



Volume determination of the strategic reserve for winter 2018-19:

**Answer to the public
consultation on methodology,
hypotheses and data sources**

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1. Introduction

The consultation aimed to receive any comments of market parties on the methodology, assumptions and data sources to be used for the strategic reserve volume determination for winter 2018-2019. The consultation period was set from Monday April 24th to Monday May 22th 2017, 18h00.

Elia received 2 non-confidential answers to the public consultation:

- FEBEG
- FEBELIEC

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

- Market response
- Flow based modelling
- Data
- Assumptions
- Process of the volume determination
- Out of scope

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 Task Force implementation Strategic Reserve of July 12, 2017.

Note that an additional consultation on the input data used for the calculation will be organized when this data will be available for Elia. This consultation will start approximately on the 21st of August, 2017.

2. General

Generally, most market participants welcome the improvements Elia integrated in the methodology over the last years.

FEBEG acknowledges that the approach considerably improved over the last two years and appreciates that Elia integrated a lot of suggestions from stakeholders in the methodology, especially regarding the potential of demand response and the use of flow-based domains.

Febeliec takes note of the continuous improvements which Elia brings to its methodology for this exercise.

Elia welcomes these remarks.

3. Questions on Market Response

Comment from stakeholder:

The demand curve should not be represented nor supposed to be inelastic. Febeliec takes note of all the elements brought by Elia in the document with respect to Demand Side Response, but regrets that in the general part of the document the demand curve is still assumed to be inelastic and represented as such. With the on-going steps in the right direction to enable demand response by all consumers (even though this goal has not even by far been achieved yet), Febeliec would like to see that Elia takes this into account in all its (re)presentations, in order to reflect the evolutions in this domain. Also mentioning that demand response is considered inelastic, and then taking market response to high prices into consideration (p16) is not in line with the current market situation and reality according to Febeliec. [Febeliec]

Answer from Elia:

Elia recognizes that the demand for electricity should not be considered inelastic in the adequacy assessment for the volume determination of the strategic reserve. It is exactly for this reason that Elia conducts substantial efforts to better understand and model the elasticity of the demand-side. In the context of the subgroup "Demand Response Study" of the Task Force implementation of Strategic Reserve, detailed discussions on the modelling of the elasticity of electricity demand have been held. The participants have concluded that the methodology developed in this subgroup is the best feasible way to take this into account into the adequacy assessment.

Elia recognizes that the use of words in the consultation document could cause confusion. Therefore, it is better to use the formulation as agreed upon in the E-cube report "Market Response Study 2017"¹. The elasticity of the demand below €150/MWh is indeed considered to be taken into account in the load forecast used by Elia for its adequacy assessment. In its final report on the volume determination of the strategic reserve, Elia will take this wording into account. Elia will as well take this remark into account in its future (re)presentations.

Comment from stakeholder:

With respect to balancing reserves, Febeliec would like to reiterate its position that for demand side response, it should be clear that all available demand side response that is not selected for contracted balancing reserves is to be considered available for the market and thus taken into account for the adequacy assessment. It should be avoided to exclude demand side response volumes completely from the analysis for having participated in the past to some Elia products but not being selected anymore in the future, as these volumes will of course still be available to market response. The DSR volumes for balancing and the market are communicating vessels and should also be taken into account as such. [Febeliec]

Answer from Elia:

Elia recognizes the point, and indicates that this is foreseen in the newly developed methodology to assess the volume of Market Response. Elia refers to section V.3 of the E-cube report "Market Response Study 2017" which specifically describes a methodology to take into account the issue of the interaction between demand response delivered in the market and in ancillary services.

Comment from stakeholder:

With respect to the integration of market response in Belgium, Febeliec would like to refer to all the comments it made and input it gave during the workshops on this topic organised by Elia in tandem with E-CUBE. Febeliec is looking forward to see the results of this analysis and reserves itself the right to react on this topic once these results are known, as it would be difficult to make any comments at this point. However, in general, Febeliec is positive about the fact that Elia has taken into account its many comments on demand side response inclusion in the adequacy assessments and welcomes the efforts taken to improve the adequacy assessment in this field. [Febeliec]

Answer from Elia:

Elia welcomes this feedback, and would in turn like to recognize the considerable effort invested by the participants to the Subgroup workshops.

¹ http://www.elia.be/~media/files/Elia/Products-and-services/Strategic-Reserve/20170511_E-Cube_Market%20Response_Report_phase1.pdf

Comment from stakeholder:

The volume of market response that is taken into account in the assessment is based on a quantitative analysis. FEBEG welcomes this evolution.

FEBEG also wants to emphasize – giving the complexity of the quantitative analysis – the need for transparency on the methodology and selection of the representative timeframes. [FEBEG]

Answer from Elia:

Elia welcomes the recognition by FEBEG of the improvements made in the context of the subgroup. The subgroup "Demand side response" of the Task Force implementation of Strategic Reserve has been created specifically to ensure transparency concerning the method of taking into account Market Response. Elia agrees with FEBEG that it is important to ensure transparency for the remainder of the process.

Comment from stakeholder:

FEBEG wants to point out that the applied price thresholds of 150 EUR/MWh and 500 EUR/MWh are preferably not based on a fixed number. These thresholds should consider the indexes to which fuel burning assets are exposed to, like natural gas. In addition, FEBEG would like to plea for a cautious approach with regard to the exclusion of generation units above 500 EUR/MWh. For flexibility reasons, these units could be offered here. In case such an activation would require the payment of a penalty (for example: exceeding gas capacity contract) which is then integrated in the pricing. [FEBEG]

Answer from Elia:

Elia recognizes the fact that price thresholds can evolve following certain system evolutions and changing conditions. However, at this moment, the 150 €/MWh and 500 €/MWh are a representative value for the analysis, to the best of current knowledge. This is also discussed and agreed upon by the Subgroup. Therefore, for the studied horizon in the context of the volume determination of strategic reserve, the proposed thresholds are fixed for the upcoming three years. Of course, in later adequacy studies, this parameter can and will be changed when observing relevant changing conditions.

Elia considers that situations for conventional units bidding above 500 EUR/MWh are rare events and therefore its consideration or not should not have an impact on the analysis results.

Comment from stakeholder:

The outcome of the qualitative analysis will be important to estimate the overall availability of the calculated capacity in the quantitative approach. These results should therefore be used to implement the required deratings on the market response volume. [FEBEG]

Answer from Elia:

Elia agrees with the comment by FEBEG on the availability of market response volumes. Availability of the market response for the adequacy assessment is related to the so-called activation constraints, so indeed not only the global volume available is important, but also how much is available for how many hours within a certain period and at which intervals, etc. As described in the method developed within the subgroup "Demand Response Study" of the Task Force implementation of Strategic Reserve this information is gathered through the qualitative analysis via questionnaires.

4. Questions related to Flow Based modelling

Comment from stakeholder:

FEBEG really appreciates the efforts of Elia in improving year by year the flow-based modelling in the volume assessment. For instance, Elia confirmed that a high wind scenario in Germany could influence strongly the Flow Based domain, and tried to integrate that effect in its methodology. Elia proposes now a further refinement with more domains (for typical days) and a correlation with more climatic conditions. Based on experience with the formation of flow based domains, FEBEG deems the approach still imperfect and sees some room for further improvements:

- To be actual relevant for the assessment of the system adequacy which should be aimed at extreme situations that can occur, the domains should be selected only in the periods of peak demand in Belgium and in the recent past (less than one year) in order to take proper account of the evolution of the production fleet (in particular renewables). Nevertheless this risks limiting the history and therefore the statistical relevance too much. An alternative could therefore be to base the study on an offline estimate of likely domains in the event of a shortage, taking into account the national situations envisaged for the coming years and including significant margins (FRM) on taking into account the risks the unavailability of grid components and large generating units in Europe. Such an approach seems to be more appropriate to capture more extreme (but not unlikely) situations like we experienced in the past winter with the outages of nuclear plants in France and Belgium.*
- In line with above point, FEBEG warns for the historical approach of Elia to select the domains, which are deduced from the historical data of grid availability, production and consumption, etc. These inputs could be very different from year to year. A more straightforward approach could be based on a coherent market and grid simulation using the forecasted prod/consumption data directly in the deduction of domain.*
- The introduction of 4 x 24 flow-based domains is still too limited; the summer and inter-season days should rather be dedicated to the winter to obtain already 12 x 24 domains.*
- The definition of 'small', 'medium' and 'large' domains is too vague: FEBEG would like to have more details on their composition.*
- FEBEG wonders if Elia takes into account the LTA (long term allocation) patch in the clustering of domains. It is advisable to not take into account this patch, as it is uncertain if it will still be applied in the future and a more conservative approach seems to be better in line with the actual physical constraints.*

Answer from Elia:

Elia welcomes the acknowledgement by FEBEG of the improvements made year by year on the incorporation of the flow-based market coupling mechanism in the volume determination of the strategic reserve.

Elia agrees with FEBEG that the use of more flow-based domains could improve the quality of the adequacy assessment. However, this would significantly increase the complexity of the analysis. Moreover, Elia believes it is crucial to align itself with the other adequacy studies performed at the European level, for example in the context of the PLEF group or national adequacy assessments performed by TSOs of neighboring countries. The same 4x24 flow-based domains will be used in the analysis for the volume determination of strategic reserve as those used in the PLEF generation adequacy assessment and those used in the French national adequacy study.

Elia agrees with FEBEG that taking into account less than one year of historical flow-based domain data would severely limit the statistical relevance of the chosen typical days. For the analysis conducted for the volume determination of strategic reserve, Elia aims at simulating the flow-based as it is currently operating. Using a coherent market and grid simulation does not approximate the current market functioning, and is therefore not appropriate for this purpose. In a similar way, using offline estimates of domains also comprises a risk of shifting away from the flow-based operations as they are done today.

Concerning the remark by FEBEG on the classification 'small', 'medium', and 'large', as indicated in the consultation document, this classification was only for illustrative purposes. During the public consultation on the data used for the analysis, Elia will share the detailed information concerning the domains used for the analysis, as it was already done for last year's analysis.

The typical days for the adequacy assessment are identified using a clustering on historical domains. As the LTA inclusion patch has been applied to obtain these historical domains, the patch is taken into account for the clustering of the domains. At this moment, Elia does not have any information regarding the dismissal of the LTA inclusion patch, and therefore considers its application to be the best possible assumption to take into account.

Comment from stakeholder:

With respect to the import and export capacity, Febeliec takes note of the approach proposed by Elia, but would like to make a comment on the fact that Elia will take into account "knowledge at Elia about the operation of the BE grid" (p37). Febeliec understands this approach, but hopes this will not lead to the application of undue reserve margins. Febeliec is a strong proponent of not pushing the system beyond its limits, as a (partial) blackout is by far not the preferred outcome, but has no issue with searching the limits of the system in order to get value for money. [Febeliec]

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 good as possible. All parameters for the modelling of the flow based market coupling will be chosen according to today's operational practices. No additional safety margins will be applied for the analysis.

Comment from stakeholder:

With respect to NEMO, Febeliec wonders why (p43) this link is to be considered without impact on the flow-based domain, but hopes the 1000MW of this interconnector will still be taken into account in the adequacy assessment. [Febeliec]

Answer from Elia:

The flow based domains used for the adequacy assessment correspond to the historical situations of the typical days. Therefore, we consider for the base case the flow based domains as they were historically constructed without a flow on the interconnector. The Nemo Link ® interconnector will be taken into account in the adequacy assessment as a 1000 MW NTC interconnector, not subject to any flow based constraint. This is similar to the modelling of for example the IFA interconnector, or any other interconnector between CWE countries and other countries.

5. Questions on the data

Comment from stakeholder:

Climatic database

FEBEG considers it as a positive evolution that Elia is using ENTSO-E data as this is in line with the objective of harmonization at EU level. [FEBEG]

Sensitivity of load to temperature

FEBEG considers it as a positive evolution that Elia is using ENTSO-E data as this is in line with the objective of harmonization at EU level. [FEBEG]

Answer from Elia:

Elia welcomes this feedback by FEBEG, and agrees that harmonization of methods and data at EU level should be strived towards.

Comment from stakeholder:

With respect to the comment on p26 that it is assumed that all units currently participating in the strategic reserve will not return to the market, Febeliec has two comments. First, does this refer to the units contracted for winter 2016-2017, or does this refer to the units to be contracted for winter 2017-2018 and following? Second, is this assumption correct, taking into account all the comments received during the various meetings on the strategic reserve from representatives from producers, as they all seem to believe that those units will/could return to the market (an option also allowed by the Ministerial Decree for the units to be contracted for winter 2017-2018 and following). According to Febeliec, it would be unwise to remove all these units from the adequacy assessment, if there are signals that these units might in the end not be closed/mothballed, but rather return to the market. In that case, they should be included in the assessment, in order not to overestimate the need for a strategic reserve and avoid slippery slope effects. [Febeliec]

Answer from Elia:

Elia will consider in its adequacy assessment that the instructed volume of strategic reserve will be contracted for winters 2017-18, 2018-19 and 2019-20. As always, the latest available information regarding the availability and status of the generation assets will be taken into account. As long as Elia thus does not receive any formal notification regarding a return to market, the announced units for closure will be assumed to be out of market.

Comment from stakeholder:

With respect to the growth of the total Belgian load, Febeliec observes a rather sharp increase towards 2020 as proposed by Elia. Elia by basing itself on IHS CERA, which applies a macro-economic top-down (GDP-based) approach for the determination of the total load does not take into account the fact that electrification effects for the horizon of this study are presumably negligible, while energy efficiency measures, notable by industrial consumers in the framework of energy covenant agreements, are already taking effect. Febeliec would also like to refer to the study it had done by Energyville on the cost of choices, where such increase is not observed in the time horizon for this adequacy assessment. Moreover, Elia also applies an additional "high sensitivity" scenario, which even increases this effect, thus according to Febeliec severely overestimating the actual Belgian total load, while not applying a "low sensitivity" scenario, which, also based on the previous comments, would make more sense according to Febeliec. [Febeliec]

Answer from Elia:

Elia has not yet proposed any data relating to the Belgian total load that will be used for the adequacy assessment. The latest numbers available to Elia from IHS Markit (formerly called IHS CERA) will be used, and will be part of the public consultation that will be held in August 2017. With regards to the methodology used by IHS Markit, Elia can confirm that amongst other elements, energy efficiency measures are effectively taken into account. Elia takes note of the concern expressed by Febeliec regarding the "high sensitivity", and will take this into consideration when deciding together with the FPS Economy on the sensitivities that will be analyzed.

Comment from stakeholder:

As a final remark, Febeliec would like to point out that with the on-going evolutions in small-scale storage (e.g. home batteries, electric vehicles), the total Belgian load might not decrease, but the offtake from the Elia grid (and thus the real element to be studied in this adequacy assessment) should decrease, with a flattening of the offtake peaks. Febeliec wonders if and how such effects are taken into account in the assessment as they might have an important impact on peak offtake from the grid and thus the potential need for a strategic reserve. [Febeliec]

Answer from Elia:

Elia would like to stress that it believes the total Belgian load, and not the offtake from the Elia grid, is indeed the correct subject of analysis for its adequacy assessment. Only this way the analysis can correctly take into account amongst others distributed generation. For the adequacy assessment used for the volume determination of the strategic reserve, it is assumed that the evolution of small scale storage technologies is not significant given the scope of this study (three winters ahead). Small scale storage technologies that are already in operation are taken into account through the demand profile used by Elia for the analysis.

6. Questions on assumptions

Comment from stakeholder:

With respect to Luxemburg (Sotel) and the BeDeLux interconnector, Febeliec is convinced that Elia will take into consideration all evolutions in the following updates of this adequacy assessment, but it might be good to include a sensitivity analysis on this element, to check whether this has a significant impact on the Belgian adequacy position in the following years, in order to make sure not to contract non-needed strategic reserves. [Febeliec]

Answer from Elia:

Elia takes note of the concern highlighted by Febeliec. However, the impact assessment (IA) simulations for the IC BeDeLux indicate that in the majority of the cases the Creos PST would not be considered in the day-ahead allocation due to the limitation of the initial flow-based domain. Moreover, given the complexity to commercialize the new Creos PST in the day-ahead timeframe of which the feasibility has not been confirmed yet by all involved parties, the limited cases in which this complex process will lead to an actual offering of the Creos PST in day-ahead timeframe and given the fact that the current IA simulations indicated that this offering would only result in a neutral effect on the CWE welfare, it was decided to postpone the commercialization of the new Creos PST.

Review of this position will take place after one year of trial phase based on the results of an in-depth review of the additional list of Critical Branch Critical Outages (CBCOs) in the day-ahead market timeframe and the lessons learned regarding the actual real-time usage of Creos PST after a trial phase of one year in order to assess whether a review of the complex operational process for the day-ahead timeframe could be envisaged. Since today this one-year technical trial phase has not yet started, Elia does not see sufficient additional value in the analysis of the proposed sensitivity for the adequacy assessment used for the volume determination of the strategic reserve. Any possible evolutions concerning this project will of course be implemented as good as possible in the adequacy analysis.

Comments from stakeholders:

With respect to the HVDC forced outages, Febeliec takes note from the fact that Elia puts the unavailability of these HVDC interconnectors at 6% and wonders whether this is not a bit steep, especially since these interconnectors will still be new and thus not prone to ageing effects within the horizon of this assessment. [Febeliec]

FEBEG welcomes that forced outages of HVDC interconnectors are added as a new factor. Nevertheless FEBEG is wondering if the impact of the HVDC interconnectors is correctly assessed. Does Elia also considered forced outages on HVDC Interconnectors outside CWE? Elia used historical data for the availability of HVDC Interconnectors for only one year, i.e. winter 2016-2017: doesn't such a limit set of data risks to give an inaccurate impression and an underestimation of the risks. Elia should also consider the uncertainty of the timely commissioning of new HVDC interconnectors. [FEBEG]

Answer from Elia:

For the adequacy assessment for the volume determination of the strategic reserve, Elia will also consider outages for HVDC interconnections outside of CWE. The uncertainty regarding the timely commissioning of new HVDC interconnectors might be taken into account through the analysis of a sensitivity. When ALEGrO is considered as part of the FB market coupling, its availability will be considered through the CBCOs assessment.

The outage rate of 6% is based on the ENTSO-e MAF report, which is in turn based on an analysis of CIGRE HVDC outage statistics that cover several years between 1990-2010. Elia is confident that this data correctly allows representing the characteristics of HVDC interconnections, besides offering the benefit of allowing alignment with European studies.

7. Questions on the process of the volume determination

Comment from stakeholder:

Therefore, FEBEG requests that Elia would also consult on the final result of the study. FEBEG also considers it as valuable suggestion to already consult on some preliminary results, especially regarding the scenario that would be chosen as the 'base case'. Such a first consultation could be organized at the moment Elia releases and consults upon the data-sets it will use (expected in August-September). At least, Elia could check/test with the participants to the Elia Task Force 'Implementation Strategic Reserve' some first results. [FEBEG]

Answer from Elia:

The different sensitivity analysis conducted by Elia take into account the best information available to Elia at the time of the redaction of the report. The decision on the volume of strategic reserve to be contracted is taken by the Minister of Energy.

Elia wants to stress that it always engaged in discussions with the stakeholders on the conducted sensitivities, and included additional analyses upon request of the stakeholders. However, at a certain time, the actual analysis needs to be conducted, which could, last minute include additional sensitivities on which (given the strictly legally defined calendar) cannot be consulted anymore. This is so because the electricity market is constantly changing, for example the nuclear outages that occurred in France for winter 2016-17. Indeed, Elia should be able to change the scenarios to the last information available. A consultation where these are fixed on beforehand would risk outdating the document at time of publication. However, it is possible for the market parties to suggest sensitivities that could be analyzed when replying to the second public consultation on the data to be used, which will be launched in August 2017.

Concerning the request for a consultation on the final result of the study, Elia would like to indicate that it organizes already two public consultations on the volume determination of the strategic reserve. Moreover, in order to increase the transparency of its analysis, Elia publishes its analysis around the beginning of December in agreement with the Minister of Energy, prior to the date prescribed by the law (15/01). For the upcoming analysis, Elia will again request to the Minister of Energy to allow publication prior to the legally prescribed date. Given the high degree of transparency and the various occasions upon which the market parties are actively involved, Elia does not consider a public consultation on the final result.

Comment from stakeholder:

With respect to the applied general process and model by Elia for the adequacy study, Febeliec has no fundamental objections nor comments, but will give some comments on specific elements and inputs [Febeliec]

Answer from Elia:

Elia welcomes the appreciation by Febeliec regarding the general process and model used by Elia.

8. Out of scope

Comment from stakeholder:

With respect to the level-playing field between SGR and SDR, Febeliec regrets to still observe an important distinction (discrimination?) between 100% availability for both types. This criterion for SGR seems to be very much less stringent than it is to SDR, with considerable deratings in the determination of the volumes for SDR as a result in the functioning rules and selection criteria for SDR. This leads according to Febeliec to a more advantageous situation for SGR in the selection procedure and thus goes against the level-playing field. [Febeliec]

Answer from Elia:

The availability of different strategic reserve types has no impact on the volume determination of strategic reserve, for which the methodology is the subject of the current public consultation. As stated in the report for the volume determination for winter 2017-18, volumes in the reports are to be interpreted considering a 100% availability for both SGR and SDR of the reported volumes. Any other remarks should be treated outside the scope of this public consultation.

Comment from stakeholder:

With respect to the flow-based domains, Febeliec welcomes the evolution to the application of more typical days and 24 hourly domains for these days, a comment made by Febeliec during previous sessions (as well as in the discussions at the CWE Consultative Group level). With respect to flow-based, Febeliec wants to reiterate its on-going remarks on the capacity calculation (as much capacity as possible should be given to the market, taken into account all the last and best available data at each point in time) as well as on loopflows (these are reflected in the typical days and corresponding domains, yet it should be a priority to nullify as much and as soon as possible the limiting effects on cross-border commercial capacity of these loopflows and reflect this in the domains to be used for the adequacy assessment). [Febeliec]

Answer from Elia:

The analysis for the determination of the necessary volume of strategic reserve, given its specific purpose, simulates estimated short term market behavior as good as possible. This includes capacity calculation and the inclusion of loop-flows as observed in the flow-based market coupling via the selected typical days and corresponding domains chosen. Any other remarks should be treated outside the scope of this public consultation.