INI on Electricity Grids

FINAL

CA1

- The CA1 covers the whole motion for resolution of the report.
- All AMs from 1 to 413 fall in case of adoption of CA1.

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MOTION FOR A EUROPEAN PARLIAMENT RESOLUTION on Electricity grids: the backbone of the EU energy system (2025/2006(INI))

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 Commission communication of 8 July 2020 entitled "Powering a climate-neutral economy: An EU Strategy for Energy System Integration" (COM(2020) 299 final),***

– having regard to the Commission communication of 28 November 2023 entitled 'Grids, the missing link - An EU Action Plan for Grids' (COM(2023)0757),

– ***having regard to the Commission report of January 2025 entitled "Investment needs of European energy infrastructure to enable a decarbonised economy"[1a],***

> ***[1a] European Commission: Artelys, Directorate-General for Energy, LBST, Trinomics, Finesso, A. et al., Investment needs of European energy infrastructure to enable a decarbonised economy – Final report, Publications Office of the European Union, 2025.***

– ***having regard to the Commission communication of 26 February 2025 entitled "Action Plan for affordable Energy" (COM(2025) 79),***

– ***having regard to the Commission communication of 26 February 2025 entitled "The Clean Industrial Deal: A joint roadmap for competitiveness and decarbonisation " (COM(2025) 85),***

– ***having regard to the Commission communication of 5 March 2025 entitled "Industrial Action Plan for the European automotive sector" (COM(2025)95),***

– having regard to Regulation (EU) 2021/1153 of the European Parliament and of the Council of 7 July 2021 establishing the Connecting Europe Facility and repealing Regulations (EU) No 1316/2013 and (EU) No 283/2014[1] (the CEF Regulation),

> [1.] OJ L 249, 14.7.2021, ELI: http://data.europa.eu/eli/reg/2021/1153/oj.

– having regard to Regulation (EU) 2022/869 of the European Parliament and of the Council of 30 May 2022 on guidelines for trans-European energy infrastructure, amending Regulations (EC) No

715/2009, (EU) 2019/942 and (EU) 2019/943 and Directives 2009/73/EC and (EU) 2019/944, and repealing Regulation (EU) No 347/2013[2] (the TEN-E Regulation),

[2.] OJ L 152, 3.6.2022, p. 45, ELI: http://data.europa.eu/eli/reg/2022/869/oj.

– 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[3],

[3.] OJ L 158, 14.6.2019, p. 125, ELI: http://data.europa.eu/eli/dir/2019/944/oj.

– 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[4],

[4.] OJ L 158, 14.6.2019, p. 54, ELI: http://data.europa.eu/eli/reg/2019/943/oj.

– having regard to Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652[5] (the Renewable Energy Directive),

[5.] OJ L, 2023/2413, 31.10.2023, ELI: http://data.europa.eu/eli/dir/2023/2413/oj.

– having regard to Directive (EU) 2024/1275 of the European Parliament and of the Council of 24 April 2024 on the energy performance of buildings (recast) (EPBD),

– having regard to Directive (EU) 2024/1711 of the European Parliament and of the Council of 13 June 2024 amending Directives (EU) 2018/2001 and (EU) 2019/944 as regards improving the Union's electricity market design[6],

[6.] OJ L, 2024/1711, 26.6.2024, ELI: http://data.europa.eu/eli/dir/2024/1711/oj.

– having regard to Regulation (EU) 2024/1747 of the European Parliament and of the Council of 13 June 2024 amending Regulations (EU) 2019/942 and (EU) 2019/943 as regards improving the Union's electricity market design[7] (Electricity Market Design (EMD) Regulation),

[7.] (OJ L, 2024/1747, 26.6.2024, ELI: http://data.europa.eu/eli/reg/2024/1747/oj).

– having regard to the 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, that reflects the electricity interconnection targets;

– having regard to the Council conclusions on 'Advancing Sustainable Electricity Grid Infrastructure', as approved by the Transport, Telecommunications and Energy Council at its meeting on 30 May 2024,

– having regard to its resolution of 10 July 2020 on a comprehensive European approach to energy storage[1a],

[1a] Texts adopted, P9_TA(2020)0198.

– having regard to its resolution of 19 May 2021 on a European strategy for energy system integration[1b],

[1b] Texts adopted, P9_TA(2021)0240.

– having regard to the report of the Union's Agency for the Cooperation of Energy Regulators (ACER) of January 2023 entitled "Electricity Transmission and Distribution Tariff Methodologies in Europe",

– having regard to the report of the Union's Agency for the Cooperation of Energy Regulators (ACER) of 19 December 2023 entitled "Demand response and other distributed energy resources: what barriers are holding them back",

– having regard to the study published on 28 April 2025 by ENTSO-E on potential alternative bidding zone configurations based on location marginal pricing simulations provided by TSOs,

– having regard to Rule 55 of its Rules of Procedure,

– having regard to the report of the Committee on Industry, Research and Energy (A10-0000/2025),

A. whereas electricity grids are essential for the Union to achieve its clean energy transition and to deliver renewable energy while supporting economic growth ***and prosperity***; ***whereas inefficiencies and lack of full integration negatively impact energy prices for consumers and companies;***

B. whereas in light of the growing demand for electricity, significant investments and upgrades are required***, along with regulatory oversight,*** to increase cross-border ***and national level*** transmission capacity and modernise infrastructure, ensuring a ***decarbonised,*** flexible, ***more*** decentralised***,*** digitalised ***and resilient*** electricity system;

B a. whereas poor connectivity and grid bottlenecks are among the main reasons the EU cannot fully benefit from the significant installed capacities of wind and solar energy, thus ensuring affordable prices for households and industry; whereas the lack of strong interconnection between regions with different natural and climatic characteristics leads to overproduction of energy and administrative limitation of renewable production in some regions, while other regions are struggling with insufficient supply and high prices;

B b. whereas transmission system operators (TSOs) are essential for integrating offshore renewable energy into the EU grid, in particular for those connected to more than one market; whereas, if TSOs fail to provide the agreed grid capacity, compensation should be paid to developers for lost export capacity, funded by congestion income; whereas such compensation should be shared fairly among TSOs and align with principles of non-discrimination and maximising cross-border trade; whereas this highlights the importance of maintaining a functioning interconnector backbone, as failures in interconnector capacity may result in costs for both producers and TSOs;

B c. whereas Europe will only reach its decarbonisation objectives if there is a coordinated, pan-European approach to electricity system planning, connecting borders, sectors and regions;

B d. whereas the planning of electricity transmission and distribution networks must be coordinated to ensure the effective development of the European electricity system;

B e. whereas the EU electricity grid was built for a 20th century economy based on centralised, fossil fuel-fired electricity generation and must be modernised to meet the demands of a digitised economy with increased levels of electrification and a higher share of decentralised and variable renewable energy sources;

B f. whereas cross-border interconnectors, transmission and distribution grid infrastructure are critical for integrating renewables, reducing costs for European consumers and increasing security of supply;

B g. whereas grid projects distribution level are already eligible for funds under CEF-E, however, whereas only a small share has been allocated to distribution grids under the last PCI list, whereas

CEF-E should better reflect the role of distribution grids for the achievement of EU energy and climate targets;

B h. whereas ENTSO-E have calculated that cross-border electricity needs could reach EUR 13 billion per year until 2050 but that this would reduce system costs by EUR 23 billion per year;

B i. whereas the energy efficiency first principle is a fundamental principle of EU energy policy and is legally binding; notes that correct implementation of the energy efficiency first principle will significantly reduce energy consumption thus lowering the need for investments in electricity grids and interconnectors;

B j. whereas keeping the energy policy triangle of sustainability, security of supply and affordability in balance is key for a successful energy transition and for a reliable European energy system;

B k. whereas network planning is a long-term process closely linked to investment stability;

B l. whereas system flexibility needs are expected to double by 2030 in light of increased share of renewables; whereas demand-side flexibility is therefore crucial for grid stability; whereas individual citizens, business and communities participating in the electricity market may bring manifold benefits for the grids, such as enhanced system efficiency, resilience, investment optimization, improved social acceptance, lower energy costs; whereas serious delays and inconsistencies in implementing existing EU provisions on citizens energy, demand flexibility and smart network operations remain a concern;

B m. whereas recycling meets between 40% and 55% of Europe's aluminium and copper needs, further measures to extend recycling capacity, waste collection, and supply chain efficiency must be considered

B n. whereas the Joint Communication on the EU Action Plan on Cable Security highlights the importance of ensuring the security of supply of cable spare parts and the stockpiling of essential material and equipment

B o. whereas the electricity system blackout experienced in the Iberian Peninsula and parts of France on 28 April 2025 illustrated how important it is to increase the grid resilience by ensuring that it is well maintained, protected and balanced at all times, including through flexible system services and enhanced cross-border interconnections, to allow for an agile recovery in case of system failure;

B p. whereas national and regional level system operators hold important responsibilities, particularly in the area of security of supply; whereas all tasks of regulatory nature should be performed by regulatory agencies acting in the public interest; whereas, however, alongside these responsibilities, a strengthened role for regulators and ACER in the planning processes can contribute to address shortcomings such as the current TYNDP grid planning as identified in the grids monitoring report; whereas, while acknowledging the TSOs responsibilities in drawing up the scenarios, an early involvement of ACER in the drawing process can help ensure that the guidelines for the drawing of the scenarios will be followed as required under the TEN-E Regulation;

B q. whereas the lack of strong interconnection between Member States with different natural and climatic characteristics leads to overproduction of energy and administrative limitation of renewable production in some regions, while other regions are struggling with insufficient supply and high prices; whereas interconnection development will contribute to further integrate the EU electricity market, which not only increases system flexibility and resilience, but also unlocks economies of scale in renewable electricity production;

B r. whereas the Joint Communication on the EU Action Plan on Cable Security highlights the importance of ensuring the security of supply of cable spare parts and the stockpiling of essential material and equipment;

B s. whereas the energy workforce will have to increase by 50% to deploy, renewable energies, grid and energy efficiency technologies[8a];

[8a] Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions: The Union Skills. COM(2025) 90 5 March 2025, p.9

B t. whereas SMEs are the backbone of European economy, entrepreneurship and innovation comprising 99% of businesses, providing jobs to more than 85 million European citizens and generating more than 58% of European Union GDP;

B u. whereas increasing decentralised electricity generation and demand response are important to reduce reliance on centralised production, which may be easily targeted through physical, climate or cyber threats;

Relevance of electricity grids for the European energy transition

1. Calls on the Member States to fully explore***, optimise, modernise*** and expand their electricity grid capacity, including transmission and distribution; ***considers electricity grids to be the central element in the transition to a competitive, Net-Zero economy by 2050 that is capable of accommodating high volumes of variable renewable energy technologies and/or evolving demand sources driven by increased levels of electrification and the advancement of digital technologies; notes the Member States' prerogative to determine their energy mix;***

2. Calls on the Commission, the Member States, ***ACER, EU*** DSO Entity[8] and ENTSO-E[9] to implement the actions of the EU grid action plan***, the action plan for affordable energy prices, the Electricity Market Design Reform and the Renewable Energy Directive*** without delay;

[8] ***EU*** DSO Entity is ***a technical expert body mandated by the Electricity Market Regulation (2019/943/EU) to promote the functioning of the electricity market and to facilitate the energy transition;***

[9] The European Network of Transmission System Operators for Electricity (ENTSO-E) is the association for the cooperation of European transmission system operators (TSOs).

2 a. Points out that the completion of the energy market integration will save up to EUR 40 billion annually and a 50 % increase in cross border electricity trade could raise the Union's annual GDP by 0.1%[9a];

[9a] IMF Staff Background Note on EU Energy Market Integration. 6 January 2025 (p. 4): https://data.consilium.europa.eu/doc/document/ST-5438-2025-INIT/en/pdf

3. Welcomes the Commission's communication on grids[10] ; underlines the expected increase in electricity consumption of 60 % by 2030, the rising need to integrate a large share of variable renewable power into the grid, and the need for grids to adapt to a more decentralised, digitalised and flexible electricity system, ***including the optimisation of system operations, full utilisation of local flexibility resources, demand response, and energy storage solutions to complement wholesale markets and enhance grid resilience, further*** resulting in an additional 23 GW of cross-border capacity by 2025 and a further 64 GW of capacity by 2030; notes that over 40 % of the Union's distribution grids are over 40 years old and need to be updated[11] ;

[10] Commission communication of 28 November 2023 entitled 'Grids, the missing link - An EU Action Plan for Grids' (COM(2023)0757).

[11] ibid.

4. Reiterates that, by 2030, the Union needs to invest around EUR 375 to 425 billion in distribution grids and ***overall*** EUR 584 billion in ***transmission and distribution*** electricity grids[11a], including ***cross-border interconnectors and*** the adaptation of distribution grids to the energy transition;

[11a] Communication from the Commission entitled "Grids, the missing link - An EU Action Plan for Grids"

5. Notes with concern that in 2023 the costs of managing ***transmission*** electricity grid congestion in the EU were EUR 4.2 billion[12] and continue to rise, and that curtailment is an obstacle to increasing the share of renewable energy sources; ***notes that this figure does not include the distribution electricity grid; stresses that nearly 30 TWh of renewable electricity was curtailed across several Member States due to insufficient grid capacity; further notes the sharp increase in annual hours of negative electricity prices, rising from 154 in 2018 to 1,031 as of September 2024[12a], largely driven by grid congestion at borders, and the lack of sufficient storage, flexibility and demand-response in the electricity market to temporally match variable renewable electricity supply with electricity demand; stresses that addressing these issues could help absorb surplus supply maximising the use of existing grid infrastructure, but that existing market and regulatory frameworks often fail to provide adequate incentives to achieve this;***

[12] ACER 2024 Market Monitoring Report, 'Transmission capacities for cross-zonal trade of electricity and congestion management in the EU', 3 July 2024.

[12a] ACER 2024 Market Monitoring Report Key developments in EU electricity wholesale markets, 20 March 2024

5 a. Highlights that a failure to modernise and expand our electricity grid, alongside the rapid deployment of the high-volumes of variable renewable energy required to deliver on our targets, has and will continue to result in high levels of dispatch-down; believes that the dispatch-down of renewables, caused by grid congestion and curtailment, represents an unacceptable waste of high-value renewable electricity and money; calls on the Commission, as part of its forthcoming Grid Package, to set out an EU Strategy to vastly reduce the dispatch down of renewable electricity;

5 b. Highlights the role of smart grids in improving congestion management and optimising electricity distribution of renewables; stresses their contribution to network flexibility by integrating digital tools that facilitate demand-side response and collective self-consumption; underlines that better grid management enhances energy resilience, reduces curtailments, and secures supply during peak demand;

6. ***Highlights that the electricity grid infrastructure is a priority to achieve the EU's strategic autonomy and its climate and energy targets; notes the Clean Industrial Deal's commitment to electrification with a 32% KPI by 2030, which would necessitate the significant continued update and deployment of grids;*** Regrets that delays in responding to requests for connection to grids result in a slower pace of electrification, even in Member States where generation from renewables is rapidly increasing;

6 a. Highlights in particular the crucial role of energy communities can play in supporting local economies; regrets that energy communities and smaller operators face disproportionate barriers to grid access and grids funding access due to regulatory hurdles and resource constraints; therefore

calls on lagging Member States to fully implement the Clean Energy Package and Fit for 55 and RED provisions, empowering citizens, municipalities, SMEs, and companies to actively participate in the electricity market, in particular by developing enabling frameworks for renewable energy communities and promoting energy-sharing schemes; calls for grids related EU and national level funding to take into account the specific needs of projects promoted by energy communities;

Regulatory situation and challenges

6 b. Is convinced that regulatory stability is a key condition for unlocking private investments in the electricity grid and, where feasible, enabling affordable electrification of the EU's economy and reiterates the need to implement already adopted legislation before assessing potential new reviews;

6 c. Underlines that integrated grid planning across sectors on local, regional, national and European level will lead to increased system efficiency and lower costs, therefore calls on the Commission and the Member States to work towards integrated planning and to ensure that that network development plans are aligned with the National Energy and Climate Plans for all voltage levels; notes that a strengthened Governance framework would help ensure alignment between grid development plans and national and EU-level policy objectives; recognises that; while Member States are required to report on their contributions to EU targets through the National Energy and Climate Plans (NECPs), there is currently no equivalent obligation on TSOs to systematically report at EU-level;

7. Underlines that the TEN-E Regulation and the Projects of Common Interest (PCI***) and Projects of Mutual Interest (PMI***) are powerful tools in the development of the Union's cross-border energy infrastructure; regrets the shortcomings in the current 10-year network development plan (TYNDP) for European electricity infrastructure, which results in investment interests falling short of cross-border needs[13] , and that grid planning does not fully leverage cross-border and cross-sectoral savings[14] ; ***regrets furthermore delays with regard to the completion of PCI projects;*** urges the Commission to introduce more coordinated, ***long-term*** cross-sectoral planning ***to deliver the related savings and benefits across the Union; highlights that such a coordinated planning could better inform cost-sharing of infrastructure across Member States***; notes that, although the TEN-E Regulation enables smart electricity grid projects ***with a cross-border impact*** to obtain PCI status, even if such projects do not cross a physical border, the PCI list in 2023 included only five such projects; strongly believes, therefore, that the PCI process needs to be strengthened***, simplified and streamlined towards more clarity and transparency; calls on the Member States to fully complete the PCI projects***; calls on the Commission to urgently propose a targeted revision of the TEN-E Regulation in order to (1) introduce a robust planning process ***that combines system operators' responsibilities*** with a strengthened role for European Union Agency for the Cooperation of Energy Regulators (ACER) ***by mandating ACER to requests amendments of the scenarios and the TYNDP***, (2) ensure scenarios are drawn up in line with the decarbonisation agenda and enable easier access for smart electricity grid projects, and (3) introduce a simplified application process for small and medium-sized distribution system operators;

[13] ACER 2024 Monitoring Report, 'Electricity Infrastructure development to support a competitive and sustainable energy system', December 2024, 16 December 2024, p. 17.

[14] ibid.

7 a. Emphasizes that network planning is a long-term process closely linked to investment stability; therefore, proposes extending the timeframe for network development plans to 20 years; highlights

that grid investments are an urgent need in the EU's competitive agenda and should not be delayed;

7 b. Additionally notes that the EU will continue to have strong electricity links with neighbouring countries and therefore believes the Commission should enhance such cooperation with neighbouring countries through Projects of Mutual Interest (PMIs) with third countries, as provided for in the TEN-E Regulation;

8. Strongly emphasises that the Connecting Europe Facility for Energy (CEF-E) has proven to be the crucial instrument for co-financing cross-border energy infrastructure and insists on its continuation; ***welcomes the inclusion of offshore electricity grid*** projects ***in the European Commission's most recent allocation of grants under the CEF-E***;

9. Considers the lack of detailed, reliable and comparable data on national and EU grid planning an obstacle to more efficient grids; therefore ***calls on the Member States to thoroughly implement the relevant provision in the Electricity Directive[14a], in particular Article 32*** and to ***encourage smaller DSOs to apply the provisions of the Article***;

> ***[14a] 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 a. Welcomes the EU DSO Entity's report on good practices on Distribution Network Development Plans[15a] calling on Member States on the implementation of Distribution Network Development Plans (DNDP) that include a cost-benefit analysis (CBA) to evaluate investment opportunities; urges the Commission to develop guidelines based on this report in cooperation with DSO Entity to harmonise national development planning for distribution grids increasing transparency, to publish an European overview of the DNDPs and to require all transmission and distribution operators to provide energy regulators with the necessary data about their current and future grid hosting capacity information and grid planning to enable energy regulators to properly scrutinise grid planning, calls on Member States to implement Art. 31(3) in Directive 2024/1711 that requests grid operators to publish information on the capacity available in their area of operation which will ensure transparency and enable stakeholders to make informed investment decisions, on the Commission to develop a centralised online repository for all transmission and distribution network development plans;

> ***[15a] DSO Entity, 'DSO Entity's identified good practices on Distribution Network Development Plans', 1 July 2024.***

9 b. Highlights the significant risk posed by curtailment to the viability of renewable energy investments, especially considering that many Member States fail to compensate curtailed volumes, despite the requirements set out in Article 12 and 13 of Regulation (EU) 2019/943; regrets the lack of transparency, availability, and data granularity on curtailed renewable energy volumes and congestion management costs;

9 c. Highlights the value of putting clear metrics in place to measure whether the EU is on track to deliver the grid expansion and reinforcements needed to meet 2050 objectives; notes that such metrics could include reductions in renewable curtailment, lower costs of grid development relative to the amount of capacity delivered, increases in the efficient use existing infrastructure, reducing losses, lower raw material intensity;

10. Notes the work done by ENTSO-E and ***EU*** DSO Entity on harmonised definitions of available grid hosting capacity for system operators and to establish a Union-wide overview thereof; ***believes that NRAs could benefit from clear legislative provisions as to how Member States may prioritise***

grid connections to abandon the 'first-come first-serve' principle, therefore asks the Commission to amend Article 6 of the Directive on the internal market for electricity as part of the implementation review the Commission has to complete by 31 December 2025, and consequently introduce transparent priority connection criteria to be chosen and further defined by the Member States for (1) generation connection, such as quality and maturity of the project, level of commitment, contribution to decarbonisation, social value, and for (2) consumer connection, such as quality and maturity of the project, level of commitment, contribution to decarbonisation, public interest or its strategic and/or social value and grid optimisation criteria; calls on the national regulatory authorities (NRAs) ***and the Member States*** to provide clear ***prioritisation rules according to their local and national specificities*** to allow the 'first-come first-serve' approach to be abandoned by disincentivising applications for connection where these are not substantiated by a solid project***,*** ***which are speculative*** or where the developer cannot show sufficient commitment to the realisation of a project;

10 a. Underlines that improved cross-border interconnections offer substantial cost-saving potential at the system level, with annual reductions in generation costs estimated at EUR 9 billion up to 2040, while required annual investments of EUR 6 billion in cross-border infrastructure and storage capacity;

11. Regrets that some Member States did not achieve the 10 % interconnection target by 2020 and urges them to strive to achieve the current 15 % interconnection target ***for 2030 as set out in the Regulation on the Governance of the Energy (Regulation (EU) 2018/1999), since interconnection capacity is crucial for the functioning of the Union's internal electricity market leading to significant costs savings at system level and decreasing generation costs by EUR 9 billion annually to 2040[15c], regrets that 32 GW of cross-border capacity needed by 2030 remains unaddressed[15d]***; ***deplores the delays and uncertainties regarding several interconnection projects, therefore calls on the Commission, by June 2026 at the latest, propose a binding interconnection target for 2036 based on a needs assessment; stresses the need for cooperation between non-hosting Member States and having the Union and neighbouring countries involved in negotiations in order to ensure their finalisation;***

> ***[15c] "Electricity infrastructure development to support a competitive and sustainable energy system", ACER, December 2024***
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> ***[15d] Commission communication of 28 November 2023 entitled 'Grids, the missing link - An EU Action Plan for Grids' (COM(2023)0757).***

12. ***Highlights the need to accelerate permitting procedures for electricity infrastructure, stresses that grid expansion should not be delayed by lengthy permitting procedures, excessive reporting requirements and therefore*** welcomes the ***positive progress made regarding*** provisions adopted in the latest revision of the Renewable Energy Directive ***and the Emergency Regulation on Permitting[15e]*** to accelerate, streamline and simplify permit-granting procedures for grid and renewable energy projects ***especially the principle of public overriding interest for grid projects (Article 16 (f))***; ***notes, however, that some Member States have not seen a material improvement in project permitting timelines, despite the ambitious frameworks set out at EU-level; therefore urges Member States to implement the measures without delay and calls the Commission to closely monitor implementation of the RED and regularly assess if revised permitting provisions are sufficient to deliver on EU's objectives; additionally calls on the Commission to set out guidelines for Member States to foresee tacit approval in their national planning systems, as described in Article 16a of the Renewable Energy Directive; stresses that reinforcing administrative capacity, including through adequate staffing of planning and permitting authorities will accelerate permitting procedures;***

[15e] Council Regulation (EU) 2022/2577 of 22 December 2022 laying down a framework to accelerate the deployment of renewable energy.

12 a. Encourages Member States to draw up plans to designate dedicated infrastructure areas for grid projects, as outlined in Article 15 (e) in the recast of the Renewable Energy Directive; stresses that such plans are essential to account for local specificities and ensure respect for protected areas; emphasises that these plans should be closely coordinated with the designation of renewables acceleration areas to ensure a streamlined, efficient, and integrated approach to energy infrastructure development;

12 b. Notes that often documents need to be submitted on paper copies; calls on the Member States to increase the digitalisation of these processes in order to accelerate these procedures; calls on the Commission and the Member States to revise all EU legislation relevant for permitting with a view to introducing mandatory digital application, submission and processing requirements, such as the Environmental Impact Assessment Directive;

12 c. Highlights the importance of public acceptance and public engagement when developing new grid projects and calls on the Commission to develop a set of best practices to be shared among Member States; Highlights the critical importance of effective communication with citizens and communities regarding grid projects and reinforcements; notes that local-level support can help to accelerate the delivery of critical infrastructure and thus meeting national and EU-level objectives; urges the swift implementation of the EU Pact for Engagement and coordination with national signatories (TSOs, DSOs, NRAs) to guarantee early, meaningful, and regular public participation in grid projects;

12 d. Calls for the convening of a TAIEX[15f] Group on Permitting within the forthcoming European Grids Package to support Member States in addressing administrative bottlenecks, enhancing regulatory capacity and accelerating project approvals through best practice sharing and cross-border coordination;

[15f] TAIEX is the Technical Assistance and Information Exchange instrument of the European Commission. TAIEX supports public administrations with regard to the approximation, application and enforcement of EU legislation as well as facilitating the sharing of EU best practices.

12 e. Welcomes the initiatives announced under the Action Plan for Affordable Energy; recommends the Commission to extend the "tripartite contract for affordable energy for Europe's industry" to smaller energy producers, including energy communities, small and medium-sized enterprises and business leveraging flexibility and demand response, and to link the outcome of this fora with grids planning processes at national and EU level in order to optimise planning, investments and grid utilisation from the start;

12 f. Highlights the need for improvements in the public procurement framework to tackle challenges of grid operators regarding supply chains; welcomes therefore the Clean Industrial Deal communication and the announcement by the Commission to review the Public Procurement Directives[15g]; stresses its potential for the continued development of a strong European manufacturing value chain for electricity grid equipment, software and services; encourages the Commission to promote resilience, sustainability and security in public procurement for grid operators; advocates for more consistency between EU regulations on public procurement; Calls on the Commission to adapt EU rules on public procurement with a view to harmonise and simplify functional tender specifications in order to ramp up production capacities of grid components;

[15g] Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC

12 g. Believes that adequate standardisation and common technical specifications are necessary to achieve economies of scale, and to speed up technology development; considers additionally that it is essential to put standardisation at the right level so it does not reduce the manufacturers' capacity to innovate;

12 h. Reiterates the need to consider new business models between equipment manufacturers and operators such as long-term framework agreements that encourage the shift from one-time "grid projects" to sustained and structured "grid programs" that result in more predictable planning for grid technology manufacturers; calls for the streamlining of tendering processes for the provision of grid equipment and services;

12 i. Stresses that this revision will allow the inclusion of sustainability, resilience, and European preference criteria in EU public procurement for strategic sectors in line with the provisions set out in Article 25 of Regulation (EU) 2024/1735; calls for grids and related technologies to be explicitly recognized as strategic sectors to ensure their eligibility under the revised framework; underlines that strengthening European preference in public procurement is essential to reducing the Union's dependence on foreign suppliers, enhancing supply chain security, and fostering a resilient European industrial base capable of supporting the energy transition; welcomes the European Investment Bank's (EIB) introduction of a 'Grids Manufacturing Package' to support the European supply chain with at least EUR 1.5 billion in counter-guarantees for grid component manufacturers; calls for further similar financial instruments to be developed to provide long-term investment certainty and accelerate the scaling-up of European production capacity;

Financing

12 a. Notes that over the past five years the global investment in power capacity has increased by nearly 40%, while the investments in grid infrastructure have lagged behind; notes that estimates of investments that the Union will have to make in its grid over the period 2025-2050's range from EUR 1950 billion to EUR 2600 billion[15a];

13. Observes with concern that the budget allocated under CEF-Energy has been insufficient to expedite all PCI ***and PMI*** project categories***; notes that with a EUR 5.84 billion budget from 2021-2027, the programme has restricted capacity and may struggle to keep pace with investment needs***; calls on the Commission and the Member States to significantly increase ***the CEF-E envelope and the percentage of CEF-E funds dedicated to electricity infrastructure as a separate adequate resource*** when proposing the next multiannual financial framework (MFF); ***and to ensure that projects both at the distribution and at the transmission levels with an EU added value are eligible for budget allocated under CEF-Energy, encourages the Commission to further explore co-financing possibilities between CEF-E and the Renewable Energy Financing Mechanism;***

13 a. States that EU funding is predominantly allocated to transmission grids with relatively insignificant allocations to distribution grids, despite their significant role for the EU energy transition, as, between 2014 and 2020, CEF-E funded around EUR 5,3 billion worth projects, of which around EUR 1,7 billion in transmission and EUR 237 million in smart distribution grids; notes that the last PCI list only contained five smart electricity projects;

14. Deeply regrets that, whereas regional funds such as the Cohesion Fund***,*** the European Regional Development Fund ***or the Recovery and Resilience Facility*** provide for grid investments, in principle, they are in practice underutilised for grid projects***; also regrets that the evaluation criteria applied to calls under the EU Innovation Fund prevents funding for demonstration and manufacturing of grid technologies***; calls on the Commission and Member States to ensure that a proportionate amount of such funds is also spent on grid investments;

14 a. Calls on the Member States to simplify access to these EU funds managed by the Member States for grid operators, for instance through the establishment of a one stop shop in those Member States where there is a large share of small and medium sized DSOs;

15. Calls on the Commission to propose a ***dedicated*** funding instrument, such as one based on revenues from the market-based emission reduction scheme ***(ETS)***, ***to allow Member States*** to support decentralised ***and innovative*** grid projects***, with a clear EU added value, including smaller projects, ensuring its effective use by Member States for these purposes***;

15 a. Emphasizes the need for regulatory frameworks to attract private investment and ensure cost-reflective tariffs, in addition to public funding mechanisms;

16. Is convinced that anticipatory ***investments and forward looking*** investments will help to address grid bottlenecks and prevent curtailment; points out that the EMD Regulation sets out regulatory elements for anticipatory investments but lacks a harmonised definition and implementation across the Union; calls on the Member States to swiftly implement ***the aforementioned*** provisions ***of the EMD Regulation*** and remove national legal barriers***, on NRAs to remove barriers as regards regulatory incentives and disincentives***, and on the Commission to urgently provide guidance regarding the approval of anticipatory investments, as announced ***in its Action Plan for Grids***[16]***; believes that further harmonisation in this respect might be beneficial; calls for detailed cost-benefit analyses and scenario-based planning to assess the likelihood of future utilisation, and recommends a two-step approval process for projects with a higher risk level by first approving smaller budgets for studies or planning followed by a second approval for the more costly steps to reduce the risk of stranded assets***;

[16] COM(2023)0757.

16 a. Acknowledges that grid investments from capital markets can be incentivised by providing market-oriented conditions such as suitable rates of return and a robust regulatory framework; emphasises that the EU and the Member States should encourage private investments by providing risk mitigation tools or Member State guarantees; calls on the Commission and the European Investment Bank to further strengthen financing and de-risking initiatives and tools, such as counter guarantees, to support additional electricity grid expansion and modernisation at affordable rates for system operators; emphasises the relevance of ensuring that the EU's electricity grid is financed and therefore owned by public and private capital only from EU actors or previously screened foreign investors in view of the criticality of the infrastructure;

17. Underlines that***, while investment decisions should be guided by efficiencies, including energy and cost efficiency,*** investments should not only be focused on capital expenditure, as investments ***optimising, renewing and modernising*** the existing infrastructure should equally be considered; therefore welcomes Article 18 of the EMD Regulation, which calls for tariff methodologies to give equal consideration to capital and operational expenditure ***and remunerate operators to increase efficiencies in the operation and development of their networks, including through energy efficiency, flexibility and digitalisation***; calls on the Commission and the Member States to thoroughly implement its provisions ***and to focus on ensuring fair and timely compensation to system operators for their costs***;

18. ***Notes that electrification of the European economy where technically and economically feasible would help to drive down network tariffs by spreading the costs across a wider range of users, therefore highlights the importance of ensuring the development of the future network is fully aligned with demand projections driven by increases in the level of electrification;*** is concerned that experts forecast network tariff increases of around 50 % to 100 % by 2050[17]; stresses, therefore, the need for instruments ***and incentives*** that support grid operators in efficiently managing available grid capacity***, including through procuring flexibility services***, with a view to reducing

imminent grid investment needs; highlights that flexible connection agreements**,** flexible network tariffs ***and local flexibility markets*** contribute to grid efficiency; invites NRAs to promote these flexible tariffs ***that allow consumers to easily react to price signals while shielding vulnerable households and businesses from price peaks***; ***calls on the Commission and Member States to actively address bottlenecks in tariffs, connection fees and regulations to facilitate cross-border and offshore hybrid grid investments;***

[17] ACER 2024 Monitoring Report, 'Electricity Infrastructure development to support a competitive and sustainable energy system', op. cit.

18 a. Calls on Member States to implement the relevant European legal framework to unlock demand-side flexibility through accelerating the deployment of smart meters, enabling access to data from all metering devices, and ensuring efficient price signals, so that industries and households can optimise their consumption and reduce their electricity bill and at the same time help reducing operational costs and the need for additional grid investments;

18 b. Stresses that relaxation of network tariffs and certain charges that could lower electricity prices as proposed in the Affordable Energy Action Plan has to be accompanied by a plan to replace funds needed for grids' investments from alternative sources in order to avoid facing underinvestment of the grids in the future;

18 c. Highlights the importance of minimising the additional costs on consumers' bills resulting from the investments required to deliver the grid modernisation and expansion needed to meet the EU's climate and competitiveness goals; asks the Commission to work with Member States to develop a coordinated set of best practices for investments and equitable network tariff composition with a strong emphasis on increasing transparency and removing non-energy related charges from the tariffs;

19. Points out that transmission infrastructure and availability of cross-zonal capacities are vital for an integrated market ***and for the exchange of low-marginal cost renewables energies while, respecting system security***; notes that the EMD Regulation sets a ***minimum*** 70 % target of capacities available for cross-zonal trade ***by 2025 but Member States are far from reaching it; therefore urges them and their TSOs to speed up their efforts to maximise cross-zonal trading opportunities as to ensure an efficient internal electricity market, investments decisions and renewable energy integration***; regrets that achieving this target has often resulted in costs for redispatch; notes that existing cost sharing mechanisms, such as cross-border cost allocation (CBCA), inter-transmission system operator (TSO) compensation and re-dispatching cost sharing, are limited and difficult to implement, which does not encourage cross-border investments***, such as in offshore grids***; calls on the Commission to ***holistically review and*** improve ***these*** mechanisms ***to ensure they reflect the shared benefits of infrastructure and address the diversity of electricity flows, whether internal or cross-border, including a fair and balanced cost-benefit sharing mechanism for cross-border infrastructure projects that is based on objective criteria***;

19 a. Takes note of the study published on 28 April 2025 by ENTSO-E on potential alternative bidding zone configurations based on location marginal pricing simulations provided by TSOs;

Grid enhancing technologies*, digitalisation, innovative solutions and resilience*

20. Underlines that grid-enhancing technologies***, digital solutions, ancillary services and data management technologies, as well as energy smart appliances, often leveraging Artificial Intelligence (AI),*** can significantly increase the efficiency of existing grid capacities ***and maximise the use of existing assets, reducing the requirement*** for new ***infrastructure, for instance by***

providing real-time information on energy flows, therefore insists that these technologies and innovative solutions must be explored; urges NRAs to incentivise TSOs and DSOs to rely more on such technologies, ***by weighing up costs and benefits of these technologies versus grid expansion and*** through remuneration schemes based on benefits rather than costs, and to benchmark them on their uptake of such technologies; ***invites the Commission to further promote such innovative technologies when assessing projects that apply for EU funding;***

21. Welcomes the work accomplished by ENTSO-E and DSO Entity in developing the TSO/DSO Technopedia[18] ***so far, and calls on the Commission to mandate the bi-yearly updating of the Technopedia to accurately reflect the technology readiness levels (TRL) of technologies included***;

[18] DSO Entity, 'Implementation of Action 7 in the EU Action Plan for Grids: DSO/TSO Technopedia, ENTSO-E & DSO Entity', 18 December 2024.

21 a. Urges the Commission and Member States to further enable and increase the digitalisation of the European electricity system, enabling the optimisation of the operation of its power system and reduce pressure on the supply chain; underlines that the need for data sharing and data interoperability are essential for grid planning and optimisation; encourages the Member States, the NRAs, EU DSO entity and ACER to continue and accelerate their work on the monitoring system based on indicators measuring the performance of smart grids ('smart grid indicators'), as provided in the Electricity Directive;

21 b. Stresses the urgent need to enhance the security and resilience of critical electricity infrastructure against extreme weather events, climate change and physical and digital attacks, including interconnectors and subsea cables at risk of sabotage; highlights the need to strengthen cooperation at national, regional, and EU levels;

22. ***Stresses the growing risk of coordinated cyberattacks targeting the entire electricity network;*** recalls the importance of the rapid implementation of the cybersecurity ***and other related*** network code and the related legislation***, such as the NIS Directive and the Cybersecurity Act and encourages the Commission to correct in upcoming legislative reviews the status of physical grid equipment, including remotely controllable grid equipment, such as inverters, which is currently not held to a high enough cybersecurity standards, especially in cases where their manufacturer is required under the jurisdiction of a third country to report information on software or hardware vulnerabilities to the authorities of that third country; calls for enhanced European-level cooperation between all parties to strengthen preparedness and resilience***; considers that NRAs should ***acknowledge*** the costs incurred by operators in adopting cybersecurity ***and resilience measures and provide incentives for investments pertained to increase the resilience against cyber, physical and hybrid threats to the energy infrastructure including climate adaptation*** measures;

22 a. Underlines the need to step up efforts in protection of the future and existing critical undersea and onshore energy infrastructure; considers that EU should play a broader role in prevention of incidents, in promoting surveillance and restoration of damaged infrastructure based on state of art technologies; calls on the Commission and Member States to find solutions to increase the protection and resilience of critical infrastructure, including solution to financing of such measures and technologies;

22 b. Recognizes that new high-voltage electricity grid projects provide a multifunctional and cost-efficient opportunity to integrate additional security (i.e. sensors, sonars, etc.) and environmental solutions (i.e. bird deflectors, fire detectors, nature corridors, etc.) if planned in a holistic manner; asks the Commission to develop guidelines for NRAs to ensure that initial project planning is carried out and financed considering these elements;

22 c. Urges the Commission and the System Operators to develop an EU-owned Common European Energy Data Space based on technical expertise and practice utilising the date (Chapter III, Common Energy Data Space) and based on a common set of rules ensuring the secure, transparent portability and interoperability of energy data, where harmonised data is safely managed, exchanged, and stored in the EU; stresses that this Data Space should facilitate data pooling and sharing through appropriate governance structures and data sharing services, supporting critical energy operations including transmission and distribution; underlines that European TSOs, DSOs and other previously screened electricity grid actors must be able to securely and smartly operate the grid, optimizing its use by integrating flexibility and innovative technologies, in line with key principles of interoperability, trust, data value, and governance; notes that data exchange arrangements must also take into account interactions with non-EU members;

22 d. Recognizes the potential of flexibility as a necessary tool to optimise system operation, maintain the stability of the system and empower consumers by incentivising them to shift their consumption patterns; stresses the importance of implementing appropriate measures to guarantee efficient price signals that incentivise flexibility, including from all end-consumers, and ensuring that all resources contribute to system security, including by accelerating the deployment of smart meters, smart energy efficient buildings, and enabling access to data from all metering devices; asks NRAs to recognize flexibility innovations and pilot projects in the system, insofar as these do not negatively impact the grid's overall balance and stability to continue incentivizing innovation;

22 e. Calls on NRAs to work closely with TSOs and DSOs to assess the flexibility potential and needs in the national systems currently and in future planning taking into consideration the presence of industry, large consumers, large generators and storage; highlights in particular the critical role that storage assets, including duration electricity storage (LDES), providing up to 100 hr + of electricity storage, can play in providing congestion management services to the grid; notes that in order to provide these essential system services, investors in storage assets require stable, long-term revenue models, similar to how support schemes have successfully provided revenue certainty for renewable generation assets;

Supply chain, raw materials and the need for skills

22 f. Notes with concern that growth in demand for grid technologies globally has put pressure on supply chains and the availability of cables, transformers, components and critical technologies; highlights the findings in the recent IEA report "Building the Future Transmission Grid"[18a] that it now takes two to three years to procure cables and up to four years to secure large power transformers, and that average lead times have almost doubled since 2021;

> *[18a] Source: https://iea.blob.core.windows.net/assets/a688d0f5-a100-447f-91a1-50b7b0d8eaa1/BuildingtheFutureTransmissionGrid.pdf*

22 g. Is concerned about the long lead times for many grid technology components and remains determined to maintain European technology leadership in grid technology, emphasising the need for innovation to develop, demonstrate and scale European high-capacity grid technologies and innovative grid enhancing technologies;

22 h. Stresses that critical and strategic raw materials are essential for grid infrastructure with aluminium and copper demand set to rise by 33% and 35% by 2050[18b]; takes note of the Commission decision recognising certain critical raw material projects as Strategic Projects under the Critical Raw Materials Act[18c] to secure access to these key materials and diversify sources of supply; calls on the Commission and the Member States to enhance recycling, support strategic partnerships and trade agreements to this end;

[18b] Source : KU Leuven, https://www.miragenews.com/research-quantifies-metal-supplies-needed-to-769433 [2] Regulation (EU) 2024/1252 of the European Parliament and the Council of 25 March 2025

[18c] Regulation (EU) 2024/1252 of the European Parliament and the Council of 25 March 2025

22 i. Highlights the need to strengthen grid supply chains to increase supply of grid technologies at affordable costs and thus limit the costs borne by consumers via their network charges; calls for a strategic approach to acquiring energy technologies, components or critical materials related to grids in order to avoid developing dependencies on single suppliers outside of the EU;

22 j. Believes that holistic, coordinated, long-term grid planning across the entire European energy system is needed to solve the supply chain capacity bottleneck, and that such planning provides manufacturers with essential visibility and predictability to adequately plan manufacturing capacity increases; considers that such planning must be reliable and enable new business models such as long-term framework agreements and capacity reservation contracts;

22 k. Urges to maximize standardization of key electricity grid equipment, insofar as technically possible, via a joint technical assessment by the Commission, system operators and industry covering all voltage levels to scale up production, lower prices and delivery times, and promote interoperability of systems;

22 l. Stresses the urgent need to address labour shortages in the energy sector, notes that the European Commission has projected that the energy workforce will have to significantly increase to deploy renewable energies, upgrade and expand grids and manufacture energy efficiency, grid and other relevant technologies; regrets shortages of electrical mechanics and fitters reported in 15 EU countries, increasing staffing needs of system operators; highlights that the energy workforce must grow by 50% by 2030 to support the deployment of renewables[18d], grid expansion, and energy efficiency, with an estimated 2 million additional jobs required in electricity distribution by 2050; calls for training, upskilling, and reskilling initiatives, prioritizing grid-related skills to close skills gaps; welcomes university-business partnerships and targeted EU Skills Academies for strategic sectors including grids; encourages DSOs to diversify their workforce, including by increasing women's participation;

[18d] Communication from the Commission of 5 March 2025 entitled "The Union of Skills"

22 m. Reiterates that Member States and the EU should cooperate to adapt the skills programmes and develop best practices to fulfil the growing skills demand across all educational levels, with a strong emphasis on encouraging gender balance in the sector;

22 n. Highlights the crucial role of SMEs and European businesses in the supplying the electricity grid technology sector, points out the need to access to affordable electrification, limiting the costs related to the supply chain and ensuring skilled workforce;

Offshore

22 o. Acknowledges the strategic relevance of offshore development in delivering the Union's objectives of energy autonomy, renewables goals, a resilient and cost-effective electricity system, and climate neutrality by 2050; stresses the importance of fully utilising the potential of Europe's five sea basins for offshore energy generation; highlights the particular significance of the North Seas, which offers favourable conditions and the highest potential, with an agreed target of 300 GW of installed offshore generation capacity by 2050 within the framework of the North Seas

Energy Cooperation; welcomes the progress made in this regard; emphasizes the need to develop a meshed offshore grid, including hybrid interconnectors, particularly in the North Seas, to fully harness offshore potential and improve electricity market integration; calls on the Commission and Member States to strengthen regional cooperation on grid planning and energy cooperation across all sea basins with neighbouring countries, in particular the UK and Norway, particularly in offshore wind development and the planning and manufacturing of electricity grids;

22 p. Highlights the need for a stable and predictable regulatory framework that ensures the most optimal trading arrangements to provide the required investor confidence to support the development of interconnection offshore grid and offshore wind projects , ensuring market efficiency and efficient cross-border flows, including with third countries ; underlines the necessity of strengthening national grids where required to maximize the benefits of offshore energy; acknowledges that the combination of offshore transmission with generation assets (offshore hybrids) will be integral part of an efficient network system as it comes with several advantages for the European energy system but still lacks the right regulatory framework to incentivise necessary investments;

Cooperation with third countries

22 q. Calls on the Member States to increase cooperation and coordination with like-minded non-EU countries such as Norway and the United Kingdom; recalls that the development of electricity infrastructure to harness the offshore wind potential of the North Sea is a shared priority for both the EU and the UK;

22 r. Highlights the need for a pragmatic and cooperative approach to EU-UK electricity trading; calls on the Commission to work closely with the UK administration to agree on a mutually beneficial trading arrangement that strengthens security of supply and the pathway to Net Zero for both jurisdictions; additionally, believes efficiencies of trading arrangements can be improved further; calls on the Commission to engage with UK counterparts constructively on this matter;

Outermost Regions

22 s. Stresses the unique challenges faced by the outermost regions and other areas not connected to the European electricity grid; highlights their reliance on imports and high vulnerability to power blackouts and extreme climate hazards; notes the importance of developing resilient and autonomous energy systems through local grid development and cleaner energy production; calls on the Commission to address these regions' specific needs in the Grids Package and propose additional financial support to improve the autonomy of their energy system and address their lack of interconnection and absence of broader grid connection benefits;

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