DESIGN NOTE FOR THE COORDINATION OF ASSETS:

PART I - OUTAGE PLANNING

Market Development

11/12/2017

EXECUTIVE SUMMARY

ELIA performs its pivotal role in the Belgian electricity system by operating, maintaining, and developing the transmission grid to oversee that the generated electricity meets the demand. This implies using ancillary services for system operations, maintaining grid elements, managing congestion risks, and monitoring adequacy criteria. For these purposes ELIA receives information from Grid Users, such as on the **planned or forced unavailability of assets.** ELIA receives the latter information in **the Outage Planning procedure**, which is largely described in the **European Guideline on Electricity Transmission System Operation**.

This design note describes the outage planning procedure as applicable for assets connected to the ELIA grid, regardless of whether they are connected directly, locally on the site of an ELIA-connected demand facility or via an ELIA-connected CDS.

Outage planning information is delivered to ELIA by the **Outage Planning Agent**, which is the Grid User or a third party appointed by the Grid User to enter into an agreement with ELIA. The procedure is mandatory for **Power-Generating Modules and Energy Storage Devices type B/C/D** and for **Demand Facilities**.

The outage planning information **includes the availability status, indicating one of three possibilities:** (i) **available** for operation, (ii) **unavailable** typically due to a planned maintenance of the facility or an incident, or (iii) in **testing** phase to verify whether the asset is ready for operation. Also temporary restrictions on the structural information regarding **active power capabilities** should be shared, such as a limitation of installed capacity, a change in the minimal power needed for the start-up of a Power-Generating Module, or a significant reduction in a Demand Facility's offtake level, for example, due to an annual holiday period.

The information must be shared on **asset level or where relevant on the level of the connection point**, for example in case of a Power-Generating Module that consists of different Power Units with separate connection points. The statuses and active power capabilities are given **per day before Week-ahead, and afterwards per quarter-hour.**

The outage planning of the Outage Planning Agent determines the availability of the asset for participation to the electricity markets, therefore affecting the actions of other roles in the delivery of ancillary services[1]**.** The information must be shared at least on the same level as the Day-ahead and Intraday schedules as ELIA verifies the coherence between them and will restrict the Scheduling Agent from providing schedules that are not compliant with the outage information. In case of Intraday scheduling obligation (applicable on Power-Generating Modules and Energy Storage) the outage planning and schedules must also be coherent with the level at which flexibility is bid for redispatching or balancing purposes.

Both ELIA and the Outage Planning Agent may request modifications in the outage planning of an asset. The costs of the modification are to be **remunerated** on a cost-based price offer reflecting costs that are reasonable, demonstrable, and directly related to the modification.

[1] An overview of interdependencies between different roles and responsibilities is given in the note "Future roles and responsibilities for the delivery of ancillary services."

For **cross-border relevant assets** (determined via a European methodology) and **for Power-Generating Modules and Energy Storage Devices of 25MW** or more, ELIA follows the **timeline described in the European Guideline in which the outage planning starts in July of Year-ahead.** The main outage coordination in which ELIA and the Outage Planning Agents in mutual agreement determine the outage plans for the next year is performed between August and November. Afterwards outage planning modifications remain possible. Non-cross-border relevant Demand Facilities and Power-Generating Modules and Energy Storage Devices smaller than 25MW must deliver to ELIA the outage planning information as soon as it is known by the Outage Planning Agent, without following the calendar for European outage coordination.

ELIA will monitor the assets in real-time at which moment deviations from the agreed outage planning will result in immediate action by ELIA if causing an insecure situation on the grid. **ELIA will address the Outage Planning Agent and the Grid User who remains liable** for the provision of information as well as for real-time execution in compliance with the provided information.

The design principles presented in this note will partly serve as input for the new **Federal Grid Code**. Other principles will be included in regulated Terms and Conditions or operational agreements between the Outage Planning Agent and ELIA.

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TERMINOLOGY

The table below provides a list of **definitions and concepts referred to in the design notes on the coordination of assets**. Some definitions are copied from external sources, such as the European Guidelines; in this case the reference is added in the description.

Asset
An asset in this note refers to a demand facility or a power generating module (PGM) (GL SO, ref [1]), extended to the notion of energy storage units. The asset is part of the ELIA control area, directly or indirectly via a connection in a distribution system or closed distribution system. An asset is explicitly listed in the connection agreement with the relevant system operator.
Availability plan
(GL SO, ref [1]) “the combination of all planned availability statuses of a relevant asset for a given time period”
Availability status
(GL SO, ref [1]) “the capability of [an asset or grid element] to provide a service for a given time period, regardless of whether or not it is in operation”
(Physical) Congestion
(GL CACM, ref [5]) “any network situation where forecasted or realised power flows violate the thermal limits of the elements of the grid and voltage stability or the angle stability limits of the power system”
Connection agreement
(NC RfG, ref [4]) “a contract between the relevant system operator and either the power-generating facility owner, demand facility owner, distribution system operator or HVDC system owner, which includes the relevant site and specific technical requirements for the power-generating facility, demand facility, distribution system, distribution system connection or HVDC system”
Connection Point (CP)
(NC RfG, ref [4]) “the interface at which the power-generating module [own addition: or power unit], demand facility, distribution system or HVDC system is connected to a transmission system, offshore network, distribution system, including closed distribution systems, or HVDC system, as identified in the connection agreement” The connection point separates the transmission grid from installations of which the tripping only has an effect on the grid user connection to the concerned point. The connection agreement indicates the physical location and the voltage level of the point of connection to the grid**.**

(Cross-border) relevant demand facility
(GL SO, ref [1]) “a demand facility which participates in the outage coordination and the availability status of which influences cross-border operational security”
Day-ahead procedure
The time frame of the Day-ahead procedure for the coordination of assets is from 12:00 to 18:00 hour on day D-1
Delivery Point (DP)
A point on an electricity grid or within the electrical installations of a grid user connected to TSO or DSO grid where the concerned ancillary service is delivered. This is associated with a metering system that enables ELIA to control and assess the delivery of the service.
Demand Facility
(NC DCC, ref [3]) “a facility which consumes electrical energy and is connected at one or more connection points to the transmission or distribution system. A distribution system and/or auxiliary supplies of a power generating module do not constitute a demand facility.” Note that a Demand facility can contain one or more Demand units. Note that following the definition of an Asset, the Demand Facility as such is explicitly identified in the Connection Agreement with the relevant system operator. Examples of a Demand Facility: - a commercial building (e.g., shopping mall) - a factory - each of the factories on an industrial site (if a connection point per factory)
Demand unit
(NC DCC, ref [3]) “an indivisible set of installations containing equipment which can be actively controlled by a demand facility owner or by a CDSO, either individually or commonly as part of demand aggregation through a third party” Note that a Demand unit can be (a set of) installation(s) behind a Delivery Point for the delivery of ancillary services to ELIA, but the requirements in this design note are at the level of the Demand facility. Examples of a Demand Unit: - a motor on an industrial site - an air conditioning system or refrigerator - a charging station for electric vehicles

ELIA grid

ELIA operates the following grids:

- Belgian transmission grid: above 70kV to 380kV high-voltage transmission system (legal monopoly for ELIA)
- Local or regional transmission grids until 70kV in Flanders (Plaatselijk Vervoernet), Wallonia, and the Brussels-Capital region

Throughout the design note “TSO” or “TSO-connected” in the Belgian context refers to these grids.

Energy Storage device

In this design note an Energy storage device is considered as a device used with the purpose to store electrical energy that is to be injected into the system at a later time for the grid user’s own use or as a service offered to the system operator for balancing or congestion management.

Properties of an energy storage device:

- An energy storage device has a limited energy reserve which implies a maximum period of consecutive quarter-hours during which the device can be continuously charged (loading) or discharged (injecting).
- The energy storage device can be charged by taking energy off the grid or by injection from a Power Generating Module.
- The energy storage device has a permanent connection point to the TSO or (C)DSO grid (directly or locally via a demand facility).

(NC RfG, ref [4]) A specific type is Pump-Storage, i.e., a hydro unit in which water can be raised by means of pumps and stored to be used for the generation of electrical energy.

Note that following the definition of an Asset, an Energy storage device as such is explicitly identified in the Connection Agreement with the relevant system operator.

ELIA proposes to apply the same classification as for Power Generating Modules (of which types B, C, D are considered as significant):

- Type D:
  - All energy storage devices connected to 110kV or higher
  - All energy storage devices ≥ 75MW
- Type C:
  - Energy storage device between 25 – 75 MW and connected below 110kV
- Type B:
  - Energy storage device between minimum threshold – 25 MW and connected below 110kV
  - The minimum threshold is between 0.25 – 1 MW (to be confirmed)
- Type A:
  - Energy storage device smaller than type B minimum threshold and connected below 110kV

Forced Outage
(GL SO, ref [1]) “the unplanned removal from service of a relevant asset for any urgent reason that is not under the operational control of the operator of the concerned relevant asset”
Grid User
each natural or legal entity owning an asset connected to the transmission or (closed) distribution grid with the possibility to take electricity off the grid or to inject electricity on the grid
Intraday procedure
The time frame of the Intraday procedure for the coordination of assets is from day D-1 18:00 until real-time.
Outage Planning Agent
(GL SO, ref [1]) “an entity with the task of planning the availability status of a relevant power generating module, a relevant demand facility or a relevant grid element” ⇨ See “Design note for the coordination of assets: Part I – Outage Planning.”
Power Generating Module (PGM)
(NC RfG, ref [4]) “either a synchronous power-generating module or a power park module” **“‘synchronous power-generating module’ (SPGM)** means an indivisible set of installations which can generate electrical energy such that the frequency of the generated voltage, the generator speed and the frequency of network voltage are in a constant ratio and thus in synchronism;” **“‘power park module’ (PPM)** means a unit or ensemble of units generating electricity, which is either non-synchronously connected to the network or connected through power electronics, and that also has a single connection point to a transmission system, distribution system including closed distribution system or HVDC system;” The Power-Generating Modules are classified in four types: PGM type A/B/C/D. - PGM type D: ▪ All PGM connected to 110kV or higher ▪ All PGM ≥ 75MW - PGM type C: ▪ PGM between 25 – 75 MW and connected below 110kV - PGM type B: ▪ PGM between minimum threshold – 25 MW and connected below 110kV ▪ The minimum threshold is between 0.25 – 1 MW (to be confirmed)

- PGM type A:
    - PGM smaller than PGM type B minimum threshold and connected below 110kV

Note that following the definition of an Asset, a Power-Generating Module as such is explicitly identified in the Connection Agreement with the relevant system operator. A Power-Generating Module can have one or more connection points to the grid. Several Power-Generating Modules can also share a connection point to the grid.

PGM type B/C/D are defined as Significant Grid Users (SGU) in the European Guideline for Transmission System Operations (ref [1], therefore applicable for the requirements for operational data exchange in the framework of the coordination of assets.

Power Unit (PU)

A physical installation which can generate electrical energy and that can be part of a set of installations forming a Power-Generating Module. Contrary to a Power-Generating Module, a Power Unit has only 1 connection point to the grid.

(See the section "Questions & Answers" for examples)

Scheduling Agent

(GL SO, ref [1]) "the entity or entities with the task of providing schedules from market participants to TSOs, or where applicable third parties"

⇨ See "Design note for the coordination of assets: Part II – Scheduling and Redispatching."

Setpoint

(NC RfG, ref [4]) "the target value for any parameter typically used in control schemes"

Significant Grid User (SGU)

The Significant Grid Users in the European Guidelines on Electricity Transmission System Operation (GL SO, ref [1]) and therefore applicable to the requirements on operational information exchange and this design note are:

- existing and new Power Generating Modules type B/C/D (ELIA-connected & (C)DSO-connected)
- existing and new ELIA-connected demand facilities;
- existing and new ELIA-connected closed distribution systems;

According to the Guidelines also the following are Significant Grid Users, however not applicable in this design note[2]:

- existing and new demand facilities, closed distribution systems and third parties if they provide demand response directly to the TSO in accordance with the criteria in Article 27 of Commission Regulation (EU) 2016/1388 (3);

[2] It concerns Power Generating Modules type A and Demand facilities that deliver ancillary services other than outage planning, scheduling, and flexibility for redispatching. The operational requirements are described in the design of the concerned ancillary service.

- providers of redispatching of power generating modules or demand facilities by means of aggregation and providers of active power reserve in accordance with Title 8 of Part IV of this Regulation;
Week-ahead
(GL SO, ref [1]) “the week prior to the calendar week of operation”
Year-ahead
(GL SO, ref [1]) “the year prior to the calendar year of operation”

1. Introduction

In order to operate the grid in a secure and optimal way it is required that assets send a minimum set of information enabling ELIA to assess potential risks and alter the dispatching of these assets in order to mitigate these risks**. Historically the Access Responsible Party (ARP) via the CIPU[3] contract provided ELIA with information on a range of large production units used for maintenance planning, congestion management, and balancing.** Shifts in the regulatory context (European guidelines and connection codes), in the energy landscape (decommissioning of thermal units; rise of decentralized & intermittent production), the emergence of new types of market players, stakeholder concerns with the existing contractual/operational/legal framework, and evolving needs for ELIA's grid operations motivate **a review of the organisation for the delivery of ancillary services.**

This changing context is explained in the document "Future roles and responsibilities for the delivery of ancillary services," describing the current and future roles and responsibilities regarding the delivery of the different products. The note highlights **the evolution of one CIPU contract signed by the Grid User's ARP towards a set of procedures for which ELIA enters into contracts with a variety of roles, among which Balance Responsible Party (BRP, formerly ARP) but also the Outage Planning Agent (OPA), the Scheduling Agent (SA), the Balancing Service Provider (BSP), the Restoration Service Provider (RSP), the Defense service provider (DSP) and the Voltage Service Provider (VSP).** For each role the document refers to the relevant European legal context and explains the interdependencies with other roles. The final objective for each role is to create a unique operational, contractual and regulatory framework applicable to all types of assets (incl. when applicable smaller ones not subject to CIPU).

The creation of **a new framework with different roles does not exclude the possibility that, in line with the current practice,** a single entity is responsible for the delivery of the different ancillary services associated to a single connection point. The new framework creates the possibility for the grid user to appoint different entities for the different relevant roles associated to its connection point without being obliged to spread the responsibilities. In its design proposal ELIA has avoided direct links (whether contractual or operational) between the different roles. However, as explained in the document "Future roles and responsibilities for the delivery of ancillary services" the Grid User has a key role to play in the coordination of the different entities to assure coherence between their operations. ELIA may also ex ante restrict the delivery of incoherent data.

The underlying document gives a closer look at one procedure in particular, namely the outage planning of production units, energy storage devices, and demand facilities, delivered to ELIA by the Outage Planning Agent. It is the result of an analysis to redesign the coordination of assets (thereby replacing the CIPU contract) discussed with relevant stakeholders and regulators in the iCAROS[4] Task Force. The iCAROS project focuses on the procedures relating to outage planning (this document), scheduling and redispatching[5], and the use of ancillary services in congested areas[6]. Outage planning is a

[3] CIPU refers to Coordination of the Injection of Production Units.

[4] iCAROS refers to "integrated Coordination of Assets for Redispatching and Operational Security".

[5] See the "Design note for the coordination of assets: Part II – Scheduling and Redispatching".

[6] See the "Design note for the coordination of assets: Part III – Congestion Risk Indicator".

procedure starting in year-ahead until real time allowing ELIA to assess the availability of assets connected to the grid and their impact on congestion, balancing, and adequacy. This document includes also a description of the interdependencies with other roles and hence the coordination which needs to be organized by the Grid User in case different entities become active at one single connection point.

Despite the evolutions in contractual framework and responsibilities, the concrete procedure of outage planning does **not change substantially for production units that were previously subject to outage planning obligation and demand facilities which also today provide information in contact with their Key Account Manager and Regional Control Centers.** The impact is **more profound** for existing and new assets (other production, storage, and cross-border relevant demand) for which the described outage planning is **a new operational requirement**.

> **The current note proposes a design for the coordination of assets connected to the ELIA grid and to ELIA-connected CDS, regardless of whether the asset is directly connected to the ELIA grid or locally on the site of a demand facility or CDS.**
>
> The inclusion of assets connected to DSO grids is subject to a separate trajectory between ELIA and Synergrid and will be presented at a later time.

1.1. Document structure

This note describes in more detail the design of the Outage Planning:

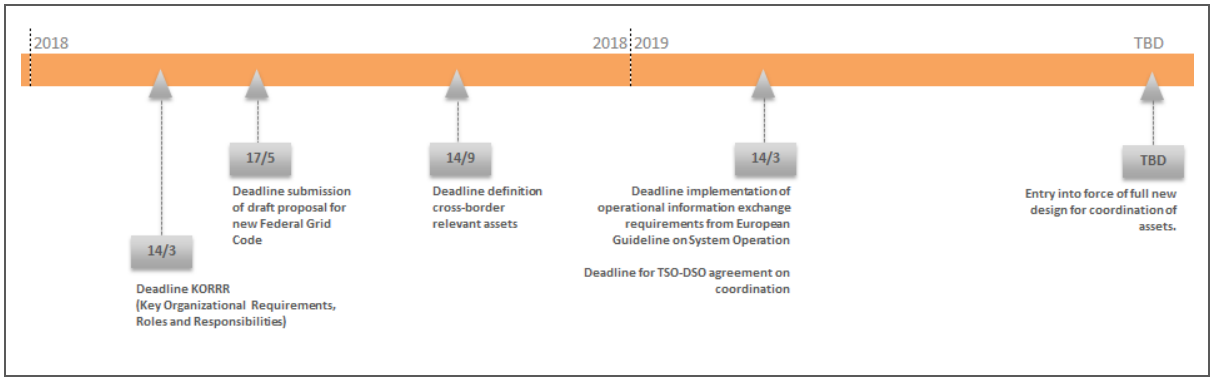
- the purpose of outage planning for ELIA
- the evolution in regulatory and contractual framework
- the role and responsibility of the Outage Planning Agent vis-à-vis ELIA as well as its influence on the actions of other roles
- the set of assets subject to outage planning obligation (production units, energy storage devices, and demand facilities)
- the procedure for data exchanges in terms of content and timing
- the associated remuneration mechanism in case a change in the outage planning is requested (by the Outage Planning Agent or by ELIA)
- the verification of exchanged information and liabilities

The conclusion provides an overview of the aspects of the design that ELIA will propose to include in the new Federal Grid Code. [7]

1.2. Indicative timeline

Substantial aspects of the design are enforced in the European Guideline on Electricity Transmission System Operations (Commission Regulation (EU) 2017/1485). The timeline is therefore largely affected by the entry into force of the guideline and the trajectory for the adaptation of the Federal Grid Code.

[7] ELIA will submit a proposal for a new Federal Grid Code in May 2018.



This design document will be translated into requirements for the new Federal Grid Code, which will be submitted to the competent authority on May 17th 2018.

The European Guideline on Electricity Transmission System Operations refers to two concrete methodologies that have an impact on Outage Planning:

1. The definition of "cross-border relevant assets" which are obliged to participate to outage coordination on European level. This definition might affect the obligations on demand facilities regarding outage planning. According to article 84 of the European Guideline on Electricity Transmission System Operations the definition must be developed 12 months after entry into force of the Regulation, therefore 14/09/2018.

2. The *Key Organizational Requirements, Roles and Responsibilities (KORRR)* is a legally binding agreement among all TSOs imposed in article 40 of the European Guideline on Electricity Transmission System Operations. KORRR enforces rules on operational information exchange for the implementation of the related articles in the Guideline with a focus on responsibilities of TSOs, DSOs, as well as Significant Grid Users. The KORRR must be submitted for approval to all EU regulatory authorities 6 months after entry into force of the Regulation, therefore 14/03/2018 at the latest.[8]

The formal implementation deadline of the articles on operational information exchange of the European Guideline for Electricity Transmission System Operation is on 14/03/2019. However, as it is doubtful that all the design requirements can be achieved before this deadline, ELIA will together with all relevant stakeholders and regulators investigate a possible alternative yet ambitious timeline for implementation.

The underlying document explains future design principles, not the details for operational implementation and IT impact. During 2018 ELIA will together with the concerned stakeholders create a more specific implementation plan, including regulatory, contractual and IT-related aspects. Also links with other frameworks and regulations (e.g., for purpose of Transparency on European level[9]) will be investigated to avoid double data flows.

[8] For more information on KORRR: see Annex 2.

[9] As described in Commission Regulation (EU) No 543/2013 of 14 June 2013 on submission and publication of data in electricity markets and **amending Annex I to Regulation (EC) No 714/2009** of the European Parliament and of the Council.

2. Purpose of Outage Planning for ELIA

Outage coordination provides ELIA information on the availability of relevant assets for participation to the electricity market and to ancillary services. Unavailability is in general the result of periodic maintenance on the asset, technical conversions on the asset, or reparation following a forced outage. As availability plans can be determined early on and modifications to the planning may require substantial preparation and replanning well in advance (especially for large production units), the outage coordination for calendar year Y starts in Year-ahead.

ELIA uses the information received in the outage coordination process in the following ways. ELIA verifies whether these criteria are respected during the outage coordination exercise in Year-ahead, as well as on a frequent basis between Year-ahead and real-time in case of change in the outage planning.

- Adequacy check:

  The goal is to avoid or spread the risks for scarcity throughout the year to assure sufficient availability of production means to cover the demand for electricity at a given point. To this end ELIA estimates the weekly scarcity risks and shares information with the Outage Planning Agents on the total acceptable level of production capacity which can be in outage during each week of the year Y.

- Local congestion management:

  The goal is to reduce the risk that insufficient flexibility for redispatching would be available in case of congestions. Therefore ELIA coordinates the outages to avoid simultaneous unavailability of significant grid users with redispatching flexibility in the same electrical zone.

- Maintenance planning on the ELIA grid:

  ELIA determines its own planning for maintenance of the grid in such a way that, as much as possible, it concords with the outage of the significant grid users. The goal is to ensure that ELIA's grid maintenance affects the grid users as little as possible.

- Risk assessment of unavailability of other ancillary services:

  The goal is to prevent that an insufficient capacity would be available for ancillary services (FCR, aFRR, mFRR, Voltage regulation, and Black Start services). A simultaneous outage of several providers substantially increases the risk of insufficient reserve volumes on day D. ELIA also verifies that not more than one Black Start providing unit is in outage at each moment of the year. Despite possible future changes to the design of these ancillary services, the use of outage coordination to assess the risk of inacceptable levels of unavailability will remain as a general principle.

In the case that one of the above criteria is not respected, ELIA may contact the Outage Planning Agent to negotiate a rescheduling of the foreseen outage period.

In addition the outage information determines whether during day D active power can be exchanged or not. Thereby the outage planning restricts the schedules which can be delivered by the Scheduling Agent in Day-ahead and Intraday. Before Day-ahead the outages are used to correct forecasts by ELIA, which (just like schedules in Day-ahead and Intraday) are used as input in load flow analyses. This outage information is also used for long-term capacity calculations and international congestion management.

3. Regulatory and Contractual Framework

This chapter provides an overview of the hierarchical regulation and documentation in which the different aspects of the proposed design are or will be embedded.

Historically the outage planning procedure (solely for large production units) was laid out only in the Federal Grid Code and the CIPU contract. The CIPU contract included a list of procedures for coordination of assets starting from Year-Ahead with the procedure for outage or 'revision' planning. The contract specified the modalities that were principally described in the Federal Grid Code on the calendar for information exchanges and the possibilities for both ELIA and the provider (Access Responsible Party) to modify outage plans in mutual agreement.

Now, the basic operational requirements for outage planning of (internal and cross-border) relevant assets are foreseen in the European Guideline on Electricity Transmission System Operation. In addition part of the design for the coordination of assets will be included in the new Federal Grid Code, regulated Terms & Conditions, and non-regulated procedural agreements (see Figure 3.1). The design principles will therefore be laid out in several layers of regulation and operational agreements with generalized rules applicable for all providers.

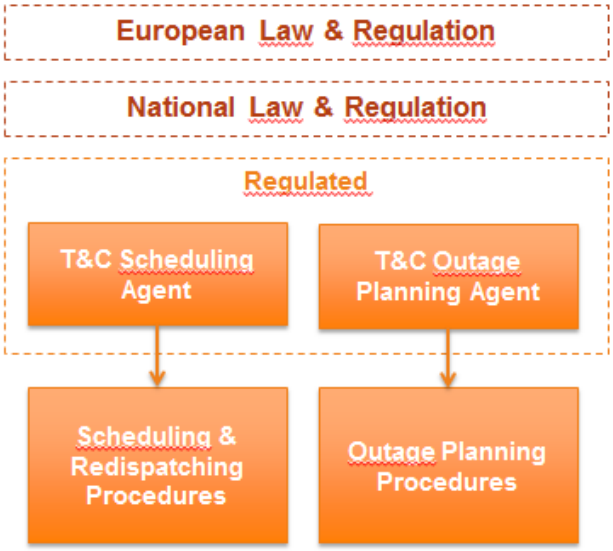


Figure 3.1. Hierarchy of regulatory and contractual documentation (T&C = Terms & Conditions)

European Guideline on Electricity Transmission System Operation

The European Guideline on Electricity Transmission System Operation contains several sections which provide the fundamental principles for the development of a contractual framework for Outage Planning. The articles that are of particular relevance are listed in Annex 1.

The guideline imposes on TSO-connected and (C)DSO-connected Power-Generating Modules to deliver outage plans. The TSO is given the possibility to exempt (C)DSO-connected Power Generating Modules from outage planning obligation (but not so for TSO-

connected Power-Generating Modules). The guideline creates the "Outage Planning Agent" as the party responsible for delivering the information, and describes the outage coordination procedures (in terms of statuses and timeline) in particular applicable to all cross-border relevant assets (including production and demand) and grid elements.

As indicated the guidelines also enforces rules via the *Key Organisational Rules, Roles and Responsibilities (KORRR)* and the methodology which will determine the criteria for cross-border relevance assets.

Federal Grid Code

The core rules and principles of the coordination of assets will be laid out in the Federal Grid Code so as to provide a sustainable future framework for coordination of assets and in particular outage planning and congestion management. Explicit requirements of the European Guideline will not be repeated in the Federal Grid Code, however if allowed, exemptions on guideline obligations can be stated.

ELIA's proposal of the design aspects that are to be referred to in the Grid Code are added at the end of this document (chapter "Summary & Impact on Federal Grid Code").

Terms & Conditions for the Outage Planning Agent

While the Federal Grid Code sets out the core rules and principles, more detailed design principles will be described in Terms and Conditions. After a public consultation, the Terms and Conditions are to be submitted to the regulatory authority with a request for approval.

Procedures for the Outage Planning Agent

In compliance with the framework provided by European and national grid codes and terms and conditions, the practical modalities for the Outage Planning Agent will be described, taking into consideration the specific context of the signatory.

Connection agreement

The Grid User must formalize in the Connection Agreement which party is to take on the role of Outage Planning Agent for the assets in the Connection Agreement that are subject to outage planning obligation as described in this design note.

4. Responsible Party: Outage Planning Agent

European Guideline on Transmission System Operation

Article 3 Definitions

Definition 87: 'outage planning agent' means an entity with the task of planning the availability status of a relevant power generating module, a relevant demand facility or a relevant grid element;

Article 89 Appointment of outage planning agents

1. Each TSO shall act as the outage planning agent for each relevant grid element it operates.

2. For all other relevant assets, the owner shall appoint, or act as, the outage planning agent for the concerned relevant asset and shall inform its TSO about that appointment.

Article 103 Real-time execution of the availability plans

1. Each power generating facility owner shall ensure that all relevant power generating modules it owns and which are declared 'available' are ready to produce electricity pursuant to their declared technical capabilities when necessary to maintain operational security, except in case of forced outages.

2. Each power generating facility owner shall ensure that all relevant power generating modules it owns and which are declared 'unavailable' do not produce electricity.

3. Each demand facility owner shall ensure that all relevant demand facilities it owns and which are declared 'unavailable' do not consume electricity.

[...]

In compliance with articles 3 and 89 of the European Guideline on Transmission System Operation **ELIA enters into an agreement with the Outage Planning Agent** as the party responsible for delivering the information related to the availability of Power-Generating Modules/Power units, Energy Storage devices, and Demand Facilities:

- the availability plan, i.e., *"the combination of all planned availability statuses of a relevant asset for a given time period" (GL SO, art. 3, definition 70);*
- the active power capability restrictions in case the asset concerns a PGM, i.e., temporary restrictions on the PGM's structural installed capacity;
- without any delay, updates to availability statuses or active power capability restrictions when changes occur in real-time.

The role and responsibilities of the Outage Planning Agent are taken on by the Grid User (the owner of the asset), who may delegate the task to a third party. The Outage Planning Agent will be subject to the rules described in the national Terms & Conditions for the Outage Planning Agent and will take on the rights and obligations of the Outage Planning towards ELIA. Therefore the Outage Planning Agent is the contact person for ELIA with respect to information exchanges and discussions on modifications of the outage plan.

The Guideline does not impose or forbid a relation between the agents and another party, such as the BSP or BRP.

Note that even when the Grid User appoints a third party as Outage Planning Agent the Grid User remains responsible for:

- assuring that the Outage Planning Agent delivers the service in **compliance with the European Guidelines** (i.e., assure that outage planning information is being delivered following the described modalities and timeline)[10].

- for the **execution of the Outage Plans in Real-time**[11].

The Grid User therefore remains liable for the consequences of deviations from the availability plan in Real-Time.

[10] As imposed in KORRR.

[11] As imposed in article 103 of the European Guideline on Electricity Transmission System Operation.

5. Interdependencies with other parties

ELIA's design proposal includes independent contractual structures but acknowledges the logical operational links between the information received from each role. However certain aspects need to be coordinated in an indirect way via the Grid User or will be organized by ELIA.

Impact on Voltage Service Provider & Restoration Service Provider – Coordinated by ELIA/Grid User:

- The outage planning of a power unit determines its availability for ancillary services

  ELIA will take into account the availability plan of the Outage Planning Agent to determine the availability of services of the Voltage Service Provider and the Restoration Service Provider, who need to contact the Grid User in order to detect the reason for this.

Impact on Balance Responsible Party (BRP) & Scheduling Agent – Coordinated by ELIA/Grid User:

- The Outage Planning Agent delivers ELIA the information on whether or not a particular asset will be available for exchanging energy in the electricity markets. The availability status therefore defines the operational margin of the BRP and Scheduling Agent during a specific day.

  ELIA may block the Scheduling Agent or BRP to submit information that is incoherent with the availability plan. They need to contact the Grid User for the reason of this.

  See chapters 7 & 11 in this document.

Impact on Balancing Service Provider (BSP) & Scheduling Agent – Coordinated by ELIA/Grid User:

- ELIA agrees with the Outage Planning Agent on periods for maintenance and tests, during which the flexibility on the asset cannot be commercialized.

  ELIA may restrict bidding possibilities and notify the BSP and Scheduling Agent if a restriction is applicable for a particular delivery point. The BSP needs to contact the Grid User in order to detect the reason for this.

  See chapters 7 & 11 in this document.

Impact on Scheduling Agent and Balancing Service Provider (BSP) – Coordinated by Grid User:

- The different information must be exchanged on a coherent level ('delivery point') for all services to allow a correct coordination. For example, if outage planning and schedules are required per Power Unit within a Power-Generating Module, then the flexibility must be offered per Power Unit as

well.

ELIA will restrict the delivery of schedules and flexibility bids on the data entry platforms and notify the Scheduling Agent and BSP if a restriction is applicable. A coherent level can be a precondition to offer services (during prequalification). The Scheduling Agent and Balancing Service Provider should contact the Grid User in order to detect the reason for this.

See chapter 6 in this document.

6. Obligations on Asset Level

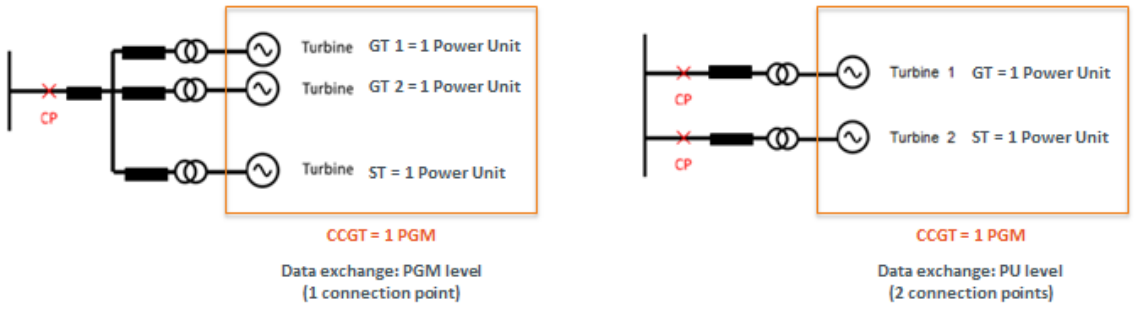
ELIA requires outage planning of Power Generating Module (or the Power Unit level), Energy storage units, and Demand Facilities. Although the obligations are generally applicable, the concrete practical impact may differ (explained further in this document).

6.1. Power Generating Modules

In articles 46 and 49 the European Guideline on Transmission System Operation requires that ELIA receives the availability plans (information on "scheduled unavailability") and the active power capability restrictions of the Power Generating Modules type B, type C, and type D connected to the ELIA grid either directly, locally on the site of a demand facility, or connected via an ELIA-connected CDS.

The information is delivered **per PGM or,** if the PGM consists of several power units connected to the ELIA grid via different connection points, then the information is delivered **per power unit (PU)**[12]. In the latter case, the power unit level is needed by ELIA as before Day Ahead the outage planning information serves as input for security and load flow analyses which assess the system contingencies on busbar or connection point level.

Example of data exchanges on PGM or PU level



6.2. Demand Facilities

In Part III Operational Planning – Title 3 Outage Coordination the European Guideline on Transmission System Operation **requires that ELIA receives the availability plans of cross-border relevant demand facilities**. Note that the methodology for assessing whether or not a demand facility is cross-border relevant is under development at European level (article 84 of the European Guidelines on Electricity Transmission System Operation) and beyond the scope of this design note.[13]

ELIA requests to receive such availability information also of demand facilities that are not identified as cross-border relevant. The objective of outage coordination of demand facilities is to receive information on periods of reduced gross consumption of the demand facility. This includes periods reflecting an annual holiday, incidents (e.g., burn down), bankruptcy, a reconstruction of part of the demand facility, which all strongly reduce

[12] For examples of data level for coordination: see annex 3

[13] The definition of cross-border relevant demand facilities must be developed by September 2018.

the consumption level below its historical value. As this concerns information which is typically shared between a grid user and ELIA, **this does not concern a new process but rather a formalization of existing practice, which will be implemented via a lighter process than the default outage planning** (see chapter 8).

Availability plans and reduced consumption data are delivered at least per Demand Facility.

6.3. Energy Storage

Although energy storage is not subject to the European Guideline on Electricity Transmission System Operation, ELIA requests to receive the same information as for Power-Generating Modules, namely the availability plans and active power capability restrictions of devices for energy storage type B, type C, and type D.

The information is delivered per Energy Storage device connected to the grid via a single point of connection.

6.4. Level of coordinated data exchange across procedures

This design note provides the minimum requirements of ELIA, including the level on which data is exchanged: per Power Generating Module or Power Unit (depending on connection), per Demand Facility, and per Energy Storage device.

If scheduling or bidding for redispatching is exchanged on a more detailed level, then the outage planning information must be exchanged in more detail as well. **The levels across the three procedures must remain coherent. This is applicable in case the asset is subject to Intraday scheduling obligation (Power-Generating Modules and Energy Storage devices)** because on the one hand schedules are adapted when flexibility is activated for redispatching, and on the other hand ELIA will restrict the delivery of schedules that are not coherent with the outage planning information. Therefore the information across the three procedures (outage planning, scheduling, bidding) must be delivered on the same level.

The same interdependence exists with bidding for balancing (by the Balancing Service Provider (BSP)): If the BSP requests prequalification on a subdelivery point of an asset with Outage Planning and/or Scheduling obligation then the outage plans and schedules must be delivered on the level of the subdelivery point (pre-condition for prequalification).

Example:

> A wind park may be connected to the ELIA grid via one connection point. If the park's flexibility is commercialized by multiple Balancing Service Providers (e.g., two BSP each for half of the wind mills) then the schedules and outage planning must be coherent with the split.
>
> For an OCGT with both gas turbines connected to the same connection point, ELIA requires outage plans, schedules, and flexibility bids on the level of the OCGT. The Grid User (coordinating between the Outage Planning Agent and Scheduling Agent) may decide to provide the info on the PU level of the gas turbines but this must be done for all procedures.

The Grid User is responsible for reaching an agreement among the different agents on the level of coordinated data exchange.

Demand Facilities are exempted from scheduling obligation and can voluntarily bid flexibility for redispatching purposes. **Coherence between outage planning and bidding**

is therefore not an issue: the level for outage planning (Demand Facility) is here independent of the delivery point offering flexibility (which can be monitored via submetering).

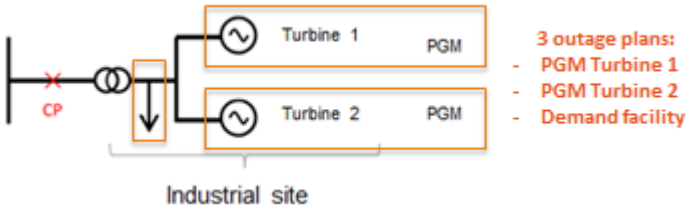
Note that participation to a particular ancillary service may require the exchange of outage planning information as well. Such obligations are to be specified in the design of the respective ancillary service. The modalities explained in this document may therefore also apply to assets not subject to general requirements for Outage Planning as described in this document. Given the large set of assets subject to outage planning obligation, the additional requirements due to delivery of other ancillary services will, however, be limited.

6.5. Conclusion and examples

All Power Generating Modules and energy storage devices type B/C/D as well as (internal and cross-border relevant) demand facilities must provide ELIA information on availability status and active power capability.

ELIA requires data minimum at the level coherent with the asset or the connection point. The Outage Planning Agent (in coordination with the Grid User and Scheduling Agent) can decide to provide more detailed information.

Data exchanges for an industrial site with both demand facility and local PGM



7. Data exchanges

Two types of data are requested for power units, energy storage devices, and demand facilities:

- **Availability statuses** (available, unavailable, testing)
- **Restrictions in the possible active power exchange** (i.e., limitations compared to installed capacities or forecasted offtakes)

The exchanged data on outage planning will indirectly be shared with the Scheduling Agent and BRP, as explained in this chapter.

Note that there are similar requirements by ENTSO-e and ACER regarding the transparency of information on the availability of assets (https://transparency.entsoe.eu/ and http://www.acer.europa.eu/en/remit/Pages/default.aspx). During the implementation phase ELIA together with the concerned stakeholders will investigate to which extent information received from the Outage Planning Agent can be reused to facilitate the market parties in the execution of their obligations following from the legislation on Transparency.

7.1. Data exchanges for Power Units and Energy Storage

Availability plans indicate the availability status of the asset for a specific period of time.

The Outage Planning Agent must yearly provide ELIA with availability plans starting from the year before entry into service until the permanent decommissioning of the concerned asset. The dates of commissioning and decommissioning are communicated to ELIA via other communication channels[14], but will need to be confirmed simultaneously with the delivery of the original availability plans. The Outage Planning remains mandatory when the asset participates in Strategic Reserves as such assets are not yet permanently decommissioned (see Figure 7.1).

In addition the Outage Planning Agent must deliver information on the active power capability restriction, i.e. inform ELIA when the structural installed or contractual capacity is not fully available or will not be used to its full extent.

The quality of the received availability plans will be verified by comparison with information received from other parties (e.g. schedules of the Scheduling Agent) and with real-time metering, as explained further in this document and in particular in chapter 11.

[14] Dates of temporary and permanent decommissioning are to be provided in accordance with article 4bis of the Electricity Law.

The underlying design notes focuses on the period in which the asset is in service, including start and end date of commissioning and the status for each moment in between.

The use of availability statuses on assets in Strategic Reserve is explained in the design of Strategic Reserve. Note that the fundamental principle will be as in this note, but with additional requirements on which status may apply in which period.

Figure 7.1. Overview of availability statuses

7.1.1. Availability status for Power Units and Storage

Articles 92 and 101 of the European Guideline on Transmission System Operation define three availability statuses for commissioned assets:

- The status "**Available**" indicates that the "asset is capable of and ready for providing service regardless of whether it is or it is not in operation."

  'Providing service' refers to participation to the electricity market or to ancillary services. The 'Available' status implies that the Power Generating Module/Power Unit or Energy Storage device can be in operation on day D and therefore generate electricity (or load for storage).

- The status "**Unavailable**" indicates that the "asset is not capable of and ready for providing service."

  The 'Unavailable' status implies that the Power Generating Module/Power Unit or Energy Storage device will not be and cannot be started to be in operation on day D.

  The following additional information must be delivered to ELIA together with the original availability plan or if relevant in case of amendments to the availability plan:

  - The reason of unavailability (planned outage for maintenance; forced outage with explanation of the cause).
  - The conditions that may lead to the unavailability of the asset in real-time (forced outage), if such conditions are identified.
  - The time required to regain the status "available".

- The status "**Testing**" indicates that the asset's capability for providing service is being tested.

  The status "Testing" can be applied in the period after the commissioning of a new asset and after a period with status "Unavailable".

The "Testing" status is to be applied in agreement between the Outage Planning Agent and ELIA as the tests are to be performed in close coordination between the parties and therefore needs to be planned operationally at both sides. As validation of the test by ELIA is needed, a request by ELIA to reschedule the Testing status before a mutual agreement is reached will not be remunerated by ELIA.

The following additional information must be delivered to ELIA one month before the start of the "Testing" status:

- A detailed test plan[15]
- An indicative generation schedule (for PGM) or also consumption schedule (for energy storage devices)

7.1.2. Active Power Capability Restrictions on Power Units and Storage

By default when the asset has the status 'Available' **the full active power range of the installed capacity is assumed to be available.** [16]

In the case this **assumption is not valid** and there is a temporary restriction of the active power capability that can be delivered by the asset, **the Outage Planning Agent should inform ELIA of the restricted active power capability and the reason for the restriction.** Similarly the Outage Planning Agent should notify ELIA of any modifications to the minimum power required for start-up.

7.2. Data exchanges for Demand Facilities

Availability plans indicate the availability status of the demand facility for a specific period of time.

7.2.1. Availability status of Demand Facilities

Article 92 of the European Guideline on Transmission System Operation defines three availability statuses for commissioned assets. The statuses are harmonized on European level as the TSO is to transfer the availability plans of cross-border relevant assets to a European platform. The interpretation of the availability statuses in the case of demand facilities is, however, different than for power units and energy storage devices.

- The status "**Available**" indicates that the "asset is capable of and ready for providing service regardless of whether it is or it is not in operation."

  'Providing service' refers to participation to the electricity market or to ancillary services. The 'Available' status implies that the Demand Facility can be in normal operation on day D and therefore consume electricity.

- The status "**Unavailable**" indicates that the "asset is not capable of and ready for providing service."

  With respect to demand facilities the 'Unavailable' status is more difficult to interpret: the facility is not necessarily completely offline but the electricity offtake is extremely low to nearly zero. Even in case of a termination of a demand facility after a severe incident or a bankruptcy a low consumption level can be present due to ancillary units on the site or reparation work to recover the site, but the facility as

[15] The requirements for the test plan can be described in the Terms & Conditions for the Outage Planning Agent.

[16] The installed capacity and minimum power required for start-up is part of the structural information delivered in the connection contract.

such does not require electricity to operate. **A disconnection of the site from the grid to allow for grid maintenance in the area can be easier to plan.**

Such situations are normally well communicated and closely coordinated with ELIA, and therefore the following information is delivered to ELIA when the case occurs:

- The reason of unavailability.
- The time required to regain the status "available" (if applicable) (only relevant in specific cases of maintenance that caused the entire site behind the connection point to be disconnected, but unavailability is expected to be of more structural nature in caused by incidents or bankruptcy).

- The status "**Testing**" indicates that the asset's capability for providing service is being tested.

  With respect to demand facilities we can expect the 'Testing' status for new demand facilities or after an expansion of an existing demand facility which may have a substantial impact on the grid once in operation. The status "Testing" can therefore be applied at any time, as the existing demand facility which is, for example, being extended with an additional factory on the same site (and therefore behind the same connection point) can be in status 'Available' before the testing phase.

  The "Testing" status is to be applied in agreement between the Outage Planning Agent and ELIA as the tests are to be performed in close coordination between the parties and therefore needs to be planned operationally at both sides. As validation of the test by ELIA is needed, a request by ELIA to reschedule the Testing status before a mutual agreement is reached will not be remunerated by ELIA.

  The following additional information must be delivered to ELIA one month before the start of the "Testing" status:

  - A detailed test plan[17]
  - An indicative consumption schedule

7.2.2. Active Power Offtake Limitation on Demand Facilities

Similar to the active power capability restrictions of production, **a demand facility must inform ELIA of substantial limitations on the expected offtake during a certain period.** For example: periods of holiday or when a part of the factory is partially under renovation or maintenance. The demand for electricity nonetheless remains substantial and therefore, unlike the case of "unavailability" status, the site may not be disconnected for grid maintenance. Such information is useful for ELIA to take into account in its load forecast.

7.3. Interdependencies with other roles

The provided information across procedures must be coherent. The Grid User should coordinate the different roles to achieve such coherence. ELIA may to this end restrict the actions of other roles and include rules for data entry which prevent the delivery of inconsistent information, e.g., blocking a Scheduling Agent from delivering schedules in Day Ahead and Intraday and bidding possibilities when the availability status is at unavailable for a Power-Generating Module, or not validate the nomination received from the BRP.

[17] The requirements for the test plan can be described in the Terms & Conditions for the Outage Planning Agent.

As a result the information provided by the Outage Planning Agent is implicitly shared with other parties, such as the Scheduling Agent (delivery of schedules and flexibility bids for redispatching), the BSP (delivery of flexibility bids for balancing), or the BRP (quality check on the nominations on access point level).

Concretely:

- The status “Available” leads to a schedule of 0 MW or more / “ON” or “OFF”, and the possibility to bid flexibility for redispatching and balancing. The information on active power capabilities allows ELIA to verify whether all available flexibility is offered on assets with bidding obligation.

- The status “Unavailable” logically leads to a schedule of 0 MW or “OFF” and no bidding of flexibility for redispatching or balancing. Depending on the size of the asset and the relation between connection points and access points, inconsistencies with BRP nominations can be clearly detected (e.g., a large power unit directly connected on the ELIA grid cannot be linked to a high level MW nomination by the BRP).

- The status “Testing” logically leads to a test schedule and no commercial bidding of flexibility for redispatching or for balancing

When a forced outage occurs ELIA should be informed. Immediately after the announcement of the forced outage ELIA will consider the schedules to be 0 MW/OFF and flexibility bids (for redispatching or balancing) as non-available for activation. The Outage Planning Agent must provide ELIA as soon as possible the information on the reasons of the outage and the expected time to regain the “available” status. The Grid User needs to coordinate and assure that other roles update the necessary information in accordance with the feedback on the outage.

The outage planning also determines an asset’s availability for voltage regulation. Today the ancillary service for voltage regulation does not work on a bidding mechanism and therefore the provider of the service is not required to update information given to ELIA. ELIA detects the unavailability for the voltage regulation service automatically in the system and is blocked from manual activations for voltage regulation on the asset.

7.4. Conclusion

Two types of data are requested for power units, energy storage, and demand facilities:

- Availability statuses (available, unavailable, testing): the availability statuses have a concrete interpretation, which is nonetheless different for demand facilities than for power units and storage. In case of the statuses “unavailable” and “testing” more information needs to be shared with ELIA.
- Restrictions in the possible active power exchange (i.e., limitations in installed capacities or forecasted offtakes): this information allows ELIA to detect partial outages and better estimate possible load flow fluctuations and the flexibility available for ancillary services.

The exchanged data on outage planning will indirectly be shared with the Scheduling Agent, the BSP, and the BRP, as the availability status affects the possible schedules, bids for flexibility for redispatching and for balancing, and may be used to challenge the correctness of BRP nominations on access point level. The coordination by the Grid User of the different parties should assure data coherence.

8. Time Aspects

The European Guideline on Electricity Transmission System Operation imposes a calendar for the exchange of availability plans on cross-border relevant assets and grid elements starting in the summer of Year-ahead (see articles 94, 97, 99, 100; see Figure 8.1). As explained below, ELIA applies this as the default calendar for outage planning on all cross-border relevant assets as well as large internal relevant assets. Realizing that the maintenance on smaller, non-cross border relevant assets is not necessarily planned in year-ahead ELIA proposes an alternative calendar for those assets for which information has to be delivered to ELIA when available. The granularity of data exchange is daily or quarter-hourly.

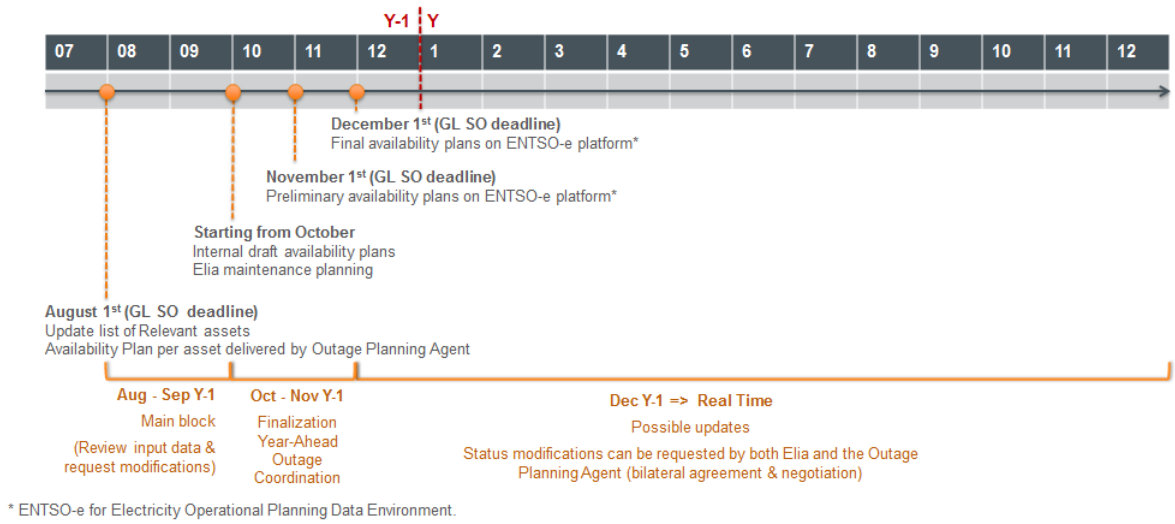


Figure 8.1. Default Outage Coordination Calendar

8.1. Calendars for Data Exchanges

8.1.1. Default Outage Coordination Calendar

The calendar for the yearly Outage Coordination follows the process described in the European Guideline for Transmission System Operation (namely in Part III Operational Planning – Title 3 Outage Coordination).

This calendar is applicable to the following assets:

- Power Generating Modules/Power Units and Energy Storage devices of type C & D with an installed capacity of 25MW or more
- Cross-border relevant Power Generating Modules/Power Units of type B & D with an installed capacity of less than 25MW
- Cross-border relevant demand facilities

Note that in accordance with article 86 of the European Guideline for Transmission System Operation ELIA is to yearly re-assess the cross-border relevance of assets by July 1st. In case of new additions to the list ELIA will inform the relevant owner of the asset and the (C)DSO of the grid to which the asset is connected.

In preparation of the start of the outage coordination ELIA estimates the capacity which may be “unavailable” in each week of year Y without compromising the adequacy needs in the system. ELIA informs the Outage Planning Agents of the results in the beginning of July with the request to avoid planning maintenance in the weeks that are indicated with adequacy risks.

This is the yearly calendar for the outage coordination harmonized at European level:

Before 1 August Y-1	Delivery of original availability plans and active power capability restrictions by the Outage Planning Agent to ELIA. Confirmation of the dates of commissioning or permanent decommissioning (if the case). In case the Grid User and Outage Planning Agent have been informed (of the obligation to deliver availability plans for year Y) between 1 July Y-1 and 1 August Y-1 (i.e., on day **d** of July Y-1), the deadline for the delivery of information will be extended to day **d** of August Y-1.
Between 1 August Y-1 and 1 November Y-1	ELIA may request amendments to original availability plans based on the assessments explained in chapter 9. The Outage Planning Agent may request amendments to availability plans for approval by ELIA. The Outage Planning Agent must inform ELIA without delay of the forced full unavailability of the asset in Y-1 estimated to last until a certain time in year Y (status modification to “Unavailable”). The Outage Planning Agent must inform ELIA without delay of the forced restriction in active power capability of the asset in Y-1 estimated to last until a certain time in year Y (without leading to a modification of the “Available” status).
Before 1 November Y-1	ELIA publishes the preliminary availability plans for year Y on the ENTSO-e platform for Operational Planning Data Environment and shares the information with the relevant (C)DSO (in compliance with article 97 of the European Guideline for Transmission System Operation) in order to verify the compatibility of the availability plans per TSO with respect to cross-border impact.
Between 1 November Y-1 and 1 December Y-1	ELIA may request amendments to original availability plans based on incompatibility detected on European level. The Outage Planning Agent may request amendments to availability plans for approval by ELIA. The Outage Planning Agent must inform ELIA without delay of the forced full unavailability of the asset in Y-1 estimated

	to last until a certain time in year Y (status modification to "Unavailable"). The Outage Planning Agent must inform ELIA without delay of the forced restriction in active power capability of the asset in Y-1 estimated to last until a certain time in year Y (without leading to a modification of the "Available" status).
Before 1 December Y-1	ELIA publishes the final availability plans for year Y on the ENTSO-e platform for Operational Planning Data Environment and shares the information with the relevant (C)DSO (in compliance with article 99 of the European Guideline for Transmission System Operation).
Between 1 December Y-1 and D-1 before Day Ahead	ELIA as well as the Outage Planning Agent may request amendments to final availability plans for mutual approval. The Outage Planning Agent must inform ELIA without delay of the forced full unavailability of the asset (in year Y-1 or year Y) affecting the availability plan in year Y (status modification to "Unavailable"). The Outage Planning Agent must inform ELIA without delay of the forced restriction in active power capability of the asset (in year Y-1 or year Y) affecting the active power capability in year Y (without leading to a modification of the "Available" status).
Day Ahead to Real-Time	The Outage Planning Agent must inform ELIA without delay of the forced full unavailability of the asset (status modification to "Unavailable"). The Outage Planning Agent must inform ELIA without delay of the forced restriction in active power capability of the asset (without leading to a modification of the "Available" status).

8.1.2. Alternative Outage Coordination Calendar

The default calendar for outage coordination does not apply to:

- Non cross-border relevant Power Generating Modules/Power Units and Energy Storage devices of type D with an installed capacity of less than 25MW
- Non cross-border relevant Power Generating Modules/Power Units of type B
- Non cross-border relevant Energy Storage devices of type B
- Non cross-border relevant Demand Facilities[18]

[18] Note that for Demand Facilities ELIA regularly agrees to receive such information not necessarily "without delay" but during meetings between ELIA and the Grid User where outage information is discussed together with other connection and access elements (e.g., peak offtakes and forecasts of long-term active power exchanges).

For these asset types an alternative calendar applies.

ELIA will presume the following information to be valid until communicated otherwise by the Outage Planning Agent:

- Availability status = “Available”
- Active power capability restriction = none (therefore the full installed capacity is presumed to be available)

This is the alternative calendar for the outage coordination:

Until D-1 before Day-ahead	The Outage Planning Agent must inform ELIA without delay of the planned or forced full unavailability of the asset on day D (status modification to “Unavailable”). The Outage Planning Agent must inform ELIA without delay of the planned or forced restriction in active power capability of the asset on day D (without leading to a modification of the “Available” status). ELIA as well as the Outage Planning Agent may request amendments to availability plans for mutual approval. ELIA may contact the Outage Planning Agent to make enquiries about the intentions for planned unavailability of the asset.
Day-ahead up to Real-Time	The Outage Planning Agent must inform ELIA without delay of the forced full unavailability of the asset (status modification to “Unavailable”). The Outage Planning Agent must inform ELIA without delay of the forced restriction in active power capability of the asset (without leading to a modification of the “Available” status).

8.2. Time granularity of exchanged data

The availability plans and active power capability restrictions are delivered in year Y-1 for each day of the year Y.

A day with at least one quarter-hour of “Testing” status has the status “Testing”.

A day with at least one quarter-hour of “Unavailable” status and no “Testing” has the status “Unavailable”.

A day without quarter-hours of “Unavailable” or “Testing” status has the status “Available”.

Starting from Week-ahead, the time granularity changes from daily to quarter-hourly in preparation of the reception of active power schedules in Day Ahead and Intraday (cfr. Guideline on Electricity Transmission System Operation article 92).

The rules on time granularity apply for all asset types, irrespective of whether they are obliged to deliver information according to the default or alternative calendar for outage coordination.

8.3. Conclusion and Example

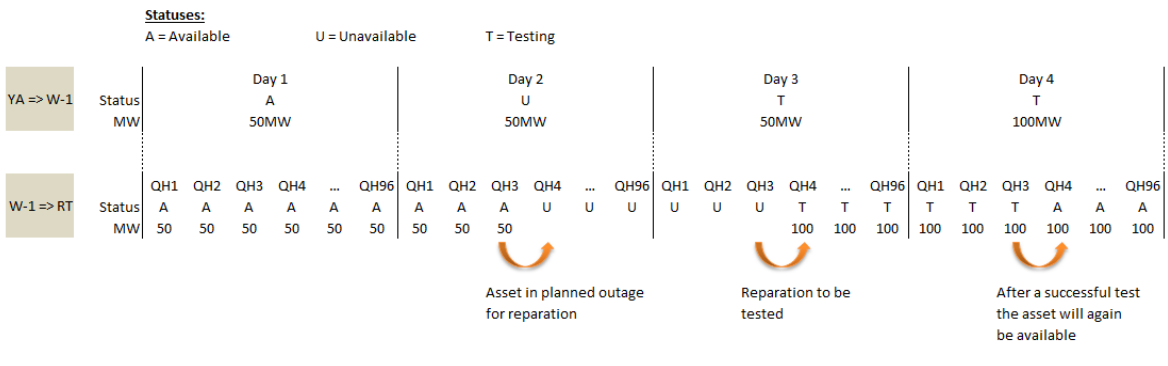
Cross-border relevant and large internal relevant assets are to follow a strict calendar for data exchange as described in the European Guideline. Smaller, non-cross-border relevant assets can apply a more flexible timing, but must nonetheless also inform ELIA on planned and forced outages.

Power Generating Modules/Power Units type C & D ≥ 25MW Energy Storage devices type C & D ≥ 25MW Cross-border relevant Power Generating Modules/Power Units of type B and D < 25MW Cross-border relevant demand facilities	**Default European calendar for outage coordination**
Non cross-border relevant Power Generating Modules/Power Units type B & D < 25MW Non cross-border relevant Energy Storage devices of type type B & D < 25MW Non cross-border relevant Demand Facilities	**Alternative calendar**

Starting from year-ahead data is provided per day of the calendar year, and more detail per quarter-hour is delivered starting from Week Ahead (to be coherent with the schedules delivered in Day Ahead and Intraday).

The example below shows a Power Unit with an installed capacity of 100MW. The active power capability is, however, restricted to 50MW and reparations are planned (day 2) to assure that the Power Unit can again produce at full capacity. The result of the reparation is to be tested on day 3 and if all goes well the Power Unit will again become available for the market and for ancillary services throughout day 4.

Example of an availability plan



9. Amendments to Availability Plans or Active Power Capability

Following the European Guideline on European Transmission System Operation (articles 100 & 102) **both ELIA and the Outage Planning Agent can propose modifications to the availability plans until real-time.** Most of these amendments require a mutual agreement between ELIA and the Outage Planning Agent. Only in case of a modification due to a forced outage no ex ante validation is required of Elia. The procedure focuses on the responsibility to correctly and timely exchange information. A modification of the availability plan may lead to a remuneration to compensate the costs for the other party caused by the amendment (see Chapter 10).

9.1. Amendments requested by the Outage Planning Agent for approval by ELIA

The Outage Planning Agent may request to modify the availability status or active power capability of an asset in year Y in the permitted periods as previously described. Typically such amendment is requested to change the maintenance of an asset or to optimize the availability of the asset portfolio of the Outage Planning Agent for the delivery of ancillary services.

ELIA will analyze the impact of the requested modification and inform the Outage Planning Agent of its decision. There are 3 possible replies:

- accept the requested modification without conditions
- refuse the requested modification and ELIA communicates the reason for refusal
- conditionally accept the requested modification, communication of the reason and conditions (e.g., associated costs to be compensated by the Outage Planning Agent)

The Outage Planning Agent is to update the availability status or active power capability accordingly without delay after ELIA and the Outage Planning Agent have agreed on the terms of the amendment.

9.2. Amendments informed by the Outage Planning Agent in case of forced events

The Outage Planning Agent is obliged to inform ELIA without delay of the forced full unavailability of the asset (status modification to “Unavailable”) and of the forced restriction in active power capability of the asset (without leading to a modification of the “Available” status). Typically such amendment is caused by a full or partial forced outage of the asset.

The Outage Planning Agent must inform ELIA as quickly as possible of the cause of the forced outage and of the expected duration of the full or partial forced outage.

The consequences of a forced outage on the availability of ancillary services will be described in the design of the concerned ancillary service.

The consequences of a forced outage on other Roles are described under section 7.3.

9.3. Amendments by ELIA

When detecting that a planned outage on an asset may pose problems for adequacy, congestion management, the availability of ancillary services, or ELIA's own grid maintenance planning, ELIA can request Outage Planning Agents to modify availability plans. ELIA requests such amendments in the permitted periods as described in chapter 8.

The Outage Planning Agent will search for and discuss an alternative planning with ELIA, including possibly the conditions for the Outage Planning Agent associated to the amendment. In this last case, the Outage Planning Agent will provide ELIA a price offer that is subject to further negotiation.

The Outage Planning Agent is to update the availability status or active power capability accordingly without delay after ELIA and the Outage Planning Agent have agreed on the terms of the amendment.

9.4. In relation to the Scheduling Agent

Scheduling actions & the Outage Planning Agent:

Indirectly an agreement with the Scheduling Agent may affect the amendment possibilities of the Outage Planning Agent. Example: when an Outage Planning Agent wants to plan a maintenance (and set the power unit's status at "unavailable") in a period for which ELIA has reserved a Must-Run schedule on the power unit. The reason for requesting the Must-Run is also the reason for not accepting the amendment request of the Outage Planning Agent.[19]

Outage planning actions affecting the Scheduling Agent:

The situation may occur that the Outage Planning Agent requests an amendment of an "Available" status to "Unavailable" on an asset with a May-Not-Run reservation. In this case it is possible that ELIA will accept the status amendment, cancel the May-Not-Run reservation, and require a reimbursement of the May-Not-Run Remuneration from the Scheduling Agent.

9.5. Conclusion

Strict modalities apply for the exchange of outage plans and the information is considered to be qualitative and firm. Nonetheless both the Outage Planning Agent and ELIA can request to the other party whether modifications are possible and negotiate on the terms for agreement. In case of a forced outage by definition no approval can be requested yet it is important to timely and transparently inform relevant stakeholders.

[19] For more explanation on Must-Run & May-Not-Run reservations of schedules, see the document "Design note for the coordination of assets: Part II – Scheduling and Redispatching".

10. Remuneration

Availability plans can be amended without conditions. However, it may also be that the requested amendment leads to costs on the side of the other party. The other party may agree with the amendment proposed by the requesting party (ELIA or Outage Planning Agent) on the condition that the costs that would be caused by the amendment are compensated. **The remuneration is agreed after negotiation based on a price offer of the requested party. The remuneration should be reasonable, directly related to the requested amendment, and demonstrable.**

If the amendment annuls an amendment previously requested by the other party, then the requesting party should pay back the remuneration that was paid for the earlier amendment.

Note that the planning of a Testing status must be agreed with ELIA. Therefore a request by ELIA to reschedule the Testing status before a mutual agreement is reached will not be remunerated by ELIA.

Reasonable remuneration:

The remuneration concerns an additional cost or loss of revenue that cannot be recovered elsewhere, based on certain information available at the moment of the request for amendment.

Remuneration directly related to the amendment:

The remuneration must be for a cost directly linked to the requested amendment. Therefore, it concerns a cost that would not be incurred if the amendment was not requested.

Demonstrable remuneration:

The remuneration must be supported by documents (invoice, price offer of a contractor, a reliable source of, for example, reference prices) justifying the amount at the moment of the price offer.

Here is **a non-exhaustive list of remuneration examples:**

- Additional costs charged by a contractor related to the rescheduling of the maintenance or testing phase (e.g., new appointment, additional appointment)
- Additional costs for equipment related to the rescheduling of the maintenance to the extent of the difference between purchase price and residual value of the equipment. So if the equipment only serves to cover a period towards a delayed maintenance and has no more use value for the Outage Planning Agent afterwards, the full purchase price can be charged. If the equipment can however be recuperated for other use, then a residual value must be estimated.
- Additional costs for personnel related to the rescheduling of maintenance.
- Net loss of revenue related to the rescheduling of the maintenance or a testing phase (e.g., missed interests, loss of green certificates, reduced cash flow, ... compared to the initial outage planning) under the condition that the methodology to estimate the cash flow is agreed by both ELIA and the Outage Planning Agent.

11. Verification & Liability

ELIA will compare the availability status with metered activity in real-time. Observed activity on an asset with announced unavailability that would lead to an insecure situation on the grid will result in immediate action by ELIA.

In case of problems ELIA will address the Outage Planning Agent, who may have to remunerate to ELIA the costs of the actions taken to prevent or correct the insecure situation on the grid, without prejudice to the Grid User's joint and several liability for the payment of such remuneration. Nonetheless as pointed out, despite possible task delegation the Grid User remains jointly and severally liable for the consequences of non-compliance with the announced planning.

Note that before real-time the information received from the Scheduling Agent (on the MW schedule or feedback that the Scheduling Agent is blocked from delivering data due to the status communicated by the Outage Planning Agent) provides an earlier check on the quality of the received availability plans.

Example 1:

	Delivered information	**Real-time**
Availability status - Outage Planning Agent	Available	Seemingly unavailable
Schedule - Scheduling Agent	Schedule = 50MW	Metering = 0MW
Bidding information - Scheduling Agent	Upward flexibility = 20MW	No activation of requested flexibility
⇨ **Could be a large problem if adequacy risk** ⇨ **Incorrect outage info: liability of the grid user in real-time** ⇨ **Liability of the Grid User and Scheduling Agent**		

Example 2:

	Delivered information	**Real-time**
Availability status - Outage Planning Agent	Available	Available
Schedule - Scheduling Agent	Schedule = 50MW	Metering = 50MW
Bidding information - Scheduling Agent	Upward flexibility = 20MW	No activation of requested flexibility
⇨ **Correct outage info: liability of the grid user in real-time** ⇨ **Penalty on Scheduling Agent following activation control**		

Example 3:

	Delivered information	Real-time
Availability status - Outage Planning Agent	Available	Available
Schedule - Scheduling Agent	Schedule = 0MW	Metering = 50MW
Bidding information - Scheduling Agent	Upward flexibility = 0MW	/

- ⇨ **Correct outage info: liability of the grid user in real-time**
- ⇨ **Scheduling Agent can be forced to operate at its schedule (Return-to-schedule) & penalty for not bidding flexibility (if mandatory)**

Example 4:

	Delivered information	Real-time
Availability status - Outage Planning Agent	Unavailable	Available
Schedule - Scheduling Agent	Schedule = 0MW (automatic)	Metering = 50MW
Bidding information - Scheduling Agent	Upward flexibility = 0MW (automatic)	/

- ⇨ **Wrong execution of availability plan of Grid User**
- ⇨ **Scheduling Agent blocked by ELIA from providing schedules and therefore not liable. The Scheduling Agent should contact the Grid User to coordinate with the Outage Planning Agent in order to get the status changed to "available" before day D.**
- ⇨ **In real-time the Scheduling Agent can, however, be forced to reduce its active power exchange to 0MW.**

SUMMARY & IMPACT ON FEDERAL GRID CODE

The note describes the outage planning procedures to be applicable on assets connected to the ELIA grid and ELIA-connected CDS. ELIA has based the design for Outage Planning largely on the principles described in the **European Guideline on Electricity Transmission System Operation**, including a process for outage coordination starting in July of Year-ahead. For smaller and non-cross border relevant assets the design includes an alternative calendar and a lighter approach that foresees a limited operational impact for the delivery of outage planning information to ELIA.

The **Outage Planning Agent**, which is the Grid User or a third party appointed by the Grid User, enters into an agreement with ELIA and is therefore the first point of contact for ELIA regarding all aspects relating to outage planning, such as data exchange, requests for amendments, and remuneration.

The outage planning information should be provided per assets (or more detailed level where relevant) for **Power-Generating Modules/Power Units and Energy Storage Devices type B/C/D** and for **Demand Facilities**, and includes:

- A **status** representing the asset's availability for electricity markets and ancillary services: the three statuses are "available", "unavailable", and "testing"
- **Information on restrictions** of active power capabilities (a limitation of installed capacity, a change in the minimal power needed for the start-up of a Power-Generating Module, or a significant reduction in a Demand Facility's consumption level)

The statuses and active power capabilities are given **per day before Week-ahead, and afterwards per quarter-hour.**

Both ELIA and the Outage Planning Agent may request modifications in the outage planning of an asset. The Outage Planning Agent is to inform ELIA without delay of unplanned events leading to a full or partial forced outage.

The costs associated to the requested modification (if any) are to be **remunerated:** the price should reflect costs that are directly related to the modification, reasonable, and demonstrable.

The outage planning determines the availability of the asset for participation to the electricity markets, therefore **affecting the actions of other roles** in the delivery of ancillary services, such as the Scheduling Agent and the Balancing Service Provider. ELIA sets rules for coherent information provided by the different roles; **the key coordinator between them is the Grid User.** The Grid User also remains liable for real-time deviations from the provided outage planning.

ELIA proposes a selection of design principles to be included in the new **Federal Grid Code.** The overview is given on the next page.

Impact on the draft proposal for the new Federal Grid Code

This section lists the aspects of the design which ELIA will propose to embed in the Federal Grid Code. The specific text proposal will be sent to the concerned stakeholder in preparation of the *Federal Grid Code Workshop* at ELIA headquarters on February 7th, 2018. The list is a first proposal based on the current analysis and can evolve until the workshop in February 2018 as well as until the final proposal for the grid code submitted for formal public consultation in March 2018. The evolutions will depend on conclusions of further analyses and/or comments received by the stakeholders.

Principles proposed to include in the new Federal Grid Code

- Access to the grid can be denied if the Outage Planning responsibility is not correctly executed.

- The Grid User can in the connection contract appoint a third party to act as Outage Planning Agent on the Grid User's behalf.

- If the Grid User appoints third parties as Outage Planning Agent and Scheduling Agent, the Grid User must assure a correct coordination between them.

- ELIA can restrict the delivery of information if not coherent with the information received within another procedure.

- Although the obligation to deliver availability plans is on the level of the Power Generating Module, ELIA can request the availability plans to be delivered on a more detailed level relevant for operational needs.

- Energy Storage devices type B/C/D are subject to the same requirements for outage planning, with the exception of exemptions or alternative modalities described in Terms and Conditions for the Outage Planning Agent.

- TSO-connected demand facilities and TSO-connected CDS are subject to the requirements for outage planning.

- A cost-based remuneration can be paid as a condition for the amendment of an availability plan.

- The modalities on exchange of availability plans and outage coordination will be described in Terms and Conditions for the Outage Planning Agent, to be submit by the TSO for approval to the relevant regulating authority.

- The Terms and Conditions will at least include principles on:

(a) minimum operational requirements

(b) default and alternative calendars for data exchange

(c) granularity of exchanged data

(d) remuneration and penalty mechanisms

(e) verification and liabilities

(f) exempting assets from the exchange of availability plans

Note that the following key principles are imposed in the European Guideline on Transmission System Operation [1] and therefore do not require repetition in the Federal Grid Code:

- TSO-connected Power Generating Modules type B, C, and D are obliged to deliver availability plans (no exemption possible through national regulation).

- (C)DSO-connected Power Generating Modules type B, C, and D are obliged to deliver availability plans (may be exempted through national regulation).

- Each grid user obliged to deliver availability plans, must take on the role of Outage Planning Agent or appoint a third party.

- Each cross-border relevant Power Generating Module or Demand Facility must deliver availability plans (no exemption possible through national regulation).

- The Grid User remains liable for the correct execution of the availability plans in real-time, even when delegating the role of Outage Planning Agent to a third party.

Note that the following key principles are described in the draft version of KORRR [2] and (under the assumption that the principles will remain in the final version) therefore do not require repetition in the Federal Grid Code:

- The Grid User "shall remain responsible for ensuring compliance with the obligations" from the European Guidelines on Transmission System Operation, even if the Grid User delegates the task of Outage Planning Agent to a third party. (article 3.8)

- The Grid User remains responsible for the quality of the delivered availability plans, even if the Grid User delegates the task of Outage Planning Agent to a third party. (article 3.1)

- The requirements to exchange data on availability plans are defined by the TSO. (article 17.2)

- Each Power Generating Module and cross-border relevant demand facility must comply with the requirements set by the TSO. (article 17.2)

REFERENCES

[1] European Commission (2017). “COMMISSION REGULATION (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation,” Official Journal of the European Union, http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32017R1485&from=EN (consulted 19/10/2017)

[2] European Network of Transmission System Operators for Electricity (ENTSO-e) (2017). “All TSOs’ proposal for the Key Organisational Requirements, Roles and Responsibilities (KORRR) relating to Data Exchange in accordance with Article 40(6) of the Commission Regulation (EU) 2017/1485 of 02 August 2017 establishing a Guideline on Transmission System Operation, ” 2/10/2017 (draft proposal published for consultation)

[3] European Commission (2016). “COMMISSION REGULATION (EU) 2016/1388 of 17 August 2016 establishing a Network Code on Demand Connection,” Official Journal of the European Union, http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R1388&from=EN (consulted 9/11/2017)

[4] European Commission (2016). “COMMISSION REGULATION (EU) 2016/631 of 14 April 2016 establishing a network code on requirements for grid connection of generators,” Official Journal of the European Union, http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0631&from=EN (consulted 27/10/2017)

[5] European Commission (2015). “COMMISSION REGULATION (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management,” Official Journal of the European Union, http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R1222 &from=EN (consulted 9/11/2017)

[6] Economische Zaken (2002). “19 DECEMBER 2002. - Koninklijk besluit houdende een technisch reglement voor het beheer van het transmissienet van elektriciteit en de toegang ertoe,” 28/12/2002, http://www.ejustice.just.fgov.be/cgi_loi/loi_a.pl?language=nl&caller=list&cn=2002121942&la=n&fromtab=wet&sql=dt='koninklijk%20besluit'&tri=dd+as+rank&rech=1&numero=1 (consulted 9/11/2017)

[7] ENTSO-e (2017). “Central collection and publication of electricity generation, transportation and consumption data and information for the pan-European market.” https://transparency.entsoe.eu/ (consulted 14/11/2017)

[8] Agency for the Cooperation of Energy Regulators (ACER) (2017). “REMIT,” http://www.acer.europa.eu/en/remit/ (consulted 14/11/2017)

QUESTIONS & ANSWERS

Q1. What changes in the future design for units subject to a CIPU contract today?

The outage planning obligation for CIPU units continues with relatively minor changes in the calendar, the statuses, and amendments.

Specifically regarding the statuses, the names of the statuses change (from “not in revision/in revision” to “available/unavailable” and a new status “testing” is added with specific modalities.

Regarding the amendments: The two CIPU procedures (between the revision planning (year-ahead) and the Day Ahead procedure at week-5 and week-1) in which statuses were updates and specified are removed. This implies that the updates of the outage plans must be delivered up to Day Ahead. There are no more specific moments at which the statuses are confirmed or changed, but amendments can be requested at any time between Year Ahead and Day Ahead and updates following unplanned events must be provided without delay.

Q2. What changes in the future design for units not subject to a CIPU contract today?

On-CIPU units are not subject to outage planning obligation today. If the unit has such an obligation according to the new requirements, the entire procedure for data exchange is new and must be developed.

Q3. Which assets are considered to be cross-border relevant?

[The definition of cross-border relevant assets will be added once developed at European level: see Introduction]

Q4. Which outage planning data is exchanged for demand facilities with locally connected production units or storage?

For the demand facility the Outage Planning Agent provides availability statuses and (if applicable) information on periods of limited active power offtake.

If the local production units or storage device is of type C/D or cross-border relevant type B, then the Outage Planning Agent provides availability statuses and active power capability restrictions starting from August 1st of year Y-1.

If the local production units or storage device is of type B and not cross-border relevant type B, then the Outage Planning Agent notifies ELIA as quickly as possible after the decision or unplanned event of a status change from “available” to “unavailable” or “testing” and of active power capability restrictions.

Q5. Which outage planning data is exchanged for (cross-border relevant) demand facilities in ELIA-connected CDS?
Same as Q4 There are no different requirements for demand facilities whether they are directly connected to the ELIA grid or via a CDS.

Q6. What are examples of a Demand Facility? What are examples of a Demand Unit?
Example of a Demand Facility: - a commercial building (e.g., shopping mall) - a factory - each of the factories on an industrial site (if a connection point per factory) **Example of a Demand Unit:** - a motor on an industrial site - an air conditioning system or refrigerator - a charging station for electric vehicles

ANNEX

Annex 1. Overview of relevant articles in the European Guideline for Electricity Transmission System Operation

PART II OPERATIONAL SECURITY

TITLE 2 DATA EXCHANGE

CHAPTER 4 Data exchange between TSOs, owners of interconnectors or other lines and power generating modules connected to the transmission system

Article 46 Scheduled data exchange

- Obligation for TSO-connected PGM type B/C/D to deliver information on scheduled unavailability and active power capability restriction.
- See this document: chapter 6

CHAPTER 5 Data exchange between TSOs, DSOs and distribution-connected power generating modules

Article 49 Scheduled data exchange

- Obligation for (C)DSO-connected PGM type B/C/D to deliver information on schedules unavailability and active power capability restriction.
- See this document: chapter 6

PART III OPERATIONAL PLANNING

TITLE 3 OUTAGE COORDINATION

CHAPTER 1 Outage coordination regions, relevant assets

Article 84 Methodology for assessing the relevance of assets for outage coordination

- Reference to the methodology to develop the criteria that define the cross-border relevance of assets to be included in outage coordination.
- See this document: chapter 6

Article 86 Update of the lists of relevant power generating modules and relevant demand facilities

- Requirement for the TSO to create and update the list of PGM and demand facilities which are considered as (cross-border) relevant
- See this document: chapter 8

Article 89 Appointment of outage planning agents

- Description of the role of outage planning agent, as assigned to the Grid User or to a third party
- See this document: chapter 4

CHAPTER 2 Development and update of availability plans of relevant assets

Article 92 General provisions on availability plans

- Definition of statuses (available, unavailable, testing) and data granularity (daily or same as schedules)
- See this document: chapter 7 & 8

Article 94 Provision of year-ahead availability plan proposals

- Deadline of August 1st of Year-ahead for delivery of availability plans by the Outage Planning Agent to the TSO
- See this document: chapter 8

Article 97 Provision of preliminary year-ahead availability plans

- Deadline of November 1st of Year-ahead for the TSO to transfer the availability plans of (cross-border) relevant assets and grid elements to the European platform for a compliance check on European level
- See this document: chapter 8

Article 99 Final year-ahead availability plans

- Deadline of December 1st of Year-ahead for the TSO to transfer the final availability plans of (cross-border) relevant assets and grid elements to the European platform
- See this document: chapter 8

Article 100 Updates to the final year-ahead availability plans

- Description of possible amendments to availability plans from finalization in December Year-ahead up to real-time
- See this document: chapter 8 & 9

CHAPTER 3 Execution of availability plans

Article 101 Management of the 'testing' status of relevant assets

- Information to be delivered to the TSO with respect to the "testing" status
- See this document: chapter 7

Article 102 Procedure for handling forced outages

- Information to be delivered to the TSO as soon as possible after a forced outage
- See this document: chapter 9

Article 103 Real-time execution of the availability plans

- Responsibility of the asset owner to assure execution in real-time in coherence with the status
- See this document: chapter 4

Annex 2. KORRR

European Guideline on Transmission System Operation

Article 6 Approval of terms and conditions or methodologies of TSOs

1. Each regulatory authority shall approve the terms and conditions or methodologies developed by TSOs under paragraphs 2 and 3. The entity designated by the Member State shall approve the terms and conditions or methodologies developed by TSOs under paragraph 4. The designated entity shall be the regulatory authority unless otherwise provided by the Member State.

2. The proposals for the following terms and conditions or methodologies shall be subject to approval by all regulatory authorities of the Union, on which a Member State may provide an opinion to the concerned regulatory authority: (a) key organizational requirements, roles and responsibilities in relation to data exchange related to operational security in accordance with Article 40(6);

[...]

Article 40 Organisation, roles, responsibilities and quality of data exchange

[...] 6. By 6 months after entry into force of this Regulation, all TSOs shall jointly agree on key organisational requirements, roles and responsibilities in relation to data exchange. Those organisational requirements, roles and responsibilities shall take into account and complement where necessary the operational conditions of the generation and load data methodology developed in accordance with Article 16 of Regulation (EU) 2015/1222. They shall apply to all data exchange provisions in this Title and shall include organisational requirements, roles and responsibilities for the following elements:

(a) obligations for TSOs to communicate without delay to all neighbouring TSOs any changes in the protection settings, thermal limits and technical capacities at the interconnectors between their control areas;

(b) obligations for DSOs directly connected to the transmission system to inform the TSOs they are connected to, within the agreed timescales, of any changes in the data and information pursuant to this Title;

(c) obligations for the adjacent DSOs and/or between the downstream DSO and upstream DSO to inform each other within agreed timescales of any changes in the data and information pursuant to this Title;

(d) obligations for SGUs to inform their TSO or DSO, within agreed timescales, about any relevant changes in the data and information established pursuant to this Title;

(e) detailed contents of the data and information established pursuant to this Title, including main principles, type of data, communication means, format and standards to be applied, timing and responsibilities;

(f) the time stamping and frequency of delivery of the data and information to be provided by DSOs and SGUs, to be used by TSOs in the different timescales. The frequency of information exchanges for real-time data, scheduled data and update of structural data shall be defined; and

(g) the format for the reporting of the data and information established pursuant to this

Title. The organisational requirements, roles and responsibilities shall be published by ENTSO for Electricity.

[...]

Here is a summary of KORRR as given on the web page for the public consultation (31/10-1/12/2017) (source https://consultations.entsoe.eu/system-operations/korrr/)

"[A]ll TSOs' proposal for key organisational requirements, roles and responsibilities in relation to data exchange (KORRR proposal) developed in accordance with article 40(6) of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (SO GL).

SOGL requires all TSOs to jointly agree, by 6 months after entry into force of SOGL, on key organisational requirements, roles and responsibilities in relation to data exchange. Those organisational requirements, roles and responsibilities shall take into account and complement where necessary the operational conditions of the generation and load data methodology developed in accordance with Article 16 of Regulation (EU) 2015/1222. They shall apply to all data exchange provisions in data exchange Title in SO GL and shall include organisational requirements, roles and responsibilities for the following elements:

(a) obligations for TSOs to communicate without delay to all neighbouring TSOs any changes in the protection settings, thermal limits and technical capacities at the interconnectors between their control areas;

(b) obligations for DSOs directly connected to the transmission system to inform the TSOs they are connected to, within the agreed timescales, of any changes in the data and information pursuant to data exchange Title in SO GL;

(c) obligations for the adjacent DSOs and/or between the downstream DSO and upstream DSO to inform each other within agreed timescales of any changes in the data and information pursuant to data exchange Title in SO GL;

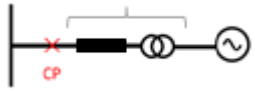
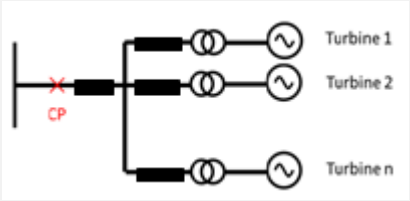
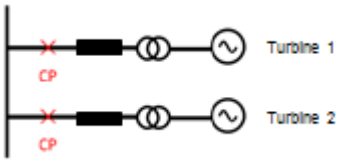
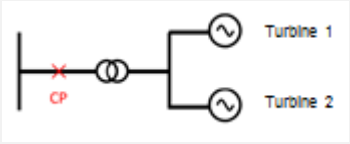
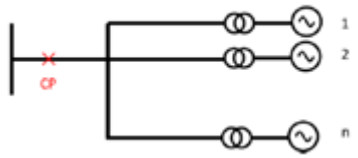
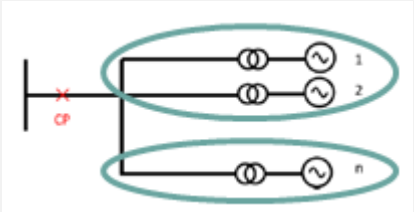
(d) obligations for [Significant Grid Users] SGUs to inform their TSO or DSO, within agreed timescales, about any relevant changes in the data and information established pursuant to data exchange Title in SO GL;

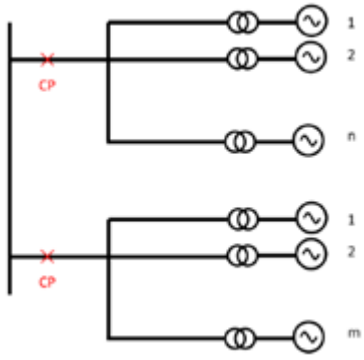
(e) detailed contents of the data and information established pursuant to data exchange Title in SO GL, including main principles, type of data, communication means, format and standards to be applied, timing and responsibilities;

(f) the time stamping and frequency of delivery of the data and information to be provided by DSOs and SGUs, to be used by TSOs in the different timescales. The frequency of information exchanges for real-time data, scheduled data and update of structural data shall be defined; and

(g) the format for the reporting of the data and information established pursuant to data exchange Title in SO GL."

Annex 3. Examples of data level for coordination

Configuration	Minimum requirements by ELIA for data delivery
	**1 Power Generating Module (PGM type SPGM)** 1 Power Unit 1 Connection point Min. requirement data delivery: **PGM level**
	**1 Power Generating Module (PGM type SPGM: e.g., CCGT: GT1 + GT2 + ST)** n Power Units 1 Connection point Min. requirement data delivery: **PGM level**
	**1 Power Generating Module (PGM type SPGM: e.g., CCGT: GT + ST)** 2 Power Units 2 Connection points Min. requirement data delivery: **PU level** (~CP)
	**2 Power Generating Module (PGM type SPGM)** 2 Power Units 1 Connection point Min. requirement data delivery: **PGM level**
	**1 Power Generating Module (PGM type PPM: e.g., wind farm operated as one combined unit)** n Power Units 1 Connection point Min. requirement data delivery: **PGM level**
	**2 Power Generating Module (PGM type PPM: e.g., 2 PPM in a wind farm operated separately but with a shared connection)** n Power Units 1 Connection point Min. requirement data delivery: **PGM level** (~CP)

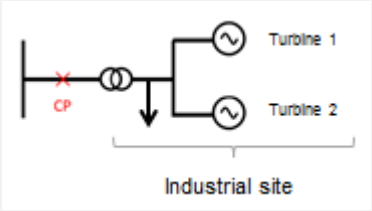


2 Power Generating Module (PGM type PPM: e.g., PPM in a wind farm operated separately in a combined manner)

n Power Units

2 Connection points

Min. requirement data delivery: **PGM level** (~CP)



2 Power Generating Module (PGM type SPGM)

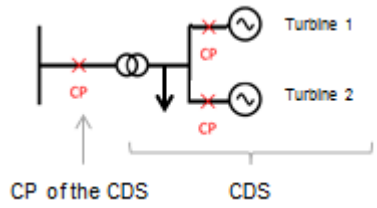
2 Power Units

1 Connection point

Min. requirement data delivery: **PGM level**

1 Demand facility

Min. requirement data delivery: **facility level**



2 Power Generating Module (PGM type SPGM)

2 Power Units

2 Connection points

Min. requirement data delivery: **PGM level**

1 Demand facility behind CDS connection point

Min. requirement data delivery: **facility level**