Remarks and suggestions in response to the public consultation on the integration of additional offshore capacity

In this reaction, Belgian Offshore Platform would like to respond to Elia's public consultation on the integration of additional offshore capacity as launched by Elia on 8th of June 2020.

1. General remarks

BOP provided initial feedback on the 4th of February on the assumptions and scenarios which led to time series of future offshore wind production in Belgium. This feedback was provided following the kick-off workshop of 23rd of January. Some general remarks are repeated in this response to the public consultation.

The Grid of the Future, and the responsibility of different actors

The decision to construct new offshore wind parks is supported by society, and absolutely crucial if Belgium is to achieve the Green Deal targets stipulated by the EU. BOP recognises that increasing the share of intermittent renewable energy in general, or offshore wind in particular, poses certain challenges and requires the implementation of new market designs and new storage and/or flexibility technologies. In the context of the energy transition however, and the societal and political choices that Belgium and Europe have made, all market actors should play their role and take their responsibility in making this energy transition happen.

BOP is of the opinion that many of the proposed mitigating measures in this 4.4GW offshore integration study interfere with the clear distinction between BRPs and their responsibility, and the TSO and its responsibility. A BRP is responsible for balancing its portfolio, on a best effort basis, and Elia as TSO is responsible for grid security and stability. Both from a market design perspective as well as from a legal perspective, it is crucial to clearly distinguish these roles.

A BRP has a best-effort obligation to balance its portfolio, including in case of storm events, and is incentivized to do so through the imbalance price. However, BRPs cannot be held responsible for managing system risks. BOP is of the opinion that, in case appropriate incentives are present for BRPs to balance their portfolio and sufficient (market) means are available to do so, the residual risks for grid security and stability (including forecasting errors during storm events) must be borne by Elia. Many of the proposed mitigation measures however, merely push this responsibility, and the related costs, to the offshore BRPs.

BOP would further like to point out, that all technologies and all generation assets have certain risks that are "socialized[1]", otherwise Elia would not need to procure any reserves at all. Additionally, the mere fact that certain costs are borne by Elia, does not imply that the societal costs are higher, nor does the opposite, namely the fact that certain costs are borne by private market players, imply that these costs do not exist and do not find their way to the end-consumer. From a societal cost-benefit point of view, certain risks should be borne by the TSO, as the TSO is best placed to mitigate these risks in a cost-effective manner. Transferring costs from Elia to BRPs does not make the cost disappear. Moreover, pushing such costs only to BRPs who actually take their responsibility in the energy

[1] Elia seems to imply that offshore wind should be fully responsible for incremental system risks, see page 90: "*Systematically remunerate preventive curtailment would imply to socialize costs arising from risks created by the new wind parks.*"

transition by investing in renewable assets, creates the perverse effect of discouraging such crucial investments.

BOP questions the mitigating measures proposed in this study, as they seemingly mix up the responsibility of BRPs on the one hand, and the TSO on the other hand. A BRP is responsible for balancing its perimeter on a best-effort basis, and cannot be held responsible for managing system risks. Moreover, BOP would like to point out that simply pushing costs away from Elia, does not make the cost disappear, and might even have the perverse effect of discouraging crucial investments in renewable energy.

Objectives of the new offshore developments in Belgium

A significant expansion of the offshore wind capacity is necessary if Belgium is to achieve the 2030 and 2050 targets, as stipulated in the European Green Deal. In order to achieve this additional offshore wind capacity, new offshore wind concession zones were defined in the Marine Spatial Plan 2020-2026. These concessions are to be tendered for, bearing in mind the 4 key objectives, as described in the *note on the principles for tendering of offshore wind parks after 2020* (NL: 'principenota') as approved by the Council of Ministers of 31 August 2018, i.e.

(i) a minimum of 1.7GW and a maximum of 2.04GW of additional renewable energy
(ii) maximizing energy yield (in GWh) delivered to the grid
(iii) at minimal cost (direct or indirect) for the consumers
(iv) and considering ancillary services for the grid, such as balancing services, energy storage,…

The principles of this note were subsequently reflected in an amendment (dd. 03 June 2019) of the Electricity Act of 29 April 1999, and clearly aim at finding the optimal balance in terms of costs and benefits for society. The fourth principle, also ensures that new technological developments are allowed to play a role in the new offshore developments.

The underlying assumptions of this study however, are very much "business as usual", with only an update in terms of technical details such as rated turbine power, specific power, hub height, power curves and wind farm layout.

BOP understands that these assumptions are necessary to create some initial understanding on the possible impact of the total offshore wind production, but these results should be carefully used and re-evaluated, when more details and results will become available during the entire development process towards the tendering.

Future developments, in terms of technological improvements (e.g. on-site storage allowing for peak-shaving, off-site storage allowing for improved balancing,…), and market improvements (e.g. real-time pricing for end-consumers, increased intra-day trading, increased demand-side response, …) are currently not taken into account in the modelling, but rather remain "measures to be investigated by Elia" (see section 6.3). In addition, the impact of many recent measures (storm procedure, revised Alpha component) is not yet fully included in the assumptions.

Elia seemingly recognizes this issue when describing the process (cf. Figure 2, Introduction, page 15), however a revision of the recommendations is only tentatively proposed for Q2 2022, and only to include any updated results of the adequacy and flexibility study, and more information regarding the storm procedure and the revised Alpha component.

BOP urges Elia to firmly commit to updating the study, both the development of the underlying time series, and the recommendations, based on all new information available in 2022, including market

improvements and technological advances. A new public consultation on the update analysis should be foreseen in any case and not only if new recommendations would be proposed.

BOP approves of Elia's pro-active approach in assessing the impact of the new offshore concessions, and strongly agrees that any impact, in terms of operational or technological limitations on the new wind parks, must be fully clarified before the tendering process.

BOP however calls for keeping options open in this early development phase and only use the initial results and findings for directional purposes rather than (binding) design objectives, to allow for full optimization of the new developments zones and optimally benefit from future technology advancements. BOP urges Elia to firmly commit to updating the study in 2022 and launching a new public consultation in any case.

The importance of a level playing field in the short-run and long-run

The mitigation measures are aimed at solving grid instability caused by storm and ramping events, as evidenced by the underlying study of DTU. BOP would like to point out certain conclusions of said study:

- 1 hour down-ramps larger than 2.5 GW is expected approximately on one day in a year
- 1 hour up-ramps larger than 2.5 GW is expected approximately on 2-3 days in a year
- Up-ramp larger than 4 GW within 1 hour was seen once in the simulation (of 37 years)
- Down-ramp larger than 4 GW within 1 hour were not seen in the simulation (of 37 years)
- 10-minute ramps of similar sizes occur much less, and 5-minute ramps larger than 0.5 GW were not seen at all.

It is difficult to assess the severity of such events for grid stability and the fairness of the proposed mitigating measures without any comparison with, for example, other countries or other technologies.

What mitigation measures for similar risks (not necessarily linked to offshore wind) have been taken by our neighbouring countries? What is the chance of an unforeseen outage of a nuclear reactor? What is the chance of a breakdown of an HVDC-link? Such events would cause significant down-ramps instantaneously. Are similar mitigation measures in place for these assets?

In the conclusion of the report, Elia mentions that mitigation measures can be found by:

- Reducing the origin of the deviations at the source
- Increasing the availability of liquidity
- Increasing the reaction speed for the activation of said liquidity

BOP strongly agrees that there are several solutions to the underlying problem, and that the most cost-effective solutions for society should be promoted. Neither the problem, nor the cost-effectiveness of the solutions are constant however, and require frequent re-evaluation to ensure an optimal balance.

The executive summary of the DTU study also mentions that *"the wind power forecast error is much more correlated with imbalances that the wind power production and forecast, meaning that the forecast errors is the main cause for imbalances, whereas the impact of wind power variability is mitigated by the spot market and intraday trading"*. The risk for grid instability is thus not necessarily caused by the ramping events themselves, but by their unpredictability.

BOP sees several evolutions that will inevitably decrease the underlying problem over time:

- As the electricity market is becoming increasingly more flexible and fast-responding, this will facilitate the integration of additional renewable energy sources;
- As forecasting models improve, and BRPs gains experience with the offshore environment, the variability will be better forecasted, so that the market can adequately react.

BOP therefore urges Elia not to overregulate and impose long-term strict technical measures on one technology without taking into account (i) the level playing field between technologies, (ii) the inherent trends in the electricity market that would inevitably decrease the problem, and (iii) the fact that the imposed regulation will influence the tender-prices for the full duration of the concession, i.e. creating a long-term cost impact for a potentially only short-term problem.

BOP would like to warn against regulation that disadvantages one technology, or that imposes technical limitations that in the long-run might not be required.

No impact of additional measures on existing parks to be guaranteed

In the executive summary (page 6) and on page 85 of the study (below Table 23), the following remark is made: *"Important remark: the new mitigation measures should either not be applied to the existing parks, either not have a direct financial impact on the existing parks."*

This remark is indeed extremely import to existing offshore wind parks and forms an absolute non-negotiable premise. In addition *indirect* financial impact is to be minimised as much as possible, as it undermines the financial structure and stability of the project-financed offshore wind projects.

BOP agrees with Elia and emphasizes that the new mitigation measures should not have any impact on the existing parks.

2. Offshore generation profiles

Installed capacity in new development zones

An installed capacity is assumed per development zone: Noordhinder Noord (700MW), Noordhinder Zuid (550MW), Fairybank (850MW):

- What is the basis for these assumed installed capacity per zone?
- What explains the difference in power density?

Model validation

It is much appreciated that DTU took great care in the calibration process of the models. However, using only historical data until 2018 of the Belgian offshore production is of great concern. The production park was in continues development of the last couple of years, and many improvements have been realized, both in terms of technology and in terms of market/BRP behavior. Construction and commissioning works effected ramping rates, as was also mentioned by Elia.

BOP suggests to recalibrate the models in the current study with the latest available datasets covering the 2019-2020 winter once the WRF data gets available for this period, and recalibrate the models in the update study in 2022 with data at least until the end of 2021 covering the fully installed 2.3GW offshore wind zone.

100% availability

The simulations assume 100% of availability of the turbines. It is mentioned that an availability factor could not be applied as a static factor in the modelling, because it would change other statistics. (cf. 2.4.2). However, accounting for an availability factor influences the results, as it will lower the ramps in the events in absolute terms.

BOP requests Elia to confirm whether an availability factor was introduced or not, when using the DTU time series in the determination of the flexibility needs, the reserve capacity needs and the impact on real-time system operation.

In case an availability factor has not been introduced by Elia, can the impact on the needs be approximated by (1-availability factor) and thus all needs be lower by f.i. ~5% when assuming an availability factor of 95%?

2.5.3 Results for 1 hour ramping events expressed in GW

It is explained that storm events are excluded from the data for the results presented in section 2.5.3 (cf. first sentence on page 28). How can the cut-in phase of storm events then be the explanation for the tendency of the ramp PDF to be skewed slightly to the right (cf. last sentence of the same paragraph)?

2.7 Statistical analysis of forecast errors

Forecast errors are a general concern. Current forecast models have great difficulties in predicting the start and end of events with sufficient accuracy.

- Page 37: *"Large forecast errors are more likely during high wind speed days"* and *"storm days show higher forecast errors*";
- Page 175: *"There is significant forecast error both during the shut-down and the restart part of the event"* → This confirms the malprediction of the timing of the storm;
- Table 8, page 37: Day-ahead forecast errors of >2GW (or more than 50% of the installed capacity) proof that forecasting is absolutely not accurate;
- *§6.4.2 – last paragraph – page 91: "Experience shows that the occurrence of heavy storms are well forecasted, but that it cannot be expected from models that they forecast the exact timing and impact of a storm event."*

The figures in the DTU study further quantify the BOP position that storm events are difficult to predict, in particular the start and end of storms, and related forecast errors should therefore be included in the dimensioning of the reserves (both in terms of volume, and technical capabilities of reserves with respect to reaction and activation speed).

2.8 Statistical analysis on system imbalance

DTU performed its analysis on the data from January 2018 to October 2019 where the installed offshore wind power capacity is increasing from 877MW to 1535MW. (cf. Page 179 – 11.1.2 BRPs)

- *Cf. Page 38: "The analysis was aimed to better understand how the BRP's reactions will evolve with extended offshore wind power capacity."*
  What are the lessons learned from the DTU analysis?
- *Cf. Page 38: "Given the other evolutions that have taken place in parallel with the increase of offshore capacity until end of 2019, there were however no very clear correlations identified."*
  What other evolutions in parallel with the increasing capacity is Elia referring to before the end of 2019? The new tariffs, with introduction of the revised Alpha component, was introduced as from 1/1/2020 and the new storm procedure went live in January 2020.

- *"Therefore, the scenarios on the BRP's reactions were identified based on other analyses described in Sections 4 and 5."*
  Please clarify this conclusion to exclude the DTU analysis.

3. Impact on the flexibility needs

§3.2 page 43: *"Considering the offshore wind technologies, the impact of cut-out technologies are not investigated as the storms are excluded from the data"*
As mentioned before, BOP is of the opinion to include storm events in the data for determination of the flexibility needs as well as the reserve dimensioning.

§3.2.1 Table 9: installed capacity for wind and solar power towards 2030

- The central scenario mentions 3GW offshore wind capacity in 2026: Does this mean this capacity is available as of 1st of January 2026? And 4.4GW as of 1st of January 2028?
- The central scenario mentions 3.6GW offshore wind capacity in 2027: How is this figure related to the new projects which are required before the new connection capacity (Ventilus, Boucle du Hainaut) will be available and the phasing of the MOG2 project?
- The HIGH RES scenario: The only difference with the central scenario for offshore wind is 700MW additional capacity as of 2025 instead of 2026; This is not an ambitious HIGH RES scenario: 3GW as of 2024 and 4.4GW as of 2026 at the latest would be a better and realistic assumption.

4. Impact on the reserve capacity needs

"The FRR needs are determined day-ahead with a resolution of 4 hours." and *"The probabilistic method is based on machine learning algorithms relating the imbalance risk to day-ahead predicted system features such as renewable generation, demand, weather conditions…"*

In the day-ahead time frame prediction of storm events is inaccurate as once again proven in the DTU study. Therefore these events should not be eliminated from the data used to determine the reserve capacity.

Missing in this chapter, is a comparative study of measures adopted by other EU countries to incentivize BRP's to remain in balance, also in view of possible integration and harmonization of balancing markets across the EU.

5. Impact on real-time system operation

5.1 Sensitivities for ramping events

"On the other hand, sensitivity analysis of faster activation of reserves based on a combination of scheduled and direct mFRR activation showed some improvements. The analyzed ramping events results hint to the need to accommodate faster flexibility needs either by leveraging enhanced coverage of BRPs or through dedicated fast reserves."

Dedicated fast reserves seems a good idea, as the existing ramping flexibility means are not sufficient and not fast enough.

5.3.2.1. SOGL articles

"In order to convert this into an imbalance criteria for the Elia control area, we considered at Elia should not be responsible for more than 25% of the deviation. This ratio is significant comparing to the size of the Belgian LFC block, which is somehow reflected by the ratio of the FCR obligation of Belgium which is around 80 MW of the total volume of 3000 MW needed for the overall continental synchronous area. The 25% thresholds is reflected as well in the Article 152.13 of SOGL, which indicates that a

participation of more than 25% to the total deviation for more than 30 consecutive minutes needs to be avoided. The validation criteria are defined to avoid the occurrence of such events."

Although 25% seems high compared to the 3% contribution of Belgium to the common pool, it is a rather low number as it implies that the system can handle four extreme events occurring simultaneously. What would be the likelihood of that?

5.4.2.1 BRP ability to cover imbalances during extreme events

BOP requests Elia to compare the modelled BRP response (figure 38) of best and worst case BRP reaction to the historical behaviour of specific events (e.g. figure 36 and 37) to get a better understanding of the model assumptions.

6. Mitigating measures

General considerations

BOP favours a holistic and evidence-based approach to market interventions, supported by cost-benefit analysis, to ensure that interventions are done at the level, or by the party, who is best suited to do so from a societal perspective.

BOP agrees that, under normal circumstances, BRPs should be able to balance their portfolio in real-time, and should be incentivised to do so. In order for BRPs to balance their portfolio effectively and efficiently, the market design should first and foremost allow and facilitate such balancing, and secondly, in order to minimise the total societal cost (and thus the cost for the end-consumer), the cost of residual balancing at BRP level should not be prohibitive or significantly higher than the cost of residual balancing at LFC block level by the TSO.

Following the same logic, the frequency or likelihood of occurrence of events has to be taken into account when considering mitigation measures to avoid overdesigning the requirements and making it costly for everybody involved. Extreme events likely to happen only once every few years, require a different, more cost-effective approach compared to regular events.

When measures imply constraints for wind parks, it is absolutely crucial to ensure a level-playing field for all candidate developers for the new concessions, as they will compete in a tendering procedure. Care for details will need to be taken when writing the required specifications.

6.2.1 Current storm procedure

Even though the storm platform and processes need to be improved (as they were only introduced earlier this year and are not extremely user-friendly), **BOP encourages improved communication between Elia and the offshore BRPs in order for Elia to better estimate the additional risk for the grid in case of a storm.**

A first analysis indicates however that Elia's forecasting tool is not necessarily better than the tools of the BRPs, and that the storm alerts have an important, potentially adverse, impact on the market. Even though Elia obviously is free to develop any forecasting tools it requires to perform its tasks, such forecasting tools should have no legal consequences for the other market players such as the BRPs.
BOP therefore calls for a storm procedure that is limited to private communication between Elia and the offshore BRPs where the offshore BRPs indicate their available flexibility and reserves to cover forecasting errors. Based on this communication, Elia can then optimise their own reserves (by, for example, pro-actively activating slow-start units). **BOP however does not support the current system of a public notice, based on Elia's internal weather and wind production forecasting tool.**

The incentive for offshore BRPs to minimise their forecasting error, and maximise their ability to deal with such errors, should be entirely provided by the imbalance price. BOP opposes any additional measures, such as the option of Elia to prevent an offshore windfarm from coming back online after a cut-out, as they place an excessive burden on the development of renewable energy and are not conducive to the development of the electricity system of the future. BOP would like to refer to a key task of the TSO pursuant to Art. 8.5 (c) of the Electricity Law, i.e. to limit as much as possible all restrictions related to electricity produced by renewable energy sources.

6.2.2 Alpha component

The alpha component is an 'incentivizing component' incorporated into the imbalance price to urge BRP's to remain in balance. BOP is more in favour of market-based formation of real-time energy prices and measures that attract additional (ramping) flexibility to the market, as this will be required in the system of the near-future with 100% of renewable energy.

BOP suggests to perform a benchmarking study of (market-based) instruments as developed in other European countries to find and assess possible alternatives to the alpha component.

Developing and publishing a forecast for system imbalance seems a good idea. We are looking forward to the results of the Elia study planned for in 2021.

6.2.3 Coordination of the cut-in phase after a storm

Article II.14.1 of the T&C SA states that *"Pursuant to article 252 of the Federal Grid Code, the cut-in phase of an Offshore Power Park Module following a forecasted (or ongoing) storm event must be approved by Elia, and coordinated by the Parties. When the storm risk has ended, the SA will not submit a new Daily Schedule as long as the OPA and Elia have not coordinated the cut-in phase, and as long as Elia has not validated a change in Outage Status and/or Pmax available"*.

The T&Cs OPA currently mention (art II.16) the following:

- *II.16.3 If the OPA does not fulfill his obligations of Article II.16.1 & II.16.2, Elia may impose conditions on the availability of the concerned Power Park Module. This includes unilaterally adapting its Outage Status and/or Pmax available as soon as a cut-out occurs. If Elia updates its Pmax available, Elia will use the minimum value of the observed power of the Offshore Power Park Module during the last hour.*
- *II.16.4 When a storm event has ended, the OPA shall first coordinate with Elia and get the approval of Elia to change the Outage Status and/or Pmax available of an Offshore Power Park Module.*

It remains unclear exactly how Elia will implement the cut-in coordination in terms of, for example, timing, and BOP urges Elia to define clear parameters and provide clear guarantees to the offshore parks on how and when this coordination will take place. BOP suggests the following:

- A strong guarantee from Elia that it will do its utmost best to allow OWF to come back online as soon as possible, with a firm deadline of 60minutes after the offshore BRP informed Elia that the park is ready to come back online;
- If the park is not allowed to come back online 60min after the BRP has so requested, Elia shall reimburse the BRP for missed revenue (which, for the avoidance of doubt, includes the BRP's required compensation to the OWF)
- a non-discrimination rule, whereby Elia will treat all parks equally in order not to excessively burden one park over another;

Establishing a clear and transparent framework around cut-in coordination is paramount and in line with the TSO's obligation to restrict the limitations to renewable energy to the fullest extent possible.

In this respect, attention need to be paid to guarantee that the existing wind parks will not be impacted by the coordination rules for new wind parks.

6.3.1 Incentivize reactions to real-time prizes

Given the fast changing energy landscape, BOP sees an increasingly important role for such incentives and new technologies. Therefore, as these initiatives improve the flexibility of the market, Elia should reassess, every few years, the risk for the system of the offshore integration and remove the mitigating measures as soon as they are no longer in proportion to, or required for the underlying problem, in line with art. 8.5 (b) and (c) of the Electricity Law.

6.3.2 mFRR activation decisions in a context of extreme events

For extreme events, direct activation of mFRR means are a suitable option to anticipate for large changes and deserves future investigation. We are looking forward to the first results of the study on System Imbalance Predictions. These results should be included in the problem assessment underlying this study. BOP therefore reiterates its request to update this study in 2022.

6.3.3 Measures related to forecasts

Improving forecasting tools lead to better information and cannot be opposed. However, in our opinion, it is not up to a TSO to send out public alerts that might disturb the market, even if the publication are for indicative purposes only. It is the responsibility of a BRP to respect the balance in its portfolio to the best of their abilities. And therefore the BRPs are to be incentivized to further develop reliable forecasting tools.

Extending the forecasting tools with public ramping alerts or a ramping risk indicator might further trigger undesired/unnecessary market reactions. However, if such tools are to be developed, they could form part of the private communication between offshore BRPs and Elia.

BOP suggests that Elia discusses with the BRPs the possibility to publish the aggregated production forecasts of the offshore BRPs in case of forecasted storms. This would inform the market of an increased risk of imbalances, but based on the actual forecasts of the BRPs.

6.4.1 High wind speed technologies

Although HWRT technologies have a positive impact on the ramping down events during days with high wind speed, it will not solve potential issues in extreme (ramping) events, as described in §2.6.

BOP sees that the market is fast implementing HWRT technologies, and that this technology is becoming a customary feature for most turbine manufacturers. However, there are important differences in the workings of such technology, depending on the manufacturer and WTG model. BOP wants to avoid that a requirement for a certain HWRT technology or particular specifications, would drive the turbine-decision of developers, significantly limiting the developer's negotiation power and thus driving up costs.

BOP is of the opinion that the use of HWRT is already incentivised through technical grid compliance requirements, but that it is important to leave the decision on the HWRT specifications to the park developers who will install the most cost-effective option, considering their incentive to optimise their investment. If a HWRT technology is to be made mandatory, BOP urges that the specifications are kept broad and general (and define a minimum capability rather than a target) in order not to influence the choice of turbine manufacturer.

6.4.2 Preventive curtailment of wind parks

"Experience shows that the occurrence of heavy storms are well forecasted, but that it cannot be expected from models that they forecast the exact timing and impact of a storm event."

Even though the occurrence of a storm can be forecasted relatively well in day ahead, day-ahead forecasts regarding the start of the storm are generally not accurate at all, and it is exactly the onset of a storm that is of importance in relation to the ramping risks described in this study.

The offshore BOPs already has several means to deal with these fast ramping events, such as HWRT and intra-day balancing. This study (and other initiatives by Elia) will further increase the balancing options available to BRPs, such as increased demand-side response, increased intra-day liquidity, no balancing-requirement in day-ahead, etc.

Considering the growing importance of intra-day trading, preventive curtailments in day-ahead seem excessively conservative. But more importantly, preventive curtailment by Elia, pushes a key responsibility of Elia as TSO to BRPs, namely the responsibility of real-time balancing of the residual imbalance, while at the same time limiting the BRPs options to balance his own portfolio in the way that he sees fit without remunerating him for it.

The balancing requirement on BRPs is an obligation of means, and a BRP should use all reasonable means to ensure a balanced perimeter in real-time. In case of an imbalance, reasonable imbalance tariffs should be applied. Preventive curtailments by Elia in day-ahead however, eliminate the BRPs opportunity and free choice to use balancing means that are only available to him post intra-day. This is an unacceptable infringement on the BRPs core mission.

In addition, Elia is not willing to remunerate such preventive curtailments, putting an unacceptable financial burden on the BRPs. These costs will be pushed through to the offshore developers, merely increasing the cost of development, which, either directly or indirectly, will find its way to the end-consumer.

"Systematically remunerate preventive curtailment would imply to socialize costs arising from risks created by the new wind parks."

BOP would like to point out that remunerating preventive curtailments would merely mean that Elia takes responsibility of its own unilateral decisions, which would be appropriate and proportional.

"Considering the amount of volumes needed, the slow start-units that could be activated on the day of the storm in the current storm process might not be sufficient"

Offshore wind farms are not the cause of insufficient flexibility in the system and should not pay the price for this via preventive curtailment. This would go against the EU and national legal frameworks supporting the development of renewable energy.

Preventive curtailment should be removed as a possible mitigation measure as it (i) disproportionally shift the responsibility of the TSO to the BRP and producer (ii) does not take into account further technological developments allowing turbines to weather storms increasingly well and (iii) goes against the EU and national legal principles underpinning renewable energy development.

6.4.3 Ramping rate limitations

The underlying problem in relation to ramping rates is twofold; firstly certain assets (amongst others offshore wind) can ramp-up their production relatively fast, and secondly, the currently available reserves are not always able to ramp-down at the same rate. Therefore, in BOP's opinion, Elia should explore solutions on both sides of this problem.

In order to ensure that the solution is the most cost-effective one from a societal perspective, it is important that the direct and indirect costs of ramping rate limitations, when applied, are remunerated by Elia. These costs are predominantly production losses for the wind parks, but also balancing costs for the BRP. A cost-reflective remuneration will ensure that Elia only imposes ramping rate limitations when they are required and more cost-effective than procuring more flexible reserves.

BOP agrees with Elia's proposal to only impose ramping rate limitations when required (i.e. on an ad hoc basis), rather than permanently. **Provided that ramping rate limitations will be remunerated, BOP wishes to further discuss this proposal with Elia, in order to further analyse the details of such limitations**:

- When will they be applied?
- Can we define pre-set triggers?
- Should there be a cap on how often they can be applied?
- To which technologies should they be applied?
- Should they be applied locally, or country-wide?
- Etc.

6.4.4 Measures to improve coverage of imbalances by BRPs

Multiple BRPs on one access point seems a valid option, especially if the new wind parks will be larger than the existing wind parks. BOP looks forward to Elia's more detailed plan & process in this regard.

On the ability of BRPs to manage their position: Demanding higher expectations from BRPs with offshore wind parks might further decrease the number of offshore BRPs in the market, which could undermine the efforts to increase the amount of BRPs with offshore wind in their portfolio by allowing multiple BRPs on one access point.

Concluding remark

To conclude we would like to express our appreciation of Elia's pro-active approach in assessing the potential impact of the new offshore concessions this early in the development phase as well as the professional approach and quality of the work performed by DTU Wind Energy.

BOP remains at Elia's disposal for further questions and clarifications when deemed necessary.