



Volume determination of the strategic reserve for winter 2019-20:

Answer to the public consultation on input data

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1. Introduction

The consultation aimed to receive any comments of market parties on the input data to be used for the strategic reserve volume determination for winter 2019-2020. The consultation period was set from Monday August 27th to Monday September 24th 2018, 18h00.

Elia received 4 non-confidential answers to the public consultation from (in alphabetical order):

- CREG
- FEBEG
- FEBELIEC
- RESTORE

The feedback and the answers by Elia System Operator ("Elia") are grouped in four categories in this document:

- Market Response
- Flow based modelling
- Data and Assumptions
- List of Power Plants

All relevant information to this consultation can be found on the following Elia webpage:

<http://www.elia.be/en/about-elia/publications/Public-Consultation/Publieke%20consultaties>

The results of this consultation will also be presented during the next Task Force implementation Strategic Reserve (TF iSR).

2. General

Market participants welcome the continuous improvements and effort to increase transparency by Elia over the last years.

FEBEG welcomes this consultation and thanks Elia for creating this opportunity for all stakeholders to provide comments and suggestions.

FEBELIEC would like to thank Elia for this consultation input data for determining the volume of Strategic Reserve for winter 2019-2020, as it is very important to have a clear, common and accepted understanding of which hypotheses, generation and demand volumes and capacities will be taken into account for the analysis conducted by Elia.

Elia welcomes these remarks.

3. Questions on Market Response

Comment from stakeholder:

FEBEG would like to thank Elia for its efforts to try to improve the estimation of the volume of market response which will be taken into account in the analysis to determine the volume of strategic reserves. The work performed together with E-Cube is considered to be very valuable.

Nevertheless FEBEG is seriously doubting if the choice for a 7 % growth rate for market response is realistic. Indeed, the result of the study of E-Cube are three extrapolation scenarios that could all three – according to the consultant – be defended: the scenarios vary from 4 % and 5 % to 7 % global volume growth. FEBEG has the impression that the choice for the 7 % global volume growth is a 'policy decision', rather than a choice substantiated with economic arguments. With regard to the 7 % global volume growth scenario, E-Cube clearly states that the market response is not intrinsically unlimited and the value is very impacted by the strong increase of year 2017-2018 which might not necessarily repeat in the future.

FEBEG sees some arguments that justify this statement of E-Cube:

- The evolution of the volume of demand response is to some extent interlinked with the procurement of demand side products – strategic reserves or balancing products – by Elia: participants tend to prefer the strategic reserves or reserved ancillary services products to acquire a capacity fee in order to make the operation profitable. If Elia has a high demand for reserved products, the related capacity fees will possibly trigger investments to develop more demand response. If the need for reserved products would drop, part of the developed demand response could remain in the market but a part could also disappear again. So, the framework for procurement of strategic reserves and ancillary services can boost the development of market response, but it is unclear how long this effect will last.

- Therefore a strong growth of demand response should be clearly motivated by an expected relevant change in the market itself that would increase the profitability of the implicit demand response products in the market. In this respect, it should also be taken into account that the expected increase of economic growth might reduce the operational margin of industrial players to lower their production for market response actions, unless the expected remuneration would increase significantly.

Therefore FEBEG proposes to opt for the 4 or 5 % growth rate as a more cautious and realistic approach for the future evolution.

FEBELIEC: On the volumes of market response, FEBELIEC has provided ample input and comments during the work conducted by both Elia and E-cube in the subgroup of the Task Force implementation of Strategic Reserve and is pleased to see that this input has been taken into account.

RESTORE believes that the volumes of demand reacting to the market prices that are extrapolated for the winters 2019/20, 2020/21 and 2021/22 should not be calculated based on the E-Cube survey, but rather keeping the last observed figure, i.e the 2017/18 winter. Indeed, the amount of demand that reacts to markets prices should not be seen as a linearly progressing technology like classic generation: such MWs are very agile and are not "installed" as such. They can be further mobilized if required, with very high sudden growth rates depending on the market context but can therefore also be less important from a year to another if the context is less scarce. Therefore, we believe the safest hypothesis is to retain, for a given exercise, the most recent observed amount of response rather than building growth rates per year. At the very least, if this approach

is not retained RESTORE supports that lower growth rates which were used in the previous methodology are retained, rather than the more ambitious figures retained by E-Cube.

Answer from Elia:

Key market stakeholders, among them FEBEG, FEBELIEC and RESTORE, engaged since two years ago in a continuous interaction process to design the most adequate methodology to determine and update the volumes of market response (MR) in Belgium. Elia thanks them for their active involvement in this process. This methodology is now considered to be widely accepted by stakeholders.

It was agreed with stakeholders that the volumes of demand response for the three forthcoming winters of each study, in this case 2019/20, 2020/21 and 2021/22, should be extrapolated from the market response figures calculated by E-Cube using latest available historical data. As agreed also last year, this methodology was to be used again, considering newly available data from May 2017 to March 2018, in order to calculate updated estimates of expected market response volumes. The same consultant who supported the development of the methodology last year, E-Cube, performed the assessment and their main findings were presented to the TF iSR on 9th July 2018.

Elia takes notice on the comments raised by the stakeholders but still considers that e.g. the current stress situation in the energy market could be considered as an extra driver for developing market response. Therefore, 7% seems now even more appropriate than before.

Furthermore, although newly (anticipated) flexibility is not accounted for in the historical observations on the day-ahead market or ancillary services' market, its potential contribution can still be accounted for, by means of the extrapolation factors used in the assessment. If e.g. Bidladder or Transfer of Energy would facilitate new flexibility to be active on the market, its potential contribution will be captured by the extrapolation factor(s) considered.

Comment from stakeholder:

In het verleden (2015 onderbreekbare ICH-contracten) bleek dat er een bereidheid was tot vrijwillige onderbrekingen van 8 uur.

Uit de Excelfile blijkt dat enkel onderbrekingen van 1, 2 en 4 uur worden in rekening gebracht.

De CREG meent dat het nuttig zou zijn om op basis van de ervaring met de ICH-contracten activeringstijden van 2, 4 en 8 uur te simuleren (elk voor 1/3 van het vermogen)

De CREG meent dat bij reële krapte in de markt, en dus bij zeer hoge marktprijzen (>500 €/MWh), er nog een belangrijk volume market response kan aangeboden worden, die momenteel niet wordt meegenomen in de analyse van E-Cube.

De CREG meent ook dat de invoering van de ToE het potentieel aan demand respons positief beïnvloedt. Werd dit in rekening gebracht?

Answer from Elia:

The activation constraints to be used in the assessment were obtained by means of an objective questionnaire to avoid unrealistic and non-answerable questions. This process was managed by the independent consultant E-Cube.

The activations constraints are distributed across 7 different categories, each of them corresponding to a % of the total volume of Market Response identified and are composed of number of activations per week [#] and activation durations [hours]. No 'activation durations' of 8 hours was identified in the questionnaire. ICH contracts with activations of 8 hours existed indeed during 2015 and 2016. The MW volume of ICH contracts with activations of 8 hours decreased significantly from 2015 to 2016. Furthermore, ICH-contracts in 2017 only presented activations of 2 and up to 4 hours, in line with the current data.

As the methodology was developed together with, and based on input from market parties, Elia considers that the most appropriate way forward is to apply the model as currently available. The suggestion made by CREG could be considered for the next volume assessment, but it should be noted that a correlation between activations per week [#] and activation durations [hours] is needed in order to incorporate such information in the current methodology.

4. Questions related to Flow Based modelling

Comment from stakeholder:

FEBELIEC With respect to the flow-based domains, Febeliec refers to its comments provided during the public consultation on methods, hypotheses and data sources. Febeliec welcomes the inclusion of more granularity with respect to flow-based domains in the analysis by Elia and also welcomes the inclusion of Alegro within this analysis. On this last point, Febeliec wonders what the impact will be of this interconnector, and which outage rates and other derating elements will be taken into account by Elia in its model for this interconnector. Febeliec regrets that Elia does not provide a description of the expected impact of the inclusion of both new interconnectors as well as other interconnectors or increases in cross-border capacity in the CWE/CORE region (e.g. increase in capacity between NL and DE), nor the impact of other measures (e.g. 20%minRAM, DE/AT split), which would be very helpful information to the stakeholders. Febeliec hopes that Elia will provide an in-depth analysis on these elements in its report on the required volumes for 2019-2020, after its analysis, as this information would be very useful for the stakeholders, also beyond the scope of "just" the calculation of the need for a Strategic Reserve on "the impact of the incorporation of NEMO and ALEGRO":

As also commented during the last Task Force implementation Strategic Reserve, FEBELIEC remains with questions on the (quantitative) impact of the incorporation of NEMO and ALEGRO (as well as BeDeLux) into the flow-based domain and thus their impact on the determination of the need for strategic reserve. In addition, the application of a 6% outage rate for the interconnectors is according to FEBELIEC not sufficiently validated in the report, as it is unclear whether this value is based on existing interconnectors or taking into account particularities of the new HVDC technologies that will be applied, while FEBELIEC is also wondering if the 6% is taking into account that these interconnectors will be brand new in the following winters and thus should not yet be subject to ageing issues occurring over time.

Answer from Elia:

Within the context of the volume determination of the strategic reserve, Elia strives to model the operational flow based market coupling as closely as possible.

Regarding the flow-based (FB) modelling:

- Flow-based domains that will be used to evaluate the volume of strategic reserve are constructed with the current rules applied and agreed for the flow-based day-ahead capacity calculation, including the Long Term Allocation (LTA) patch and minimum RAM (MinRAM) patch.
- The effect of NEMO link will be considered in the FB simulation for Winter 2019 - 2020 and further, and the effect of ALEGrO will be considered in the FB simulation for Winter 2020 - 2021 and further.
- The BeDeLux project will not be considered as it is still in pilot trial phase.
- Capacity calculation with separate German and Austrian bidding zones is operational only since 1st October 2018. No sufficient historical winter domains are thus available to be considered at the time of the assessment. Still and in order to consider this evolution in the best possible way, the assumptions agreed upon between TSOs in the "Pentalateral Energy Forum - GAA 2018 report" (PLEF 2017) will be followed in this years' assessment. During the PLEF study, two different market zones for DE and AT, interconnected by an NTC, were implemented in the model.

Elia takes note of these remarks. The combination of NEMO, ALEGrO and MinRAM leads to enlarged flow-based domains and thus increased importing capabilities. As in last year's volume assessment, an in-depth assessment of the results and impact of the FB simulations and above mentioned FB modelling assumptions will be presented in the report.

Regarding the HVDC forced-outages (FO) modelling, Elia uses this value from the ENTSO-E MAF study in order to maintain consistency between its national study and ENTSO-E Pan-EU studies. The value of 6% includes indeed both unexpected outages as well maintenance works of HVDCs. Although Elia agrees that *"these interconnectors will be brand new in the following winters and thus should not yet be subject to ageing issues occurring over time"*, there is no guarantee that outages might not occur in some of the climatic conditions considered in the assessment, irrespectively of the age of these assets. Furthermore, the ENTSO-E Task Force *"HVDC Reliability"* within the Working Group *"Asset Implementation and Management"* (WG AIM) has recently confirmed the 6% HVDC FO as benchmark value.

Comment from stakeholder:

De CREG gaat ervan uit dat in set A van de Flow based domains de capaciteit van de NEMO verbinding in rekening gebracht wordt.

Kan Elia bevestigen dat bij weinig wind, de importcapaciteit hoger ligt dan indien er veel wind is?

Kan Elia nader toelichten hoe de IC BeDeLux in rekening werd gebracht?

Answer from Elia:

Regarding the flow-based (FB) modelling

- The effect of NEMO link will be considered in the FB simulation for Winter 2019 - 2020 and further, and the effect of ALEGrO will be considered in the FB simulation for Winter 2020 - 2021 and further.
- The BeDeLux project will not be considered as it is still in pilot trial phase.

The combination of NEMO, ALEGrO and MinRAM leads to enlarged flow-based domains and thus increased importing capabilities.

Regarding the relation between the level of import capacity and the level of renewables infeed, different types of domains are considered in the assessment for the different week-days situations:

- Historical days are clustered in families defined by the size of their 24 hourly domains, *i.e.* typically "large", "medium" and "small" families of domains are clustered. Each typical day consists of 24 hourly domains (one for each hour).
- Small domains correspond to situations with a highly congested network and therefore with small values for the maximum power exchanges possible between the different market areas considered by the given domain (related to the small volume inside the domain).
- Large domains correspond to situations with a less congested network and therefore relatively higher values of maximum possible power exchanges between the market nodes considered by the given domain (larger volume).

Each hourly simulation of the interconnected power system presents different expected climatic, generation and demand situations during next winter(s). The approach followed in the assessment links specific combinations of climate conditions expected for next winter e.g. high /low wind infeed in Germany, high /low temperature and thus average /high demand in France and Belgium etc..., with the representative domains above mentioned, for these conditions. For instance, situations e.g. with high levels of wind infeed in Germany and high load in France are correlated with the occurrence of the small domains, for which there is a reduced import capacity for Belgium in situations of simultaneous scarcity with France.

5. Questions on the Data and Assumptions

Comment from stakeholder:

FEBELIEC With respect to the demand, just as in previous years FEBELIEC continues to wonder why Elia takes such fairly steep increases for the following years, taking into account that the average over 2011-2017 is still close to zero and over 2014-2017 is slightly negative. Moreover, CREG studies also show that the (residual) load and peak load profile in Belgium have undergone non-negligible changes in the last few years. Can Elia provide the basis on which to forecast yearly

increase of around 0,5%? Is this based on a macro-economic top-down approach, and if so, which GDP-growth rates and other macro-economic parameters have been used for the calculation, or is it based on an additive bottom-up approach and if so, which segments of consumption are expected to increase over time? If anything, the historical data for the years 2011-2017 shows that it is very difficult to draw a line on consumption increase/decrease, yet Elia takes a significant yearly increase into account, leading to a consumption of several TWh per year more in 2022, thus leading automatically to an increased need for generation capacity and thus potentially also a larger Strategic Reserve. For Febeliec, such approach might prove overly cautious, and comes at a cost for all electricity consumers as they will have to foot the bill for the resulting outcome of these Elia assumptions.

Answer from Elia:

Elia analyzed different scenarios of demand growth estimates available for this study and the different drivers for demand growth underlying these estimates.

The forecasted figures for normalised growth are a combination of Elia's historical normalized load figures, to which growth rates calculated by IHS Markit are applied.

The expected growth figures of IHS Markit can be explained by the following:

- IHS Markit demand growth forecasting model takes into account 5 sectors (industry, commercial, residential, transportation, agriculture), each of which are modelled individually.
- For Belgium, the industrial and commercial sectors are by far the key drivers of incremental power demand in the coming years, together making up almost 100% of net growth in some years. A volume effect is important here: as they account for over three quarters of total final demand in Belgium, even modest growth rates in these sectors yield important incremental demand.
- Industrial demand is boosted by a positive and steady economic outlook. Industrial growth is expected to supersede energy savings between 2018 and 2022. Furthermore, electrification of certain industrial processes might also play a role in demand growth.
- In the commercial sector, a strong economic outlook is again driving electricity demand in the coming years.

Finally it should be stressed that Elia uses temperature normalized load, so comparison to other sources and a too limited set of historical figures may be prone to error. Analysis of the load forecast for 2017 performed in last year's assessment resulted in 85.23TWh, which corresponded to a 0.44% increase. The observed realized normalized historical load in 2017 was 85.38TWh corresponding actually to a 0.61% growth compared to 2016. So even though during last year's consultation the same remark has been made about IHS Markit's forecasts, the realized demand for 2017 showed a slightly higher growth than what was forecasted.

Elia communicated these findings to FPS Economy prior to the launch of the consultation and has not received a negative feedback on the use of such growth rates.

Comment from stakeholder:

(CREG)

Wordt er rekening gehouden met de mogelijkheid dat noodstroomaggregaten in de markt komen bij schaarste (dus bij zeer hoge elektriciteitsprijzen)?

Een potentieel van 500 à 1000 MW gedurende een beperkt aantal draaiuren (100 uren) lijkt realistisch

Answer from Elia:

The approach used in this study makes sure that all production units reported by DSOs to Elia (whether or not aggregated) are taken into account.

Data provided by DSOs consists mainly of small distributed generators, whose production is mainly related to energy processes. These are considered in the new non-CIPU category which will be introduced this year, as explained in the consultation report.

From the above mentioned data from DSOs, Elia has no visibility on the detailed installed capacity of emergency generators whether connected to the Elia grid or not.

Still some emergency power generators might be market driven. If emergency generators react to price signals and are active in the market in times of scarcity, their contribution is already taken into account in the market response (MR) volumes considered in the assessment.

Comment from stakeholder:

FEBELIEC regrets that Elia has not provided in the excel file under consultation more of the assumptions and hypotheses it has applied to come up with the proposed numbers, other than some vague references in the accompanying document (e.g. "information received from regions"), without referring to which reports or sources were used; a large array of different estimates have been made by different parties for a multitude of purposes and it would be helpful if it would be indicated which of the documents and thus underlying sets of assumptions from those parties have been used in order to be able to validate the proposed numbers by Elia. As a result and despite the added value of the accompanying document provided by Elia, it is still difficult to get real insight in the methodology applied by Elia.

With respect to renewable production, FEBELIEC has no specific comments, but observes a very significant increase in both PV and onshore and offshore wind in the numbers proposed by Elia. Febeliec wonders whether this increase is based on hard evidence (e.g. permits granted, investment decisions taken, construction and planning of offshore windmills) or rather based on extrapolation of current trends and/or growth paths. Febeliec insists on the need to take into account the evolution of the minimum load factor of renewables since this is an important factor in the analysis of the determination of the volume of strategic reserve.

Answer from Elia:

Elia takes note of the remark regarding the assumptions and hypotheses applied to define the proposed numbers. It should be noted that the previous consultation (April – May 2018) was devoted to provide such an overview. Elia will, as every year, provide in the final assessment report as clear as possible overview of the assumptions and hypotheses, referred in the previous consultation, and their usage to validate-define the proposed figures in this consultation and in the assessment. Elia takes note of the remark also for future consultations.

Regarding 'PV and onshore wind' renewable production, Elia received data from the regions compiled by the FPS Economy. These figures were contrasted with information available to Elia through its clients. It is worth mentioning that the figures proposed are indeed based on current trends in line with the NREAP 2020 for Belgium.

Regarding 'offshore wind' renewable production, the data proposed is based on information available to Elia through its clients, and is thus considered to be highly reliable.

6. Questions on the list of Power Plants

Comment from stakeholder:

With respect to the generation capacity, FEBELIEC will not comment the availability of individual thermal production units, but takes note of the list as provided by Elia. Febeliec however would like to iterate its request from previous years for a public and official list with a clear status of all the announced closures of thermal generation units as well as their end dates. Such list still does not exist, which has all parties to rely on information to be found in the press and/or on company websites, which is not the most transparent process.

Answer from Elia:

The assumptions used by Elia for its adequacy analysis are made available through the current public consultation. However, these assumptions indeed do not constitute an official list with a clear status of all the announced closures of thermal generation units, nor their end dates. Elia believes that publication modalities as described by FEBELIEC fall out of scope of the volume determination of strategic reserve. The known to Elia announced closures are provided in full transparency through the consulted Excel file.

Comments from stakeholders

CREG Elia houdt rekening met de afwezigheid van de productie-eenheid van Vilvoorde in OCGT-modus, overeenkomstig de huidige status van melding van tijdelijke uitdienstneming. Gezien de niet onrealistische mogelijkheid dat deze eenheid terug in de markt aanwezig zal zijn voor de winter 2019-2020, meent de CREG dat het nuttig is om deze optie nu reeds in een sensitiviteitsanalyse te beschouwen.

Answer from Elia:

Elia will consider Vilvoorde in OCGT-modus in the simulations.