Wednesday 19 May 2021

P9_TA(2021)0240

A European Strategy for Energy System Integration

European Parliament resolution of 19 May 2021 on a European strategy for energy system integration (2020/2241(INI))

(2022/C 15/05)

The European Parliament,

— having regard to the Treaty on the Functioning of the European Union, and in particular Article 194 thereof,

— having regard to the Paris Climate Agreement of 12 December 2015,

— having regard to United Nations Sustainable Development Goal 7 'Ensuring access to affordable, reliable, sustainable and modern energy for all',

— having regard to the Commission communication of 16 February 2016 entitled 'An EU Strategy on Heating and Cooling' (COM(2016)0051),

— having regard to the Commission communication of 28 November 2018 entitled 'A Clean Planet for all — A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy' (COM(2018)0773),

— having regard to the Commission communication of 11 December 2019 on 'The European Green Deal' (COM(2019)0640),

— having regard to the Commission communication of 19 February 2020 entitled 'A European Data Strategy' (COM(2020)0066),

— having regard to the Commission communication of 10 March 2020 entitled 'A New Industrial Strategy for Europe' (COM(2020)0102),

— having regard to the Commission communication of 8 July 2020 entitled 'Powering a climate-neutral economy: An EU Strategy for Energy System Integration' (COM(2020)0299),

— having regard to the Commission communication of 8 July 2020 entitled 'A hydrogen strategy for a climate-neutral Europe' (COM(2020)0301),

— having regard to the Commission communication of 17 September 2020 entitled 'Stepping up Europe's 2030 climate ambition — Investing in a climate-neutral future for the benefit of our people' (COM(2020)0562),

— having regard to the Commission communication of 14 October 2020 entitled 'Renovation Wave for Europe — greening our buildings, creating jobs, improving lives' (COM(2020)0662),

— having regard to the Commission communication of 14 October 2020 entitled 'An EU strategy to reduce methane emissions' (COM(2020)0663),

— having regard to the Commission report of 14 October 2020 on the State of the Energy Union (COM(2020)0950),

— having regard to the Commission report of 14 October 2020 on progress of clean energy competitiveness (COM(2020)0953),

— having regard to the Commission's progress report of 14 October 2020 on energy efficiency (COM(2020)0954),

— having regard to the Commission's Renewable Energy Progress Report of 14 October 2020 (COM(2020)0952),

— having regard to the Commission report of 14 October 2020 entitled 'Energy prices and costs in Europe' (COM(2020)0951),

— having regard to the Commission communication of 19 November 2020 entitled 'An EU Strategy to harness the potential of offshore renewable energy for a climate neutral future' (COM(2020)0741),

Wednesday 19 May 2021

— having regard to the Council conclusions of 25 June 2019 on the future of energy systems in the Energy Union to ensure the energy transition and the achievement of energy and climate objectives towards 2030 and beyond,

— having regard to the Council conclusions of 11 December 2020 on a new EU climate target for 2030,

— having regard to the European Council conclusions of 12 December 2019,

— having regard to the Hydrogen Initiative launched by the Austrian Presidency of the Council in Linz on 17 and 18 September 2018,

— having regard to the Sustainable and Smart Gas Infrastructure for Europe Initiative launched by the Romanian Presidency of the Council in Bucharest on 1 and 2 April 2019,

— having regard to Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity ([1]),

— having regard to Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC ([2]),

— having regard to Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009 ([3]) (TEN-E Regulation),

— having regard to Regulation (EU) No 1316/2013 of the European Parliament and of the Council of 11 December 2013 establishing the Connecting Europe Facility, amending Regulation (EU) No 913/2010 and repealing Regulations (EC) No 680/2007 and (EC) No 67/2010 ([4]) (Connecting Europe Facility Regulation), which is currently being revised,

— having regard to Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the deployment of alternative fuels infrastructure ([5]),

— having regard to Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council ([6]),

— having regard to Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources ([7]) (Renewable Energy Directive),

— having regard to Directive (EU) 2018/2002 of the European Parliament and of the Council of 11 December 2018 amending Directive 2012/27/EU on energy efficiency ([8]) (Energy Efficiency Directive),

— having regard to Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU ([9]),

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([1]) OJ L 283, 31.10.2003, p. 51.
([2]) OJ L 266, 26.9.2006, p. 1.
([3]) OJ L 115, 25.4.2013, p. 39.
([4]) OJ L 348, 20.12.2013, p. 129.
([5]) OJ L 307, 28.10.2014, p. 1.
([6]) OJ L 328, 21.12.2018, p. 1.
([7]) OJ L 328, 21.12.2018, p. 82.
([8]) OJ L 328, 21.12.2018, p. 210.
([9]) OJ L 158, 14.6.2019, p. 125.

— having regard to Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity ([10]),

— having regard to Council Regulation (EU) No 559/2014 of 6 May 2014 establishing the Fuel Cells and Hydrogen 2 Joint Undertaking ([11]),

— having regard to its resolution of 14 March 2019 on climate change — a European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy in accordance with the Paris Agreement ([12]),

— having regard to its resolution of 28 November 2019 on the climate and environment emergency ([13]),

— having regard to its resolution of 28 November 2019 on the 2019 UN Climate Change Conference in Madrid, Spain (COP 25) ([14]),

— having regard to its resolution of 15 January 2020 on the European Green Deal ([15]),

— having regard to its resolution of 2 July 2020 on a comprehensive European approach to energy storage ([16]),

— having regard to its resolution of 10 July 2020 on the revision of the guidelines for trans-European energy infrastructure ([17]),

— having regard to Rule 54 of its Rules of Procedure,

— having regard to the opinion of the Committee on Transport and Tourism,

— having regard to the report of the Committee on Industry, Research and Energy (A9-0062/2021),

A. whereas Parliament, the Council and the Commission have endorsed the goal of a climate-neutral economy by 2050, in line with the Paris Agreement and on the basis of equity and best available science with the aim of limiting the global temperature increase to 1,5 °C above pre-industrial levels;

B. whereas the Commission has proposed a common greenhouse gas (GHG) emission reduction objective of at least 55 % by 2030, while Parliament has endorsed the goal of reducing GHG gas emissions by 60 % by 2030;

C. whereas the 2020 State of the Energy Union report has shown that the energy demand is decreasing overall in the EU but is increasing in certain sectors, such as transport and Information and Communication Technologies (ICT);

D. whereas buildings are responsible for approximately 40 % of the EU's total energy consumption, and for 36 % of GHG emissions from energy, and ICT account for 5 to 9 % of global electricity consumption;

E. whereas 70 % of the primary energy used in the EU in 2017 came from fossil fuels (oil, natural gas and coal) ([18]);

F. whereas the International Energy Agency estimates that approximately one third of the global methane emissions come from the energy sector;

G. whereas achieving climate neutrality requires moving away from a system based largely on fossil fuels, and towards a highly energy-efficient climate-neutral and renewable-based system;

H. whereas energy system integration means the coordinated planning and operation of the energy system as a whole, across multiple energy carriers and connected infrastructure, and all final consumers;

([10]) OJ L 158, 14.6.2019, p. 54.
([11]) OJ L 169, 7.6.2014, p. 108
([12]) OJ C 23, 21.1.2021, p. 11.
([13]) Texts adopted, P9_TA(2019)0078.
([14]) Texts adopted, P9_TA(2019)0079.
([15]) Texts adopted, P9_TA(2020)0005.
([16]) Texts adopted, P9_TA(2020)0198.
([17]) Texts adopted, P9_TA(2020)0199.
([18]) Eurostat 2019 report on energy, transport and environment statistics: https://ec.europa.eu/eurostat/documents/3217494/10165279/KS-DK-19-001-EN-N.pdf/76651a29-b817-eed4-f9f2-92bf692e1ed9

Wednesday 19 May 2021

I. whereas the integration of energy systems can bring a response to many of the challenges stemming from energy transition, and particularly the challenge of decarbonisation, optimisation and balancing of the energy networks, therefore guaranteeing security of supply and fostering the EU's strategic autonomy;

J. whereas the twin green and digital transitions of the energy networks will require unprecedented public and private investments in infrastructure modernisation and new infrastructure deployment when necessary, as well as investments in buildings renovation, and research and development;

K. whereas energy system integration can accelerate the transition towards a climate-neutral economy while aiming at keeping the costs for European citizens, authorities and businesses within realistic limits, while strengthening energy security, protecting health and the environment, and promoting growth, innovation and global industrial leadership; whereas a cost-efficient energy sector integration must be implemented;

L. whereas as per Regulation (EU) 2018/1999, the energy efficiency first principle should be implemented effectively in any energy supply and demand planning and in policy and investment decisions, which means that any decision should be systematically assessed against alternative cost-efficient, technically, economically and environmentally sound energy efficiency measures;

M. whereas the COVID-19 crisis has shown that it is crucial to be able to rely on a safe and flexible energy system; whereas additional electricity and heating costs have put more pressure on households;

1. Supports the direction set out by the Commission in its communication on a strategy for energy system integration, namely a cascading priority for energy efficiency and savings, decarbonisation of end-uses through direct electrification, renewable-based and low-carbon fuels for applications that do not have another alternative; calls on the Commission and the Member States to ensure that a coherent long-term approach is implemented in a spirit of solidarity and cooperation and that a stable regulatory framework be designed for the industries concerned and society as a whole; underlines that the private sector, along with the public sector, will play a key role in the success and effective implementation of this strategy and support the building of an energy system that drives the EU towards climate neutrality by 2050 at the latest;

2. Believes that such a strategy can help the Union set out a path towards achieving its climate goals while maintaining energy accessibility, affordability and security of supply through the development of a circular, highly energy efficient, integrated, interconnected, resilient, smart, multi-modal, fair and decarbonised system; highlights that this strategy, especially in the aftermath of the COVID-19 pandemic, should set out a vision that supports a climate-neutral economy, while strengthening energy security and competitiveness, boosting jobs and small and medium-sized enterprises (SMEs), protecting health and the environment and also promoting sustainable growth and innovation;

3. Recalls the importance of taking into account the diversity of national energy systems and challenges; encourages the Commission to explore various decarbonisation pathways that can help each Member State to use the most efficient decarbonisation solutions according to their needs and resources;

Optimising and decarbonising energy systems

4. Reiterates its support for the energy efficiency first principle, meaning that energy savings and efficiency gains must be prioritised; recalls that circularity and direct electrification, where possible, present an important pathway towards decarbonisation; highlights the need to develop a resilient and climate-neutral energy system taking into account the principle of cost-efficiency; stresses the need for a portfolio of climate-friendly solutions that will enable the most energy-efficient and cost-effective technologies to thrive in the market and will help to reduce the carbon footprint and contribute to fostering energy independence in the Union;

5. Underlines the numerous benefits of increasing energy efficiency efforts such as reduced dependency on energy imports, lower consumption bills, increased industrial competitiveness, and overall climate and environment benefits;

6. Calls on the Commission to assess the possibility of applying the energy efficiency first principle in the upcoming revisions of Union legislation and methodologies and in new initiatives, notably for scenario and infrastructure planning and cost-benefit analysis, and through recommendations to Member States on their national legislation;

7. Notes the high energy consumption in the water sector; calls on the Commission to consider energy-efficient measures for the EU water sector and the possibility of using treated waste water as an on-site source of renewable energy in energy system integration;

8. Notes the insufficient progress made by Member States, and by the Union as a whole, on energy efficiency and renovation of buildings, as presented in the 2020 Energy Efficiency Progress Report; urges the Commission to revise the targets set out in the Energy Efficiency Directive, making them more aligned with the climate targets after a thorough impact assessment, while taking into account its recommendations as part of the Energy Union governance process and the Climate Target Plan; calls on the Commission to review the existing measures and adopt more targeted policies, especially in those sectors, such as transport, where progress has been insufficient; welcomes, in this regard, the renovation wave strategy and the upcoming revision of Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency ([19]); recalls the importance of assessing the impacts of revised targets on businesses, notably SMEs;

9. Calls on the Commission to extend the principle of energy efficiency to the entire value chain and to all end-uses, as a cost-efficient way to reduce emissions; calls on the Commission to propose concrete initiatives to reduce energy losses along the transmission and distribution networks, through the revision of the TEN-E Regulation and Regulation (EU) 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010 ([20]);

10. Welcomes the new EU Methane Strategy; recalls that it is essential to rapidly deploy methane emissions monitoring systems that rely on satellite observation technologies such as the ones developed through the Copernicus programme; calls on the Commission to propose measures to further reduce methane emissions in the energy sector; welcomes the Commission's proposal to make measuring, reporting and verification, and leak detection and repair, mandatory;

11. Underlines the potential of the reuse of waste, particularly energy and waste heat from industrial processes, biowaste, buildings and data centres; emphasises the sustainable production of energy stemming from agriculture, food consumption and forestry; calls on the Commission and the Member States to develop effective incentives and business models to recover industrial waste heat and unavoidable waste heat into heat networks or storage, when further revising the Waste Framework Directive ([21]);

12. Draws attention to the challenge of decarbonising heating and cooling; calls for the further implementation of the heating and cooling strategy, including when revising the Renewable Energy Directive, the Energy Efficiency Directive, as well as the creation of an enabling framework when revising the environmental and energy State aid guidelines ([22]); highlights the potential of 4th and 5th generation high-efficiency low-temperature district heating networks; notes that they can play a significant role in cost-efficient heat decarbonisation in urban and industrial areas; welcomes the fact that district heating and cooling networks will be eligible for funding under the revised Connecting Europe Facility Regulation, and calls for their inclusion as potential projects of common interest under the TEN-E Regulation; calls, moreover, on the Commission to take heat infrastructure and thermal storage into account when developing the 10-year network development plans for both the European Network of Transmission System Operators for Electricity (ENTSO-E) and the European Network of Transmission System Operators for Gas (ENTSO-G); notes with concern the low replacement rate of old and inefficient heating systems; welcomes the ongoing revision of the secondary legislation on energy labelling and ecodesign of space and water heaters and coolers; stresses the potential of digital tools for smart energy management while ensuring cybersecurity and data protection;

13. Recalls that the energy transition will require between EUR 520 and EUR 575 billion in annual infrastructure investment and the commensurate and effective deployment of renewable energy; calls on the Commission to develop an inclusive, integrated and realistic scenario planning, which further considers energy efficiency and energy system

([19]) OJ L 156, 19.6.2018, p. 75.
([20]) OJ L 280, 28.10.2017, p. 1.
([21]) Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (OJ L 312, 22.11.2008, p. 3).
([22]) Guidelines on State aid for environmental protection and energy.

integration, in line with the Sustainable Europe Investment Plan; notes the need to observe the sustainable investment criteria set out in Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment ([23]) and financial tools which are fully in line with the climate and energy targets for 2030 and climate neutrality by 2050 at the latest in order to make sure that it does not lead to stranded assets; underlines that various European programmes and financing instruments have a key role in fostering the energy transition; stresses the need to ensure that the use of energy sources such as natural gas is only of transitional nature, given the objective of achieving climate neutrality; emphasises that system integration should make maximum use of existing energy infrastructure that can help deliver a cost-effective transition throughout many sector**s**;

14. Highlights the importance of assessing *ex-ante* and anticipating the need for energy efficiency measures, system integration or new energy production, interconnectivity, transmission, distribution, storage and conversion infrastructure in order to optimise the use of existing energy infrastructure in a climate-neutral economy while ensuring its economic, environmental and social viability and its cost-efficiency while avoiding both lock-in effects and stranded assets; underlines the importance of observing the principle of technology neutrality among those technologies necessary to achieve climate neutrality, as some of the technologies that will be needed in the foreseeable future still require investments in research and development; demands that each infrastructure project should include an alternative scenario that is based on demand reduction and/or sector integration before being constructed;

15. Welcomes the publication of the new EU Strategy on Offshore Renewable Energy; stresses that the rapid development of offshore energy islands is crucial in order to achieve our renewable energy capacity objective by 2030; believes that this strategy is an opportunity to ramp up renewable power generation, to increase the direct use of electricity and to support indirect electrification, for example, through hydrogen and synthetic fuels; calls, therefore, for a comprehensive revision of the EU legislation on energy infrastructure and a targeted revision of the relevant State aid guidelines to promote the deployment of all renewable energy sources; points to the potential for citizens, industries and the public sector to further harness solar energy at distribution level; calls on the Member States to simplify permission procedures and to remove administrative barriers for renewable production;

16. Calls on the Commission to use the revision of the TEN-E Regulation as an opportunity to make it fully consistent with the goal of climate neutrality; underlines that the principles of emissions reductions, digitalisation and energy system integration should be enshrined in the regulation's objectives and the 10-year network development planning, as well as a longer planning timeframe aligned to the climate neutrality target in order to, inter alia, avoid stranded costs; stresses that investments to digitalise existing infrastructure can significantly improve its management through the use of digital twins, algorithms or artificial intelligence; supports the widening of the scope of the regulation to energy infrastructure such as storage and hydrogen; calls for an integrated, coordinated network plan that includes all energy carriers and infrastructure progressively; stresses that the energy system infrastructure should be integrated with the digital and transport systems;

17. Encourages the Commission to propose more ambitious measures and targets in the revision of the Renewable Energy Directive on the promotion of renewable energy in order to increase the share of renewable energy across sectors on the basis of a thorough impact assessment; stresses the need to accelerate the transition towards an energy system based on renewable energy sources and faster electrification of end-use sectors, where possible, bearing in mind costs and energy efficiency;

18. Welcomes the adoption of the Renovation Wave for Europe strategy that will speed up the uptake of energy and resource efficiency measures and higher penetration of renewables in buildings throughout the EU; calls on the Commission and the Member States to take into account the synergies between the energy sector and the building sector in order to achieve climate neutrality; emphasises that renovating existing building stock will be complementary to the decarbonisation of the energy production;

19. Recognises the progress achieved so far in integrating the EU's energy markets with those of the Energy Community Contracting Parties; highlights the importance of promoting cooperation on renewable energy; stresses the need to strengthen cross-border cooperation mechanisms in the upcoming revision of the Renewable Energy Directive on the promotion of renewable energy;

([23]) OJ L 198, 22.6.2020, p. 13.

20. Welcomes the adoption of the European Hydrogen Strategy; stresses that priority should be given to building a renewable hydrogen supply chain in Europe to foster first-mover advantages, industrial competitiveness and the security of energy supply; is convinced that renewable and low-carbon hydrogen can help reduce persistent emissions, such as those from industrial processes and heavy transport, where direct electrification might be limited due to low cost-efficiency or technical, social and environmental reasons; recalls the need to accelerate the decarbonisation of existing hydrogen production; supports the launch of important projects of common European interest on hydrogen; calls on the Commission to develop a comprehensive classification and certification framework of gaseous carriers on the basis of the full life cycle GHG emissions savings and sustainability criteria, in line with the approach set out in the Renewable Energy Directive on the promotion of renewable energy; stresses that such a classification is of utmost importance for market players, authorities and consumers; underlines the need to develop a robust framework and appropriate baseline to ensure that sufficient additional renewable energy generation capacity is deployed in proportion to the need for renewable hydrogen; calls on the Commission to consider this diversity of needs in its forthcoming legislative proposals; calls on the Commission to guarantee a fair and efficient competition between hydrogen that is imported from international partners and hydrogen that is produced in the EU;

21. Underlines the role that environmentally safe carbon capture storage and utilisation (CCS/U) could play in reaching the European Green Deal objectives; supports an integrated policy context to stimulate the uptake of environmentally safe CCS/U applications that deliver a net reduction in greenhouse gas emissions to make heavy industry climate neutral where no direct emission reduction options are available; notes the Commission's proposal to convene an annual European CCUS Forum as part of the Clean Energy Industrial Forum to further study options to foster such projects; recalls the need to prioritise direct emission reductions and actions maintaining and enhancing the EU's natural sinks and reservoirs, for instance through sustainable forest management;

22. Highlights that transport can be a significant facilitator of renewable energy deployment; calls on the Commission and Member States to propose a favourable policy framework and ambitious targets based on the principle of technology neutrality among those technologies necessary to achieve climate neutrality, for a just, affordable and balanced transition towards the decarbonisation of all passenger and freight transport modes, including public fleets and networks, road, maritime, inland waterborne, rail and air transport primarily through electrification, and where this is not possible, sustainably-produced fuels; welcomes the Commission's announcement of the deployment of one million charging points for electric vehicles in the revision of Directive 2014/94/EU; calls on the Commission to incentivise car manufacturers to enable vehicle-to-grid charging; stresses the need to adapt the electrification networks and infrastructure for alternative fuels for Europe's vehicle fleet as well as to support other readily deployable solutions, notably in transport hubs; underlines the potential for internal cooperation on the decarbonisation of transport across borders; highlights in this respect the critical role of the Transport Community and the Commission in order to create synergies with neighbouring countries and accelerate the transfer of EU standards on transport emissions; stresses the importance of public transport in reducing energy demand and the need to develop and expand decarbonised public transport in both urban and rural areas;

23. Stresses that there are sectors that are increasing their energy consumption, such as the transport sector, the tourism sector and the ICT sector; supports the Commission in looking into the synergies between district heating and cooling networks and sources of unavoidable waste heat; welcomes the commitment included in the EU Digital Strategy to make data centres climate-neutral by 2030; calls on the Commission to propose an action plan for the participation of the tourism sector in the process of energy system integration, looking inter alia at the promotion of rail tourism, soft and e-mobility and the creation of circular-energy communities in sustainable tourism;

Balancing energy systems

24. Notes that maintaining the balance of electricity grids and managing demand and production peaks will be more complex with an increasingly decentralised and renewable generation mix and in this respect underlines the role of demand-side response, storage and smart energy management; highlights that moving towards decentralised energy production has many benefits: it can foster the use of local energy sources, leading to increased local security of energy supply, community development and cohesion by providing new sources of income and creating new jobs; recalls that Member States remain free to determine their energy mix, the diversity of which is fundamental to ensuring security of supply;

25. Stresses that interconnections are more important than ever to ensure the transport of renewable energy to the areas where demand will be the highest and balance the energy system as a whole; stresses the need to maximise electricity trade and to implement the obligation to use a minimum of 70 % of the existing interconnection capacity set out by Article 16(8) of Regulation (EU) 2019/943; underlines that the Commission and Member States concerned should put in place effective measures which will address the lack of offshore connectors in view of the rising role of offshore energy in an integrated energy system;

26. Regrets that a number of Member States have not yet reached their 10 % electric interconnection target by 2020; welcomes the Commission's proposal to raise the 2030 electricity interconnection target to 15 %, provided that it better supports national investments through the list of projects of common interest; encourages the Commission to relaunch the work of the expert group on interconnection targets;

27. Notes that power grid infrastructure should be further enhanced through digitalisation and automation to provide flexibility to the system and take advantage of synergies with other energy vectors; welcomes the Commission's announcement of a 'Digitalisation of Energy Action Plan' to develop a competitive market for digital energy services that ensures data privacy, sovereignty and supports investment in digital energy infrastructure; emphasises that smart grids will allow for the growing penetration of decentralised and flexible renewable energy, as well as a highly interconnected electricity system;

28. Reiterates that the European energy storage capacity is an essential source of flexibility and security of supply; highlights the need to reduce regulatory barriers to the installation of storage equipment; calls on the Commission to assess how to reduce the costs of taxes and levies on energy transformation and energy storage, and to eliminate the potential double taxation on storage projects in its forthcoming revision of Directive 2003/96/EC; recalls the importance to ensure full interoperability of different transport and storage systems, including those with cross-border relevance and connected to third countries; urges the Commission to revise that directive while avoiding undue market distortions at the expense of other energy sources and adverse effects on consumers;

29. Calls on the Member States to improve access to capital for all energy storage projects, with an emphasis on the modernisation of existing infrastructure; calls on the Commission to further take into consideration the need for deployment of storage infrastructure in the next list of projects of common interest and in the revision of the guidelines on State aid for environmental protection and energy;

30. Notes with concern the large dependence of the EU on imports of lithium-ion batteries; welcomes therefore the approach identified in the Strategic Action Plan for Batteries ([24]), notably the diversification of sources of raw materials, the development of alternatives to rare earths, the full use of the EU trade policy to ensure sustainable and secure supply and the development of incentives for circularity, as well as the establishment of the European Battery Alliance;

31. Recalls the complementary role that Power-to-X technologies can play in balancing grids to overcome infrastructure bottlenecks, transporting energy and providing flexibility and seasonal storage of heat and electricity as they are easy to integrate in existing infrastructure; is convinced that these technologies will help integrate the increasing share of renewable electricity production; notes the need to develop hydrogen storage capacities;

32. Recalls the importance of interconnectors and cooperation between network operators; welcomes the establishment of regional coordination centres under Regulation (EU) 2019/943; believes that an integrated and cross-sectoral approach should be applied by TSOs for the future planning of the networks, as well as consistency with climate and energy targets and the National Energy and Climate Plans;

33. Highlights the advantages of a 'multi-directional' system in which consumers play an active role in energy supply; recalls that the Member States must ensure that all citizens have the right to produce, consume and store their own energy individually or as a community and in this respect underlines the role of flexibility options in the shift from a supply-driven

([24]) Annex II to the Commission communication of 17 May 2018 entitled 'Europe on the move: Sustainable Mobility for Europe: safe, connected and clean' (COM(2018)0293).

to a demand-driven energy system, enabling active consumers for demand-response via digital solutions fully in line with the General Data Protection Regulation ([25]); calls on the Commission and the Members States to explore ways of further incentivising the development of a European market for demand-side flexibility through, inter alia, common standards for end-use flexibility, an assessment of the potential benefits and impacts on energy system costs; welcomes flexible integrated energy systems that aim to optimise the district heating/cooling sector as well as the use of efficient and flexible high efficiency cogeneration contributing to the balancing of the electricity grid, cost-effective use of renewable energy sources and waste heat integration at local/regional level; calls for the swift implementation of Directive (EU) 2019/944 and its provisions on demand-side response;

34. Stresses the role that electric mobility can play as a form of smart integration of the power and transport sectors by unlocking flexibility capacities; stresses that the electrification of the transport sector has the potential to increase the Union's energy strategic autonomy by reducing the need for imported fossil fuels; underlines the storage and flexibility potential of the deployment of 'vehicle-to-grid' technologies and notes that it will require the interoperability of energy systems and electric vehicles;

35. Recalls the importance of addressing cybersecurity risks in the energy sector to ensure the resilience of the energy systems; underlines that the increasing number of connected products, such as heating appliances, electric vehicles and smart meters, may increase the risk of cybersecurity attacks to the electricity system; urges the Commission to swiftly address cybersecurity risks by setting a high level of cybersecurity protections for connected products in the context of the electricity network code on cybersecurity;

36. Stresses that a more renewable, decentralised and better integrated energy system requires better forecasting of energy demand and more real-time matching of the supply and storage from different energy carriers; highlights, in this regard, the crucial role of digitalisation for the processing of statistical and meteorological data; calls on the Commission and the Member States to develop an internal market for digital energy technologies while protecting consumers' privacy and personal data; encourages Member States to adopt the Smart Readiness Indicator developed as part of Directive 2010/31/EU on the energy performance of buildings ([26]) in order to tap into the potential for demand-side flexibility at building level; stresses that this will require more common standards for data exchange; welcomes the intention of the Commission to adopt an action plan for the digitalisation of energy to foster the EU technological leadership and enable a more integrated energy system with intelligent solutions in specific sectors (such as smart grids, more efficient and safe transport and energy savings in buildings), with improved funding for the 2021-2027 period;

37. Reiterates the crucial role of the Agency for Cooperation of Energy Regulators in the energy system integration and the implementation of the EU energy legislation; calls on the Commission and the Member States to make sure that the agency is provided with sufficient means to carry out its missions;

Ensuring energy accessibility and affordability for all citizens and businesses

38. Recalls that the primary objective of Union action in the field of energy is to ensure the proper functioning of the market with regard to the need to preserve and improve the environment; calls on the Commission to take the necessary measures to safeguard the well-functioning of energy markets, to ensure the full implementation of the *acquis* for the internal energy market, including the Clean Energy Package, to align consumer rights in the gas and district heating sectors with those of electricity consumers, and help them contribute to the decarbonisation of the economy; stresses the importance of guiding customers towards the most energy-efficient and cost-effective decarbonisation option, on the basis of prices that properly reflect all the costs of the energy carrier used; welcomes the initiative to revise Directive 2003/96/EC and transform it into an instrument aligning taxation policies to the energy and climate targets for 2030 and 2050; calls on

([25]) Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (OJ L 119, 4.5.2016, p. 1).

([26]) Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (OJ L 153, 18.6.2010, p. 13).

the Commission and the Member States to integrate the climate objectives in this directive; stresses the need to revise its scope and differentiate fossil gases, low-carbon gases and renewable gases to incentivise the development of sustainable alternatives; calls on the Member States to remove undue taxes and levies to ensure taxation is harmonised, to promote clean innovative technologies, and to ensure competitive energy costs in Europe; calls on the Member States to work on phasing out direct and indirect fossil fuel subsidies;

39. Concurs with the Commission's analysis on the need to further work towards the phase out of fossil fuel subsidies, the need to provide more consistent price signals across energy sectors and the Member States, the lack of consistency on high non-energy related charges and levies borne by electricity customers and the fact that external costs are not internalised; urges the Commission and Member States to remedy the known problems through effective regulatory measures;

40. Is convinced of the need to encourage energy consumers to be more active; welcomes the entry into force of the new provisions set out in Directive (EU) 2019/944, which enable active consumers to fully participate to the market and reap the benefits of their activities; calls on the Commission to assess the remaining barriers to facilitate the development of renewable self-consumption and renewable energy communities in particular those in low-income or vulnerable households and for industrial consumers; calls for transparent information on the climate impact of energy choices as part of the planned consumer information campaign;

41. Highlights the consumer empowerment potential in the integrated renewable energy systems to generate, consume, store, and sell energy; considers that it also provides opportunities for renewable energy communities for advancing energy efficiency at household level and helping fight energy poverty;

42. Reiterates the potential of energy communities and micro grids to develop access to more sustainable energy, especially for remote areas, islands and the outermost regions; stresses the need to ensure the integration of these areas with the trans-European Networks for Energy, and to develop projects to make islands or groups of islands energy self-sufficient from renewable sources such as demonstrated with the Horizon 2020 Tilos project;

43. Calls on the Commission to propose rules allowing citizens' energy communities to further participate in energy system integration, for example through the connection to heat networks, electric-mobility charging, storage or demand-response devices alongside renewable-energy production;

Ensuring European leadership on sustainable and renewable energy technologies

44. Recalls that one of the objectives of the Energy Union is to reduce our import dependency and to ensure security of supply and technology independence; calls for the EU to learn from the current economic crisis and work towards more autonomy in strategic value chains; considers that the creation of synergies can help achieve this objective;

45. Stresses the importance of increasing the competitiveness of European technologies to foster the autonomy of the Union in the strategic energy sector; calls on the Commission to support research and innovation through the various structural and sectoral funds; recalls the Union's global leadership in satellite emission measurement technologies and in particular the Copernicus Atmosphere Monitoring Service; recalls the expertise of the European Centre for Medium-Range Weather Forecasts in predicting weather and therefore anticipating fluctuations in the energy demand; calls on the Commission to consider further supporting technologies that will contribute to a climate-proof and integrated energy system, including where Europe has global leadership and domestic-based value chains;

46. Notes with concern that the conclusions of the 2020 Report on the State of the Energy Union highlight declining research and innovation investments in the area of clean energy technologies; reiterates the crucial role of the EU support for research and innovation, particularly disruptive innovation; welcomes the increased budget for research in the Horizon Europe programme and the establishment of the European Research Area;

47. Highlights the need for a just transition and calls on the Commission and Member States to address structural changes in the energy sector in all relevant legislative proposals in order to help facilitate the transition towards climate neutrality; reiterates the promise outlined in the new Green deal that no one should be left behind; notes in this regard that

it is of the utmost importance to transform the skills of employees in sectors that face the risk of disappearing through the green transition; highlights the value of the well-established European expertise on energy system integration, and calls on Member States to value this expertise and help transfer it from the fossil energy sector to a climate-neutral sector integrated energy system;

48. Highlights the following groundbreaking process innovations and technologies that need to be further enhanced in a circular economy perspective and an effective sector integration strategy:

(a) high efficiency and renewable hydrogen-based steel production, combining steel recycling and permanent iron mould production,

(b) district heating through underground transport excess heat,

(c) smart charging and modal shift in the transport sector,

(d) sustainable replacement of petrochemical and agrochemical products and their related processes,

(e) new generation of battery production and recycling,

(f) and liquid immersion technologies for data centres substantially reducing energy needs and excess heat;

49. Welcomes the initiatives undertaken for strategic value chains; calls for recognising renewable energy technologies as a strategic value chain and for the establishment of an alliance to support efforts in scaling up these technologies, as well as an initiative on enhancing process and energy efficiency; calls on the Commission to ensure a transparent governance of all alliances including the participation of SMEs, civil society, non-governmental organisations and independent experts while guaranteeing geographical diversity;

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50. Instructs its President to forward this resolution to the Council and to the Commission.