

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 1st of October 2020.

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, as well as extended feedback during the public consultation of the 4.4GW integration study as launched by Elia on the 8th of June 2020.

We appreciate all Elia's efforts and are happy to provide feedback and suggestions below and look forward to constructively cooperating with Elia on this topic.

1. General remarks

While we greet the study and the discussion on possible mitigation measures we wish to highlight that considering the remaining time-frame before the actual integration of additional offshore capacity, **it is pre-mature to already define the actual set of mitigation measures to be implemented.** We want to clearly underline that the current list of measures **cannot in any way be "carved in stone"** and should be evaluated/adapted over time, taking into account new technologies (size of wind turbines, high wind speeds technology...) and market evolutions (electric vehicles, EU integration, more interconnections, commissioning of new flexible assets, MARI/PICASSO ...). Past data or current technologies are by definition a very rough basis to estimate the future situation (in this case 5-8 years ahead).

A fair balance should be found between (i) the provision on necessary information to provide sufficient visibility on the measures that could impact the additional off-shore capacity in advance and (ii) waiting long enough in order to have a clear view on the market & technological evolutions which may reduce the need for mitigation specific measures

We suggest that Elia continues to improve/adapt the proposed measures in the future in a open and collaborative state of mind with the stakeholders. The uncertainty today is too big in any way to already have a "fixed" view on what would be included in the tenders. What is the advantage of already today fixing the measures in great detail? We do not see the benefits of "locking in" already too many measures.

In particular, we would like to see Elia re-assess the extent of the underlying issues before the tendering of the offshore concessions, as we are of the opinion that Elia has been conservative in its assessment of how various initiatives and trends in the energy market that already exist today, will lessen the challenges of the offshore integration for the Grid Operator.

Furthermore we would like to better understand the system-wide view that Elia is developing to deal with an energy system with a high penetration of renewable energy, and the place of the proposed measures in this vision.

Additionally, we wish to underline that **it is the BRP's responsibility to balance injection and off-take within its portfolio.** The BRP is incentivized to fulfil this obligation as he is exposed to the imbalance price while additional liabilities are foreseen in the regulatory framework. **The mitigation measures should not hamper the BRP to fulfil its obligations in any way.** Elia should at all times ensure a level

playing field between BRP's without offshore wind production and BRP's with offshore production in their portfolio and Elia should observe the principle of non-retroactivity of the mitigating measures related to the existing offshore parks.

The mitigation measures should therefore be coherent and not create any distortion between different actors and/or technologies.

Specifically, **BOP considers the preventive curtailment of wind parks and imposing ramping rate limitations as an intervention in or constraint to the task of the BRP to balance its position.** We are therefore not in favor of such measures. We favour a holistic and evidence-based approach to market interventions, supported by cost-benefit analysis, to ensure that interventions are done at the level, and by the party, who is best suited to do so from a societal cost-benefit perspective. Elia should not assume or impose a "free" measure (from Elia point of view). A measure which is "not free" from Elia point of view would have the benefit of being used with caution.

BOP would also like to emphasize the importance of levelling the playing field between market actors and technologies. This is especially relevant for the proposal of the ramping rate limitation which is currently not technology-neutral.

Study update and project approach in a fast changing energy market

As mentioned in the previous reaction, BOP 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 and market changes. BOP urged to firmly commit to updating the study in 2022 and launching a new public consultation in any case.

BOP much appreciates that Elia commits to updating the study in due time considering the planning of the tendering process, and that Elia will launch a new public consultation on the update.

However, limiting the update of the study to an update of the underlying assumptions when justified by new elements might be a missed opportunity. We understand that the update study will build on the work that has been done in the current study, but considering also methodological changes when justified by changing circumstances seems fair, in order to avoid confirmation bias.

In particular, BOP would like to see Elia re-assess the extent of the underlying issues before the tendering of the offshore concessions, as BOP is of the opinion that Elia has been conservative in its assessment of how various initiatives and trends in the energy market that already exist today, will lessen the challenges of the offshore integration for the Grid Operator.

Elia recognizes that there are many uncertainties with respect to the extent of the actual problem (cf. e.g. §6.1), i.e. the impact of additional offshore capacity on the system:

- Park construction (technologies / capacity / density / ...)
- Technical developments of turbines
- Market developments such as the increase of flexibility in the system and daily procurement that are likely to reduce the problem significantly
- BRPs reaction / forecasting tools / ...
- Impact of alpha
- Etc.

Despite these uncertainties, a list of mandatory measures with fixed criteria is being proposed. BOP is of the opinion that it is too early to define these measures and criteria, or that, alternatively, a clear process for re-evaluation of said measures should be included in the design.

At this early stage, BOP would like to continue discussing the need for and the merits of the proposed measures, rather than limiting the debate to the practicalities of the design parameters.

The study attempts to quantify the system risk due to the integration of additional offshore wind capacity, and BOP appreciates this effort. The study however falls short in (1) listing a wide variety of possible mitigation measures (including changes to market design), (2) ranking these measures (and potentially eliminating some) based on a cost-benefit analysis from a societal perspective, (3) examining their cumulative impact, and (4) justifying the specific design parameters of the measures.

The identified issue, i.e. a fluctuating and intermittent electricity generation profile with the possibility of fast ramping events in both directions that requires a flexible energy system, is not specific to offshore wind but rather a feature of several renewable energy sources, and given the energy transition, an important aspect of the energy market of tomorrow. A system-wide view in managing these fluctuations has to be taken, rather than imposing ad hoc, technology specific measures.

The proposed mitigation measures that take this long-term view and focus on the market design and functioning, are listed as “actions to be *investigated* by Elia”. A large number of the proposed measures are measures implying constraints for wind energy. BOP is of the opinion that focus should be put on the market design solutions, and that measures implying constraints for offshore wind energy should only be considered as transitory measures for the short-term. The design of such measures should reflect this.

This would mean that, with respect to the measures implying constraints for wind parks, Elia can only activate a measure based on objective criteria/triggers and with a predefined cap. All measures should be up for re-evaluation on a regular basis, e.g. every 2 years, to confirm the actual need of the measure. If the need is no longer confirmed, the measure is to be automatically deactivated. Such an approach allows for more flexibility in time to introduce new measures and avoids overregulation when the need is no longer there.

BOP would like to better understand the system-wide view that Elia is developing to deal with an energy system with a high penetration of renewable energy, and the place of the proposed measures in this vision. In this regard, BOP requests Elia to put sufficient focus on the “actions to be investigated by Elia”, and to ensure that the “measures implying constraints for wind parks” are of a transitory nature to be applied as a last-resort.

The need for correct incentives for ELIA to solve the problem

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, and by the party, who is best suited to do so from a societal cost-benefit perspective.

Uncertainties in weather models lead to a risk of unexpected up- and down ramps of weather-dependent energy sources. This risk of these up- and down-ramps can be solved on both sides of the equation:

- (i) the ramps can be reduced at the source side by imposing constraints on particular technologies; or
- (ii) The impact of the ramps can be mitigated through adequate flexibility means offered on a flexibility market to which both the BRP and Elia have access.

Both types of solution inevitably come with a certain cost, which in the end propagates to the end consumer. The solution should be sought there were it is the cheapest for society, based on a cost-benefit analysis.

Furthermore, the grid operator should be correctly incentivized to choose the most appropriate measure in all occasions. Many of the proposed measures for solving the ramps at the source-side, are unremunerated and therefore do not contain a cost for Elia. While at the same time, encouraging sufficient flexibility in the (reserves-)market, does have a price tag for the grid operator. Due to this cost-imbalance, Elia does not have the correct incentives to act in the most beneficial manner for the end-consumer.

BOP would like to reiterate that the mere fact that certain costs are borne by the grid operator, does not imply that the societal costs are high(er), 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. Transferring costs from the grid operator to BRPs does not make the cost disappear. On the contrary, BOP is of the opinion that in several instances, and in particular in the case of system risks, the cost to the end consumer could be lower, when this risk is taken by the grid operator instead of an individual BRP. Primarily as the grid operator only needs to cover the risk on a portfolio basis, which, due to diversification, will be lower than the sum of all the individual risks¹.

Moreover, the measures implying constraints for wind parks and offshore BRPs *de facto* lean toward one technology. In a context where renewable energy is becoming more and more important on the global, European and national political agenda, this is an evolution in the wrong direction. Rather than integrating more and more constraints and restrictions to renewable technologies, one should keep the long-term energy system with large penetration of renewable energy in mind and develop the system towards allowing and promoting renewable technologies, while promoting and attracting flexibility solutions in the market design and regulations to cope with the challenges they bring. Restriction to any type of renewable asset can therefore only be a temporarily and last-resort measure. Cost-reflectivity for the grid operator is a way to ensure this.

BOP proposed to make all measures cost-reflective for Elia, so that the grid operation at all times deploys the most cost-effective measure, from a societal point of view.

Impact of storm events on reserve needs

In the feedback received in the consultation report of the first consultation of this 4.4GW offshore integration study (section 5.1, page 12), it is clarified that historic LFC block imbalances during storms are taken into account in the daily reserve dimensioning, but storm events are not taken into account as dimensioning incident or forced outage.

Do we understand it correctly that this results in a small increase in the daily reserve needs for all days of the year as a result of the effect of the average (annual) probability of storm events on the LFC block imbalance, rather than significantly increasing reserve needs in the daily dimensioning of days where the forecast indicates a high probability for a storm event? Can Elia please confirm or clarify? If

¹ In addition, it can be argued that the grid operator has a lower financing cost and risk premium.

confirmed, it seems not very efficient, nor cost-effective to increase the needs on days without any chance for a storm. The related means and costs could more valuably assigned during days with a high probability for a storm event.

Respecting the current market design and roles

BOP is of the opinion that many of the proposed mitigating measures in this 4.4GW offshore integration study interfere with the 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.

A BRP should be sufficiently incentivized to balance its portfolio, but it must remain the BRP's prerogative to choose the appropriate means to fulfil its balancing obligation. The provided incentives should be market-based, technology-neutral and applied at the level of the BRP's portfolio, rather than the current proposed measures that are asset-based, technology-specific and applied at the connection point or for some, as proposed in the report, at the turbine level.

2. Mitigating measures

§6.2.3 Coordination of the cut-in phase after a storm

In BOP's previous reaction, we requested more clarity for the coordination of the cut-in phase after a storm for the existing wind parks.

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.*

The T&Cs SA currently mention (art II.14) the following:

- *II.14.3 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.*
- *II.14.4 If the SA does not meet his obligations under Article. II.14.3, Elia may impose conditions on the cut-in phase and/or Daily Schedule of the concerned Offshore Power Park Module.*

In case Elia does trigger Art. II.14.4 of the T&Cs SA, it remains unclear exactly how Elia will implement the cut-in coordination in terms of, for example, timing, and BOP urged Elia, in the previous consultation, to define clear parameters and provide clear guarantees to the sector on how and when this coordination will take place.

BOP would like Elia to reconfirm that any intervention from Elia that would impede the offshore wind parks to cut-in after a storm (1) can only be triggered by incorrect behaviour of the OPA with regards to his obligations of article II.16.1 & II.16.2 of the T&Cs OPA or incorrect behaviour of the SA with regards to his obligations under article II.14.3 of the T&C's SA; and (2) will only be used in exceptional circumstances when required for safety of the grid.

Existing wind parks

In the current proposal, the default situation for existing wind parks will be that they are able to come back online according to a predetermined linear ramping rate. The study report (page 89) mentions that each park will be able to come back online within a period of 1 hour (whereas most parks are capable of coming back online in a time span of 5-10 minutes). We kindly ask Elia to clarify what the ramping rate would be (or how it will be calculated) for an individual existing wind parks?

BOP is surprised to observe however, that this proposed ramping limitation in the context of a cut-in coordination would occur irrespective of whether it is required for system security, without any compensation to the relevant OPA or SA, and without the clarification that this can only be imposed in case of incorrect behaviour of the OPA/SA with regards to his obligations, as per the relevant T&Cs.

If this is indeed Elia's intention, BOP would like to voice its concern with regards to such an ex-post change with regards to the recently approved storm procedure and T&Cs OPA and SA.

Wind farms are high-capable units that should not be made slow-capable because of the limited resources within Elia to manage a contractual process adequately (as seems to be the suggestion on page 88 of the report). Existing wind parks should be incentivized, through a properly functioning market, to offer their downward flexibility to the market or to Elia on par with all other technologies, rather than being limited by Elia without any compensation for their BRP.

The default situation should be that the existing offshore wind farms can come back online as per their technical capability and that BRPs are responsible for managing these events in their portfolio. Only in order to safeguard the safety of the network, Elia should be allowed to impose restrictions on asset-level, and these restrictions should only be applied to those BRP/OPA/SA that did not fulfil their contractual obligations. If Elia wishes to apply such restrictions as a general measure, to all relevant BRP/OPA/SA (irrespective of their behaviour), they should be remunerated.

If existing wind farms opt into the cut-in coordination process applicable to the new offshore wind farm, it is unclear whether the applicable ramping rate limitation will be the linear ramp in one hour, or that the 15MW/min limitation for the entire fleet of new parks will also have to be shared with the existing parks that 'opt in' the proposal for the new parks. Could Elia please confirm that the ramping rate limitation for the wind farms that "opt in" will only be applicable after a cut-out related to a storm event and thus not be applicable in non-storm situations with a positive system imbalance above the trigger.

BOP's request for clarity with regards to the cut-in coordination after a storm event, was intended to create clarity on the type of "conditions" that Elia may impose, as per Art. II.14.4 of the T&Cs SA (without questioning the basic underlying principles of "necessity" and "fault").

In line with Elia's proposal, BOP therefore suggests to further clarify the relevant Article by including:

- **a strong commitment from Elia that it will do its utmost best to allow offshore wind farms to come back online as soon as possible, with a firm deadline of 60minutes after the time that the offshore BRP (/OPA/SA) has communicated to Elia as the moment 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 (/OPA/SA)**
- **a non-discrimination rule, whereby Elia will treat all parks that are subject to imposition of conditions equally in order not to excessively burden one park over another.**

New wind parks

In Elia's proposal, new wind parks will be able to come back online according to their capabilities, but a ramping rate limitation will be applicable in case of a certain system imbalance (+500MW as currently proposed). In the proposal, the ramping rate limitation will have to be shared between the new wind parks pro-rata their installed capacity. Our feedback on the ramping rate limitation measure, is provided in a separate section below.

BOP wonders how this general measure of a ramping rate limitation is to interact with the coordination of the cut-in after a storm event. Is it Elia's intention to replace the storm cut-in coordination with the general ramping rate limitation measure? Will the T&Cs OPA & SA therefore only be applicable to the existing parks?

§6.3.3 Measures related to forecasts

Improving forecasting tools leads to better information and we support such evolution. In the past however, incorrect forecasts and alerts have disturbed the market, which cannot be the intention. BOP does not oppose Elia's initiative to invest in its forecasting models and in further developing and finetuning these and invites Elia to continue to regularly request feedback from the market. As Elia states itself, the forecasting alerts should be merely indicative and can never form the basis of ex-ante interventions by Elia that have an effect on market participants. BRP's are responsible for maintaining the balance in their balancing perimeter and should remain maximally incentivised to develop the best forecasting tools possible.

Extending the forecasting tools with public ramping alerts or a ramping risk indicator could provide additional information to the market and could incentivise the development of the market for fast flexibility, and therefore BOP does not oppose this in principle.

BOP wonders however why the proposed ramping alert is limited to offshore wind? Would it not be possible and more informative if a general market ramping-rate is published?

§6.4.1 High wind speed technologies

BOP observes 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.

Furthermore, BOP would like to point out that HWRT is a feature on WTG level, whereas interventions from the grid operator should be limited to criteria at the wind park level at the Connection Point within the meaning of Article 1, definition 28 of the Federal Grid Code, similarly to the current approach whereby the technical requirements are applicable at the Connection Point. Can Elia elaborate on the legal provisions these turbine restrictions are based on?

The positive features of HWRT can be achieved via several, behind the meter, options. For example, ramping down in anticipation of a wind farm's cut-out can also be managed by the power plant controller. A wind farm can also consist of a combination of WTGs with and without HWRT, and/or with and without behind the meter storage options, with together would still achieve the required behaviour in high-wind situations at the connection points.

Furthermore, BOP wants to avoid that a requirement for a certain HWRT technology or particular specifications at turbine level, would drive the turbine-decision of developers, significantly limiting the developer's negotiation power and thus driving up costs. In addition, a turbine-level specification could also impede behind-the-meter innovations.

BOP suggests to specify the required behaviour at the Connection Point, and keep such requirements sufficiently broad and general, but leave the specific design and functionalities at the WTG level with the developer.

Regarding the specific design of this measure, the key parameters to consider are the starting point and endpoint of the curve on the power axis, in combination with the slope of the curve, rather than the starting point and endpoint of the curve on the wind speed axis. Whether the HWRT kicks in at 20m/s, at 25m/s or at 28m/s is rather irrelevant, as long as the power decrease is gradual enough. In our opinion, a more appropriate specification would be:

- An offshore wind farm must be designed so that the injected power at the connection point will decrease linearly to (at least) 50% of the installed capacity (excl. power boost) of the offshore wind farm, before a sudden cut-out will occur in high-wind situations.
- The gradual decrease of power at the connection point must start at average wind speeds of at least 5m/s lower than the average wind speed at which a sudden cut-out occurs.

§6.4.2 Preventive curtailment of wind parks

BOP remains of the opinion that non-remunerated preventive curtailment anticipating storm events should be removed as a possible mitigation measure as it

- (i) Interferes with the prerogative of the BRP to manage the assets in its portfolio;
- (ii) It attached financial consequences to a *forecast* by Elia (i.e. the storm tool);
- (iii) Provides incorrect incentives to the grid operator, as it is not cost-reflective;
- (iv) disincentivizes further development allowing turbines to weather storms increasingly well, or developments towards combined offshore wind and storage projects;
- (v) goes against the EU and national legal and policy principles underpinning renewable energy development.

General remarks on preventive curtailments

BOP is in general not in favour of preventive measures that are technology-specific and applied at the asset level; as such interventionist measures diffuse the roles of the TSO and the BRPs.

Offshore BRPs are incentivised to deal with storm events through the imbalance market and the current storm procedure. At the moment, they have several means to deal with imbalances due to storm events, such as HWRT, intra-day balancing or even curtailments at their own decision. However, they may not be sufficient at times. Therefore, BOP supports the initiatives by Elia aimed at further increasing the balancing options available to BRPs, such as demand-side response, increased intra-day liquidity, reduced balancing-requirement in day-ahead, etc.

BOP recognises and supports Elia's intention to re-evaluate the overall need for, as well the detailed design (timing, cap, etc.) of the proposed measure (amongst others based on possible increased intra-day liquidity). However, BOP is of the opinion that having the measure already "in-principal approved" by the User Group to preventively curtail offshore wind farms without remuneration, would reduce the incentive to actually develop or incentivize the alternatives such as increased intra-day liquidity.

In accordance with article 5, (b) of the Electricity Act, the Grid Operator is tasked with ensuring the coordination of production installation whereby priority should be given to production installations producing energy from renewable sources. The EU Regulation 2019/943 is clear in its requirement towards grid operators that they need to make sure their grids are capable to transport renewable

energy, and to take fitting and market related operational measures to limit the amount of curtailment of renewable energy production to a minimum and to make sure that their grids are sufficiently flexible in order to manage these effectively (art. 13).

EU and national policy initiatives also rather lean towards removing the barriers to investment for the development of Offshore Wind Energy. Reference can be made to the federal governmental agreement of 29 September 2020, which focuses on the capacity of the grid to accommodate the second, and maybe third, wave of offshore wind energy, not on restrictions on the developers' side. The EU Offshore Wind Energy Roadmap as developed by the EU Commission in anticipation of its dedicated Strategy on the subject clearly refers to **removing barriers to investments for offshore wind energy**. The combination of measures, such as the non-remunerated preventive curtailment regime, designed in 2020 for offshore wind farms being operational in 5-8 years under the pretence that this would not have a substantial impact on the offshore wind farms financial model is a clear example of a restrictive measure that should be avoided.

In addition, BOP would like to point out that **curtailment has an impact on the lifetime span of the design of foundations** (and potentially WTG tower) especially when not damping due to operation, especially during high wind situations. A wind farm therefore imposes a limit on the number of curtailments that can be implemented. The risk of an additional 75h of curtailments (and potentially higher, as there is no overall cap), should not be disregarded in this context. A wind turbine is designed to have its rotor in rotation for all windspeeds according with the power curve. Same for the turbine tower and foundation. The rotor in rotation is serving as a consistent oscillation. As from the moment the turbine is standing still, the forces of wind and waves are not damped by this consistent oscillation resulting in a much higher impact and fatigue. The lifetime consumption of a preventive curtailment (which is by definition during quite high winds) is thus many times higher than if the turbine can continue normal operation. During tower and foundation design, this will need to be taken into account, leading to a heavier and thus more costly design. Besides the link with the structural integrity of the foundation and turbines, there is also a link with the certification of the WTG. The industry goes towards 30y lifetime certification, which trades off against fatigue and start/stop events.

Concrete remarks on preventive curtailments

[What is the actual trigger of the curtailments?](#)

The study mentions that the trigger would be based on the storm tool; however, the study does not mention what the trigger would actually be, nor which BRPs would subsequently be curtailed. Can Elia please confirm the following:

1. preventive curtailments shall only be applied in case the estimated "unmitigated balancing risk" is larger than the estimated "available reserves" as per the storm tool; and
2. preventive curtailments shall only be applied to those BRPs that contribute to the "unmitigated balancing risk" and to the extent of their perceived contribution.

[How is the cap of 75 hours determined?](#)

From the study, it is not clear how the cap of 75 hours is determined. The number is not clearly related to the quantitative analysis of the historical and simulated storm events elaborated in the previous sections and annexes of the report. It is therefore also unclear how this measure can be re-evaluated later on.

The term "75 equivalent full production hours" is confusing, as it can be interpreted as "full load hours" which we understood is not the intention of Elia. Full load hours are hours were the installed capacity is producing at "full load", i.e. at the top of the production curve.

As far as BOP understands however, it is Elia's intention to set the cap at 75 hours of "curtailment of the entire installed capacity of a wind farm", irrespective of what could have been produced. Therefore, a requested curtailment during 1 hour of 25% of the Installed Capacity would only counts towards the cap for 15 minutes, irrespective of how much the wind farm would have been able to produce during that hour.

Can Elia please confirm BOP's understanding in this regard, and further clarify this in the study?

Why no remuneration?

The Elia proposal defends non-remuneration of preventive curtailment based on a limited financial impact, however:

- Elia will manage the 75h cap wisely, and therefore only preventively curtail during the start of the storm in order to coordinate the slow start units, and not during the entirety of the storm as Elia is fully aware that the wind farm will not be producing (or producing less) in the midst of the storm. Offshore wind farms will therefore face the 75h almost entirely at full load, and this will thus accounts for about 0.5% of the annual production. This is not a negligible number.
- Remunerating preventive curtailment ensures correct balances and incentives for the grid operator when choosing between "reducing at the source" or "finding solutions in the reserves market".
- Determining a system for remuneration is not complicated, and many examples that Elia uses today, already exist, including the D-bid mechanism and the remuneration for the MOG-unavailability.
- Preventive curtailments drive up the design cost to guarantee the lifetime of the foundations and turbines.

Question that arise if preventive curtailment does go ahead

- Preventive curtailment by a BRP (for which OWFs should be remunerated) as communicated in the storm tool as a 'mitigation measure' must count towards the 75h cap. If they are not, this is a perverse incentive for BRPs not to take preventive action.
- The storm tool indicates that the non-mitigated risk is larger than the available reserves; therefore, Elia looks to preventive curtailments to reduce the non-mitigated risk. How will Elia decide on which offshore wind farms will be preventively curtailed?
 - Example 1: There is no clear "culpable" BRP. Every single BRP of the new OWFs has communicated mitigating measures for 80% of the production loss that Elia has forecasted per park, as they believe the storm to be less severe than what Elia forecasts. It is the sum of the remaining 20% that makes that the non-mitigated risk remains larger than the available reserves. Who will Elia "punish" with curtailments?
 - Example 2: The "culpable" BRP has already reached its cap. There is 1 BRP of a new offshore wind farm that has not provided Elia with sufficient information on mitigating measures. However, for that BRP, its cap of 75h has already been reached. Can Elia guarantee that the BRPs who have provided sufficient mitigation measures will not be preventively curtailed? Even though this means Elia will need to remunerate the BRP "responsible" for the issue, whereas curtailing all the other BRPs would not cost Elia anything?
 - Example 3: The non-mitigated risk is entirely due to the existing wind parks (who would not be curtailed) and/or a low availability of reserves due to other market players / market events. Who will Elia preventively curtail?

BOP understands how preventive curtailments could assist in managing storm-episodes. However, Elia seems to suggest that in order for these measure to be most effective, they should be applied as a general measure to all involved BRP/OPA/SA (i.e. irrespective of their behaviour). If this is the case, they should be remunerated. Elia already has the option to curtail offshore wind farms for grid stability purposes, via the existing mechanism of Incremental Bids; and BOP wonders why this mechanism is not used in such situations.

To summarize, BOP is not opposed to preventive curtailments as such, triggered by a clear system indicator. However, BOP requests that such measure (1) is remunerated, if applied across the board, or (2) capped, but then only applied to BRPs based on their performance.

§6.4.3 Ramping rate limitations

BOP remains of the opinion that non-remunerated ramping rate limitations should be removed as a possible mitigation measure as it, based on the same arguments as BOP's opposition against preventive curtailments.

However, BOP wonders how the ramping rate limitation of 15MW/min will be implemented in practice. In the proposal, the value is to be understood as the sum of the power increase of all new wind parks. In this respect, BOP sees several practical difficulties:

- If the ramping rate limitation of 15MW/min is to be shared by 2.2 GW or full 4.4 GW (in case the existing wind parks "opt in"), the time for an OWF to come back online is increased from the current 5-10 minutes to 2h30 or 5h00 respectively. This could be a significant loss of production.
- Since the ramping rate is to be shared amongst offshore wind parks, it is unclear how this will be implemented. Is a pre-set ramping speed defined once upfront, or will the speed be determined dynamically, based on the behaviour of the parks at the moment of the limitation (e.g. if 1 park is not ramping up, can another park double its speed?).

With respect to the proposed design of the mitigation measure, BOP is in favour of Elia's attempt to limit the use of the measure to extraordinary situations, defined by a clear indicator or trigger.

However, as the System Imbalance trigger is a market-wide indicator, to which all connected assets contribute, BOP wonders why the ramping rate limitation is only applied to the offshore wind sector. The proposed measure is not technology-neutral.

To summarize, BOP is not opposed to a ramping rate limitation, triggered by a system-wide indicator. However, BOP requests that it is either remunerated or capped, and that it should be applied in a technology-neutral manner.

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.

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