Regulation on the Transmission System Operator's Responsibilities During Emergency and Restoration (Template)

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List of Acronyms or Abbreviations

CE	Continental Europe
DSO	Distribution system operator
E&E	Europe & Eurasia
ENTSO-E	European Network of Transmission System Operators
EU	European Union
HDVC	High voltage direct current
IAP	Incident action planning
kV	Kilovolt
kw	Kilowatt
LFC	Load frequency control
MW	Megawatt
NEMO	Nominated electricity market operators
NRA	National regulatory authority
RCC	Regional coordination center
SGUs	Significant grid users
TSO	Transmission system operator
USAID	United States Agency for International Development

Introduction

With funding support from the United States Agency for International Development (USAID), NARUC seeks to empower national regulatory authorities (NRAs) from the Europe and Eurasia (E&E) region on establishing emergency response coordination protocols to strengthen the energy security and the resilience of their energy sectors. Since 2016, the USAID Europe & Eurasia Bureau, through its Europe & Eurasia Cybersecurity Initiative, has demonstrated visionary leadership in supporting energy regulators and utilities in improving their ability to respond to and plan for cyber threats.

In 2024, NARUC concentrated on equipping NRAs with the capacity to assume a leadership role in emergency response and recovery efforts that extend beyond cyber-attacks, encompassing natural and human-made disasters, environmental and climate-related events, and technological failures. As independent agencies responsible for overseeing the security of supply in their countries, NRAs are uniquely positioned to lead response efforts and communicate at a national level, delivering independent and accurate information to relevant government bodies and, in many instances, to the public.

The European Union (EU) addresses emergency response planning and implementation through Regulation (EU) 2017/2196 (Network Code on Emergency and Restoration [NC ER]), which provides a solid regulatory framework to identify the roles and responsibilities of regulatory agencies, system operators, and significant grid users. Accordingly, NC ER needs to be transposed by Contracting Parties. In response, NARUC developed an emergency preparedness regulation template for the electricity sector supplemented by best practices from the U.S. The objective of the template regulation is to provide E&E NRAs with a document that ensures compliance with EU requirements, which should then be further customized for their country-specific needs.

In line with the initial project definition and content of the document, the template is titled "Regulation on the Transmission System Operator's Responsibilities During Emergency and Restoration." Alternatively, in line with the EU conventions, it could also be named "Regulation Establishing Network Code on Electricity Emergency and Restoration."

Explanation Regarding the Formatting and Main Highlights of the Transposition Approach:

- The document closely follows Regulation (EU) 2017/2196 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC.
- Guiding comments for further customization are placed in text boxes with the relevant phrases highlighted.
- Deadlines have been extended one year into the future.
- References to articles are highlighted to facilitate fixing the references based on the final article numbers in the final customized version.
- Additional articles are numbered as Article X1, X2, etc., to avoid disturbing existing references. The correct numbering should be incorporated during the finalization of the regulation.
- In addition to the contents of Regulation 2017/2196, best practices from the U.S. were also incorporated into the template.

Regulation on Transmission System Operator's Responsibilities During Emergency and Restoration (Template)

Chapter I: General Provisions

Article 1: Subject matter

For the purposes of safeguarding operational security and preventing the propagation or deterioration of an incident to avoid a widespread disturbance and the blackout state as well to allow for the efficient and rapid restoration of the electricity system from an emergency or blackout states, this Regulation establishes a network code that lays down requirements on:

a. The management of emergency, blackout, and restoration states by the transmission system operator ('TSO');
b. Coordination with neighboring TSOs on system operation during emergency, blackout, and restoration states;
c. Simulations and tests to guarantee a reliable, efficient, and fast restoration of the transmission system to a normal state from emergency or blackout states;
d. Identification of personnel and establishing training procedures;

Incorporated from U.S. best practices.

e. Tools and facilities needed to guarantee a reliable, efficient, and fast restoration of the transmission systems to the normal state from emergency or blackout states.

Article 2: Scope

1. This Regulation shall apply to the TSO, distribution system operators ('DSOs'), significant grid users ('SGUs'), defense service providers, restoration service providers, balance responsible parties, balancing service providers, nominated electricity market operators ('NEMO'), and other entities designated to execute market functions.

In case in the future there are other NEMOs operational in the country, it is best to leave this plural.

"pursuant to Commission Regulation (EU) 2015/1222 **as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC,** and to Commission Regulation (EU) 2016/1719**, as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC**."

The text above was omitted from the definition. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly. If not, the transposition can be done as it is in this document and the references can be added at a later stage through amendment.

Extra note: Neither of the two mentioned regulations (2015/1222 and 2016/1719) seems to have a definition for the phrase "other entities designated to execute market functions," but it is understood that these are the e/entities that are delegated some of the market functions like market clearing and collateral management.

2. In particular, this Regulation shall apply to the following SGUs:

a. Existing and new power generating modules classified as type C and D in accordance with the criteria set out in Article X1;
b. Existing and new power generating modules classified as type B in accordance with the criteria set out in Article X1, where they are identified as SGUs in accordance with Article 11(4) and Article 23(4);
c. Existing and new transmission-connected demand facilities;
d. Existing and new transmission connected closed distribution systems;
e. Providers of redispatching of power generating modules or demand facilities by means of aggregation and providers of active power reserve; and

"in accordance with Title 8 of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

The text above was omitted from the definition and instead reference is made to the "national legislation". If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly. If not, the transposition can be done as it is in this document and the references can be added at a later stage through amendment.

f. Existing and new high voltage direct current ('HVDC') systems and direct current-connected power park modules.

"in accordance with the criteria set out in Article 4(1) of Commission Regulation (EU) 2016/1447, as adapted and adopted by Permanent High Level Group Decision 2018/04/PHLG-EnC."

The text above was omitted from the definition and instead reference is made to the "national legislation". If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly. If not, the transposition can be done as it is in this document and the references can be added at a later stage through amendment.

3. This Regulation shall apply to existing and new type A power generating modules in accordance with the criteria set out in Article X1, to existing and new type B power generating modules other than those referred to in paragraph 2(b), as well as to existing and new demand facilities, closed distribution systems, and third parties providing demand response where they qualify as defense service providers or restoration service providers pursuant to Article 4(4).

4. Type A and type B power generating modules referred to in paragraph 3, demand facilities, and closed distribution systems providing demand response may fulfill the requirements of this Regulation either directly or indirectly through a third party under the terms and conditions set in accordance with Article 4(4).

5. This Regulation shall apply to energy storage units of an SGU, a defense service provider, or a restoration service provider, which can be used to balance the system, provided that they are identified as such in the system defense plans, restoration plans, or the relevant service contract.

6. This Regulation shall apply to the transmission system, distribution systems, and interconnections, and to regional coordination centers, except transmission systems and distribution systems or parts of the transmission systems and distribution systems that are not operated synchronously with the Continental Europe ('CE') synchronous area.

It would be advisable to remove this phrase if your country has no regions operated in island mode. This phrase renders this regulation not mandatory to Georgia and Armenia. If they want to transpose it, that should still be possible with further modifications to the text prepared, especially regarding the involvement of ENTSO-E and inter-TSO coordination.

7. This Regulation shall apply to all TSOs within the country. Where a TSO does not have a function relevant to one or more obligations under this Regulation, the responsibility for complying with those obligations will be assigned to one or more different, specific TSOs through the regulatory authority's decision.

The above bullet is only relevant if there is more than one TSO in a country. If not, please remove it.

Article X1: Determination of significance

Added to this regulation from Article 5 of Regulation (EU) 2016/631, as adapted and adopted by Permanent High Level Group Decision 2018/03/PHLG-EnC.

If the mentioned regulation is already transposed in your country, instead of this article, you should reference the relevant regulation and its article.

1. The power-generating modules shall comply with the requirements on the basis of the voltage level of their connection point and their maximum capacity according to the categories set out in paragraph 2.

2. Power-generating modules within the following categories shall be considered as significant:
   a. Connection point below 110 kV and maximum capacity of 0,8 kW or more (type A);
   b. Connection point below 110 kV and maximum capacity at or above a threshold proposed by the TSO in accordance with the procedure laid out in paragraph 3 (type B). This threshold shall not be above the limits for type B power-generating modules contained in Table 1;
   c. Connection point below 110 kV and maximum capacity at or above a threshold specified by the TSO in accordance with paragraph 3 (type C). This threshold shall not be above the limits for type C power-generating modules contained in Table 1; or
   d. Connection point at 110 kV or above (type D). A power-generating module is also of type D if its connection point is below 110 kV, and its maximum capacity is at or above a threshold specified in accordance with paragraph 3. This threshold shall not be above the limit for type D power-generating modules contained in Table 1.

Table 1

For Continental Europe and Ukraine.

Among the three tables listed below, the NRA should choose the relevant table and delete the others.

Limits for thresholds for type B, C, and D power-generating modules

Limit for maximum capacity threshold from which a power-generating module is of type B	Limit for maximum capacity threshold from which a power-generating module is of type C	Limit for maximum capacity threshold from which a power-generating module is of type D
1 MW	50 MW	75 MW

Table 1

For Georgia (and Armenia). As mentioned in one of the earlier comments under Article 2(6), the implementation of the regulation is not mandatory for Georgia (and Armenia). But Georgia (and Armenia) still can transpose most elements in this regulation.

Limits for thresholds for type B, C, and D power-generating modules

Limit for maximum capacity threshold from which a power-generating module is of type B	Limit for maximum capacity threshold from which a power-generating module is of type C	Limit for maximum capacity threshold from which a power-generating module is of type D
1,5 MW	10 MW	30 MW

Table 1

For Moldova.

Limits for thresholds for type B, C, and D power-generating modules

Limit for maximum capacity threshold from which a power-generating module is of type B	Limit for maximum capacity threshold from which a power-generating module is of type C	Limit for maximum capacity threshold from which a power-generating module is of type D
0,5 MW	10 MW	15 MW

3. Proposals for maximum capacity thresholds for types B, C, and D power-generating modules shall be subject to approval by the regulatory authority. In forming the proposals, the TSO shall coordinate with adjacent TSOs and DSOs and shall conduct a public consultation which shall last at least for a period of one month. A sound justification for including or not the views of the stakeholders shall be provided and published in a timely manner before, or simultaneously with, the publication of the proposal.

From EU 2016/631 Article 10.

4. A proposal by the TSO to change the thresholds shall not be made sooner than three years after the previous proposal.

5. Power-generating facility owners shall assist in this process and provide data as requested by the TSO.

In the 2016/631 regulation, there is the phrase:
"6. If, as a result of modification of the thresholds, a power-generating module qualifies under a different type, the procedure laid down in Article 4(3) concerning existing power-generating modules shall apply before compliance with the requirements for the new type is required."

Comment: We do not think that detail is necessarily needed here.

Article 3: Definitions

The definitions are expanded in this document compared to the original Network Code on Emergency and Restoration to produce a more complete regulatory document in case the added definitions are not present in existing regulations, or they are defined differently.

For the purposes of this Regulation, the definitions provided for in …….. shall apply unless defined specifically herein.

Please add relevant national laws and regulations or develop a generic phrase like "relevant laws and regulations."

'Aggregation' means a function performed by a natural or legal person who combines multiple customer loads or generated electricity for sale, purchase, or auction in any electricity market.

'Balance responsible party' means a market participant or its chosen representative responsible for its imbalances in the electricity market.

'Balancing capacity' means a volume of capacity that a balancing service provider has agreed to hold and in respect to which the balancing service provider has agreed to submit bids for a corresponding volume of balancing energy to the TSO for the duration of the contract.

'Balancing energy' means energy used by TSOs to carry out balancing.

'Balancing service provider' means a market participant providing either or both balancing energy and balancing capacity to TSOs.

'Balancing' means all actions and processes, in all timelines, through which TSOs ensure, in an ongoing manner, maintenance of the system frequency within a predefined stability range and compliance with the amount of reserves needed with respect to the required quality.

Regarding 'balancing,' the definition comes from Regulation (EU) 2017/2195. If you already have this definition in another national legislation, you can omit this definition.

Regarding 'stability range,' "as set out in Article 127 of Regulation (EU) 2017/1485" was omitted from the definition. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly. If not, the transposition can be done as it is in this document and the references can be added at a later stage through amendment.

Regarding 'required quality,' "as set out in Part IV Title V, Title VI, and Title VII of Regulation (EU) 2017/1485" was omitted from the definition. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly. If not, the transposition can be done as it is in this document and the references can be added at a later stage through amendment.

'Bidding zone' means the largest geographical area within which market participants are able to exchange energy without capacity allocation.

'Bottom-up re-energization strategy' means a strategy where part of the system of a TSO can be re-energized without the assistance from other TSOs.

'Capacity allocation' means the attribution of cross-zonal capacity.

'Capacity calculation region' means the geographic area in which the coordinated capacity calculation is applied.

'Closed distribution system' means a system which distributes electricity within a geographically confined industrial, commercial, or shared services site and does not supply household customers, without prejudice to incidental use by a small number of households located within the area served by the system and with employment or similar associations with the owner of the system.

'Control area' means a coherent part of the interconnected system, operated by a single system operator, and shall include connected physical loads and/or generation units if any.

'Critical element' means a network element either within a bidding zone or between bidding zones considered in the capacity calculation process, limiting the amount of power that can be exchanged.

'Cross-zonal capacity' means the capability of the interconnected system to accommodate energy transfer between bidding zones.

'Defense service provider' means a legal entity with a legal or contractual obligation to provide a service contributing to one or several measures of the system defense plan.

'Demand response' means the change of electricity load by final customers from their normal or current consumption patterns in response to market signals, including in response to time-variable electricity prices or incentive payments, or in response to the acceptance of the final customer's bid to sell demand reduction or increase at a price in an organized market as defined in point (4) of Article

2 of Commission Implementing Regulation (EU) No 1348/2014 (17), whether alone or through aggregation

'Distribution system operator' means a natural or legal person who is responsible for operating, ensuring the maintenance of and, if necessary, developing the distribution system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long-term ability of the system to meet reasonable demands for the distribution of electricity.

'Distribution' means the transport of electricity on high-voltage, medium-voltage, and low-voltage distribution systems with a view to its delivery to customers but does not include supply.

'Electricity markets' means markets for electricity, including over-the-counter markets and electricity exchanges, markets for the trading of energy, capacity, balancing and ancillary services in all timeframes, including forward, day-ahead, and intraday markets.

'Emergency state' means the system state in which one or more operational security limits are violated.

'Energy storage facility' means, in the electricity system, a facility where energy storage occurs.

'Energy storage' means, in the electricity system, deferring the final use of electricity to a moment later than when it was generated, or the conversion of electrical energy into a form of energy which can be stored, the storing of such energy, and the subsequent reconversion of such energy into electrical energy or use as another energy carrier

'Frequency leader' means the TSO appointed and responsible for managing the system frequency within a synchronized region or a synchronous area in order to restore system frequency back to the nominal frequency.

'Generation' means the production of electricity.

'High priority significant grid user' means the significant grid user for which special conditions apply for disconnection and re-energization.

'Interconnected system' means a number of transmission and distribution systems linked together by means of one or more interconnectors.

'Interconnector' means equipment used to link electricity systems.

'Load-frequency control area' or 'LFC area' means a part of a synchronous area or an entire synchronous area, physically demarcated by points of measurement at interconnectors to other LFC areas, operated by one or more TSOs fulfilling the obligations of load-frequency control.

'Market participant' means a natural or legal person who buys, sells, or generates electricity, who is engaged in aggregation or who is an operator of demand response or energy storage services, including through the placing of orders to trade, in one or more electricity markets, including in balancing energy markets.

'Netted demand' means the netted value of active power seen from a given point of the system, computed as (load — generation), generally expressed in kilowatts (kW) or megawatts (MW), at a given instant or averaged over any designated interval of time.

'Nominated electricity market operator' or 'NEMO' means a market operator designated by the competent authority to carry out tasks related to single day-ahead or single intraday coupling.

'Power-generating facility' means a facility that converts primary energy into electrical energy, and which consists of one or more power-generating modules connected to a network.

'Producer' means a natural or legal person who generates electricity.

'Redispatching' means a measure, including curtailment, which is activated by one or more TSOs or DSOs by altering the generation, load pattern, or both, in order to change physical flows in the electricity system and relieve a physical congestion or otherwise ensure system security.

'Re-energization' means reconnecting generation and load to energize the parts of the system that have been disconnected.

'Restoration plan' means all technical and organizational measures necessary for the restoration of the system back to normal state.

'Restoration service provider' means a legal entity with a legal or contractual obligation to provide a service contributing to one or several measures of the restoration plan.

'Restoration state' means the system state in which the objective of all activities in the transmission system is to re-establish the system operation and maintain operational security after the blackout state or the emergency state.

'Resynchronization leader' means the TSO appointed and responsible for the resynchronization of two synchronized regions.

'Resynchronization point' means the device used to connect two synchronized regions.

'Resynchronization' means synchronizing and connecting again two synchronized regions at the resynchronization point.

'Security' means both security of supply and provision of electricity, and technical safety.

'Supply' means the sale, including the resale, of electricity to customers.

'Synchronized region' means the fraction of a synchronous area covered by interconnected TSOs with a common system frequency and which is not synchronized with the rest of the synchronous area.

'System user' means a natural or legal person who supplies to, or is supplied by, a transmission system or a distribution system.

'Top-down re-energization strategy' means a strategy that requires the assistance of other TSOs to re-energize parts of the system of a TSO.

'Transmission system operator' means a natural or legal person who is responsible for operating, ensuring the maintenance of and, if necessary, developing the transmission system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long-term ability of the system to meet reasonable demands for the transmission of electricity.

'Transmission' means the transport of electricity on the extra high-voltage and high-voltage interconnected system with a view to its delivery to final customers or to distributors but does not include supply.

Article 4: Regulatory aspects

1. When applying this Regulation, the TSO shall:
    a. Apply the principles of proportionality and non-discrimination;
    b. Ensure transparency;
    c. Apply the principle of optimization between the highest overall efficiency and lowest total costs for all parties involved;
    d. Make use of market-based mechanisms as far as is possible to ensure network security and stability;
    e. Respect technical, legal, personal safety and security constraints;
    f. Comply with its responsibility to ensure system security, as required by the legislation;

This can reference the relevant law in the country.

g. Consult with relevant DSOs and take account of potential impacts on their system; and
h. Take into consideration agreed European standards and technical specifications.

2. The TSO shall submit the following proposals to the regulatory authority for approval:

Regulation (EU) 2017/2196 also states: "Where a **Contracting Party** has so provided, the proposals referred to in points (a) to (d) and (g) of paragraph 2 may be submitted for approval to an entity other than the regulatory authority." Which is omitted from this draft as it does not fit to a secondary legislation by the regulator.

Attention for consideration in the primary legislation: if such a method is to be utilized, this probably needs to be defined in the primary legislation.

a. The terms and conditions to function as defense service providers on a contractual basis in accordance with paragraph 4;
b. The terms and conditions to function as restoration service providers on a contractual basis in accordance with paragraph 4;
c. The list of SGUs responsible for implementing on their installations the measures that result from mandatory requirements set out in the grid/network codes, and/or from the legislation and the list of the measures to be implemented by these SGUs, identified by the TSO under Art. 11(4)(c) and 23(4)(c);

In response to "grid/network codes," the original text refers to:
"Regulations (EU) 2016/631, as adapted and adopted by Permanent High Level Group Decision 2018/03/PHLG-EnC, (EU) 2016/1388, as adapted and adopted by Permanent High Level Group Decision 2018/05/PHLG-EnC, and (EU) 2016/1447, as adapted and adopted by Permanent High Level Group Decision 2018/04/PHLG-EnC."

If the country transposing the regulation has these regulations already in place, the reference should be done accordingly. If not, the transposition can be done as it is in this document and the references can be added at a later stage through amendment.

In response to "and/or from the legislation," this can reference the relevant law in the country.

d. The list of high priority SGUs referred to in Articles 11(4)(d) and 23(4)(d) or the principles applied to define those and the terms and conditions for disconnecting and re-energizing the high priority grid users.

The original network code (EnC 2017/2196) has the phrase: "unless defined by the national legislation of Contracting Parties." Meaning, if this is the case, this bullet needs to be removed during transposition.

e. The rules for suspension and restoration of market activities in accordance with Article 36(1);
f. Specific rules for imbalance settlement and settlement of balancing energy in case of suspension of market activities, in accordance with Article 39(1);
g. The test plan in accordance with Article 43(2).

3. The regulatory authority shall decide on the proposals referred to in paragraph 2 within six months of the date of submission by the TSO.

2017/2196 also provides option for another entity to be the authority for approval. In the event that this is the case for a specific country, this phrase needs to be updated.

Regulation (EU) 2017/2196 also states:
Where a **Contracting Party** has so provided, the proposals referred to in points (a) to (d) and (g) of paragraph 2 may be submitted for approval to an entity other than the regulatory authority. Regulatory authorities and entities designated by the **Contracting Parties** pursuant to this paragraph shall decide on the proposals referred to in paragraph 2 within six months from the date of submission by the TSO.

4. The terms and conditions to function as defense service provider and as restoration service provider shall be established on a contractual basis. The TSO shall develop by **31 December 2024** a proposal for the relevant terms and conditions, which shall define at least:

Alternative option: This can also be done in the national legal framework as an alternative to a contractual mechanism.

Moved one year from 2023 to 2024, compared to the adopted 2017/2196. Similar to the change made here, all deadlines have been moved one year and highlighted in red font.

   a. The characteristics of the service to be provided;
   b. The possibility of and conditions for aggregation; and
   c. For restoration service providers, the target geographical distribution of power sources with black start and island operation capabilities.

5. By **31 December 2024**, each TSO shall notify the regulatory authority the system defense plan designed pursuant to Article 11 and the restoration plan designed pursuant to Article 23, or at least the following elements of those plans:
   a. The objectives of the system defense plan and the restoration plan, including the phenomena to be managed or the situations to be solved;
   b. The conditions triggering the activation of the measures of the system defense plan and the restoration plan;
   c. The rationale of each measure, explaining how it contributes to the objectives of the system defense.
   d. Plan and the restoration plan, and the party responsible for implementing those measures; and
   e. The deadlines set out pursuant to Articles 11 and 23 for the implementation of the measures.

6. Where a TSO is required or permitted under this Regulation to specify, establish, or agree on requirements, terms and conditions or methodologies that are not subject to approval in accordance with paragraph 2, such terms and conditions or methodologies will be submitted to the regulatory authority for prior approval.

Alternative option: if the regulator does not want to approve such documents, the submission can be for "acknowledgement" only rather than for approval. (EU) 2017/2196 provides this flexibility.

7. If the TSO deems an amendment to the documents, approved in accordance with paragraph 3, to be necessary, the requirements provided for in paragraphs 2 to 5 shall apply to the proposed amendment. The TSO shall consider the legitimate expectations, where necessary, of power generating facility owners, demand facility owners and other stakeholders based on the initially specified or agreed requirements or methodologies.

8. Any party can complain against the TSO in relation to the TSO's obligations or decisions under this Regulation and may refer the complaint to the regulatory authority which, acting as dispute settlement authority, shall issue a decision within two months after receipt of the complaint. That period may be extended by a further two months when the regulatory authority seeks additional information. That extended period may be further extended with the agreement of

the complainant. The regulatory authority's decision shall be binding unless and until overruled on appeal.

Article 5: Consultation and coordination

1. Where this Regulation provides that the TSO shall consult concerned parties for actions it defines before real-time or in real-time, the following procedure shall apply:
    a. The TSO shall consult with at least the parties identified in the Articles of this Regulation requiring consultation;
    b. The TSO shall explain the rationale and objective of the consultation and of the decision that it has to take;
    c. The TSO shall collect from the parties referred to in point (a) any relevant information and their assessment;
    d. The TSO shall duly consider the views, situations and constraints of the parties consulted;
    e. Before taking a decision, the TSO shall provide an explanation to the parties consulted of the reasons for following or not their views.

2. Where this Regulation provides that a TSO shall coordinate the execution of a set of actions in real-time with several parties, the following procedure shall apply:
    a. The TSO shall consult at least with the parties identified in the Articles of this Regulation requiring real time coordination;
    b. The TSO shall explain the rationale and objective of the coordination and of the actions to be taken;
    c. The TSO shall make an initial proposal on actions to be taken by each party;
    d. The TSO shall collect from the parties referred to in point (a) any relevant information and their assessment;
    e. The TSO shall make a final proposal on actions to be taken by each party, duly considering the views, situations, and constraints of the concerned parties, and setting a deadline for parties to express their opposition to the actions proposed by the TSO;
    f. Where the concerned parties do not oppose executing the actions proposed by the TSO, each party, including the TSO, shall execute the actions in line with the proposal;
    g. Where one or more of the parties refuse the action proposed by the TSO within the set deadline, the TSO shall refer the action proposed to the regulatory authority for decision, together with a justification of the rationale and objectives of the action proposed by the TSO and of the assessment and position of the parties;

If the relevant authority is different from the regulatory authority, consider naming that authority here.

    h. If real-time referral to the regulatory authority is not possible, the TSO shall initiate an equivalent action that has the least or no impact on the parties that refused to execute the action proposed.

If the relevant authority is different from the regulatory authority, then, instead of "regulatory authority" consider naming that authority here.

3. A party may refuse to execute real time actions proposed by the TSO under the coordination procedure described in paragraph 2 if it justifies that the proposed action would lead to the violation of one or more technical, legal, personal safety or security constraint(s).

Article 6: Regional coordination

1. When designing its system defense plan pursuant to Article 11 and its restoration plan pursuant to Article 23 or when reviewing its system defense plan pursuant to Article 50 and

its restoration plan pursuant to Article 51, the TSO shall ensure the consistency with the corresponding measures in the plans of TSOs within its synchronous area and in the plans of neighboring TSOs belonging to another synchronous area of at least the following measures:

a. Inter-TSO assistance and coordination in emergency state, pursuant to Article 14;
b. Frequency management procedures, pursuant to Article 18 and Article 28, excluding the establishment of target frequency in case of bottom-up re-energization strategy before Any resynchronization to the interconnected transmission system;
c. Assistance for active power procedure, pursuant to Article 21;
d. Top-down re-energization strategy, pursuant to Article 27.

2. The consistency assessment of the system defense plan and the restoration plan in accordance with paragraph 1 shall include the following tasks:
   a. Exchange of information and data related to the measures referred to in paragraph 1 with the TSOs concerned;
   b. Identification of incompatibilities of measures referred to in paragraph 1, in the plans of the relevant TSOs;
   c. Identification of potential threats to operational security in the capacity calculation region. These threats include, inter alia, regional common mode failures with significant impact on the transmission systems of the relevant TSOs;
   d. Assessment of the effectiveness of measures referred to in paragraph 1 specified in the system defense plans and the restoration plans of the involved TSOs, to manage the potential threats referred to in point (c);
   e. Consultation with Regional Coordination Centers (RCCs) to assess the consistency of measures referred to in paragraph 1 within the entire concerned synchronous area;
   f. Identification of mitigation actions in case of incompatibilities in the system defense plans and the restoration plans of the relevant TSOs or in case that measures are missing in the system defense plans and the restoration plans of the relevant TSOs.

3. In order to ensure regional coordination within the scope of this article, the TSO shall engage in regional initiatives and will be authorized to share necessary information with the relevant TSOs and the RCCs.

4. By **31 December 2024**, the TSO shall transmit the measures referred to in paragraph 1 to the relevant RCC(s). The TSO shall ensure the availability of its own skilled experts to assist the RCC(s) in preparing a technical report on the consistency of the measures based on the criteria set out in paragraph 2.

2019/941: Established pursuant to Article 35 of the Regulation (EU) 2019/943, as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC.

2019/941: Within 3 months from the submission of the measures, the RCC(s) shall produce a technical report on the consistency of the measures based on the criteria set out in paragraph 2.

5. Once the RCC(s) transmit this report to all the TSOs involved, the TSO shall in turn transmit it to the regulatory authority, as well as to **the Energy Community Regulatory Board and** ENTSO for Electricity, for the purposes of Article 52.

6. The TSO, together with the other TSOs of each capacity calculation region, shall agree on a threshold above which the impact of actions of one or more TSOs in the emergency, blackout, or restoration states is considered significant for other TSOs within the capacity calculation region.

Article 7: Public consultation

1. The TSO shall consult stakeholders and the regulatory authority on proposals subject to approval in accordance with points (a), (b), (e), (f) and (g) of Article 4(2). The consultation shall last for a period of not less than one month.

If the Regulation (EU) 2019/941 is transposed, and the "competent authority" is set to be another body rather than the NRA, instead of "regulatory authority" consider naming that authority.

2. The TSO shall duly consider the views of the stakeholders resulting from the consultations prior to the submission of the draft proposal. In all cases, a sound justification for including or not including the views of the stakeholders shall be provided and published in a timely manner before, or simultaneously with, the publication of the proposal.

Article 8: Recovery of costs

1. The costs borne by system operators subject to network tariff regulation and stemming from the obligations laid down in this Regulation shall be assessed by the regulatory authority. Costs assessed as reasonable, efficient, and proportionate shall be recovered through network tariffs or other appropriate mechanisms.

Kept as system operators as there can be costs associated with the DSOs in addition to the TSOs.

2. If requested by the regulatory authority, system operators referred to in paragraph 1 shall, within three months of the request, provide the information necessary to facilitate assessment of the costs incurred.

Article 9: Confidentiality obligations

1. Any confidential information received, exchanged, or transmitted pursuant to this Regulation shall be subject to the conditions of professional secrecy laid down in paragraphs 2, 3 and 4.

2. The obligation of professional secrecy shall apply to any persons subject to the provisions of this Regulation.

3. Confidential information received by the persons referred to in paragraph 2 in the course of their duties may not be divulged to any other person or authority, without prejudice to cases covered by national legislation, the other provisions of this Regulation or other relevant **Energy Community** legislation.

4. Without prejudice to cases covered by **Energy Community** and national legislation, regulatory authority, bodies, or persons who receive confidential information pursuant to this Regulation may use it only for the purpose of performing their duties under this Regulation.

Article 10: Agreements with neighboring TSOs

1. By **30 June 2025**, the TSO shall endeavor to conclude with the third country TSOs in its synchronous area, that are not bound by EU Regulations and Energy Community Legislation, an agreement setting the basis for their cooperation concerning secure system operation and setting out arrangements for the compliance of the third country TSOs with the obligations set in EU Regulations and Energy Community Legislation.

Article X2: Classification of system states

This article is transposed from Article 18(3) of Regulation (EU) 2017/1485 **as adapted and adopted by Ministerial Council Decision 2022/03/MC-En.**

If Regulation (EU) 2017/1485 is already transposed in the country, then please reference that national regulation/legislation in the article "activation of the system defense plan" and remove this article. Once the Regulation (EU) 2017/1485 is transposed, it is better to give reference to the article (local version of the Regulation (EU) 2017/1485 article 18) in that regulation and remove this article from the document.

This article is more for to hold the fort until the Regulation (EU) 2017/1485 is transposed. For this article to be complete, the definitions in the Regulation (EU) 2017/1485 articles 24(1), 25,33 should also be in place.

Track changes document that was shared separately with NRAs reflect the changes compared to original article in (EU) 2017/1485.

1. The transmission system shall be in the normal state when all of the following conditions are fulfilled:
    a. Voltage and power flows are within the operational security limits;
    b. Frequency meets the following criteria:
        (i) The steady state system frequency deviation is within the standard frequency range; or
        (ii) The absolute value of the steady state system frequency deviation is not larger than the maximum steady state frequency deviation and the system frequency limits established for the alert state are not fulfilled;
    c. Active and reactive power reserves are sufficient to withstand contingencies without violating operational security limits;
    d. Operation of the TSO's control area is and will remain within operational security limits after the activation of remedial actions following the occurrence of a contingency.

2. The transmission system shall be in the alert state when:
    a. Voltage and power flows are within the operational security limits.
    b. The TSO's reserve capacity is reduced by more than 20% for longer than 30 minutes and there are no means to compensate for that reduction in real-time system operation; or
    c. Frequency meets the following criteria:
        (i) The absolute value of the steady state system frequency deviation is not larger than the maximum steady state frequency deviation; and
        (ii) The absolute value of the steady state system frequency deviation has continuously exceeded 50% of the maximum steady state frequency deviation for a time period longer than the alert state trigger time or the standard frequency range for a time period longer than time to restore frequency; or
    d. At least one contingency leads to a violation of the TSO's operational security limits, even after the activation of remedial actions.

3. The transmission system shall be in the emergency state when at least one of the following conditions is fulfilled:
    a. There is at least one a violation of the TSO's operational security limits;
    b. Frequency does not meet the criteria for the normal state and for the alert state defined in accordance with paragraphs 1 and 2;
    c. At least one measure of the TSO's system defense plan is activated;
    d. There is a failure in the functioning of tools, means and facilities, resulting in the unavailability of those tools, means and facilities for longer than 30 minutes.

4. The transmission system shall be in the blackout state when at least one of the following conditions is fulfilled:
    a. Loss of more than 50% of demand in the concerned TSO's control area;
    b. Total absence of voltage for at least three minutes in the TSO's control area, leading to the triggering of restoration plans.
5. The transmission system shall be in the restoration state when a TSO, being in the emergency or blackout state, has started to activate measures of its restoration plan.

Article X3: Continuance of minimum essential functions and identification of key personnel

Incorporated from a best practice of Ohio.

The system operators shall plan to ensure the continuance of minimum essential functions during events that cause staffing to be reduced through a continuity of operations plan. The continuity of operations plan shall, at a minimum, include:

a. Plan activation triggers such as the world health organization's pandemic phase alert levels, widespread transmission within Europe, or a case at one or more locations within the country.
b. Identification of a pandemic coordinator and team with defined roles and responsibilities for preparedness and response planning.
c. Identification of minimal essential functions, minimal staffing required to maintain such essential functions, and personnel resource pools required to ensure the continuance of those functions in progressive stages associated with a declining workforce.
d. Identification of essential employees and critical inputs (e.g., raw materials, equipment, suppliers, subcontractor services/products, and logistics) required to maintain business operations by location and function.
e. Policies and procedures to address personnel protection initiatives.
f. Policies and procedures to address training of the key personnel for emergencies.
g. Policies and procedures to maintain lines of communication with the regulatory authority during a declared emergency.

Chapter II: System Defense Plan

SECTION 1: General provisions

Article 11: Design of the system defense plan

1. By **31 December 2024**, the TSO shall design a system defense plan in consultation with the regulatory authority, relevant DSOs, SGUs, or entities referred to in Article 4(3), neighboring TSOs, and the other TSOs in its synchronous area.

2. When designing its system defense plan, the TSO shall consider at least the following elements:
   a. The operational security limits set out in accordance with the grid code;

"Article 25 of Regulation (EU) 2017/1485 **as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."**

The text above was omitted from the definition and instead reference is made to the "grid code". If the country transposing the regulation has these provisions already in place in the primary or secondary legislations (different from the grid code), the reference should be done accordingly. If not, the transposition can be done as it is in this document and the references can be added at a later stage through an amendment.

   b. The behavior and capabilities of load and generation within the synchronous area;
   c. The specific needs of the high priority SGUs listed pursuant to point (d) of paragraph 4; and
   d. The characteristics of its transmission system and of the underlying DSO's systems.

3. The system defense plan shall contain at least the following provisions:
   a. The conditions under which the system defense plan is activated, in accordance with Article 13;
   b. The system defense plan instructions to be issued by the TSO; and
   c. The measures subject to real-time consultation or coordination with the identified parties.

4. In particular, the system defense plan shall include the following elements:
   a. A list of the measures to be implemented by the TSO on its installations;
   b. A list of the measures to be implemented by DSOs and of the DSOs responsible for implementing those measures on their installations;
   c. A list of the SGUs responsible for implementing on their installations the measures that result from the mandatory requirements set out in the national legislation and a list of the measures to be implemented by those SGUs;

"Regulation (EU) 2016/631, **as adapted and adopted by Permanent High Level Group Decision 2018/03/PHLG-EnC,** (EU) 2016/1388**, as adapted and adopted by Permanent High Level Group Decision No 2018/05/PHLG-EnC,** and (EU) 2016/1447**, as adapted and adopted by Permanent High Level Group Decision 2018/04/PHLG-EnC,** or from"

The text above was omitted from the definition and instead reference is made to the "national legislation". If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly. If not, the transposition can be done as it is in this document and the references can be added at a later stage through amendment.

   d. A list of high priority SGUs and the terms and conditions for their disconnection, and
   e. The implementation deadlines for each measure listed in the system defense plan.

5. The system defense plan shall include at least the following technical and organizational measures specified in Section 2 of Chapter II:
    a. System protection schemes including at least:
        (i) Automatic under-frequency control scheme in accordance with Article 15;
        (ii) Automatic over-frequency control scheme in accordance with Article 16; and
        (iii) Automatic scheme against voltage collapse in accordance with Article 17.
    b. System defense plan procedures, including at least:
        (i) Frequency deviation management procedure in accordance with Article 18;
        (ii) Voltage deviation management procedure in accordance with Article 19;
        (iii) Power flow management procedure in accordance with Article 20;
        (iv) Assistance for active power procedure in accordance with Article 21; and
        (v) Manual demand disconnection procedure in accordance with Article 22.

6. The measures contained in the system defense plan shall comply with the following principles:
    a. Their impact on the system users shall be minimal;
    b. They shall be economically efficient;
    c. Only those measures that are necessary shall be activated; and
    d. They shall not lead the TSO's transmission system or the interconnected transmission systems into emergency state or blackout state.

Article 12: Implementation of the system defense plan

1. By **30 June 2025**, the TSO shall implement those measures of its system defense plan that are to be implemented on the transmission system. It shall maintain the implemented measures henceforth.

2. By **31 December 2024**, the TSO shall notify the transmission connected DSOs of the measures, including the deadlines for implementation, which are to be implemented on:
    a. The DSO's installations pursuant to Article 11(4); or
    b. The installations of SGUs identified pursuant to Article 11(4) connected to their distribution systems; or
    c. The installations of defense service providers connected to their distribution systems; or
    d. The installations of DSOs connected to their distribution systems.

3. By **31 December 2024**, the TSO shall notify the SGUs identified pursuant to point (c) of Article 11(4), or the defense service providers directly connected to its transmission system of the measures which are to be implemented on their installations, including the deadlines for the implementation.

4. The TSO shall notify directly SGUs identified pursuant to point (c) of Article 11(4), defense service providers, or DSOs connected to distribution systems of the measures which are to be implemented on their installations, including the deadlines for their implementation. It shall inform the concerned DSO of this notification.

There is a condition in this paragraph in 2017/2196: "When provided for in national legislation, …" which is not included in the draft text as NRA should already know if this is the case or not. So, if this is not the case the paragraph can be removed or redesigned as the NRA sees fit.

5. When the TSO notifies a DSO in accordance with paragraph 2, the DSO shall notify in turn, without delay, the SGUs, the defense service providers, and the DSOs connected to its distribution system of the measures of the system defense plan that they have to implement on their respective installations, including the deadlines for their implementation.

6. Each notified DSO, SGU, and defense service provider shall:
    a. Implement the measures notified pursuant to this Article no later than 12 months from the date of notification;
    b. Confirm the implementation of the measures to the notifying system operator, who shall, when different from the TSO, notify the confirmation to the TSO; and
    c. Maintain the measures implemented on its installations.

Article 13: Activation of the system defense plan

1. The TSO shall activate the procedures of its system defense plan pursuant to point (b) of Article 11(5) in coordination with DSOs and SGUs identified pursuant to Article 11(4) and with defense service providers.

2. In addition to the automatically activated schemes of the system defense plan, pursuant to point (a) of Article 11(5), the TSO shall activate a procedure of the system defense plan when:
    a. The system is in an emergency state in accordance with the criteria set out in Article X2(3) and there are no remedial actions available to restore the system to the normal state; or

Original reference is to Article 18(3) of Regulation (EU) 2017/1485 **as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC.**

    b. Based on the operational security analysis, the operational security of the transmission system requires the activation of a measure of the system defense plan pursuant to Article 11(5) in addition to the available remedial actions.

3. Each DSO and SGU identified pursuant to Article 11(4), as well as each defense service provider, shall execute without undue delay the system defense plan instructions issued by the TSO pursuant to point (c) of Article 11(3), in accordance with the system defense plan procedures provided for in point (b) of Article 11(5).

4. The TSO shall activate procedures of its system defense plan referred to in point (b) of Article 11(5) having a significant cross-border impact in coordination with the impacted TSOs.

Article 14: Inter-TSO assistance and coordination in emergency state

1. Upon request from a neighboring TSO in emergency state, the TSO shall provide through interconnectors any possible assistance to the requesting TSO, provided this does not cause its transmission system or the interconnected transmission systems to enter into an emergency or blackout state.

2. When the assistance needs to be provided through direct current interconnectors, it may consist in conducting the following actions, considering the technical characteristics and capability of HVDC system:
    a. Manual regulation actions of the transmitted active power to help the TSO in the emergency state to bring power flows within operational security limits or frequency of neighboring synchronous area within system frequency limits for alert state defined pursuant to Article X2(2);

Original reference is to Article 18(2) of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC. That article is carried to this document as Article X2(2).

    b. Automatic control functions of the transmitted active power;

"Based on the signals and criteria set out in Article 13 of Regulation (EU) 2016/1447**, as** adapted and adopted by Permanent High Level Group Decision 2018/04/PHLG-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

c. Automatic frequency control in case of islanded operation;

"Pursuant to Articles 15 to 18 of Regulation (EU) 2016/1447, as adapted and adopted by Permanent High Level Group Decision 2018/04/PHLG-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

d. Voltage and reactive power control, and

"Pursuant to Article 24 of Regulation (EU) 2016/1447**,** as adapted and adopted by Permanent High Level Group Decision 2018/04/PHLG-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

e. Other appropriate action.

3. The TSO may proceed to a manual disconnection of any transmission system element having a significant cross-border impact, including an interconnector, subject to the following requirements:
   a. The TSO shall coordinate with neighboring TSOs; and
   b. This action shall not lead the remaining interconnected transmission system into an emergency state or blackout state.

4. Notwithstanding paragraph 3, the TSO may manually disconnect any transmission system element having a significant cross-border impact, including an interconnector, without coordination, in exceptional circumstances implying a violation of the operational security limits, to prevent endangering personnel safety or damaging equipment. Within 30 days of the incident, the TSO shall prepare a report in the local language and in English containing a detailed explanation of the rationale, implementation, and impact of this action; submit it to the relevant regulatory authority and neighboring TSOs; and make it available to the significantly affected system users.

SECTION 2: Measures of the System Defense Plan

Article 15: Automatic under-frequency control scheme

1. The scheme for the automatic control of under-frequency of the system defense plan shall include a scheme for the automatic low frequency demand disconnection and the settings of the limited frequency sensitive mode-underfrequency in the TSO load frequency control (LFC) area.

2. In the design of its system defense plan, the TSO shall provide for the activation of the limited frequency sensitive mode-underfrequency prior to the activation of the scheme for the automatic low frequency demand disconnection, where the rate of change of frequency allows it.

3. Prior to the activation of the automatic low frequency demand disconnection scheme, the TSO and DSOs identified pursuant to Article 11(4) shall foresee that energy storage units acting as load connected to its system:
    a. Automatically switch to generation mode within the time limit and at an active power set-point established by the TSO in the system defense plan; or
    b. When the energy storage unit is not capable of switching within the time limit established by the TSO in the system defense plan, automatically disconnect the energy storage unit acting as load.

4. The TSO shall establish in its system defense plan the frequency thresholds at which the automatic switching or disconnection of energy storage units shall occur. These frequency thresholds shall lower or equal to the system frequency limit defined for the emergency state in Article X2(3) and higher than the frequency limit for demand disconnection starting mandatory level laid down in the Annex.

5. The TSO shall design the scheme for the automatic low frequency demand disconnection in accordance with the parameters for shedding load in real-time laid down in the Annex. The scheme shall include the disconnection of demand at different frequencies, from a 'starting mandatory level' to a 'final mandatory level,' within an implementation range whilst respecting a minimum number and maximum size of steps. The implementation range shall define the maximum admissible deviation of netted demand to be disconnected from the target netted demand to be disconnected at a given frequency, calculated through a linear interpolation between starting and final mandatory levels. The implementation range shall not allow the disconnection of less netted demand than the amount of netted demand to be disconnected at the starting mandatory level. A step cannot be considered as such if no netted demand is disconnected when this step is reached.

6. The TSO or DSOs shall install the relays necessary for low frequency demand disconnection considering at least load behavior and dispersed generation.

7. When implementing the scheme for the automatic low frequency demand disconnection pursuant to the notification under Article 12(2), each TSO or DSO shall:
    a. Avoid setting an intentional time delay in addition to the operating time of the relays and circuit breakers;
    b. Minimize the disconnection of power generating modules, especially those providing inertia;
    c. Limit the risk that the scheme leads to power flow deviations and voltage deviations outside operational security limits. If a DSO cannot fulfil the requirements under points (b) and (c), it shall notify the TSO and propose which requirement shall apply. The TSO, in consultation with the DSO, shall establish the applicable requirements based on a joint cost-benefit analysis.

8. The scheme for the automatic low frequency demand disconnection of the system defense plan may provide for netted demand disconnection based on frequency gradient provided that:
    a. It is activated only:
        (i) When the frequency deviation is higher than the maximum steady state frequency deviation and the frequency gradient is higher than the one produced by the reference incident;
        (ii) When the frequency deviation is higher than the maximum steady state frequency deviation and the frequency gradient is higher than the one produced by the reference incident;
    b. It complies with the Annex; and
    c. It is necessary and justified in order to maintain efficiently the operational security.

9. In case the scheme for the automatic low frequency demand disconnection of the system defense plan includes netted demand disconnection based on frequency gradient, as described in paragraph 8, the TSO shall submit, within 30 days of the implementation, a report containing a detailed explanation of the rationale, implementation and impact of this measure to the national regulatory authority.

10. The TSO may include in the scheme for automatic low frequency demand disconnection of its system defense plan additional steps for netted demand disconnection below the final mandatory level of demand disconnection set out in the Annex.

11. The TSO shall be entitled to implement additional system protection schemes that are triggered by a frequency smaller or equal to the frequency of the final mandatory level of demand disconnection and which aim at a faster restoration process. The TSO shall ensure that such additional schemes do not further deteriorate frequency.

Article 16: Automatic over-frequency control scheme

1. The scheme for automatic over-frequency control of the system defense plan shall lead to an automatic decrease of the total active power injected in each LFC area.

2. The TSO shall set out the following parameters of its scheme for automatic over-frequency control in consultation with the other TSOs of its synchronous area:
    a. The frequency thresholds for its activation; and
    b. The reduction ratio of injection of active power.

3. The TSO shall design its automatic over-frequency control scheme considering the capabilities of the power generating modules concerning the limited frequency sensitive mode — over-frequency and of the energy storage units, in its LFC area. If the limited frequency sensitive mode — over-frequency does not exist or is not sufficient to fulfil the requirements set out in points (a) and (b) of paragraph 2, the TSO shall set up in addition a stepwise linear disconnection of generation in its LFC area. The TSO shall establish the maximum size of the steps for disconnection of power generating modules and/or of HVDC systems in consultation with the other TSOs of its synchronous area.

Article 17: Automatic scheme against voltage collapse

1. The automatic scheme against voltage collapse of the system defense plan may include one or more of the following schemes, depending on the results of the TSO's assessment of system security:
    a. A scheme for low voltage demand disconnection;

"according to Article 19(2) of Regulation (EU) 2016/1388, as adapted and adopted by Permanent High Level Group Decision 2018/05/PHLG-EnC;"

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

    b. A blocking scheme for on load tap changer; and

"according to Article 19(3) of Regulation (EU) 2016/1388**, as adapted and adopted by Permanent High Level Group Decision 2018/05/PHLG-EnC."**

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

c. System protection schemes for voltage management.

2. Unless the assessment pursuant to paragraph 1 demonstrates that implementing a blocking scheme for on load tap changer is not necessary to prevent a voltage collapse in the TSO control area, the TSO shall establish the conditions under which the on load tap changer shall block, including at least:

"according to Article 19(3) of Regulation (EU) 2016/1388, as adapted and adopted by Permanent High Level Group Decision 2018/05/PHLG-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

a. The blocking method (local or remote from control room);
b. The voltage level threshold at the connection point;
c. The flow direction of reactive power; and
d. The maximum lapse of time between the detection of the threshold and the blocking.

Article 18: Frequency deviation management procedure

1. The procedure for the management of frequency deviations of the system defense plan shall contain a set of measures to manage a frequency deviation outside the frequency limits defined for the alert state in Article X2(2). The frequency deviation management procedure shall be in line with the procedures set out for remedial actions which need to be managed in a coordinated way and shall fulfill at least the following requirements:

"in accordance with Article 78(4) of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

a. A decrease of generation shall be smaller than the decrease of load during under-frequency events; and
b. A decrease of generation shall be greater than the decrease of load during over-frequency events.

2. The TSO shall adapt the operating mode of its LFC in order to prevent interference with manual activation or deactivation of active power as laid down in paragraphs 3 and 5.

3. The TSO shall be entitled to establish an active power set-point that each SGU identified pursuant to point (c) of Article 11(4) shall maintain, provided that the set-point fulfils the technical constraints of the SGU. Each TSO shall be entitled to establish an active power set-point that each defense service provider shall maintain provided this measure applies to them pursuant to the terms and conditions referred to in Article 4(4) and the set-point respects the technical constraints of the defense service provider. The SGUs and defense service providers shall execute without undue delay the instructions given by the TSO directly or indirectly through DSOs and shall remain in that state until further instructions are issued. Where the instructions are given directly, the TSO shall inform the relevant DSOs without undue delay.

4. The TSO shall be entitled to disconnect SGUs and defense service providers, directly or indirectly through DSOs. SGUs and defense service providers shall remain disconnected until further instructions are issued. Where SGUs are directly disconnected, the TSO shall inform the relevant DSOs without undue delay. Within 30 days of the incident, the TSO shall prepare

a report containing a detailed explanation of the rationale, implementation, and impact of this action and submit it to the relevant regulatory authority, as well as make it available to the significantly affected system users.

5. Prior to the activation of the automatic low frequency demand disconnection scheme set out in Article 15 and provided that the rate of change of frequency allows it, the TSO shall, directly or indirectly through DSOs, activate demand response from the relevant defense service providers and:
    a. Switch energy storage units acting as load to generation mode at an active power set-point established by the TSO in the system defense plan; or
    b. When the energy storage unit is not capable of switching fast enough to stabilize frequency, manually disconnect the energy storage unit.

Article 19: Voltage deviation management procedure

1. The procedure for the management of voltage deviations of the system defense plan shall contain a set of measures to manage voltage deviations outside the operational security limits.

"set out in Article 25 of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

2. The TSO shall be entitled to establish a reactive power range or voltage range and instruct the DSOs and SGUs identified for this measure pursuant to Article 11(4) to maintain it.

"in accordance with Articles 28 and 29 of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

3. Upon the request of a neighboring TSO in an emergency state, the TSO shall make available all reactive power capabilities that do not lead its transmission system into emergency state or blackout state.

Article 20: Power flow management procedure

1. The procedure for power flow management of the system defense plan shall include a set of measures to manage power flow outside the operational security limits.

"set out in Article 25 of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

The text above was omitted from the text. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

2. The TSO shall be entitled to establish an active power set-point that each SGU identified pursuant to point (c) Article 11(4) shall maintain provided that the set-point respects the technical constraints of the SGU. The TSO shall be entitled to establish an active power set-point that each defense service provider shall maintain provided this measure applies to them pursuant to the terms and conditions referred to in Article 4(4) and the set-point respects the technical constraints of the defense service providers. The SGUs and defense service providers shall execute without undue delay the instructions given by the TSO directly or

indirectly through DSOs and shall remain in that state until further instructions are issued. Where the instructions are given directly, the TSO shall inform the relevant DSOs without undue delay.

3. The TSO shall be entitled to disconnect SGUs and defense service providers, directly or indirectly through DSOs. SGUs and defense service providers shall remain disconnected until further instructions are issued. Where SGUs are directly disconnected, the TSO shall inform the relevant DSOs without undue delay. Within 30 days of the incident, the TSO shall prepare a report containing a detailed explanation of the rationale, implementation and impact of this action and submit it to the regulatory authority.

Article 21: Assistance for active power procedure

1. In case of absence of control area adequacy in the day-ahead or intraday timeframe, and prior to any potential suspension of market activities pursuant to Article 35, the TSO shall be entitled to request assistance for active power from:

"identified pursuant to paragraphs 1 and 2 of Article 107 of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

   a. Any balancing service provider, which, upon TSO request, shall change its availability status to make available all its active power, provided it was not already activated through the balancing market, and conforming to its technical constraints;
   b. Any SGU connected in its LFC area, which does not already provide a balancing service to the TSO, and which, upon the TSO request, shall make available all its active power, conforming to its technical constraints; and
   c. Other TSOs that are in the normal or alert state.

2. The TSO may activate the assistance for active power from a balancing service provider or an SGU, under points (a) and (b) of paragraph 1, only if it has activated all balancing energy bids available, considering the available cross-zonal capacity at the moment of absence of adequacy of the control area.

3. The TSO, when subject to a request for assistance for active power by other TSOs, pursuant to paragraph 1(c), shall:
   a. Make available its unshared bids;
   b. Be entitled to activate the available balancing energy, in order to provide the corresponding power to the requesting TSO; and
   c. Be entitled to request the assistance for active power from its balancing service providers and from any SGU connected in its LFC area which does not already provide a balancing service to the TSO, in order to provide the corresponding assistance for active power to the requesting TSO.

4. When activating the active power requested pursuant to paragraph 1(c), as the requesting or the requested TSO, it shall be entitled to use:
   a. Available cross-zonal capacity in case the activation is made before the intraday cross-zonal gate closure time and if the provision of concerned cross-zonal capacities has not been suspended pursuant to Article 35;
   b. Additional capacity that may be available due to real-time status of the system in which case as the requesting or the requested TSO, it shall coordinate with other significantly affected TSOs in accordance with Article 6(5).

5. As the requesting or the requested TSO, once the TSO agreed on the conditions for the provision of assistance for active power with its TSO counterpart, the agreed amount of active power and timeslot for the provision shall be firm, unless the transmission system of the TSO providing the assistance enters into the emergency or blackout state.

Article 22: Manual demand disconnection procedure

1. In addition to the measures set out in Articles 18 to 21, the TSO may establish an amount of netted demand to be manually disconnected, directly by the TSO or indirectly through DSOs, when necessary to prevent the propagation or worsening of an emergency state. Where demand is to be directly disconnected, the TSO shall inform the relevant DSOs without delay.

2. The TSO shall activate the manual disconnection of the netted demand referred to in paragraph 1 to:
    a. Resolve overloads or under voltage situations; or
    b. Resolve situations in which assistance for active power pursuant to Article 21 has been requested but is not sufficient to maintain adequacy in day-ahead and intraday timeframes in its control area, leading to a risk of frequency deterioration in the synchronous area.

"pursuant to Article 107 of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

3. The TSO shall notify DSOs of the amount of netted demand established pursuant to paragraph 1 to be disconnected from their distribution systems. Each DSO shall disconnect the notified amount of netted demand, without undue delay.

4. Within 30 days of the incident, the TSO shall prepare a report containing a detailed explanation of the rationale, implementation and impact of this action and submit it to the regulatory authority.

Chapter III: Restoration Plan

SECTION 1: General provisions

Article 23: Design of the restoration plan

1. By **31 December 2024**, the TSO shall design a restoration plan in consultation with national regulatory authority, DSOs, SGUs, or entities referred to in Article 4(3), neighboring TSOs and the other TSOs in that synchronous area.

2. When designing its restoration plan, the TSO shall consider, at least, the following elements:
    a. The behavior and capabilities of load and generation;
    b. The specific needs of the high priority SGUs listed pursuant to paragraph (4); and
    c. The characteristics of its network and of the underlying DSOs networks.

3. The restoration plan shall contain at least the following provisions:
    a. The conditions under which the restoration plan is activated, as provided for in Article 25;
    b. Restoration plan instructions to be issued by the TSO; and
    c. Measures subject to real-time consultation or coordination with identified parties.

4. In particular, the restoration plan shall include the following elements:
    a. A list of the measures to be implemented by the TSO on its installations;
    b. A list of the measures to be implemented by DSOs and of the DSOs responsible for implementing those measures on their installations;
    c. A list of the SGUs responsible for implementing on their installations the measures that result from mandatory requirements and a list of the measures to be implemented by those SGUs;

"set out in Regulations (EU) 2016/631, as adapted and adopted by Permanent High Level Group Decision 2018/03/PHLG-EnC, (EU) 2016/1388, as adapted and adopted by Permanent High Level Group Decision 2018/05/PHLG-EnC, and (EU) 2016/1447, as adapted and adopted by Permanent High Level Group Decision 2018/04/PHLG-EnC, or from national legislation."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

    d. The list of high priority SGUs and the terms and conditions for their disconnection and re-energization;
    e. A list of substations which are essential for its restoration plan procedures;
    f. The number of power sources in the TSO's control area necessary to re-energize its system with bottom-up re-energization strategy having black start capability, quick re-synchronization capability (through houseload operation) and island operation capability; and
    g. The implementation deadlines for each listed measure.

5. The restoration plan shall include at least the following technical and organizational measures specified in Chapter III:
    a. Re-energization procedure, in accordance with Section 2;
    b. Frequency management procedure, in accordance with Section 3; and
    c. Resynchronization procedure, in accordance with Section 4.

6. The measures contained in the restoration plan shall comply with the following principles:
    a. Their impact on system users shall be minimal;

b. They shall be economically efficient;
c. Only those measures that are necessary shall be activated; and
d. They shall not lead the interconnected transmission systems into an emergency state or blackout state.

Article 24: Implementation of the restoration plan

1. By **30 June 2025**, the TSO shall implement those measures of its restoration plan that are to be implemented on the transmission system. It shall maintain the implemented measures henceforth.

2. By **31 December 2024**, the TSO shall notify the transmission connected DSOs of the measures, including the deadlines for implementation, which are to be implemented on:
   a. The DSO's installations pursuant to Article 23(4); and
   b. The installations of SGUs identified pursuant to Article 23(4) and connected to their distribution systems; and
   c. The installations of restoration service providers connected to their distribution systems;
   d. The installations of DSOs connected to their distribution systems.

3. By **31 December 2024**, the TSO shall notify the SGUs identified pursuant to Article 23(4) and restoration service providers directly connected to its transmission system of the measures that are to be implemented on their installations, including the deadlines for implementation pursuant to point (g) of Article 23(4).

4. The TSO might choose to notify directly the SGUs identified pursuant to Article 23(4) and restoration service providers connected to distribution systems and shall inform the concerned DSO of this notification.

This is optional in the EU regulation 2017/2196 and the bullet starts with: When provided for in national legislation, the TSO shall notify….

Here, the language is drafted to transfer that flexibility to the TSOs decision making. Alternatively, this can be decisively determined in this text.

5. Where the TSO notifies a DSO in accordance with paragraph 2, the DSO shall notify in turn, without delay, the SGUs, restoration service providers, and DSOs connected to its distribution system of the measures of the restoration plan which they have to implement on their respective installations, including the deadlines for implementation, pursuant to point (g) of Article 23(4).

6. Each notified DSO, SGUs, and restoration service provider shall:
   a. Implement the measures notified no later than 12 months from the date of notification;
   b. Confirm the implementation of the measures to the notifying system operator, who shall, when different from the TSO, notify the TSO; and
   c. Maintain the measures implemented on its installations.

Article 25: Activation of the restoration plan

1. The TSO shall activate the procedures of its restoration plan in coordination with the DSOs and SGUs identified pursuant to Article 23(4) and with restoration service providers in the following cases:
    a. When the system is in the emergency state in accordance with the criteria in Article X2(3) once the system is stabilized following activation of the measures of the system defense plan; or
    b. When the system is in the blackout state in accordance with the criteria in Article X2(4).

2. During system restoration, the TSO shall identify and monitor:
    a. The extent and borders of the synchronized region or synchronized regions to which its control area belongs;
    b. The TSOs with which it shares a synchronized region or synchronized regions; and
    c. The available active power reserves in its control area.

3. Each DSO and SGU identified pursuant to Article 23(4), as well as each restoration service provider shall execute without undue delay the restoration plan instructions issued by the TSO, pursuant to point (b) of Article 23(3) in accordance with the restoration plan procedures.

4. The TSO shall activate those procedures of its restoration plan that have a significant cross-border impact in coordination with the impacted TSOs.

SECTION 2: Re-energization

Article 26: Re-energization procedure

1. The re-energization procedure of the restoration plan shall contain a set of measures allowing the TSO to apply:
    a. A top-down re-energization strategy; and
    b. A bottom-up re-energization strategy.

2. Regarding the bottom-up re-energization strategy, the re-energization procedure shall contain at least measures for:
    a. Managing voltage and frequency deviations due to re-energization;
    b. Monitoring and managing island operation; and
    c. Resynchronizing island operation areas.

Article 27: Activation of the re-energization procedure

1. When activating the re-energization procedure, the TSO shall set up the strategy to be applied, considering:
    a. The availability of power sources capable of re-energization in its control area;
    b. The expected duration and risks of possible re-energization strategies;
    c. The conditions of the power systems;
    d. The conditions of the directly connected systems, including at least the status of interconnectors;
    e. The high priority SGUs listed pursuant to Article 23(4); and
    f. The possibility to combine top-down and bottom-up re-energization strategies.

2. When applying a top-down re-energization strategy, the TSO shall manage the connection of load and generation with the aim of regulating the frequency toward the nominal frequency with a maximum tolerance of the maximum steady-state frequency deviation. The TSO shall apply the conditions for connection of load and generation defined by the frequency leader, where appointed in accordance with Article 29.

3. When applying a bottom-up re-energization strategy, the TSO shall manage the connection of load and generation with the aim to regulate the frequency towards the target frequency established in accordance with point (c) of Article 28(3).

4. During re-energization, the TSO shall, after consultation with DSOs, establish and notify the amount of netted demand to be reconnected on distribution networks. Each DSO shall reconnect the notified amount of netted demand, while respecting the block loading and considering the automatic re-connection of load and generation in its network.

5. The TSO shall inform its neighboring TSOs of its capability to support a top-down re-energization strategy.

6. For the activation of a top-down re-energization strategy, the TSO shall request neighboring TSOs to support the re-energization. This support may consist in assistance for active power, in accordance with paragraphs 3 to 5 of Article 21. If the requested TSOs cannot provide assistance for the re-energization, since it would lead their systems to emergency or blackout states, in this case, the TSO shall use the bottom-up re-energization strategy.

7. Similarly, if the TSO receives a request for support to re-energization from a neighboring TSO, it shall provide assistance for the re-energization, unless it leads its systems to emergency or blackout states.

SECTION 3: Frequency management

Article 28: Frequency management procedure

1. The frequency management procedure of the restoration plan shall contain a set of measures aiming at restoring system frequency back to the nominal frequency.

2. The TSO shall activate its frequency management procedure:
    a. In preparation of the resynchronization procedure, when a synchronous area is split in several synchronized regions;
    b. In case of frequency deviation in the synchronous area; or
    c. In case of re-energization.

3. The frequency management procedure shall include at least:
    a. A list of actions regarding the setting of the load-frequency controller before the appointment of frequency leaders;
    b. The appointment of frequency leaders;
    c. The establishment of target frequency in case of bottom-up re-energization strategy;
    d. Frequency management after frequency deviation; and
    e. Frequency management after synchronous area split.
    f. The determination of the amount of load and generation to be reconnected, considering the available active power reserves within the synchronized region in order to avoid major frequency deviations.

Article 29: Appointment of a frequency leader

1. During system restoration, when a synchronous area is split into several synchronized regions, together with other TSOs in the synchronized region, the TSOs shall take part in appointing a frequency leader, in accordance with paragraph 3.

2. During system restoration, when a synchronous area is not split but the system frequency exceeds the frequency limits for the alert state as defined in Article X2(2), together with other TSOs of the synchronous area, the TSO will take part in appointing a frequency leader, in accordance with paragraph 3.

3. By default, the TSO with the highest real-time estimated K-factor shall be appointed as the frequency leader, unless the TSOs of the synchronized region, or of the synchronous area, agree to appoint another TSO as the frequency leader. In that case, the TSO, together with other TSOs of the synchronized region, or of the synchronous area, shall consider the following criteria:

   It is possible to remove this phrase. The advantage of keeping is that it clarifies the process. but on the other hand, this is a national regulation, and the sentence sounds like it is putting requirements on other TSOs.

   a. The amount of available active power reserves and especially frequency restoration reserves;
   b. The capacities available on interconnectors;
   c. The availability of frequency measurements of TSOs of the synchronized region or of the synchronous area; and
   d. The availability of measurements on critical elements within the synchronized region or the synchronous area.

4. Notwithstanding paragraph 3, where the size of the synchronous area is concerned and the real time situation allows it, the TSO, together with other TSOs of the synchronous area, may appoint a predetermined frequency leader.

5. The TSO will expect from the TSO appointed as frequency leader pursuant to paragraphs 1 and 2 to inform itself and the other TSOs of the synchronous area of its appointment without delay.

6. The TSO shall accept the appointed frequency leader to function as such until:
   a. Another frequency leader is appointed for its synchronized region;
   b. A new frequency leader is appointed as the result of resynchronization of its synchronized region with another synchronized region; or
   c. The synchronous area has been completely resynchronized; the system frequency is within the standard frequency range and the LFC operated by each TSO of the synchronous area is back to its normal operating mode in accordance with Article X2(1).

Article 30: Frequency management after frequency deviation

1. During system restoration, when a frequency leader has been appointed pursuant to Article 29(3), the TSO, if it is not the frequency leader, shall as a first measure suspend the manual activation of frequency restoration reserves and replacement reserves.

2. It is required that the frequency leader establish, after consultation with the other TSOs of the synchronous area, the operating mode to be applied on the LFC operated by each TSO of the synchronous area.

The verb here is not "shall" as a national regulation cannot impose responsibility to a foreign TSO. It is assumed that the "requirement" comes from either the underlying EnC Regulation, or through a regional inter-TSO agreement.

If the understanding is that the regional roles and responsibilities for the TSOs will be set through a regional inter-TSO agreement, the wording can be clarified accordingly.

3. It is required that the frequency leader manage the manual activation of frequency restoration reserves and replacement reserves within the synchronous area, aiming at regulating the frequency of the synchronous area towards the nominal frequency and considering the operational security limits. Upon request, the TSO, together with other TSOs of the synchronous area, shall support the frequency leader.

"Defined pursuant to Article 25 of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

Article 31: Frequency management after synchronous area split

1. During system restoration, when a frequency leader has been appointed pursuant to Article 29(3), the TSO, if not the frequency leader, shall as a first measure suspend the manual activation of frequency restoration reserves and replacement reserves.

2. It is required that the frequency leader establish, after consultation with the other TSOs of the synchronized region, the operating mode to be applied on the LFC operated by each TSO of the synchronized region.

3. It is required that the frequency leader manage the manual activation of frequency restoration reserves and replacement reserves within the synchronized region, aiming at regulating the frequency of the synchronized region towards the target frequency established by the resynchronization leader, if any, pursuant to point (a) of Article 34(1) and taking into account the operational security limits. When no resynchronization leader is appointed for the synchronized region, the frequency leader is required to aim at regulating the frequency toward the nominal frequency. Upon request, the TSO, together with other TSOs of the synchronous area, shall support the frequency leader.

SECTION 4: Resynchronization

Article 32: Resynchronization procedure

1. The resynchronization procedure of the restoration plan shall include, at least:
    a. The appointment of a resynchronization leader;
    b. The measures allowing the TSO to apply a resynchronization strategy; and
    c. The maximum limits for phase angle, frequency, and voltage differences for connecting lines.

Article 33: Appointment of a resynchronization leader

1. During system restoration, when two synchronized regions can be resynchronized without endangering the operational security of the transmission systems, the frequency leaders of these synchronized regions are required to appoint a resynchronization leader in consultation with at least the TSO(s) identified as the potential resynchronization leader and in accordance with paragraph 2.

2. The TSO will expect the frequency leader to inform itself and the other TSOs of the synchronous area of the appointed resynchronization leader.

3. For each pair of synchronized regions to be resynchronized, the resynchronization leader shall be the TSO that:
   a. Has in operation at least one substation equipped with a parallel switching device on the border between the two synchronized regions to be resynchronized;
   b. Has access to the frequency measurements from both synchronized regions;
   c. Has access to the voltage measurements on the substations between which potential resynchronization points are located; and
   d. Is able to control the voltage of potential resynchronization points.

4. Where more than one TSO fulfils the criteria under paragraph 3, by default, the TSO with the highest number of potential resynchronization points between the two synchronized regions shall be appointed as the resynchronization leader, unless the frequency leaders of the two synchronized regions agree to appoint another TSO as resynchronization leader.

These can be moved to an inter-TSO agreement.

5. The TSO shall accept the appointed resynchronization leader function as such until:
   a. Another resynchronization leader is appointed for the two synchronized regions; or
   b. The two synchronized regions have been resynchronized, and all the steps in Article 34 have been completed.

Article 34: Resynchronization strategy

These can be moved to an inter-TSO agreement.

1. Prior to the resynchronization, the resynchronization leader shall:

   a. Establish, in accordance with the maximum limits referred to in Article 32:
      (i) The target value of the frequency for resynchronization;
      (ii) The maximum frequency difference between the two synchronized regions;
      (iii) The maximum active and reactive power exchange; and
      (iv) The operating mode to be applied on the LFC;
   b. Select the resynchronization point, considering the operational security limits in the synchronized regions;
   c. Establish and prepare all necessary actions for the resynchronization of the two synchronized regions at the resynchronization point;
   d. Establish and prepare a subsequent set of actions to create additional connections between the synchronized regions; and
   e. Assess the readiness of the synchronized regions for resynchronization, considering the conditions set out in point (a).

2. When conducting the tasks enumerated in paragraph 1, the resynchronization leader shall consult the frequency leaders of the involved synchronized regions and, for the tasks listed in

points (b) to (e), it shall also consult the TSOs operating the substations used for resynchronization.

3. Each frequency leader shall inform the TSOs within its synchronized region of the planned resynchronization without undue delay.

4. When all conditions established in accordance with point (a) of paragraph 1 are fulfilled, the resynchronization leader shall execute the resynchronization by activating the actions established in accordance with point (c) and (d) of paragraph 1.

Chapter IV: Market Interactions

Article 35: Procedure for suspension of market activities

1. The TSO may temporarily suspend one or more market activities laid down in paragraph 2 where:
    a. The transmission system is in blackout state; or
    b. The TSO has exhausted all options provided by the market and the continuation of market activities under the emergency state would deteriorate one or more of the conditions referred to in Article X2(3); or
    c. The continuation of market activities would significantly decrease the effectiveness of the restoration process to the normal or alert state; or
    d. Tools and communication means necessary for the TSO to facilitate market activities are not available.

2. The following market activities may be suspended pursuant to paragraph 1:
    a. The provision of cross-zonal capacity for capacity allocation on the corresponding bidding zone borders for each market time unit where it is expected that the transmission system shall not be restored to the normal or alert state;
    b. The submission by a balancing service provider of balancing capacity and balancing energy bids;
    c. The provision by a balance responsible party of a balanced position at the end of the day-ahead timeframe if required by the terms and conditions related to balancing;
    d. The provision of modifications of the position of balance responsible parties;
    e. The provision of schedules, and

"Referred to in Article 111(1) and (2) of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

Article 111
Notification of schedules within scheduling areas
1. Each scheduling agent, except scheduling agents of shipping agents, shall submit to the TSO operating the scheduling area, if requested by the TSO, and, where applicable, to third party, the following schedules:
    1. generation schedules;
(b) consumption schedules;
(c) internal commercial trade schedules; and
(d) external commercial trade schedules.
2. Each scheduling agent of a shipping agent or, where applicable, a central counterparty shall submit to the TSO operating a scheduling area covered by market coupling, if requested by the concerned TSO, and where applicable to third party, the following schedules:
(a)external commercial trade schedules as:
(i)multilateral exchanges between the scheduling area and a group of other scheduling areas;
(ii)bilateral exchanges between the scheduling area and another scheduling area;
(b)internal commercial trade schedules between the shipping agent and central counter parties;
(c)internal commercial trade schedules between the shipping agent and other shipping agents.

The text in quotations was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

f. Other relevant market activities the suspension of which is deemed necessary to preserve and/or restore the system.

3. In case of suspension of market activities pursuant to paragraph 1, upon request of the TSO, each SGU shall operate, where technically possible, at an active power set-point established by the TSO.

4. When suspending market activities pursuant to paragraph 1, the TSO may fully or partially suspend the operation of its processes impacted by such suspension.

5. When suspending market activities pursuant to paragraph 1, the TSO shall coordinate at least with the following parties:
   a. The TSOs of the capacity calculation regions of which the TSO is a member of;
   b. The TSOs with which the TSO has arrangements for the coordination of balancing;
   c. The 'NEMO' and other entities assigned or delegated to execute market functions within its control area;

"In accordance with Regulation (EU) 2015/1222 and Regulation (EU) 2015/1222 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

   d. The TSOs of a load-frequency control block of which the TSO is a member of; and
   e. The coordinated capacity calculator of the capacity calculation regions of which the TSO is a member of.

6. In case of suspension of market activities, each TSO shall launch the communication procedure set out in Article 38.

Article 36: Rules for suspension and restoration of market activities

1. By **31 December 2024**, the TSO shall develop a proposal for rules concerning the suspension and restoration of market activities.

2. The TSO shall publish these rules on its website following their approval by the regulatory authority.

3. The rules for suspension and restoration of market activities shall be compatible to the extent possible with:
   a. The rules on provision of cross-zonal capacity within the concerned capacity calculation regions;
   b. The rules for submission by balancing service providers of balancing capacity and balancing energy bids resulting from arrangements with other TSOs for the coordination of balancing;
   c. The rules for provision by balance responsible party of a balanced position at the end of day-ahead timeframe if required by the terms and conditions related to balancing;
   d. Rules for provision of modifications of the position of balance responsible parties; and
   e. The rules for provision of schedules**.**

"As referred to in Article 111(1) and (2) of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

4. When developing the rules for suspension and restoration of market activities, the TSO shall convert the situations referred to in Article 35(1) into objectively defined parameters considering the following factors:
    a. The percentage of load disconnection in the LFC area of the TSO corresponding to:
        (i) The inability of a significant share of balancing responsible parties to maintain their balance; or
        (ii) The necessity for the TSO not to follow the usual balancing processes to perform an efficient re-energization;
    b. The percentage of generation disconnection in the LFC area of the TSO corresponding to the inability of a significant share of balancing responsible parties to maintain their balance;
    c. The share and geographic distribution of unavailable transmission system elements corresponding to:
        (i) The desynchronization of a significant part of the LFC area rendering the usual balancing processes counterproductive; or
        (ii) The reduction to zero of cross-zonal capacity on a bidding zone border(s);
    d. The inability of the following affected entities to execute their market activities for reason(s) outside their control:
        (i) Balance responsible parties;
        (ii) Balancing service providers;
        (iii) NEMOs and other entities assigned or delegated to execute market functions;

"Pursuant to Regulation (EU) 2015/1222 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

        (iv) Transmission connected DSOs;
    e. The absence of properly functioning tools and communication means necessary to perform:
        (i) The single day-ahead or intraday coupling or any explicit capacity allocation mechanism; or
        (ii) The frequency restoration process; or
        (iii) The reserve replacement process; or
        (iv) The provision by balance responsible party of a balanced position in day ahead and the provision of change of its position; or
        (v) The provision of schedules.

"Referred to in Article 111(1) and (2) of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

5. The rules for suspension and restoration of market activities shall define a time delay to be respected for each parameter defined pursuant to paragraph 4, prior to starting the procedure for suspension of market activities.

6. The TSO shall assess in real-time the parameters defined pursuant to paragraph 4, on the basis of the information at its disposal.

7. The TSO will cooperate with ENTSO for Electricity, when ENTSO for Electricity is reporting on the level of harmonization of the rules for suspension and restoration of market activities established by the TSOs and identifying, as appropriate, areas that require harmonization.
8. By **30 June 2025**, the TSO shall submit to ENTSO for Electricity the data required to prepare and submit the report in accordance with paragraph 7.

Article 37: Procedure for restoration of market activities

1. The TSO, in coordination with the NEMO(s) active in its control area and with the neighboring TSOs, shall launch the procedure for the restoration of market activities suspended pursuant to Article 35(1) when:
    a. The situation triggering the suspension has ended and no other situation referred to in Article 35(1) applies; and
    b. The entities referred to in Article 38(2) have been duly informed in advance in accordance with Article 38.

2. The TSO, in coordination with neighboring TSOs, shall launch the restoration of TSO processes impacted by the suspension of market activities when the conditions of paragraph 1 are fulfilled or before, if necessary to restore market activities.

3. The NEMO(s), in coordination with TSOs and entities referred to in Article 35(5), shall launch the restoration of the day ahead and/or intraday market activities and, when relevant, single day ahead and/or single intraday coupling processes as soon as the TSO(s) notifies that the TSOs' processes have been restored.

4. When the provision of cross-zonal capacity has been suspended and subsequently restored, the TSO shall update the cross-zonal capacities for capacity allocation by using, from the following, the most feasible and efficient option for each market time unit:
    a. By using the latest available cross-zonal capacities calculated by the coordinated capacity calculator;
    b. By launching the regional capacity calculation processes applicable; or

> "in accordance with Articles 29 and 30 of Regulation (EU) 2015/1222 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."
>
> The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

    c. By determining, in coordination with TSOs of the capacity calculation region, cross-zonal capacities based on the actual physical network conditions.

5. When part of the total coupled area where market activities have been suspended is back to the normal state or alert state, the NEMO, together with the other NEMOs of this area, shall be entitled to execute a market coupling in a part of the total coupled area, in consultation with the TSOs and entities referred to in Article 35(5), provided that the TSO has restored the capacity calculation process.

6. No later than 30 days after the market activities have been restored, the TSO together with other TSOs that suspended and restored market activities shall prepare a report at least in [local language] and English containing a detailed explanation of the rationale, implementation,

and impact of the market suspension and a reference to the compliance with the rules for suspension and restoration of market activities and shall submit it to the regulatory authority and make it available to the entities referred to in Article 38(2).

7. The regulatory authority may issue a recommendation to the TSO to promote good practices and prevent similar incidents in the future. The regulatory authority may cooperate with other relevant regulatory authorities of the Contracting Parties in preparing these recommendations.

Article 38: Communication procedure

1. The rules for suspension and restoration of market activities developed pursuant to Article 36 shall also contain a communication procedure detailing the tasks and actions expected from each party in its different roles during the suspension and restoration of market activities.

2. The communication procedure shall provide that information is sent, simultaneously, to the following entities:
   a. The parties referred to in Article 35(5);
   b. The balance responsible parties;
   c. The balancing service providers;
   d. The transmission connected DSOs; and
   e. The regulatory authority.

3. The communication procedure shall include at least the following steps:
   a. The notification by the TSO that market activities have been suspended in accordance with Article 35;
   b. The notification by the TSO of best estimate for the time and date for transmission system restoration;
   c. The notification by the NEMO and other entities designated to execute market functions, of the suspension of their activities, if any;
   d. The updates by the TSO(s) on the process for restoration of the transmission system;

      I think it is okay to keep this general to reflect the expectation of multiple TSO involvement in case of a regional event.

   e. The notification by the entities referred to in points (a) to (d) of paragraph 2, that their market tools and communication systems are operational;
   f. The notification by the TSO(s) that the transmission system has been restored back to normal state or alert state;

      See above comment.

   g. The notification by the NEMO and other entities assigned or delegated to execute market functions, of the best estimate for time and date when market activities will be restored; and
   h. The confirmation by the NEMO and other entities assigned or delegated to execute market functions that market activities have been restored.

4. All notifications and updates by the TSO(s), NEMO(s), and other entities assigned or delegated to execute market functions referred to in paragraph 3, shall be published on the websites of those entities. When notification or update on the website is not possible, the entity subject to the obligation to notify, shall inform via email, or via any other available means, at least those parties directly participating in the suspended market activities.

5. Notification pursuant to point (e) of paragraph 3 shall be sent via email or via any other available means to the TSO.

Article 39: Rules for settlement in case of suspension of market activities

1. By **31 December 2024**, 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. The TSO may propose the same rules it applies for normal operations. The TSO shall publish these rules on its website following their approval by the regulatory authority. The TSO may delegate the TSO's tasks referred to in this Article to one or more third parties, provided that the third party can conduct the respective function at least as effectively as the TSO. The regulatory authority may assign the tasks referred to in this Article to one or more third parties, provided that the third party can conduct the respective function at least as effectively as the TSO.

2. The rules referred to in paragraph 1 shall address the settlements of TSO's and third parties, where relevant, with balance responsible parties, and balancing services providers.

3. The rules developed in accordance with paragraph 1 shall:
    a. Ensure the financial neutrality of the TSO and relevant third party referred to in paragraph 1;
    b. Avoid distortions of incentives or counterproductive incentives to balance responsible parties, balance service providers, and TSOs;
    c. Incentivize balance responsible parties to strive to be balanced or help the system to restore its balance;
    d. Avoid any financial penalties imposed on balance responsible parties and balancing service providers due to the execution of the actions requested by the TSO;
    e. Discourage the TSO from suspending market activities, unless strictly necessary, and incentivize the TSO to restore the market activities as soon as possible; and
    f. Incentivize balance service providers to offer services to the connecting TSO that helps restore the system to normal state.

Chapter V: Information Exchange and Communication, Tools, and Facilities

Article 40: Information exchange

1. The TSO, when in emergency, blackout, or restoration states, shall be entitled to gather the following information:

> "in addition to the provisions of Articles 40 to 53 of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC, each…"
>
> The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

   a. From DSOs identified in accordance with Article 23(4), the necessary information about at least:
      (i) The part of their network that is in island operation;
      (ii) The ability to synchronize parts of their network that is in island operation; and
      (iii) The capability to start island operation.
   b. From SGUs identified in accordance with Article 23(4) and restoration service providers, information about at least the following conditions:
      (i) The current status of the installation;
      (ii) The operational limits;
      (iii) The full activation time and the time to increase generation; and
      (iv) The time critical processes.

2. During the emergency, blackout or restoration states, TSO shall provide in due time and for the purposes of system defense plan procedures and restoration plan procedures, the following information, where available to the TSO:
   a. To neighboring TSOs, information about at least:
      (i) The extent and borders of the synchronized region or synchronized regions to which its control area belongs;
      (ii) The restrictions to operate the synchronized region;
      (iii) The maximum duration and amount of active and reactive power that can be supplied via interconnectors; and
      (iv) Any other technical or organizational restrictions;
   b. To the frequency leader of its synchronized region, information about at least:
      (i) The restrictions to maintain island operation;
      (ii) The available additional load and generation; and
      (iii) The availability of operational reserves;
   c. To transmission connected DSOs identified in accordance with Article 11(4) and 23(4), information about at least:
      (i) The system state of its transmission system;
      (ii) The limits of active and reactive power, block loading, tap and circuit breaker position at the connection points;
      (iii) The information on the current and planned status of power generating modules connected to the DSO, if not available to the DSO directly; and
      (iv) All necessary information leading to further coordination with distribution connected parties;
   d. To defense service providers, information about at least:
      (i) The system state of its transmission system; and
      (ii) The scheduled measures that require participation of the defense service providers;

e. To DSOs and SGUs identified pursuant to Article 23(4) and to restoration service providers, information about at least:
   (i) The system state of its transmission system;
   (ii) The ability and plans to re-energize couplings; and
   (iii) The scheduled measures that require their participation.

3. When in an emergency, blackout, or restoration state, the TSO and other relevant TSOs shall exchange among themselves information concerning, at least:
   a. The circumstances that led to the current system state of its transmission system, to the extent that they are known; and
   b. The potential problems making assistance for active power necessary.

4. When in an emergency, blackout, or restoration state, the TSO shall provide, in due time, information about the system state of its transmission system and, where available, additional information explaining the situation on the transmission system:
   a. To the NEMO(s), who shall make this information available to their market participants, as provided for in Article 38;
   b. To the regulatory authority; and

> "EU 2017/2196: or when explicitly provided for in national law, to the entities referred to in Article 4(3)."
>
> The text above was omitted. If the country transposing the regulation has an entity other than NRA in this role than this bullet needs to be changed accordingly.

   c. To any other relevant party, as appropriate.

5. The TSO shall inform each affected party about the test plan developed pursuant to Article 43(2) and (3).

Article 41: Communication systems

1. Each DSO and SGU identified in accordance with points (b) and (c) of Article 23(4), each restoration service provider, and the TSO shall have a voice communication system in place with sufficient equipment redundancy and backup power supply sources to allow the exchange of the information needed for the restoration plan for at least 24 hours, in case of total absence of external electrical energy supply or in case of failure of any individual voice communication system equipment.

> **"Contracting Parties** may require a minimum backup power capacity higher than 24 hours." Based on above omitted text, the phrase is set as "at least 24 hours." But if there is a specific requirement, say 30 hours, the phrase should be changed to reflect that.

2. The TSO shall establish, in consultation with the DSOs and SGUs identified in accordance with Article 23(4) and with restoration service providers, the technical requirements to be fulfilled by their voice communication systems as well as by the TSO's own voice communication system in order to allow their interoperability and to guarantee that the TSO's incoming call can be identified by the other party and answered immediately.

3. The TSO shall establish, in consultation with its neighboring TSOs and the other TSOs of its synchronous area, the technical requirements to be fulfilled by their voice communication systems as well as by the TSO's own voice communication system in order to allow their interoperability and to guarantee that the TSO's incoming call can be identified by the other party and answered immediately.

4. Notwithstanding paragraph 1, those SGUs identified in accordance with Article 23(4) that are type B power generating modules and those restoration service providers that are type A or B power generating modules, shall have the possibility to have only a data communication system, instead of a voice communication system, if agreed upon with the TSO. This data communication system shall fulfil the requirements laid down in paragraphs 1 and 2.

"5. Contracting Parties may require that, in addition to the voice communication system, a complementary communication system be used to support the restoration plan; in that case, the complementary communication system shall fulfil the requirements laid down in paragraph 1."

Bullet 5 from 2017/2196, copied above, was omitted. If the contents are relevant for the transposing country, if NRA opts for such a requirement, the appropriate wording should be added as bullet 5.

Article 42: Tools and facilities

1. The TSO shall make available critical tools and facilities for at least 24 hours in case of loss of primary power supply.

"as referred to in Article 24 of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

2. Each DSO and SGU identified pursuant to Article 23(4) as well as the restoration service provider shall make available critical tools and facilities and used in the restoration plan for at least 24 hours in case of loss of primary power supply, as defined by the TSO.

"as referred to in Article 24 of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

3. The TSO shall have at least one geographically separate backup control room. The backup control room shall include at least the critical tools and facilities. The TSO shall arrange a backup power supply for its backup control room for at least 24 hours in case of loss of primary power supply.

"as referred to in Article 24 of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

4. The TSO shall prepare a transfer procedure for moving functions from the main control room to the backup control room as quickly as possible, and in any case in a maximum time of three hours. The procedure shall include the operation of the system during the transfer.

5. Substations identified as essential for the restoration plan procedures pursuant to Article 23(4) shall be operational in case of loss of primary power supply for at least 24 hours.

Article X4: Emergency contact report

1. The TSO shall submit to the regulatory authority an emergency contact report, which shall contain all of the following information:
    a. The names, position titles, areas of functional responsibility, business addresses, e-mail addresses, business telephone numbers, cellular telephone numbers, and home telephone numbers of at least three individuals who will serve as emergency contacts.
    b. Any available emergency hotline number.

2. The TSO shall promptly notify the regulatory authority of any change in its emergency contacts.

Article X5: Incident Command System

Incorporated from the U.S. experience. For more information: https://www.publicpower.org/system/files/documents/Incident%20Command%20Structure%20Guide050321FV1.pdf

1. The TSO can develop an incident command system for times of emergencies. The TSO shall use the incident command system as a response management system to provide a common organization, common terminology, and common response procedures to help other organizations it cooperates with, quickly assimilate the information, and begin working together to address immediate response needs.

    Depending on the NRA's preference, this can also be phrased as "should."

2. Incident command system principles may allow all responding organizations to merge into a single team more easily and collaborate effectively to achieve the best response.

3. Principles of Incident command system should include:
    a. Emphasis on safety and accountability for personnel management
    b. Establishment and transfer of command
    c. Unified command, chain of command, and unity of command
    d. Modular organization, while maintaining a manageable span of control
    e. Use of common terminology.
    f. Incident action planning (IAP) or Operational Plans for the upcoming Operational Period
    g. Establishing designated incident facilities and locations
    h. Implementing comprehensive resource management practices
    i. Integrating communications
    j. Effective information and intelligence management

Article X6: Mutual Assistance Agreements and Processes

Incorporated from the U.S. experience. For more information: https://www.eei.org/-/media/Project/EEI/Documents/Issues-and-Policy/Reliability-and-Emergency-Response/Mutual_Assistance_5_Things_to_Know.pdf

1. The TSO can participate in the development and implementation of mutual assistance mechanisms with neighboring TSOs. Such mechanisms should facilitate the sharing of resources among TSOs by addressing liability, compensation, and associated safety and other procedures.

2. For large scale regional events, the TSO, together with other TSOs in the region, can develop a framework to meet the challenge of supporting the restoration resources needs of the members of the mechanism during major outages that could have a regional impact.

3. The TSO shall submit the inter-TSO agreements for mutual assistance to the regulatory authority for approval.

Chapter VI: Compliance And Review

SECTION 1: Compliance testing of TSO, DSO, and SGU capabilities

Article 43: General principles

1. The TSO shall periodically assess the proper functioning of all equipment and capabilities considered in the system defense plan and the restoration plan. To this end, the TSO shall periodically verify the compliance of such equipment and capabilities.

> 2017/2196 does not specify how often this should happen but it is good practice to have a phrase such as "at least every 5 years" or "every 3 years."
>
> "In accordance with paragraph 2 and with Article 41(2) of Regulation (EU) 2016/631, as adapted and adopted by Permanent High Level Group Decision 2018/03/PHLG-EnC, Article 35(2) of Regulation (EU) 2016/1388, as adapted and adopted by Permanent High Level Group Decision No 2018/05/PHLG-EnC, and Article 69(1) and (2) of Regulation (EU) 2016/1447, as adapted and adopted by Permanent High Level Group Decision 2018/04/ PHLG-EnC."
>
> The text above was omitted from the second highlighted phrase. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

2. By **30 June 2025**, the TSO shall define a test plan in consultation with the DSOs, the SGUs identified pursuant to Articles 11(4) and 23(4), the defense service providers, and the restoration service providers.

3. The test plan shall include the periodicity and conditions of the tests, following the minimum requirements outlined in Articles 44 to 47.

4. The TSO, DSOs, SGUs, defense service providers, and restoration service providers shall not endanger the operational security of the transmission system and of the interconnected transmission system during the test. The test shall be conducted in a way that minimizes the impact on system users.

5. The test is deemed to be successful when it fulfills the conditions established by the relevant system operator pursuant to paragraph 3. As long as a test fails to fulfil these criteria, the TSO, DSOs, SGUs, defense service providers and restoration service providers shall repeat the test.

Article 44: Compliance testing of power generating module capabilities

1. Each restoration service provider which is a power generating module delivering black start service shall execute a black start capability test, at least every three years.

> "Following the methodology laid down in Article 45(5) of Regulation (EU) 2016/631, as adapted and adopted by Permanent High Level Group Decision 2018/03/PHLG-EnC."
>
> The text above was omitted from the second highlighted phrase. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

2. Each restoration service provider which is a power generating module delivering a quick re-synchronization service shall execute tripping to houseload test after any changes of

equipment having an impact on its houseload operation capability, or after two unsuccessful consecutive tripping in real operation.

"Following the methodology laid down in Article 45(6) of Regulation (EU) 2016/631, as adapted and adopted by Permanent High Level Group Decision 2018/03/PHLG-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

Article 45: Compliance testing of demand facilities providing demand side response

1. Each defense service provider delivering demand response shall execute a demand modification test, after two consecutive unsuccessful responses in real operation or at least every year.

"Following the methodology laid down in Article 41(1) of Regulation (EU) 2016/1388, as adapted and adopted by Permanent High Level Group Decision 2018/05/PHLG-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

2. Each defense service provider delivering demand response low frequency demand disconnection shall execute a low frequency demand disconnection test at least every xx years, for transmission connected demand facilities or according to a similar methodology defined by the relevant system operator for other demand facilities.

"And following the methodology laid down in Article 37(4) of Regulation (EU) 2016/1388, as adapted and adopted by Permanent High Level Group Decision 2018/05/PHLG-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

"Every xx years" corresponds to EU 2017/2196: a period to be defined at the national level.

Article 46: Compliance testing of HVDC capabilities

Each restoration service provider which is an HVDC system delivering a black start service shall execute a black start capability test at least every three years.

"Following the methodology laid down in Article 70(11) of Regulation (EU) 2016/1447, as adapted and adopted by Permanent High Level Group Decision 2018/04/PHLG-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

Article 47: Compliance testing of low frequency demand disconnection relays

Each DSO and TSO shall execute testing on the low frequency demand disconnection relays implemented on its installations at least every xx years.

"And following the methodology laid down in Article 37(6) and Article 39(5) of Regulation (EU) 2016/1388, as adapted and adopted by Permanent High Level Group Decision 2018/05/PHLG-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

"Every xx years" corresponds to: EU 2017/2196: a period to be defined at the national level.

Article 48: Testing of communication systems

1. Each DSO and SGU identified pursuant to Article 23(4), each TSO, and each restoration service provider shall test the communication systems defined in Article 41, at least every year.

2. Each DSO and SGU identified pursuant to Article 23(4), each TSO, and each restoration service provider shall test the backup power supply of their communication systems at least every five years.

3. By **30 June 2025,** each TSO, in consultation with other TSOs, shall define a test plan for testing the inter-TSO communication.

Article 49: Testing of tools and facilities

1. The TSO shall test the capability of main and backup power sources to supply its main and backup control rooms, provided for in Article 42, at least every year.

2. The TSO shall test the functionality of critical tools and facilities at least every three years, covering both main and backup tools and facilities. Where these tools and facilities involve DSOs or SGUs, these parties shall participate in this test.

"As referred to in Article 24 of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."

The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

3. The TSO shall test the capability of backup power sources to supply essential services of the substations identified as essential for the restoration plan procedures pursuant to Article 23(4), at least every five years. When these substations are in distribution systems, DSOs shall execute this test.

4. The TSO shall test the transfer procedure for moving from the main control room to the backup control room, provided for in Article 42(4), at least every year.

SECTION 2: Compliance testing and review of system defense plans and restoration plans

Article 50: Compliance testing and periodic review of the system defense plan

1. Each DSO concerned by the implementation of the low frequency demand disconnection on its installations shall update once a year the communication to the notifying system operator provided for in point (b) of Article 12(6). This communication shall include the frequency settings at which netted demand disconnection is initiated and the percentage of netted demand disconnected at every such setting.

2. The TSO shall monitor the proper implementation of the low frequency demand disconnection on the basis of the yearly written communication referred to in paragraph 1 and on the basis of implementation details of TSOs' installations where applicable.

3. The TSO shall review, at least every five years, its complete system defense plan to assess its effectiveness. The TSO shall in this review consider at least:
    a. The development and evolution of its network since the last review or first design;
    b. The capabilities of new equipment installed on the transmission and distribution systems since the last review or first design;
    c. The SGUs commissioned since the last review or first design, their capabilities and relevant services offered;
    d. The tests carried out and the analysis of system incidents; and

> "Pursuant to Article 56(5) of Regulation (EU) 2017/1485 as adapted and adopted by Ministerial Council Decision 2022/03/MC-EnC."
>
> The text above was omitted. If the country transposing the regulation has these provisions already in place in the primary or secondary legislations, the reference should be done accordingly.

    e. The operational data collected during normal operation and after disturbance.

4. The TSO shall review the relevant measures of its system defense plan in accordance with paragraph 3 before any substantial change in the configuration of the grid.

5. When the TSO identifies the need to adapt the system defense plan, it shall amend its system defense plan and implement these amendments in accordance with points (c) and (d) of Article 4(2) and Articles 11 and 12.

Article 51: Compliance testing and periodic review of the restoration plan

1. The TSO shall review the measures of its restoration plan using computer simulation tests, using data from the DSOs identified pursuant to Article 23(4) and the restoration service providers, at least every five years. The TSO shall define these simulation tests in a dedicated testing procedure covering at least:
    a. The energizing restoration path from restoration service providers with black start or island operation capabilities;
    b. The supply of power generating modules main auxiliaries;
    c. The demand reconnection process; and
    d. The process for resynchronization of networks in island operation.

2. In addition, where deemed necessary by the TSO for the effectiveness of the restoration plan, the TSO shall execute operational testing of parts of the restoration plan, in coordination with the DSOs identified pursuant to Article 23(4) and the restoration service providers. The TSO shall set out, in consultation with the DSOs and restoration service providers, those operational tests in a dedicated testing procedure.

3. The TSO shall review its restoration plan to assess its effectiveness, at least every five years.

4. The TSO shall review the relevant measures of its restoration plan in accordance with paragraph 1 and review their effectiveness before any substantial change in the configuration of the grid.

5. For the purposes of best preparing for future emergencies or disasters, the tests shall address recent emergencies and disasters associated with the national electricity system or similarly situated electricity systems and shall address remedial actions for possible emergencies or disasters.

Best practice incorporated from California Code.

6. When the TSO identifies the need to adapt the restoration plan, it shall amend its restoration plan and implement these amendments in accordance with points (c) and (d) of Article 4(2) and Articles 23 and 24.

Best practice incorporated from Ohio.

Chapter VII: Implementation

Article X7: After-action assessment

1. The TSO shall develop policies and procedures for conducting an after-action assessment following activation of the system defense plan and/or restoration plan. An after-action assessment shall include lessons learned, deficiencies in the response to the emergency, deficiencies in the emergency plan, and actions to be taken to correct said deficiencies.

2. TSO shall establish procedures for analyzing failures of equipment and facilities which result in a major interruption of service, for the purpose of determining the causes of the failure and minimizing the possibility of a recurrence.

Article 52: Monitoring

1. The regulatory authority will monitor the overall implementation of this regulation.

2. ENTSOE-E shall monitor the implementation of this Regulation in the areas covered by this paragraph**.** Monitoring **by ENTSO for Electricity** shall cover in particular the following matters:

To the extent the monitoring covers Contracting Parties located outside the Continental Europe synchronous area or not being member of ENTSO for Electricity, the Energy Community Secretariat shall collect data from the relevant transmission system operators.

This is relevant for Georgia and the draft regulation for Georgia should include a phrase based on this instead of the existing language.

   a. Identification of any divergences in the national implementation of this Regulation for the items listed in Article 4(2);
   b. Consistency assessment of system defense plans and restoration plans carried out by TSOs in accordance with Article 6;
   c. Thresholds above which the impact of actions of one or more TSOs in the emergency, blackout or restoration states is considered significant for other TSOs within the capacity calculation region in accordance with Article 6;
   d. The level of harmonization of the rules for suspension and restoration of market activities established by the TSOs in accordance with Article 36(1) and for the purposes of the report provided for in Article 36(7);
   e. The level of harmonization of the rules for imbalance settlement and settlement of balancing energy in case of market suspension, referred to in Article 39.

3. The TSO shall submit to ENTSO for Electricity the information required to perform the tasks referred to in paragraph 2.

4. Following a request of the regulatory authority, DSOs, and the entities pursuant to Article 39(1) shall provide TSOs with the information communicated by ENTSO for Electricity through a comprehensive, standardized format unless that information is already available to the regulatory authority, TSOs, the **Energy Community Regulatory Board** or ENTSO for Electricity in relation to their respective implementation monitoring tasks, with the objective of avoiding duplication of information.

Article 52 paragraph 2 of Regulation 2017/2196:
2. The Agency, in cooperation with ENTSO for Electricity, shall produce by 18 December 2018 a list of the relevant information to be communicated by ENTSO for Electricity to the Agency in

accordance with Articles 8(9) and 9(1) of Regulation (EC) No 714/2009. The list of relevant information may be subject to updates. ENTSO for Electricity shall maintain a comprehensive, standardized format, digital data archive of the information required by the Agency.

Article 53: Stakeholder involvement

The TSO, DSOs, and SGUs, when demanded, will participate in stakeholder meetings with the **Energy Community Regulatory Board**, in close cooperation with ENTSO for Electricity, regarding the implementation of this Regulation. Such involvement shall include participating in regular meetings with stakeholders to identify problems and propose improvements related to the requirements of this Regulation.

Chapter VIII: Final Provisions

Article 54: Amendments to contracts and general terms and conditions

All relevant clauses in contracts and general terms and conditions of the TSO, DSOs, and SGUs relating to system operation shall comply with the requirements of this Regulation. To that effect, those contracts and general terms and conditions shall be modified accordingly.

Article 55: Entry into force

This Regulation shall enter into force on the XX day following its publication in the Official Gazette.

Set a proper number of days value or omit this and make it enter into force at the day of publication in the Official Gazette.

Annex

For countries that are not part of ENTSO-E Continental Europe interconnection, the values in this table can be updated.

Automatic low frequency demand disconnection scheme characteristics:

Parameter	Values SA Continental Europe	Measuring Unit
Demand disconnection starting mandatory level: frequency	49	Hz
Demand disconnection starting mandatory level: demand to be disconnected	5	% of the total load at national level
Demand disconnection final mandatory level: frequency	48	Hz
Demand disconnection final mandatory level: cumulative demand to be disconnected	45	% of the total load at national level
Implementation range	± 7	% of the total load at national level, for a given frequency
Minimum number of steps to reach the final mandatory level	6	Number of steps
Maximum demand disconnection for each step	10	% of the total load at national level, for a given step

Appendix A: Template for List of Situational Awareness Tools

Appendixes are based on best practice from a NASEO report.

The table below will be populated with situational awareness tools that system operators should be using to gather information on an ongoing basis and especially during emergencies. System operators shall populate this table section to add tools, and the frequency will depend on the situation and how often each data source is updated.

Tool	Description and Example Usage
Example: DOE CESER Emergency Situation Reports	Description: DOE CESER produces emergency situational awareness reports during severe and/or widespread energy disruptions (past events include various hurricanes, the 2021 Colonial Pipeline cyberattack, and the 2021 Texas extreme cold weather event). The reports cover the status of electric power outages, generators, electricity transmission lines, substations, onshore/offshore oil and gas production, natural gas processing, refining, pipelines, ports, railways, and tankers. They also track waivers of federal and state laws used to facilitate energy restoration. These reports vary in frequency throughout the event but are typically produced either once or twice per day. A Traffic Light Protocol (TLP) AMBER version, meaning for limited disclosure and restricted to the participant's organization, is circulated to Energy Emergency and Assurance Coordinators (EEAC) members, and a public version (TLP:WHITE) is typically posted to the Emergency Response Hub on the CESER website
	Example Usage: DOE Situation Reports can be used by the states to get a comprehensive situation update across the electricity, oil, and natural gas sectors. These reports take many of the other sources and gather the information into a single report. If the response event is covered by a DOE Emergency Situation Report, this can be an SLTT official's primary starting point and may prompt other information necessary to obtain. For example, during Hurricane Ida, states could find power outages by utility; check their gas station availability via tables, graphs, and maps; check regional product stocks; view general status updates on terminals and refineries; and read about the various state and federal waivers.

Appendix B: Information-Sharing Contact List Template

The template identifies the types of organizations that could be listed as contacts, can be customized, and expanded as needed.

Organization	Point of Contact	Email	Phone Number(s)	Notes
Industry				
DSOs				Coordinate with to understand distribution limitations and waiver requests
SGUs				Coordinate with to understand distribution limitations and waiver requests
Associations				

Organization	Point of Contact	Email	Phone Number(s)	Notes
Government				
Regulatory Authority				Coordination
Ministry of Energy				Coordination
Other relevant ministries				Coordinate to assist with accuracy of energy messaging. Ensure messaging strategy addresses communities experiencing communications barriers
Ministry of Health or relevant institution				Coordinate dept and health care facilities to mitigate impacts and identify vulnerable populations who rely on energy for basic medical needs

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