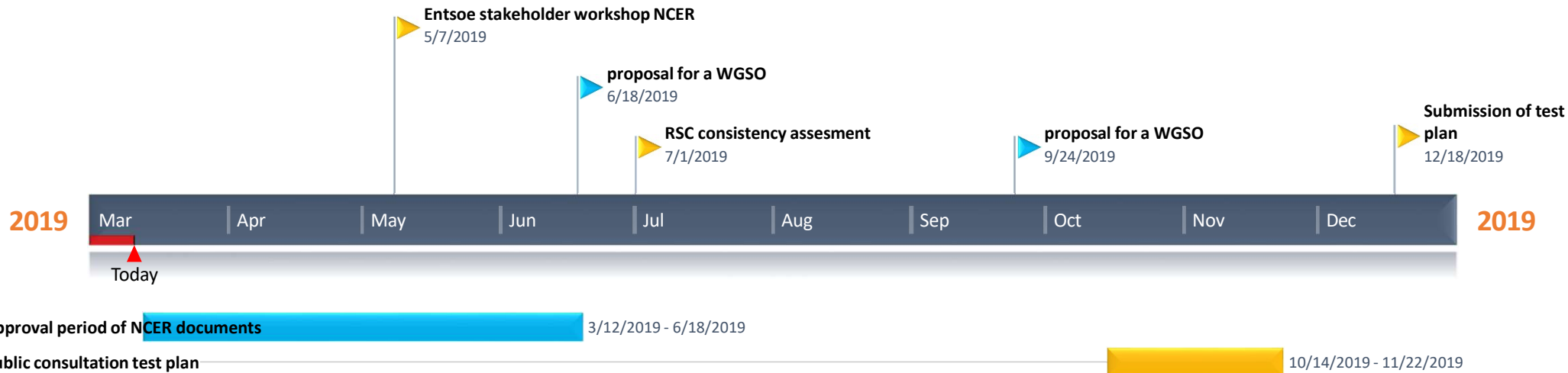


Elia users group, WG SO EMD

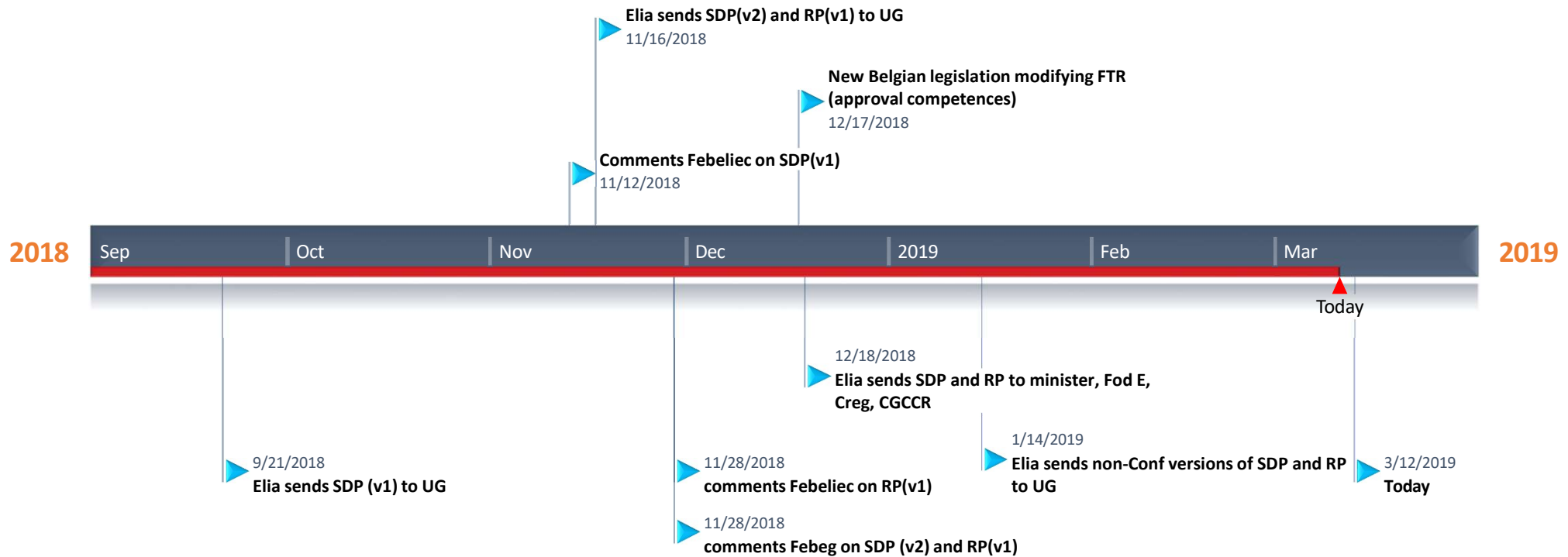
12/03/2019

1. Process overview and timeline
2. Feedback on NCER documents submitted in dec18
3. Communication requirements imposed by NCER
4. Test plan pursuant NCER
5. Risk Preparedness Regulation

1. Process overview and timeline



2. Feedback on NCER documents submitted in December 2018

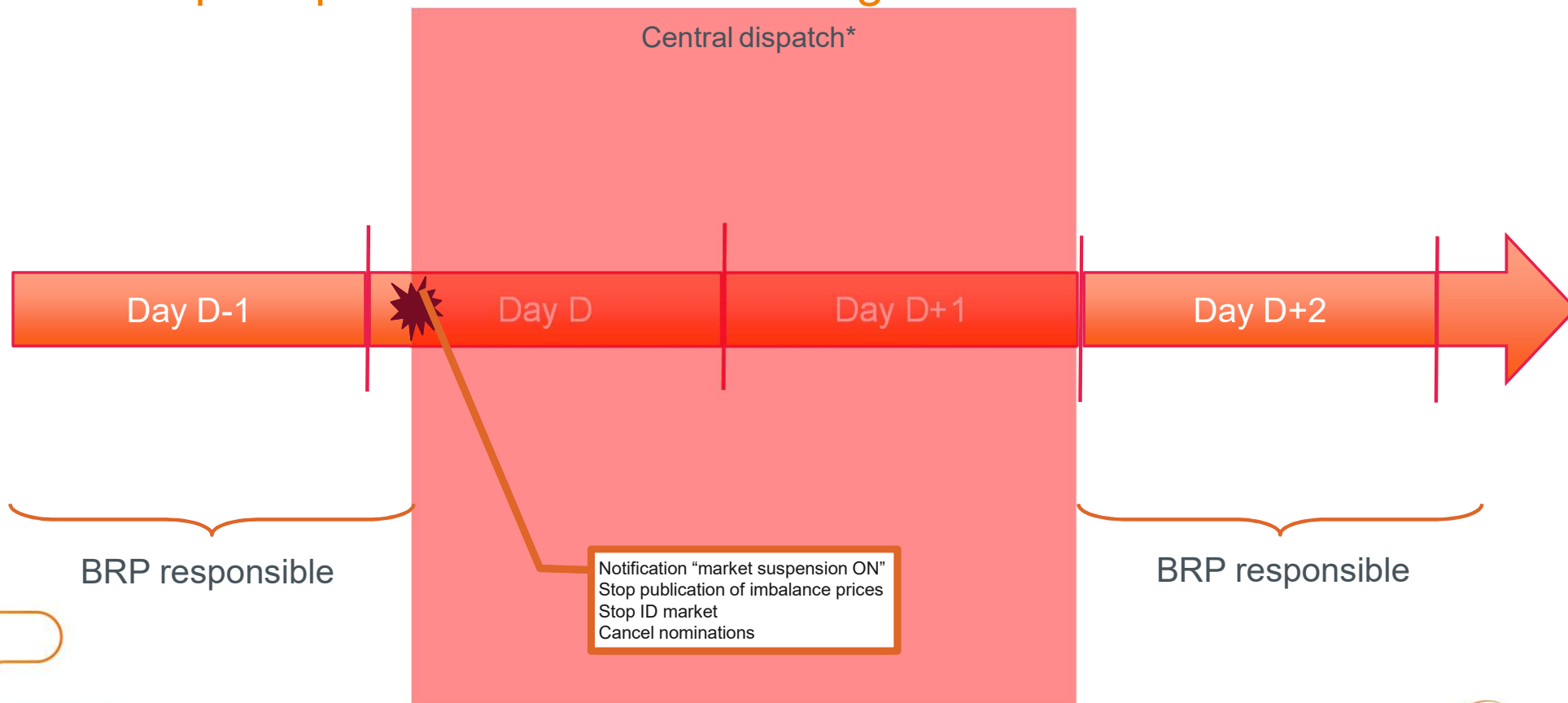


2a. Modifications SDP

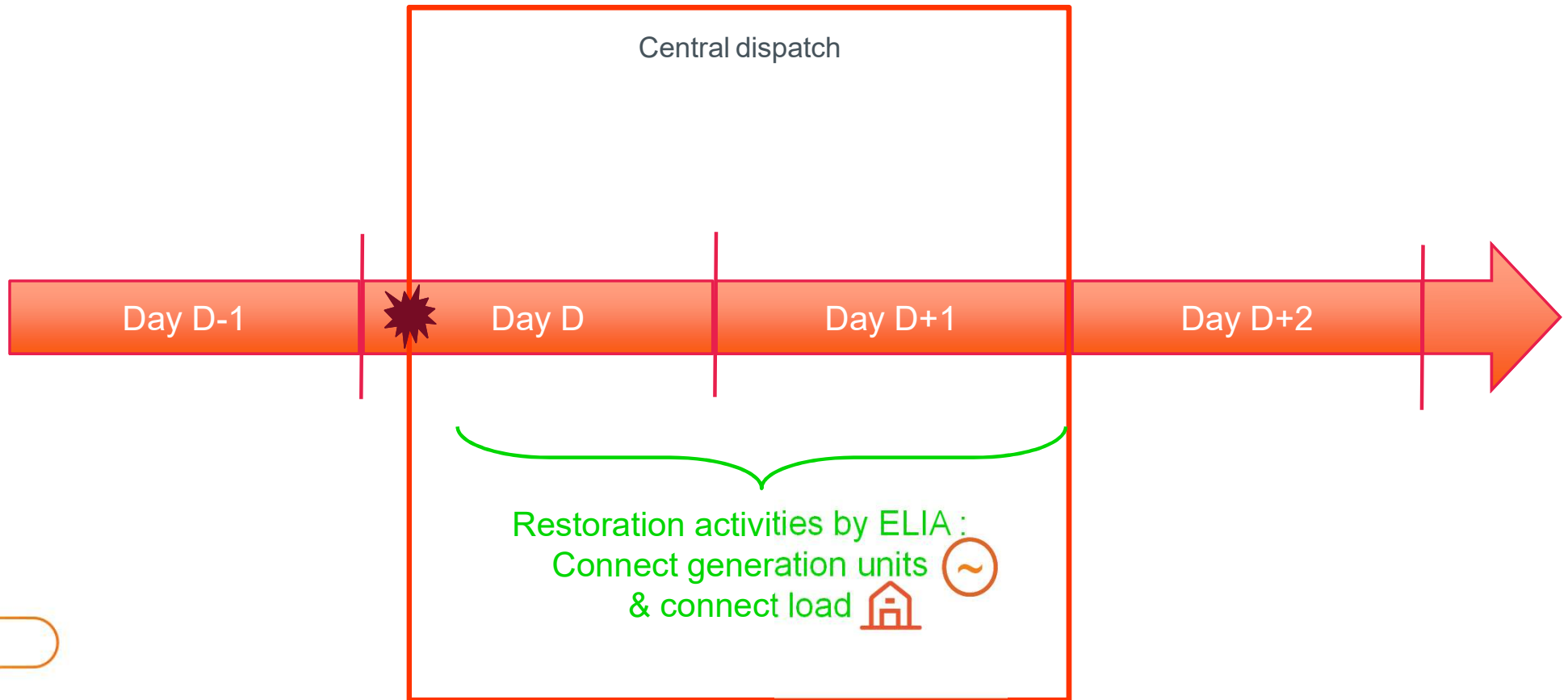
- Legal framework according to new legislation published on 17/12/2018 changing art 312 and art 314
- High priority SGU and T&C for disconnection and re-energization: in line with FTR “priority grid connections”
 - Auxiliaries of nuclear power plants and important Fluxys sites had to be removed
- §7.4 assistance for active power procedure: removal of activation of **emergency reserves** and associated notification
- §7.8.3 Automatic reaction of energy storage systems in case of low/high frequency
- Entry into force dates for each measure of SDP were added
- Definition of DSO: used as operator of a public distribution system, not as operator of a CDSO
- SGUs: list of NCER art 2 (including CDSOs, rather as demand facility than as grid operator)
- Where CDSO have a role as grid operator, it is explicitly mentioned in the plans

2b. Modifications market rules

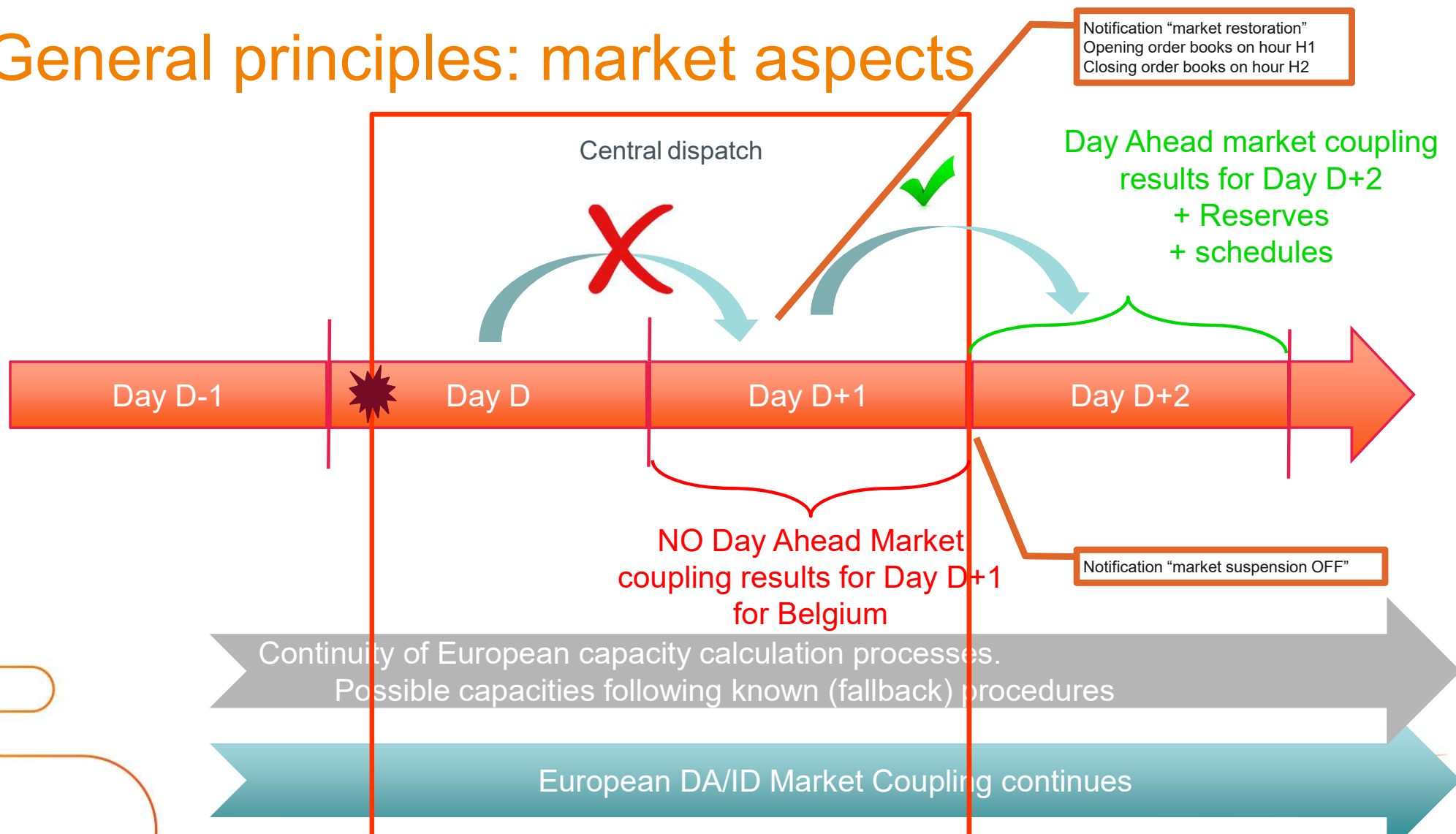
General principles: full black-out in Belgium



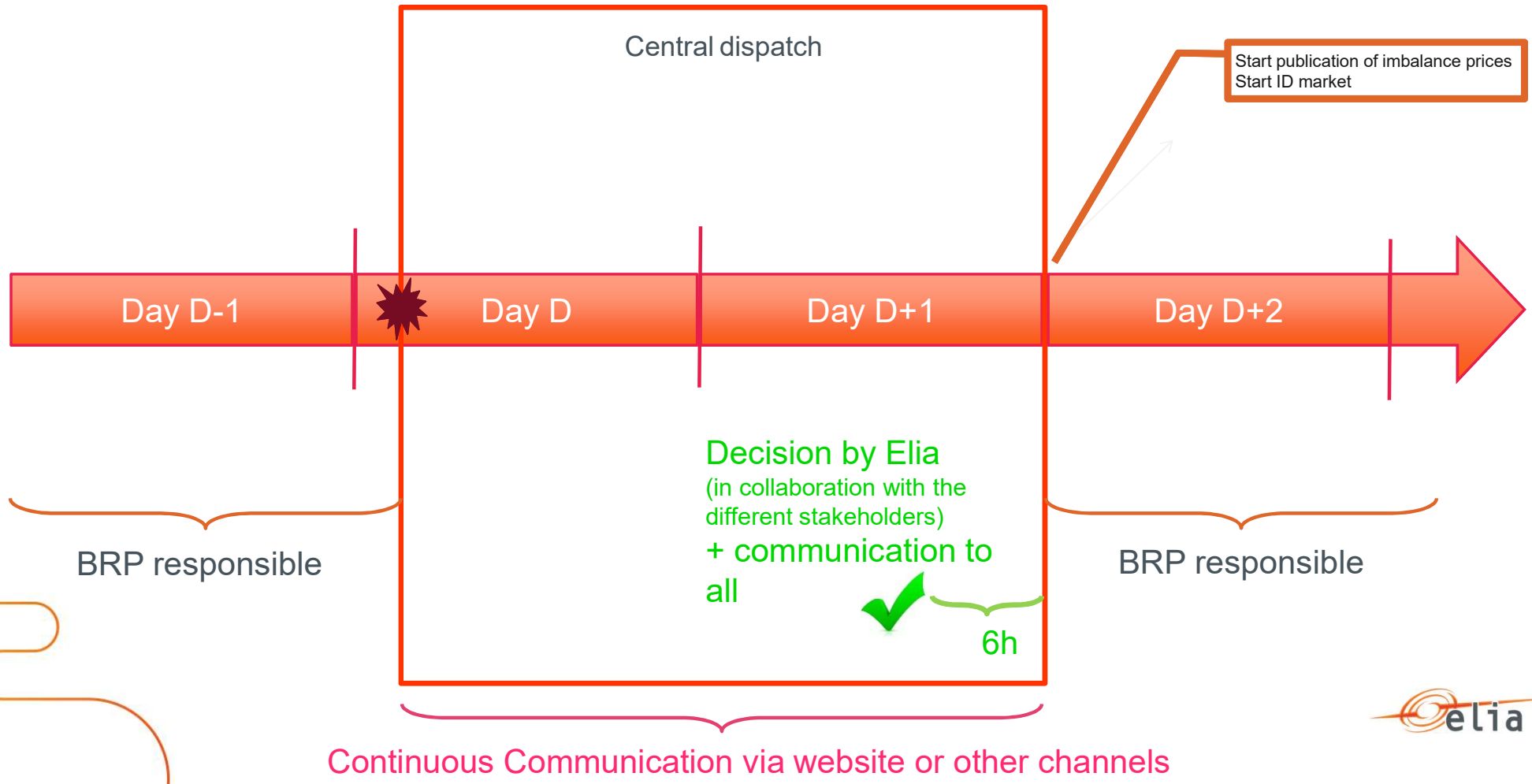
General principles: technical



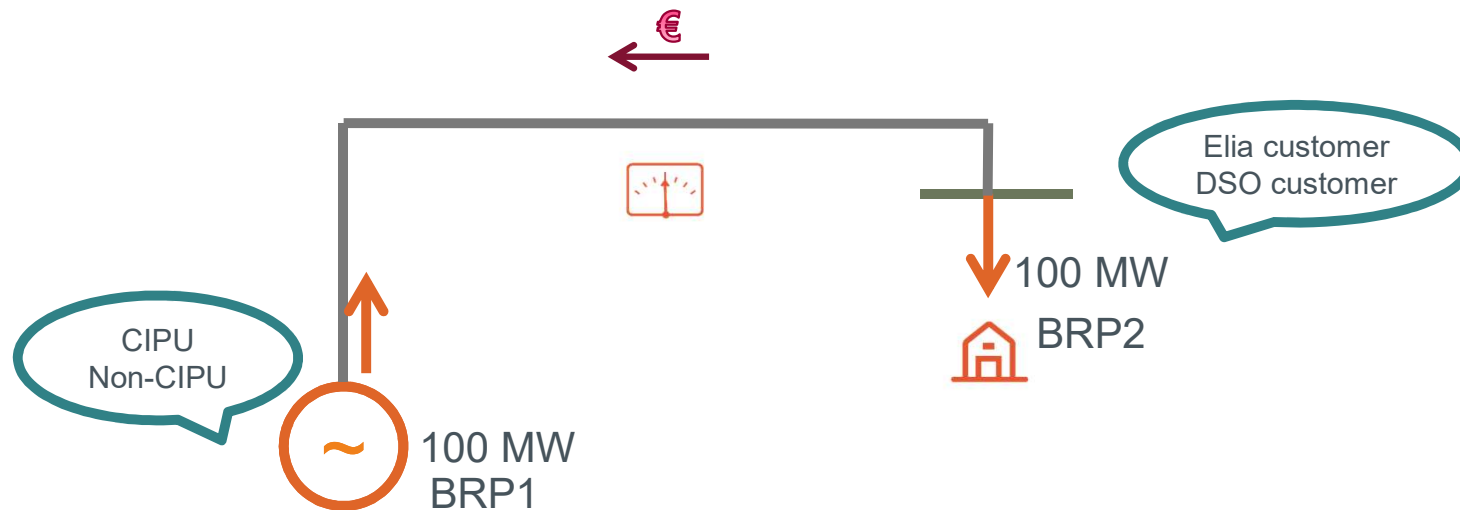
General principles: market aspects



General principles: restoration

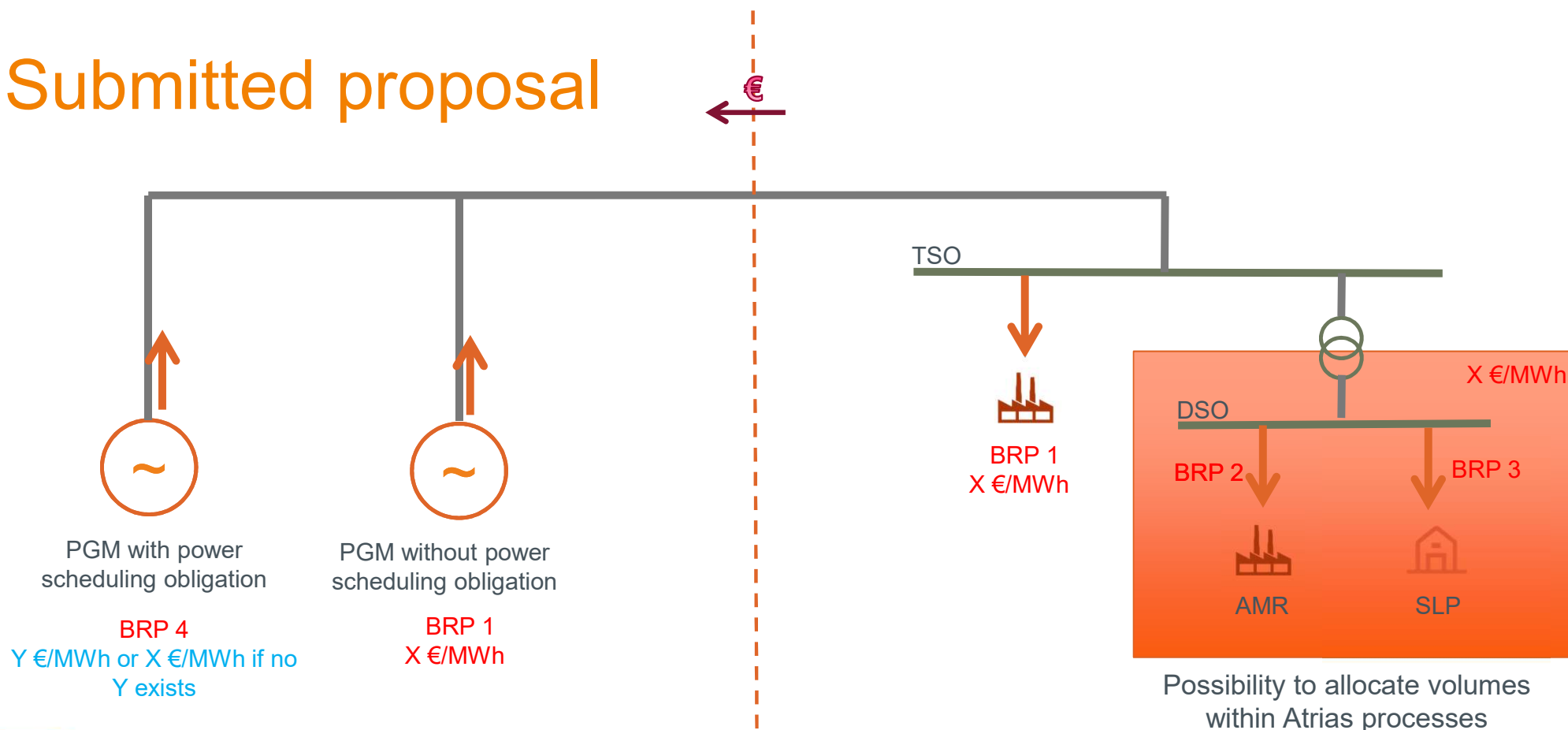


During Central Dispatch, Elia decides upon :



- No imbalance settlement as in normal situation
- Settlement of delivered energy :
 - should be financially neutral and an easy process, use existing contractual relationships
- At which price should this energy be settled ? And how (to avoid double invoicing) ?

Submitted proposal



X = restoration tariff = a ToE-like price formula

Y = CIPU nomination procedure (updated each day in function of fuel and CO₂ costs)

Difference between energy purchase costs and energy sales revenues in the tariffs

Restoration tariff X

This restoration tariff is calculated **ex-ante** for each hour of the day by means of this formula :

$$73 \% * 1/3 (\text{Cal Y}+2 + \text{Cal Y}+1 + \text{M}+1) + 27 \% * \text{AVG (EPEX spot BE DAM)}$$

Where

CAL Y + 2 = the average of the daily quotations for the baseload product published by ICE INDEX two years preceding the year of the TSO controlled Dispatch period,

CAL Y + 1 = the average of the daily quotations for the baseload product published by ICE INDEX in the course of the year preceding the year of the TSO Controlled Dispatch period,

M + 1 = the average of the daily quotations for the baseload product published by ICE INDEX in the course of the month preceding the month of the TSO Controlled Dispatch,

AVG (EPEX spot BE DAM) = the hourly average of the day-ahead prices of EPEX SPOT Belgium over the last 28 calendar days prior to the day on which the TSO Controlled Dispatch period started.

This restoration tariff for each corresponding hour of the day will remain fixed during the period of TSO Controlled Dispatch and will be published daily on ELIA's website.

Automatic or Manual load shedding

Proposal

- E&R Art 39.1 : *“By 18 December 2018, each TSO shall develop a proposal for rules for imbalance settlement and settlement of balancing capacity and balancing energy which shall be applicable **for imbalance settlement periods during which the market activities were suspended.**”*
- It is expected that during moments of automatic or manual load shedding plan, **market activities will not be suspended.**
- Method should not be described in these rules
- *“As already discussed during a Workgroup Balancing meeting in autumn 2018, Elia will continue internal investigation on the settlement principles during periods of (automatic or manual) load shedding.”*

3. Communication requirements imposed by the NCER



5 notifications related to the system states and the market activities status will be sent to stakeholders

System states

Emergency Elia

The system is in the **Emergency state** and one of several **measures of the System Defence Plan have been activated**

Actions from grid users might be requested. Stakeholders should remain ready to execute actions without undue delay

Blackout Elia

The system is in the **Black Out state**

Actions from grid users might be requested. Stakeholders should remain ready to execute actions without undue delay

Grid Restoration Elia

The system is in the **Restoration state**

Actions from grid users might be requested. Stakeholders should remain ready to execute actions without undue delay

Market activities status

Market Suspension Elia

This notification is sent to inform the stakeholders that market activities are suspended due to a blackout or to an unavailability of tools required to facilitate market activities

Market Restoration Elia

This message is sent such that market players have time to prepare their orders before market activities are effectively restored

4 communication channels will be used : Scada, mail, sms, website

- Sending notifications via Scada-to-scada with the TASE2 protocol is the most reliable way to notify stakeholders as it remains effective even in case of Blackout
- Other communication channels are required as not all stakeholders have a Scada installation
- To increase the notification success in case of blackout, 3 additional channels will be used in parallel to send the same information :
 - Mail
 - SMS
 - Website elia.be

| Scada-to-Scada | Mail | SMS | Website elia.be |
|--|--|--|---|
| <ul style="list-style-type: none">• Scada-to-scada signals will be sent via the existing TASE2 protocol• Only Significant Grid Users disposing of a Scada | <ul style="list-style-type: none">• A predefined text message will be sent• Stakeholders that wants the information will be asked to register to a contact list | <ul style="list-style-type: none">• A predefined text message will be sent• Stakeholders that wants the information will be asked to register to a contact list | <ul style="list-style-type: none">• A predefined text message will be published on the website• Stakeholders have to proactively consult the website• The publication on the website is required by the NCER in case of market suspension/restoration |

Actions are requested from the stakeholders to allow the notification reception

- Elia is responsible to send the information but **actions are requested from the stakeholders to receive the information**. The requested actions depends on the communication channels used.

| Communication channel | Requested actions |
|-----------------------|---|
| Scada-to-scada | <ul style="list-style-type: none">• Implement the scada-to-scada signal in their own installation |
| Mail & SMS | <ul style="list-style-type: none">• Register to a contact list• Proactively send the new information to their KAM if the contact information needs to be updated |
| Website | <ul style="list-style-type: none">• Proactively consult the website |

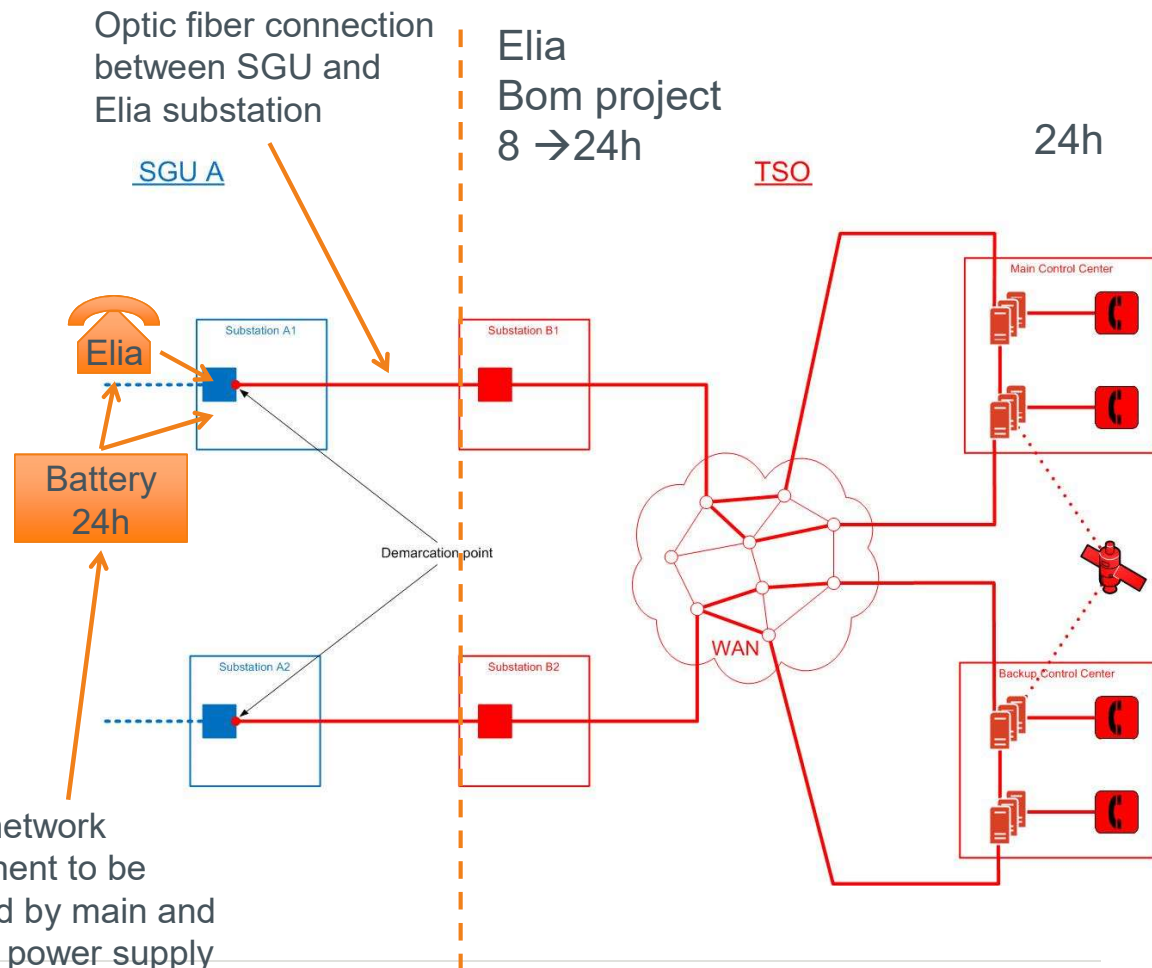
- Note that ELIA will send the information in due time and **ELIA will not assume responsibility for the good functioning of the communication channels provided by external parties** when the system is in emergency, blackout or restoration state.
- Further practical information will follow in the course of 2019

Communication systems NCER Art 41

Each **TSO**, **DSO**, **SGU** identified ~art 23(4), and **RSP** shall have a **voice communication system** implemented with sufficient equipment **redundancy in case of failure** of any individual communication system equipment and **backup power supply** sources to allow the exchange of the necessary information for RP, **during at least 24 hours**, in case of total absence of external electrical energy supply.

Ensure the availability 24/7 of an operator with appropriate skills and “responsibility level” to guarantee that incoming calls from the TSO can be identified, answered immediately and will lead to the appropriate actions.

Every network component to be supplied by main and backup power supply



Communication systems NCER Art 41

Planning:

- ongoing {
1. Identification of existing Elia phones at SGU locations
 2. Bilateral investigation between Elia and SGU to check if Elia phones are on appropriate location and that competent personnel can answer Elia's call in emergency situations
 3. Identification of SGUs that do not have an Elia phone
 4. Define roll out plan between 2019 and end of 2022

4. Test plan

- A test plan has to be defined by 18/12/2019 pursuant to NCER
- **Elia should develop a test plan** in accordance to NCER art 43 to 49 to assess the proper functioning of all equipment and capabilities considered in the System Defence Plan and Restoration Plan
- The test plan should be defined in consultation with DSOs, SGUs identified in the SDP and in the RP, DSPs & RSPs
- The test plan shall include the **periodicity and conditions of the tests**, following the minimum requirements outlined in Articles 44 to 47

The test plan should follow the methodology lay down in:

- Regulation 2016/631 : Requirements for Grid connection of Generators
- Regulation 2016/1338 : Network Code on Demand Connections
- Regulation 2016/1447 : System Operator Guidelines
- The national laws if the SGU is not subject to the above mentioned regulations

Tests for PGMs, providers of demand side response and HVDC should follow specific methodologies

| Equipment | Capability | Methodology | Frequency |
|--|--|---|---|
| PGM | Black start | Article 45(5) of RfG | At least every 3 years |
| | Household | Article 45(6) of RfG | After any change of equipment having an impact on its household capabilities After 2 unsuccessful consecutive tripping in real operation |
| Providers of demand side response (DSPs) | Demand response | Article 41(1) of DCC | After 2 consecutive unsuccessful responses in real operation At least every year |
| | Demand response low frequency demand disconnection | Article 37(4) of DCC or defined by relevant system operator | To be defined at national level |
| HVDC | Black start | Article 70(11) of HVDC | At least every 3 years |
| Low frequency demand disconnection relays of DSO & TSO | Disconnection | Article 37(6) and Article 39(5) of DCC | To be defined at national level |

Guidelines for the test plan are being developed within ENTSO-E

| Equipment | Capability | Frequency |
|---|---|------------------------|
| Testing of communication systems of DSO and SGUs identified in the RP, TSOs and RSP | Communication System | At least every year |
| | Backup power of communication system | At least every 5 year |
| TSO tools and facilities | Main and backup power sources of main and backup control room | At least every year |
| | Critical tools and facilities | At least every 3 years |
| | Back up power source of essential substations* | At least every 5 years |
| | Transfer procedure from main to backup control room | At least every year |

*When these substations are in distribution systems, DSOs shall execute this test

- No methodology is imposed for communication systems and critical tools and facilities of TSOs
- **Guidelines are being developed within ENTSO-E** to have a common approach

5. Risk Preparedness Regulation

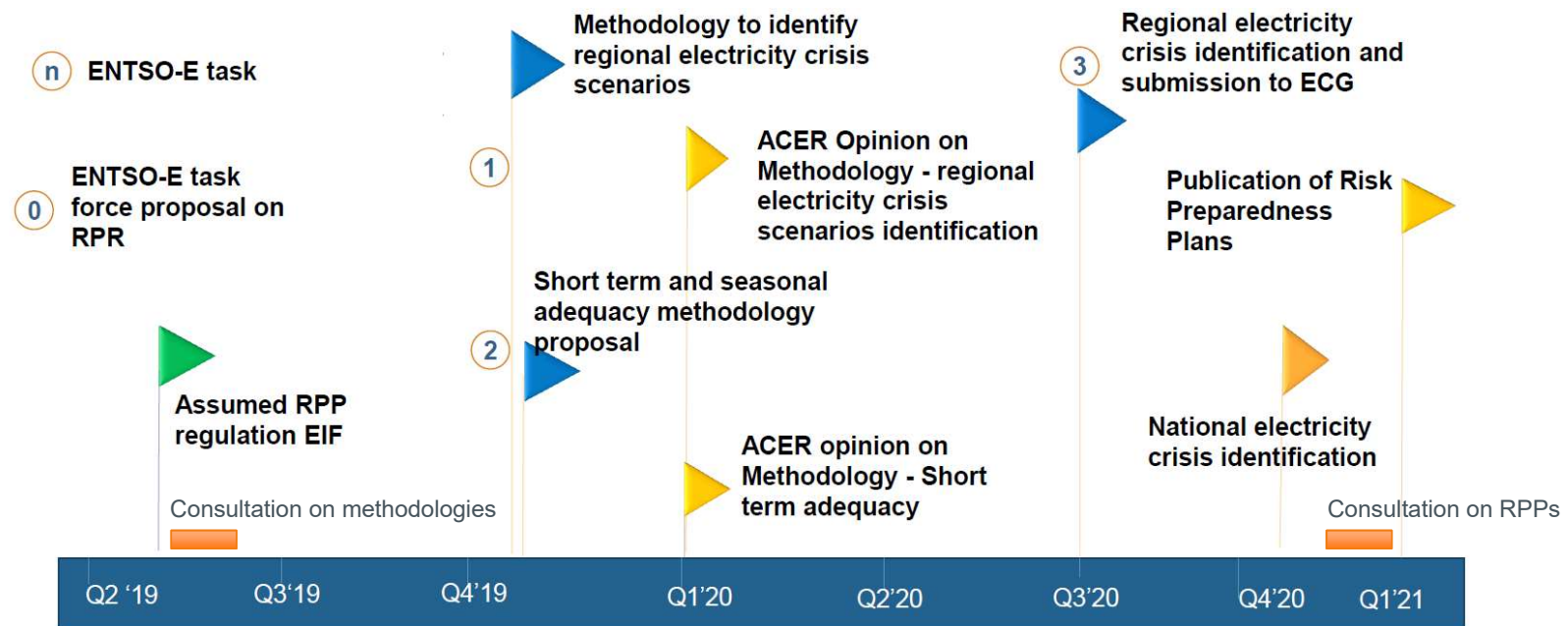
ENTSO-E to propose methodology for identifying relevant crisis scenarios in a regional context, on the basis of the following risks:

- Rare and extreme natural hazards;
- Accidental hazards going beyond the N-1 security criterion;
- Consequential hazards including fuel shortages;
- Malicious attacks

ENTSO-E to propose methodology for assessing short- term adequacy (seasonal to day ahead) which shall cover:

- Uncertainty of inputs such as probability of transmission or generation unplanned outage, severe weather conditions and variability of demand;
- Probability of crisis situation;
- Probability of simultaneous crisis situation.

Risk Preparedness Regulation – Provisional timelines (*)



(*) Based on Council's version from 29 November 2018

- To ensure a common approach to crisis prevention and management, each MS should draw up a risk-preparedness plan based on the regional and national electricity crisis scenarios identified.
- The competent authorities should consult stakeholders which are relevant for the prevention and handling of an electricity crisis.