

Impact assessment of measures to improve the ability of market participants to hedge price risks in the internal forward market for electricity, leading to a revision of the Commission Implementing Regulation amending Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a guideline on forward capacity allocation

Fields marked with * are mandatory.

Part 0: General questions about the respondent

* 0. Please indicate your email

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* 1. Name of your organization

WindEurope

* 2. Confidentiality

- I agree for my answers to be published in full
- I do not consent in the publication of any of my answers
- Some answers provided are confidential and should not be published, I have clearly marked these answers as "confidential"

Please list the questions nr for which your answers are confidential

* 3. At group level, what type of stakeholder (or stakeholders represented by your association) are you?

- Transmission System Operator (TSO)
- Distribution System Operator (DSO)
- Vertically integrated energy company (production and supply)
- Energy producer only
- Energy supplier
- Industry

- Trading company without physical energy assets
- Bank or Investment firm
- Portfolio management company (with physical assets)
- Interest organization
- Power Exchange / Counterparty clearing House (CCP)
- Broker
- Member state
- National Regulatory Agency (NRA)
- National Competent Authorities (NCA)
- Academics
- NGO
- Business association
- Other, please precise

Other, please precise :

4. In which EU Member States do you have physical assets or activities – if any (demand, retail supply, generation)?

- AT - Austria DE - Germany Other - Other country
- BE - Belgium EL - Greece PL - Poland
- BG - Bulgaria HU - Hungary PT - Portugal
- HR - Croatia IE - Ireland RO - Romania
- CY - Cyprus IT - Italy SK - Slovak Republic
- CZ - Czechia LV - Latvia SI - Slovenia
- DK - Denmark LT - Lithuania ES - Spain
- EE - Estonia LU - Luxembourg SE - Sweden
- FI - Finland MT - Malta
- FR - France NL - Netherlands

Other, please precise :

5. In which Bidding zones have you traded on the forward market in the last 3 years?

- PT SE2 LV BG
- ES SE3 LT GR
- FR SE4 PL IT Nord
- BE NO1 CZ IT-CNOR
- NL NO2 SK IT - CSUD
- DE/LU NO3 AT IT -SUD
- DK1 NO4 SI IT - Sicily
- DK2 NO5 HU IT - Sardinia
- DK3 (Bornholm) FI HR IE
- SE1 EE RO

6. What is the size of the approximate yearly volume you have traded on the electricity forward markets?

- <10 MWh
- 10 MWh – 1 GWh
- 1-10 GWh
- 10-100 GWh
- 100 GWh – 1 TWh
- 1-10 TWh
- > 10 TWh

7. Which product or products have you traded in the electricity forward markets in the last 3 years?

- Futures
- Futures traded OTC
- Forwards
- Electricity Price Area Differentials (EPADs)
- Long-Term Transmission Rights (LTTRs)
- Other

Other: please specify

Part I: Evaluation of current forward markets

a) Assessment of the electricity forward markets

8. Is there, in general, sufficient availability of hedging instruments on the forward markets to effectively perform hedging corresponding to your risk profile?

- Yes
- No

9. Is there, in general, sufficient liquidity on the hedging instruments on the forward markets to effectively perform hedging corresponding to your risk profile?

- Yes
- No

10. Please list the products for which you encounter insufficient accessibility (in terms of effectiveness and liquidity) and provide a detailed answer to explain what problems you encounter in BZs where availability is insufficient (f.e. lack of competition, market too small, none of the available liquid products is a good proxy, inadequate cross-zonal hedging instruments, ...). In case you identify a lack of liquidity in some or several of the markets you resort to, please estimate the slippage costs that result from this lack of liquidity - if possible.

Liquid forward markets are important to facilitate investments in renewables. There are some markets more liquid than others with Germany-Luxembourg (DE-LU) being among the most liquid. The benefit of this increased liquidity can, however, be brought to other markets via proxy-trading but that leaves the basic risk with the customers. The basic risk can be managed if TSOs use their natural hedge in form of interconnectors and provide that to the market as Long Term Transmission Rights (LTTRs). We would like for all TSOs to offer LTTRs to the market at each bidding zone border in both directions.

In the Nordics the basic risk can be covered using Electricity Price Area Differentials (EPADs) which we also favor, and which can co-exist with LTTRs. We do however observe insufficient liquidity in NO1, NO2, NO3, NO4, SE1 and SE2. We also observe insufficient liquidity to a lesser degree in SE3, SE4, DK1 and DK2.

Liquidity is also harmed by the change of rules in the market such as the recent change of disallowing bank guarantees and the increase in collaterals which have driven some market participants out of the market.

11. Are additional measures needed to improve the ability of market participants to hedge price risks in the forward markets?

- Yes
- No

If yes, which ones?

To enhance the ability of market participants to hedge price risks in forward markets, more long-term transmission rights (LTTRs) need to be issued with longer maturities. This would facilitate access to higher-liquidity bidding zones through proxy-hedging, ultimately reducing risk and cost. Increasing the frequency of LTTR issuances would also improve access of all market participants to these products.

Easing collateral requirements would also reduce financial barriers allowing broader participation and more efficient hedging strategies. TSOs should allocate LTTRs at all bidding zone borders and in both directions. Ensuring full firmness of these products, except in situations of force majeure, is crucial for their effectiveness in mitigating risks. Without full firmness, LTTRs lose their core hedging value, which reduces market liquidity and increases costs for participants and society at large. Additionally, organizing a secondary market for LTTRs would allow for more flexibility and liquidity in managing these transmission rights.

By extending the maturities of LTTRs and forward transmission rights' (FTR) options to the liquid trading horizon of up to at least three years they can support long-term cross-border PPAs better and reduce basis risks over extended periods. The issuance of very long-maturity LTTRs in markets where export corridors for new renewable projects are primarily designed to serve neighboring markets would be crucial. This is especially relevant for offshore bidding zones as it would allow generators bidding in these to sign long-term PPAs with customers in onshore bidding zones. This approach could also apply to onshore bidding zones, such as the corridors between Denmark and Germany or in countries like Sweden, where smaller bidding zones exist.

TSOs should also maximize the volumes of capacity offered in the forward market to improve market efficiency. Moreover, ensuring regulatory certainty and avoiding disruptive market interventions, such as the Iberian price caps, are critical for creating a stable environment that encourages market confidence and new investments.

As a summary of our suggestions:

1. Allow uncollateralized commercial bank guarantees and public guarantees as eligible collaterals to reduce cash liquidity pressure.
2. Improve the allocation and management of LTTRs across borders by:
 - Issuing LTTRs at all bidding zone borders in both directions.
 - Maximizing the volume of capacity offered to the market and ensuring that it is offered either via minimum volume or with an available transfer capacity extraction.
 - Extending maturities of LTTRs to at least three years ahead.
 - Facilitating secondary trading of LTTRs through platforms or auctions.
 - Ensuring full firmness of LTTRs except in force majeure situations
3. Ensure a stable regulatory environment and reduce transaction costs to support effective hedging.
4. Maintain market participants' freedom to hedge in the market of their choice.

12.1.1 In case you have physical assets or activities (demand, retail supply, generation): to what degree or percentage do you hedge price risks related to these assets?

1

12.1.2 In case you have physical assets or activities, please describe in broad terms your hedging activities.

12.2. In case you have physical assets or activities (demand, retail supply, generation) and in case you do not hedge (a part of) your physical assets or activities, what are the main reasons for not hedging (f.e. availability of hedging products, costs of hedging, risk management choice, etc)

12.3. In case you have physical assets or activities (demand, retail supply, generation): would you hedge a larger proportion of physical assets if the market conditions were more favorable? In this case, which conditions would need to be met?

b) Cross-zonal forward hedging

13. Is the status-quo regarding the availability, design and type of cross-zonal instruments adequate to meet your hedging needs?

- Yes
- No

Please provide a detailed answer

To meet hedging needs of renewables, it is critical to ensure full firmness of LTTRs except in force majeure situations. Without full firmness, the LTTRs lose their ability to hedge the basic risk for the buyer and become less investible. The lack of LTTR full firmness leads to higher costs for society as market liquidity is reduced.

All TSOs should issue LTTRs at every bidding zone border, in both directions, and allocate the maximum available capacity without reservation for future periods. LTTRs with longer maturities would better support long-term cross-border PPAs and reduce basis risk over extended periods. LTTRs should be freely tradable on a secondary market organized by TSOs/Joint Allocation Office (JAO) to enhance liquidity and market efficiency. While spread contracts, including EPADs effectively reduce basis risk, liquidity issues persist. We recommend Nordic TSOs to issue LTTRs at all borders to complement EPADs and in this way improve forward market functionality.

Cross-zonal PPAs are hard to do today as either one of the parties must cover the price spread or parties need to share this. In any case this means not getting a fixed price in the PPA which is crucial to reduce financial costs for the generator and to provide certainty for the consumer. Without the fixed-price component, the attractiveness of a PPA is limited. For cross-zonal PPAs to become common, duration needs to increase to 15-25 years. RES-weighted products must be developed where the volume is not fixed but set ex-post based on the generation assets' day-ahead generation. The reciprocal products (volume equal to max (PPA volume/generation capacity) - day-ahead-volume) can also be sold. It must be up to regulators on which exact borders such products make sense, but it would be obvious on some borders connecting RES-surplus zones with consumption-dominated zones and hybrid interconnectors.

Finally, the rules of allocating Financial Transmission Rights (FTRs) should be eased to make them more freely usable both for compensation purposes in case of a bidding zone split and for offshore hybrid interconnectors. For the latter the interlink between congestion rent and capture prices for the connected offshore generation assets could make allocating FTRs to the generation assets the best solution.

14. When trading in another bidding zone, what products do you use (if any) to cover the basis risk?

- LTTRs
- EPADs
- EPADS supported by TSOs (as auctioned by Svenska kraftnat - SvK)
- Future spreads
- Italian CCC (transport capacity fee hedge) products
- Others - please specify:

Other: please specify

15.1. Hedging instruments issued or supported by TSOs : Have you traded cross-zonal hedging instruments issued or supported by TSOs in the last 3 years

- Yes
- No

15.3. Hedging instruments issued or supported by TSOs: Do cross-zonal instruments supported by TSOs satisfy your hedging needs (in terms of maturity, frequency of auctioning, type of product, ...)? If not, please elaborate your answer

15.4. Hedging instruments issued or supported by TSOs: After acquiring a FTR option, do you engage in delta hedging for the acquired option on the electricity forward obligation market?

- Yes
- No

15.5. Hedging instruments issued or supported by TSOs: On a scale from 1 to 10, do you consider that the LTTRs' price reflects the forward market fundamentals?

0

Please elaborate your answer (date, border, data, etc)

The price of LTTRs in auctions represents the best estimate by market participants of the value of these rights at the time of the auction, based on forward market fundamentals. This valuation incorporates not only the static forward market prices but also a dynamic assessment of the likelihood of price fluctuations. Consequently, it is misleading to expect a direct 1-to-1 correlation between the forward price spread between two zones and the value of the corresponding LTTRs.

15.5. Hedging instruments issued or supported by TSOs: should you have identified a potential disconnect between LTTR and forward market fundamentals, do you see any risk of contagion across market segments (through arbitrage, for instance)?

Generally, we do not perceive a disconnect or risk of contagion across market segments. Price variations in forward electricity markets are normal and occur due to changes in information, uncertainties, and the inherent characteristics of the products. Furthermore, we want to emphasize that there is no evidence of "undervaluation" or systematic bias in LTTRs. LTTR prices accurately reflect the market's valuation of the product based on all available information at the time of the auction and the product's specific characteristics. However, some among our member companies have identified disconnection between LTTRs and forward market fundamentals due to regulatory interventions in the past, such as the Iberian exception, hence regulatory interventions should be avoided to ensure a proper functioning of the forward timeframe.

c) Future-proofness: expected evolution of the Forward market

16.1. Do you consider that the following policies and market trends have an impact on the hedging incentives of market participants on the forward market: **Contracts for difference (as a state-aid scheme)**

0

16.2. Do you consider that the following policies and market trends have an impact on the hedging incentives of market participants on the forward market: **Power Purchase Agreements**

0

16.3. Do you consider that the following policies and market trends have an impact on the hedging incentives of market participants on the forward market: **Capacity remuneration mechanisms**

0

Other policies and/or market trends - please specify:

- All mechanisms which stabilize market participants revenues in some way or form reduces the incentive to trade in the forward markets leading to less liquidity. However, they can be needed to facilitate investments and as such it is a trade-off. When possible, these mechanisms should be designed in a way that reduces the negative impact on forward market liquidity.

- CRMs address adequacy concerns; they are not hedging instruments. So, in general CRMs have little impact on forward markets, except if the design includes elements that directly relate to the energy market, as is the case with Reliability Options that include a payback obligation.

17.1. How do you expect the forward markets to evolve in the next 5 to 10 years with respect to **hedging needs**:

Over the next 5 to 10 years, we anticipate that forward markets will undergo significant changes in response to evolving hedging needs. The rise of intermittent renewable energy sources, the entry of new market participants such as demand-response providers, and the gradual adoption of electricity storage and power-to-X technologies are likely to result in increased and more varied hedging requirements.

We foresee a future characterized by higher electricity price and volume volatility, making hedging even more essential for stabilizing revenues and providing predictable prices for consumers. For example, PPAs have shown consistent growth since 2014, with a notable exception in 2022, followed by a sharp increase in 2023 and early 2024. This trend highlights the growing importance of long-term contracts in managing price volatility. We expect that PPAs will continue to develop alongside traditional forward markets, serving as complementary tools to address the diverse needs of the market rather than replacing conventional forward contracts.

LTTRs can act as an enabler for cross border PPAs in Offshore Bidding Zones (OBZ), to that end they need to cover longer durations which match PPA needs (10-15y). They also need to be reliable for the customer, i. e. ideally priority for delivery. Where generators (especially in an OBZ) cannot fully hedge the transmission risk, they are left with the basis risk of missing transmission capacity which will subsequently factor into the price of future PPAs.

The need for long term hedges could also increase with the gradual shift to hybrid-connected offshore

generation assets, which – if build merchant – could see a clear hedging need already at investment stage due to the more unpredictable price formation in an offshore bidding zone.

To address these evolving needs effectively, it is crucial to remove barriers and facilitate the development of new hedging instruments while avoiding unnecessary regulatory intervention. Emphasizing stability, simplicity and transparency in regulatory frameworks will be key to fostering a stable and responsive market environment.

17.2. How do you expect the forward markets to evolve in the next 5 to 10 years with respect to trading volume:

Given the Commission's forecasts for rapid growth and the rising hedging needs associated with intermittent renewable electricity production and accompanying technologies (see response to Question 17.1), we expect trading volumes in all market timeframes, including forward markets, to increase. This trend should also extend to PPAs, assuming all other factors remain constant.

However, this anticipated growth in trading volume depends on several critical conditions:

- **Safeguarding liquid forward markets:** It is essential to protect the few forward markets that are currently liquid. Experiments, such as the development of regulated regional virtual hubs, should be avoided since these would negatively impact trading conditions.
- **Maximizing cross-border transmission capacity:** All TSOs should maximize the cross-border transmission capacity offered at each border in both directions through LTTRs allocated as far in advance of delivery as possible. No bidding zone border should be without forward capacity access.
- **Designing effective revenue stabilization mechanisms:** Mechanism like CfDs should be designed to maintain incentives for market participants to engage in forward markets.
- **Aligning Guarantees of Origin legislation:** Member States should align their legislation on the issuance of Guarantees of Origin (GoOs), ensuring that every MWh of electricity produced from renewable sources can secure GoOs that can be valued in PPAs.

Additionally, we must be cautious to avoid market interventions that do not address market participants' needs or requests, such as flow-based allocation of LTTRs and regulated regional virtual hubs. Maintaining and improving FTR options, easing collateral requirements, and avoiding disruptive market interventions will also be vital to supporting the expected increase in trading volumes.

17.3. How do you expect the forward markets to evolve in the next 5 to 10 years with respect to the maturities of products:

We are already seeing increased diversity in traded products, including peak-load forwards, long-term short-delivery products, forward spreads, and various PPAs. This indicates a growing market capability to meet new demands.

Network operators are also beginning to offer Long-Term Transmission Rights (LTTRs) with extended maturities, such as on the IFA interconnectors and through discussions for 2-year-ahead LTTRs at the French-Belgian border. Longer LTTR maturities help reduce basis risk and support cross-border PPAs.

We therefore support measures that extend LTTR maturities and remove barriers to long-term contracts,

which will enhance the forward market's development and liquidity. Additionally, easing collateral requirements could help increase maturities by reducing the collateral burden associated with long-term hedging.

17.4. How do you expect the forward markets to evolve in the next 5 to 10 years with respect to **active players (f.e. type of players, shares, etc)**

The green transition has introduced new actors like demand-response providers, aggregators, Power to X, and electricity storage operators. More participants are expected to emerge. These new actors are involved in flexibility services that impact spot markets, balancing mechanisms, and forward markets. As their market share in spot markets grows, this diverse group of market participants is expected to increasingly engage in forward markets.

17.5. How do you expect the forward markets to evolve in the next 5 to 10 years with respect to **products:**

Forward markets are already seeing a broader range of products beyond traditional baseload calendar products, including peak-load forwards, long-term but short-delivery products, forward spreads, and both physical and financial PPAs. This indicates the market's ability to adapt and create new products based on demand. We hope to see new products alongside the traditional baseload products such as much-longer duration RES-weighted products as explained in question 11 and 17.1. As flexibility needs grow and diversify in the years to come, new profiles and needs could be needed.

17.6. How do you expect the forward markets to evolve in the next 5 to 10 years with respect to **the evolution of liquidity**

It depends on whether markets are split and how the market matures. Today, the German liquid future market provides proxy hedging opportunities for surrounding bidding zones which with a split of the bidding zone will be subsequently reduced, as also shown in the recent ENTSO-E analysis under the Bidding Zone Review.

17.7. How do you expect the forward markets to evolve in the next 5 to 10 years with respect to the **evolution of liquidity needs:**

The liquidity needs will follow the same trajectory as the trading volume, and we expect it will increase.

17.8. How do you expect the forward markets to evolve in the next 5 to 10 years with respect to **share of volume traded among the different bidding zones:**

The European energy market is increasingly interconnected, leading to higher volumes of transactions both within and across bidding zones. In the forward markets, cross-border transactions, including proxy hedging, often exceed the cross-border transmission capacity allocated by TSOs. Given that proxy hedging is a common practice and forward trading volumes are expected to grow, we anticipate that cross-border trading will also increase in the next 5 to 10 years. It is hence important to make as much capacity as possible available to the market as LTTRs in both directions.

17.9. How do you expect the forward markets to evolve in the next 5 to 10 years with respect to **the configuration of bidding zones**:

Any potential changes, such as the creation of offshore bidding zones, must be carefully evaluated. The reconfiguration of bidding zones will bring more uncertainty for renewable projects and will rather slow down the energy transition owing to the uncertain effects.

It is crucial to conduct a thorough, quantified analysis of how such re-delineations could impact market efficiency and forward liquidity. We are cautious that splitting bidding zones could lead to skewed bidding zones in terms of supply and demand and hence lead to lower liquidity. Adjustments to bidding zone configurations will negatively affect also forward market liquidity and undermine the anticipated growth in trading volumes. We stress the need for a detailed, quantified analysis of how new bidding zones could impact electricity market efficiency and fulfilment of climate targets.

Regarding offshore, there seems to be a consensus among TSOs that offshore bidding zones will be implemented. A recent study by North Sea Wind Power Hub found that a cost-efficient integration of offshore wind in the North Sea would place roughly 170 GW of offshore wind in at a hub and, therefore, most likely in an offshore bidding zone by 2050.

17.10. How do you expect the forward markets to evolve in the next 5 to 10 years with respect to **any other trends (please specify)**:

Part II: Assessment of potential improvement to the forward capacity allocation by TSOs

a) Evolution of the current design for TSOs to support forward markets

18. Frequency: How frequently should the auction of long-term transmission rights (supported by TSOs) take place? Should the frequency of auctions differ depending on the maturity of the LTTR? If yes, what frequency would you propose for which product and maturity? Please provide a detailed answer

More frequent auctions could be reasonable (more than once a year) on the LTTR, accordingly with increased total volume (similarly to current French System 2025 LTTR the auctions frequency is increased with more available volumes).

Say the maturity of LTTRs is increased to 3 years, there would be a yearly auction for all maturities from -3 years to -1 years with the total volume being split between all y-3, y-2, and y-1 maturities. Capacity can be

offered in multiple auctions per year if significant volumes are available. It's crucial to offer sufficient volumes at each auction, especially if there isn't a secondary market. The exact split between the years should be set on each border after a process with stakeholder consultation. Establishing a secondary market will allow participants to rebalance the risk position of their portfolio, reducing the reliance on auction frequency (if TSOs issue sufficient levels of LTTRs).

For the much-longer-term maturity products, the auctions should perhaps not be yearly. For hybrid-interconnectors, the LTTR allocation could be part of the tender or in relation to a tender. For export-oriented bidding zones, biyearly auctions or even less often could be a good compromise.

19.1. Volume: How should the total volume of offered cross-zonal capacity be split among products across different maturities (monthly, quarterly, yearly)? Should more capacity be allocated to shorter maturity, longer maturity products or equally in general?

The allocation of cross-zonal capacity across different maturities—monthly, quarterly, and yearly—should first and foremost depend on TSOs maximizing the capacity available to the market. It's crucial to ensure that capacity is offered across all timeframes to cater to various market participants' hedging needs. In shorter time horizons, such as monthly auctions, additional capacity should be released based on recalculations that reflect updated information and reduced uncertainties. This capacity release should occur as constraints applied in year-ahead allocations are gradually relaxed. It's important to emphasize that no capacity should be withheld in monthly auctions for the day-ahead market; the recalculated capacity should be fully available. While shorter maturity products offer traders greater flexibility, there should also be mechanisms to link bids to secure yearly products when only monthly capacity is available. This balance ensures flexibility without compromising access to longer-term hedging tools. Much-longer maturities which is very relevant on hybrid-interconnectors should be auctioned with a focus on long-term maturities if it is not part of the tender design.

19.2. Volume: Should the auctions of cross-zonal instruments foresee any safeguards or automatic volume adjustments in case of lack of sufficient interest in the auctions?

- Yes
- No

19.3. Volume: How should the forward transmission capacity be offered? (coordinated vs uncoordinated way in each border, statistical vs scenario-based calculation, thresholds, split, allocation, possibility of offering longer maturities, etc)

Capacity should be calculated in a coordinated manner to reduce uncertainties and therefore maximize the capacities that can be made available. Allocation on the other hand should not be done in a coordinated fashion, as it would imply concurrent auctions for all borders, which has detrimental effects on collateral requirements.

20.1. Maturities: How to define the ideal maturities for cross-zonal instruments? Please provide a detailed answer

Currently, market participants are limited by the lack of LTTRs beyond one year ahead. To define the ideal maturities for cross-zonal instruments, we should align with observed liquidity patterns. For instance, the DE-LU bidding zone, Europe's most liquid forward market, shows significant trading activity 3 to 5 years before delivery. This indicates that LTTRs should ideally be issued 3 to 5 years ahead to match market demand and support effective hedging.

Aligning the maturities of LTTRs with forward contracts (up to at least 3 years or more) would be a positive step. This alignment would enable market participants to benefit from the transmission grid in the second and third years (Y+2 and Y+3). Extending LTTR maturities would enhance hedging opportunities and provide better risk management for all market participants, ultimately benefiting customers through increased price stability and improved cross-border hedging.

20.2. Maturities: Should the maturity of cross-zonal instruments be the harmonized at EU level, regional (per capacity calculation region) level or not at all?

- EU level
- Regional (per capacity calculation region)
- Not harmonized at all

Please provide a detailed answer

We favour the issuance of Long-Term Transmission Rights with longer maturities. If this requires harmonization at EU or Regional level in order to allow such a step, this is acceptable. The existing EU Harmonised Allocation Rules (HAR) have successfully promoted consistency and efficiency in LTTR allocation. Maintaining this EU-wide approach helps prevent regional fragmentation and ensures a unified framework for managing forward market capacities. Therefore, we support continuing EU-level harmonisation for LTTR maturities and capacity allocation.

This said, we also want to underline that the needs could differ on specific borders with hybrid-interconnectors serving different needs than a continental onshore interconnector.

21.1 Type of products: Should LTTRs only be issued as baseload products or should other types of products be envisaged?

We see a need for RES-weighted products on certain borders. Further discussion is needed whether this should be with LTTRs or other tools.

21.2 Type of products: What are the advantages and disadvantages of LTTRs defined as options ?

LTTRs defined as options, including Physical Transmission Rights (PTRs) with Use-It-Or-Sell-It (UIOSI) and Financial Transmission Rights (FTR) options, offer significant benefits by providing market participants with financial protection against price spreads between bidding zones, enhancing liquidity in the forward market, and generating revenue for TSOs. When market participants buy an option, they have optionality in their portfolio to manage. When their option is moving in and out of the money (i.e. when the forward value of the spread is varying around the value at which they bought the option), market participants usually adjust their hedges accordingly by entering into forward transactions (buying and selling forward contracts, unwinding positions), so-called delta-hedging. Those buying and selling orders are contributing to higher liquidity in the forward market. However, they also have drawbacks, such as capped compensation in the event of curtailment and added complexity. Overall, they represent a balanced solution that supports both market participants and TSOs in managing cross-border capacity effectively.

21.3. Type of products: What are the advantages and disadvantages of LTTRs defined as obligations?

FTR-obligations are already foreseen as a possibility in the Forward Capacity Allocation Guideline. If there would have been an interest for such products, it would have been expressed by market participants when the dedicated methodologies were consulted.

Disadvantages:

- The lack of appetite for FTR obligations by market participants can be explained by the fact that they do not allow MPs to grasp opportunities in the same way as options because FTR-obligations “lock” the situation irrespective of the market context. It does not allow a market participant to benefit from potential decrease of the electricity price in its own bidding zone, and similarly it does not allow a producer to benefit from potential increase of the electricity price in its bidding zone.
- In the case of FTR obligations, TSOs will collect congestion revenues if the request for capacity (with the price > 0) is higher than the available capacity at each allocation. In case the spread is in the opposite direction, we do not see the rationale for paying a negative spread to the TSOs, which do not support any financial risk in allocating cross-border capacity.

Advantages:

- For very-long maturity products which are relevant for offshore bidding zones and perhaps to enable a cross-zonal PPA with fixed prices, obligations are needed, as they provide the price stability that would enable a cross-zonal PPA.
- For shorter maturity products, obligations could enable TSOs to offer more capacity as LTTRs, but it would not change the value gained by TSOs, as the market would price in the obligation-impact. All other things being equal, the value of an obligation is lower than the value of an option. Hence, the auction surplus would at the end of the day not be higher.
- FTRs as obligation would only make sense if market participants would trade between themselves such or similar contracts. In such case, payment for the negative spread would be the consequence of risk premiums. This is however not the case when TSOs allocate capacity.

These obligations impose significant risks on market participants, including the possibility of a "double penalty" if the day-ahead spread goes against their position, and lack of flexibility to benefit from favorable price changes. This results in lower market interest and potential pricing issues. Given these drawbacks and the lack of regulatory or market enthusiasm, it's recommended to avoid FTR obligations and instead test them alongside FTR options if needed to balance market interest and manage risks effectively. For the time being, we do not see any reason justifying the imposition of FTR obligations instead of the possibility currently already foreseen in the Forward Capacity Allocation Guideline.

21.4. Type of products: What are the advantages and disadvantages of LTTRs defined as Physical Transmission rights (PTRs) ?

LTTRs defined as PTRs offer cost efficiency by allowing market participants to nominate rights without incurring additional transaction costs or dealing with day-ahead market complexities. The main advantage is that market participants are not exposed to unserved energy risk or to a decoupling price risk. They provide firm financial coverage against positive price spreads, similar to FTR options, and avoid risks related to unserved energy. However, they can lead to inefficient market flows and impose an operational burden on TSOs, who must manage the physical transmission logistics. Additionally, PTRs are often used similarly to FTR options, which may limit their distinct advantages.

21.5. Type of products: What are the advantages and disadvantages of LTTRs defined as Financial Transmission Rights (FTRs)?

The main advantage is that there is no operational burden in day-ahead market and no risk of counter flows. It is not exposed to unserved energy risk or decoupling price risk and has abundant volumes.

However, on the downside, market participants are exposed to unserved energy risk and to price divergence risk for bidding zones with a multiple NEMOs. It can lead to inefficient flows and difficult TSO operations.

22.1. Should cross-zonal hedging instruments be issued :

- on bidding zone borders only – as today
- from any zone to any other zone (within the same capacity calculation region)
- from any zone to regional hub (including EPADs)
- as a combination of two futures contracts

22.2 Which of the above solution(s) would be the most resilient to potential changes in the markets (f.e. increased deployment of renewables, less hedging demand due to flexible demand, offshore bidding zones and bidding zones reconfigurations, volume contracted under power purchase agreements, etc)?

We support the current forward market model, with its simple and agile regulatory framework to foster innovation and its focus on overall market efficiency allowing for practical adjustments to new conditions. This allows the market to develop new products that can effectively respond to potential changes in the markets. Specifically for bidding zone reconfigurations, we assume and strongly insist on the need that any change to bidding zones should take place beyond the maturities of forward markets, including LTTRs.

Therefore, cross-zonal hedging instruments issued on bidding zone borders only – as today is the best one. Other options could on the contrary cause a reduction in liquidity. The second option would jeopardize the liquidity, third option would have a difference between cross zonal reference and OTC markets, fourth option would tackle liquidity stemming from delta hedging.

22.3 Should cross-zonal hedging instruments be issued from any zone to any other zone or from any zone to a regional hub, should it remain possible to trade cross-zonal hedging instruments on border-to-border basis?

- Yes
- No

Please comment on your answer:

We assume that the question refers to TSO-issued cross-zonal hedging instruments. Market-developed hedging instruments, such as spread futures, should always be allowed to evolve naturally and remain available for trade. Even in case of TSO-issued instruments, their availability should be determined by market interest. We strongly oppose the approach of a regional hub as it restricts market participants' ability to select the most appropriate proxy-hedging strategy for their needs. Cross-zonal hedging instruments should continue to be issued on a border-to-border basis rather than being directed through regulated regional virtual hubs.

The current practice of issuing LTTRs at interconnections between bidding zone borders aligns with the physical transmission network and maintains liquidity in established hubs. Forcing liquidity into regulated hubs could undermine the effectiveness of LTTRs and fragment existing markets. Market participants must retain the freedom to choose the hedging products that suit their strategies, without being constrained by artificial regulations that would risk diluting the natural liquidity that exists at these borders. Moreover, introducing regulated virtual trading hubs (VTHs) would represent a major paradigm shift that could disrupt forward markets, which differ significantly from spot markets. Unless strong benefits are clearly demonstrated through a comprehensive impact assessment, we recommend against this approach. Forcing liquidity into VTHs risks fragmenting the market and making LTTRs linked to these hubs less effective. It could also lead to discriminatory outcomes, particularly for bidding zones that may be excluded from such hubs.

22.4. If TSOs were to allocate cross-zonal capacity on zone-to-hub product (f.e. LTTRs), would you subsequently trade the futures with the corresponding underlying system price?

- Yes
- No
- It depends, please precise the conditions

Please comment on your answer:

23.1. System price / hub: If you have experience with the trading on the Nordic electricity forward market: Please provide feedback on the current market design of the Nordic region based on a system price

Some of our member companies have long experience at trading in the Nordic electricity forward market. When price differences between the Nordic bidding zones were smaller, EPADs provided a good hedge for most of the Nordic bidding zones. As interconnector capacity towards continental Europe and wind build-out took hold, those price differences increased especially during the crisis following Russia's invasion of Ukraine. Larger price differences towards the system prices reduced the EPADs ability to hedge the basis

risk in a specific bidding zone which in turn have reduced liquidity (it has, however, rebounded slightly the past two years).

In general, our members active in the Nordic market are okay with the EPAD system but we also encourage the TSOs to issue LTTRs at all bidding zone borders in both directions.

23.2. System price / hub: If you have experience with the trading on the Nordic electricity forward market: Would forward market based on zonal futures and zone-to-zone LTTRs be more appropriate for the Nordic Market to achieve higher liquidity for all Nordic market participants?

- Yes
- No

Please comment on your answer:

24.1. Firmness of products: How does the non-financial firmness of cross-zonal instruments impact your interest in such instruments?

Cross-zonal instruments need to be firm to provide a reliable hedge. The financial firmness should be maintained always except in force majeure situations, as per the existing provisions of the FCA GL. The lack of firmness results in lower interest from the market, as they don't provide an effective protection against basis risk which also impacts the willingness to pay for the products. Lower auction prices for LTTRs will also negatively impact then the TSOs congestion income. Consequently, both market participants and consumers would face higher costs due to deteriorated hedging conditions and reduced congestion income.

24.2 Firmness of products : Should cross-zonal instruments issued by TSOs be fully firm?

- Yes
- No

Please elaborate on pros/cons

See answer to question 24.1.

24.3. Firmness of products: In case LTTRs are concluded on a firm basis and in an obligation-type, how should the counterparty risk of TSOs be managed, in order to ensure holders of the LTTRs are able to collect the payout that is owed to them?

We are not in favor of LTTRs in the form of obligations. The usability of the obligation-type should be minimal in any forward market.

24.4. Firmness of products: Do you see any financial stability risk arising from the non-firmness of those instruments (i.e., counterparties not receiving their forecasted payouts and being left unhedged)?

The non-firmness of such instruments entails a counterparty risk. It is difficult to make a blanket statement on the extent that non-firmness would cause or contribute to a financial stability risk. But in general, yes, without counterparty risk clearing instrument it would be hard to trade these products.

24.5. Firmness of products: Should LTTRs be concluded on a firm basis, what sort of risk mitigation tools do you believe the SAP should be subject to in order to manage the risks?

25. Revenue adequacy: How to maintain revenue adequacy for TSOs (i.e. that day-ahead congestion income is sufficient for LTTR payout)? Should revenue adequacy be maintained for each market time unit or on a less granular basis (f.e. at least daily monthly or annually)?

We have so far not seen any indication – either through studies or events – that TSOs would be exposed to unmanageable costs related to the compensation of LTTRs.

In any case, revenue adequacy on a market time unit basis makes little sense as this should not be the granularity on which TSOs evaluate their costs or risks, and it artificially depresses the capacity that can be allocated in the forward market. A less-granular basis could be considered to allow TSOs more flexibility in the allocation of capacity to market participants, but even an annual granularity could be enough.

26. Secondary market: Should there be an active secondary market for cross-zonal instruments issued by TSOs?

- Yes
- No

Please comment on your answer

Yes, transmission rights need to be tradable in a secondary market managed by a Single Allocation Platform (SAP). An efficient secondary market would allow participants to manage their transmission capacity portfolios and split monthly rights into hourly segments, similar to wholesale electricity transactions. TSOs could also repurchase oversold rights to handle unexpected operational issues. However, improvements to the primary issuance of cross-zonal instruments by TSOs (i.e. LTTRs) are more important. This covers the

volume of LTTRs made available to the market, the frequency of the auctions of such LTTRs and the maturity of the LTTRs.

27.1. Secondary market: If a secondary for cross-zonal instruments were to be organized, how and where should this secondary market be organised: please select (several choices possible)

- Single Allocation Platform (SAP)
- Power exchanges
- Others, please specify

Other - please specify

As LTTRs are issued by TSOs, SAP makes sense. However, power exchanges can list any spread products they want to.

27.2. Secondary market: Do you see benefits in the possibility of transferring Financial Transmission Rights from the SAP to a power exchange?

Mainly if JAO continues not to make a secondary market.

27.3 What are your views about the possibility for the SAP to match opposite bids for LTTRs without the allocation of cross-zonal capacity where possible?

More liquidity and allocation flexibility for market participants, giving them an opportunity to balance their exposure.

27.4 What are your views about the possibility for SAP to optimize the allocation of yearly, quarterly and monthly products when they cover the same delivery period?

Market participants are best positioned to handle optimization, as they can tailor strategies based on their specific needs and market conditions. We believe that all available capacity for a given delivery year should be allocated as soon as possible. Capacity available for smaller granularities (Q, M) should be the result of subsequent capacity recalculation which is probably done closer to real time. No capacity should be reserved from the annual capacity allocation to be allocated later as a monthly or quarterly product. Any capacity not initially allocated should be made available based on recalculated values as uncertainties decrease. While optimization is crucial to maximize welfare, it should be driven by market participants' strategies and preferences, leveraging effective algorithms and processes tailored to their needs.

28. How to take into account the existence of preexisting intergovernmental agreements when calculating forward transmission capacity? [Background: preexisting intergovernmental agreements refer to agreement on physical delivery of electricity between two Member States]

b) Alternative designs to support cross-zonal hedging in the forward markets

29. What other measures could be necessary to improve the availability of hedging opportunities so that hedging needs can be addressed with hedging products that are both liquid and provide efficient hedge?

To improve the availability and effectiveness of hedging opportunities, LTTRs should be issued at all borders with maximum volumes and extended maturities up to at least three years. The secondary market for LTTRs should be enhanced by facilitating easier trading through power exchanges, including platforms for reselling LTTRs with price limits or continuous trading options. Additionally, regulatory stability is crucial, ensuring that all available capacity is offered in LTTR auctions at each border, in both directions, and supported by robust second auctions. Encouraging innovation by allowing power exchanges to develop new products and adapting to market needs, while avoiding excessive regulation, will further enhance the liquidity and efficiency of hedging products.

As explained in previous answers, the main improvement would be:

- The issuance of more long-term transmission rights with longer maturities at all bidding zones in both directions.
- Maximize the volume of capacity offered to the market and ensure that capacity is offered either via

minimum volume or with an available transfer capacity extraction.

- Ensuring full firmness of LTTRs except in force majeure situations. The lack of firmness reduces the willingness to pay for the LTTRs while it also leads to higher costs for society as market liquidity is reduced.
- Issuing longer-maturity LTTRs in all markets
- Organize a secondary market for LTTRs.
- Easing the collateral requirements

These measures will increase hedging opportunities to cover cross-border risk and in turn, could also lead to the increase in the uptake of cross-border PPAs.

30. Are the forward hedging instruments offered by TSOs necessary to support the functioning the forward market? Can cross-zonal price risks be sufficiently hedged with other available products listed by power exchanges (spreads, EPADs)?

Forward hedging instruments offered by TSOs are a complementary product to the other ones available to the market. Forward hedging instruments offered by TSOs, such as LTTRs, are indeed necessary to support the functioning of the forward market. While products like spreads and EPADs are valuable, they do not always provide sufficient liquidity or comprehensive coverage for cross-zonal price risks. LTTRs are particularly effective because TSOs, who manage the grid, can offer these rights leveraging their natural cross-border infrastructure. As TSOs have a natural cross-zonal hedge in the form of their physical grid, their obligation to facilitate cross-zonal hedging activities seems natural as it allows the market – including consumers – to benefit from the grid in the forward markets, reducing hedging risks and costs. This helps reduce basis risk and operational costs, making cross-border hedging more affordable and potentially lowering end-consumer bills. Therefore, LTTRs complement existing market products and play a crucial role in providing a robust and cost-effective hedging framework. Together they can form a well-functioning forward market with more choice and opportunities for market participants.

31.1. Among these key evolutions proposed by various stakeholders to improve the LTTR design, please select your favorite one(s):

- Zonal futures combined with LTTRs on bidding zone borders. This model represents the status quo in Continental Europe
- Zonal futures combined with LTTRs between any two borders bidding zone borders. This model differs from the status quo in Continental Europe by allowing LTTRs between any two bidding zones, and not only between two neighboring bidding zones.
- Zonal futures and hub futures combined with zone to hub LTTRs. This model differs from the status quo in Continental Europe by offering zone-to-hub LTTRs which can also be used in pairs to hedge between any two zones. Market participants would then have a choice whether to trade zonal futures or system price futures and in which way they would use LTTRs.
- Other model

Potential other model, please define:

The status quo should not be interpreted as an endorsement of the current limitations of the LTTRs. We remind of the desired improvements as listed in the answers to the previous questions regarding maturities, frequency of auctions and collateral.

31.2. Alternatively to issuing LTTRs, TSOs could allocate capacities to support other products. The two models below have been identified by stakeholders. Please select your favorite one:

- As alternative to the previous model, the TSOs' capacity is not used to offer LTTRs but to support the trading of existing products (EPADs, future spreads) through the allocation of their cross-zonal capacity. A power exchange would therefore be selected for auctioning those products and the allocation of transmission capacity.
- Zonal futures combined with auctions of zonal futures with implicit capacity allocation. Under this model, TSOs would not allocate LTTRs, but would instead organize auctions of zonal futures and subsequently the open positions in futures would be transferred to power exchanges.
- Other model

Potential other model, please define:

We think that TSOs should issue LTTRs. We don't think that there should be an implicit capacity allocation in the forward market time frame.

31.3. Which model (from all the models listed in questions 31.1 and 31.2) do you deem the most appropriate in terms of addressing the existing problems?

Please see our response to question 31.1. The status quo should not be interpreted as an endorsement of the current limitations of the LTTRs. We remind of the desired improvements as listed in the answers to the previous questions regarding maturities, frequency of auctions and collateral.

31.4. Which model (from all the models listed in questions 31.1 and 31.2) do you deem the most appropriate in terms of being robust for future potential market changes?

Please see our response to question 31.1. The status quo should not be interpreted as an endorsement of the current limitations of the LTTRs. We remind of the desired improvements as listed in the answers to the previous questions regarding maturities, frequency of auctions and collateral.

32. What could be the adequate geographical scope of a regional system price and how should this scope be determined?

Any regional system price is an attempt to approximate to the best degree the price evolution of the underlying individual prices. Which basket and weights best achieve this is a function of the price that is being attempted to approximate. The best geographical scope will thus depend on the bidding zone for which it is done and will evolve through time. This is exactly the exercise that market participants do when engaging in proxy-hedging, which is often a dynamic process. Any regional system price with a fixed geographic scope – and potentially semi-fixed weights of the underlying prices – will therefore always underperform individual proxy-hedging strategies defined for a specific bidding zone in a specific period. Therefore, we strongly oppose the imposition of a regional hub and any regulatory obligations like the linking of LTTRs related to such a regional hub.

The development of regulated regional virtual hubs could disrupt existing trading conditions and force liquidity to migrate in a way that may not align with natural market behaviors. Experience from the Nordics shows that creating a hub price that consistently meets market participants' needs is particularly challenging. Predefining hubs based on Capacity Calculation Regions (CCRs) could isolate some bidding zones and fragment the market, such as isolating the Iberian Peninsula from continental Europe if defined at the CORE level. Flexibility in defining the geographical scope helps accommodate evolving market needs and maintains the integrity of natural trading hubs.

33. How should a system price be calculated:

- Weighted average of spot prices (and if so, please elaborate on the definition of the weights)
- As an "unconstrained" price (such as the current Nordic System Price)
- Other, please precise

Please provide details on your previous answer

See answer to question 32. The weights for the price should be exchanged volumes on each zone (as we are doing a demand/offer crossing). A fixed definition of a regional system price is bound to underperform individual, dynamic strategies. We suggest to not force the introduction of regulated Regional Virtual Trading Hubs, unless strong benefits are clearly proven by a comprehensive qualitative and quantitative impact assessment, ensuring that there is no fragmentation of the market and a level playing field for all bidding zones.

34.1. Do forward markets need to be supported with market makers?

- Yes
- No
- It depends

34.2. Should market making be:

- Voluntary (subject to commercial arrangements)
- Mandatory in some cases

34.2.2 How should market making costs be covered?

The selected entity performing the market making function would have the obligation to post a minimum volume of buy and sell orders for selected standard products, with a maximum bid-ask spread to increase

liquidity. In exchange for this service, the market maker would be remunerated with a competitively set fee through the tender for the attribution of its function. Costs for consumers or other market participants must be duly considered before introducing such concept.

34.3.1 What entities would be most suitable to act as market makers?

- TSOs
- Large market participants with physical assets
- Large market participants without physical assets
- Else, please precise

Potential other entity, please precise

34.3.2 Under which conditions/requirements should those entities act as market makers?

All market participants willing to enter in market making activities should be eligible and incentivized on a voluntary and non-discriminatory basis. However, TSOs are neutral market facilitators and should in no case become market makers.

c) Role of Single Allocation Platform (SAP)

35.1. If you traded LTTRs: On a scale from 0 to 10, how satisfied are you with current SAP (JAO) services?

0

35.2. Please provide detailed comments to justify the score given

36. What are your suggestions to improve the functioning of SAP (JAO)?

37. What should be the role of the SAP in your view? Should SAP be involved in the organization of the secondary market for LTTRs and how exactly?

The allocation of forward transmission capacity through SAP is a good solution and we believe they should do more to make a secondary market for LTTRs. However, we also think that there is a need to allow governments to allocate LTTRs as part of a tender in an offshore bidding zone or as compensation.

38.1. What should be the potential changes to the current knowledge, functioning and organization of the SAP to manage the auctioning of LTTRs on a larger scale, should the electricity market design become much more reliant on those instruments?

38.2. What should be the potential changes to the current knowledge, functioning and organization of the SAP to facilitate secondary markets for LTTRs?

The allocation of forward transmission capacity through a Single Allocation Platform (SAP) is the most effective solution for market participants. It provides them with the opportunity to purchase LTTRs without being solely dependent on power exchanges, which helps lower hedging costs. We are confident that the Joint Allocation Office (JAO) and TSOs are best positioned to manage forward transmission capacity auctions efficiently. Their expertise ensures the process remains transparent and reliable for all involved stakeholders.

38.3. What should be the potential changes to the current knowledge, functioning and organization of the SAP to generally manage the risks to which it is exposed (e.g., operational risk)?

39. Would you suggest any improvement to the transparency and overall functioning of the auctioning process?

40. CfD coupling: Should the allocation of transmission capacity to support the forward markets be performed by SAP or by a nominated exchange? Please provide details supporting/explaining your response.

We are opposed to the concept of forward market coupling with CfDs given the complexity of setting it up in a multi-NEMOs environment and therefore challenging to implement for certain Capacity Calculation Regions.

41. In your view, what would be the potential impact of the application of financial regulation (EMIR, MIFID, etc), should JAO undertake activities that are regulated under the financial rulebook (e.g., operating a secondary market for trading in financial transmission rights)? What is your view on the appropriate

regulatory oversight set-up, considering the various activities JAO engages in (shadow auction for DA market, data services for capacity calculation and allocation, ...)?

The Joint Allocation Office is different from investment firms regulated under MiFID and EMIR. It operates strictly as a service provider to TSOs, who offer a limited quantity of transmission rights based on capacity calculations on the Single Allocation Platform. In this sense, it is different from exchanges, which develop financial products for profit. If JAO were to operate a secondary market for FTRs, it would not change the nature of its activity. Regulating JAO under financial market legislation is therefore disproportionate and would increase hedging costs for market participants. We believe that JAO should maintain its unique status and not be subject to the same regulations as power exchanges.

Part III. Conclusion

42. Feel free to add any other element you would like to share

- This important process of assessment of the forward market functioning and revision of a secondary legislation should not be limited solely to a call for evidence. A follow-up consultation on a draft version of the impact assessment should be conducted. This allows a higher degree of transparency and the opportunity for stakeholders to provide targeted inputs on proposed policy measures.

- We also request that the European Commission ensures that the standard procedure for the eventual revision of the Forward Capacity Allocation Guideline – including any measures decided through the Impact Assessment process – is followed. This includes a full consultation process involving ACER recommendations and consultation.

As a general comments:

- We strongly suggest to not force the introduction of regulated Regional Virtual Trading Hubs, since it would represent a significant paradigm shift that could disrupt the well-functioning of forward markets, unless strong benefits are clearly demonstrated by a comprehensive qualitative and quantitative impact assessment, that considers the unique characteristics that differentiate forward markets from spot markets.

- Bank guarantees should be used for collateral.

- LTTRs should be fully firm. LTTRs need to be adapted for hybrid interconnectors.

If needed, please upload your file(s)

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