Annual Work Programme 2026 – Treatment of Stakeholder Comments

This document provides a summary of the remarks received during the public consultation in July 2025, along with ENTSO-E's perspectives on these comments in relation to the Annual Work Programme (AWP) 2026.

Stakeholder	Do you think the Work Programme focuses on the right deliverables or should some be deleted or added?	On the individual work items do you have any specific comments?	What items from the AWP should be prioritized in the case of future unexpected circumstances causing disruptions/unintended consequences?	ENTSO-E perspective
1.Moeve	The ENTSO-E AWP 2026 identifies many of the right priorities, particularly in grid development, system flexibility, and market integration. However, to fully support the European Union's strategic energy objectives, the Programme must go further in addressing the scale and urgency of the energy transition. The EU is pursuing a rapid decarbonisation of its economy, aiming to achieve climate neutrality by 2050. Electrification is central to this strategy, enabling the replacement of fossil fuels in transport, heating, and industry. The Affordable Energy Action Plan, adopted in February 2025, reinforces this direction by proposing concrete measures to lower energy costs, accelerate clean energy deployment, and complete the Energy Union. It highlights the need for a resilient, flexible, and integrated electricity system that can support the growing demand for clean power across Europe. Hydrogen, particularly renewable hydrogen produced via electrolysis, is a cornerstone of this transition. The RePowerEU Plan sets an ambitious target of 10 million tonnes of domestic renewable hydrogen production and 10 million tonnes of imports by 2030, establishing its central role in replacing fossil fuels in hard-to-abate sectors and enhancing energy system flexibility. Likewise, the Clean Industrial Deal underscores hydrogen's importance in ensuring European industry can decarbonise while remaining globally competitive. Both initiatives call for coherent infrastructure planning, regulatory simplification, and grid access certainty to ensure the timely deployment of hydrogen technologies. In this context, ENTSO-E must ensure that its Work Programme reflects the scale of new electricity demand expected to connect in the coming years. This includes demand from electrified transport, heat pumps, data centers, and hydrogen electrolysers.	Several items should be enhanced to better reflect the strategic importance of hydrogen and the integration of electrolysers into Europe's future power system. It's essential to distinguish between planning tools such as flexibility needs assessments and operational mechanisms like balancing services. **1. Flexibility Needs Assessment** -Hydrogen should be explicitly recognised as a non-fossil flexibility source. -Electrolysers should be considered controllable assets that contribute to system adequacy, absorbing surplus renewable energy and reducing curtailment. Appropriate methodologies must be developed to quantify the contribution of electrolysers to flexibility across multiple timeframes.	At the forefront of priorities should be robust investment in grid infrastructure and supply chains. Reinforcing Europe's electricity network to meet rising demand and accommodate future deployments is crucial to enhancing system resilience. Strategic upgrades and secure access to critical components will strengthen energy autonomy and ensure the development of a future-ready electricity grid capable of supporting clean technologies. Hydrogen can play a pivotal role in responding to energy shocks and safeguarding system stability. To accelerate its deployment as a source of flexibility, the following items should also be prioritised: **1. Flexibility Needs Assessment** -Promote resilience through a diverse portfolio of non-fossil flexibility sources, including hydrogen. -Electrolyser projects with high adaptability should be acknowledged as controllable loads, capable of absorbing surplus renewable energy and contributing balancing services to the grid.	1. **Flexibility Needs Assessment** Thank you very much for the comprehensive feedback which touches upon interesting points and different pieces of work that ENTSO-E has been involved with in collaboration with other stakeholders. When it comes to the specific point on flexibility needs assessment, this workstream, and especially in relation to the recently published Methodology that will support analysing and assessing the national flexibility needs, is focusing on identifying primarily the needs. Indeed, as required, guiding criteria for non-fossil flexibility sources that will cover those needs are also included, but there is no explicit definition on the non-fossil flexibility sources. According to REGULATION (EU) 2024/1747, hydrogen is not excluded from being categorised as non-fossil flexibility source. ENTSO-E has also identified hydrogen potential in its Vision study as well as the in various Innovation studies e.g. https://www.entsoe.eu/publications/research-and-development/. - Electrolysers indeed allow for absorbing surplus energy, thus reducing curtailment. Electrolysers are modelled in the ERAA, whose results may be one of the starting points for the National Flexibility Needs Assessment. The ERAA team consults the methodology each year to account for stakeholder feedback. Regarding hydrogen, it is not excluded from the assessment, as TSOs will use up to date capacity data for all technologies. However, whether hydrogen technologies are chosen with associated targets to cover the flexibility needs identified by the national assessments depends on member states.

	The current grid infrastructure is undersized relative to these needs, and the lack of certainty around grid access remains one of the major barriers to investment. ENTSO-E should therefore prioritize a strategic assessment of future connection capacity and develop a roadmap to ensure that new demand can be accommodated efficiently and securely. To enhance the Work Programme and make it more responsive to these challenges, the following additions are recommended: 1. Electrolysers can contribute to reducing renewable curtailment, being enabled to participate fully in balancing services. Certain electrolysis projects offer significant flexibility to the power system, an increasingly valuable capability as renewable generation grows. **Ancillary service frameworks** should allow qualified electrolysers to provide these services. Hydrogen projects that meet the required performance thresholds should be allowed to participate in all system adjustment mechanisms, contributing to security of supply and operational efficiency. 2. ENTSO-E should lead the development of specialised connection standards for large-scale electrolysers under the **Connection Network Codes**. These assets serve not only as major electricity consumers but also as flexible tools for grid support, capable of absorbing surplus renewable energy and enhancing system balancing. Clear, harmonised connection requirements would accelerate deployment, reduce technical uncertainty, and enable electrolysers to provide essential grid services. Standardised rules would also help manufacturers design electrolysers that reliably meet grid requirements, and support projects in qualifying to participate in balancing and ancillary markets. By treating electrolysers as strategic infrastructure, ENTSO-E can help ensure their reliable integration into Europe's future energy system. 3. **The Bidding Zones Review** must be adapted to reflect the broader implications for all hydrogen projects. Many of these projects have structured their business models around the current bidding zone framework, using them to define the geographical sourcing of renewable electricity, arrange Power	-Including hydrogen in this assessment will support infrastructure planning, market design, and targeted support schemes aligned with decarbonization goals.		Regarding Grid tariffs, ENTSO-E underlines that, in line with the Electricity Regulation, transmission tariffs must remain cost-reflective, transparent, and non-discriminatory across user groups. Rather than introducing technology-specific tariff reductions, we/ENTSO-E advocate(s) for tariff designs that reward flexibility (e.g., ToU or dynamic network charges) so that any consumer, including electrolysers, can lower their costs by operating in a system-friendly way. ENTSO-E believes that they must also be defined carefully, as they influence the overall cost of operation and, by extension, decisions on when and where to locate and operate electrolysers. We invite you to take a look at ENTSO-E's recently published report on market design and regulatory framework:[1] The measures proposed in your comment on tariffs relate to how to foster H2, which is out of competence from ENTSO-E but, indeed, all those aspects are under assessment in different working groups from the perspective on how to contribute both to security and affordability priorities. We would also like to direct you the recent study ENTSO-E had conducted on the Impact of Renewable Hydrogen on the Power System. Please see here: ENTSO Publishes Report on Impact of Renewable Hydrogen on the Power System Regarding PPAs, generally, we believe: - any long-term tool should minimize distortions in short-term market functioning - particularly, PPA, is a private bilateral one where little debate/discussion can really take place. 2. **Bidding Zones Review** On bidding zones, ENTSO-E acknowledges the importance of hydrogen projects in achieving Europe's decarbonization goals and recognizes that many of

[1] https://eepublicdownloads.blob.core.windows.net/public-cdn-container/clean-documents/Publications/2025/ENTSO-E_Detailed_Report_on_Market_Design_and_Regulatory_Framework.pdf

	Purchase Agreements (PPAs), and comply with the locational criteria set out in Delegated Regulations 2023/1184 and 2023/1185 for the certification of Renewable Fuels of Non-Biological Origin (RFNBO). A revision of the bidding zones could fundamentally alter the regulatory and market conditions these projects rely on. This would introduce significant uncertainty, potentially invalidating key assumptions about grid access and renewable qualification and forcing projects to reassess their compliance strategies and investment cases. ENTSO-E should therefore ensure that any future bidding zone reconfiguration is carefully coordinated with the development of the hydrogen market and includes transitional safeguards to protect existing projects and maintain regulatory continuity. 4. The Work Programme should address electricity system costs that undermine the competitiveness of electro-intensive European industries. The measure to apply to the hydrogen sector in specific should include: - Dedicated low **transmission tariffs** for electrolysers, acknowledging their substantial consumption and contribution to system flexibility. - Exemption from **ancillary service fees** when these assets provide balancing capabilities. - **Priority dispatch for renewable electricity** supplied to electrolysers under Power Purchase Agreements (PPAs). - A planned review of the RFNBO Delegated Act to allow collocated battery systems in front of the meter, enhancing project viability and operational adaptability.	**2. Bidding Zones Review** Any revision of the bidding zone map must carefully assess its impact on all hydrogen projects. Every hydrogen project currently under development relies on the existing configuration, and changes without thorough analysis risk undermining their viability and delaying deployment. -ENTSO-E should develop a hydrogen-sensitive impact assessment framework to identify risks to investment certainty, grid connection feasibility, and market access. **3. Balancing Services** -Some electrolyser projects should be explicitly recognised as eligible and technically capable providers of balancing services such as frequency regulation, reserve provision, and congestion management. -ENTSO-E should carry on a study of the potential support of electrolyser to the system and develop standards and market mechanisms that enable electrolysers to reliably participate in balancing platforms across Europe.	**2. Bidding Zones Review** -Protect investment certainty in emerging hydrogen projects by ensuring that market design facilitates, rather than obstructs, hydrogen deployment. -A hydrogen-sensitive assessment framework is needed to avoid market fragmentation and to minimise risks to project viability. **3. General Ancillary Services** -Enable flexible electrolyser projects capable of support the system during periods of stress. -This will help stabilise the grid and allow electrolysers to contribute frequency	these initiatives rely on the current bidding zone framework to structure their business models, particularly in relation to renewable electricity sourcing and compliance with RFNBO certification criteria under Delegated Regulations 2023/1184 and 2023/1185. However, ENTSO-E's The European TSO's role in the Bidding Zone Review (BZR) is to provide a robust, data-driven assessment of alternative configurations based on criteria defined by ACER, including network security, market efficiency, and the facilitation of the energy transition. The BZR offers technical insights to inform decisions by Member States. ENTSO-E agrees that any potential reconfiguration of bidding zones must be carefully considered in light of broader market impacts, including on hydrogen projects. While the BZR methodology prioritizes economic efficiency, ENTSO-E the TSOs have consistently highlighted that monetised benefits must be weighed alongside non-economic factors such as regulatory continuity, investment certainty, and the integration of emerging technologies sectors like hydrogen. 3. **Balancing Services/ General Ancillary Services** ENTSO-E acknowledges the valuable role that flexible electrolyser projects can play in supporting system stability, particularly by providing balancing services such as frequency regulation, reserves, and congestion management. These capabilities are increasingly important as the share of intermittent renewable energy grows across Europe. Important to note that there are already electrolyser projects that successfully participate in the balancing markets in the current legislative framework. Additionally, the ongoing development of the Network Code on Demand Response (NC DR) and amendments to the Electricity Balancing Regulation—both currently under consultation by the European Commission—aim to remove barriers and ensure non-discriminatory market access for all resource types, including electrolysers, whether they participate individually or via aggregation. These regulatory changes are designed to enable reliable participation of flexible projects in balancing markets, contributing to enhanced operational efficiency and security of supply. ENTSO-E

		4. TYNDP 2026 -Hydrogen infrastructure should be treated as core energy system assets and integrated fully into the system needs assessment and cost-benefit analysis methodologies in the electricity TYNDP. -Their contribution to system adequacy, decarbonisation, and cross-sector integration should be clearly recognised. **5.Electrolysers Connection Network Codes Standards** -Such standards will help manufacturers design compliant electrolysers and support projects in meeting system requirements to qualify for participation in balancing and ancillary markets. -These standards would also provide consistency across Member States and reduce project uncertainty, accelerating deployment and integration.	control, reserves, and congestion management.	remains committed to supporting the integration of such resources. Furthermore, ENTSO-E underlines that, in line with the Electricity Regulation, transmission tariffs must remain cost-reflective, transparent, and non-discriminatory across user groups. Rather than introducing technology-specific tariff reductions, ENTSO-E advocates for tariff designs that reward flexibility (e.g., ToU or dynamic network charges) so that any consumer, including electrolysers, can lower their costs by operating in a system-friendly way. ENTSO-E acknowledges the importance of addressing system cost structures in the context of the energy transition and their impact on electro-intensive industries, including the hydrogen sector. **4. TYNDP 2026** ENTSO-E is constantly improving its methodologies and models, and acknowledges hydrogen's role in the future decarbonized future. Hydrogen demand, supply and infrastructure are an integral part of all scenarios developed by ENTSO-E, jointly with ENTSOG, feeding into all TYNDP subproducts from the very start. All Cost-Benefit Analysis performed for the electricity TYNDP also consider hydrogen systems and their influence and interdependencies with the electricity system, directly influencing results seen in different CBA indicators. The system needs assessment also considers the presence of hydrogen systems and their influence in the electricity grid and market, but remains focused on how to deliver the best electricity infrastructure for this jointly developed view of the future (scenarios) on electricity and hydrogen infrastructures. Further developments on models and methodologies related to the integration of Electricity, Hydrogen and Methane energy systems are object of the specific Interlinked Model workstream in collaboration with ENTSOG and pre-ENNOH. **5.Electrolysers Connection Network Codes Standards** Regarding Connection Network Codes**,** ENTSO-E would like to emphasize that ACER's recommendation to the European Commission (EC) on the amended Network Code Demand Connection (NC DC) regulation already foresees specific connection requirements for power-to-gas demand facilities. These amendments aim at

				achieving the highest harmonization degree as possible across Europe, promoting a level playing field. The adoption and consequent entry into force of such updated regulation is now under the responsibility of the EC and, to the best of our knowledge, no specific timeline has been shared so far. To promote harmonization across member states before the updated NC DC comes into force, ENTSO-E has published a position paper encouraging Member States to take a proactive approach in implementing harmonized core technical requirements to accommodate immediate connections for power-to-gas assets. Moreover, as soon as the amended NC DC enters into force, ENTSO-E is planning to draft and publish for public consultation a non-binding Implementation Guidance Document (IGD) on power-to-gas, to support TSOs in the national implementation of the code, specifically on the non-exhaustive aspects of the regulation. While ENTSO-E has a legal mandate to draft and publish IGDs, ENTSO-E is not responsible for drafting standards, which are part of the activities promoted by standardization bodies.
2.European Heat Pump Association		The European Heat Pump Association hereby submits its comments on the Annual Work Program of ENTSO-E for 2026. Since heating and cooling represent over 50% of EU's energy demand, EHPA is a key stakeholder for achieving the energy transition. The European Heat Pump Association (EHPA) represents the voice of the European heat pump sector in Brussels. Our mission over the next five years is to ensure sustainable, stable growth in the domestic, commercial and industrial heat pump market in order to make heat pumps the number one heating and cooling technology in Europe and achieve a competitive, resilient European sector. **1. Recognize Heat Pumps as Eligible Non-Fossil Flexibility.** The Clean Industrial State Aid Framework (CISAF) explicitly permits "state aid for non-fossil flexibility technologies capable of providing flexibility services, and at least to storage of electricity and demand response" (Section 4.3, Point 96). While this is a positive development, the current language creates interpretation challenges. By explicitly naming "storage of electricity," the CISAF risks excluding		**1. Recognize Heat Pumps as Eligible Non-Fossil Flexibility.** ENTSO-E agrees that heat pumps, and DSR more broadly, will play an important role in the future grid. Through the National Flexibility Needs Assessments the system operators will support the member states in setting targets for non-fossil flexibility resources, which will in turn be included in the future NECPs and stimulate the deployment of these non-fossil resources. Projections in line will the NECPs will then be included in the TYNDP and the ERAA. System operators (TSOs and DSOs) will not compute capacities for X,Y,Z technologies and suggest it to the member states . They will however quantify and characterise the flexibility needs, perform CBAs to assess the interest of alternatives to grid expansion (DSR, storage, etc) and the methodology describes guiding criteria that members states can use to best choose the most appropriate technologies in their case.

		technologies that do not store electricity per se, but that nonetheless provide valuable, fast-response, system-relevant flexibility — such as heat pumps. Heat pumps, especially when equipped with smart controls, thermal storage (e.g. buffer tanks), or integration with building energy management systems, are fully capable of delivering demand response services. They can shift consumption in time without affecting comfort or output, making them well-suited to contribute to peak shaving, grid balancing, and renewable integration. EHPA emphasizes that heat pumps are non-fossil flexibility technologies — particularly when deployed at scale in residential, commercial, and industrial settings — and must be fully eligible under any planning, modelling, or support mechanisms derived from CISAF. EHPA strongly encourages ENTSO-E to make full and practical use of the flexibility provisions outlined in CISAF Points 95–110: • Ensure that heat pumps and thermal storage systems (including water tanks, phase change materials, and industrial heat storage) are explicitly recognized and included in all non-fossil flexibility assessments, resource adequacy modelling (ERAA), and capacity mechanism design under the 2026 work programme. • Collaborate with stakeholders to define interoperability standards, data-sharing requirements, and access conditions for demand-side assets, whether aggregated or behind-the-meter. 2. **Design Flexibility Contracts** that Reflect the Nature of Demand-Side Resources CISAF allows Member States to offer contracts for flexibility providers — but the terms must be suitable for demand-side assets like heat pumps, which differ from large generators or battery operators. EHPA suggests that ENTSO-E should make sure that the contracts: • Do not lead to administrative burdens that disproportionately affect smaller or behind-the-meter participants.		Regarding interoperability standards and stakeholder collaboration, ENTSO-E acknowledges the importance of stakeholder collaboration in enabling the effective integration of demand-side flexibility. ENTSO-E is contributing to the development of the Implementing Regulation on Demand Response (IR DR), which defines the framework for data exchanges between market participants, including those involving final customers, and introduces a harmonised reference model to ensure interoperability across Member States. In parallel, ENTSO-E is supporting the development of the Network Code on Demand Response (NC DR), which will further define access conditions and participation rules for demand-side flexibility providers, including provisions for aggregation and non-discriminatory market access. Additionally, the D4E subgroup of Smart Energy Expert Group is working toward the creation of a Common European Energy Data Space, one of its top priorities and ENTSO-E is actively participating among the experts. This initiative promotes interoperability across Member States and contributes to the definition of harmonized data-sharing requirements, supporting the integration of demand-side assets into the energy system. In these three workstreams mentioned above, ENTSO-E ensures to have stakeholder engagement and representation from relevant electrical grid actors. **Harmonizing flexibility requirements** On harmonizing flexibility requirements to avoid setting barriers to the single market, ENTSO-E welcomes EHPA's comment and understands that harmonization of flexibility requirements is essential to avoid fragmentation and ensure a well-functioning internal energy market. The ongoing revision and development of several network codes, including the upcoming Network Code on Demand Response (NC DR), aim to provide a coherent and non-discriminatory framework that facilitates the participation of all flexibility

		• Enable aggregators and ESCOs to hold contracts on behalf of many small users (including households, SMEs, or industrial sites). **3. Capacity mechanisms shall not undermine flexibility development** EHPA emphasizes that capacity mechanisms shall not conflict with or undermine future flexibility support schemes as envisaged by the CISAF. Aid for capacity mechanisms shall be strictly limited to securing energy supply in urgent situations, such as periods of low wind and solar generation. It shall not create structural conditions that discourage or displace investment in non-fossil flexibility solutions. In order to enhance flexibility, capacity mechanisms should be allocated in a fair and cost reflective manner across users that enhances the economic signals to increase system efficiency and decrease overall costs, (E.g., at peak demand or when power plants funded under the capacity mechanism are used, charges should be highest and therefore lowest at times of high renewable generation). EHPA recommends that ENTSO-E: • Promote technology-neutral and flexibility-friendly capacity mechanisms, ensuring that demand-side technologies— including aggregated heat pumps — are eligible and not excluded by size or metering constraints. • Explicitly assess the interaction between capacity mechanisms and non-fossil flexibility support, avoiding double-counting or conflicting incentives. • Prevent lock-in of inflexible fossil assets that could delay clean electrification. **4. Integrate Flexible Electrification into Grid Planning and Adequacy Studies** Heat pumps in buildings and industry — presents a major opportunity for Europe's energy system. In addition to reducing emissions, these technologies offer valuable system flexibility. Heat pumps, especially when combined		resources—regardless of their size, technology, or location. ENTSO-E is committed to ensuring that these frameworks support the electrification transition and enable relevant technologies to contribute to system flexibility, grid stability, and energy security. ENTSO-E has also recognised the potential of heat pumps to contribute to flexibility needs while investigating the electrification of the heating sector and within ENTSO-E Vision. In this context, ENTSO-E also contributes to broader interoperability and data alignment efforts through the D4E subgroup of SEEG, which is working toward the creation of a Common European Energy Data Space. This initiative promotes cross-border interoperability and supports the definition of harmonized data-sharing requirements, which are key enablers for the effective integration of demand-side flexibility across Europe. ENTSO-E agrees that CMs should be designed in a way that supports, rather than hinders, the development of non-fossil flexibility resources. However, the principal purpose of CMs is to address adequacy concerns (i.e., ensuring sufficient reliable capacity is available to meet demand in all system conditions, particularly during scarcity events). By contrast, NFFS are intended to address flexibility needs (i.e., the ability of the system to respond to rapid changes in generation and demand over shorter timescales). While certain technologies may contribute to both objectives, the two instruments are not interchangeable and must be assessed against their distinct primary purposes. EHPA's suggestion that CM aid be "strictly limited" to certain weather or generation conditions does not fully reflect the range of adequacy risks. I would stress that adequacy risks are driven by a variety of factors, including demand patterns, outages, and system constraints, not only low wind or solar periods. CM design should therefore reflect the full spectrum of adequacy risks identified in national and European adequacy assessments.

		with thermal storage—your well insulated home, water tank, thermal battery, etc., can shift electricity consumption over time, helping to balance the grid, support renewable integration, and enhance system resilience. ENTSO-E's work on flexibility is key to unlock the heat pumps flexibility. Especially the implementation of the existing demand response framework and the upcoming Network Code on Demand Response. Additionally, heat pump flexibility and thermal storage flexibility should be included in the development plans. The Ten-Year Network Development Plan (TYNDP) and the European Resource Adequacy Assessment (ERAA) provides an ideal platform to further reflect the potential of flexible electrification and its role in delivering a clean, secure energy system. EHPA warmly supports ENTSO-E's efforts and recommends: • Including forward-looking heat pump deployment projections in planning scenarios, aligned with national energy and climate plans and EU decarbonisation targets. • Reflecting the flexibility potential of heat pumps — particularly their ability to shift demand — as a contributor to resource adequacy and system stability. • Recognizing thermal energy storage of heat pump for heating or cooling, as a key enabler of flexibility. • Considering both the heating and the cooling flexibility potential of heat pumps, as well as the fact that some heat pump technologies can provide both heating and cooling, and are thus the efficient solution to go for. • Anticipating the growth of industrial heat pump clusters and electrified district heating, which will play an important role in the Clean Industrial Deal. • Collaborating with EHPA and other stakeholders to ensure that the latest data and use cases are available for system modelling and planning. 5. Harmonising the flexibility requirements to avoid setting barriers to the single market. A number of network		Efficient cost allocation is important, but the primary driver of CM design should be adequacy at least cost to consumers , in a manner that is non-discriminatory across resource types and locations, and without creating barriers to cross-border participation. Cost-reflective user charges should be structured so that they do not inadvertently compromise adequacy or add unnecessary complexity to CM operation. **2. Flexibility contracts** ENTSO-E acknowledges the valuable role that smaller and behind-the-meter participants can play in supporting system stability, particularly by providing balancing services (i.e., frequency regulation, reserves, and congestion management) as well as voltage control. These capabilities are increasingly important as the share of intermittent renewable energy grows across Europe. The ongoing development of the Network Code on Demand Response (NC DR) and amendments to the Electricity Balancing Regulation—both currently under consultation by the European Commission (see the Targeted Consultation to support the establishment of a new network code on demand response - European Commission)—aim to remove barriers and ensure non-discriminatory market access for all resource types, including heat pumps, whether they participate individually or via aggregation. These regulatory changes are designed to enable reliable participation of flexible projects in balancing markets, contributing to enhanced operational efficiency and security of supply. ENTSO-E remains committed to supporting the integration of such resources and will continue its work on system flexibility, including potential future monitoring and standardisation efforts to further facilitate their participation in electricity markets. For further details, we would like to advise to see the NC DR Package in the above linked consultation, introducing definitions of small controllable units (NC DR Art.2.19), rules for flexible connection agreements (NC DR Art.31) as well as amendments to EB Regulation Art.52 to 55A, introducing settlement also considering

		codes and other technical legislations have been or are currently under revision in order to match the needs of the electrification transition. EHPA supports the electrification as heat pumps offer the efficient heating and cooling solution in this transition. Grid stability and energy security are key to foster the trust in the transition. However, these revisions have often redesign, certification and/or reporting obligations for products—examples are Grid Connection Codes, Network Code on Demand Response. This means extra costs for the products and when the new requirements are delegated at the national level or different depending on the location of the product connection point, they lead to a patchwork of product requirements. This adds barriers for the products and scatters the EU single market. Moreover, the various technical files, have different implementation timelines which lead to multiple redesigns and certifications. This is not holdable for the industry, and even more detrimental to SME's of the sector. Further data interoperability and a harmonised list of data required for the energy system (be it for DR, EPBD, DPP or for any data needed from products such as heat pumps) are crucial. Often, these requirements are delegated to the national levels, which lead to another patchwork of communication protocols, data formats, etc. to implement into the product. It is key to harmonise the needed data interoperability requirements at EU level. To do so EHPA advocates to use existing EU initiatives like the Code of Conduct on Energy Smart Appliances. As mentioned in the AWP 2026 data of the available flexibility is key to achieve the system's transition. It is thus key to also take the last part of the energy chain (the product) into consideration. Having it defined in product regulations is the only way to include them; as these requirements do have an impact on the product design. EHPA recommends that:		aggregation of units, as well as financial transfer and compensation for the aggregation models. Finally, please also see the reduction of minimum bid size and granularity of bids in EB Regulation Art.25.7. ENTSO-E acknowledges as of higher added value for aggregators to allow for lower bid granularity, therefore proposed to set the granularity of the standard balancing product to 0.1 MW. **3. Capacity mechanisms shall not undermine flexibility development** ENTSO-E agrees that CMs should be designed in a way that supports, rather than hinders, the development of non-fossil flexibility resources. However, the principal purpose of CMs is to address adequacy concerns (i.e., ensuring sufficient reliable capacity is available to meet demand in all system conditions, particularly during scarcity events). By contrast, NFFS are intended to address flexibility needs (i.e., the ability of the system to respond to rapid changes in generation and demand over shorter timescales). While certain technologies may contribute to both objectives, the two instruments are not interchangeable and must be assessed against their distinct primary purposes. EHPA's suggestion that CM aid be "strictly limited" to certain weather or generation conditions does not fully reflect the range of adequacy risks. We would stress that adequacy risks are driven by a variety of factors, including demand patterns, outages, and system constraints, not only low wind or solar periods. CM design should therefore reflect the full spectrum of adequacy risks identified in national and European adequacy assessments. Finally, we would agree that efficient cost allocation is important, but the primary driver of CM design should be adequacy at least cost to consumers , in a manner that is non-discriminatory across resource types and locations, and without creating barriers to cross-border participation. Cost-reflective user charges should be structured so that they do not inadvertently

		• ENTSO-E opts for harmonisation over delegation to national level whenever a requirement impacts a product. • ENTSO-E to harmonise the requirements that breach the single market principle, by scattering the product requirements at national level. • ENTSO-E leaves product requirements to product regulations, by citing existing product regulations or asking the Commission for mandates to amend product regulations. By letting product requirements in product regulation ENTSO-E will enable to avoid multiple uncoordinated redesign timelines due to various implementation timelines between technical regulations having a product impact and product regulations. The European Heat Pump Association (EHPA) represents the European heat pump sector. Our over 220 members include heat pump and component manufacturers, research institutes, universities, testing labs and energy agencies. EHPA advocates, communicates and provides policy, technical and economic expertise to European, national and local authorities, and to our members. Our vision for is to be the leading authority and trusted partner in the path to fully enable the decarbonisation of buildings and industry in Europe. Our mission over the next five years is to ensure sustainable, stable growth in the domestic, commercial and industrial heat pump market in order to make heat pumps the number one heating and cooling technology in Europe and achieve a competitive, resilient European sector.		compromise adequacy or add unnecessary complexity to CM operation. **4. Integrate Flexible Electrification into Grid Planning and Adequacy Studies** ENTSO-E welcomes EHPA's comment and understands that harmonization of flexibility requirements is essential to avoid fragmentation and ensure a well-functioning internal energy market. The ongoing revision and development of several network codes, including the upcoming Network Code on Demand Response (NC DR), aim to provide a coherent and non-discriminatory framework that facilitates the participation of all flexibility resources—regardless of their size, technology, or location. ENTSO-E is committed to ensuring that these frameworks support the electrification transition and enable relevant technologies to contribute to system flexibility, grid stability, and energy security. Heat pumps, and DSR more broadly, will play an important role in the future grid. Through the National Flexibility Needs Assessments the system operators will support the member states in setting targets for non-fossil flexibility resources, which will in turn be included in the future NECPs and stimulate the deployment of these non-fossil resources. Projections in line will the NECPs will then be included in the TYNDP and the ERAA. ENTSO-E has also recognised the potential of heat pumps to contribute to flexibility needs while investigating the electrification of the heating sector and within ENTSO-E Vision. In this context, ENTSO-E also contributes to broader interoperability and data alignment efforts through the D4E subgroup of SEEG, which is working toward the creation of a Common European Energy Data Space. This initiative promotes cross-border interoperability and supports the definition of harmonized data-sharing requirements, which are key enablers for the effective integration of demand-side flexibility across Europe.'

3. EUGINE		EUGINE would like to propose that ENTSO-E place a stronger focus in Section 3 of the 2026 Annual Work Programme (**Connection Network Codes**) on implementing the outcomes of the Expert Group on 'Harmonization of Equipment Certificate Acceptance at European Level and Product Family Grouping' (EG HCF), whose final report was delivered in 2023. This work, chaired by EUGINE, provides a solid and consensus-based foundation for improving the efficiency and consistency of equipment certification across the EU. In particular, EUGINE recommends that ENTSO-E update the relevant Implementation Guidance Documents (IGDs), especially those related to certification, to reflect the EG HCF's recommendations. This includes: **1. Certification Harmonization IGD Update**: Developing comprehensive guidance to harmonize certification practices across the EU by incorporating the EG HCF recommendations. This involves establishing EU-wide harmonized testing strategies and proof of compliance methods to address the current fragmentation, where different TSOs apply varying certification requirements. The guidance should also implement the EG HCF's pathway for mutual recognition of equipment certificates across EU Member States, thereby reducing barriers and duplication in certification processes. Furthermore, it will provide recommendations on how product family grouping can be leveraged to streamline certification procedures while ensuring technical compliance and maintaining high standards. **2. Product Family Concept Implementation**: Creating detailed guidance on the 'common product family definition and grouping criteria' established by the EG HCF, enabling more efficient certification processes across similar equipment types. Family certification lacks harmonization across countries, e.g., it's scaled by √10 in Germany, varies by ±25% in Spain, and isn't accepted at all in Romania, creating challenges for OEMs.		**1. Flexibility and standardisation** Thank you for your detailed proposal. ENTSO-E notes the request to enhance technical specifications and methodologies for non-frequency ancillary services. In this context, it is important to highlight that the upcoming Network Code on Demand Response (NC DR) and the related amendments to the Electricity Balancing Regulation—once adopted by the European Commission—will require the detailed national Terms and Conditions outlining the process and requirements for a market participant to qualify as a service provider, as well as amendments to the harmonised terms and conditions for Balancing Service Providers (BSPs) and Balancing Responsible Parties (BRPs). These updates will include technical qualification requirements, which will directly support a more harmonised and transparent approach to the participation of various technologies in system services. ENTSO-E will continue to contribute to the development and implementation of technical frameworks in line with its mandate and evolving regulatory requirements, while engaging with stakeholders to ensure that system needs are met effectively and efficiently across Europe. **2. Connection Network Codes and Harmonisation** Regarding the Expert Group on Harmonization of Equipment Certificate Acceptance at European Level and Product Family Grouping (EG HCF) developed under the Grid Connection European Stakeholders Committee (GC ESC) framework, ENTSO-E would like to emphasize that the outcomes of the EG HCF final report will be considered during the update of the relevant Implementation Guidance Documents (IGDs) as previously communicated to the GC ESC stakeholders in September 2024. These relevant IGDs to be updated are those on general guidance on compliance verification: compliance monitoring after operational notification, use of simulation models, and compliance testing and use of equipment certificates. These deliverables will be publicly consulted once the amended version of the

		In addition to the EG HCF-related priorities, EUGINE would also like to highlight the following important topics under Section 3 that warrant attention: **3. Revising IGD for Limited Frequency Sensitive Mode published by ENTSO-E in 2018 (which formed the basis of ACER's recommendation to amend the network code on requirements for generators**): EUGINE recommends stating LFSM-O response time 'shall be as fast as technically feasible' and removing the stated response times for SPGMs and PPMs. **4. Harmonisation of Simulation Tool and Model Type Requirements**: Currently, TSOs across different EU countries require simulation models in various tools and formats for certification processes. This lack of standardisation creates significant burdens for OEMs during equipment validation and grid code compliance. As simulation model development and validation are integral to certification, EUGINE recommends that ENTSO-E prioritise the development of clear, harmonised guidelines on required simulation tools and model types (RMS, EMT, or both) to ensure consistent and efficient practices across Member States. **5. Inconsistent Equipment Type Classification Across Countries**: EUGINE members face challenges due to non-harmonised classification of equipment. This results in different certification requirements for the same equipment in different Member States, creating regulatory and administrative inefficiencies. Examples include: i) In some countries, classification is based on individual unit size. ii) In others, it is determined by the total plant size at the grid connection point, combined with the voltage level. iii) Elsewhere, it is based solely on the voltage level at the connection point. This inconsistency leads to duplicative testing, extended certification timelines, and increased costs, particularly for equipment deployed in multiple markets. In this context, EUGINE recommends ENTSO-E to address this issue by developing a harmonised classification scheme. EUGINE believes these actions are well aligned with the legal mandates under REGULATION (EU) 2019/943 (as		Network Code on Requirements for Generators will be in force. Moreover, the adoption and consequent entry into force of such updated regulation is now under the responsibility of the EC and, to the best of our knowledge, no specific timeline has been shared so far. Regarding the LFSM IGDs, even though it is not mentioned in ENTSO-E's Annual Work Program for 2026, ENTSO-E is also planning to update the existing document after the entry into force of the updated regulation. Once updated, this IGD will also be publicly consulted. Technical specifications are part of the Connection Network Codes (CNC) tasks, which are located in Section 3 of the AWP. The Network Code on Requirements for Generators (NC RfG) 2.0 defines technical requirements for voltage and reactive power control for generators as well as synthetic inertia capabilities for Power Park Modules (PPMs) As previously communicated to the Grid Connection European Stakeholders Committee (GC ESC) meeting in September 2024, ENTSO-E is planning to develop an Implementation Guidance Document (IGD) on grid forming requirements for PPMs, which will include synthetic inertia capabilities. This deliverable will be publicly consulted once the amended version of the NC RfG will be in force. IGDs on voltage and reactive control are not part of the current IGDs planning. Nevertheless, ENTSO-E is open to collect stakeholders' feedback through the GC ESC platform. Besides, while ENTSO-E has a legal mandate to draft and publish IGDs, ENTSO-E is not responsible for drafting standards, which are part of the activities promoted by standardization bodies. Regarding the way that these non-frequency ancillary services will be provided, currently there are no

		amended) and other relevant EU legislation, and would contribute significantly to reducing administrative burden, supporting innovation, and improving regulatory consistency across the internal energy market. Moreover, EUGINE proposes that Section 5 of the 2026 Annual Work Programme **(Market Related Tasks)** place greater emphasis on developing technical standards and methodologies to support the evolving needs of system operation, particularly in the area of non-frequency ancillary services. These system services, such as voltage control and inertia provision, are essential for ensuring stable grid operation in a power system with increasing shares of variable and converter-based generation. In this context, EUGINE recommends that ENTSO-E focus on: • **Developing standardized technical specifications for each relevant non-frequency ancillary service, with particular attention to voltage control and inertia.** • **Defining technical participation requirements for both power electronic-based and synchronous generation technologies (including synchronous condenser operation) in the provision of reactive power and inertia services.** This proposal is consistent with the legal basis provided under Directive (EU) 2019/944, particularly Article 40(6), which highlights the task of transmission system operators to procure system services other than frequency-related ones. To reflect these priorities, EUGINE also recommends that **ENTSO-E integrate these technical developments into updated Network Codes,** ensuring that enhanced system service requirements are fully and consistently embedded across the EU framework.		legislation/requirements on common pan-European provisions or procurement of non-frequency ancillary services, this is up to the national TSOs. For example, German TSOs will be launching a market-based procurement scheme for inertia services starting in 2026, where TSOs will award fixed-price contracts after competitive offers, with different product types and payments tied to availability.
4.EUTurbines	• Stability issues and related countermeasures (e.g. synchronous condensers, black start capabilities) do not appear to be addressed in sufficient detail.	**Chapter 1 Operations - System Operation Guideline (page 6)** Over the past year, EUTurbines has been actively discussing system stability limits. The Dynamic Stability Analysis (DSA) carried out in 2019 now appears outdated,	In case of an unexpected event the focus should be on the most critical areas: Chapter 1 (Operation), Chapter 2 (Market), Chapter 5 (Market-related	**- Chapter 1 Operations - System Operation Guideline and Chapter 2- Market** Thank you for your comment. After each relevant grid incident that falls under the category of ICS Scale 2 or 3 incidents, ENTSO-E follows the ICS Methodology

	• Cooperation with European standardization bodies and the development of best practices is not mentioned. • Collaboration with industry sectors and stakeholders seems to be very limited throughout the document • Data sharing and transparency on past blackouts and voltage problems, and in general on relevant grid events.	particularly in light of the ongoing work on Inertia Phase II. In recent years, several significant events, including major blackouts related to system instability, have occurred. While investigations are still ongoing, it is expected that appropriate countermeasure plans will need to be deployed. However, these measures should not impose additional or unnecessary requirements on grid users (both generators and loads). We recommend that the **System Operation Guideline** be updated to integrate, where relevant, the lessons learned from past events—at least from Category 3 events—and be aligned with the ongoing development of service markets and related regulations. **Chapter 1 Operations - Emergency and Restoration (page 6)** We consider it essential to establish a structured approach for lessons learned and transparent information sharing. This should include the creation of a data repository where relevant information can be collected and made accessible to stakeholders. Following recent incidents, it has become evident that the system is facing multiple new challenges (e.g. local subsynchronous frequency and voltage oscillations, potential inadvertent trips due to protection schemes, etc.). Providing stakeholders with access to this information is crucial to enable a better understanding of system behaviour and to support more effective mitigation measures. **Chapter 2 Market** Following the recent event in Spain, it remains unclear whether any operational decisions leading to the blackout were influenced by market constraints. The system was considered to be in normal operation, without systematically exceeding operational parameters. However, discussions indicate a potential link between market-driven decisions and system conditions, as highlighted in REE's report on the 28 April Iberian incident, where PV generation dispatch was used to complement the system in southern Spain.	tasks), and Chapter 6 (Operational Readiness and Resilience).	(Incident Classification Scale Methodology) for the creation of the dedicated Expert Panel that will lead the technical investigation of such incidents. For all the technical investigations performed so far, all the developed reports that contain the detailed technical analysis and the proposed recommendations can be found on the ENTSO-E webpage: ns/system-operations-reports/#january-2017-critical-grid-situation"System Operations Reports In addition to that, all relevant information and updates are being communicated during the SO ESC (System Operations Electricity Stakeholders Committee) meetings. Furthermore, in the context of the Iberian blackout, ENTSO-E provided additional details about the technical investigation in a dedicated SO ESC workshop on 18 July, as well as ENTSO-E created a dedicated webpage for this incident: 28 April Blackout Regarding the part on inertia and system stability, ENTSO-E would like to clarify that, within Project Inertia phase 2 we deal with the future design of inertia and the system defence plan in order to manage large system disturbances and especially system split situations. DSA deals more with the continuous monitoring of system stability by each TSO. So far, the TSOs are committed to perform the annual assessment of the inertia, while a continuous monitoring (including the realization of real-time counter measures) for inertia or the system defence plan is not in scope. This is also related to the different measures which will be applied, such as increasing inertia contributions by GFM, synchronous condensers etc. Regarding the SOGL updates, ENTSO-E is committed and prepared to support the SOGL revision once it will be initiated by the European Commission. Over the past 8 years that the SOGL is in force there were several situation from which ENTSO-E draw lessons and is prepared to share improvements to the current Guidelines. Lessons learnt will be taken into account both on operational and market side. **Chapter 3 Connection Network Code**

		We recommend that ENTSO-E: • Analyse the operational impact of market decisions, in cooperation with ACER and the European Commission, to ensure that market outcomes do not inadvertently push the system closer to instability. • Integrate lessons learned from past incidents into the System Operation Guideline, especially regarding reactive power and inertia, and ensure these elements are properly reflected in future emergency and restoration provisions. Such analysis would help ensure that operational security is not compromised by unintended market-driven effects while respecting the roles of market regulators. **Chapter 3 Connection Network Codes** Implementation Guidance Documents (IGDs) are considered an important tool. We believe that involving stakeholders from the early drafting phase is crucial. As highlighted in many discussions, requirements should reflect the actual capabilities of existing units and components, while future designs must ensure a high level of reliability to maintain system availability. Since these are new systems that involve a learning curve for all stakeholders, it is essential that IGDs are developed based on consensus-driven information. For the IGDs to be developed, we suggest prioritising the creation of one specifically focused on SPGMs and system stability. **Chapter 6 Operational Readiness and Resilience** **RCCs and OPCs** (pages 18–19): Considering the evolution of the system, the involvement of EU-DSOs could be highly relevant. **European Awareness System:** It would be beneficial to share event data through a common platform, ensuring better transparency and access.		Regarding the Implementation Guidance Documents (IGDs) related to the Connection Network Codes (CNC), ENTSO-E would like to emphasize that, according to the regulations in force (i.e., Article 58 of the Network Code Requirements for Generators, Article 56 of the Network Code Demand Connection and Article 75 of the Network Code HVDC), ENTSO-E has the legal mandate to draft these documents and to conduct a public consultation. Thus, as soon as the amended CNC are in force, each IGD will undergo a public consultation, allowing stakeholders to provide any comments. ENTSO-E will assess each comment, including all the relevant input received in the final document, and provide written justification in case any comment is rejected. Regarding the SPGMs and system stability IGDs mentioned, as communicated to the Grid Connection European Stakeholders Committee (GC ESC) members in September 2024, these documents are not part of the current IGDs planning. Nevertheless, ENTSO-E is open to collect stakeholders' feedback through the GC ESC platform. ENTSO-E would also like to highlight that the expected timeline for the IGDs development is subject to the timing of the entry into force of the amended Regulations, which is under the European Commission responsibility. **RCCs and OPCs** ENTSO-E recognizes that the coordination with DSOs as part of the Outage Planning and Coordination is important. Therefore, SOGL Title 3 addresses and defines the coordination need with the DSOs in Article 83, 85, 87, and 90. They provide the TSOs and DSOs with the required mandate and duties to ensure an efficient and secure Outage Planning Process throughout distribution and transmission level. Moreover, there are several processes in place for many years reflecting the activities mentioned above.

				Chapter 6 Operational Readiness and Resilience The European Awareness System is a legal mandate to European TSOs based on SOGL requirements. the platform is functional since 2012 and it is accessible to all ENTSO-E TSOs. Since the data exchange via EAS is real-time confidential and highly confidential data, the EAS platform cannot be opened to any external entities.