Remarks and suggestions in response to the public consultation of the methodology, the basis data and scenarios used for the study regarding the adequacy and flexibility needs of the Belgian power system for the period 2022-2032

In this short reaction, Belgian Offshore Platform responds to the public consultation of the methodology, the basis data and scenarios used for the study regarding the adequacy and flexibility needs of the Belgian power system for the period 2022-2032 as launched by Elia on 30th of October 2020.

We would like to express our appreciation for the opportunity to provide feedback at the start of this new adequacy and flexibility study.

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

Offshore wind generation assumptions

The assumptions on the evolution of offshore wind generation capacity in Belgium currently foreseen in this study are: 2.253 MW until 2027 and 4.000MW as of 2028. These assumptions are based on the 4GW offshore wind capacity as described in the draft NECP of 2018 and the timing of additional offshore grid connection capacity after realisation of the necessary grid projects as described in the Federal Development Plan 2020-2030. The installed capacity at the end of 2020 will be 2261MW as also mentioned in the NECP2020-2030.

These generation capacity assumptions towards 2030 are to be addressed as conservative as:

- In the governmental agreement of the new federal government mentions that 2.2GW of additional offshore wind capacity is decided upon and additional capacity on top of that will be investigated both in Belgium as in the framework of the Northern Seas Energy Cooperation;
- Elia is developing additional offshore connection capacity of 2.1GW in the MOGII project;
- Elia is conducting offshore integration studies for a total offshore wind capacity of 4.4GW;

For consistency reasons, we propose at least 4.4GW of offshore wind capacity should be considered by 2028 at the latest.

Suggestions for sensitivities

As the central scenario is based on conservative RES ambitions, a **high RES scenario** is much desirable to be included considering the following assumptions for offshore wind:

- 2022 and 2023: 2.262MW
- 2025: 4.4GW
- 2030: 6GW

Investment cost assumptions for offshore technologies

Could Elia explain in what part of the study the investment assumption for RES are used? In our understanding, assumptions on renewable capacity (including offshore wind) are policy driven. Is the economic viability also checked for RES?

BOP expects a further decrease of the Capex and FOM by 2030, and is willing to discuss this with Elia if required.

Flexibility assumptions of offshore technologies

The following assumption on flexibility are proposed:

- Ramp rate (minimum power variation in a time period) : 100% Pmax/min
- Upward flexibility: none
- Downward flexibility (maximum share of the installed capacity which can participate, without accounting other constraints e.g. ramp rate):
    - Ramping flexibility: none
    - Fast flexibility: 65% Pnom
    - Slow flexibility: 65% Pnom

As offshore wind parks are able to adapt their production downwards in a matter of minutes, these flexibility assumptions for offshore technologies are set rather low. In our opinion offshore wind parks can contribute to ramping flexibility too. Please revisit these assumptions. BOP is willing to further discuss these assumptions with its experts.

Climatic data

BOP supports the evolutions of historic climate years towards the use of predicted climate years for the timeframe of the study.

To provide some more conform in the use of the 200 synthetic climate years, it would be interesting to have some idea on the difference with the historic climate years, f.i. temperature distributions, (offshore) wind distribution.

Considering the translation from weather variables to generation variables, more transparency would be welcomed. Regarding offshore wind:

- What location will be selected as reference for wind speeds?
- What power curve assumptions will be used to translate wind profiles into power production profiles?
- Will there be any differentiation for the existing parks and the new offshore wind parks to account for advancements in technology?

The Danish Technical University developed time-series for the Elia 4.4GW offshore integration study, considering the geographical locations of the wind parks as well as wind park specific power curves. Will this study build further on the DTU time series? If not, how do the time series compare to each other?

Furthermore to build some confidence in these synthetic climate years and the translation towards generation variables, we suggest to also provide the time-series and related power distributions (or at least monthly capacity factors) of weather-depending technologies to the stakeholders.

Sector-coupling and power-to-gas

The current methodological framework does not model contributions to the adequacy and flexibility from power-to-gas and sector-coupling in general. With the rise of especially the hydrogen production facilities in the coming years, and at larger scale towards the end of the decade, we would like to encourage Elia in developing solutions to incorporate these type of technologies into the assessment, as it might have beneficial contributions to both the adequacy as the flexibility projections.

We understand that an entire methodological overhaul to incorporate sector coupling might be challenging with the timeframe of the current study. Awaiting such a new methodological framework, modelling power-to-x as flexible demand could be considered within the current methodological framework.

Feedback on hurdle premium and related risks

We understand that Elia proposes not to assess the EVA of renewable capacities unless it is known that the support schemes are to be cancelled in the future, and that therefore offshore wind energy (both existing and future capacity) is not subject to an EVA.

BOP would however like to provide some basic feedback on the risks described by Elia (cf. table on page 18 of the methodology proposal under consultation).

	Non-normal distribution	Risk/return relationship	Model Risk	Policy Risk	Reference WACC differentiation
Type of assessment	**Quantitative/Qualitative**	**Quantitative/Qualitative**	**Qualitative**	**Qualitative**	**Qualitative**
Technology 1	Low/Medium/High	Low/Medium/High	Low/Medium/High	Low/Medium/High	Low/Medium/High
Technology 2	Low/Medium/High	Low/Medium/High	Low/Medium/High	Low/Medium/High	Low/Medium/High
Technology …	Low/Medium/High	Low/Medium/High	Low/Medium/High	Low/Medium/High	Low/Medium/High

The non-normal distribution risk and the risk/return relationship (i.e. the downside risk) is very relevant in the context of (offshore) wind investments in investment decisions for projects with full market exposure. With the combined assumptions of (1) limited changes to the market design, (2) full market exposure, and (3) increased RES penetration; the profile risk (i.e. the inverse correlation between wind production and market prices) is likely to increase, negatively affecting the investment case for offshore wind projects with full market exposure.

The policy risk should be looked at in the same context. A market design characterised by very volatile prices (i.e. periods of very low to even negative prices alternated with periods of price spikes) is not favourable for offshore wind energy. Without a policy aimed at price (and thus revenue) stabilisation, investments in offshore wind energy become riskier.