

Elia

Audit on the Transfer of Energy process and systems

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Auditrapport betreffende de implementatie en uitvoering van de regulering voor “transfer of energy” door Elia in het jaar 2022.

Onderwerp van de audit

Deelname van het vraagbeheer aan elektriciteitsbalanceringsmarkten is per koninklijk besluit van 13 juli 2017 verbeterd. In het bijzonder is de regeling voor “Transfer of Energy” (“ToE”) ingevoerd, waarbij een aanbieder van flexibiliteitsdiensten (FSP) activiteiten binnen de evenwichtsperimeter van een derde evenwichtsverantwoordelijke (BRP) kan uitvoeren met bescherming van de commerciële belangen van de FSP en de betrokken BRP.

Elia heeft bij de invoering van de wet de volgende twee taken gekregen:

*Art. 19ter. § 1. De netbeheerder staat in voor **het beheer van de flexibiliteitsgegevens**, wat betreft de valorisatie van de flexibiliteit van de vraag die een energieoverdracht met zich meebrengt, zoals bedoeld in artikel 19bis.*

Hiertoe is hij in het bijzonder belast met de volgende taken, met inachtneming van de bepalingen van het technisch reglement:

1° de informatie nodig voor de berekening van het flexibiliteitsvolume van de vraag met een energieoverdracht, met inachtneming van de vertrouwelijkheid ervan, verzamelen, berekenen, verwerken en overmaken;

2° de markt regelmatig opvolgen en *monitoren* en *de Commissie op de hoogte brengen* van elke eventuele aanwijzing van manipulatie die een invloed heeft op de bepaling van de geactiveerde vraagflexibiliteitsvolumes met een energieoverdracht.

Opinie van de auditor

IBM heeft als onafhankelijke partij de opdracht uitgevoerd om de implementatie van de regulering bij Elia te toetsen tegen de wettelijke vereisten. Daarbij is in het bijzonder gekeken naar de belangen van betrokken derden (leveranciers, FSPs en evenwichtsverantwoordelijken) die op de correcte uitvoering van het proces moeten kunnen vertrouwen. Tenslotte is in het belang van Elia gekeken of de uitvoering doelmatig gebeurt. IBM heeft de uitvoering in de periode 2021 geëvalueerd.

Rapport d'audit sur l'implémentation et l'exécution par Elia de la réglementation du « transfert d'énergie » pour l'année 2022.

Object du rapport d'audit

La participation des gestionnaires de la gestion de la demande dans les marchés d'équilibrage de l'électricité a été améliorée par l'arrêté royal du 13 juillet 2017. En particulier, le régime "Transfert d'énergie" ("ToE") a été introduit, selon lequel l'opérateur de services de flexibilité (FSP) peut exercer des activités dans le périmètre d'équilibrage d'un tiers responsable de l'équilibre (BRP), tout en protégeant les intérêts commerciaux du FSP et du BRP concerné.

Elia s'est vu confier les deux tâches suivantes lors de l'entrée en vigueur de la loi :

*Art. 19ter. § 1er. Le gestionnaire du réseau est chargé de la **gestion des données de flexibilité** pour ce qui concerne la valorisation de la flexibilité de la demande entraînant un transfert d'énergie visé à l'article 19bis.*

A cet effet, il est notamment chargé des tâches suivantes, dans le respect des dispositions du règlement technique :

1° collecter, vérifier, traiter et transmettre les informations nécessaires au calcul du volume de flexibilité de la demande impliquant un transfert d'énergie, tout en assurant leur confidentialité;

2° assurer un suivi et un *monitoring régulier* du marché, et *informer la Commission* de tout indice éventuel de manipulation influençant la détermination des volumes activés de flexibilité de la demande impliquant un transfert d'énergie.

Avis de l'auditeur

IBM, en tant que partie indépendante, a effectué l'évaluation de la mise en œuvre du règlement par Elia vis-à-vis des exigences légales. Une attention particulière a été accordée aux intérêts des tiers concernés (fournisseurs, FSP et responsables d'équilibre), qui doivent se fier à la bonne exécution du processus. Enfin, dans l'intérêt d'Elia, l'efficacité du déroulement des procédures a été vérifiée. IBM a évalué l'exécution pour la période 2021.

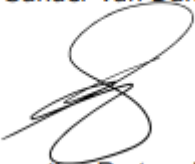
<p>IBM heeft op geen enkele wijze zelf een belang in Elia en is niet direct of indirect betrokken in de financiële transacties waaraan de processen van transfer of energy ten grondslag liggen en heeft ook anderszins geen belang bij de uitkomst van deze audit.</p> <p>IBM heeft vastgesteld dat Elia haar systemen en processen heeft ingericht in overeenstemming met de functionele en technische vereisten van de regelgeving, te weten:</p> <ul style="list-style-type: none"> - Beslissing (B)1677, (B)1677/2 en (B)1677/3 uitgevaardigd door CREG van respectievelijk 15 maart 2018, 27 maart 2020 en 15 oktober 2020. - Regels voor de organisatie van de Energieoverdracht. Inwerkingtreding op 23 april 2020 en bijgewerkt op 1 juli 2021, opgesteld door Elia en goedgekeurd door CREG <p>Onze evaluatie heeft betrekking op de naleving van de voorgeschreven procesvereisten en de mate waarin Elia als organisatie controle heeft over de correcte en doelmatige uitvoering van de processen. Onze evaluatie vormde geen analyse van de opvolging van de wet in juridische zin.</p> <p>Het voorliggende rapport is een volledig verslag van de audit, de bevindingen en aanbevelingen.</p>	<p>IBM n'a pas de participation propre dans Elia et n'est pas directement ou indirectement impliquée dans les transactions financières sous-jacentes au régime « Transfert d'énergie » et n'a aucun autre intérêt dans le résultat de cet audit.</p> <p>IBM a déterminé qu'Elia a mis en place ses systèmes et processus conformément aux exigences fonctionnelles et techniques de la réglementation, à savoir :</p> <ul style="list-style-type: none"> - Décision (B)1677, (B)1677/2 et (B)1677/3 du 15 mars 2018, 27 mars 2020 et 15 octobre 2020 respectivement, rendue par la CREG - Règles pour l'organisation du transfert d'énergie. Entrée en vigueur le 23 avril 2020 et mis-à-jour le 1 juillet 2021, établi par Elia et approuvé par la CREG. <p>Notre évaluation porte sur le respect des exigences de processus prescrites et cherche à savoir si Elia, en tant qu'organisation, a le contrôle de la mise en œuvre correcte et efficace des processus. Notre évaluation n'est pas une analyse juridique du respect de la loi.</p> <p>Le présent document est un rapport complet reprenant l'audit, les constatations et les recommandations.</p>
<p>Sander van Dam</p>  <p>Executive Partner IBM</p>	

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1. Management Summary

The need for distributed flexibility to become an integral part of dispatch optimization is felt throughout Europe. Hence Belgium has formalized rules for distributed demand response to participate in the wholesale market.

Like several other countries in Europe, Belgian market rules allow for aggregators as independent balance responsible parties to aggregate flexibility from within the balance perimeter of suppliers. This prompts for the need to transfer volumes between the energy balances of balance responsible parties (BRPs), which is now regulated in the electricity law and codes. Elia plays a key role in the organization, calculation, and settlement of flexibility as the 'Flexibility Data Manager' and is entrusted with the role to settle the energy balances with aggregators and suppliers, whilst protecting the confidentiality of the aggregator's portfolio.

The confidentiality requirement means that Elia must calculate volumes to be transferred between balances while suppliers cannot see the underlying data. It is therefore essential that suppliers can trust the implementation at Elia of these processes.

IBM has, on the request of Elia and CREG, conducted an independent assessment of Elia's implementation of the process of Transfer of Energy, with the objective to establish:

- *whether Elia has faithfully implemented the requirements that the regulation poses on Elia;*
- *whether the implementation is such that Elia is on control of the quality of the execution of these processes;*
- *whether the implementation of the processes is effective;*
- *whether key risks have been mitigated where appropriate.*

This audit covers the ToE activities during 2022. Based on the 2022 audit, we conclude that Elia has implemented the regulation and the controls derived from these in their systems and processes. Due to a large number of manual process steps, the auditors did notice some timing issues and some data inconsistencies in the tools in support of these steps. However, none of these had an impact on the ToE calculation and ToE information exchanges, or other negative impact on the main processes. In some instances, additional monitoring, logging and or controls are needed to detect and manage exceptions, or to trace back manual interventions/actions.

With regards to the use of information technology, we think that a more efficient design is possible in which the administration of Transfer of Energy is kept separate from the existing backend systems for Elia's system operations.

The current document provides an account of the audit, lists the major findings and recommendations. The standard used in support of the audit is the standard developed in the previous audit, updated for changes in the regulation and rules during 2022.

The standard is fully documented in this report and can be used as the basis for future audits of Elia's implementation of Transfer of Energy.

2. Audit objective

2.1 Background

The Transfer of Energy was introduced by the Law of 13 July 2017, amending the federal Electricity Law of 29 April 1999, to improve the participation of demand side flexibility.

Transfer of Energy (ToE) implies the activation of demand side flexibility involving a Supplier and Flexibility Service Provider (FSP) having a distinct BRP and/or an FSP distinct of the Supplier.

In this system, the System Operator is entrusted the mission of the flexibility data management with a series of tasks to be fulfilled and that are specified in Art.19ter of the Electricity Law. The CREG has been entrusted the role of controlling the exercise of this mission as specified in Art.23 § 1er. 13° of the Electricity Law.

In the European Community, several schemes have been implemented to handle the use of flexibility.¹ In Belgium, the transfer of energy (ToE) mechanism in place allows independent aggregators to provide services without an agreement with the BRP/Supplier. Hence, the rules allow aggregators as independent Balancing Service Provider to aggregate flexibility from within the perimeter of Suppliers. This prompts for the need to transfer volumes between the energy balances of balance responsible parties (BRPs), which is now regulated in the electricity law and codes. Elia acts as the 'Flexibility Data Manager', a key role in the organization, calculation and settlement of flexibility. This role is entrusted to settle the energy balances with aggregators and suppliers, whilst protecting the confidentiality of the aggregator's portfolio.

Elia's role is delicate, because:

- Elia determines the impact of aggregators on the balance of the balance responsible party (BRP) but cannot provide the underlying details for reasons of confidentiality. This means that trust rather than verification is the basis for acceptance of these numbers by balance responsible parties;
- Elia itself is acting as single buyer of the same volumes of flexibility that it determines. Transparency is needed to demonstrate the impartiality of the calculations and their settlement;

Although markets for aggregated flexibility exist now for a couple of years, they remain rather recent developments and are still evolving, for instance by extending flexibility to other energy products. There is no standard set of rules, nor are there long-standing practices that can be applied. This means rules and practices as foreseen need to be evaluated thoroughly to ensure the market works efficiently and properly.

While Elia takes into account a growth in the volume of market response in their adequacy studies², the volume handled via ToE has decreased over the last years, while the number of mFRR activations remained steady.

¹ USEF White Paper: Flexibility Deployment in Europe – March 2021

² Elia | Adequacy & flexibility study 2024-2034

2.2 Objective of the mission

A specific condition for the task of Flexibility Data Management is that the client portfolio of the FSP, who has invested in acquiring clients and setting up the conditions for demand response activations, remains confidential, i.e., is not shared with Suppliers. Parties will have to rely on volumes provided by the Flexibility Data Manager to execute financial settlement on their transfer of energy without further detailed information regarding volumes per delivery point and without the possibility to validate those data.

The control of the mission of the flexibility data management activity is **to independently verify that Transfer of Energy volumes can be trusted**, since aggregated³ volumes are to be transmitted by the flexibility data manager to different parties (BSPs, BRPs and Suppliers) due to confidentiality reasons.

The tasks for the fulfilment of flexibility data management activities related to Transfer of Energy are described in the art. 19ter of the Electricity Law and the external audit mission should control that these tasks are fulfilled:

- Assessment of the fulfilment of the Flexibility Data Manager role, described in the Law of 13 July 2017 as :
«*collecter, vérifier, traiter et transmettre les informations nécessaires au calcul du volume de flexibilité de la demande impliquant un transfert d'énergie, tout en assurant leur confidentialité* ».
«*de informatie nodig voor de berekening van het flexibilitetsvolume van de vraag met een energieoverdracht, met inachtneming van de betrouwbaarheid ervan, verzamelen, berekenen, verwerken en overmaken* ».
- Assessment of the fulfilment of the Market Supervision Task described in the Law of 13 July 2017 as :
«*de markt regelmatig opvolgen en monitoren en de Commissie op de hoogte brengen van elke eventuele aanwijzing van manipulatie die een invloed heeft op de bepaling van de geactiveerde vraagflexibilitetsvolumes met een energieoverdracht.*»
«*assurer un suivi et un monitoring régulier du marché, ainsi qu'informer la Commission de tout indice éventuel de manipulation influençant la détermination des volumes activés de flexibilité de la demande impliquant un transfert d'énergie.* »

The scope of the audit for the execution of transfer of energy in 2022 comprises all markets to which the Transfer of Energy is of application on 31 December 2022, which are:

- The marketsegment covering frequency restoration with manual activation (mFRR) using deliverypoints DP_{PG};
- The marketsegment covering the delivery of flexibility services using deliverypoints DP_{PG} in support of the day-ahead/intraday energy exchanges.
- The marketsegment covering the strategic reserve delivered by SDR-Units (see also 3.2 Identify)

The audit covers the tasks as stipulated in the Electricity Law:

1) **Assessment of the fulfilment of the Flexibility Data Manager role**

To guarantee the trust of parties in the Transfer of Energy volumes, the external audit's objective is to provide reasonable assurance of good design of the process and assessment of effective application in practice of the task of validation of ToE Volumes, as well as the compliance with applicable law and regulations. In particular, the assessment by the audit consisted of the following tasks:

1. Evaluate existence of procedures and their concordance with the legal and regulated framework;
2. Evaluate the good execution and effectiveness of these procedures;
3. Check the existence of adequate internal controls in the process to mitigate the settlement operational risks;
4. Check existence of corrective measures to assure the effectiveness of the settlement operations;

³ Since pass-through contracts are no longer regarded as Transfer of Energy, suppliers receive only aggregated volumes for delivery points participating in ToE

5. Check the existence of data validation procedures of input data;
6. Evaluate the reliability of reporting (internal, towards parties, towards CREG), and confidentiality of the TDSO Datahub tool;
7. Verify the correctness of the aggregated ToE Volumes transmitted to parties (FSPs, BRPs and Suppliers) by calculating the ToE volumes by delivery point for random selected activations.

2) **Assessment of the fulfillment of the Market Supervision Task**

To ensure the fulfillment of the task of gaming monitoring of flexibility activated volumes, Elia executes the following controls:

- **Baseline methodology check**: for some of the products on which ToE is applicable, FSP has the possibility to choose between several baseline methodologies. When there is a choice among several Baseline methodologies, Elia should verify the appropriate use of the chosen baseline methodology. Elia has the right, in a motivated way, to refuse the methodology of the Baseline chosen by the FSP. It shall notify in this case its decision to the CREG. ⁴
- **High prices vs offered volume check**: In periods of high prices, there is likelihood that grid users' offtake is artificially increased during the hours/days of a potential activation in order to artificially increase his baseline and therefore the calculated delivered volume in case he is activated. The baseline design aims at mitigating that risk, but Elia will still verify in case of activation if there is an abnormal increase of the offered volume and/or the baseline.
- **Submetering check**: When flexibility is delivered via delivery points which use submetering to calculate the flexibility delivered, there is a risk this flexibility is in fact offset by another submetered delivery point is the installation. Elia should verify that in these cases where Elia is activation flexibility via submetered delivery points, a noticeable impact can be measured on the access point with the grid.

In order to guarantee the trust of parties in the Transfer of Energy volumes, the external audit's objective was to provide reasonable assurance of good design of the process and assessment of effective application in practice of the task of gaming monitoring of flexibility activated volumes. In particular, the assessment by the audit consisted of the following tasks:

- Evaluate existence of procedures and their concordance with the legal and regulated framework;
- Evaluate the good execution and effectiveness of these procedures;
- Evaluate the reliability of reporting towards CREG;

Whereas the audit's objective was to check the completeness and correctness of procedures in concordance with the prescriptions in law and regulation, the assessment cannot be viewed as a legal opinion regarding compliance with applicable law. The assessment applied interpretations of the governing law and regulations texts based on knowledge of the business processes rather than evaluating their precise meaning in the Belgian legal framework. The latter would be the competence of lawyers.

⁴ Note that Elia has performed a detailed study to assess and re-evaluate the baseline methodologies in place for different products, including mFRR. In this study, Elia recommended not to impose a "baseline prequalification" for selecting the Last Qh or the High X of Y baseline methodology for mFRR. This because i) both Last Qh and High X of Y are evaluated to perform well in terms of accuracy; and ii) the possibilities for manipulating these baselines are highly limited.

3. Methodology

3.1 Audit process overview

Since no standard process exists for the implementation of Transfer of Energy, no industry standard checklist is available to verify if Elia has implemented the Transfer of Energy in concordance with the requirements set out in law and regulation. However, a standard checklist has been defined during previous audits. This standard checklist must evolve with the introduction of new regulations.

The 2022 audit uses the standard used in previous years audit, since no changes to the regulation came into force during 2022.

This audit report documents the standard as well as the results of our assessment of the extent to which Elia complies with it.

The methodology used in the audit is illustrated in the diagram below:

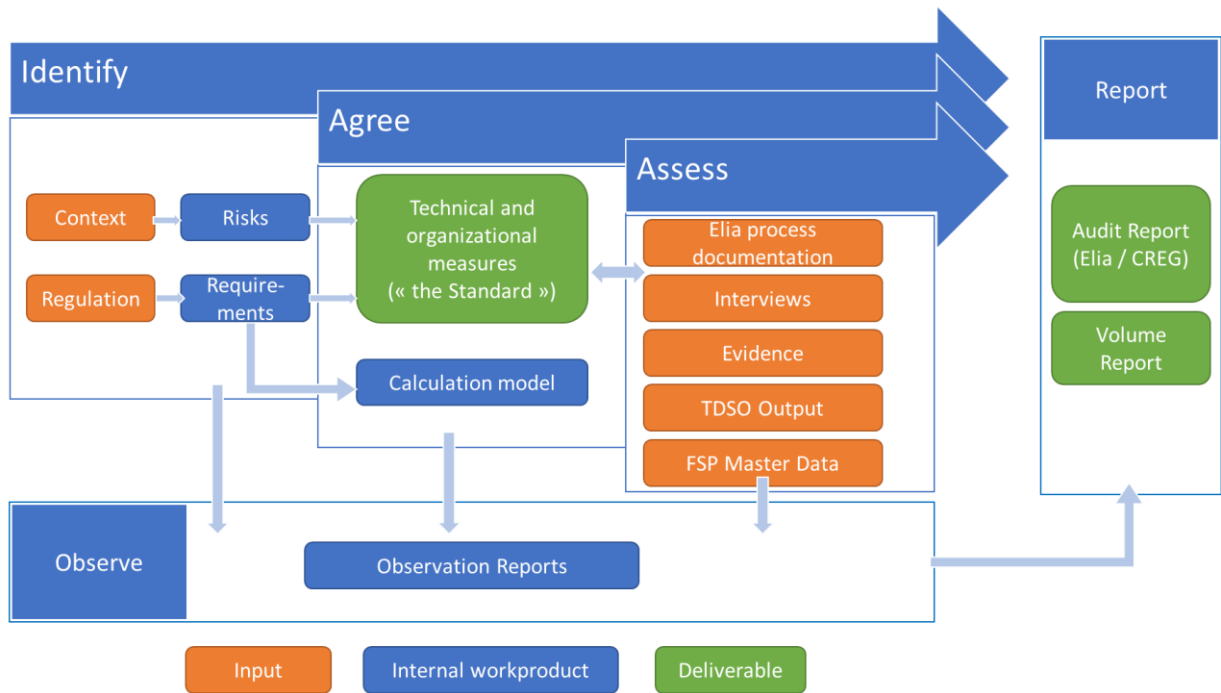


Figure 1: Audit process overview

For sake of clarity and completeness we describe below the different parts of audit process.

3.2 Identify

In this activity, the team has identified the regulatory requirements for Elia's implementation of the Transfer of Energy. The sources to derive these requirements from are:

- [B1677/3], Beslissing (B)1677/3 26 November 2020, published by CREG
- [R-TOE], Regels voor de organisatie van de Energieoverdracht. Inwerkingtreding op 01/07/2021, published by Elia and approved by CREG
- [BSP-C] Contract voor de aanbieders van balanceringsdiensten voor de mFRR-Dienst (Manuele Frequentieherstelreserve), version of 03/02/2020
- [FSP-DA/ID-C] Contract for the provision of flexibility services in the Day Ahead and Intraday Market, version V01/2020

From these documents, we have extracted 57 requirements on the implementation of Transfer of Energy by Elia, requirements that have a direct source in the text of the regulation.

Furthermore, the team identified risks that follow from the general context of the process. These risks can be reasoned to exist but were not explicitly listed in the regulation. The purpose of this exercise was to see if such risks were effectively mitigated by Elia.

As in 2021 the ToE market is open to SDR Units.

However, as for 2021, a study on capacity adequacy for the winter 2021-2022 led to the federal government ordering 0 MW of strategic capacity. Hence, the market was not activated, and the auditors have decided to not investigate the implementation of the rules linked to this market.

Supporting documents:

- [AS_SDR-1], The need for a strategic reserve for winter 2020-21 and winter outlook for 2021-22 and 2022-23
- [AS_SDR-2], The need for a strategic reserve for winter 2021-22 and winter outlook for 2022-23 and 2023-24
- [MB-1], 13 JANUARI 2021. - Ministerieel besluit houdende instructie aan de netbeheerder om een strategische reserve aan te leggen vanaf 1 november 2021

3.3 Agree

The next step was to identify for each requirement which controls would be needed for Elia make sure the requirements was implemented effectively. The team considered five types of potential controls:

1. **Identify:** Elia has defined a procedure that implements the regulatory requirement
2. **Mitigate:** Elia has taken measures to prevent that the procedure fails to be executed or is executed Improperly
3. **Detect:** Elia has taken measures to detect that a procedure fails to execute, is executed improperly, or has an unexpected outcome
4. **Respond:** Elia has defined who is to respond and how this is done
5. **Recover:** Elia has identified how to recover if a procedure was not executed correctly

The audit has limited the analysis to controls that are specific for the transfer of energy process, the so called 'business process controls' as shown in the diagram below:

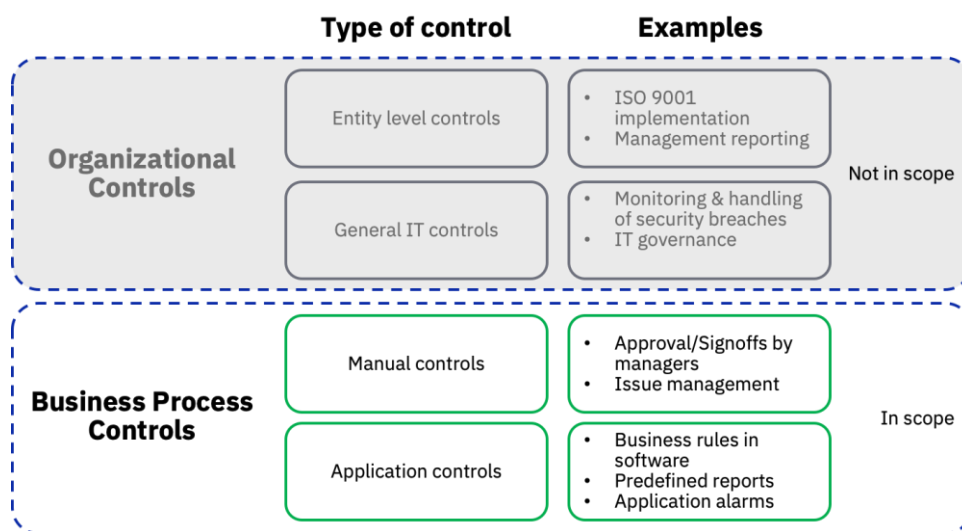


Figure 2: Control types

Any relevant control that Elia needs for the management of its IT and business processes was assumed to be covered by internal quality management and assessed in more generic audits. The controls that audit team considered in scope were business process control. We have not taken a position whether such a control should be a technical measure, an automated application control, or an organizational control which is manual by nature, i.e., executed by an employee.

Any control we defined in the standard is called a technical and/or organizational measure (TOM).

The audit team has identified the audit standard as the set of requirements and their associated expected technical and/or organizational measures (TOMs). In total we have identified 275 TOMs in the standard.

The standard has been reviewed by Elia. In this review, it remained the purview of the auditors to establish whether a control should be in place for a certain requirement, but it was Elia's competence to check that the interpretation of the regulation and the used terminology was correct.

3.4 Assess

The audit team has assessed compliance with the standard in the following manner:

- a. For every technical and/or organizational measure, we verified the existence by checking Elia's documentation (see Annex 2: Referenced documentation for the list):
 - We assessed whether the measure was technical by nature (an application control) or organizational (a manual control);
 - Any TOM we could positively identify was recorded with a reference to the source;
- b. We send out one questionnaire (RFI list) and conducted one interview with the team in Elia responsible for the execution of the ToE process to discuss and assess TOMs that are organizational by nature. We assessed:
 - whether a real implementation of expected organizational measures existed;
 - how the process is governed;
 - whether there is proof of the actual execution of manual controls.
- c. By means of a so called RFI list, we requested additional information on TOM's not fully covered in point a. The list contains 75 items. After assessing the received feedback, the assessment was complete in the sense that we had a positive or a negative confirmation for the TOM.
- d. For the purpose of verifying the validity of the ToE calculations, the audit team set up an independent calculation model. Using the data of actual activations, we ran our model to compare the output.

3.5 Observe

During any of the above steps, the audit team logged any observation concerning unclarity in the requirements, lack of compliance with the standard or perceived inefficiency of the implementation of the process. In short, any observation that was deemed relevant in the light of the objectives set out in paragraph 2.2.

These observations were validated during a progress meeting between the IBM audit team and the Elia team that is responsible for Transfer of Energy. The remaining relevant observations after discussion and review are included in this audit report.

3.6 Report

The audit team presents its findings in this Audit report which is intended as an internal report for Elia and that can be shared with the CREG in its role of supervisor of the Flexibility Data Manager (pursuant to art.23 § 1er. 13° of the Electricity Law). The report documents the standard for the Transfer of Energy audit, so that it can be reused for future audits. A general overview of the standard is provided in chapter 4. The detailed set of technical and/or organizational measures (TOM's) is provided in 7 Annex 1: ToE Standard

This report includes a separate chapter on the results of the evaluation of the implementation of the audit 2020 recommendations (as requested by the CREG).

Note that although some of the findings of both parts of the report might seem contradictory, this stems from the different viewpoint taken in the reports. While the audit on 2022 evaluates how the ToE processes were actually conducted in 2022, the evaluation of the implementation of the recommendations also takes into account planned actions.

4. The ToE Standard

4.1 ToE Standard structure and Process Areas

The standard developed during the previous audits has been reused since no amendments were needed due to changes in the regulation or other regulated documents. The standard is based on the regulations mentioned in chapter 8 Annex 2: Referenced documentation, i.e., valid for the period under audit for the 2022 audit. We have extracted requirements from the baseline in 8 process areas:

- A. **Conditions for participation - FSP:** the area related to all steps involved in the contracting process for FSPs that want to participate in Transfer of Energy;
- B. **Conditions for participation - Delivery Point:** the area related to the validation of the FSP portfolio used for providing mFRR, DA/ID services or SDR using delivery points DP_{PG};
- C. **Data Management:** the area related to all process steps involved in the administration of the FSP portfolio and the meter data related to activations that involve Transfer of Energy;
- D. **Activation Handling:** the area that covers all processes related to bid activations which involve a Transfer of Energy;
- E. **ToE Calculation:** the process area that relates to the calculation of volumes that will be settled between FSPs and Suppliers;
- F. **Information exchange:** the area that covers all activities related to the exchange of information between DSOs, Elia, FSPs, BRP's and Suppliers;
- G. **Volume Allocation:** the process area that covers the calculations of impact on the balance of Balance Responsible Parties of FSPs, the BRP_{Source} as well as Suppliers involved in Transfer of Energy. This concerns both the correction of balances as well as the allocation of imbalance caused by an activation;
- H. **Market Supervision:** the area that covers any activity by Elia to monitor the market with regards to market manipulation.

It follows from the nature of Transfer of Energy and Elia's role in it, that these process areas will remain the key process areas implied in future versions of the regulation concerning Transfer of Energy.

Within each area, we have documented the key requirements relevant for the audit and give the short identifier indicating the process area as well. So, the first requirement in process area A has shorthand A-1, etc. We provide a summary of the requirement in English with a precise reference to the source text in the regulation baseline of 2022.

For each requirement, we have identified technical and/or organizational measures that we expect as a control on the process prescribed in the requirement. This so-called ToE Standard, consisting of the list of ToE Requirements and the detailed set of technical and/or organizational measures (TOM's) is to be found in 7 Annex 1: ToE Standard

The audit itself will then evaluate for each identified technical and/or organizational measure whether it is executed as well as measure its effectiveness.

5.3 Assessment details

5.3.1 Conditions for participation - FSP

We found all expected TOM's implemented. Since FSP qualification is largely a manual process, the execution of this process depends largely on the availability and quality of the process documentation and the execution according to the work instructions.

The procedure is well documented. Roles in Elia are clearly defined and allocated to the employees. We noticed that the actions taken in 2021 to automate for instance the follow-up on the bankguarantee calculation have improved the timeliness of the process.

However, due to the fact that the processes are manual, repetitive (monthly frequency), albeit supported by some automation, we have noticed following shortcomings:

A-2.2	Elia executes processes timely to avoid build-up of the FSP's total amount. (Every month, before the 5th day of the month)	At least on one occasion, the calculations were not carried out. In some other instances, the process was not carried out in time.
A-2.3	Elia checks that the calculated 4 months total amount is realistic (not implausible) and checks the amount against the existing bank warranty	We identified that under certain conditions, the application used to verify the bankguarantee was not populated with the correct data, and hence miscalculated the bankguarantee.

Elia has taken prompt measures to correct the situation, when made aware of the issues. The impact of the use of wrong input data was limited. This all leads to observation 4 on manual processes.

We noticed that the logging of the execution time of time critical steps in the process is basic, and no logging records are stored of the version of the spreadsheet used in support of this process. However, the Auditors qualify the current level of logging as adequate.

This leads to following **observation 3** on logging.

5.3.2 Conditions for participation - Delivery Point

In this area all expected TOM's have been implemented within Elia. We noticed a combination of application and manual controls, which seems appropriate for now.

For the delivery points on the distribution network, Elia has decided to delegate the good execution of the TOM's to the distribution grid companies. The quality of execution is assumed to be adequate and as it is assumed that distribution grid companies have defined internal controls on the activities, they execute in this process area. We, however, do not consider that Elia is sufficiently in control, leading to **observation 1** documented in paragraph 6.1. This reservation relates specifically to the following controls:

B-1.1	Elia can detect whether valid agreement between Supplier and FSP on the transfer price is in place.	Elia do not detect whether e.g. supplier or customer switches have been processed correctly by DGOs. No change to the data at the beginning of the month may mean there was nothing to be changed or might mean that a change has not been processed. There is no periodical control flow to determine what is the case.
B-6.1	Elia can identify for all delivery points whether there was a positive annual net off-take in the previous calendar year	Although e-mails are exchanged, Elia cannot positively detect whether DGOs have assessed the net off-take condition. No change to the data may mean there was nothing to be changed or a change has not been processed. There is no control flow to determine what is the case.
B-4b.1	Elia can detect whether a valid opt-out arrangement between FSP, Supplier, BRPfsp and BRPsource is in place.	Elia do not detect whether supplier switches have been processed correctly by DGOs. No change to the data at the beginning of the month may mean there was nothing to be changed or a change has not been processed. There is no periodical control flow to determine what is the case.

For DP's used for flexibility services and which are submetered, Elia has installed a process to verify whether an effect on the energy exchange of the accesspoint can be measured.

Since the option to use DA/ID for flexibility was not activated by the FSP's, the Auditors were not able to verify the practical implementation of all procedures related to this type of service.

5.3.3 Data Management

In the domain of Data Management, the Auditors found the expected controls to be implemented

As Elia has delegated the data management activities for delivery points on the medium voltage level to the distribution grid companies, we did not find sufficient controls that enable Elia to monitor the distribution grid's company activities in the data management process area. This relates to **observation 1** documented in paragraph 6.1 that Elia is not sufficiently in control over delegated tasks.

More specifically, this applies in the following cases:

C-1.1	Elia does not allow unauthorized access to master and meter data	Fluvius is the operator of the TDSO Datahub and there is no specific control to supervise access control by Elia. By design, access is limited to user types. In the case of DSO resources, the provision of this access to individuals is not supervised by Elia but delegated based on trust. However, Elia does have oversight on the accesses granted to their own personnel.
C-2.1	Elia has access to the appropriate sources for delivery points and is kept informed about changes to them	Elia has no means to verify that changes to data such as updates to delivery points on medium voltage level and corrections to the meter data are submitted to Elia. Also, updates to the FSP portfolio is based on a manual comparison between the updates done by the DSO and Elia's own records. This could lead to 2 versions of the truth. Elia will implement automated integration of TDSO Datahub contractual data into Elia's contractual database in the near future.

5.3.4 Activation Handling

In the domain of Activation Handling appropriate controls in place for all cases.

As mentioned for other areas, the follow-up of non-compliant activations and the subsequent possible penalization, is a highly manual process, which may lead to errors, inaccurate reporting, delays in reporting and accordingly to a possible subjective attribution of penalties.

Apart from the fact that this is a manual process, as mentioned above, the Auditors decided to not issue an observation on this part of the process, since Elia reported 479 non-compliant activations, for which no penalties were issued.

Also, Elia will propose amendments to the penalization scheme to evolve towards financial penalties in case of non-complaint activations and to automate the application of these penalties.

Since the option to use DA/ID for flexibility was not activated by the FSP's, the Auditors were not able to verify the practical implementation of all procedures related to this type of service in this domain.

5.3.5 ToE Calculation

In the process area of ToE calculation handling, the audit team established that there were appropriate controls in place. This is supported by the independent calculation control carried out by the Auditors (see 5.4 Validation of calculated ToE volumes).

5.3.6 Information exchange

In the domain of the information exchange, the audit team found controls for all TOM's.

Since the option to use DA/ID for flexibility was not activated by the FSP's, the Auditors were not able to verify the practical implementation of all procedures related to this type of service.

5.3.7 Volume allocation

The audit team found that all expected controls were implemented for the Volume Allocation domain.

5.3.8 Market supervision

The expected controls in this domain have been implemented.

The current product design could potentially be gamed by FSPs and/or grid users, via following gaming opportunities for which Elia will implement systematic controls:

- 1) In cases where the submeter is the only source for determining activation volumes, grid users and/or FSPs could abuse the system by modulating the consumption measured on the submeter without effectively reducing load. This could be done by bypassing the meter or shifting load to another facility within the user's control. Elia specifies in the contracts for FSP's and BSP's that submetered flexibility Delivery Points should have a measurable impact on the headpoint. Also, Elia has implemented a systematic control to check that the sub-metered activation volume corresponds to an actual reduction on the head point.
- 2) FSPs may predict load curves of loads under their control. They could include delivery points in their bids that they know will reduce load based on their profile. This would lead to 'freeriding'.
Based on a study carried out by Elia on the use of the two allowed baseline methods, Last Qh and High X of Y, Elia concluded that the latter might be more prone to manipulations than the former. But the risks remain limited. Nevertheless, Elia has implemented monitoring of the baseline for DP's using the High X of Y baseline, in periods where these DP's are part of a mFRR bid but not activated.

5.4 Validation of calculated ToE volumes

The correctness of the implemented calculation of ToE volumes is within the scope of this audit.

The objective of the validation by the Auditor is to perform the calculation of the ToE volumes by following the procedure, datasets, file formats and requirements for the calculation as described in the functional documentation of the TSO-DSO Flex Data Hub. The outcome of this calculation should be equivalent to the results provided to the TSO-DSO Flex Data Hub. It is out of the scope of this audit to verify whether the imbalance is properly corrected for the ARPSource and allocated to the ARPFsp in the cases where ToE is applicable. The validation of the settlement between the FSP and BRP as well as the availability of any opt-out agreements are also out of the scope of this audit.

5.4.1 Bid selection

In 2022, we counted a total 158 activations which contained delivery points eligible for ToE. The selection criteria used to select the 10% of activations to be reviewed were following:

- Activation periods evenly spread over the year;
- Type of Delivery Point:
 - Direction: Off-take, Combined;
 - distribution grid DP, transmission grid DP;
 - with or without submetering
- FSP

In total 18 activations were verified, which represent around 20% of the ToE volume.

These bids therefore allow validation of all the calculation alternatives described in the business requirements of the TSO-DSO Flex Data Hub.

5.4.2 Approach

All the data used for the validation are the real data provided to the TSO-DSO Data Hub, not predetermined or tailored test data sets. An overview of the systems involved in the ToE volume calculation is provided by Elia and is shown in Figure 2.

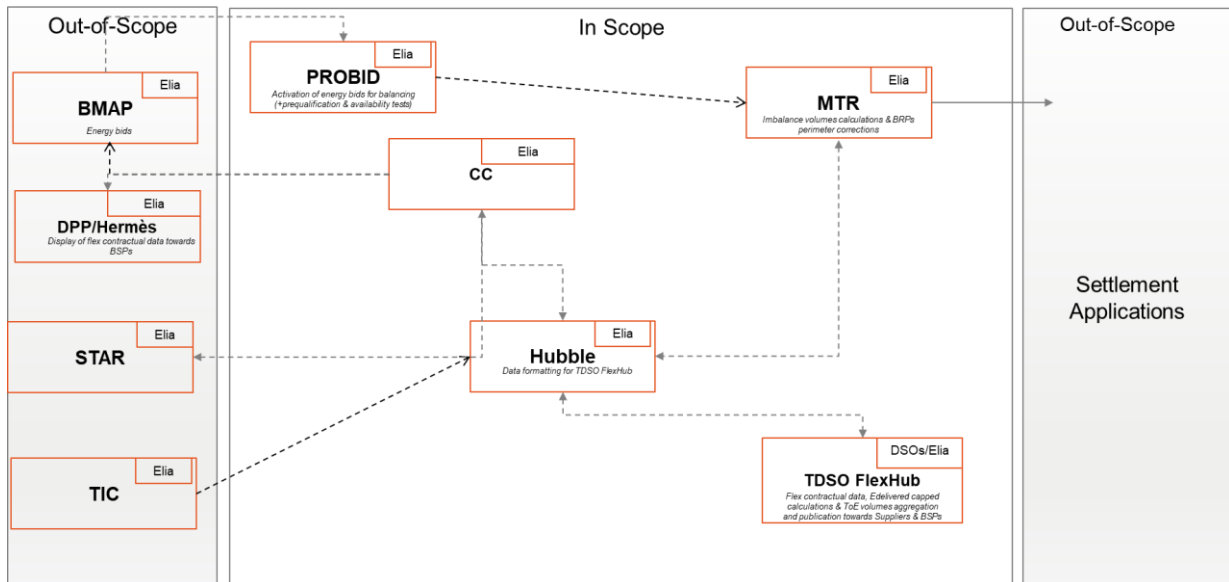


Figure 2: Overview of systems and information used for the ToE volume calculation.

The required input data to calculate the ToE volumes and the calculation procedure are described in the functional documentation of the TSO-DSO Flex Data Hub. The starting point is the bid activation message from PROBID sent by Elia, containing several bids with their reference IDs and the EAN codes that are to be activated by the FSP. These EANs should be known by Elia as flexibility providing EANs and are activated according to the flexibility bid by the FSP. Each of the EAN codes from the bid must therefore appear in the list of Headpoints, the list of SDP Flex, and the list of SDP Supply as described in paragraphs 8.2 - 8.4 of the functional documentation, respectively. In addition to verifying whether these EANs are registered as required, the metering data for each of these EANs is to be provided in the format described in paragraph 9.1 of the functional documentation. The latter also applies for the EANs where submetering is applicable, so that the baselines can be correctly considered.

The calculation to be performed is described in the business requirements of the TSO-DSO Flex Data Hub. The activated bids used for this validation are only for 'off-take', which means all the Headpoint EANs in the activation are either classified with the direction 'combined' or 'off-take'. The calculation procedure is described for each of these direction classifications in paragraphs 2.1.1 and 2.1.3 of the business requirements, respectively.

For each Headpoint EAN for each 15' interval within the duration of the activation the measurement and baseline are determined based on the provided metering volumes. All the bids had as baseline 'Last QH'. When submetered Headpoints are used for the delivery of the flexibility, the baseline, and measurements of the original Headpoint are used as well.

The first step consists in calculating the E_Delta (=difference between baseline and metering/measurements). This E_Delta is capped to the DP mFRR max up & DP mFRR max down values which leaves us with an E_Delta_Capped (aka E_Delivered). E_Delivered which is split by direction (Injection & Offtake).

E_Delivered per direction is used for the BRPs perimeter corrections and for the aggregation of ToE Volumes per couple FSP-Supplier.

To validate each of the steps of the calculation the results from the imbalance volume calculation engine are required as final input for the validation.

In summary, this means the follow input data are used to perform and validate the calculation of ToE volumes:

1. Bid details
2. Headpoints (as described in 8.2)
3. SDP Flex (as described in 8.3)
4. SDP Supply (as described in 8.4)
5. Metering volumes (as described in 9.1)
6. The ToE volumes provided to the TSO-DSO Flex Data Hub for validation

All the above-mentioned input data is provided as a .csv file except the activation, which is in .xml. The data is imported in an excel model specifically built for this audit that executes each of the calculation steps exactly as described in the business requirements and as implemented in MTR, the Elia imbalance volume calculation Engine. This allows for validation of each separate step of the calculation for the Headpoints that are in the Elia domain instead of only the final ToE volumes. For the Headpoints outside the Elia control area only the final ToE volume is verified.

5.4.3 Observations and results

The process to execute the calculation as described in the previous section. With the right identifiers determined from input datasets TSO-DSO Flex Data Hub the calculation is readily executed and validated in the model. The results of each of the identified validation steps is shown in Table 1 below.

Table 1: Overview of validation results.

#	Action	Result
1	Determine if EANs in scope of the activated bid are in the Headpoint list	Validated
2	Determine if EANs in scope are found in the SDP Flex Point list	Validated
3	Determine if EANs in scope are found in the SDP Supply list	Validated
4	Determine if meter data is provided for all the EANs in scope	Validated
5	Determine whether all EANs in scope with meter data available have the same baseline and measurements	Validated
6	Determine whether all EANs in scope with meter data available have the same calculation results for E_Delta, E_Delta_Capped, and E_delivered, E_delivered' as described in the T-DSO Metering & ToE Volume Data	Validated

As observed in previous audits, the process to execute the calculation as described in the previous section is relatively straightforward, yet it is complicated unnecessarily by the use of different identifiers (EANs) across the various data sets. These different identifiers are similar but not identical between data sets while often referring to the same. For example, the SDP Flex file has EAN (SDP Flex) and EAN-Headpoint, SDP Supply uses Supply-Point EAN and Installation-EAN, the Metering Data uses Flex Point Identifiers, and the overview of calculation steps from MTR uses internal and external DP EAN. Streamlining the use of terminology throughout the entire ToE volume process will make it more accessible for the various market parties involved.

5.5 Efficiency of the ToE processes

While evaluating the existence of appropriate controls, the audit team also considered whether the implementation was effective. The judgement of the team is that that is overall the case, but under the condition that Transfer of Energy volumes are low. We have the following observations regarding effectiveness:

- 1) There are quite many manual business controls, supported by varying degrees of automation (observation 4, see paragraph 6.3). Because the number of activations where Transfer of Energy applies is still rather low, the current level of automation is probably cost efficient, but is prone to errors, difficult to consistently execute on time and will likely be too costly with the rise of the number of activations.
- 2) The data for ToE processing is replicated in many systems, whereas a simpler implementation with less replication of data and functionalities might be less costly and less prone to errors (**observation 2**, see paragraph 6.2). Also implementing changes in the ToE regulation into a more dedicated system could be less complex and decrease the lead-time for implementation.
- 3) It must be noted that, as specified in Observation 2, the auditors nevertheless expect a need to further streamline the market design (rules and contracts) and related processes in order to support the delivery of flexibility by a large number of small-scale DPs. This will most likely also require changes to the supporting applications.

6. Observations and recommendations

6.1 (1) Insufficient control over activities executed by Distribution Grid Operators

Expectation

Elia is accountable and responsible by law and regulation. Elia has implemented the appropriate controls to be in control of the process.

Observation

For the process areas Delivery Point Qualification and Data Management processes, for MV level connection points, Elia relies on the actions of DSOs. Although a contractual framework exists, detailing the terms and conditions for the operation of the Flexhub, as well as the responsibility and liability of each of the parties, this framework stresses more a reactive approach towards the ToE activities than a proactive “in control” approach. The contract specifies the responsibility and liability of each partner in case something was proven wrong with the ToE processes, rather than providing Elia with the process and application controls to supervise the activity.

Risk

Elia cannot fully manage compliance by the DSOs with Elia's obligations.

Recommendation

Clarify and specify the roles, responsibilities and competences assigned to the different system operators in the ToE process, and implement the controls corresponding to these roles, responsibilities, and competences. Assure that process monitoring for ToE extends to all roles and parties involved in this process.

6.2 (2) Processing of ToE within Elia back-end systems is more complex than strictly needed

Expectation

Elia chooses an efficient design that minimizes data replication and minimizes impact on its existing system operations, while allowing for frequent changes to the ToE logic, based on changing market requirements.

Observation

Elia replicates all detail data about the FSP portfolio into its back-end systems and has implemented most application level controls in existing legacy systems.

In some cases, identical calculations are carried out in separate systems. While this can be a way to exercise control, maintenance cost is increased.

Risk

It is difficult to track data quality. It is hard to make corrections in a controlled manner. When regulation changes, there is complex change management involved in programming these changes into the systems. This solution would not scale easily beyond a small set of industrial sites for demand response.

Recommendation

It is possible, in the auditors view, to simplify the ToE processes, and therefore come to more efficient implementations. Simplifying processes make these more predictable, easier to maintain, easier to adapt, and make it easier to handle many transactions.

Simpler processes could potentially mean that these ToE processes could be ran more independently from Elia's back-end systems and could streamline the integration with Elia's applications.

By offloading timeconsuming and timesensitive processes to a separate part of the system (e.g. communication with the BRP, control of the activations, ...), applications used by the ToE processes, like activation control, do not need to implement specific ToE requirements.

The Auditors understand that this approach might require changes to the current rules and contracts.

6.3 (3) High number of manual controls make the process error prone and labor intensive

Expectation

Business rules that are applied repetitively and/or in automated processing are implemented as application controls rather manual controls. This allows for consistency, efficiency and avoids arbitrariness.

Regular and frequent controls and monitoring actions are organized in such a way that they can be performed whenever required by the process.

Logging of the version of the data used as input, the version of these data and the version of the supporting applications (e.g. excel files) together with the time of execution of the manual controls performed makes it possible to trace back the correctness of the control execution.

Observation

We found 161 organizational and 177 technical controls. Of those organizational controls, many could easily be automated: application controls are business rules that are automatically and rigorously applied whenever their conditions occur and always be executed independent of the volume to be processed and the workload other tasks demand from the same resource. In execution they are cheap and reliable compared to manual controls, but designing, developing, and testing comes with a relevant cost.

For some of the controls, Elia has implemented some level of automation, which has increased the quality. However, also these controls rely on a "human trigger" to be executed. As the Auditors observed, the consistent timely execution of all controls cannot always be guaranteed.

Also, the different and specific tools provided to users in support of the controls, the lack of "control tower view" on the data used in these tools makes it hard to spot discrepancies in the datasets used across these tools.

For some of the controls, only basic logging is stored, which makes it difficult to assess the effectiveness of the control at the time of execution.

Risk

Although the supporttools implemented will help to address some of the scalability issues, the consistent timely execution is difficult to guarantee. In combination with a fragmented use of data, discrepancies might not be spotted, and the outcome of the control misinterpreted.

Without detailed logging, it might not always be possible to verify ex-post the correct execution of a control.

Recommendation.

Plan the automation of controls. Monitor the operations on a continuous basis.

Where humans are in charge of activating the controls, use monitoring tools and alerting mechanism to assure that the process is carried out.

Store more detailed logging info to support ex-post verification of the control execution.

Assure that supporting tools draw their data from the same version of the data and datasets. Build a control tower view of the entire process.

7. Annex 1: ToE Standard

7.1 Process Area A: Conditions for Participation - FSP

The following requirements apply to this process area:

Req #	Requirement	Source document	Reference
A-1	Valid bank warranty is condition for ToE participation	[B1677-3]	Chapter 7 Section IV, art. 17
A-2	Elia keeps track of the FSP's total amount* for periodical re-evaluation of the minimum required bank warranty	[B1677-3]	Chapter 7 Section IV, art. 17
A-3	A valid contract for each delivered flexibility service is in place between Elia and the FSP	[R-ToE]	Chapter 7 § 7.1
A-4	A valid BRP contract is in place between Elia and the FSP, or the FSP is associated with a BRPFSP having a valid contract.	[R-ToE]	Chapter 7 § 7.1

For these requirements, the following technical and/or organizational requirements are expected:

Req #	Requirement	TOM	Technical/Organisational Measure
A-1	Valid bank warranty is condition for ToE participation	A-1.1	Elia sets precondition of a bank warranty for ToE participation by FSP
		A-1.2	FSP is blocked from bidding and ToE participation unless bank warranty has been approved
		A-1.3	Elia checks validity of bank warranty
		A-1.4	Elia has a process to block access to the market where ToE applies if bank warranty is no longer valid
		A-1.5	Elia can open up access to market where ToE applies after new bank warranty was provided and approved
A-2	Elia keeps track of the FSP's total amount* for periodical re-evaluation of the minimum required bank warranty	A-2.1	Elia has allocated the responsibility to calculate the FSP total amount over a period of 4 months
		A-2.2	Elia executes processes timely to avoid build-up of the FSP's total amount. (Every month, before the 5th day of the month)
		A-2.3	Elia checks that the calculated 4 months total amount is realistic (not implausible) and checks the amount against the existing bank warranty

		A-2.4	Access to future mFRR capacity auctions are blocked if the total amounts at risk surpass the bank warranty.
		A-2.5	Elia demands a new bank warranty if the previous is no longer valid, because its validity period has expired, and or the total amount is no longer in line with the warranty amount.
A-3	A valid contract for each delivered flexibility service is in place between Elia and the FSP	A-3.1	Elia can verify the validity of contracts for flexibility services between the FSP and Elia.
		A-3.2	Elia will not consider bids from FSP's not having a valid contract for the service they are bidding for.
		A-3.3	Elia can verify the existence of a valid contract between the FSP and Elia for each service the FSP is providing.
		A-3.4	Elia will block the participation of a FSP in flexibility and capacity auctions if the FSP no longer possess a valid contract.
		A-3.5	Elia can take the necessary actions to compensate for the impact of the ToE calculations as a result of activations made by FSP's which were no longer in possession of a valid contract.
A-4	A valid BRP contract is in place between Elia and the FSP, or the FSP is associated with a BRP _{FSP} having a valid contract.	A-4.1	Elia can verify the validity of the BRP contract between the FSP and Elia or between the BRP _{FSP} and Elia
		A-4.2	Elia will not consider bids from FSP's not having a valid BRP or BRPFSP contract
		A-4.3	Elia can verify the existence of a valid BRP contract between the FSP and Elia.
		A-4.4	Elia will block the participation of a FSP in flexibility and capacity auctions if the FSP no longer possess a valid BRP contract.
		A-4.5	Elia can take the necessary actions to compensate for the impact of the ToE calculations resulting from activations made while no valid BRP or BRP _{FSP} contract between the FSP and Elia was in place.

7.2 Process Area B: Conditions for Participation - DP

The following requirements apply to this process area:

B-1	Either a mutual agreement between FSP and Supplier or a decision by the CREG to apply the standard transfer price is a precondition for participation of delivery point in flex market	[B1677-3]	Chapter 1, point 11
B-2	Elia may exclude a delivery point from the FSP portfolio if it is unclear if the delivery point is covered by a pass-through contract, due to conflicting notifications by the involved parties.	[R-ToE]	point 15.3
B-3	Elia will exclude a delivery point from the FSP portfolio if the delivery point is on the distribution network and a copy of the FSP-DNB contract has not been provided.	[R-ToE]	point 7.1, bullet 6
B-4	Transfer of Energy is always executed if the flexibility is activated in the relevant markets under the responsibility of an BRP that is different from the Supplier's BRP and/or FSP and supplier are not the same party, unless these parties have explicitly opted out of the ToE process. ToE is neither executed if a pass-through contract is in place.	[R-ToE]	point 8.1 & 8.2
B-5	The FSP has provided the FSP-End User declaration for all delivery points DP _{PG} to be used for Transfer of Energy	[R-ToE]	point 7.1 bullet 4
B-6	The FSP has communicated for all delivery points DP _{PG} used for a flexibility service the max. up/down power that can be used for each service.	[R-ToE]	point 7.1 bullet 4
B-7	Elia determines annually in February whether there is a positive net offtake for all delivery points where ToE applies	[R-ToE]	point 7.4
B-8	Elia enforces that net offtake conditions apply for the annual period in which a delivery point may be eligible for ToE.	[R-ToE]	point 7.4
B-9	If the delivery point used for the flexibility service is a so-called submetering DP, a FSP statement exists which stipulates that the activation of the service on the submeter DP has an overall effect on the net offtake/net injection of the accespoint to which it is connected.	[BSP T&C mFRR 2020] & [FSP T&C DA/ID] & [R-ToE]	[BSP T&C mFRR 2020] Art.II.3.4 & [FSP T&C DA/ID] Art. II.2.4 & [R-ToE] point 7.1, bullet 6
B-10	Elia has the possibility to refuse the Baseline methodology chosen by the FSP for the Delivery Points DP _{PG} in the mFRR market segment. This refusal needs to be motivated. Elia will inform the commission.	[R-ToE]	point 10.2.1

B-12	The baseline for Delivery Points DP _{PG} in the mFRR market segment is either based on the last quarter hour prior to activation baseline method or the High X of Y' baseline.	[R-ToE]	point 10.2.1
B-13	The baseline for Delivery Points DP _{PG} in the DA/ID market segment is the High X of Y*' baseline.	[R-ToE]	point 10.2.3
B-14	FSP can request to use an adapted X out of Y* baseline for Delivery Points DP _{PG} DA/ID.	[R-ToE]	point 10.2.3
B-15	Elia verifies that a DP participating in both balancing and DA/DI services adhere to the additional requirements defined for this type of DP's.	[R-ToE]	point 9

For these requirements, the following technical and/or organizational requirements are expected:

B-1	Either a mutual agreement between FSP and Supplier or a decision by the CREG to apply the standard transfer price is a precondition for participation of delivery point in flex market	B-1.1	Elia can detect whether valid agreement between Supplier and FSP or a CREG decision on the transfer price is in place.
		B-1.2	Elia can prevent an activation from occurring if it is known that there is no valid agreement between Supplier and FSP on the transfer price.
		B-1.3	Elia checks periodically the validity of the agreement between Supplier and FSP on the transfer price for activations of flex at delivery points
		B-1.4	Elia blocks activations if there is no valid agreement between Supplier and FSP on the transfer price and handles the activation as an incident* to prevent future occurrence
		B-1.5	Elia can correct activations that occurred while no valid agreement between Supplier and FSP on the transfer price was in place
B-2	Elia may exclude a delivery point from the FSP portfolio if it is unclear if the delivery point is covered by a pass-through contract, due to conflicting notifications by the involved parties.	B-2.1	Elia has specified a process to identify the existence of pass-through contracts, as well as the delivery points covered by these contracts. Elia has allocated the responsibility for this process within the organization.
		B-2.2	Elia checks against known passthrough contracts provided by Suppliers prior to setting the FSP portfolio up for markets where ToE applies
		B-2.3	Elia is kept up to date by Suppliers regarding passthrough agreements and checks against the FSP portfolios
		B-2.4	FSP is notified if a delivery point with an uncertain passthrough contract is detected
		B-2.5	Delivery point is blocked from ToE participation

B-3	Elia will exclude a delivery point from the FSP portfolio if the delivery point is on the distribution network and a copy of the FSP-DNB contract has not been provided.	B-3.1	Elia can identify delivery points on the distribution network
		B-3.2	Elia checks against available FSP-DNB contract prior to setting the FSP portfolio up for markets where ToE applies.
		B-3.3	Elia has specified a process to exclude delivery points on the distribution network from ToE participation if a copy of the FSP-DNB contract has not been provided and has allocated the responsibility for this process within the organization.
		B-3.4	FSP is notified if a delivery point with a missing FSP-DNB contract is detected
		B-3.5	Delivery point is blocked from ToE participation
B-4	Transfer of Energy is always executed if the flexibility is activated in the relevant markets under the responsibility of an BRP that is different from the Supplier's BRP and/or FSP and supplier are not the same party, unless these parties have explicitly opted out of the ToE process. ToE is neither executed if a pass-through contract is in place.	B-4.1	Elia can detect whether a valid opt-out arrangement between FSP, Supplier, BRPfsp and BRPsource is in place, or pass-through contract between Grid User and Supplier
		B-4.2	Elia will apply the ToE regime for every DP part of an activation, if it is known that there is no valid opt-out or pass-through arrangement.
		B-4.3	Elia checks periodically the validity of opt-out or pass-through arrangements for delivery points in flex markets where ToE applies
		B-4.4	Elia will apply the ToE regime for every DP part of an activation, if it is known that there is no valid opt-out or pass-through arrangement.
		B-4.5	Elia will apply the ToE regime for every DP part of an activation, if it is known that there is no valid opt-out or pass-through arrangement.
B-5	The FSP has provided the FSP-End User declaration for all delivery points DP _{PG} to be used for Transfer of Energy	B-5.1	Elia can detect whether a FSP-End User declaration is in place for every DP _{PG} used for flexibility response.
		B-5.2	Elia can prevent an activation from occurring if it is known that no valid FSP-End User declaration is in place.
		B-5.3	Elia checks periodically validity FSP-End User declarations for delivery points in flex markets where ToE applies
		B-5.4	Elia blocks activations if there is no valid FSP-End User declaration in place and handles any activation as an incident to prevent future occurrence.
		B-5.5	Elia can correct activations that occurred while no valid FSP-End User declaration is in place
B-6	The FSP has communicated for all delivery points DP _{PG} used for a flexibility service the max. up/down	B-6.1	Elia can verify that for each flexibility services for which a delivery points DP _{PG} has been registered, the max. power up/down has been stored.

	power that can be used for each service.	B-6.2	Elia assures that the FSP will inform them about the max. power up/down for each of the services for which the FSP registers the delivery points DP _{PG} .
		B-6.3	Elia can detect that the max. power up/down to be applied for an activated Delivery Point DP _{PG} has not been provided
		B-6.4	Elia will report DP _{PG} without DP _{max_up/down} specified.
		B-6.5	DP _{PG} without DP _{max_up/down} specified are assumed to have a DP _{max_up/down} of zero.
B-7	Elia determines annually in February whether there is a positive net offtake for all delivery points where ToE applies	B-7.1	Elia can identify for all delivery points whether there was a positive annual net offtake in the previous calendar year
		B-7.2	Elia can prevent an activation from occurring for a delivery point where ToE applies, as of the moment this delivery point no longer qualifies due to not having a positive offtake over the past year.
		B-7.3	Elia can detect if activations have taken place for delivery points that do not comply with the condition of positive annual net offtake
		B-7.4	Elia has a defined process to deal with delivery points in the FSP portfolio that do not comply with the condition of positive annual net offtake
		B-7.5	Elia can correct activations that occurred while the condition of annual positive net offtake was not met.
B-8	Elia enforces that net offtake conditions apply for the annual period in which a delivery point may be eligible for ToE.	B-8.1	FSP may not activate a delivery point in its portfolio that does not comply anymore with the condition of positive annual net offtake
		B-8.2	Elia can block the handling activations for delivery points in the FSPs portfolio that do not comply with the condition of positive annual net offtake by setting a condition in the IT-systems.
		B-8.3	Elia can identify cases where activations were executed on delivery points that do not comply with the condition of positive annual net offtake
		B-8.4	Elia notifies FSP about the invalid activation due to the non-compliance with the condition of positive annual net offtake
		B-8.5	Invalid activation due to the non-compliance with the condition of positive annual net offtake is corrected in the ToE calculation

B-9	If the delivery point used for the flexibility service is a so-called submetering DP, a FSP statement exists which stipulates that the activation of the service on the submeter DP has an overall effect on the net offtake/net injection of the access point to which it is connected.	B-9.1	Elia registers all DP's used for flexibility services which are of the type submeter DP
		B-9.2	Elia will assure that as part of the FSP contract the FSP declares that in case of submetering DP's used for flexibility, the activation has a visible impact on the access point level.
		B-9.3	Elia can detect the impact of the activation of flexibility on submetering DP level on the access point level.
		B-9.4	Elia will disqualify a submeter DP if no clarification can be provided for the limited impact of the activation on submeter DP level on the access point level.
B-10	Elia has the possibility to refuse the Baseline methodology chosen by the FSP for the Delivery Points DP _{PG} in the mFRR market segment. This refusal needs to be motivated. Elia will inform the commission.	B-10.1	Elia has defined criteria that can be used to verify the fairness of the baseline choice selected for delivery points DP _{PG}
		B-10.2	Elia has a defined process to allow for the change of baseline method and has communicated the criteria used to verify the fairness of a baseline methodology selection for a delivery point DP _{PG} .
		B-10.3	Elia verifies the selected baseline method at every change of the master data for a delivery point. When the entered baseline method cannot be accepted, the relevant responsible is warned, and the delivery point is excluded from ToE
		B-10.4	When the baseline method selected for a delivery point is not fair and is refused, Elia will contact the FSP to inform him/her of this refusal and ultimately inform the CREG.
		B-10.5	Elia can correct activations that occurred while the delivery point used a not agreed upon baseline
B-12	The baseline for Delivery Points DP _{PG} in the mFRR market segment is either based on the last quarter hour prior to activation baseline method or the High X of Y' baseline.	B-12.1	Elia has implemented a policy to limit the choice by delivery point to either the High X of Y' baseline or the last quarter hour baseline for Delivery Points DP _{PG} in the mFRR market segment.
		B-12.2	Elia enforces the rule that either the High X of Y' baseline or the last quarter hour baseline is applied for Delivery Points DP _{PG} in the mFRR market segment.
		B-12.3	Elia tests its system for compliance with the rule that either the High X of Y' baseline or the last quarter hour baseline is used for Delivery Points DP _{PG} in the mFRR market segment.
		B-12.4	Elia will exclude a Delivery Point DP _{PG} in the mFRR market segment from the calculation ToE Volumes, if the baseline specified is not Last Qh or High X of Y.

		B-12.5	Elia can restart the process to recover from missing or disputable volumes.
B-13	The baseline for Delivery Points DP _{PG} in the DA/ID market segment is the High X of Y*' baseline.	B-13.1	Elia has implemented a policy to limit the choice by delivery point to the High X of Y*' baseline for Delivery Points DP _{PG} in the DA/ID market segment.
		B-13.2	Elia enforces the rule that the High X of Y*' baseline is applied for Delivery Points DP _{PG} in the DA/ID market segment.
		B-13.3	Elia tests its system for compliance with the rule that the High X of Y*' baseline is used for Delivery Points DP _{PG} in the DA/ID market segment.
		B-13.4	Elia will exclude a Delivery Point DP _{PG} in the DA/ID market segment from the calculation ToE Volumes, if the baseline specified is not High X of Y*.
		B-13.5	Elia can restart the process to recover from missing or disputable volumes if a wrong baseline has been used to calculate Edelivered.
B-14	FSP can request to use an adapted X out of Y* baseline for Delivery Points DP _{PG} DA/ID.	B-14.1	Elia has allocated the responsibility to handle requests for adapted baselines;
		B-14.2	Elia will use the X out of Y* baseline for all Delivery Points DA/ID unless an adapted baseline has been agreed upon based on the acceptance criteria
		B-14.3	Elia can identify if an adapted baseline X out of Y* for Delivery Points used in DA/ID is more accurate than the default one, if requested so by a motivated demand by the FSP.
		B-14.4	Elia will honour the request to use the adapted X out of Y* baseline if all acceptance criteria are met.
		B-14.5	Elia will honour the request if not all acceptance criteria are met to use the adapted X out of Y* baseline, Elia will continue to use the default one, and inform the FSP and the CREG about Elia's decision.
B-15	Elia verifies that a DP participating in both balancing and DA/DI services adhere to the additional requirements defined for this type of DP's.	B-15.1	Elia can identify Delivery Point DP that participate both in balancing and DA/ID services
		B-15.2	Elia will assure that a DP participating in balancing and flexibility services is not of the type SDR and assures that they operate under the same regime.
		B-15.3	Elia can detect that DP's participating in balancing and flexibility services is not adhering to the additional requirements
		B-15.4	Elia will exclude DP's participating in both balancing and flexibility services from participating if they do no longer adhere to the additional requirements

		B-15.5	Elia can restart the process to recover from missing or disputable volumes if a DP participating in balancing and flexibility services was not adhering to the additional requirements in particular period.
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*The term « incident » is used here in line with the definition in ITIL. It means “any event that is a deviation of the expected standard processing by a system.” Elia is expected to follow up on such events in a structured manner.

7.3 Process Area C: Data Management

The following requirements were applied to this process area:

Req #	Requirement	Source document	Reference
C-1	Elia treats FSP and Supplier portfolios as confidential information	[B1677-3] & [R-ToE]	[B-1677-3]:2.2.1 & [R-ToE]:16.1
C-2	Elia maintains a concordance list of all delivery points with BRPsource, Supplier, FSP, BRPfsp and end consumer including master data and the maximum power per flexibility service , based on the access contract of the delivery point.	[R-ToE]	point 7.4
C-3	Operators of closed distribution systems provide Elia with information about contracts relevant for the transfer of energy process	[R-ToE]	point 7.5
C-4	Data from submeters can be used in the ToE calculation. (the regulations stipulate no requirements with regard to completeness and correctness of the meter data, and hence this needs to be guaranteed by the ToE calculation)	[R-ToE]	point 10.3
C-5	Elia keeps the FSP portfolio and activation data confidential by communicating only on aggregated level	[R-ToE]	point 15.1

For these requirements, the following technical and/or organizational requirements are expected:

Req #	Requirement	TOM	Technical/Organisational Measure
C-1	Elia treats FSP and Supplier portfolios as confidential information	C-1.1	Elia does not allow unauthorized access to master and meter data
		C-1.2	Elia implements strict access control in the ToE application and logs all access.
		C-1.3	Elia monitors all data access to ToE systems
		C-1.4	Elia notifies implicated parties in case of breach
		C-1.5	Elia can trace back which data has been compromised.
C-2	Elia maintains a concordance list of all delivery points with BRPsource, Supplier, FSP, BRPfsp and end consumer including master data and the maximum power per flexibility service , based on the access contract of the delivery point.	C-2a.1	Elia has access to the appropriate sources for delivery points and is kept informed about changes to them
		C-2a.2	Elia has taken measures to keep its flex registry* up to date

		C-2a.3	Elia has taken measures to detect synchronization errors and inconsistencies in its registry
		C-2a.4	Elia treats detected data errors as incidents**
		C-2a.5	Elia can correct the data in its registry in a controlled, transparent and consistent manner
C-3	Operators of closed distribution systems provide Elia with information about contracts relevant for the transfer of energy process	C-3.1	Elia has identified the trusted sources of the connection data and what change requests can be expected on this data for CDSs
		C-3.2	Elia has taken appropriate measures to prevent data inconsistencies in CDS related data
		C-3.3	Elia has appropriate measures to detect data inconsistencies in CDS data
		C-3.4	Elia treats detected data errors in CDS data as incidents**
		C-3.5	Elia is able to correct CDS related data inconsistencies in a controlled transparent and consistent manner
C-4	Data from submeters can be used in the ToE calculation. (the regulations stipulate no requirements with regard to completeness and correctness of the meter data, and hence this needs to be guaranteed by the ToE calculation)	C-4.1	Elia has assessed the validity of using submeter data for ToE
		C-4.2	Elia has formulated requirements for submeter data collection and validation
		C-4.3	Elia can detect whether submeter data is credible
		C-4.4	Elia has a process to inform the parties involved those volumes are not derived from correct meter data
		C-4.5	Elia has a process to handle meter registry data corrections. Or recovery mechanism to resolve disputes
C-5	Elia keeps the FSP portfolio and activation data confidential by communicating only on aggregated level	C-5.1	Elia has defined a policy to keep the FSP data confidential
		C-5.2	Elia has implemented application rules to prevent FSP data from being shared with suppliers
		C-5.3	Elia keeps a trail of data access, so that unauthorized data access can be detected
		C-5.4	Elia has defined a process to deal with data breaches
		C-5.5	Elia can trace back which data has been compromised.

* This is the data set as implied in the energy law article 19 for the purpose of: collecter, vérifier, traiter et transmettre les informations nécessaires au calcul du volume de flexibilité de la demande impliquant un transfert d'énergie / de informatie nodig voor de berekening van het flexibiliteitsvolume van de vraag met een energieoverdracht, met inachtneming van de vertrouwelijkheid ervan, verzamelen, berekenen, verwerken en overmaken

**The term « incident » is used here in line with the definition in ITIL. It means “any event that is a deviation of the expected standard processing by a system.” Elia is expected to follow up on such events in a structured manner.

7.4 Process Area D: Activation Handling

The following requirements were applied to this process area:

Req #	Requirement	Source document	Reference
D-1	Elia will flag an activation as non-compliant if the acceptance and confirmation message (1st and 2nd notification message from the FSP) have not been received in time by Elia, and whereby Elia is not the cause of this delay.	[BSP T&C mFRR 2020] & [R-ToE]	[BSP T&C]: II.14.1 [R-ToE]: point 15.1
D-2	Elia will flag an activation as non-compliant if the volume mFRR Supplied is lower than mFRR Requested during at least one quarter of an hour.	[BSP T&C mFRR 2020] & [R-ToE]	[BSP T&C]: II.14.1 [R-ToE]: point 15.1
D-3	Elia will penalize the FSP and exclude the DP _{PG} involved in 3 non-compliant activations in the last 6 months from mFRR activations for 30 calendar days.	[BSP T&C mFRR 2020] & [R-ToE]	[BSP T&C]: II.16,5 [R-ToE]: point 15.1
D-4	Elia will penalize activations according to the product-specific penalties	[R-ToE]	point 15.1 to 15.6 incl.
D-6	Elia may exclude Delivery Points DP _{PG} from the DA/ID service for 30 days, if the FSP fails to provide the activation notifications within the stipulated timewindow, in 3 subsequent months, and if the DP was included in at least 3 activations during that period.	[R-ToE]	point 15.4
D-7	Elia may exclude Delivery Points DP _{PG} from the DA/ID service for 90 days, if the FSP fails to provide the activation notifications within the stipulated timewindow, in the 12 months following a previous exclusion of the DP of the DA/ID activations, and if the DP was included in at least 3 activations during that period.	[R-ToE]	point 15.4
D-8	Elia will exclude a DP _{PG} if it participates at the same time in DA/ID and mFRR.	[R-ToE]	point 15.5

For these requirements, the following technical and/or organizational requirements are expected:

Req #	Requirement	TOM	Technical/Organisational Measure
D-1	Elia will flag an activation as non-compliant if the acceptance and confirmation message (1st and 2nd notification message from the FSP) have not been received in time by Elia,	D-1.1	Elia can test the receipt capability of FSP notifications
		D-1.2	Elia can receive FSP notifications via backup facility

	and whereby Elia is not the cause of this delay.	D-1.3	Elia automatically detects if the receipt capability is down, and a warning is generated.
		D-1.4	Elia informs the FSP of non-conformity of the activation, when it detects that both notification messages have not been received in time
		D-1.5	Elia will verify if additional activations are needed to compensate for the potential missed volumes.
D-2	Elia will flag an activation as non-compliant if the volume mFRR Supplied is lower than mFRR Requested during at least one quarter of an hour.	D-2.1	Elia can calculate the difference between mFRR Supplied and mFRR Requested per quarter of an hour per activation.
		D-2.2	Elia checks, on a monthly basis, whether the DP's can deliver the proposed volumes
		D-2.3	Elia automatically detects if the volume mFRR supplied differs from mFRR Requested during at least one quarter of an hour.
		D-2.4	Elia informs the FSP of non-conformity of the activation, when it detects that the volume mFRR supplied differs from mFRR Requested during at least one quarter of an hour.
		D-2.5	Elia will verify if additional activations are needed to compensate for the potential missed volumes.
D-3	Elia will penalize the FSP and exclude the DP _{PG} involved in 3 non-compliant activations in the last 6 months from mFRR activations for 30 calendar days.	D-3.1	Elia can flag an activation as non-compliant based on a defined set of criteria.
		D-3.2	Elia has taken actions to limit the possibility of non-compliant activations occurring.
		D-3.3	Elia automatically detects if an activation is non-compliant, and a warning is generated.
		D-3.4	Elia informs FSP of the exclusion for 30 calendar days of upcoming auction for DP _{PG} 's involved non-compliant activations
		D-3.5	Elia will verify how future demands for flexibility can be met without the excluded delivery point(s)
D-4	Elia will penalize activations according to the product-specific penalties	D-4.1	Elia has determined how to apply activation penalties according to product specific rules where ToE applies.
		D-4.2	Elia will verify whether the FSP's and delivery points meet the requested quality standards.
		D-4.3	Deviations during an activation that are subject to specific penalties are detected
		D-4.4	Penalties are applied to all products where ToE applies according to product specific rules
		D-4.5	Elia will verify if additional activations are needed to compensate for the potential missed volumes.

D-6	Elia may exclude Delivery Points DP _{PG} from the DA/ID service for 30 days, if the FSP fails to provide the activation notifications within the stipulated timewindow, in 3 subsequent months, and if the DP was included in at least 3 activations during that period.	D-6.1	Elia has allocated the responsibility of monitoring of the compliance and follow-up in case of non-compliance with notification timelines of the FSP's participating in DA/ID activations.
		D-6.2	Elia checks on regular intervals whether the FSP is able to exchange the notifications in time.
		D-6.3	Elia logs communication times. Elia has implemented an alarm in case of delayed or missing messages exchanged with the FSP's participating in DA/ID activations
		D-6.4	A measurement period is started over a 3-month period in case of missing or delayed notification. In case none of the notifications is send in time all DP common in at least 3 of the activations during that period will be excluded during 30 days from DA/ID activations. The FSP is notified of the penalty.
D-7	Elia may exclude Delivery Points DP _{PG} from the DA/ID service for 90 days, if the FSP fails to provide the activation notifications within the stipulated timewindow, in the 12 months following a previous exclusion of the DP of the DA/ID activations, and if the DP was included in at least 3 activations during that period.	D-7.1	Elia has allocated the responsibility of monitoring of the compliance and follow-up in case of non-compliance with notification timelines of the FSP's participating in DA/ID activations.
		D-7.2	Elia checks on regular intervals whether the FSP is able to exchange the notifications in time.
		D-7.3	Elia logs communication times. Elia has implemented an alarm in case of delayed or missing messages exchanged with the FSP's participating in DA/ID activations
		D-7.4	A measurement period is started over a 12-month period after the suspension. If in this period, the FSP is not capable of delivering the notifications in time, all DP's involved in the previous exclusion and in 3 new activations with missing notification, may be excluded from future activations DA/ID for 90 days The CREG and the FSP are notified of the penalty.
D-8	Elia will exclude a DP _{PG} if it participates at the same time in DA/ID and mFRR.	D-8.1	Elia has allocated the responsibility of monitoring of the compliance and follow-up in case of non-compliance of DP's participating in DA/ID and mFRR
		D-8.2	Elia maintains a list of all DP's able to participate in DA/ID and mFRR
		D-8.3	Elia verifies for DPs activated in a DA/ID activation that these DPs were not included in mFRR energy bids corresponding to the same quarter hours of the DA/ID activation.
		D-8.4	Elia will apply the service specific penalty for the DP's involved in the activation of DA/ID and mFRR in the same 15' period.

7.5 Process Area E: ToE Calculation

The following requirements were applied to this process area:

Req #	Requirement	Source document	Reference
E-1	The baseline selected by the FSP for the market where ToE applies is applied at the delivery point level for Delivery Points DP _{PG} in the mFRR market segment.	[R-ToE]	point 10.2.1
E-2	Activated power is limited to the maximum power (up or down) that can be activated as stipulated in the FSP-End user declaration	[R-ToE]	point 12.2, bullet 2
E-3	Elia calculates the Activation Volume for ToE as the difference between validated quarterly meter readings and the baseline	[R-ToE]	point 12.2, bullet 2
E-4	Elia calculates ToE for the delivery points in the second notification message only for compliant activations.	[R-ToE]	point 12.2
E-5	Elia calculates ToE for the delivery points mentioned in the last notification message with a "value" different from zero, which should be the second notification message.	[R-ToE]	point 12.2
E-6	Elia calculates ToE for the delivery points DA/ID mentioned in the last notification message with a "value" different from zero, which should be the second notification message.	[R-ToE]	point 12.2
E-7	Calculation of the delivered volume in case a DP _{PG} participating in the activation of mFRR bid and DA/ID at the same time is based on the mFRR calculation.	[R-ToE]	point 12.4
E-8	When the baseline High X of Y is used, the excluded representative days by the FSP are taken into account in the calculation of the baseline	[R-ToE]	point 10.3.2
E-9	When the adapted baseline High X of Y* is used, the excluded representative days by the FSP are taken into account in the calculation of the baseline	[R-ToE]	point 10.3.3

For these requirements, the following technical and/or organizational requirements are expected:

Req #	Requirement	TOM	Technical/Organisational Measure
E-1	The baseline selected by the FSP for the market where ToE applies is applied at the delivery point level for Delivery Points DP _{PG} in the mFRR market segment.	E-1.1	Elia ensures that each FSP contract specifies the baseline-method used for each of the delivery points part of Delivery Points DP _{PG} in the mFRR market segment in the FSP portfolio
		E-1.2	Elia assures that no master data for a Delivery Point DP _{PG} can be entered into the system without specifying the baseline.

		E-1.3	Elia has appropriate measures to detect the baseline method in the FSP contract of Delivery Points DP _{PG} in the mFRR market segment for the purpose of calculating ToE Volumes
		E-1.4	Elia will exclude a Delivery Point DP _{PG} in the mFRR market segment from the ToE Volumes calculation, if no baseline has been specified.
		E-1.5	Elia can restart the process to recover from missing or disputable volumes
E-2	Activated power is limited to the maximum power (up or down) that can be activated as stipulated in the FSP-End user declaration	E-2.1	Elia has taken measures to be aware of the maximum power up or down that can be applied in the volume calculation
		E-2.2	Elia has implemented a procedure to cap the delivered volume to the applicable maximum power. Elia has checks to see that this procedure is enforced
		E-2.3	Elia can detect if activations are systematically surpassing the maximum power (up or down), indicating a data problem
		E-2.4	Elia has a defined process to handle incidents where apparently the maximum power was applied incorrectly as a limit
		E-2.5	Elia can restart the process to recover from missing or disputable volumes
E-3	Elia calculates the Activation Volume for ToE as the difference between validated quarterly meter readings and the baseline	E-3.1	Elia has designed detail application rules for calculating ToE volumes
		E-3.2	Elia monitors the execution of the ToE calculations for timeliness, correctness and completeness
		E-3.3	Elia detects errors and irregularities and reports these to the identified responsible person for follow up
		E-3.4	Elia have defined procedures and allocated responsibility for following up calculation problems
		E-3.5	Elia can restart the process to recover from missing or disputable volumes
E-4	Elia calculates ToE for the delivery points in the second notification message only for compliant activations.	E-4.1	Elia can proof that the correct basis for the calculation was used. Elia ensures it has the input available for all compliant activations
		E-4.2	Information exchange provides for non-repudiation.

		E-4.3	Elia is aware if notifications are missing or disputed
		E-4.4	Elia notifies a FSP in case there is a problem with the notification and handles the incident
		E-4.5	Elia can retroactively apply the correct notification with delivery points for the correct calculation of ToE
E-5	Elia calculates ToE for the delivery points mentioned in the last notification message with a "value" different from zero, which should be the second notification message.	E-5.1	Elia can proof that the correct basis for the calculation was used. Elia ensures it has the input available for all compliant activations
		E-5.2	Information exchange provides for non-repudiation.
		E-5.3	Elia is aware if notifications are missing or disputed
		E-5.4	Elia notifies a FSP in case there is a problem with the notification and handles the incident
		E-5.5	Elia can retroactively apply the correct notification with delivery points for the correct calculation of ToE
E-6	Elia calculates ToE for the delivery points DA/ID mentioned in the last notification message with a "value" different from zero, which should be the second notification message.	E-6.1	Elia can proof that the correct basis for the calculation was used. Elia ensures it has the input available for all compliant activations
		E-6.2	Information exchange provides for non-repudiation.
		E-6.3	Elia is aware if notifications are missing or disputed
		E-6.4	Elia notifies a FSP in case there is a problem with the notification and handles the incident
		E-6.5	Elia can retroactively apply the correct notification with delivery points for the correct calculation of ToE
E-7	Calculation of the delivered volume in case a DP _{PG} participating in the activation of mFRR bid and DA/ID at the same time is based on the mFRR calculation.	E-7.1	Elia has allocated the responsibility of monitoring of the compliance and follow-up in case of non-compliance of DP's participating in DA/ID and mFRR
		E-7.2	Elia maintains a list of all DP's able to participate in DA/ID and mFRR
		E-7.3	Elia detects when delivery points DP _{PG} participate simultaneous in activations of bids of for mFRR and DA/ID

		E-7.4	Elia will attribute the volume delivered according to the calculations used for mFFR bids
E-8	When the baseline High X of Y is used, the excluded representative days by the FSP are taken into account in the calculation of the baseline	E-8.1	Elia ensures that in the excluded representative days are registered
		E-8.2	Elia has policies to ensure that days can only be excluded according to well defined criteria
		E-8.3	Elia has taken measure to assure that excluded representative days are taken into account when calculating.
		E-8.4	Elia will use the excluded representative days when determining the reference period
		E-8.5	Elia can retroactively apply the correct reference period if the excluded representative days have not been handled appropriately.
E-9	When the adapted baseline High X of Y* is used, the excluded representative days by the FSP are taken into account in the calculation of the baseline	E-9.1	Elia ensures that in the excluded representative days are registered
		E-9.2	Elia has policies to ensure that days can only be excluded according to well defined criteria
		E-9.3	Elia has taken measure to assure that excluded representative days are taken into account when calculating.
		E-9.4	Elia will use the excluded representative days when determining the reference period
		E-9.5	Elia can retroactively apply the correct reference period if the excluded representative days have not been handled appropriately.

7.6 Process Area F: Information exchange

The following requirements were applied to this process area:

Req #	Requirement	Source document	Reference
F-1	Elia notifies FSP about requested flex volume prior to activation period for mFRR and SDR.	[R-ToE]	point 14.1
F-2	Elia notifies to BRPsource of the maximum amount of flex that could be activated given the requested volume sent to the FSP, no later than 3 minutes before the activation started.	[R-ToE]	point 14.3
F-3	Elia notifies the BRPsource of the amount of flex that will be activated as well as the total amount of flex that can be activated given the FSP's notifications for the activation of a mFRR service, as soon as possible after the deadline for the FSP to communicate the information.	[R-ToE]	point 14.3
F-4	Elia notifies the BRPsource of the amount of flex that has been activated as well as the total amount of flex that can be activated given the FSP's notifications used a part of a DA/ID activation, as soon as possible after the deadline for the FSP to communicate the information.	[R-ToE]	point 14.3
F-5	FSP notifies Elia about the set of delivery points and their respective activation volume no later than 3 minutes after the start of the activation period.	[R-ToE]	point 14.2.1
F-6	FSP notifies Elia about the set of delivery points and their respective activation volume per 15' no later than 3 minutes after the end of the activation period.	[R-ToE]	point 14.2.3
F-7	FSP notifies Elia about the set of delivery points and their respective activation volume, the activation period, the total volume to be activated in the quarter preceding the activation start time, and no later than 5' before activation for DA/ID flexibility services	[R-ToE]	point 14.2.1
F-8	FSP notifies Elia about the set of delivery points and their respective activation volume, the activation period, the total volume to be activated at the earliest 5' before activation for DA/ID flexibility services, and no later than 3' after the start of the activation.	[R-ToE]	point 14.2.1
F-9	FSP notifies Elia about the set of delivery points and their respective activation volume, the activation period, the total volume to be activated at the earliest at the start of the activation for DA/ID flexibility services, and no later than 3' after the end of the activation.	[R-ToE]	point 14.2.1
F-10	Elia provides the aggregated ToE volumes for settlement to the Supplier and FSP	[R-ToE]	point 16.1 & 16.3 & 16.4

For these requirements, the following technical and/or organizational requirements are expected:

Req #	Requirement	TOM	Technical/Organisational Measure
F-1	Elia notifies FSP about requested flex volume prior to activation period for mFRR and SDR.	F-1.1	Elia ensures completeness of messaging, to ensure that every electronic message exchange follows the expected flow in both directions
		F-1.2	Elia has created a feedback loop to ensure activation and messaging are coupled, i.e., that the message exchange correctly reflects activation status.
		F-1.3	Elia can detect whether for every activation a notification was sent
		F-1.4	Missing message is treated as an incident
		F-1.5	Elia cancels the requested activation if no notification is received from the FSP
F-2	Elia notifies to BRPsource of the maximum amount of flex that could be activated given the requested volume sent to the FSP, no later than 3 minutes before the activation started.	F-2.1	Elia can route messages according to FSP BRP relationships
		F-2.2	Elia has procedures in place to assure that the FSP-BRP relationships is correctly entered and maintained in the master data and systems.
		F-2.3	Elia can detect the correct message routing based on FSP BRP relationships
		F-2.4	Elia handles the errors in message routing as an incident
		F-2.5	Elia can correct the message routing
F-3	Elia notifies the BRPsource of the amount of flex that will be activated as well as the total amount of flex that can be activated given the FSP's notifications for the activation of a mFRR service, as soon as possible after the deadline for the FSP to communicate the information.	F-3.1	Elia has formulated a rule that whenever an FSP activates energy, Elia immediately calculates impact per affected BRP and communicates this to the BRPs
		F-3.2	Elia has firm SLAs with FSP to deliver the info within the timeframe. Elia has built a system that can execute this function within a second.
		F-3.3	Elia can detect whether all required messages have been sent and whether the messages are sent within the specified time frames
		F-3.4	Elia can produce the message ad hoc if the message was not sent for some reason.

		F-3.5	Elia can report the amount of flex afterwards if the automated notification was missing
F-4	Elia notifies the BRPsource of the amount of flex that has been activated as well as the total amount of flex that can be activated given the FSP's notifications used a part of a DA/ID activation, as soon as possible after the deadline for the FSP to communicate the information.	F-4.1	Elia has formulated a rule that whenever an FSP activates energy, Elia immediately calculates impact per affected BRP and communicates this to the BRPs
		F-4.2	Elia has firm SLAs with FSP to deliver the info within the timeframe. Elia has built a system that can execute this function within a second.
		F-4.3	Elia can detect whether all required messages have been sent and whether the messages are sent within the specified time frames
		F-4.4	Elia handles the missed deadlines as an incident
		F-4.5	Elia can report the amount of flex afterwards if the automated notification was missing
F-5	FSP notifies Elia about the set of delivery points and their respective activation volume no later than 3 minutes after the start of the activation period.	F-5.1	Elia is able to identify if an FSP message is received within the time frame
		F-5.2	Elia has foreseen a second message to confirm the set of delivery points and their volumes
		F-5.3	Elia can detect that the receipt of the FSP activation message is within 3 minutes after the start of the activation
		F-5.4	Elia handles the late receipt of FSP messages as an incident
		F-5.5	Elia has clear procedures on how to handle the impact of late notification messages on the subsequent processes and has allocated the responsibility within the organization.
F-6	FSP notifies Elia about the set of delivery points and their respective activation volume per 15' no later than 3 minutes after the end of the activation period.	F-6.1	Elia is able to identify if an FSP message is received within the time frame
		F-6.2	Elia has created a feedback loop to ensure activation and messaging are coupled, i.e. that the message exchange correctly reflects activation status.

		F-6.3	Elia can detect that the receipt of the FSP activation message is within 3 minutes after the end of the activation
		F-6.4	Elia handles the late receipt of FSP messages as an incident
		F-6.5	Elia will not consider the activation if the confirmation message was not received in time.
F-7	FSP notifies Elia about the set of delivery points and their respective activation volume, the activation period, the total volume to be activated in the quarter preceding the activation start time, and no later than 5' before activation for DA/ID flexibility services	F-7.1	Elia is able to identify if an FSP message is received within the time frame
		F-7.2	Elia has created a feedback loop to ensure activation and messaging are coupled, i.e., that the message exchange correctly reflects activation status.
		F-7.3	Elia can detect that the receipt of the FSP activation message is received no later than 5 minutes before the start of the activation
		F-7.4	Elia handles the late receipt of FSP messages as an incident
		F-7.5	Elia uses the last message received in the settlement calculations.
		F-8	FSP notifies Elia about the set of delivery points and their respective activation volume, the activation period, the total volume to be activated at the earliest 5' before activation for DA/ID flexibility services, and no later than 3' after the start of the activation.
F-8.2	Elia has created a feedback loop to ensure activation and messaging are coupled, i.e., that the message exchange correctly reflects activation status.		
F-8.3	Elia can detect that the receipt of the FSP activation message is received no later than 3 minutes after the start of the activation, and that the activation period and delivery points are identical to these received in the first message.		
F-8.4	Elia handles late receipt of FSP messages, or the change in DP's activated as an incident. Elia will consider the activation as non-compliant if the activation notifications were not carried out according to the agreements.		

		F-8.5	Elia uses the last message received in the settlement calculations.
F-9	FSP notifies Elia about the set of delivery points and their respective activation volume, the activation period, the total volume to be activated at the earliest at the start of the activation for DA/ID flexibility services, and no later than 3' after the end of the activation.	F-9.1	Elia is able to identify if an FSP message is received within the time frame and that the DP's mentioned are the same as the ones mentioned in the first message.
		F-9.2	Elia has created a feedback loop to ensure activation and messaging are coupled, i.e., that the message exchange correctly reflects activation status.
		F-9.3	Elia can detect that the receipt of the FSP activation message is received no later than 3 minutes after the start of the activation and that the activation period and delivery points are identical to these received in the first message.
		F-9.4	Elia handles late receipt of FSP messages, or the change in DP's activated as an incident. Elia will consider the activation as non-compliant if the activation notifications were not carried out according to the agreements.
		F-9.5	Elia uses the last message received in the settlement calculations.
F-10	Elia provides the aggregated ToE volumes for settlement to the Supplier and FSP	F-10.1	Elia has a procedure for calculating and distributing settlement volumes
		F-10.2	Elia monitors the calculation and all input processes, to assure that it can calculate the settlement volumes correctly and in time.
		F-10.3	Elia can detect if it failed to deliver settlement volumes in time
		F-10.4	Elia handles missing settlement reports as incidents
		F-10.5	Elia can produce settlement volumes ad hoc

7.7 Process Area G: Volume Allocation

The following requirements were applied to this process area:

Req #	Requirement	Source document	Reference
G-1	Elia corrects the balance of the BRPsource with the delivered volume of flexibility.	[R-ToE]	point 13.1
G-2	Elia allocates the difference between the requested volume of flexibility - in the event of activation of an aFRR, mFRR bid and/or an SDR Service - and the delivered volume of flexibility - delivered by all activated DP _{PG} by said FSP for which a Market Situation with ToE applies - to the balance of the BRPfsp.	[R-ToE]	point 13.1
G-3	In case of separate BRP-sources for gross injection and gross offtake, the perimeter of the BRPsource for gross offtake is corrected.	[R-ToE]	point 13.2.1
G-4	In case of separate BRPsources for net-injection and net-offtake, either or both BRPsources will be corrected depending on the direction of the baseline and that of the metering.	[R-ToE]	point 13.2.2

For these requirements, the following technical and/or organizational requirements are expected:

Req #	Requirement	TOM	Technical/Organisational Measure
G-1	Elia corrects the balance of the BRPsource with the delivered volume of flexibility.	G-1.1	Elia has record of BRPs that might be impacted by FSP activations
		G-1.2	Elia monitors the calculation and all input processes, to assure that it can calculate the settlement volumes correctly and in time.
		G-1.3	Elia can detect that the correction of the balance position of the BRPsource equals the volume of the FSP activation
		G-1.4	Elia corrects the balance position of the affected BRPsource
		G-1.5	Elia can correct the volumes in ToE and/or imbalance allocation to restore consistency, whenever it is alerted that an error occurred during calculation.
G-2	Elia allocates the difference between the requested volume of flexibility - in the event of activation of an aFRR, mFRR bid and/or an SDR Service - and the delivered volume of flexibility - delivered by all activated DP _{PG} by said FSP for	G-2.1	Elia keeps track of imbalance caused by FSP
		G-2.2	The volume of imbalance is allocated to the FSP
		G-2.3	Elia can cross-check the detected imbalances in ToE with the actual imbalance volumes allocated as a result

	<p>which a Market Situation with ToE applies - to the balance of the BRPfsp.</p>	G-2.4	<p>Elia handles deviations between ToE volumes and imbalance settlement volumes as an incident</p>
		G-2.5	<p>Elia can correct the volumes in ToE and/or imbalance allocation to restore consistency</p>
<p>G-3</p>	<p>In case of separate BRP-sources for gross injection and gross offtake, the perimeter of the BRPsource for gross offtake is corrected.</p>	G-3.1	<p>Elia keeps record of the delivery points where there are separate BRPs for gross injection and gross offtake.</p>
		G-3.2	<p>Elia monitors the calculation and all input processes, to assure that it can calculate the settlement volumes correctly and in time.</p>
		G-3.3	<p>Elia detects cases in which there are separate BRPs for gross injection and gross offtake and corrects the BRPsource for gross offtake.</p>
		G-3.4	<p>Elia applies the correct allocation of ToE volumes in case of two BRPs on a single delivery point</p>
		G-3.5	<p>Elia can correct the volumes in ToE and/or imbalance allocation to restore consistency, whenever it is alerted that an error occurred during calculation.</p>
<p>G-4</p>	<p>In case of separate BRPsources for net-injection and net-offtake, either or both BRPsources will be corrected depending on the direction of the baseline and that of the metering.</p>	G-4.1	<p>Elia keeps record of the delivery points where there are separate BRPs for net-injection and net-offtake.</p>
		G-4.2	<p>Elia monitors the calculation and all input processes, to verify that in cases where separate BRP's exist, it corrects the BRPsource based on the direction of baseline and metering.</p>
		G-4.3	<p>Elia detects cases in which there are separate BRPs for net-injection and net-offtake and applies the correct correction.</p>
		G-4.4	<p>Elia applies the correct allocation of ToE volumes in case of two BRPs on a single delivery point.</p>
		G-4.5	<p>Elia can correct the volumes in ToE and/or imbalance allocation to restore consistency, whenever it is alerted that an error occurred during calculation.</p>

7.8 Process Area H: Market Supervision

The following requirements were applied to this process area:

Req #	Requirement	Source document	Reference
H-1	Elia provides ToE data to CREG for monitoring purposes and comments on suspected manipulation	[R-ToE]	point 15.5

For these requirements, the following technical and/or organizational requirements are expected:

H-1	Elia provides ToE data to CREG for monitoring purposes and comments on suspected manipulation	H-1.1	Elia has defined market situations where market manipulation might occur.
		H-1.2	Elia monitors the proper use of the current baseline methods, to verify their robustness against manipulation.
		H-1.3	Elia analyses activation to detect whether there were high reserve power prices that attracted a load increase prior to a demand response activation
		H-1.4	Elia reports irregularities in load profiles if it suspects that load was manipulated in anticipation of high prices for reserve power
		H-1.5	Elia can re-run the calculations in situations where market manipulation has occurred.

8. Annex 2: Referenced documentation

Id	Name	Issuer	Version
1	Beslissing (B)1677/3 26 November 2020	CREG	26-11-2020
2	Regels voor de organisatie van de Energieoverdracht	Elia	01-07-2021
3	Contract voor de aanbieders van balanceringsdiensten voor de mFRR-Dienst (Manuele Frequentieherstelreserve)	Elia	03/02/2020
4	Contract for the provision of flexibility services in the Day Ahead and Intraday Market	Elia	V01/2020
5	mFRR ToE – Pass Through Check	Elia	v2.0
6	mFRR ToE – Bank Guarantee Checks	Elia	v2.0
7	Process documentation: mFRR - ToE	Elia	v2.0
8	Process documentation: mFRR ToE – Net Injection Check	Elia	v2.0
9	mFRR ToE – Monthly Flex Data Hub Operations	Elia	v2.0
10	3.31_Functional_Design_CC2_ContRef_AncillaryServices_V3.0	Elia	V3.0
11	Business Requirements T-DSO Datahub - E_Delivered formula v2	Elia	v2.0
12	TSO-DSO Flex Data Hub - Functional Documentation	Elia	V5.1
13	3.31 Functional Design_CC_ToE_V3.0_v1	Elia	v2.0
14	System Requirements - MTR mFRRDPpg and DA ID V2	Elia	v2.0
15	FD-MTR-mFRR - V6.0 - DAID Flex Metering	Elia	V6.0
16	User Manual Hermes	Elia	V1.0
17	Procedure_mFRR_ToE_Control	Elia	V1.0