



Report of the public consultation on the review of the black start ancillary service

ELIA – National Control Center & Market Development

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Table of contents

Introduction	3
1 Feedback on the “Study on the review of the black start ancillary services”	4
1.1 Hypothesis on the future production park	4
1.2 Role of ‘load’ in restoration process	5
1.3 Restoration procedure	7
2 Feedback on “Design note restoration services”	7
2.1 Scope of restoration services limited to black start services	7
2.2 Technical requirements for service delivery: block load	7
2.3 Technical requirements for service delivery: aggregations	8
2.4 Procurement procedure	9
2.5 Contractual period	10
2.6 Remuneration	11
2.7 Testing	13
3 Textual changes	14
4 Planning	14

Introduction

On October 8, 2018, ELIA published for public consultation the report of a review study on the black start ancillary service. ELIA invited stakeholders to provide feedback by November 19th, 2018. This document reports on the feedback that ELIA received from the stakeholders and ELIA's response thereon. ELIA publishes this consultation report on the consultation web page on December 20, 2018, when submitting the documents to the CREG in response to the CREG's request in the framework of the incentive regulation mechanism.

The review study included two parts, for which the consultation feedback will be discussed in this report:

- **Study on the review of the black start ancillary services**

The study analyzed the technical capabilities of production units in Belgium (thermal and intermittent) for black start and houseload operation, the market models used in other European countries to procure the black start service, and the determination of needs for black start services in Belgium in order to achieve the objectives of the restoration plan.

Note that ELIA used confidential information as input in this study, which is not published in the public version of the report.

- **Design note on restoration services**

ELIA currently has a contract for the black start ancillary service, more broadly defined as "restoration service" in the Network Code on Electricity Emergency & Restoration. Based on the above-mentioned analyses ELIA has reviewed the design of the service. The proposal for the new design is published in this design note and will serve as a basis for future versions of the Terms & Conditions to act as a Restoration Service Provider on a contractual basis.

ELIA has received feedback from two stakeholders: **Febeliec and FEBEG**. This feedback is non-confidential and published together with this report.

The next sections provide an overview of the stakeholder comments or questions as well as ELIA's response, including a clarification and/or indicating a modification in the documents. The updated versions of the two consulted documents are also published on the consultation webpage.

1 Feedback on the “Study on the review of the black start ancillary services”

1.1 Hypothesis on the future production park

For the determination of needs for restoration services, ELIA made assumptions on the future production park. **Febeliec** cautions for assumptions of the nuclear phase-out and the replacement by new thermal power plants, and requests more information on the assumptions of the study regarding:

- The number and type of thermal units that would replace the nuclear plants
- Methodology used in the analysis
- Evaluation of the location of sites for the new plants

ELIA response – clarification added in the study report:

The **volume** of 3,6 GW, mentioned on p.39 is based on the study: “Electricity scenarios for Belgium towards 2050. ELIA’s quantified study on the energy transition in 2030 and 2040” published by ELIA in November 2017¹.

In section 4.1.1.1. *Results for 2030 (and back casting to 2025)* of this study is mentioned:

“The adequacy study indicates a need for 5.9 GW of thermal generation capacity to be available in Belgium in 2030 in the ‘Base Case’ scenario. From the total thermal capacity needed in the scenarios, 2.3 GW of thermal generation is assumed to be from existing units built after 2005 (not reaching the 25 years of operation in 2030). The need identified in the ‘Base Case’ scenario can also be extrapolated for the period right after the planned nuclear phase-out (in 2025-2026). This results in a need for at least 3.6 GW of new-built thermal generation capacity that has to be developed in Belgium in order to compensate for the planned steep drop in thermal generation following the expected decommissioning of old gas units and the nuclear phase-out. It is important to mention that the 3.6 GW takes into account the expected contribution of energy efficiency, demand flexibility, storage, the expected growth of intermittent renewable sources and, as set out in the assumptions, all relevant grid investments to 2025. Therefore, the calculated capacity is to be filled by thermal units.”

¹ http://www.elia.be/~media/files/Elia/About-Elia/Studies/20171114_ELIA_4584_AdequacyScenario.pdf

Only a volume of 3,6 GW was mentioned in the study, without associating this value with a specific **number** of thermal power plants.

Regarding the **type** of thermal units, section 6.4 of the same study mentions:

“Although the study mentions mostly gas-fired plants, for which technical and economic data are publicly available, any other thermal generation resource like additional biomass or CHP etc., is possible (in fact, all technologies with controllable output are possible).”

The used assumptions and **methodology** are described in this study.

The **locations** for these new thermal plants were unknown at the moment that the black start review study was carried out. Therefore, ELIA included in its models “fictive power plants” on sites for which studies have been done in the past or on sites where necessary infrastructure (access to fuel, cooling water, ELIA grid, ...) is considered available. There are only a limited number of such adequate sites available in Belgium. ELIA considers that there are not many credible alternatives for the assumed locations. ELIA considers the sensitivity of the chosen locations on the final results of the study as low.

1.2 Role of ‘load’ in restoration process

ELIA has divided the ELIA connection points in six categories of critical loads in order to construct the restoration gradually. **Febeliec** asks:

- Is the list of critical loads publicly available? Will grid users be informed of their designated priority level in case of a blackout?

ELIA response – clarification:

The study report explains the principles of how the load categories are constructed (such as public safety and socio-economic reasons). Not all grid users will be informed of their designated priority level, except those in the highest-priority load categories as their priority level is determined based on the list of high-priority significant grid users with specific needs in the restoration plan. In the context of Regulation (EU) 2017/2196, ELIA will on 18 December 2018 submit this list of high priority significant grid users for approval to the competent authorities, as well as terms and conditions for re-energizing them. As required by Regulation (EU) 2017/2196 this list and the terms and conditions were consulted with the relevant stakeholders only.

As during the execution of the study and at the time of publication of the report there was no approved list of high-priority significant grid users available, ELIA used the list it maintained as part of the restoration plan before the entry into force of the NC E&R. If the approved list in the future would differ from the list assumed by ELIA, ELIA will assess at that time whether a revision of the study is needed and inform relevant parties accordingly.

- Are CDSO-sites with non-black start production units included in category 2 critical loads?

ELIA response – clarification added in the study report:

CDSOs will also be considered as category 2 critical connections insofar they have non-black start units on their sites. With non-black start units, ELIA assumes electricity production units. ELIA highlights the necessity and importance of redundant and blackout proof communication means between ELIA and the CDSOs hosting non-black start electricity production units.

Febeliec asks about the list of identified significant grid users as defined in the European network code on emergency and restoration.

ELIA response – clarification:

Regulation (EU) 2017/2196 imposes that ELIA shall notify by 18 December 2018 the **SGUs identified in the System Defence Plan (SDP) or Restoration Plan (RP)** of the measures and implementation deadlines which are to be implemented on their installations.

Each identified SGU will be informed but the list of individually identified SGUs will remain confidential.

Febeliec asks for clarification on the role of load in the central dispatch model (communication, reconnection, ...).

ELIA response – clarification added in the study report:

In case of blackout state, ELIA will enter in a period of TSO Controlled Dispatch arrangement during which ELIA instructs, in close collaboration with other system operators, consumers and generators (with and without black start services) to follow a certain set point of active and reactive power, injected to or consumed from the grid.

Within ELIA, this situation of TSO Controlled Dispatch is commonly referred to as 'Central Dispatch'. However, in order to avoid confusion with the definition 'central dispatching model' of Regulation 2017/2195, the term 'TSO Controlled Dispatch' is used.

In order to ensure grid stability during the restoration state and for safety reasons, ELIA underlines the importance of good working communication means between ELIA and the SGU, while public telecommunication ways are not operational. For instance, prior to re-energizing the installations of the SGU, it must be possible to exchange instructions or verifications related to the exact timing of re-energization, the status of network elements and active and reactive power volumes acceptable for re-energization.

1.3 Restoration procedure

Regarding the characteristics of the Belgian system to define a restoration approach, Febeliec requests asks to specify what ELIA means with “*Most of the power plants [...] can be reached within 30 to 40 minutes*”.

ELIA response – clarification added in the study report:

In this context “reached” means that an electrical connection between an energized 380 kV substation and a power plant can be restored.

2 Feedback on “Design note restoration services”

2.1 Scope of restoration services limited to black start services

In the study report and the design note ELIA explains why ELIA would only procure black start services for restoration purposes and not services based on capabilities for houseload operation or islanding.

FEBEG supports ELIA’s proposal and shares ELIA’s concerns regarding the possible unavailability of re-energization capabilities based on successful houseload operation or islanding at the time of a blackout. Consequently, FEBEG agrees that houseload operation capabilities are not to be contracted as restoration services and should not affect the needs determination for black start units but ELIA should follow up the evolutions as succeeded houseload operation at the time of a blackout can contribute to system restoration.

ELIA response – clarification added in the study report:

ELIA takes note of the recommendations of FEBEG (in support of the study performed in 2018 and to follow-up the possibilities in the future). ELIA emphasizes that experiences with houseload operation tripping and information thereon received from producers remains an important factor in the determination of how houseload operation capabilities affect the objectives and strategies in the restoration plan.

2.2 Technical requirements for service delivery: block load

FEBEG remarks that the requirement on block load proposed by ELIA is more stringent than the requirements for power generating modules subject to RfG and fears this would be a threshold for future installations to offer black start services.

ELIA response – modification added in the design note:

ELIA agrees that it is not necessary for the main generating site to remain connected to the grid up to 52 Hz. The frequency ranges (47.5-51.5 Hz for a time of operation of 30 minutes or more) of RfG art 13.1 will we used. This will be adapted in the design note.

Notwithstanding RfG art 15.5(a)(vi) requires that a PGM with black start capability should be capable of regulating load connections in block load, without further volume specification, ELIA prefers to specify a minimum block load value of 10 MW for the main black start generator, as requested in the current black start requirements. The restoration plan instructions to the DSOs rely on this capability of black start units.

ELIA can only describe block load requirements for the main generating site as the requirements is only relevant once the start-up of the generator has succeeded. The self-starter site or intermediate generator sites are not required to accept block loads without the generator. It is up to the RSP to assure that the operability or availability of the self-starter or intermediate sites are not affected by the restoration in such a way that a new self-start of the service would not be possible within the 24h-period if needed.

2.3 Technical requirements for service delivery: aggregations

Febeliec and **FEPEG** support ELIA's proposal to open up the black start design to new configurations, including aggregation of the different components of a black start service located on different sites.

However, **FEPEG** has some questions regarding concrete implementation in case ELIA contracts aggregations for a restoration service, especially as aggregations imply the use of a cranking path that is part of the grid of a system operator (ELIA or (C)DSO) :

- Clarification needed on the impact of an unavailability of the grid on the availability assessment of the service (with implications in terms of remuneration and penalty).

ELIA response – clarification:

As stated in section 5.4 of the design note “the RSP will not be held liable for the unavailability of the path [between the self-starter site and the generating site]” being part of a TSO/CDSO/DSO-grid. This means that the contractual availability status of the service will not be put at “unavailable” due to the unavailability of the cranking path only. Therefore, the unavailability of the cranking path alone would have no impact on the settlement of the service.

Section 5.4 also states that the “unavailability of the cranking path will however be taken into consideration in the coordination of outage planning.” In other words, operationally ELIA will regard the service as unavailable and the RSP should monitor the unavailability of the cranking path in order to assure that not more than one service in his portfolio is in planned outage at one point in time.

As explained in section 7.5, ELIA will take the maintenance planning of the different components of a black start service—so including the unavailability of the cranking path—into account when evaluating offers for the service in the procurement phase. An excessive forecasted unavailability of the service due to works in the grid can be a reason not to contract a service.

- What will the requirements be for communication between the different sites belonging to one aggregation?

ELIA response – added in the design note:

NCER article 41 requires that each RSP shall have a voice communication system in place with sufficient equipment redundancy and backup power supply sources to allow the exchange of the information needed for the restoration plan for at least 24 hours, in case of total absence of external electrical energy supply or in case of failure of any individual voice communication system equipment.

The RSP is to assure that the interoperability between the different sites is sufficient to be able to deliver the service at the time of a blackout. On case-by-case basis, ELIA can investigate to facilitate the RSP by allowing relevant entities that are required to deliver the restoration service, to make a connection with the blackout proof Datacom network of ELIA.

- How will the service be tested in case of an aggregation of sites?

ELIA response – clarification added in the design note:

ELIA will plan tests (in coordination with the RSP and other relevant system operators) only on days when the grid sections needed for the test can be made available for such test. The grid topology will be set in order to facilitate the execution of the test.

If the failure of the test can be attributed to a problem relating to the grid of ELIA or of another relevant system operator, the test failure will have no impact on settlement.

2.4 Procurement procedure

FEBEG strongly supports ELIA's proposal to maintain a procurement via a public call for participation and welcomes the introduction of a negotiation phase in between the Restoration Service Provider (RSP) candidacy and the submission of final offers. FEBEG also acclaims the proposal to set more weight on technical quality in the selection of offers for contract award versus a purely price-based approach.

FEBEG expresses concerns on the possibility for the restoration service to be imposed by Royal Decree.

FEBEG asks for clarification on the scope of negotiations in the procurement procedure:

- Do negotiations take place before and/or after submission of offers? (cfr. Figure 10 in the design note)

FEBEG states that "it's ultimately up to the candidate provider to choose with which solution he wants to enter into competition" [i.e., submit an offer].

- Can technical solutions that were discussed but not finally offered by the candidate RSP be imposed by Royal Decree?

FEBEG emphasizes the concerns of generators regarding the potential impact of

Royal Decrees, especially in case regulated remunerations would be paid for large investments (in case of new-to-install capabilities).

ELIA response – clarification added to the design note:

ELIA points out that already today both price and technical requirements are considered in the selection of offers, but the selection is indeed based on quantitative criteria (technical scores are represented as price discount and the final selection is based on a fictive price). ELIA does intend to modify the selection procedure to avoid that insignificant price differences result in the selection of a technically less favorable solution.

The phase before the submission of offers serves to discuss the technical configuration and acceptability of the service(s) that the RSP candidate intends to offer. ELIA invites the RSP candidate to submit offer(s) for specific technical solutions. ELIA does not agree with FEBEG that it is up to the candidate RSP to “choose” which solution to offer. ELIA will demand an argumentation in case a solution, for which ELIA invited the RSP candidate to submit an offer, was finally not offered.

If the received offers are not in line with ELIA’s expectations based on the discussion in the previous phase, ELIA may request clarifications or modifications to be explicitly added in the offer(s). To avoid misunderstandings on the scope of ‘negotiations’ in this phase, ELIA will adapt the formulation in the design note.

ELIA notes the concerns of FEBEG regarding the potential impact of Royal Decrees. The scope of which characteristics of the service can be imposed via Royal Decree is to be specified by the legislation.

Febeliec urges the CREG to closely monitor the procurement procedure, especially technical capabilities of the offered services and requested remuneration.

ELIA response:

ELIA notes the request of Febeliec. In accordance with the Electricity Law and the draft version on the new Federal Grid Code (publicly known at the time of the publication of this report), the CREG is authorized to evaluate if the offered prices are not manifestly unreasonable (see also section 7.3 page 43 in the design note).

2.5 Contractual period

Febeliec and **FEBEG** support ELIA’s proposal for long-term contractual periods and a review of the current duration of 5 years (if feasible in the planning).

Febeliec, however, remarks three points of attention:

- Longer contractual periods may result in lower competition.
- Longer contractual periods may have as consequence that the cost of the service (for ELIA and therefore for society) remains higher than optimal as the contractual

period blocks the participation of new (and potentially cheaper) technical solutions.

- As the contractual period is determined based on discussion with RSP candidates, transparency is needed on how the final contractual period is determined. Febeliec urges the CREG to closely monitor the decision making on the contractual period.

ELIA response:

ELIA agrees with Febeliec that both advantages and the mentioned disadvantages of long contractual periods must be outweighed well. As the outcome of these considerations may depend on the situation and forecasts at the time of a procurement round, ELIA proposed to determine the precise contractual period based on discussion with RSP candidates. ELIA notes Febeliec's request for transparency, however counts on Febeliec's understanding to accept that proposed solutions that determine the contract duration might contain confidential information that cannot be shared publicly. ELIA will explain how the contractual period was determined in the report on the procurement procedure that ELIA sends to CREG and the Federal Public Service.

2.6 Remuneration

Regarding the proposed remuneration scheme **Febeliec** emphasizes that costs for society must be kept reasonable and therefore close monitoring of the CREG is called for. Febeliec does not oppose the remuneration of opportunity costs but points at risks of excessive amounts.

ELIA response – clarification:

In accordance with the Electricity Law and the draft version on the new Federal Grid Code (publicly known at the time of the publication of this report), the CREG is authorized to evaluate if the offered prices are not manifestly unreasonable (see also section 7.3 page 43 in the design note). Consequently, the societal costs of the ancillary service should not be manifestly unreasonable. ELIA points out that opportunity costs can only be charged for restoration services including assets with a minimum required volume of stored energy.

FEBEG regrets that ELIA proposes a cost-plus approach for the black start service rather than a market-based remuneration. FEBEG states that the cost-plus remuneration is not in line with other design elements that pursue a competitive procurement of the service. FEBEG fears that prices included in the offers based on cost-plus principles will result in price imposition via Royal Decree. FEBEG suggests including the CREG and the Federal Public Service Economy in the first phase of the procurement procedure during the discussions on potential services.

ELIA response – clarification:

As explained in section 7.1. of the design note, the technical and operational requirements for the services (and the costs thereof) are too high to consider

obliging all potential production units to install the necessary equipment and set-up operational procedures. However, the market context (with limited potential candidates in one region) does not support a purely market-based approach either. Hence, ELIA proposes a public procurement procedure (serving to identify potential candidates and discuss possible technical solution in a transparent way) with a cost-plus remuneration.

ELIA does not agree that the (attempt for) a competitive procurement should imply market-based pricing. The number of providers and potential sites that could be used for black start is currently too limited to rely on market principles to result in a reasonable price for the service. The exact costs to abide the technical and operational requirements are not equal for all services. Therefore, ELIA believes that a cost-plus remuneration will allow providers to recover the costs of the service and (via a reasonable profit margin) will stimulate market parties to offer (new) restoration services voluntarily. As today, RSP candidates should be able to indicate to CREG how the price included in the offer was determined. If well defined, there is no reason to assume that the use of Royal Decrees is more probable in a cost-plus context.

The first phase of the procurement procedure focuses on the assessment of the technical qualification of proposed services. ELIA does not expect that involving CREG and the Minister at this stage would change the assessment of the CREG on the reasonableness of prices or the probability of Royal Decree. Adding parties in the first discussions would unnecessarily complicate the discussions and render the process less efficient. In a later phase ELIA reports to the CREG and the Federal Public Service Economy on the offers and if CREG requires additional argumentation on the prices in the offers, CREG will contact the RSP candidates.

FEBEG repeats its concerns about the risks of Royal Decrees for the providers, especially in case it concerns the installation of new black start capabilities. The obligation for the black start service would imply that the production site must remain in service. FEBEG requests that in this case the cost for the capital investments are fully reimbursed within a period of maximum two years.

ELIA response:

ELIA notes the concerns of FEBEG. The object of Royal Decrees is subject to the framework set by article 12quinquies of the Electricity law. Other than the contractual period, in accordance to the Electricity Law article 12quinquies currently the prices and the volumes can be imposed via Royal Decree.

2.7 Testing

Febeliec points out that the relevant system operator (RSO) should be included in the organization of prequalification tests.

ELIA response – clarification added to the design note:

ELIA agrees; the coordination with the relevant system operators other than ELIA was unintendedly missing in the design note. ELIA will adapt this in the chapter on Testing (for both the prequalification and the compliance tests).

FEBEG requests ELIA to remunerate the test costs and the opportunity costs during tests for black start services. If not explicitly added, FEBEG assumes that the RSP can include the test costs into the operational costs for the service.

ELIA response – clarification added to the design note:

As the black start service is (hopefully) never activated, ELIA can only use tests to verify that the quality is in line with the contractual obligations. As this quality should be assumed given the fact that there is a contract signed, ELIA (and therefore society) should not have to pay for this reassurance.

As stated in section 9.3 of the design note, the test date is set in agreement with the RSP, who is required to coordinate (directly or via the grid user) with providers of other services using the same assets. Tests are typically organized on dates with minimal opportunity costs.

FEBEG suggests ELIA to stimulate RSP to organize tests at own initiative in addition to the tests imposed in the European network code on emergency and restoration and in the contract. FEBEG believes that more tests (than mandatory) would improve the quality of the service. FEBEG suggests allowing tests at the initiative of the RSP, without penalization or with milder penalization than in case ELIA requests the test.

ELIA response – clarification:

ELIA points out that a test serves to check the quality of the service, not to improve the service by iterative testing. The quality of the service is assumed when an RSP enters into a contract with ELIA.

3 Textual changes

For both documents, **Febeliec** requests ELIA to mention explicitly whether the term “DSO” is also applicable to CDSOs or only to public DSO.

ELIA response – clarifications added to both consulted documents:

ELIA will adjust the documents in response to this request.

Based on continuing talks in the framework of the Restoration Plan between ELIA and **Fluxys Belgium** since the launch of the public consultation of the review study, ELIA has slightly adapted the following formulations in section 5.2.1 with the purpose to clarify and avoid misunderstandings:

- Emphasize that it is also important that the gas supply to gas-fired power plants is considered a priority during system restoration.
- Correct the scope of the study from 2010, which assumed a blackout in North-West Europe and not only in Belgium, and which concluded that the required operational gas pressure could be delivered to gas fired black start plants under specific gas supply assumptions.

4 Planning

Febeliec asks what the difference will be between version 1 and version 2 of the Terms and Conditions to act as Restoration Service Provider (T&C RSP), what the planning is, and whether ELIA or the CREG will organize a consultation.

ELIA response – clarification:

The European network code on emergency and restoration requires ELIA to submit T&C RSP for approval of the regulator by 18 December 2018, if restoration services in Belgium are provided on a contractual basis. As this is the case, ELIA will submit T&C RSP version 1 to the CREG.

ELIA currently has contracts with black start provider until 31/12/2020. The design note subject to the underlying consultation describes the vision of ELIA for the future modification of the design. ELIA preferred to discuss and consult the design proposal with the stakeholders before formalizing the design in a regulated T&C RSP. Therefore, the T&C RSP version 1 will correspond to the current design for the black start ancillary service, submitted for regulatory approval in order to be compliant with the European legislation. Note that this first version of the T&C RSP will only become applicable for any future procurement of the black start service (in case no new

version of the T&C is approved in the meantime)².

T&C RSP version 2 will reflect the new design. In compliance to article 7 of the European network code on emergency and restoration, ELIA will organize a public consultation of not less than one month before submitting T&C RSP version 2 to the CREG. ELIA will organize this consultation at a later stage. More information on the planning will be shared with the stakeholders in due time during meetings of the Working Group System Operation and European Market Design.

² More information on these T&C RSP can also be found in the documents of the Public consultation in the framework of the Network Code on Emergency & Restoration (defense services, restoration service, rules for suspension and restoration of markets): http://www.elia.be/en/about-elia/publications/Public-Consultation/Archives/20181005_NCER-public-consultation