ENTSO-E Proposal for a minimum activation time period required for LER to remain available during alert state

smartEn Consultation response

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INTRODUCTION

smartEn welcomes the opportunity given by ENTSO-E to provide feedback to the proposal for the definition of a minimum activation time period required for LER (assets with a Limited Energy Reservoir) to remain available during alert state in accordance with Article 156(11) of the SO GL. We support ENTSO-E's general objective to strengthen the security of supply in Europe through this proposal. However, smartEn opposes the introduction of new requisites for FCR, that could limit the development of LERs, in order to address structural issues caused by other products (aFRR) and phenomenon like deterministic frequency deviations (DFD) and long-lasting deviations (LLD). We are equally concerned by the possible introduction of a derating factor, that would further weaken the business case for demand side flexibility (DSF).

IDENTIFYING AND ADDRESSING THE CHALLENGES TO THE GRID

Before imposing new requirements in FCR, TSOs should ensure the correct use of products like aFRR, and that the contracted quantities are delivered in time and form, to avoid impacts on the FCR procurement and increased costs for a subset of market participants. We therefore ask ENTSO-E to publicly address the issues stemming from defaulting aFRR or other phenomenon and their impact on FCR, together with a plan to solve these issues in the most cost-efficient way.

Before making a substantial change to the trading requirements for any product, the reasons why this change is required should be further investigated. The report states that a higher share of LER is increasing the need for FCR procurement and in turn increasing the costs for TSOs. The report also states that there are "technical problems inherent in a complex system such as the CE synchronous are", and points towards the long-lasting deviations caused by, among other, Deterministic Frequency Deviations (DFD). The report also states that long-lasting frequency deviations are "the most impacting elements leading to the possibility of LER exhaustion", which highlights the importance on dealing the structural and technical causes for these phenomena.

FCR was not designed to handle extreme events by itself. As mentioned in the explanatory document, the reasons for reaching the alert state are in many cases due to long-lasting deviations or due to the failure of aFRR to deliver. BSPs are committed to the delivery of the contracted aFRR. During the prequalification process, TSOs test the ability of Reserve Providing Groups/Reserve Providing Units to deliver aFRR as per the Network Code requirements. Furthermore, aFRR should in theory be fully activated 5 minutes after the alert state, with mFRR coming in after 15 minutes. The reason why FCR should be activated continuously for 30 minutes is not apparent in the context of other existing frequency restoration products. We request a full demonstration why this requirement is technically necessary. Currently the situation arises where a control area is not correctly fulfilling their aFRR obligations with a full activation in 15 minutes. These defaults in aFRR are being solved by shifting the issue to FCR, something it was not designed to do, increasing thus the required FCR size and the costs of procurement and the necessity for it to be provided for 30 minutes. This solution is not cost efficient, as also demonstrated by the presented consultation report.

Furthermore, we recommend TSOs to thoroughly investigate and present a plan to overcome technical issues and structural constraints that might also cause long-lasting deviations, before implementing further conditions on FCR limiting the participation of some market participants. The same report describes measures to deal with long-lasting deviations, which are one of the main causes for LER exhaustion as stated in the report (page 5), to later say that "these measures have not been considered in the following analysis" (page 5). We request ENTSO-E to clarify the reasons why these measures, that might partially solve the issue, were not considered in an analysis regarding LERs.

ALTERNATIVE MEASURES

In ENTSO-E's 2019 report "Report on Deterministic Frequency Deviations" the increase in volume procured for FCR was already considered, as a temporary measure to deal with DFDs, up to 5 400 MW from the current 3 000 MW. The report also states that "the FCR dimensioning is currently undergoing a probabilistic recalculation". If this is the case, any further decisions should be postponed until this recalculation is finished and analysed.

Another proposed alternative would be the introduction of a new "Very Fast Reserve" product. We suggest for ENTSO-E to establish a link between these two reports, and better define what FCR's and aFRR's role should be in the future, and if required expand the procurement of FCR.

Non-symmetrical products could also be of value since not all events are similarly risky. Over-frequency beyond 15 minutes is easier to address (prices would drop and generators would reduce output), than under-frequency, which would require to have more generators on stand-by. In these cases, non-symmetrical products could benefit from LER technologies with variable speed drives, like HVAC, pumps or compressors. We ask ENTSO-E to explore this possibility in the context of FCR.

Finally, many of the concerns expressed by ENTSO-E in the report seem to stem from a lack of observability of LERs in the TSOs control rooms. While we fully understand this concern, it has a reasonable solution that would not negatively affect LERs. TSOs should update their back-end to be able to meter and monitor in real-time meter fast acting LER. The costs of this update should not be transferred to LER, and the benefits in reducing prices and integrating RES efficiently should be considered.

COST AND TECHNICAL ASSUMPTIONS

Cost assumptions

The report assumes that the costs associated with providing FCR will increase with a higher participation of LERs providing it, in particular due to the increased FCR capacity required (even when the need to increase FCR has not been satisfactorily demonstrated). However, what can be observed empirically today is the opposite: an increase of LERs participating in FCR has decreased its price. The main reason behind is that typically LERs are price takers rather than price makers, as correctly identified in the report (page 4). If the cost of LERs were to evolve in the way represented in the report's outcomes, LERs would soon be priced out of the FCR merit order, leaving non-

LER units to provide it. This way, the market mechanism implicitly keeps the costs of LER share under control.

smartEn already expressed concerns on the LER cost assumptions presented in the consultation on all CE and Nordic TSOs' results of CBA for FCR providing LER units from 2020. As mentioned then, further transparency on the cost assumptions would be particularly valuable, given that some of the results presented in the CBA seem to indicate inexplicably high costs linked to LER units. This includes an indication that in the model, the unitary cost of LERs is higher than the costs derived from procuring FCR from conventional technologies, which might indicate. Long-run marginal costs of LER can be close to zero for some technologies like V2G, where the CAPEX has already been paid by another use. This has not been included in the cost assumptions and is critical to properly value LER technologies. In particular because the same is assumed for non-LERs, as their costs in the modelling are based on the opportunity cost, since CAPEX has been paid by the need to generate power (page 14) and no long-run marginal costs are considered. For these reasons, we request complete transparency on the cost assumptions made for LER and non-LER technologies and to have equal treatment for LER and non-LER technologies in the modelling.

In addition, the present report only considers additional costs for the system operator caused by the increased participation of LER in FCR. However, these assumptions do not consider other system wide benefits, like the efficient integration of RES and DERs through LERs like storage. It also leaves out the benefits of using a clean technology and the reduction of CO2 emissions accompanied by a higher share of flexibility sources. Any analysis that would limit the participation of LERs should also consider these variables that support the energy transition goals set by the European Commission.

Technical assumptions

Other technical assumptions made in the report are questionable from the industry perspective, or could be considered so improbable that valuing them the same way as other more probable occurrences would be inefficient. In page 6 of the report the case is considered of all LERs depleting at the same time. This seems like an extremely unlikely occurrence, akin to all power plants malfunctioning at the same time. Different LERs start at different moments in time, they have different capacity, different losses, different buffers, they might be stacking services at the same time and adapting the way they deplete. A similar assumption is made when in page 25, where it is said that LER "impose stricter time constraints than non-LER that could have time-unlimited FCR provision". Non-LER will deliver what they were contracted for, not more. Even non-LER have their limitations, there is no such thing as "unlimited" provision (e.g., they eventually run out of fuel).

If these extreme and highly unlikely cases should be included in the modelling, an appropriate probability should be given to them, and have it factored it into the most cost-efficient solution. We request ENTSO-E to assign probabilities to the "safe combinations" and "unsafe combinations" as stated in figure 1.

Finally, the reasons to not include the "Reserve Mode", a condition recently included in the FCR properties, precisely to avoid total depletion of LER, is not apparent, in particular if all new LER will have to abide by it. Any modelling performed for the short- and medium-term should consider all parameters and conditions under which the participating technologies will be considered.

LER REMUNERATION REDUCTION MECHANISM (DERATING FACTOR)

smartEn opposes the introduction of a remuneration reduction mechanism in the form of a derating factor that is only applicable to LERs. We do follow the argumentation used for the introduction of a remuneration reduction. It is argued that costs of LER will only decrease, facilitating the introduction of LER in the pool. And that this will force an increase in the FCR dimensioning. However, no justification is provided as to why the downward impact of FCR prices will be offset by the higher volumes of FCR procured. We ask ENTSO-E to provide a justification on this affirmation in page 25.

The derating factor proposed by ENTSO-E presents an important and unjustified reduction of remuneration at TLER 15. Whether the TLER is maintained at 15 or 30 minutes all market participants able to provide FCR should have access to the full FCR value. A derating factor would introduce an additional layer of uncertainty for investors and an uneven playing field with other technologies.

SYSTEM DECARBONISATION AND EFFICIENT USE OF AVAILABLE TECHNOLOGIES

LERs play an important role in achieving the overall system decarbonisation targets set by the EU. Limiting the participation in system services of battery storage, electric vehicles, heating and cooling and other LERs, might have a severe impact in reaching those goals. For this reason, we strongly discourage the adoption of any scenario that includes limiting the share of LERs in FCR provision, or making their participation unnecessarily more costly. In the same way that the costs of including LERs need to be considered for an optimal FCR sizing, the system-wide benefits that these technologies provide from helping integrate RES, reducing CO2 emissions and helping with decarbonisation should also be factored in.

In the present report, all LER are considered as a monolithic technology, without highlighting why some of them are better suited for FCR provision than traditional assets. In particular, the benefits which battery storage provides, like a detailed and continuous state of charge management that guarantees efficient provision, accurate and fast reactions and ramping, and the increasingly availability thanks to the proliferation of electric vehicles should be considered.

SUCCESS STORIES

To further complement our position, we ask ENTSO-E to consider numerous success stories of LERs providing balancing services as a cost-efficient option.

- Dynamic Containment reserve in the UK. National Grid has recently moved towards a fast-acting frequency reserve that mainly targets LERs, with the objective to introduce V2G in the near future.

- “Tesla big battery” and VPP in Australia: The Hornsdale Power Reserve in Australia is a perfect example of an LER providing grid stability, and it has now been expanded with a PowerWall & Autobidder platform to facilitate control room operators the management of the VPP.
- Mileage scheme in PJM: A possibility to reduce additional costs for the additional capacity that would be paid to deliver small amounts would be a mileage scheme similar to PJM, that would pay for performance, or a mixed system that combines capacity and mileage.

Considering the economic impact and other implications of moving TminLER to 30 minutes, and the significant open questions still remaining we ask ENTSO-E to maintain TminLER at 15 minutes at least until:

- A thorough study has been performed with transparent cost assumptions
- A clear path has been determined to deal with DFDs and LLDs as well as with the correct delivery of aFRR
- All the concerns listed in this document have been clarified by ENTSO-E and backed up by thorough analysis.

About smartEn - Smart Energy Europe

smartEn is the European business association integrating the decentralized solutions of the clean energy transition. We create opportunities for every company, building and car to support an increasingly renewable energy system. Our membership consists of the following companies:

The positions expressed in this document represent the views of smartEn as an association, but not necessarily the opinion of each specific smartEn member.
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