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

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

Contents

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 2019-2020. The consultation period was set from Monday April 23rd to Monday May 21st 2017, 18h00.

Elia received 4 non-confidential answers to the public consultation:

- FEBEG
- FEBELIEC
- CREG
- Dominique Woitrin

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

- Market response
- Flow based modelling
- Data and Assumptions
- Publication of results
- Process of volume determination

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 (TF iSR) of July 9, 2018.

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 27th of August, 2018.

2. General

Generally, most market participants welcome the improvements Elia integrated in the methodology 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 the thank Elia for this consultation on the methodology, hypotheses and data sources for the dimensioning of the volumes of strategic reserve for winter 2019-2020. FEBELIEC has been involved in similar consultations in previous years as well as in workshops and studies on certain aspects related to this consultation and FEBELIEC appreciates that Elia has taken into account some of its comments and adapted its methodology and hypotheses accordingly.

Elia welcomes these remarks.

3. Questions on Market Response

Comment from stakeholder:

FEBELIEC also takes note on the fact that for market (demand) response, Elia will take into consideration new available data from May 2017 to March 2018, but has not yet received an answer to the impact this update of data will have. FEBELIEC in any case wants to point out that despite the fact that the bidladder up until now has not seen an abundance of activity, this should be treated very carefully in the analysis, as this is partially due to economical elements, as many industrials are producing at or near maximum output levels, but also because the Transfer of Energy, which should enable and facilitate market actors to market their flexibility without prior consent from their supplier and his BRP, has not yet been fully implemented. FEBELIEC asks Elia to take into consideration the aforementioned elements when determining the level of demand side response in the next winters, as the near past might not be a completely relevant proxy and an underestimation of the real potential.

Answer from Elia:

Key market stakeholders, one of them being FEBELIEC, engaged last year in a continuous interaction process to design the most adequate methodology to determine the volumes of market response (MR) in Belgium. This methodology is now considered to be widely accepted by stakeholders. As agreed last year, this methodology will be used again, considering new 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, ECube, is currently performing the assessment and their main findings will be presented to the TF iSR on 9th July 2018.

The method is conceived to take into account market response observed to be available in the EPEX day-ahead market. By estimating the historical flexibility in ancillary services, and estimating the share of flexibility in future ancillary services, the method takes into account that that existing flexibility which participated in the ancillary service market might migrate to the energy market, and back (referred to as communicating vessels). This allows to conduct the extrapolation of historical market response to future years, taking into account an extrapolation factor (based on expected sector trends concerning flexibility) which will be determined and presented to the stakeholders during the TF iSR on 9th July 2018 as well as when consulting the input data.

Elia confirms that the method is robust to possible evolutions concerning the volume on Bidladder. Existing flexibility (observed in the day-ahead market or ancillary service market) can be offered in the energy market, before being offered on Bidladder (the capacity is not reserved so it can migrate freely to the energy market when facing elevated prices), thus as such, this part of the potential flexibility on Bidladder is already taken into account.

Furthermore, although new flexibility is not accounted for in the historic observations on the day-ahead market or ancillary services, its potential contribution can still be accounted for, by means of the extrapolation factors used. If eg Bidladder would facilitate new flexibility, its potential contribution will be captured by the extrapolation factor(s) considered.

4. Questions related to Flow Based modelling

Comment from stakeholder:

FEBEG on "selection of typical days"

The selection of SPAIC typical days is calibrated to represent the yearly functioning of the system. As a result this selection is only partially representative for a tight winter situation. Because of the fact that the functioning of the strategic reserve is limited to the winter period, FEBEG is of the opinion that it seems logic to only use the SPAIC of this winter period only.

Answer from Elia:

The analysed timeframe is the winter period as indicated in article 2, 51° of the Law of 29 April 1999 concerning the organisation of the electricity market ('Electricity Act', translated from Dutch):

"Winter period" : period from **November 1 until 31 March**.

Elia therefore builds its model and performs its assessment only for the "Winter period" and thus only considers the *SPAIC typical days* corresponding to the winter period **November 1 until 31 March** in the assessment.

Comment from stakeholder:

FEBEG on "On the split of Germany and Austria"

It is not clear if the split of Germany and Austria is already integrated in the study while this new element - the split is announced for Q3 2018 – will be effective during next winter and will have an impact on the export possibilities of Germany as it will be part of the flow-based algorithm.

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.
Elia is thus following the evolution on the flow-based (FB) operational tool in order to consider this split in the FB market coupling process. Capacity calculation will be designed with separate German and Austrian bidding zones from the very beginning, but this feature will not yet be operational in autumn 2018. The timing for a go-live date is on 1 October, 2018.

Because of the tight schedule above mentioned, Elia won't be able to incorporate this feature in its FB methodology for this years' assessment, since neither historical nor new domains considering such split will be available at the time of the assessment.

Comment from stakeholder:

Febeliec 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:

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 the 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 is expected to lead to enlarged flow-based domains and thus increased importing capabilities.

Regarding the HVDC forced-outages (FO) modelling

- Elia uses this value from ENTSO-E study MAF 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.

- An update of such figure might be considered if better data is found within the ENTSO-E framework.

Comment from stakeholder:

CREG on "netwerk topologie"
In punt 4.2.2. wordt beschreven dat iedere land als één zone wordt beschouwd, waarbinnen er geen congesties optreden. Hoewel deze hypothese voor kleine landen als België als correct kan worden beschouwd, meent de CREG dat deze hypothese niet opgaat voor grote zones zoals bijvoorbeeld Duitsland, waar veel interne congesties tussen het noorden en zuiden voorkomen. Hoe wordt dit opgevangen in het model?

Answer from Elia:

The effect of internal congestions is considered in the FB parameters and modelling performed. Elia will also apply a minimum RAM (MinRAM) of 20% for all Critical Network Elements and Contingencies (CNEC's).

5. Questions on the data and assumptions

Comment from stakeholder:

De CREG stelt vast dat Elia voor de inschatting van de evolutie van het verbruik beroep zal doen op IHS CERA. De CREG meent dat het nuttig is om de voorspellingen die IHS MARKIT in het verleden maakte grafisch te vergelijken met de vastgestelde evoluties voor het verbruik.

De beschrijving (in 5.2.2.1.) van de methodologie gebruikt door IHS MARKIT vermeldt dat "weer correctiefactoren" ("weather correction factors") worden gebruikt om de voorspelling van het elektriciteitsverbruik te bepalen. Verder in de tekst (5.2.2.2.) wordt gesproken van het opstellen van een temperatuursgenormaliseerd verbruiksprofiel. De CREG vraagt ELIA deze werkwijze te verduidelijken en aan te tonen dat hier geen dubbele correctie wordt toegepast.

De tekst (in 5.2.2.1.) vermeldt ook dat IHS MARKIT is gestart met verschillende scenario's te gebruiken om verschillende mogelijke toekomstbeelden te weerspiegelen. De keuze van het te gebruiken scenario zal door ELIA samen met de FOD Economie bepaald worden, na feedback van de stakeholders. De CREG meent dat de diverse verbruiksscenario's, samen met de onderliggende hypotheses, voorgelegd zouden moeten worden aan de stakeholders in de openbare raadpleging van Elia over de gebruikte data voor de volumebepaling.[CREG]

Answer from Elia:

Elia makes sure that no double counting is made between considerations made by IHS MARKIT when using "weather correction factors" and Elia's temperature sensitivity of load.

Elia takes note of this feedback by CREG and other stakeholders. Elia will analyze the different scenarios of demand growth estimates available for this study and upon discussions together with FPS Economy will communicate, during the data consultation, on which scenario(s) is (are) the most relevant in terms of expected evolution of demand for the assessment.

Comment from stakeholder:

In punt 5.2.1.2. worden de gegevensbronnen vermeld voor de geïnstalleerde productie - eenheden waarmee ELIA rekening wenst te houden bij de volumebepaling van de strategische reserve. Alle eenheden met een vermogen hoger dan 0,4 MW dienen door de distributienetbeheerders te worden aangemeld bij ELIA en in praktijk worden ook eenheden met een lager vermogen aangemeld. De CREG ziet in het document van ELIA echter nergens enige vermelding van noodstroomaggregaten. De CREG vraagt om het geïnstalleerde vermogen van de noodstroomaggregaten die kunnen synchroniseren met het net ook te evalueren en apart te vermelden in het rapport. [CREG]

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, which 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 connected to the Elia grid.

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:

Réaction à la consultation Elia sur le dimensionnement de la RS pour l'hiver 2019-2020
(D. Woitrin 16/5/2018)
Comme déjà signalé à plusieurs reprises (dont le 29/8/2017 lors d'une consultation précédente), la pertinence des informations transmises par le producteur/exploitant nucléaire belge est à mettre en doute. La distinction « planned/unplanned » (du site web d'Elia) est totalement faussée et les statistiques qui en sont tirées (figures 14 à 16 du texte) sont incorrectes. La figure 17 annoncée (unplanned availability of longer duration) ne semble pas exister. Celle qui est dans le texte se rapporte à autre chose. Comment des « planned maintenance » peuvent-elles être communiquées le jour même et être considérés comme « planned » ? Ou encore des maintenances « planned » prolongées de plusieurs mois et restées « planned » D'autres cas semblables sont nombreux…
Comme vous le suggérez et l'avez déjà fait, il est bien sur possible de « corriger » par une analyse de sensibilité (long arrêt nucléaire en Belgique et/ou en France) mais cela restera affecté d'une probabilité quasi nulle : pourquoi ?
En résumé, la disponibilité aléatoire et déclinante de notre parc nucléaire n'est pas correctement prise en compte, même si on évite de programmer des révisions en hiver. Il faut reconnaitre que le temps « années 1990- 2010 » de la productivité annuelle maximale de notre parc nucléaire (> 90% -champion du monde) est bien passé. Sur les dernières années, on est descendu à moins de 70 %. Nous avons dans les faits déjà perdu quasi 1200 MW en moyenne annuelle…Alors tabler sur une disponibilité nucléaire « correcte » pour l'hiver, frisant les 100% est totalement irresponsable.
Je crois qu'il faut tenir compte de ce FAIT sans se voiler la face. Heureusement Elia sera prêt avec ses 2 liaisons CC avec l'Angleterre et l'Allemagne. Reste à voir si, quand nous en aurons besoin, ces deux pays (et leurs voisins électriques) pourront nous fournir ce qu'il nous faudrait…
Votre choix méthodologique sur ce point est à justifier et à assumer, principalement les conséquences sur le montant de RS à prévoir.

Answer from Elia:

A specific "low probability-high impact" sensitivity was defined last year, and will also be included in this year's assessment. Its purpose is exactly to cover for (a.o.) the differences between the statistically defined forced outage rates, and the realized availabilities of the nuclear units in BE and FR in the past years.

6. Questions on publication of results

Comment from stakeholder:

De CREG vraagt aan Elia om de LOLE- en ENS-waarden van alle gesimuleerde scenario's te publiceren tot op 1 decimaal (0,1 uur en 0,1 GWh) voor zowel vóór als nà toevoeging van de nodige blokken aan strategische reserve teneinde de bevoorradingszekerheidscriteria te respecteren. Dit zal de transparantie over de grootte van het eventuele bevoorradingszekerheidsprobleem ten goede komen [CREG]

Answer from Elia:

Elia takes note of this comment by the CREG and will publish its results to 1 decimal value accuracy.

Comments from stakeholders:

De CREG vraagt Elia ook om alle resultaten van de bestudeerde scenario's toe te voegen aan haar rapport voor de bepaling van de nodige strategische reserves. In het bijzonder wenst de CREG dat de activatievoorwaarden die in de werkingsregels worden vermeld ook in het volumerapport terug te vinden zijn. Deze vraag werd door de CREG reeds gesteld in het kader van de goedkeuringsbeslissing van de werkingsregels voor de strategische reserve voor de winterperiode 2018-2019.[CREG]

Answer from Elia:

Elia will include a short technical annex with the requested parameters in its report.

7. Questions on the process of the volume determination

Comment from stakeholder:

FEBELIEC wants to reiterate its position towards the methodological approach (point 4.3) of increasing the margin and/or strategic reserve volume by blocks of 100MW in the iterative process for the determination of the potential required volume. For FEBELIEC, a finer granularity than 100MW should be used, as even the lack of 1MW under the current approach would immediately lead to a need of 100MW additionally. Applying a finer granularity would avoid sourcing unneeded volumes. Alternatively, an approach could be implemented where very marginal transgressions of the LOLE criterion do not automatically lead to an increased contracting of strategic reserve volumes, through the application of a deadband, taking into account the multiple layers of sensitivity already applied by Elia in combination with low probability, high impact scenarios, which already skew all the results towards a very conservative approach. For FEBELIEC, it should in any case be avoided to increase the cost for the grid users unnecessarily by following a much too conservative approach [FEBELIEC]

CREG. In punt 4.3. wordt het iteratief proces beschreven waarbij telkens 100 MW extra volume aan het systeem wordt toegevoegd tot de wettelijke criteria inzake bevoorradingszekerheid vervuld zijn. De CREG begrijpt niet waarom ELIA zich verzet tegen het gebruik van stappen kleiner dan 100 MW bij lage benodigde volumes. Een LOLE waarde die slechts in kleine mate de wettelijke criteria overschrijdt, leidt hierdoor onvermijdelijk tot een volume van minstens 100 MW strategische reserve, terwijl de werkelijk nood aan strategische reserve slechts een fractie daarvan kan bedragen. [CREG]

Answer from Elia:

Elia performs a probabilistic assessment to determine the necessary volume of strategic reserve. In this probabilistic analysis, Elia iteratively identifies either a necessary volume of strategic reserve or an expected margin for the system taking into account the adequacy criteria defined in the Belgian law. The iterative process for this analysis is described in section 2 of the adequacy study performed by Elia for the winter 2018-19.

The iterative process proceeds in blocks of 100 MW, and therefore the resolution of the results is thus also on 100 MW blocks. This step size was chosen as small as possible but still ensuring statistically robust results for the determination of the volume of strategic reserve. Especially when searching for the tail of the LOLE distribution for covering the legal P95 criterion, this statistical robustness is a limiting factor. Choosing a smaller step size might lead to a calculation result that differs depending on the random seeding of the model.

Important to note is that this step size is also in line with the resolution used in adequacy studies performed by neighboring countries and at ENTSO-E level.