Electricity Market Design Reform

ENTSO-E Position on the EC proposals on Market Design

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ENTSO-E supports the objectives of EC legislative proposals to optimise the current electricity market design for a decarbonised energy system and to improve affordability for consumers. The priorities outlined by the EU Commission are generally aligned with those that we identified in our Vision of a Power System for a Carbon Neutral Europe. **In particular, ENTSO-E welcomes:**

- Proposals to **better protect and empower European consumers** by facilitating their access to renewable and low carbon electricity, to a wide range of retail offers with transparent contractual information, as well as to new services and engagement opportunities;
- The promotion of well-designed 2-ways Contract for Differences and Power Purchasing Agreements to **strengthen long-term investment signals for renewable and low-carbon generation**, to provide hedging opportunities for demand and avoiding market distortions;
- The **preservation of well-functioning, liquid and integrated European short-term markets** (day-ahead, intraday and balancing) which ensure an efficient use of generation and flexibility resources, as well as incentives for energy savings;
- **The introduction of flexibility needs assessments**, as proposed in our ENTSO-E Vision, should complement system adequacy studies building on existing roles & responsibilities, to guide market design choices, investments and innovation in all sources of flexibility;
- **An improved regulatory framework for TSOs,** aimed at duly recognising anticipatory investments of TSOs and operational expenditures (along capital investments) as well as fostering innovation and use of flexibility solutions.

However, we believe **some key elements are currently missing** while others – included without a proper impact assessment – may have **detrimental effects** on market functioning, system security or costs borne by consumers.

- Market mechanisms to ensure adequacy should be reinforced. In particular, **the framework for Capacity Remuneration Mechanisms (CRMs) must be simplified** so to allow their quicker and more stable introduction: CRMs, as structural elements of national markets, can be essential to support investments in resources needed to balance and secure the system.
- Implementing **Regional Virtual Hubs**, a theoretical and still untested approach, **would require long implementation times** (5 – 10 years as estimated by ACER) **and may lead to significant** costs and risks for TSOs, grid users and market participants. More practical solutions can be implemented in shorter lead times to improve current forward markets.
- **Using congestion income to support offshore generators in hybrid projects is discriminatory** as this implies **a non-transparent subsidy paid by consumers to specific producer category.** As an alternative solution, we recommend building on already existing support frameworks, such as two-sided capability-based Contracts for Difference (CfDs).
- **Shortening of the Intraday cross-zonal gate closure to 30' ahead of real time by 2028 is inadequate at that stage. This would have severe consequences for many TSOs in Europe**, requiring a complete change in how they operate their systems and potentially compromising system security. We strongly warn against the inclusion of specific timings on intraday gate closure time in the Regulation, especially without proper impact assessment.
- **The strengthening of the REMIT regulation should** be accompanied by a balanced approach that **carefully considers the proportionality of the new obligations**.

Empower and protect consumers to improve affordability and system flexibility

Key message:

The market design must support and empower consumers by facilitating their access to renewable and low carbon electricity, to a wide range of retail offers with transparent contractual information, as well as to new services and engagement opportunities.

- In the longer run, the best way to reduce the impact of high fuel prices on consumers' bills is to **accelerate the development towards a carbon neutral power system** (as this will contribute to protect them from fuel supply shocks), with significantly higher energy efficiency and optimised price signals.

- **Demand response should be incentivised via dynamic pricing, time-based rates or other forms of financial incentives.** Price signals remunerate the ability of consumers to reduce their consumption when energy is scarce, providing value to engaged and flexible consumers, as well as to the whole society. In system dominated by weather-dependant generation, increased flexibility from the demand side will be more and more essential to ensure the power system can remain balanced and secure.

- **Competition behind the meter and dedicated metering devices should be allowed to value consumers' flexibility.** An increasing number of consumers appliances (heat pumps, electric vehicles, home batteries, etc.) are being electrified and can be operated in a flexible manner benefitting both consumers and the power system. Via dedicated or embedded metering devices linked to these flexible appliances, consumers can differentiate their share of flexible consumption from the less flexible one. This allows them to e.g. combine fixed-price contracts for their non-flexible share of consumption with dynamic prices contracts for their flexible appliances, thereby limiting their exposure to high prices while benefiting from demand response incentives. In turn, this will also enable the development of innovative business models and services. Lastly, data from dedicated metering devices will also allow system operators to better operate and balance the system by improving observability and by having access to additional flexibility providers.

- **The roll-out of smart meters shall be accelerated where it is lagging behind.** Smart meters are a prerequisite for fully enabling demand response. We regret a lack of relevant provisions in the regulation and directive to accelerate such roll-out.

- **When necessary, targeted support should be offered to the most vulnerable households and exposed businesses** without distorting price signals that are needed to facilitate demand response and energy savings. Moreover, consumer protection should also be achieved with improved transparency on contractual terms and conditions

- **Consumers awareness and broad-based communication** for specific events of limited duration - where a reduction or shift of consumption is needed - can also be very helpful for system security and price mitigation, as demonstrated during the winter 2022/2023.

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Stronger long-term signals for Investments in renewable and low-carbon generation

Key message:

Stronger long-term signals are key for accelerating investments in renewable and low-carbon generation at the right locations. A combination of well-designed long-term contracts such as 2-ways Contract for Differences (CfDs) and Power Purchasing Agreements (PPAs), as well as liquid forward markets, is needed to attract investors, to provide more hedging opportunities for consumers, and to efficiently balance demand and supply in the system.

- **Long-term contracts should complement short-term markets and give adequate investments incentives and hedging opportunities for renewable and low-carbon generation investors.** Stable and predictable revenues are key to lower capital costs and to accelerate investments in these generation technologies which are needed to achieve EU decarbonisation targets.

- **Forward markets will remain important** for generators, suppliers and large consumers to hedge their risks against price variations but **are insufficient to drive the level of investments required.** They need to be complemented by 2-way CfDs and PPAs for RES and low carbon generation, and by Capacity Mechanisms for complementary flexibility resources.

- **Two-way Contract for Differences should be more widely used.** Two-way CfDs compensate generators when prices are low (providing price stability and investment incentives) while avoiding excessive revenues and providing governments with additional revenues when market prices are high. As such, we agree with the EC proposal to channel public support to RES and low-carbon generation via well-designed 2-ways CfDs.

- **CfDs must be very carefully designed to avoid distortions in short-term and balancing markets or increases in system costs.** It's essential that price signals of Day-ahead, Intraday and balancing markets drive the use of the most efficient resources in every location and at every moment in time (e.g. disincentivising production at times of negative prices). This can be achieved by decoupling the remuneration of the CfD from the output of the generator such as with Capability-based CfDs (see also paper #6 on use of congestion income).

- **CfDs should** remain **voluntary**, and their price should be set in a competitive manner. We support the proposed provisions allowing market parties to engage in other long-term hedging instruments such as PPAs or forward markets.

- **The use of Power Purchase Agreements (PPA) should be further encouraged.** However, it must be ensured that these contracts between developers and commercial counterparties **do not only benefit large consumers or suppliers.**

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Preserve short-term markets to ensure efficient dispatch, consumption and system balancing

Key message:

The efficient functioning, liquidity and European integration of short-term markets is more than ever essential to ensure an efficient dispatch of generation and flexibility resources. Current price formation rules in day-ahead, intraday and balancing markets should be preserved, while market access rules should further evolve to welcome additional flexibility providers including storage and demand response.

- **We welcome the EC proposal which preserves the well-functioning of short-term markets:** short-term and balancing markets are designed to make sure that the cheapest and cleanest resources (generation, storage, demand response) is used, while ensuring the balance and security of the system is met in every second and at every location.
- **Day-ahead, intraday and balancing price signals will thus continue to be a key feature of the future market design and must be kept undistorted:** efficient short-term price formation, marginal pricing, market integration and liquidity are essential to ensure the optimal dispatch of available resources. This is essential for the efficiency of the market themselves, but also for the operation of the system.
- **Short-term markets can and should be further improved by removing any remaining barriers to market entry** for new flexibility providers and allow efficient and coordinated access to distributed energy and flexibility resources including storage and demand response.

Improve long-term signals to ensure secure supply at all times in a more electrified economy

Key message:

The framework for Capacity Remuneration Mechanisms (CRMs) must be simplified: CRMs, as structural element of national markets, can be essential to ensure adequacy by supporting investments in generation resources providing the necessary flexibility as well as ancillary services. Such resources are required to keep the power system secure and balanced at all times and at all locations, complementing weather dependant generation sources.

- **The investment framework must be improved for the flexibility resources that will be essential for system security.** Weather-dependant generation requires matching flexible resources: when wind and sun are insufficient to cover demand – especially over longer periods of time – alternative resources must be available to keep the system secure.

- **The need to complement the energy only markets has been made evident by the 2022 crisis. Contrary to one of the key assumption of energy only markets,** there is no public nor political acceptance for very high prices in Europe today. Such very high prices are supposed to provide incentives for investing in flexible generation (covering investments costs by generating during scarcity periods with high remuneration). As investors cannot rely on such price incentives, complementary market mechanisms are needed to remunerate capacity availability.

- **The need for Capacity Remuneration Mechanisms to secure investment in flexible generation must be recognised.** Capacity mechanisms are likely to be necessary in many EU countries as a standard feature of well-functioning wholesale markets to ensure system adequacy (in addition to specific instruments to support investments in RES and low-carbon generation). As such, it is time to reform today's framework considering CRMs only as a last resort measure: the cumulative and restrictive conditions for their introduction, should be carefully reconsidered.

- **Regulation should facilitate Member States' introduction or amendment of CRMs through faster, clearer and fit-for-purpose approval processes.** Considering CRMs as possible structural element of national markets and in line with the EU target market design is crucial. Since timing is key to solve adequacy issues, CRM approval should be framed into a reasonable and reduced timeframe to avoid undue delays between the decision of the MS and its actual implementation.

- **CRM design should be consistent with the acceleration to decarbonisation** of the power system and avoid lock-in effects of fossil fuel technologies beyond their necessary contribution to adequacy. CRMs must value the contribution of different technologies, including demand response and storage, to system adequacy. However, a full integration of decarbonisation objectives in CRMs should not be required as other market mechanisms may be more suitable to support specific objectives or technologies. Improving to CRMs consistency and coordination at regional/EU level should also be considered.

- **The scope and approval process of the European Resource Adequacy Assessment should also be reviewed.** National adequacy assessments can further complement the ERAA in assessing system adequacy more holistically, with a higher granularity and dedicated sensitivities.

- **National granularity and sensitivity analysis are needed to address specific locational scarcities** for adequacy, transmission capacity, or ancillary services provision. Moreover, locational aspects should also be considered in the design of CRMs. This can ensure that the required investments take place in the right locations (e. g. to provide sufficient location-dependent ancillary services).

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Regional Virtual Hubs increase uncertainties for market parties and TSOs

Key message:

Current shortcomings of forward markets such as limited liquidity **should be addressed with practical evolutions of the current set-up** (e. g. more frequent auctions, improved products, etc.). The proposal of R**egional Virtual Hubs is a disruptive approach with long implementation times (5 – 10 years)** based on untested solutions and **with significant uncertainties on cost and risks for both TSOs and market participants** whose interest in such Virtual Hub arrangements is far from evident.

› **ENTSO-E welcomes the EC objective to improve forward markets** and cross-zonal hedging. TSOs are committed to further develop these markets in cooperation with stakeholders.

› **Virtual Hubs should not be imposed as a target model for the whole of Europe without a more in-depth assessment.** TSOs see Virtual Hubs as only one of the potential long-term evolutions for increasing liquidity of forward markets.

› **Virtual hubs are untested and unassessed solutions, with long implementation timelines** (5 – 10 years as estimated by ACER). Their establishment as target models would create significant uncertainty, risks and implementation costs, therefore negatively affecting market stakeholders hedging opportunities in the coming years:

_ **Impacts on liquidity, on capacity calculation processes and on additional obligations resulting from financial regulation** are unassessed;

_ **Risks and negative financial impact on TSOs and end-consumers**: the adoption of Financial Transmission Rights (FTR) Obligations, the extension of the maturity and potentially full firmness bares very significant financial risks for TSOs (due for instance to a malfunction of an interconnector). This risk should be thoroughly assessed: adequate cash-flow measures and regulatory cost-recovery comfort would be required to mitigate such risk.

› **ENTSO-E recommends instead more practical solutions improving the current market setup, that are already supported and requested by market participants:**

_ Organise **more frequent auctions** for monthly, quarterly and yearly products;

_ Offer **additional product durations** (pending TSOs assessment of longer durations on capacity calculation processes) and develop **secondary markets**;

_ Assess the introduction of **Financial Transmission Rights obligations - provided that counterparty risks and financial implications for TSOs are appropriately addressed**;

› **These solutions can be implemented much sooner** and would allow suppliers and consumers to protect themselves against excessively volatile prices over longer periods.

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Use congestion income to support all grid users, not specific commercial parties

Key message:

Congestion income should not be used to finance support for offshore generators in hybrid projects nor any generation projects: **this is not an effective support mechanism, would de facto be an implicit and non-transparent subsidy paid by consumers, and contradict internal markets principles.** ENTSO-E recommends available alternatives, such as well- designed Contracts for Difference (CfDs) decoupling remuneration from actual injection.

› **The proposed use of congestion income to compensate offshore generators, is a non-proportionate hidden subsidy for one specific technology at the expense of tariff payers. Moreover, such use would be inconsistent with the principles of the Internal Energy Market (IEM)**, specifically tariff-setting principles (Art. 18(1) of Regulation 2019/943), rules against cross-subsidisation (Art. 59 of Directive 2019/944), rules against non-discrimination and unequal access (priority dispatch), and independence of NRAs (Art. 57 of Directive 2019/944).

› **Using congestion income to increase transmission capacity or reducing tariffs must remain the rule.** Introducing a new primary objective would imply that congestion income should first be used to compensate a specific type of generator, and only secondly reducing tariffs for consumers. Instead, it is more efficient to address the root causes of the risk faced by generators in hybrid projects, namely grid congestions. The EC proposal aims to give revenue guarantees to offshore renewables generators with hybrid connections, also when congestions prevent to fully transport onshore the energy they produce. Using congestion revenues to address this "volume risk" would prove counter-productive, as it would limit available resources to solve congestions.

› **Compensation via congestion income would also be ineffective.** As congestion income is an unstable form of revenue by nature, and since it is also used for different priority objectives as set by NRAs (to reduce consumers tariffs, to invest in new transmission capacity or to solve existing congestions), the amount available for offshore generators would be highly variable and thus unable to provide firm revenues. As such, the compensation would not fully hedge offshore generators' volume risk, requiring complementary public support mechanisms.

› **Better solutions exist to give revenue guarantees to offshore producers, such as two-sided capability-based Contracts for Difference (CfDs) or financial CfDs.** Those types of CfDs decouple remuneration from actual injection, thereby fully covering the "volume risk" of generators.

The Transmission Access Guarantee (TAG) model, that uses congestion income to finance compensation for offshore generators entails risks inherent to the proposals: TAG risks aggravating windfall profits, overcompensating and introducing a financial risk for TSOs.

_ In this model, TSOs must ensure 100 % capacity on hybrid interconnectors, while all other bidding zone borders are subject to the 70-%-rule (Article 16(8) of (EU) Regulation 2019/943). **This discriminates onshore producers relative to offshore producers.**

_ **At times, the optimal market coupling outcome may result in not selecting offshore renewable assets for feeding into the network. The volume risk related to availability of transmission capacity on hybrid interconnectors is therefore outside the control of the individual TSOs.** TAG would in these cases reduce the socio-economic welfare and not ensure optimal risk allocation in offshore hybrid projects.

_ Providing a guaranteed and regulated income via the TAG to selected commercial market participants means **developers' risk premia for the volume risk component in hybrid projects is not exposed to competition and thereby not optimised through competitive tendering.** Consequently, **TAG does not provide transparent investment signals** for offshore hybrid projects nor supports the overall goal of cost-efficient deployment of offshore renewable generation.

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Avoid mandatory and predefined timings for Intraday gate closure time

Key message:

Enforcing the shortening of the Intraday cross-zonal gate closure to 30' ahead of real time by 2028 is precipitate and inadequate at that stage. This would have severe consequences for many TSOs in Europe, requiring a complete change in how they operate their systems and potentially compromising system security in their countries. We strongly warn against the inclusion of specific timings on intraday gate closure time in the Regulation, especially without proper impact assessment.

› **A mandatory shortening the Intraday Cross-Zonal Gate Closure Time to 30'** ahead of real time might have **serious implications on the way many TSOs in Europe operate their systems.** ENTSO-E finds it important to avoid including requirement on timings in a primary regulation, as these are better addressed through the methodologies of the Capacity Allocation and Congestion Management Guideline. As such, we do not see a need for amending provisions on intraday gate closure time in the current Regulation (EU) 2019/943.

› **Predefined timings on intraday gate closure time without any impact assessment on systems security, costs and CO_2 emissions are inadequate** at this stage. Shorter Intraday Gate Closure Times could be introduced where necessary – provided this is compatible with operational constraints which also depend on the different balancing approaches by TSOs.

30-min intraday gate closure time also means the balancing timeframe (where TSOs can take measures to ensure the balance and security of the system by activating reserves procured on the balancing marker) would start only 30 minutes before real time. As a consequence:

_ **TSOs operation would be impacted by a shorter timeframe to secure the system balance** when unforeseen events occur: reducing TSO's operational window to 30 min may require more reserves with short activation times (automatic and manual reserves) to correct system imbalance and solve intra-zonal congestions.

_ **TSOs applying a proactive balancing approach would see a shortage of flexibility resources available:** all units which take more than 20 minutes to be activated could no longer be used as balancing resources, reducing the leverages for TSOs to ensure stable system operation and safe energy delivery.

_ **The Replacement Reserve product would have to be terminated** (as it has a full activation time of 30 min), including the European reserve sharing platform TERRE, which was established in implementation of EU law and is successfully operating since 2020.

_ **System operation costs could substantially increase for TSOs applying a proactive balancing approach,** as moving away from the Replacement Reserve product to more expensive products with shorter activation time will increase balancing costs borne by all grid users.

_ **CO_2 emissions** may also increase, as generation units able to provide balancing bids close to real time are in many countries mostly high emission thermal units

› We acknowledge how intraday trading closer to real time can facilitate the participation of RES (which have more reliable forecast the closer to real time, due to their weather dependency), especially where their participation in balancing services is still limited. **In the future, shorter intraday gate closure times could be introduced where needed – subject to a thorough impact assessment,** positive cost-benefit analysis, and compatibility with future operational constraints. Such market design details are better dealt via methodologies of network codes and guidelines than in the Electricity Regulation.

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Abbreviations

ACER	Agency for the Cooperation of Energy Regulators
CfD	Contract for Difference
CRM	Capacity Remuneration Mechanisms
EC	European Commission
ENTSO-E	European Network for Transmission System Operators in Electricity
ERAA	European Resource Adequacy Assessment
FTR	Financial Transmission Rights
NRA	National Regulatory Authorities
OTC	Over The Counter
PPTA	persons professionally arranging transactions
RES	Renewable Energy Sources
REMIT	The Regulation on Wholesale Energy Market Integrity and Transparency
TAG	Transmission Access Guarantee
TSO	Transmission System Operator
TYNDP	Ten-Year Network Development Plan

ENTSO-E Mission Statement

Who we are

ENTSO-E, the European Network of Transmission System Operators for Electricity, is the **association for the cooperation of the European transmission system operators (TSOs)**. The 39 member TSOs, representing 35 countries, are responsible for the **secure and coordinated operation** of Europe's electricity system, the largest interconnected electrical grid in the world. In addition to its core, historical role in technical cooperation, ENTSO-E is also the common voice of TSOs.

ENTSO-E **brings together the unique expertise of TSOs for the benefit of European citizens** by keeping the lights on, enabling the energy transition, and promoting the completion and optimal functioning of the internal electricity market, including via the fulfilment of the mandates given to ENTSO-E based on EU legislation.

Our mission

ENTSO-E and its members, as the European TSO community, fulfil a common mission: Ensuring the **security of the interconnected power system in all time frames at pan-European level** and the **optimal functioning and development of the European interconnected electricity markets**, while enabling the integration of electricity generated from renewable energy sources and of emerging technologies.

Our vision

ENTSO-E plays a central role in enabling Europe to become the first **climate-neutral continent by 2050** by creating a system that is secure, sustainable and affordable, and that integrates the expected amount of renewable energy, thereby offering an essential contribution to the European Green Deal. This endeavour requires **sector integration** and close cooperation among all actors.

Europe is moving towards a sustainable, digitalised, integrated and electrified energy system with a combination of centralised and distributed resources.

ENTSO-E acts to ensure that this energy system **keeps consumers at its centre** and is operated and developed with **climate objectives** and **social welfare** in mind.

ENTSO-E is committed to use its unique expertise and system-wide view – supported by a responsibility to maintain the system's security – to deliver a comprehensive roadmap of how a climate-neutral Europe looks.

Our values

ENTSO-E acts in **solidarity** as a community of TSOs united by a shared **responsibility.**

As the professional association of independent and neutral regulated entities acting under a clear legal mandate, ENTSO-E serves the interests of society by **optimising social welfare** in its dimensions of safety, economy, environment, and performance.

ENTSO-E is committed to working with the highest technical rigour as well as developing sustainable and **innovative responses to prepare for the future** and overcoming the challenges of keeping the power system secure in a climate-neutral Europe. In all its activities, ENTSO-E acts with **transparency** and in a trustworthy dialogue with legislative and regulatory decision makers and stakeholders.

Our contributions

ENTSO-E supports the cooperation among its members at European and regional levels. Over the past decades, TSOs have undertaken initiatives to increase their cooperation in network planning, operation and market integration, thereby successfully contributing to meeting EU climate and energy targets.

To carry out its legally mandated tasks, ENTSO-E's key responsibilities include the following:

- Development and implementation of standards, network codes, platforms and tools to ensure secure system and market operation as well as integration of renewable energy;
- Assessment of the adequacy of the system in different timeframes;
- Coordination of the planning and development of infrastructures at the European level (Ten-Year Network Development Plans, TYNDPs);
- Coordination of research, development and innovation activities of TSOs;
- Development of platforms to enable the transparent sharing of data with market participants.

ENTSO-E supports its members in the **implementation and monitoring** of the agreed common rules.

ENTSO-E is the common voice of European TSOs and provides expert contributions and a constructive view to energy debates to support policymakers in making informed decisions.

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