

Elia

Audit on the Transfer of Energy process and systems

Version : *Final*
Author : *IBM*
Date : *August 25, 2021*

Auditrapport betreffende de implementatie en uitvoering van de regulering voor “transfer of energy” door Elia in het jaar 2020.

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 2020 geëvalueerd.

Rapport d'audit sur l'implémentation et l'exécution par Elia de la réglementation du « transfert d'énergie » pour l'année 2020.

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 vérifié. IBM a évalué l'exécution pour la période 2020.


<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 en (B)1677/2 uitgevaardigd door CREG van respectievelijk 15 maart 2018 en 27 maart 2020 - Regels voor de organisatie van de Energieoverdracht. Inwerkingtreding op 23 april 2020. 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 et (B)1677/2 du 15 mars 2018 et 27 mars 2020 respectivement, rendue par la CREG - Règles pour l'organisation du transfert d'énergie. Entrée en vigueur le 23 avril 2020, 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>Associate Partner IBM</p>	

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1. Management Summary

Belgium has formalized rules for distributed demand response to participate in the wholesale market. The need for distributed flexibility to become an integral part of dispatch optimization is felt throughout Europe and Belgium is among the first countries to formalize rules, after Elia had been running pilots with aggregators for procuring aggregated flex as reserve market products.

Like a number of 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, for the third year, 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 new regulation poses on Elia;*
- *whether the implementation is such that Elia is in 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.*

Our conclusion is that Elia has implemented the regulation in an appropriate fashion. Elia have faithfully implemented every requirement according to the rules. We have found that in some instances additional controls are needed for Elia to detect and manage exceptions, but also noted that Elia has taken actions to address recommendations from the previous audit. At the same time, the rising number of activations requests that efforts are made to implement more automation, in order to limit the reliance on manual controls, limit the possibility for error and increase the timeliness of the process.

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 2020.

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, in order 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.

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 aggregated² 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:

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

² Since pass-through contracts are no longer regarded as Transfer of Energy, suppliers receive only aggregated volumes for delivery points participating in ToE

- Assessment of the fulfillment 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 vertrouwelijkheid ervan, verzamelen, berekenen, verwerken en overmaken* ».
- Assessment of the fulfillment 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 vraagflexibiliteitsvolumes 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 2020 comprises all markets to which the Transfer of Energy is of application on 31 December 2020, which are:

- The marketsegment covering Frequency restoration with manual activation (mFRR) using deliverypoints DP_{PG};
- The marketsegment covering the strategic reserve delivered by SDR-Units;

Note that since updated regulations and procedures covered by this audit have been approved on 23/04/2020, and since the audit of 2019 already covered the period under the previous regulations, we have concentrated this audit on period covered by the ToE Rules of 23/04/2020.

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

1) Assessment of the fulfillment of the Flexibility Data Manager role

In order 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;
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

In order 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 (currently for mFRR a FSP can choose between "last quarter-hour" or "high X of Y"). When there is a choice among several Baseline methodologies; 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.

- 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.

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.

2.3 Referenced documentation

Ref	Name	Issued by	Version
B1677	Beslissing (B)1677 15 maart 2018, published by CREG	CREG	15-03-2018
B1677/2	Beslissing (B)1677/2 27 maart 2020, published by CREG	CREG	27-03-2020
R-ToE	Regels voor de organisatie van de Energieoverdracht. Inwerkingtreding op 23/04/2020, Published by Elia and approved by CREG	Elia	2020
BSP-C	Contract voor de aanbieders van balanceringsdiensten voor de mFRR-Dienst (Manuele Frequentieherstelreserve)	Elia	V1/2020
RCD	Regles de fonctionnement du marche relatif a la compensation des disequilibres quart- horaires	Elia	01/12/2018
FSD	T-DSO Datahub Formula specification Document	Synergrid	V2.0
ED-GRD	C8/05 - Échanges de données entre Gestionnaires de réseau et Parties de marché dans le cadre du transfert d'énergie	Synergrid	1 juin 2018
NdC	mFRR & SDR by Non-CIPU Technical Units Note de collaboration Elia-GRD	Synergrid	25-10-2018
S-ToE	Contract ELIA-Supplier for the Exchange of Data Related to the Transfer of Energy	Elia	Final
FD-DH	TSO-DSO Flex Data Hub Functional Documentation	Synergrid	V3.1
PD-DH	Process documentation: mFRR - ToE – Datahub - Operational documentation	Elia	V1.0 d.d. 31/01/2019
PD-BW	R3 ToE – Bank Guarantee checks Process Documentation	Elia	29/01/2019
PD-PC	R3 ToE – Pass Through check Process Documentation	Elia	30/01/2019
FD- CC-ToE	CC - Tranfert of Energy Functional Design	Elia	2/10/2018
SRS – MTR - TOE	MTR – mFRR 2020 NonCipu - R3 2018 - BidLadder & ToE (Transfer of Energy) - R3 2018	Elia	Version 4
AS_SDR	The need for a Strategic Reserve for winter 2020-21 and winter outlook for 2022-23 and 2023-24	Elia	November 2020
MB	08 JANUARI 2020. - Ministerieel besluit houdende instructie aan de netbeheerder om een strategische reserve aan te leggen vanaf 1 november 2020	Belgian Government	08/01/2020



OC_DH	Datahub Operationeel Contract	Elia and DGO's	02/02/2018
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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 2020 audit uses this standard amended for the changes in regulation which came in force in 2020.

In this audit we have checked compliance against that amended standard. 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:

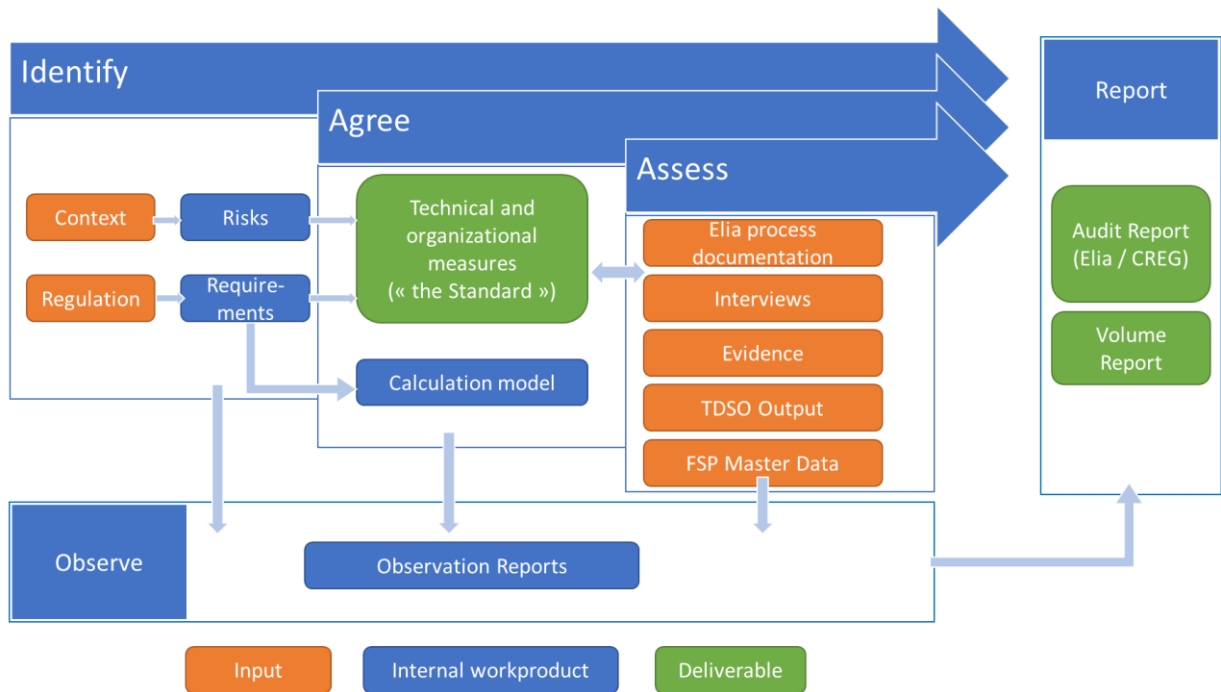


Figure 1: Audit process overview

For sake of clarity and completeness we describe below the different parts of audit process whereby we highlight the amendments of the previous year baseline standard (2019) brought about by the changes in the contextual and regulatory framework.

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:

- [B1677/2], Beslissing (B)1677/2 27 maart 2020, published by CREG
- [R-TOE], Regels voor de organisatie van de Energieoverdracht. Inwerkingtreding op 22/04/2020, published by Elia and approved by CREG
- [BSP-C] Contract voor de aanbieders van balanceringsdiensten voor de mFRR-Dienst (Manuele Frequentieherstelreserve), version V1/2020

From these documents, we have extracted 42 requirements on the implementation of Transfer of Energy by Elia, requirements that have a direct source in the text of the regulation. (5 more than previous audit).

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.

The main change in regulations impacting the 2020 ToE rules is the way pass-through contracts are handled. In fact, delivery points covered by a pass-through contract are no longer considered as falling under the ToE rules.

As in 2019 the ToE market is open to SDR Units.

However, as for 2019, a study on capacity adequacy for the winter 2020-2021 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], The need for a Strategic Reserve for winter 2020-21 and winter outlook for 2022-23 and 2023-24
- [MB], 15 JANUARI 2019. - Ministerieel besluit houdende instructie aan de netbeheerder om een strategische reserve aan te leggen vanaf 1 november 2019

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:

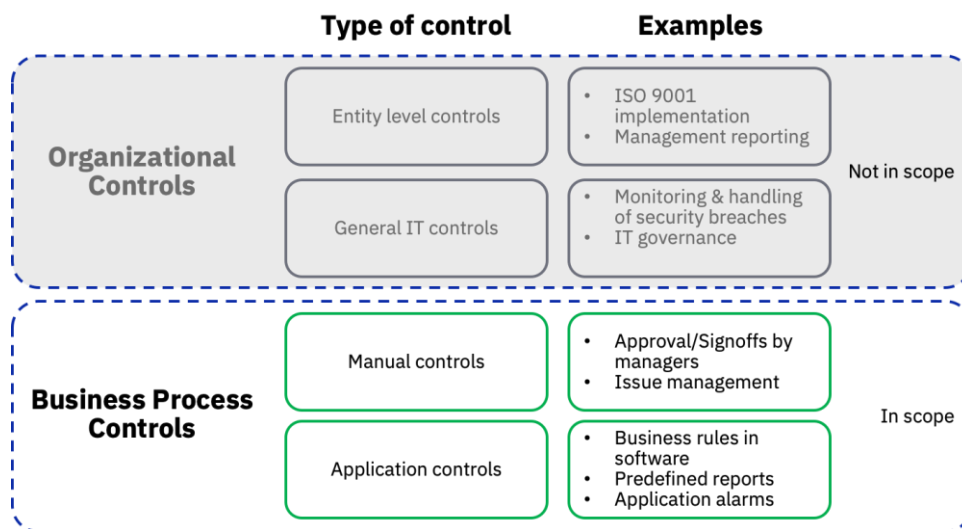


Figure 2: Control types

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 209 TOMs in the standard, 51 more than in the previous audit.

The standard has been reviewed by Elia's Operations and Data department, the department that is responsible for the proper execution of Transfer of Energy. 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.

In 2020 some 51 additional TOM's have been defined, which are related to the handling of pass-through contracts and the extension of the TOM's in the domain of the conditions for participation for delivery points, and the validity of activations.

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 checked the existence of by checking Elia's documentation;
 - o We assessed whether the measure was technical by nature (an application control) or organizational (a manual control);
 - o 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 person in Elia responsible for the execution of the ToE process ('implementation manager') Christopher Seghers to discuss and assess TOMs that are organizational by nature.

We assessed:

- o whether a real implementation of expected organizational measures existed;
 - o how the process is governed;
 - o 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 82 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. The documentation consulted is listed in paragraph 2.3 Referenced documentation;
 - 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.

Given the completion date of the audit 2019, we have not formally reviewed the follow-up given on the recommendations of the above-mentioned audit. Implicitly, they are part of the review, but the auditors understand that the time to implement one of these recommendations was too short.

These observations were validated during a progress meeting between the IBM audit team and the Elia team that is responsible for Transfer of Energy (Manuel Aparicio and Christopher Seghers). 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 updated 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 Annex 1:

4. The ToE Standard

4.1 ToE Standard structure and Process Areas

Based on the standard developed during the previous audits, we have reviewed and extended the standard based on the regulations mentioned in paragraph 2.3 Referenced documentation, i.e. valid for the period under audit for the 2020 Audit. We have extracted new and amended 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 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 2020.

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 Annex 1: .

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. Audit results

5.1 Compliance assessment

Following the assessment process, we have assessed compliance with the standard.

In summary, for the complete set of requirements, compliance is shown in the diagram below:

Process Area's	# of TOMs					Audit Score															CONTROLS				
	Identify	Mitigate	Detect	Respond	Recover	Identify			Mitigate			Detect			Respond			Recover			Target	Present	Gap	%	
	Org	Tech	Miss.	Org	Tech	Miss.	Org	Tech	Miss.	Org	Tech	Miss.	Org	Tech	Miss.	Org	Tech	Miss.	Org	Tech	Miss.				
A Conditions for Part. - FSP	2			2			2			2			2			2			2			10	10	0	100%
B Conditions for Part. - DP	10			10			9	0	1	5	0	1	8	2	0	9	5	1	8	6	1	50	44	6	88%
C Data management	5			5			2	4	0	3	4	0	3	2	1	3	0	2	5	3	0	25	22	3	88%
D Activation handling	5			5			3	4	0	5	1	0	3	4	0	5	0	0	5	0	0	25	25	0	100%
E ToE Calculation	8			8			2	6	0	1	6	1	1	6	1	2	7	0	4	0	0	40	38	2	95%
F Information Exchange	7			7			0	7	0	4	6	0	5	6	0	6	2	0	6	2	0	35	35	0	100%
G Volume Allocation	4			4			1	4	0	3	4	0	1	3	0	0	4	0	3	4	0	20	20	0	100%
H Market supervision	1			1			1	0	0	1	0	0	1	0	0	1	0	0	1	1	0	5	5	0	100%
Totals	42			42			20	25	1	29	26	1	24	23	4	27	17	4	32	23	1	210	199	11	
							45			55			47			44			55						

The left hand side of the table shows the number of technical and/or organizational measures we expected to be implemented by Elia, categorized as explained in paragraph 3.3 in 5 control types (Identification, Mitigation, Detection, Response and Recovery). As explained above, the audit team is neutral as to whether a control should be an application control (a technical measure) or a manual control (an organizational measure). Elia can choose either as a valid implementation of the control as well as a combination of the two.

The table in the middle of the diagram shows what the audit team established during the assessment to be the case at the time of the audit. It lists how many appropriate technical (Tech.) and how many organizational (Org.) measures were validated as controls, as well if any controls were missing (Miss.).

On the right-hand side of the table, we show how many TOMs we have validated as 'compliant' (in the column 'present') and how many we consider as implied by the standard but missing implementation (in. the column 'Gap'). Overall score per process area is in the outmost right column.

Note that the fact a control is present does not means the audit team would not have formulated any observation.

As we will cover further, the audit results of 2020 show a general improvement over the result of the audit 2019. We consider the risks associated by the identified gaps still as rather low. At the same time, provided that the number of activations continues to increase, the lack of formal controls or the strong reliance on manual controls might no longer be compensated by the close oversight of the ToE process at Elia and the other involved parties.

The same is true for the general observations about the effectiveness of the implementation of Transfer of Energy processes at Elia (cf. paragraph 5.4).

5.2 Assessment details

5.2.1 Conditions for participation - FSP

For the process area of FSP qualification we found all expected TOMs to be in place. FSP Qualification is a largely manual procedure by nature. The procedure is well documented. Roles in Elia are clearly defined and allocated to the employees.

While the procedures are clearly in place, the fact that these are manual and the rising number of activations and delivery points, made that some of the procedures could not be executed in time and where not executed at all during a limited period. This leads to **observation 6**. This relates in particular to following control:

A-2.3	Elia checks every month that the existing bank warranty amount is sufficient compared with the calculated 4 months total amount.	Due to the complexity of the calculation, the time required to perform it, the low volatility, the calculation was not executed during a short period.
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The auditors did however note that a more permanent solutions has been put in place in 2021.

5.2.2 Conditions for participation - Delivery Point

For the process area of Delivery point qualification, we found all expected TOMs to be in place within Elia. We have found an appropriate combination of application and manual controls. However, this is a process area that Elia has decided to delegate to distribution grid companies for those delivery points that reside on medium voltage grids. Even though it may be assumed that distribution grid companies have defined internal controls on the activities they execute in this process area, we 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 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	Elia do not 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.

In the area of the selection of the baseline method and the checking of the legitimacy of that choice, Elia has developed tooling with which they can classify delivery points. For each class the most appropriate baseline method is defined. However, Elia has not formalized this method.

Also, no periodical reclassification is performed, which could mean that overtime a DP is set up with baseline method which is no longer appropriate. This leads to **observation 6 and 7** documented in paragraph 6.1

The reservation relates specifically to following controls:

B-9.2	Elia has communicated the criteria used to verify the fairness of a baseline methodology selection for a delivery point.	This lacking communication of the criteria and or methodology, will make it difficult to defend against criticism that an ad-hoc rule has been "invented" to support Elia refusal of a baseline selection made by an FSP. Also, in the case that selections made by different FSP's needs to be refused, it might be difficult for Elia to prove that the rules underpinning a refusal are always the same.
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Further, as also mentioned in other areas, while the procedures are clearly in place, the fact that these are manual makes these prone to error. This leads to **observation 6** for following control:

B-6.1	Elia can identify for all delivery points whether there was a positive annual net offtake in the previous calendar year	It was detected that the non-integrated tool used in support of this calculation contained an error. This error had no impact on the end-result of the calculation, but emphasis the fact more robust and instrumented controls and procedures should be put in place.
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5.2.3 Data Management

For the process area of Data Management, the audit team found that expected controls were in place in some form. We have following observation (**observation 2 & 6**) for the handling of sub meter data:

C-4.3	Elia can detect whether submeter data is credible	Elia has implemented a visual control of the reaction on a flexibility demand of the submeters involved in flexibility, compared with the behavior of the main meter. However, these controls are executed at random at a low frequency (once a year).
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We did find that in 2020 the controls for keeping the FSP Portfolio data up to date was improved. Where in the past the FSP had little possibilities to verify his portfolio as entered in the system, he can now verify this information online. However, any changes the FSP would request to this data is still processed manually.

Finally, we found that Elia has delegated the data management activities for delivery points on the medium voltage level to distribution grid companies. While we could identify proper controls in the data management process area within Elia, we did not find sufficient controls that enable Elia to monitor the distribution grid's company activities. 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. The provision of this access to individuals is not supervised by Elia but delegated based on trust.
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.

5.2.4 Activation Handling

In the process area of activation handling, the audit team established that there were appropriate controls in place for all cases.

As mentioned also in other areas, the follow-up of non-compliant activations and the subsequent possible penalization, is a highly manual process. This leads to **observation 6** related to:

D-4.4	Penalties are applied to all products where ToE applies according to product specific rules.	The follow-up of the non-compliant activations is highly manual, which may lead to errors, inaccurate reporting, delays in reporting and accordingly to a possible subjective attribution of penalties.
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5.2.5 ToE Calculation

In the process area of activation handling, the audit team established that there were appropriate controls in place.

5.2.6 Information exchange

In the process area of information exchange, the audit team found controls for all but two expected TOMS:

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.	In order for Elia to fulfil its obligation to deliver notifications to BRPs within 3 minutes, there should be time reserved for handling FSP notifications, cf. observation 3 in paragraph 6.3
F-6.3	Elia handles the late receipt of FSP messages as an incident	No follow up is defined in case a notification is missing. We would expect that each time, root cause should be known. Cf. observation 5 in paragraph 6.5.

5.2.7 Volume allocation

In the process area of volume allocation, the audit team found that all expected controls were in place.

5.2.8 Market supervision

The expected controls according to the standard were effectively in place. The audit team has reviewed a model for ad-hoc analysis of activations, in which a simple visual inspection would lead to the detection of irregularities. The report can easily be used to provide the analysis and evidence to CREG.

We did consider other ways in which the current product design could be gamed by FSPs and/or grid users, and identified two additional gaming opportunities for which Elia could implement controls:

- 1) Since 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. We recommend that if the number of cases where submeters are involved increases, an additional and methodological control to check that the sub-metered activation volume corresponds to an actual reduction on the head point (cf. **observation 2** in paragraph 6.2);
- 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'. We have seen that the analysis that Elia does for its control H-1.1 would detect this and likely trigger suspicion. However, for increased numbers of activations, it might be worth considering a more automated way of detecting this.

5.3 Validation of calculated ToE volumes

The validation of the implemented calculation of ToE volumes falls within the scope of this audit. The procedure, datasets, file formats and requirements for the calculation are all described in the functional documentation of the TSO-DSO Flex Data Hub. The goal is to perform the calculation of the ToE volumes by following the available documentation and validate whether the results are 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.

5.3.1 Bid selection

The validation of the ToE volume calculations is performed by verifying the calculation steps done for a number of bids activated by Elia. In 2020, we counted 53 activations which contained delivery points eligible for ToE, of which roughly 15% of these activations were for balancing purposes and the remainder for prequalification and availability test purposes. 60% of the bids selected for verification were taken from the activations for balancing purposes, the remaining 40% out of the availability and prequalification activations. The bids were spread in such a way over the activations that at least 10% of the activations involving ToE were accounted for.

A further selection was done so that they reflect a number of straightforward headpoints with direction ‘off-take’ or ‘combined’, but also a several headpoints that were in the scope of the DSO only, as well as headpoints where submetering was applicable. Further bids were selected over different periods and FSP’s involved. These bids therefore allow validation of all the calculation alternatives described in the business requirements of the TSO-DSO Flex Data Hub.

5.3.2 Approach

All the data used for the validation are the real data provided to the TSO-DSO Data Hub, not e.g. 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 1.

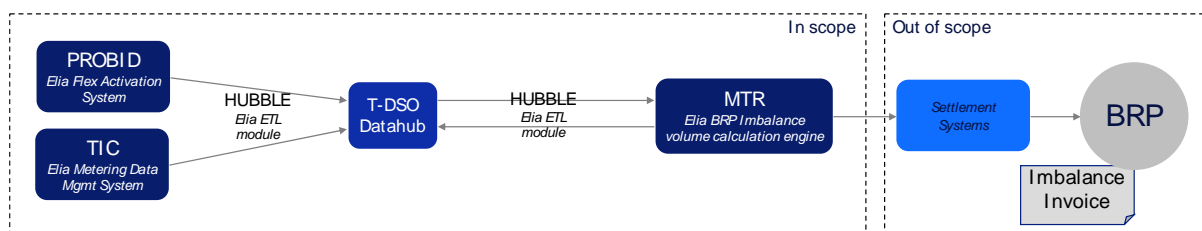


Figure 1: Overview of systems and information used for the ToE volume calculation.

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 PTU 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). Finally, in case of over delivery this E_Delta_Capped is adjusted taking into account the requested volume per bid (Asymmetric Imbalance Adjustment) which gives us the E_Delivered' which is split by direction (Injection & Offtake). This 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.

5.3.3 Observations and results

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. (**observation 4**)

The recommendation from 2019 was to solve a discrepancy for TSO connected delivery points that initially only participated in mFRR which only contained an upward reference value, and did not require a downward reference value, as the only direction of delivery was upwards. The ToE calculation takes the up and downward reference power values into account. When TSO connected delivery points are now used for flex delivery, the empty downward reference value is translated to 999.999 MW in the SDP Flex data on the FlexHub, instead of the correct value of 0 MW. This creates a discrepancy between the values calculated by the FlexHub and these calculated by Elia in their own MTR application, which uses the correct values. Since Elia compares the output of the FlexHub with the output of their own calculations, these discrepancies will be flagged or ignored since Elia will use the

results of MTR for the delivery points on the TSO grid in the further calculations of ToE volumes and BRP's perimeter corrections

For the 2020 audit there were still a number of delivery points with the incorrect 999.999 MW as downward reference value.

We do recommend correcting these downward reference values in the SDP Flex data in order to remain consistent and prevent the need for manual corrections. (**observation 4**).

Also, the auditors have been advised that issue is solved in 2021.

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

5.4 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) Business controls are largely manual and supported by little automation (observation 6, see paragraph 6.6). Because the number of activations where Transfer of Energy (53 out of 346 activations for flexibility) applies is still rather low, the current level of automation is probably cost efficient, but is prone to errors 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 ex-post processing in the TDSO-Datahub might be less costly and less prone to errors (**observation 4**, see paragraph 6.4)
- 3) Service management is not a very structured process. Elia employees handle incidents and communication on personal initiative and via email. The management of quality of the processes as well as the continuity in case of staff rollover would improve if a more structured approach were followed (**observation 5**, see paragraph 6.4)

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

Implement controls that monitor DSO activity and/or include the FlexHub operations in the ToE audit.

6.2 (2) Absence of a check on the veracity of the sub-metered Demand Response

Expectation

Elia buys a balancing product that is based on a load reduction. Elia verifies that there is an actual load reduction achieved. In case of a load reduction that is measured behind a meter that measures flow at the grid connection (the head point), Elia checks at the head point that a load reduction is achieved.

Observation

Elia has the possibility to verify that activations measures on a submeter are likely to have caused a net reduction of off-take from the grid, by comparing measurement values from the submeter(s) with the measurement values from the headpoint meters. However, this control is executed only once a year on a random and small set of observations.

Risk

Elia may have paid for activations that have not really caused a load reduction, either because the meter data is invalid, or the load was only shifted within a connection point without a real net effect on the grid offtake.

Since the number of delivery points where submeters are used for ToE are limited, and the fact that some verification steps are in place, we consider this risk as acceptable.

Recommendation

In so far that this verification step has not been integrated in the ToE operations, make sure it is part of the daily operations.

6.3 (3) Insufficient time reserved for processing FSP notifications

Expectation

Elia has committed to sending notifications to BRP_{Source} within 3 minutes after start and end of an activation. Since these messages contain calculations based on notifications from FSPs, Elia has allocated sufficient time between the receipt of the message from the FSP and the deadline for sending the derived data to the BRP_{Source}.

Observation

The deadline for submission of the notification of the FSP is equal to the deadline for Elia to notify the BRP_{Source} about potential impact.

Risk

Elia is likely to miss its 3-minute deadline. It makes sense for the FSP to wait until a late moment, when it is which activations were successful. If BRPs use this message to make changes to their balance, the delay may cause damage.

Recommendation

Allow for a period, e.g. a minute, between receipt of FSP notifications and the deadline for sending BRP_{Source} notifications.

This issue is resolved in the updated ToE rules, in which the timing to notify the BRP_{Source} has been adjusted. (See: Regels voor de organisatie van de Energieoverdracht, inwerkingtreding op 01/07/2021 chapter 14). These ToE rules are applicable as of 01/07/2021.

6.4 (4) 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.

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 our view without violating the rules set out in the regulation to run ToE completely from a system that is independent from Elia's back end systems if Elia would treat bids and activations from the aggregator's portfolio as a "virtual power plant", i.e. as a portfolio rather than a set of individual delivery points. If an ex-post approach is taken for all calculations and validation instead of the real-time approach, the implementation would have been much simpler.

6.5 (5) Service management should be based on a more structured set of processes and tools

Expectation

Elia records incidents and problems such as exceptions in process executions, disputes, and design problems, and has a structured process for following up on incidents and problems.

Observation

Whereas for the IT systems Elia does have a structured process for follow in Jira using the ITIL library for service management, there is no equivalent on the level of the business process. Incidents and problems are handled in emails, calls and meetings without a formal structure and shared administration.

Risk

It is difficult to track status of incidents and problems. Management has no proper source to supervise service quality. There is a risk that incidents and problems are not managed to conclusion. It is very hard to hand over open incidents and problems from one person to another, e.g. in case of sudden prolonged absence of a key employee.

Recommendation

Use service management tooling to handle incidents and problems in a structured manner.

6.6 (6) 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.

Observation

We found 132 organizational and 111 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.

Monitoring and controls frequency is lower than expected, due the resource intensity of the execution.

The business process documentation, and at least one of the system functional design documents was found not to include the impact of the latest changes in the regulation. We could not determine whether this has had an impact on the operations, but outdated documentation could lead to wrong decision-making in the future.

Risk

The solution does not really scale. If volumes of Transfer of Energy grow, Elia may not be able to manually manage the process. A lack of consistency in the execution may lead to arbitrary decisions.

Not updated process documentation might aggravate the situation.

Recommendation

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

Keep documentation in line with the latest changes.

6.7 (7) The process to verify the appropriateness of the selection of the X out of Y baseline method has not been formalized

Expectation

Since in 2019 an FSP has the possibility to select the X out of Y baseline method for selected products and delivery points. At the same time, Elia has the possibility to refuse such a selection.

Hence, Elia has a published and formalized process that documents the verification procedure and acceptance criteria for such a baseline selection.

Observation

Elia has conducted a study to define the context in which Elia would consider the use of the X out of Y baseline appropriate. This study delivered a model that will provide the possibility to assess whether a baseline choice is appropriate for a given delivery point. However, this has so far not resulted in a documented procedure nor the publication of acceptance criteria.

Risk

When an FSP would select the X out of Y baseline, for a delivery point where Elia considers this as inappropriate, this could lead to lengthy discussions on the reasons behind the refusal. Also, if for another delivery point the X out of Y baseline would be accepted, this might lead to questions whether the evaluations have been carried out using the same criteria.

Recommendation

Publish the procedure and criteria used in the verification of the baseline selection.

7. Annex 1: ToE Standard

The ToE requirements and TOMs for audit 2020 have been amended to cater for the changes in the regulation and procedures implemented during 2020.

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	[B1677-2]	"Chapter 7 Section IV, art. 17"
A-2	Elia keeps track of the FSP's total amount for periodical reevaluation of the minimum required bank warranty	[B1677-2]	Chapter 7 Section IV, art. 22

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

Req #	Requirement	TOM	Technical/Organizational 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 reevaluation 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.

7.2 Process Area B: 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	[B1677-2]	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 14.3
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 5
B-4a	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. (for ToE activations before 23/04/2020)	[R-ToE - 2018]	point 8.1 & 8.2
B-4b	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. (for ToE activations as of 23/04/2020)	[R-ToE]	point 8.1 & 8.2
B-5	The FSP has provided the FSP-End User declaration for all delivery points DPPG to be used for Transfer of Energy	[R-ToE]	"point 7.1
B-6	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-7	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-8	A successful prequalification run has been conducted in the last 5 years for all delivery points DPPG to be used for Transfer of Energy	[BSP T&C mFRR 2020] & [R-ToE]	"Art. II.7.6
B-9	Elia has the possibility to refuse the Baseline methodology chosen by the FSP for the Delivery Points DPPG in the mFRR market segment. This refusal needs to be motivated. Elia will inform the commission.	[R-ToE]	point 9.2.1

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

Req	Requirement	TOM	Technical/Organizational Measure
B-1	Either a mutual agreement between FSP and Supplier or a decision by the CREG to apply the standard transfer	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

	price is a precondition for participation of delivery point in flex market	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-4a	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.	B-4a.1	Elia can detect whether a valid opt-out arrangement between FSP, Supplier, BRPfsp and BRPsource is in place.
		B-4a.2	Elia can prevent an activation from occurring if it is known that there is no valid opt-out arrangement.
		B-4a.3	Elia checks periodically the validity of the opt-out arrangement for delivery points in flex markets where ToE applies
		B-4a.4	Elia blocks activations if there is no valid opt-out arrangement and handles any activation as an incident to prevent future occurrence.
		B-4a.5	Elia can correct activations that occurred while no valid opt-out arrangement was in place.

	(for ToE activations before 23/04/2020)		
B-4b	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. (for ToE activations as of 23/04/2020)	B-4b.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-4b.2	Elia can prevent an activation from occurring if it is known that there is no valid opt-out or pass-through arrangement.
		B-4b.3	Elia checks periodically the validity of opt-out or pass-through arrangements for delivery points in flex markets where ToE applies
		B-4b.4	Elia blocks activations if there is no valid opt-out or pass-through arrangement and handles any activation as an incident to prevent future occurrence.
		B-4b.5	Elia can correct activations that occurred while no valid opt-out arrangement or pass-through was in place.
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	Elia determines annually in February whether there is a positive net offtake for all delivery points where ToE applies	B-6.1	Elia can identify for all delivery points whether there was a positive annual net offtake in the previous calendar year
		B-6.2	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-6.3	Elia can detect if activations have taken place for delivery points that do not comply with the condition of positive annual net offtake
		B-6.4	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-6.5	Elia can correct activations that occurred while the condition of annual positive net offtake was not met.

B-7	Elia enforces that net offtake conditions apply for the annual period in which a delivery point may be eligible for ToE.	B-7.1	FSP may not activate a delivery point in its portfolio that does not comply anymore with the condition of positive annual net offtake
		B-7.2	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-7.3	Elia can identify cases where activations were executed on delivery points that do not comply with the condition of positive annual net offtake
		B-7.4	Elia notifies FSP about the invalid activation due to the non-compliance with the condition of positive annual net offtake
		B-7.5	Invalid activation due to the non-compliance with the condition of positive annual net offtake is corrected in the ToE calculation
B-8	A successful prequalification run has been conducted in the last 5 years for all delivery points DP _{PG} to be used for Transfer of Energy	B-8.1	Elia can detect whether a prequalification run has taken place in the last 5 years prior to activation for every DP _{PG} used for flexibility response.
		B-8.2	Elia can prevent an activation from occurring if it is known that no prequalification run has taken place in the last 5 years prior to activation.
		B-8.3	Elia checks periodically if a prequalification run has taken place in the last 5 years prior to activation for delivery points DP _{PG} where ToE applies
		B-8.4	Elia blocks activations if no prequalification run has taken place in the last 5 years prior to activation and handles any activation as an incident to prevent future occurrence.
		B-8.5	Elia can correct activations that occurred while no prequalification run has taken place in the last 5 years prior to activation for delivery points in flex markets
B-9	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-9.1	Elia has defined criteria that can be used to verify the fairness of the baseline choice selected for delivery points DP _{PG}
		B-9.2	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-9.3	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-9.4	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-9.5	Elia can correct activations that occurred while the delivery point used a not agreed upon baseline

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	[B1677-2]	Chapter 5 point 60
C-2	Elia maintains a concordance list of all delivery points with BRPsource, Supplier, FSP, BRPfsp and end consumer including master data, 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/Organizational 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, based on the access contract of the delivery point.	C-2.1	Elia has access to the appropriate sources for delivery points and is kept informed about changes to them
		C-2.2	Elia has taken measures to keep its flex registry* up to date
		C-2.3	Elia has taken measures to detect synchronization errors and inconsistencies in its registry
		C-2.4	Elia treats detected data errors as incidents**
		C-2.5	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	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

	the transfer of energy process	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 that 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 14.1
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 14.1
D-3	Elia will penalize the FSP and exclude the DPPG 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
D-4	Elia will penalize activations according to the product-specific penalties	[R-ToE]	point 14.1, 14.2 & 14.3
D-5	Elia may exclude an FSP from the next auction for SDR if he fails to provide activation notifications 1 or 2 within the time limit of 3 minutes, if this happens 3 times within 30 days	[R-ToE]	point 14.2

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

Req	Requirement	TOM	Technical/Organizational 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, and whereby Elia is not the cause of this delay.	D-1.1	Elia can test the receipt capability of FSP notifications
		D-1.2	Elia can receive FSP notifications via backup facility
		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 DPPG 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 DPPG'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-5	Elia may exclude an FSP from the next auction for SDR if he fails to provide activation notifications 1 or 2 within the time limit of 3 minutes, if this happens 3 times within 30 days	D-5.1	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 the auction of SDR.
		D-5.2	Elia checks on regular intervals whether the DP's can deliver the proposed volumes, and whether the FSP is able to process notifications in time.
		D-5.3	Elia logs communication times. Elia has implemented an alarm in case of delayed or missing messages exchanged with the FSP's participating in the auction of SDR.
		D-5.4	A measurement period is started over a 30 day period in case of missing or delayed notification. In case of 3 breached within 30 days, the FSP is notified of the penalty and access to the next auction is blocked for the implicated product.
		D-5.5	Elia will verify how future demands for flexibility can be met without the excluded FSP

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 9.2.1
E-2	The baseline for the market of SDR must always be based on High X of Y'	[R-ToE]	point 9.2.2
E-3	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 9.2.1
E-4	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 11.2, bullet 2
E-5	Elia calculates the Activation Volume for ToE as the difference between validated quarterly meter readings and the baseline	[R-ToE]	point 11.2, bullet 2
E-6	Elia calculates ToE for the delivery points in the second notification message only for compliant activations.	[R-ToE]	point 11.2
E-7	Calculated activation volumes of delivered power are corrected pro rata so that the total equals requested volume in case the calculated total volume surpasses the requested volume	[R-ToE]	point 11.2
E-8	Calculation of the delivered volume in case a DP _{PG} participating in the activation of a contracted and non-contracted mFRR bid at the same time is based on a defined and known order in which to handle the activations.	[R-ToE]	point 11.3
E-9	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 9.3.2

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

Req	Requirement	TOM	Technical/Organizational 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 DPPG in the mFRR market segment in the FSP portfolio
		E-1.2	Elia assures that no master data for a Delivery Point DPPG 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 DPPG in the mFRR market segment for the purpose of calculating ToE Volumes
		E-1.4	Elia will exclude a Delivery Point DPPG 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	The baseline for the market of SDR must always be based on High X of Y'	E-2.1	Elia has implemented a policy to always apply the High X of Y' for SDR Units
		E-2.2	Elia enforces the rule that High X of Y' baseline is applied for SDR Units
		E-2.3	Elia tests its system for compliance with the rule that High X of Y' baseline is applied for SDR Units
		E-2.4	Elia will exclude a SDR Unit from the calculation ToE Volumes, if no High X of Y baseline has been specified.
		E-2.5	Elia can restart the process to recover from missing or disputable volumes
E-3	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.	E-3.1	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 DPPG in the mFRR market segment.
		E-3.2	Elia enforces the rule that either the High X of Y' baseline or the last quarter hour baseline is applied for Delivery Points DPPG in the mFRR market segment.
		E-3.3	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 DPPG in the mFRR market segment.
		E-3.4	Elia will exclude a Delivery Point DPPG in the mFRR market segment from the calculation ToE Volumes, if the baseline specified is not Last Qh or High X of Y.
		E-3.5	Elia can restart the process to recover from missing or disputable volumes.
E-4	Activated power is limited to the maximum power (up or down) that can be activated as stipulated in the FSP-End user declaration	E-4.1	Elia has taken measures to be aware of the maximum power up or down that can be applied in the volume calculation
		E-4.2	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-4.3	Elia can detect if activations are systematically surpassing the maximum power (up or down), indicating a data problem
		E-4.4	Elia has a defined process to handle incidents where apparently the maximum power was applied incorrectly as a limit
		E-4.5	Elia can restart the process to recover from missing or disputable volumes
E-5	Elia calculates the Activation Volume for ToE as the difference between validated quarterly meter readings and the baseline	E-5.1	Elia has designed detail application rules for calculating ToE volumes
		E-5.2	Elia monitors the execution of the ToE calculations for timeliness, correctness and completeness
		E-5.3	Elia detect errors and irregularities and reports these to the identified responsible person for follow up
		E-5.4	Elia have defined procedures and allocated responsibility for following up calculation problems

		E-5.5	Elia can restart the process to recover from missing or disputable volumes
E-6	Elia calculates ToE for the delivery points in the second notification message only for compliant activations.	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	Calculated activation volumes of delivered power are corrected pro rata so that the total equals requested volume in case the calculated total volume surpasses the requested volume	E-7.1	Elia records the aggregated delivered volume was above the requested volume
		E-7.2	Elia only activates flex up to the requested volume.
		E-7.3	Elia detects when the aggregated delivered volume exceeds the requested volume
		E-7.4	Elia will reduce the aggregated delivered volume down to the requested volume pro-rata for each delivery point in the portfolio
		E-7.5	Elia will correct the balance of the FSP and BRP for the reduction imposed
E-8	Calculation of the delivered volume in case a DP _{PG} participating in the activation of a contracted and non-contracted mFRR bid at the same time is based on a defined and known order in which to handle the activations.	E-8.1	Elia has a clear record of the delivery point sequence for allocation of volume
		E-8.2	There is a clear classification of delivery points regarding the allocation of volumes
		E-8.3	Elia detects when delivery points DPPG participate simultaneous in activations of bids of contracted and non-contracted mFRR.
		E-8.4	Elia will attribute the volume delivered according a defined order. The volumes will first be allocated to the non-contracted mFRR bids, followed by the standard contracted and flex contracted. Within these bids the volume of the DP's which did not participate in simultaneous bids will be allocated first followed by the DP's involved in simultaneous bids.
		E-8.5	Elia can retroactively apply the correct allocation of energy to the delivery points and update the involved parties
E-9	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-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 well-defined criteria
		E-9.3	Elia has taken measure to assure that excluded representative days are included in the calculation if they have been accepted

		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	[R-ToE]	point 13.1.1 & 13.1.2
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 13.2
F-3	Elia notifies to BRPsource of the amount of flex that will be activated given the FSP's first notification, no later than 3 minutes after the activation started	[R-ToE]	point 13.2
F-4	Elia notifies to BRPsource the amount of flex that has been activated given the FSP's second notification, no later than 3 minutes after the activation has ended.	[R-ToE]	point 13.2
F-5	FSP notifies Elia about the set of delivery points and their respective activation volume not later than 3 minutes after the start of the activation period.	[R-ToE]	point 13.3
F-6	FSP notifies Elia about the set of delivery points and their respective activation volume not later than 3 minutes after the end of the activation period.	[R-ToE]	point 13.3
F-7	Elia provides the aggregated ToE volumes for settlement to the Supplier and FSP	[R-ToE]	point 15.1 & 15.3 & 15.4

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

Req	Requirement	TOM	Technical/Organizational Measure
F-1	Elia notifies FSP about requested flex volume prior to activation period	F-1.1	Elia ensures completeness of messaging, so as 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	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

	minutes before the activation started.	F-2.5	Elia can correct the message routing
F-3	Elia notifies to BRPsource of the amount of flex that will be activated given the FSP's first notification, no later than 3 minutes after the activation started	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 to BRPsource the amount of flex that has been activated given the FSP's second notification, no later than 3 minutes after the activation has ended.	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 not 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 not 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	Elia provides the aggregated ToE volumes for settlement to the Supplier and FSP	F-7.1	Elia has a procedure for calculating and distributing settlement volumes
		F-7.2	Elia monitors the calculation and all input processes, to assure that it can calculate the settlement volumes correctly and in time.
		F-7.3	Elia can detect if it failed to deliver settlement volumes in time
		F-7.4	Elia handles missing settlement reports as incidents
		F-7.5	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 activated volume	[R-ToE]	point 12.1
G-2	Elia allocates the difference between requested and delivered volume to the balance of the BRPfsp	[R-ToE]	point 12.1
G-3	In case of separate BRP-sources for gross injection and gross offtake, the BRPsource for gross offtake is corrected.	[R-ToE]	point 12.2
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 12.2

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

Req	Requirement	TOM	Technical/Organizational Measure
G-1	Elia corrects the balance of the BRPsource with the activated volume	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 requested and delivered volume to the balance of the BRPfsp	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
		G-2.4	Elia handles deviations between ToE volumes and imbalance settlement volumes as an incident
		G-2.5	Elia can correct the volumes in ToE and/or imbalance allocation to restore consistency
G-3	In case of separate BRP-sources for gross injection and gross offtake, the BRPsource	G-3.1	Elia keeps record of the delivery points where there are separate BRPs for gross injection and gross offtake.
		G-3.2	Elia monitors the calculation and all input processes, to assure that it can calculate the settlement volumes correctly and in time.

	for gross offtake is corrected.	G-3.3	Elia detects cases in which there are separate BRPs for gross injection and gross offtake, and corrects the BRPsource for gross offtake.
		G-3.4	Elia applies the correct allocation of ToE volumes in case of two BRPs on a single delivery point
		G-3.5	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-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.	G-4.1	Elia keeps record of the delivery points where there are separate BRPs for net-injection and net-offtake.
		G-4.2	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.
		G-4.3	Elia detects cases in which there are separate BRPs for net-injection and net-offtake and applies the correct correction.
		G-4.4	Elia applies the correct allocation of ToE volumes in case of two BRPs on a single delivery point.
		G-4.5	Elia can correct the volumes in ToE and/or imbalance allocation to restore consistency, whenever it is alerted that an error occurred during calculation.

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.