



An Coimisiún
um Rialáil Fóntas
Commission for
Regulation of Utilities



An Coimisiún um Rialáil Fóntais

Commission for Regulation of Utilities

Decision to approve the documents submitted by EirGrid under EU Regulation 2017/ 2196 Emergency Restoration;

- a) Terms and conditions to act as a defence service provider and a restoration service provider
- b) Significant Grid Users Ireland
- c) Rules for suspension and restoration of markets during emergency states and Specific rules for imbalance and settlement and settlement of balancing energy in case of suspension of market activities for Ireland

Decision / Information Paper

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CRU Mission Statement

The CRU's mission is to protect the public interest in Water, Energy and Energy Safety.

The CRU is guided by four strategic priorities that sit alongside the core activities we undertake to deliver on the public interest. These are:

- Deliver sustainable low-carbon solutions with well-regulated markets and networks
- Ensure compliance and accountability through best regulatory practice
- Develop effective communications to support customers and the regulatory process
- Foster and maintain a high-performance culture and organisation to achieve our vision

Executive Summary

This document provides detail on the Commission for Regulation of Utilities' (CRU's) decision to approve the documents submitted by EirGrid under the Emergency Restoration Network Code (ER NC) on 16 October 2020. These documents were initially submitted to the CRU on 18 December 2018 (in line with ER NC requirements), which were not approved in Decision Paper CRU19110¹.

The EU Network Codes, including the Emergency Restoration Network Code (ER NC), aim to harmonise electricity system operations and markets across EU, and increase visibility of the processes and procedures utilised in order to achieve such harmonisation.

This paper focuses on harmonising the existing arrangements with the pan-European requirements of the ER NC. The ER NC provides detailed guidelines for the purposes of safeguarding operational security, and lays down requirements on:

- the management by TSOs of the emergency, blackout and restoration states;
- the coordination of system operation across the Union in the emergency, blackout and restoration states;
- the simulations and tests to guarantee a reliable, efficient and fast restoration of the interconnected transmission systems to the normal state from the emergency or blackout states;

¹ <https://www.cru.ie/wp-content/uploads/2019/09/CRU19110-Emergency-Restoration-NC-Decision-not-to-approve-and-seek-amendments.pdf>

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

The ER NC requires TSOs, DSOs and Significant Grid Users (parties connected to transmission and distribution networks that can impact operations or provide services) to meet certain standards regarding operations, tools and facilities and planning for and during emergency, blackout and restoration states. The EU Network Codes define 5 states of operation across all Member States; normal, alert, emergency, blackout, restoration.

EirGrid, as the Transmission System Operator (TSO) is obliged by the ER NC to develop (and consult upon items a-d) the following documents in advance of submission to the CRU:

- a) The terms and conditions to act as defence service providers on a contractual basis (the service providers/units that are contracted by the TSO to provide system support services during an emergency state)
- b) The terms and conditions to act as restoration service providers on a contractual basis (the service providers/units contracted to provide black start, or system support services during the restoration of the system following a partial or total blackout)
- c) The rules for suspension and restoration of market activities in line with Article 26(1) of ER NC (should certain market activities be suspended during an emergency, blackout or restoration state)
- d) Specific rules for imbalance settlement and balancing energy in case of suspension of market activities in accordance with Article (39) (what are the appropriate pricing and settlement rules if a suspension of market activities occurs during emergency or restoration states)
- e) The list of significant grid users (SGU) responsible for implementation of measures related to the system defence plan and the system restoration plan for Ireland, and the measures to be implemented (SGUs in Ireland can range from generation units of >100kW, demand side units and transmission connected demand facilities)
- f) Design of the System Defence Plan for Ireland (detailed plan and procedures regarding system operations during an emergency state to avoid total blackout)
- g) Design of the System Restoration plan for Ireland (detailed plan and procedures regarding the restoration of the system from a partial blackout or total blackout)

ESB Networks as the Distribution System Operator (DSO), is also involved in the execution of the requirements of the Emergency Restoration Code, and there is therefore a need for collaboration and detailed engagement between the two system operators to ensure a cohesive and holistic design of the terms and conditions and procedures is achieved.

All of the submitted documents provide useful transparency into how the TSO and DSO propose to operate the system during alert, emergency, blackout and restoration states.

Having reviewed the documents re-submitted by the TSO under ER NC, the CRU are satisfied that they are of the necessary detail in order to be compliant with the network code, and adequately address the concerns raised by the CRU in CRU19110. The CRU has requested that TSO, in conjunction with the DSO, submit an implementation plan within 3 months of the publication of this Decision paper which describes the work that remains before full compliance can be achieved.

Public Impact Statement

The Emergency Restoration Network Code aims to establish across the EU, a set of common, minimum requirements and principles for the actions of key electricity network users and operators when the electricity system is in either an emergency, blackout or restoration state.

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Glossary of Terms and Abbreviations

Abbreviation or Term	Definition or Meaning
ER NC	Emergency Restoration Network Code EU Regulation 2017/2196
SOGL	System Operation Guideline EU Regulation 2017/1485
EUNC	European Network Codes and Guidelines
TSO	Transmission System Operator (EirGrid)
DSO	Distribution System Operator (ESB Networks)
SGU	Significant Grid User
CACM	Capacity Allocation and Congestion Management EU Regulation 2016/1222
FCA	Forward Capacity Allocation EU Regulation 2016/1719
CRU19110	Decision to not approve and seek amendments to the documents submitted by EirGrid under EU Regulation 2017/2196 Emergency Restoration (published 2 September 2019)
IE	Ireland
NI	Northern Ireland
LFC	Load Frequency Control

NEMO	Nominated Electricity Market Operator (SEMOpX)
SEM	Single Electricity Market of Ireland and Northern Ireland
SRP	System Restoration Plan
SDP	System Defence Plan
TSC	Trading and Settlement Code

1. Introduction

The [Emergency Restoration Network Code](#) (“ER NC”) is one of a suite of European Network Codes and Guidelines that require harmonised and common methods of electricity system operation, planning and market design to achieve a fully-functioning and interconnected internal energy market to ensure security of supply and that all consumers can benefit fully from competitive markets across the EU.

The Emergency Restoration Network Code (ER NC) aims to establish a set of common minimum requirements and principles for the procedures and actions of Transmission System Operators (TSOs), Significant Grid Users (SGUs) and Distribution System Operators (DSOs) when an electricity system is in either an emergency, blackout or restoration state. The ER NC links closely to a number of the other EU Network Codes, in particular the;

- System Operation Guideline (SOGL) EU Regulation 2017/1485;
- Requirements for Generators (RfG) EU Regulation 2016/631;
- Demand Connection Code (DCC) EU Regulation 2016/1388; and,
- High Voltage Direct Current (HVDC) EU Regulation 2016/1447.

EirGrid, as the Transmission System Operator (TSO) is obliged by the ER NC to develop (and consult upon items a-d) the following documents in advance of submission to the CRU:

- a) The terms and conditions to act as defence service providers on a contractual basis (the service providers/units that are contracted by the TSO to provide system support services during an emergency state)
- b) The terms and conditions to act as restoration service providers on a contractual basis (the service providers/units contracted to provide black start, or system support services during the restoration of the system following a partial or total blackout)
- c) The rules for suspension and restoration of market activities in line with Article 26(1) of ER NC (should certain market activities be suspended during an emergency, blackout or restoration state)
- d) Specific rules for imbalance settlement and balancing energy in case of suspension of market activities in accordance with Article (39) (what are the appropriate pricing and settlement rules if a suspension of market activities occurs during emergency or restoration states)
- e) The list of significant grid users (SGU) responsible for implementation of measures related to the system defence plan and the system restoration plan for Ireland, and the measures to be implemented (SGUs in Ireland can range from generation units of >100kW, demand side units and transmission connected demand facilities)

- f) Design of the System Defence Plan for Ireland (detailed plan and procedures regarding system operations during an emergency state to avoid total blackout)
- g) Design of the System Restoration plan for Ireland (detailed plan and procedures regarding the restoration of the system from a partial blackout or total blackout)

ESB Networks as the Distribution System Operator (DSO), is also involved in the execution of the requirements of the Emergency Restoration Code, and there is therefore a need for collaboration and detailed engagement between the two system operators to ensure a cohesive and holistic design of the terms and conditions and procedures is achieved.

These documents were initially submitted to the CRU on 18 December 2018 (in line with ER NC requirements), which were not approved in Decision Paper CRU19110².

1.1 Related Documents

The following are documents that are related to the Emergency Restoration proposals and provide background to this document. Interested stakeholders are advised that it may be helpful to review the content of these documents to fully understand the approval given by the CRU in relation to the ER NC proposals. While not all of these documents set out requirements specifically on the TSO, such as the Trading and Settlement Code which applies to the Market Operator, these have fed into the CRU's considerations of the submitted documents.

- [CRU19110](#) - Decision to not approve and seek amendments to the documents submitted by EirGrid under EU Regulation 2017/ 2196 Emergency Restoration
- [CRU Decision](#) and [UR Decision](#) on the Determination of the Load Frequency Control (LFC) Block
- [System Operator Agreement between SONI and EirGrid](#)
- [The EirGrid Transmission System Operator Licence](#)
- [EirGrid Grid Code](#)
- [ESBN Distribution Code](#)
- [Trading and Settlement Code](#)
- [S.I. No. 445/2000 – European Communities \(Internal Market in Electricity\) Regulations, 2000](#)

² <https://www.cru.ie/wp-content/uploads/2019/09/CRU19110-Emergency-Restoration-NC-Decision-not-to-approve-and-seek-amendments.pdf>

The ER NC interacts with numerous other EU Network Codes/Guidelines;

- [System Operation Guideline \(SOGL\) EU Regulation 2017/1485](#) – which aims to create common requirements for real time operations
- [Requirements for Generators \(RfG\) EU Regulation 2016/631](#) – which outlines frequency and voltage ranges for generators to comply with during operation
- [Demand Connection Code \(DCC\) EU Regulation 2016/1388](#) – which outlines frequency and voltage ranges for demand connections to comply with during operation
- [High Voltage Direct Current \(HVDC\) EU Regulation 2016/1447](#) – which outlines frequency and voltage ranges for HVDC connections to comply with during operation
- [Electricity Balancing Guideline \(EBGL\) EU Regulation 2017/2195](#) – which outlines imbalance settlement and pricing of balancing energy principles
- [Capacity Allocation and Congestion Management \(CACM\) EU Regulation 2015/1222](#) – which outlines arrangement for NEMOs and market entities
- [Forward Capacity Allocation \(FCA\) EU Regulation 2016/1719](#) – which outlines arrangement for NEMOs and market entities

1.1.1 Structure of Paper

Section 2 of this Decision paper explains what the focus of the ER NC is, who it applies to and its requirements, with the relevant articles from the code listed.

Sections 3-6 contains reviews of the documents submitted to the CRU by EirGrid as required by Articles 4(2)(a)-(f) of ER NC.

Finally, section 7 sets out next steps following on from the publication of this Decision paper.

2. Legal Background

2.1 Focus of ER NC

The Emergency Restoration Network Code (ER NC) is a European regulation that provides detailed guidelines for the purposes of safeguarding operational security, and lays down requirements on

- a) the management by TSOs of the emergency, blackout and restoration states;
- b) the coordination of system operation across the Union in the emergency, blackout and restoration states;
- c) the simulations and tests to guarantee a reliable, efficient and fast restoration of the interconnected transmission systems to the normal state from the emergency or blackout states;
- d) the tools and facilities needed to guarantee a reliable, efficient and fast restoration of the interconnected transmission systems to the normal state from the emergency or blackout states.

2.2 Application of the ER NC

The ER NC shall apply to TSOs, DSOs, SGUs, defence service providers, restoration service providers, balance responsible parties, balancing service providers, nominated electricity market operators and other entities designated to execute market functions pursuant to CACM and FCA.

In particular, as outlined in Article 2.2, 2.3, 2.4 and 2.5 of ER NC, the requirements shall apply to the following significant grid users;

- a) existing and new power generating modules classified as type C and D in accordance with the criteria set out in Article 5 of Commission Regulation (EU) 2016/631 (RfG);
- b) existing and new power generating modules classified as type B in accordance with the criteria set out in Article 5 of Regulation (EU) 2016/631, 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 re-dispatching of power generating modules or demand facilities by means of aggregation and providers of active power reserve in accordance with Title 8 of part IV of Regulation (EU) 2017/1485 (SOGL); and

- 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 (HVDC).

ER NC requirements also apply to existing and new type A power generating modules, in accordance with the criteria set out in Article 5 of Regulation (EU) 2016/631 (RfG), to existing and new type B power generating modules other than those referred to in paragraph 2.2(b) above, as well as to existing and new demand facilities, closed distribution systems and third parties providing demand response where they qualify as defence service providers or restoration service providers pursuant to Article 4(4) of the ER NC Regulation.

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

For clarity Type A, B, C and D generators are classified in Ireland as follows;

- Type **A** units include all generation units from **800W to < 100kW**
- Type **B** units include units from **0.1MW (100kW) to < 5 MW**
- Type **C** units range from **5MW to < 10 MW**
- Type **D** units are **≥ 10MW**. Also, all generation **connected at 110 kV** or higher is automatically considered as Type D.

The ER NC shall apply to energy storage units of an SGU, a defence 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 defence plans, restoration plans or in a relevant service contract.

2.3 Requirements of ER NC

This decision paper outlines the CRU's decision on the requirements of Articles 4, 11, 23, 36 and 39. The TSO also has a responsibility to consult and coordinate with stakeholders as outlined in Article 5 and 7 of the ER NC. These Articles are set out below.

The CRU's role as the competent Regulatory Authority is outlined in Article 4 below.

Please note however that many of these Articles refer to other Articles and requirements contained within the ER NC and so it may be beneficial to have the [full text of the ER NC](#) to refer to when reviewing this decision paper.

Article 4 Regulatory aspects

1. *When applying this Regulation, Member States, regulatory authorities, competent entities and system operators shall:*

- a) *apply the principles of proportionality and non-discrimination;*
- b) *ensure transparency;*
- c) *apply the principle of optimisation between the highest overall efficiency and lowest total costs for all parties involved;*
- d) *ensure that TSOs 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) *respect the responsibility assigned to the relevant TSO in order to ensure system security, including as required by national legislation;*
- 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. *Each TSO shall submit the following proposals to the relevant regulatory authority in accordance with Article 37 of Directive 2009/72/EC for approval:*

- a) *the terms and conditions to act as defence service providers on a contractual basis in accordance with paragraph 4; 28.11.2017 EN Official Journal of the European Union L 312/57;*
- b) *the terms and conditions to act 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 Regulations (EU) 2016/631, (EU) 2016/1388 and (EU) 2016/1447 and/or from national legislation and the list of the measures to be implemented by these SGUs, identified by the TSOs under Art. 11(4)(c) and 23(4)(c);*
- d) *the list of high priority significant grid users 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 reenergising the high priority grid users, unless defined by the national legislation of Member States;*
- 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. *Where a Member State 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 Member States 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 act as defence service provider and as restoration service provider shall be established either in the national legal framework or on a contractual basis. If established on a contractual basis, each TSO shall develop by 18 December 2018 a proposal for the relevant terms and conditions, which shall define at least:*

- 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 18 December 2018, each TSO shall notify the regulatory authority or the entity designated by the Member State the system defence 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 defence 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 defence plan and the restoration plan;*
- c) *the rationale of each measure, explaining how it contributes to the objectives of the system defence plan and the restoration plan, and the party responsible for implementing those measures; and*
- d) *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, Member States may require prior approval by the regulatory authority, the entity designated by the Member State or other competent authorities of the Member States of these requirements, terms and conditions or methodologies.*

7. *If a 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. TSOs proposing an amendment shall take into account 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 a relevant system operator or TSO in relation to that relevant system operator's or 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 where additional information is sought by the regulatory authority. 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 11 Design of the System Defence Plan

1. By 18 December 2018, each TSO shall design a system defence plan in consultation with relevant DSOs, SGUs, national regulatory authorities, or entities referred to in Article 4(3), neighbouring TSOs and the other TSOs in its synchronous area.

2. When designing its system defence plan, each TSO shall take into account at least the following elements:

- a) the operational security limits set out in accordance with Article 25 of Regulation (EU) 2017/1485;*
- b) the behaviour and capabilities of load and generation within the synchronous area;*
- c) the specific needs of the high priority significant grid users listed pursuant to point (d) of paragraph 4; and*
- d) the characteristics of its transmission system and of the underlying DSOs systems.*

3. The system defence plan shall contain at least the following provisions:

- a) the conditions under which the system defence plan is activated, in accordance with Article 13;*
- b) the system defence 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 defence 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 Regulation (EU) 2016/631, (EU)*

2016/1388 and (EU) 2016/1447 or from national legislation and a list of the measures to be implemented by those SGUs;

- d) a list of high priority significant grid users and the terms and conditions for their disconnection, and*
- e) the implementation deadlines for each measure listed in the system defence plan.*

5. The system defence plan shall include at least the following technical and organisational 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 defence 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 defence 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 23 Design of the restoration plan

1. By 18 December 2018, each TSO shall design a restoration plan in consultation with relevant DSOs, SGUs, national regulatory authorities or entities referred to in Article 4(3), neighbouring TSOs and the other TSOs in that synchronous area.

2. When designing its restoration plan, each TSO shall take into account, at least, the following elements:

- a) the behaviour and capabilities of load and generation;*
- b) the specific needs of the high priority significant grid users 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 set out in Regulations (EU) 2016/631, (EU) 2016/1388 and (EU) 2016/1447 or from national legislation and a list of the measures to be implemented by those SGUs;*
- d) *the list of high priority significant grid users and the terms and conditions for their disconnection and reenergisation;*
- 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-energise its system with bottom-up reenergisation strategy having black start capability, quick resynchronisation 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 organisational measures specified in Chapter III:*

- a) *re-energisation procedure, in accordance with Section 2;*
- b) *frequency management procedure, in accordance with Section 3; and*
- c) *resynchronisation 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 emergency state or blackout state.*

Article 36 Rules for suspension and restoration of market activities

1. *By 18 December 2018, each 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 relevant regulatory authority in accordance with Article 37 of Directive 2009/72/EC.*
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 referred to in Article 111(1) and (2) of Regulation (EU) 2017/1485.*
4. *When developing the rules for suspension and restoration of market activities, each TSO shall convert the situations referred to in Article 35(1) into objectively defined parameters taking into account 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-energisation;*
 - 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 desynchronisation 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; (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.*

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

7. By 18 December 2020, ENTSO for Electricity shall submit to the Agency a report assessing the level of harmonisation of the rules for suspension and restoration of market activities established by the TSOs and identifying, as appropriate, areas that require harmonisation.

8. By 18 June 2019, each TSO shall submit to ENTSO for Electricity the data required to prepare and submit the report in accordance with paragraph 7.

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

1. By 18 December 2018, each TSO shall develop a proposal for rules for imbalance settlement and settlement of balancing capacity and balancing energy which shall be applicable for imbalance settlement periods during which the market activities were suspended. 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 relevant regulatory authority in accordance with Article 37 of Directive 2009/72/EC. A TSO may delegate the TSO's tasks referred to in this Article to one or more third parties, provided that the third party can carry out the respective function at least as effectively as the TSO(s). A Member State or, where applicable, a regulatory authority, may assign the tasks referred to in this Article to one or more third parties, provided that the third party can carry out the respective function at least as effectively as the TSO(s).

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 each 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) *incentivise 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 TSOs from suspending market activities, unless strictly necessary, and incentivise TSOs to restore the market activities as soon as possible; and*
- f) *incentivise balance service providers to offer services to the connecting TSO that helps restore the system to normal state.*

Article 5 Consultation and coordination

1. *Where this Regulation provides that a 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 liaise 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 take into account 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 liaise 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 taking into account 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 relevant 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;*
- h) *if real-time referral to the relevant 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.*

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 7 Public consultation

1. The relevant TSOs shall consult stakeholders, including the competent authorities of each Member State, 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.

2. The relevant TSOs shall duly take into account 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.

3. Terms and Conditions to act as a Defence Service Provider

3.1 ER NC Provisions

Article 4(4) of ER NC states:

*“The **terms and conditions to act as defence service provider** and as restoration service provider shall be established either in the national legal framework or on a contractual basis. If established on a contractual basis, each TSO shall develop by 18 December 2018 a proposal for the relevant terms and conditions, which shall define at least:*

- a) *the characteristics of the service to be provided;*
- b) *the possibility of and conditions for aggregation;”*

3.2 Requests for amendment regarding initial TSO submission

In their initial submission (which was combined with the Terms and Conditions to act as a Restoration Service Provider), the TSO stated that the terms and conditions for defence service providers were conveyed through the ‘existing legal framework’, including the Statutory Instrument S.I. 445/2000, the Grid Code and ‘any bilateral contracts that are consequential under Grid Code requirements’.

The proposal did not explicitly list Defence services nor define the characteristics of the services it requires during the Emergency state in the document. The TSO pointed to bilateral contracts it holds with DS3 system service providers in the System Defence Plan but did not list any of the relevant terms and conditions of these contracts. DS3 System Services are also available for use during normal and alert states so it needs to be clarified which of the services are to be called upon during the emergency state.

The CRU requested that the TSO include the following in the Terms and Conditions for Defence service providers:

- a) provide accurate detail on the characteristics of the defence services utilised by the TSO and the terms and conditions required of SGUs contracted to provide such defence services, in line with the requirements of Article 4(4) of ER NC.

- b) clarity on how the TSO meets the objectives of Article 4(1) and Article 11(6) of ER NC and the TSO Licence, in particular Condition 3 – General Functions.

3.3 Revised TSO Proposal

In section 2.2 of EirGrid's revised proposal for terms and conditions to act as a defence service provider, the TSO point out that they are not proposing any new services or terms and conditions as part of the submission, and instead are only identifying how requirements under Article 4(4) of ER NC are currently being met. This section also provides clarity on how the TSO meets the objectives of Condition 3 of the TSO Licence, which was requested by the CRU in CRU19110. Condition 3 closely aligns with the principles which measures contained in the System Defence Plan must comply under Article 11(6) of ER NC.

Section 3.1 of the re-submitted document describes the defence services that different types of significant grid users (SGUs) provide, either on a contractual basis or through the national legal framework. EirGrid identified the following defence services procured on a contractual basis:

1. Frequency Restoration Reserve
2. Replacement Reserve
3. Active Power set point changes
4. Reactive Power set point changes
5. Interconnector (Emergency) Assistance

As required by Article 4(4)(a) of ER NC, EirGrid shall define in their proposal for the relevant terms and conditions 'the characteristics of the service to be provided'. For all five services, EirGrid refers to the Grid Code and provides detail on the applicable Grid Code articles in Table 1 and Table 2 of their revised proposal.

As required by Article 4(4)(b) of ER NC, EirGrid also identified the first three services listed above as possibilities for aggregation. Frequency Restoration Reserve and Replacement Reserve are procured in accordance with the DS3 System Services Arrangement³, while Active Power set point changes is procured on a mandatory basis for participants above a de-minimis

³ <https://www.eirgridgroup.com/site-files/library/EirGrid/DS3-System-Services-Protocol-Regulated-Arrangements-v2.0.pdf>

level of 10MW but is voluntary for Demand Side Units and Aggregated Generation Units below this threshold.

The CRU approves EirGrid's proposal for terms and conditions to act as a defence service provider, as the re-submitted proposal addresses the CRU's requests for amendments in CRU19110 and complies with Article 4(4) of ER NC.

4. Terms and Conditions to act as a Restoration Service Provider

4.1 ER NC Provisions

Article 4(4) of ER NC states:

*“The **terms and conditions to act as defence service provider** and as restoration service provider shall be established either in the national legal framework or on a contractual basis. If established on a contractual basis, each TSO shall develop by 18 December 2018 a proposal for the relevant terms and conditions, which shall define at least:*

- 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.*

4.2 Requests for amendment regarding initial TSO submission

In CRU19110, the CRU requested that the TSO include the following in the Terms and Conditions for Restoration Service providers:

- a) provide accurate detail on the characteristics of the restoration services utilised by the TSO and the terms and conditions required of SGUs contracted to provide restoration services, in line with the requirements of Article 4(4) of ER NC.
- b) clarity on how the TSO meets the objectives of Article 4(1) and Article 23(6) of ER NC and TSO Licence, in particular Condition 3 – General Functions.

4.3 Revised TSO Proposal

Section 3.2 of EirGrid’s resubmission of the terms and conditions to act as a restoration service provider contains the characteristics of the service to be provided, which was requested by the CRU in CRU19110 and is in compliance with Article 4(4)(a) of ER NC. The requirements of a

black start provider are detailed in OC4.7 of the Grid Code and Schedule 3 of the Ancillary Service Agreement, in compliance with Article 4(4)(b) and (c).⁴

Section 3.4 of the TSO's re-submission details the target geographical distribution of power sources with black start and island operation capabilities, as required by Article 4(4) of ER NC. For the purposes of restoration, the system is divided into four subsystems (North, South, East, West). The document includes information on the minimum requirements and currently contracted technologies in each region.

Article 4(1)(d) of ER NC states that *“Member States, regulatory authorities, competent entities and system operators ensure that TSOs make use of market-based mechanisms as far as is possible to ensure network security and stability”*. The CRU requested that EirGrid investigate the potential for a black start market in Ireland and welcome the plans to commence this work as discussed in section 3.6 of the re-submitted proposal.

The CRU approves EirGrid's proposal for terms and conditions to act as a restoration service provider, as the re-submitted proposal addresses the CRU's requests for amendments in CRU19110 and complies with Article 4(4) of ER NC.

⁴ <https://www.eirgridgroup.com/site-files/library/EirGrid/Ancillary%20Service%20Agreement.pdf>

5. Rules for suspension and restoration of market activities and specific rules for imbalance settlement and settlement of balancing energy following market suspension

5.1 ER NC provisions

Article 35(1) of ER NC allows the TSO to temporarily suspend one or more market activities where:

- a) the transmission system of the TSO 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 18(3) of Regulation (EU) 2017/1485; 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 TSOs to facilitate market activities are not available.

Under Article 35(2) of ER NC, the following market activities may be suspended pursuant to Article 35(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 referred to in Article 111(1) and (2) of Regulation (EU) 2017/1485; and
- f) other relevant market activities the suspension of which is deemed necessary to preserve and/or restore the system.

5.2 TSO Proposal

At a high level, the TSO's proposal under Article 36(1) (*'the rules for suspension and restoration of market activities'*) and Article 39(1) (*'specific rules for imbalance settlement and settlement of balancing energy in case of suspension of market activities'*) is that *"none of these activities will be suspended, and therefore, the requirements to develop a proposal for rules concerning the suspension and restoration of market activities does not apply."*

In the CRU's decision not to approve submissions from EirGrid's on ER NC (CRU19110), the CRU requested that the TSO:

- re-examine the possible implications of not suspending markets during an emergency, blackout or restoration state;
- re-examine the rationale behind the proposal not to develop additional rules; and
- to provide detail on existing TSC clauses and TSC changes required to support their proposal.

Section 3.2 of EirGrid's re-submission under Articles 36(1) and 39(1) of ER NC provides a detailed explanation of why the TSO is not proposing to suspend market activities, including specific references to relevant TSC clauses as requested in CRU19110. This section also describes how a number of activities will function in a number of scenarios (e.g., system operations, market incentives, market manipulation, capacity and forwards markets, resettlement actions that could arise in the event of a total blackout, a partial black out, loss of communications, market system outages or loss of data transfer tools and functions), as requested by the CRU in section 5.2 of CRU19110.

In Section 3.3, the TSO provides rationale for not proposing to suspend any of the market activities allowed for in Article 35(2)(a)-(f) of ER NC. The CRU are satisfied that EirGrid have sufficiently addressed the concerns raised by the CRU in CRU19110 regarding their initial submissions under Articles 36(1) and 39(1) of ER NC.

The CRU therefore approves EirGrid's proposal in accordance with Article 36(1) and 39(1) of ER NC, as their re-submission contained the information requested in CRU19110 to support the proposal and is compliant with ER NC.

6. Significant Grid Users

A significant grid user (SGU) is a user of electricity networks that can impact the operational security of the system or provides ancillary services. As outlined in Section 2.2 of this paper, and in Article 2.2 and 2.3 of ER NC, the term SGU for defence and emergency purposes applies to:

- generators (RfG compliant) from 100kW upwards;
- generators (existing or non-RfG compliant) from 5MW upwards;
- generators (existing or non-RfG compliant) from 100kW where these units are identified as system defence or system restoration service providers;
- aggregators of re-dispatching of power generation modules, or demand facilities;
- providers of active power reserves;
- interconnector;
- transmission connection demand facilities; and
- closed distribution systems.

6.1 Accuracy of the SGU list

In CRU19110, the CRU requested that the TSO review their submitted SGU list to ensure that it was accurate and that the list contains all units captured by Article 2(2) of ER NC. In section 1 of their re-submission under Articles 4(2)(c) & (d), the TSO confirm that the list provided is accurate as of 30 September 2020, and that *“any grid users connected after that date is not included in this list but will be subject to ER NC as stipulated under Article 2(2).”*

The CRU also asked the TSO to clarify if the capacity values listed were based on market unit values or connection agreements (installed capacity or maximum export capacity). EirGrid confirmed that the listed values represented maximum export capacities.

6.2 Joint TSO/DSO Proposal

In their original submission, EirGrid and ESBN stated that they had not identified any high priority significant grid users, and so did not submitted a separate High Priority SGU list as required under Article 4(2)(d) of ER NC. As per the comments outlined in Section 3.3 of CRU19110, the CRU requested that they to re-consider this position. The TSO and DSO laid out their rationale for not identifying any High Priority SGUs in section 4.3.1 of the re-submitted System Defence Plan:

“While there is a category for exempt customers connected to the distribution system there are currently no identified equivalent customers connected to the transmission system...distribution connected demand customers exempt or otherwise are not classified as SGUs under NCER, hence there are no identified High Priority SGUs identified for this SDP.”

6.3 Requirement to specify SGU measures

Article 4(2)(c) of the ER NC requires the TSO to list the measures to be implemented by SGUs utilised by the TSO in its System Defence and System Restoration processes. In CRU19110, the CRU requested that the TSO amend the document to fully incorporate all measures required of the specified SGUs and their roles and responsibilities in relation to System Defence and System Restoration. While EirGrid’s initial submission did not contain these measures, this has since been amended by the TSO.

6.4 Providers of re-dispatching of Power generating modules or demand facilities by means of aggregation and providers of active power reserve

In their initial submission, the TSO listed aggregators in the same category as generation units. The CRU asked for the amended list to explicitly distinguish such providers, which is done in sections 3.1 and 3.2 of the re-submitted SGU list.

6.5 Transmission connected closed distribution systems

The TSO did not list any closed distribution systems connected to the Transmission system in their original submission. The CRU asked the TSO to confirm if no such systems exist. This was confirmed in the re-submission of the SGU list.

The CRU therefore approves EirGrid’s proposal under Article 4(2)(c) & (d) of ER NC, as their re-submission contained the information requested in CRU19110 to support the proposal and is compliant with the requirements of ER NC.

7. Next Steps

The CRU has approved the proposals under Articles 4(2)(a)-(f) of the Emergency Restoration Network Code submitted by the TSO,

The TSO, in collaboration with the DSO, shall submit an implementation plan to the CRU within 3 months of the publication of this Decision paper that includes expected completion dates for the following:

- Modifications to be made to Grid Code and Distribution Code as a result of this Decision;
- Scoping exercise for black start market in Ireland, in accordance with Article 4(1)(d) of ER NC;
- Compliance with Article 15(3) and (4) of ER NC; and

The CRU are aware that EirGrid have commenced work on the test plan, which is required to be submitted to the CRU under Article 4(2)(g) of ER NC. Submission of this document is expected in September 2021.