding of urban green areas.

INFORMATION ON ADOPTION IN COMMITTEE ASKED FOR OPINION

Date adopted	7.12.2017
Result of final vote	+: 30 -: 1 0: 0
Members present for the final vote	Pascal Arimont, Victor Boștinaru, Andrea Cozzolino, Rosa D'Amato, John Flack, Michela Giuffrida, Krzysztof Hetman, Ivan Jakovčić, Constanze Krehl, Iskra Mihaylova, Andrey Novakov, Konstantinos Papadakis, Stanislav Polčák, Fernando Ruas, Monika Smolková, Ruža Tomašić, Ramón Luis Valcárcel Siso, Ángela Vallina, Monika Vana, Matthijs van Miltenburg, Lambert van Nistelrooij, Derek Vaughan, Kerstin Westphal, Joachim Zeller
Substitutes present for the final vote	Viorica Dăncilă, Andor Deli, Tunne Kelam, Norica Nicolai, Bronis Ropė, Claudia Schmidt, Milan Zver

FINAL VOTE BY ROLL CALL IN COMMITTEE ASKED FOR OPINION

30	+
ALDE	Ivan Jakovčić, Iskra Mihaylova, Matthijs van Miltenburg, Norica Nicolai
ECR	John Flack, Ruža Tomašić
EFDD	Rosa D'Amato
GUE/NGL	Ángela Vallina
PPE	Pascal Arimont, Andor Deli, Krzysztof Hetman, Tunne Kelam, Lambert van Nistelrooij, Andrey Novakov, Stanislav Polčák, Fernando Ruas, Claudia Schmidt, Ramón Luis Valcárcel Siso, Joachim Zeller, Milan Zver
S&D	Victor Boştinaru, Andrea Cozzolino, Viorica Dăncilă, Michela Giuffrida, Constanze Krehl, Monika Smolková, Derek Vaughan, Kerstin Westphal
VERTS/ALE	Bronis Ropė, Monika Vana

1	-
NI	Konstantinos Papadakis

0	0

Key to symbols:

+ : in favour

- : against

0 : abstention

INFORMATION ON ADOPTION IN COMMITTEE RESPONSIBLE

Date adopted	11.1.2018
Result of final vote	+: 55 -: 3 0: 2
Members present for the final vote	Bendt Bendtsen, Xabier Benito Ziluaga, José Blanco López, David Borrelli, Jonathan Bullock, Reinhard Bütikofer, Jerzy Buzek, Edward Czesak, Fredrick Federley, Ashley Fox, Theresa Griffin, Hans-Olaf Henkel, Eva Kaili, Kaja Kallas, Barbara Kappel, Krišjānis Kariņš, Seán Kelly, Jeppe Kofod, Peter Kouroumbashev, Zdzisław Krasnodębski, Miapetra Kumpula-Natri, Christelle Lechevalier, Janusz Lewandowski, Edouard Martin, Csaba Molnár, Nadine Morano, Aldo Patriciello, Miroslav Poche, Paul Rübig, Massimiliano Salini, Algirdas Saudargas, Sven Schulze, Patrizia Toia, Claude Turmes, Vladimir Urutchev, Kathleen Van Brempt, Henna Virkkunen, Martina Werner, Lieve Wierinck, Hermann Winkler, Anna Záborská, Flavio Zanonato, Carlos Zorrinho
Substitutes present for the final vote	Michał Boni, Mario Borghezio, Jens Geier, Gerben-Jan Gerbrandy, Werner Langen, Morten Løkkegaard, Florent Marcellesi, Marian-Jean Marinescu, Rupert Matthews, Clare Moody, Răzvan Popa, Dennis Radtke, Michèle Rivasi, Sofia Sakorafa, Anneleen Van Bossuyt
Substitutes under Rule 200(2) present for the final vote	Max Andersson, Mihai Țurcanu

FINAL VOTE BY ROLL CALL IN COMMITTEE RESPONSIBLE

55	+
ALDE	Fredrick Federley, Gerben-Jan Gerbrandy, Kaja Kallas, Morten Løkkegaard, Lieve Wierinck
ECR	Edward Czesak, Ashley Fox, Hans-Olaf Henkel, Zdzisław Krasnodębski, Rupert Matthews, Anneleen Van Bossuyt
EFDD	David Borrelli
ENF	Barbara Kappel
PPE	Bendt Bendtsen, Michał Boni, Jerzy Buzek, Krišjānis Kariņš, Seán Kelly, Werner Langen, Janusz Lewandowski, Marian-Jean Marinescu, Nadine Morano, Aldo Patriciello, Dennis Radtke, Paul Rübig, Massimiliano Salini, Algirdas Saudargas, Sven Schulze, Vladimir Urutchev, Henna Virkkunen, Hermann Winkler, Anna Záborská, Mihai Țurcanu
S&D	José Blanco López, Jens Geier, Theresa Griffin, Eva Kaili, Jeppe Kofod, Peter Kouroumbashev, Miapetra Kumpula-Natri, Edouard Martin, Csaba Molnár, Clare Moody, Miroslav Poche, Răzvan Popa, Patrizia Toia, Kathleen Van Brempt, Martina Werner, Flavio Zanonato, Carlos Zorrinho
VERTS/ALE	Max Andersson, Reinhard Bütikofer, Florent Marcellesi, Michèle Rivasi, Claude Turmes

3	-
EFDD	Jonathan Bullock
GUE/NGL	Xabier Benito Ziluaga, Sofia Sakorafa

2	0
ENF	Mario Borghezio, Christelle Lechevalier

Key to symbols:

+ : in favour

- : against

0 : abstention