Synchronous Area Operational Agreement for Synchronous Area IE/NI

For Submission; 20/12/2018

Notice

This document, provided by EirGrid and SONI, is its proposal for the IE/NI Synchronous Area Operational Agreements in accordance with Article 118 of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation

EIRGRID SONI

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Introduction

This Synchronous Area Operational Agreement (hereafter referred to as "SAOA") applies to the Synchronous Area IE/NI and contains agreement required by Article 118 of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (hereafter referred to as "SOGL").

This SAOA is implemented in the Synchronous Area IE/NI taking into account:

Whereas

1. This document is a proposal jointly developed by EirGrid and the System Operator Northern Ireland (hereafter referred to as "SONI") regarding a SAOA for the Synchronous Area IE/NI. It recognises that the transmission systems of Ireland and NI are electrically connected and synchronised. EirGrid and SONI shall work closely as required by the respective TSO licences to ensure that security standards are maintained on the Synchronous Area IE/NI.

2. This proposal takes into account the general principles and goals set in SOGL as well as Commission Regulation (EU) 2015/1222 establishing a guideline on capacity allocation and congestion management (hereafter referred to as "CACM"), and Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity (hereafter referred to as "Regulation (EC) No 714/2009"). The goal of SOGL is to safeguard operational security, frequency quality and the efficient use of the interconnected system and resources.

3. SOGL, Part IV, Load Frequency Control & Reserves section, recognises the need for a degree of flexibility to cater for physics of scale in different synchronous areas as well as specific time varying influence of network connectivity and technology in the energy mix in determining how system operators' processes and the reserve provider services meet the system quality criteria. This flexibility is achieved through the development of agreements and methodologies.

4. According to Article 6 (6) of the SOGL, the expected impact of the IE/NI SAOA proposal on the objectives of the SOGL has to be described. This is presented below. The SAOA proposal generally contributes to the achievement of the objectives of the SOGL. In particular this SAOA serves the objective of ensuring the conditions for maintaining a frequency quality level for the synchronous area IE/NI; for determining common load-frequency control processes and control structures within IE/NI; ensuring conditions for maintaining operational security; the publication of IE/NI methods and specific values in the common language of SOGL promotes transparency and reliability of information on transmission system operation, facilitating greater cross-border cooperation and the efficient operation of the electricity transmission system in the Union.

5. Furthermore, the methodologies contained in this SAOA proposal shall ensure the application of the principles of proportionality and non-discrimination; transparency; optimisation between the highest overall efficiency and lowest total costs for all industry

stakeholders and consumers; and use of market-based mechanisms as far as possible, to promote frequency quality and operational security.

6. This agreement works in harmony with those aspects addressing all-island transmission system operation within the existing System Operator Agreement[1] as required under condition number 4 of the EirGrid TSO licence and condition number 24 of the SONI TSO licence.

7. In conclusion, the methodologies contained in this SAOA proposal shall contribute to the general objectives of the SOGL to the benefit of all TSOs, the Agency, regulatory authorities, market participants and the end consumers.

TITLE 1
General Provisions

Article 1   Subject matter and scope

1. This Synchronous Area Operational Agreement (SAOA) document for Synchronous Area IE/NI contains:

   a. Title 2: Those Articles referenced from both SOGL Articles 118 and 6(3). These are subject to public consultation in accordance with SOGL Article 11 and approval by the regulatory authorities of Ireland and Northern Ireland.

   b. Title 3: Those articles referenced in SOGL Article 118 but not found in SOGL Articles 6 or 11. These articles are not subject to either regulatory approval or public consultation.

Article 2   Definitions and interpretation

1. For the purposes of this proposal, the terms used shall have the meaning of the definitions included in Article 3 of Regulation 2017/1485 (SOGL), Article 2 of Regulation 2015/1222 (CACM) and the other items of legislation referenced therein.

2. The terms and definitions used by EirGrid and SONI in existing methodologies, policies, procedures and agreements may differ from those used within SOGL. The following interpretation shall be used within this SAOA.

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[1] System Operator Agreement

Terminology used in the System Operations Guideline (SOGL)	Interpretation based on terms normally used by EirGrid and SONI
FCR – Frequency Containment Reserve	Shall include Primary Operating Reserve (POR) and Secondary Operating Reserve (SOR) as defined in the EirGrid and SONI Grid Codes .
FRR – Frequency Restoration Reserve	Shall include Tertiary Operating Reserve 1 (TOR1) and Tertiary Operating Reserve 2 (TOR2) as defined the EirGrid and SONI Grid Codes[34]
RR – Replacement Reserve	Shall include Replacement Reserve (RR) as defined in the EirGrid and SONI Grid Codes
PGM - Power Generating Module	Shall mean the Grid Code definition 'Generating Unit' as defined in the EirGrid and SONI Grid Codes
Demand Unit	Shall mean the Grid Code definition 'Demand Side Unit (DSU)' as defined in the EirGrid and SONI Grid Codes
Cross border sharing and exchange of reserves categories FCR, FRR and RR.	The Interconnector Operating Protocols (IOP)[5] make reference to a number of reserve services which are available to the TSOs: • These existing arrangements describe the current explicit services enabling the TSOs' to share reserves across HVDC interconnectors. These services are not intended to preclude alternative methods of sharing or exchanging reserves • Static response may be used for cross-border sharing of FCR and FRR between the IE/NI synchronous area and the GB synchronous area.
FCR, FRR and RR providing units	Grid Code defines the requirements for the provision of POR, SOR and TOR by certain

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[3] SONI Grid Code,
[4] EirGrid Grid Code
[5] The IOP is *Commercial in Confidence* – Nonetheless, information relevant to this SAOA is reproduced in this SAOA or included in the Operational Constraints Update

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	Grid Code Users in respect of their generating units and demand side units. In addition to those Grid Code requirements, reserve services are also defined in the System Services Technical Definitions decision paper. These define additional reserve categories such as Fast Frequency Response.
Reference incident for the purposes of dimensioning FCR	In IE/NI this is typically referred to as the loss of the largest single infeed (or outfeed) when determining the requirements for reserve scheduling.

Table 1: SOGL Interpretation

TITLE 2

Methodologies, Conditions and Values developed jointly by EirGrid and SONI to satisfy the SOGL requirements within the SAOA for IE/NI, which are subject to approval by the NRAs of IE and NI

Article 3   The dimensioning rules for FCR in accordance with SOGL Article 153

1. EirGrid and SONI acting jointly as the single system operator will dimension reserve capacity to ensure there are appropriate reserves to cover the largest imbalance that may result from an instantaneous change of active power of a single power generating module, single demand facility, or single HVDC interconnector or from a tripping of an AC line. The methodology will take the following into account:

   - The largest single infeed;
   - The largest single outfeed;
   - Frequency response of load;
   - Contributions of reserve providers;
   - Level of inertia on the system reducing the rate of change of frequency;
   - Constraints on the transmission system;

2. Currently enough FCR to cover 75% of the largest single infeed is scheduled, which is fully activated by 15 seconds increasing to 100% of the largest single infeed by 90 seconds. Frequency response of load and historic performance of reserve providers is taken into account in the dimensioning of FCR.

3. The requirement for fast negative reserve for the loss of largest single outfeed (LSO) is that 75% of the outfeed is covered in scheduling timescales.

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4. During the scheduling process the scheduling tool determines largest infeed and outfeed for each half hour period and ensures the required reserve capacity is scheduled.

5. No reserve contribution from the largest single infeed or outfeed can be considered in the positive and negative directions respectively.

6. In real time in addition to the scheduled quantity of reserves, the TSO uses the dynamic stability assessment tool to confirm that the frequency nadir and zenith are within the frequency quality defining parameters. The Dynamic stability assessment tool will provide advice which will determine if actions such as arming the SPS's are required.

Article 4   Additional properties of FCR in accordance with SOGL Article 154(2)

7. The Grid Code requirements related to FCR are stricter than those prescribed in the SOGL and as such the Grid Code Requirements for FCR are applicable to all reserve providers.

8. Reserve providers may contract to provide additional reserves above the requirements within the Grid Code. In which case, the details of these additional reserve requirements will be detailed in the respective contract between the relevant TSO and the reserve provider.

Article 5   The frequency quality defining parameters and the frequency quality target parameters in accordance with SOGL Article 127

The Frequency Quality Defining Parameters and the Frequency Quality Target Parameters for IE/NI are detailed in table 2 and table 3 of this SAOA in agreement with Annex III of the SOGL.

standard frequency range	± 200 mHz
maximum instantaneous frequency deviation	1000 mHz
maximum steady-state frequency deviation	500 mHz
time to recover frequency	1 minute
frequency recovery range	± 500 mHz
time to restore frequency	15 minutes
frequency restoration range	± 200 mHz
alert state trigger time	10 minutes

Table 2: Frequency quality defining parameters of the IE/NI synchronous area

maximum number of minutes outside the standard frequency range	15 000

Table 3: Frequency quality target parameters of the IE/NI synchronous area

Article 6   For the IE/NI synchronous area, measures to ensure the recovery of energy reservoirs in accordance with SOGL Article 156(13)(a)

1. When required for system security reasons, EirGrid and SONI may manage the recovery of energy reservoirs of energy limited reserve providers. EirGrid and SONI shall optimally schedule reserve from energy limited reserve providers, based on the declared availability, technical parameters, physical notifications and commercial offers submitted by the reserve providers in respect of their reserve providing units.

2. When operating the IE/NI synchronous system, EirGrid and SONI take into account the depletion of energy limited reservoirs to minimise operational risk in real time where applicable.

Article 7   If applicable, for synchronous areas other than CE, limits for the exchange of FCR between the TSOs in accordance with SOGL Article 163(2)

1. From the purpose of scheduling, dispatch and provision of reserves, EirGrid and SONI act as a single TSO. Therefore this article is not applicable to the IE/NI synchronous area. In addition, EirGrid and SONI act together as the TSO to ensure the required frequency quality is maintained.

2. The IE/NI synchronous area consists of a single LFC Block and a single LFC Area.

3. Due to a current system constraint, minimum reserve levels are maintained within each jurisdiction.

Article 8   The methodology to determine limits on the amount of sharing of FCR between synchronous areas defined in accordance with SOGL Article 174(2)

1. EirGrid and SONI consider the total requirements for FCR in Ireland and Northern Ireland as defined by the dimensioning rules. The TSOs publish the FCR requirements within the Operating Reserve Requirements section of the Operational Constraints Update. EirGrid and SONI utilise Scheduling and Dispatch optimisation software to regularly calculate the most economic allocation of FCR within the synchronous area subject to the limitations imposed by tie line operational constraints. FCR sharing with the GB synchronous area shall also be included within this optimisation process.

2. The methodology EirGrid and SONI use to determine the maximum amount of FCR sharing that can be accommodated between the GB synchronous area and the IE/NI synchronous area considers the following factors:

   a. Assessment of System stability based on studies completed via a dynamic assessment study tool;

   b. The contractual limit on FCR sharing contained within the Interconnector Operating Protocols;

   c. The availability of interconnector capacity to facilitate the transfer of FCR between synchronous areas;

   d. Tie Line limitations between IE and NI when there is a risk that these may restrict the ability of the TSOs to share FCR with the GB synchronous area;

   e. Whether the loss of an interconnector to the GB synchronous area constitutes the IE/NI reference incident;

   f. Whether sharing of FCR with the GB synchronous area can be accommodated by both EirGrid and SONI under expected system conditions whilst complying with their respective Operating Security Standards;

   g. The probability and impact of FCR shortfalls that could arise due to sharing for economic reasons.

Article 9 The methodology to determine limits on the amount of exchange of FRR between synchronous areas defined in accordance with SOGL Article 176(1) and the methodology to determine limits on the amount of sharing of FRR between synchronous areas defined in accordance with SOGL Article 177(1)

3. EirGrid and SONI consider the total requirements for FRR in Ireland and Northern Ireland as defined by the dimensioning rules. The TSOs publish the FRR requirements within the Operating Reserve Requirements section of the Operational Constraints Update. EirGrid and SONI utilise Scheduling and Dispatch optimisation software to regularly calculate the most economic allocation of FRR within the synchronous area subject to the limitations imposed by tie line operational constraints. FRR sharing with the GB synchronous area shall also be included within this optimisation process.

4. The methodology EirGrid and SONI use to determine the maximum amount of FRR sharing that can be accommodated between the GB synchronous area and the IE/NI synchronous area considers the following factors:

   a. Assessment of system stability based on studies completed via a dynamic assessment study tool;

b. The contractual limit on FRR sharing contained within the Interconnector Operating Protocols;

c. The availability of interconnector capacity to facilitate the transfer of FRR between synchronous areas;

d. Tie Line limitations between IE and NI when there is a risk that these may restrict the ability of the TSOs to share FRR with the GB synchronous area;

e. Whether the loss of an interconnector to the GB synchronous area constitutes the IE/NI reference incident;

f. Whether sharing of FRR with the GB synchronous area can be accommodated by both EirGrid and SONI under expected system conditions whilst complying with their respective Operating Security Standards;

g. The probability and impact of FRR shortfalls that could arise due to sharing for economic reasons.

Article 10   The methodology to determine limits on the amount of exchange of RR between synchronous areas defined in accordance with SOGL Article 178(1) and the methodology to determine limits on the amount of sharing of RR between synchronous areas defined in accordance with SOGL Article 179(1).

1. EirGrid and SONI, acting as a single TSO, have the ability to exchange RR with the GB synchronous area via a SO-SO trade.

2. EirGrid and SONI, acting as a single TSO, consider the overall RR requirement for the IE/NI synchronous area. Due to a current operational constraint, EirGrid maintains a minimum level of RR in Ireland and SONI maintains a minimum level of RR in the NI. RR exchange with the GB synchronous area may also be considered.

3. EirGrid and SONI determine the maximum amount of RR exchange that could be accommodated from other synchronous areas and between Ireland and Northern Ireland by considering the following:

    a. Assessment of system stability based on studies completed via a dynamic assessment study tool;

    b. The contractual limit on RR sharing contained within the Interconnector Operating Protocols;

    c. The availability of interconnector capacity to facilitate the transfer of RR between synchronous areas;

    d. Tie Line limitations between IE and NI when there is a risk that these may restrict the ability of the TSOs to share RR with the GB synchronous area;

e. Whether the loss of an interconnector to the GB synchronous area constitutes the IE/NI reference incident;

f. Whether exchanging of RR with the GB synchronous area can be accommodated by both EirGrid and SONI under expected system conditions whilst complying with their respective Operating Security Standards;

g. The probability and impact of RR shortfalls that could arise due to sharing for economic reasons.

TITLE 3

Methodologies, Conditions and Values developed by EirGrid and SONI within SAOA for IE/NI to meet the objectives of the SOGL but not requiring NRA approval

Article 11   Methodology to assess the risk and the evolution of exhaustion of FCR in synchronous area IE/NI in accordance with SOGL Article 131(2)

1. Common methodology will be published by EirGrid and SONI on March 29th 2019.

Article 12   Proposals for synchronous area monitor in accordance with SOGL Article 133

1. EirGrid shall undertake the role of synchronous area monitor and discharge the obligations described in SOGL Article 133. In the event that EirGrid is unable to fulfil these obligations, SONI will undertake the duties of synchronous area monitor by coordination with EirGrid.

Article 13   Restrictions for the active power output of HVDC interconnectors between synchronous areas in accordance with SOGL Article 137

1. The combined maximum ramping rate for all HVDC interconnectors connecting the synchronous area IE/NI to another synchronous area shall be as per the most recently published Operational Constraints Report. This ramp rate restriction shall not apply to imbalance netting, frequency coupling as well as the cross-border activation of FCR over HVDC interconnectors connected to the IE/NI synchronous area.

2. It should be noted that the maximum ramping rate for all HVDC interconnectors connecting the synchronous area IE/NI to another synchronous area is 10 MW/min.

3. The published process for the operational constraints report is available on Sem-o website and is accessible here.   In addition, extract of the process map and process steps is available in appendix 1.

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Article 14   Load frequency control structure in accordance with SOGL Article 139

1. In accordance with the CRU decision, dated 19th November 2018, and the Utility Regulator decision, dated 27th June 2018, the LFC structure for synchronous area IE/NI shall be:

    a. 1 synchronous area,

    b. 1 load frequency control block,

    c. 2 monitoring areas (1 monitoring area for IE and 1 monitoring area for NI).

2. EirGrid and SONI shall cooperate to ensure that FCR is scheduled in the IE/NI synchronous area. Power system optimization software shall be used in order to optimise FCR:

    a. Whilst respecting the applicable constraints described in the Operational Constraints Update for primary operating reserves, secondary operating reserves and tertiary operating reserves,

    b. Based on the availability declarations, technical parameters and commercial offers submitted by SEM participants as required under SDC1 of the EirGrid and SONI Grid Codes in respect of their generating units and demand side units.

3. EirGrid and SONI shall cooperate to ensure that FRR is scheduled in the IE/NI synchronous area. For any generating unit or demand side unit, the difference between the Physical Notifications submitted in pursuance of SDC1 of the EirGrid and SONI Grid Codes and the corresponding dispatch quantities issued by EirGrid and SONI in pursuance of SDC2 of the EirGrid and SONI Grid Codes shall be the FRR for that generating unit or demand side unit. Power system optimization software shall be used in order to optimize FRR:

    a. Whilst respecting the rules described in the Operational Constraints Update,

    b. Based on the availability declarations, technical parameters and commercial offers submitted by SEM participants as required under SDC1 of the EirGrid and SONI Grid Codes in respect of their generating units and demand side units.

4. EirGrid and SONI shall cooperate to ensure that RR is scheduled in the IE/NI synchronous area to ensure that operating security standards are maintained, subject to the availability declarations and technical parameters of SEM participants in respect of their generating units and demand side units.

5. Process Activation Structure for these reserves include the following:

    a. a frequency containment process;

    b. a frequency restoration process;

    c. a reserve replacement process;

    d. a cross border activation process; and

    e. a time control process.

Article 15　　　Reduction of electrical time deviation in accordance with SOGL Article 181

1. EirGrid and SONI shall cooperate to ensure that the synchronous time error shall not normally exceed ± 10 seconds as required by the provisions of the System Operator Agreement Inter-jurisdictional procedures.

2. EirGrid has been assigned the role as SA monitor.

3. In order to correct the electrical time error deviation, EirGrid and SONI undertake the following process:

    a. EirGrid, in its role as SA monitor, agrees that the target frequency will be reset with SONI and agree an effective time at least 15 minutes in the future;

    b. Use an EDIL message to inform all generators of the new frequency set point and the time from which it becomes effective;

    c. Reset the target frequency settings in the EMS;

    d. Record timing and frequency settings in the NCC log;

    e. To revert to 50.00 Hz, once agreed with SONI, NCC cancel the instruction from the EDIL Issued Instruction list and re-enter 50.000 Hz in EMS.

Article 16　　　Allocation of responsibilities for the operation of the IE/NI synchronous area in accordance with SOGL Article 141

EirGrid and SONI together act as single system operator for the IE/NI synchronous area, but the responsibility for the operational security for each jurisdiction remains with the respective TSO.

Article 17　　　Operational procedures in the case of exhausted FCR in accordance with SOGL Article 152(7)

1. Following a system event which results in the partial or total exhaustion of FCR, EirGrid and SONI shall re-establish FCR in accordance with the levels detailed in the Operating Constraints Update for POR and SOR by dispatching sufficient additional generating units and demand side units. FCR shall be optimised using power system optimisation software as soon as reasonably practicable following the event that caused FCR to be fully or partially exhausted. The optimisation of FCR shall be based on the declared availability, technical parameters and commercial offers submitted to EirGrid or SONI by SEM participants in accordance with the EirGrid and SONI Grid Codes in respect of their FCR providing units. Provision of FCR shall always respect the minimum jurisdictional limits for POR and SOR as detailed in the Operational Constraints Update.

2. The operational procedure includes the following steps:

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a. Re-dispatch units IE and NI, to maximise the reserve available.

b. Start units to provide more reserve.

c. Reducing the level of export / import on EWIC / Moyle via SO-SO trading with National Grid Control Room (NGC). If time does not allow for this request emergency assistance.

d. Reduce LSI and/or LSO.

Article 18 Operational procedures to reduce system frequency deviation to restore the system state to normal state and limit risk of entering into an emergency state in accordance with SOGL Article 152(10)

1. A common methodology will be published by EirGrid and SONI on March 29th 2019

Article 19 Roles and responsibilities of TSOs implementing imbalance netting process, cross-border FRR activation or a cross-border RR activation process in accordance with SOGL Article 149(2)

1. EirGrid and SONI shall use power system optimisation software to identify the most appropriate resources for the provision of FRR and RR based on the availability declarations, technical parameters and commercial offers submitted to the TSOs in accordance with SDC1 of the respective Grid Codes and respecting the limitations detailed in the Operating Constraints Update.

2. EirGrid and SONI shall be responsible for instructing FRR and RR providing units in accordance with the requirements of the respective EirGrid and SONI Grid Codes using a shared electronic dispatch instruction logger (EDIL) application or an alternative agreed means of communication should EDIL be unavailable.

3. Since the synchronous area IE/NI is operated as a single LFC Area, there is no requirement for EirGrid and SONI to implement an imbalance netting process for IE/NI.

4. This SAOA does not preclude any arrangements which EirGrid or SONI may agree with TSOs in other synchronous areas for services covered within the scope of this Article. EirGrid and SONI shall cooperate in the development and operation of such arrangements with TSOs in other synchronous areas in accordance with the respective TSO licences.

5. The abilities of each TSO in the IE/NI synchronous area and the GB synchronous are to provide frequency response will be assumed to be available to be armed unless transfers on EWIC prevent this or it is specifically withdrawn by EirGrid and NESO.

6. Arming and disarming of the frequency response service will be agreed by both TSOs via a telephone conversation and confirmed using the appropriate template.

7. There is no cross-border frequency coupling between the IE/NI synchronous area and the GB synchronous.

Article 20   Requirements concerning the availability, reliability and redundancy of technical infrastructure in accordance with SOGL Article 151(2)

1. Requirements will be published by EirGrid and SONI on March 29th 2019.

Article 21   Common rules for the operation in normal state and alert state in accordance with SOGL Article 152(6) and the actions referred to in Article SOGL Article 152(15)

1. Common Rules will be published by EirGrid and SONI on March 29th 2019.

Article 22   Roles and responsibilities of the reserve connecting TSO, the reserve receiving TSO and the affected TSO as regards the exchange of FRR and RR defined in accordance with SOGL Article 165(1)

1. As EirGrid and SONI act together as a single system operator, arrangements for the exchange of FRR or RR between Ireland and Northern Ireland are not required, since these services are determined based the synchronous area wide basis, subject to the restrictions detailed in the Operating Reserves section of the Operational Constraints Update.

Article 23   Roles and responsibilities of the control capability providing TSO, the control capability receiving TSO and the affected TSO for the sharing of FRR and RR defined in accordance with SOGL Article 166(1)

1. EirGrid and SONI shall share FRR and RR resources in order to optimise power system operation in IE/NI, subject to the limits detailed in the Operational Constraints Update.

2. Based on the indicative operating schedules, produced in accordance with SDC1 of the EirGrid and SONI Grid Codes, EirGrid and SONI shall be responsible for dispatching FRR and RR from the generating units and demand side units located within their respective control areas in accordance with the TSO licences.

Article 24   **Roles and responsibilities of the reserve connecting TSO, the reserve receiving TSO and the reserve affected TSO for the exchange of reserves between synchronous areas and of the control capability providing TSO, the control capability receiving TSO and the affected TSO for the sharing of reserves between synchronous areas defined in accordance with SOGL Article 171(2)**

1. EirGrid and SONI shall be responsible for scheduling the provision of reserve services with other synchronous areas in accordance with the terms of the relevant Interconnectors Operating Protocols.

2. EirGrid and SONI shall cooperate in accordance with the requirements of the TSO licences to optimise the operation of the IE/NI synchronous area, including as appropriate the use of reserve services provided from other synchronous areas via HVDC interconnectors.

3. EirGrid and SONI shall comply with the limits for the provision of reserve from HVDC interconnectors detailed within the Operational Constraints Update.

Article 25   **Methodology to determine the limits on the amount of sharing of FCR between synchronous areas defined in accordance with Article 174(2)**

1. The Operating Reserves Requirements section of the Operational Constraints Update indicates the minimum requirements for FCR within the IE and NI. Taken together, these represent the methodology for the minimum FCR provision in synchronous area IE/NI.

2. A number of factors are considered including the following

    a. The security of the system if the interconnector failed to provide FCR.

    b. Probability of a simultaneous event in both synchronous areas.

    c. Availability reserves on both synchronous systems

TITLE 4   Final Provisions

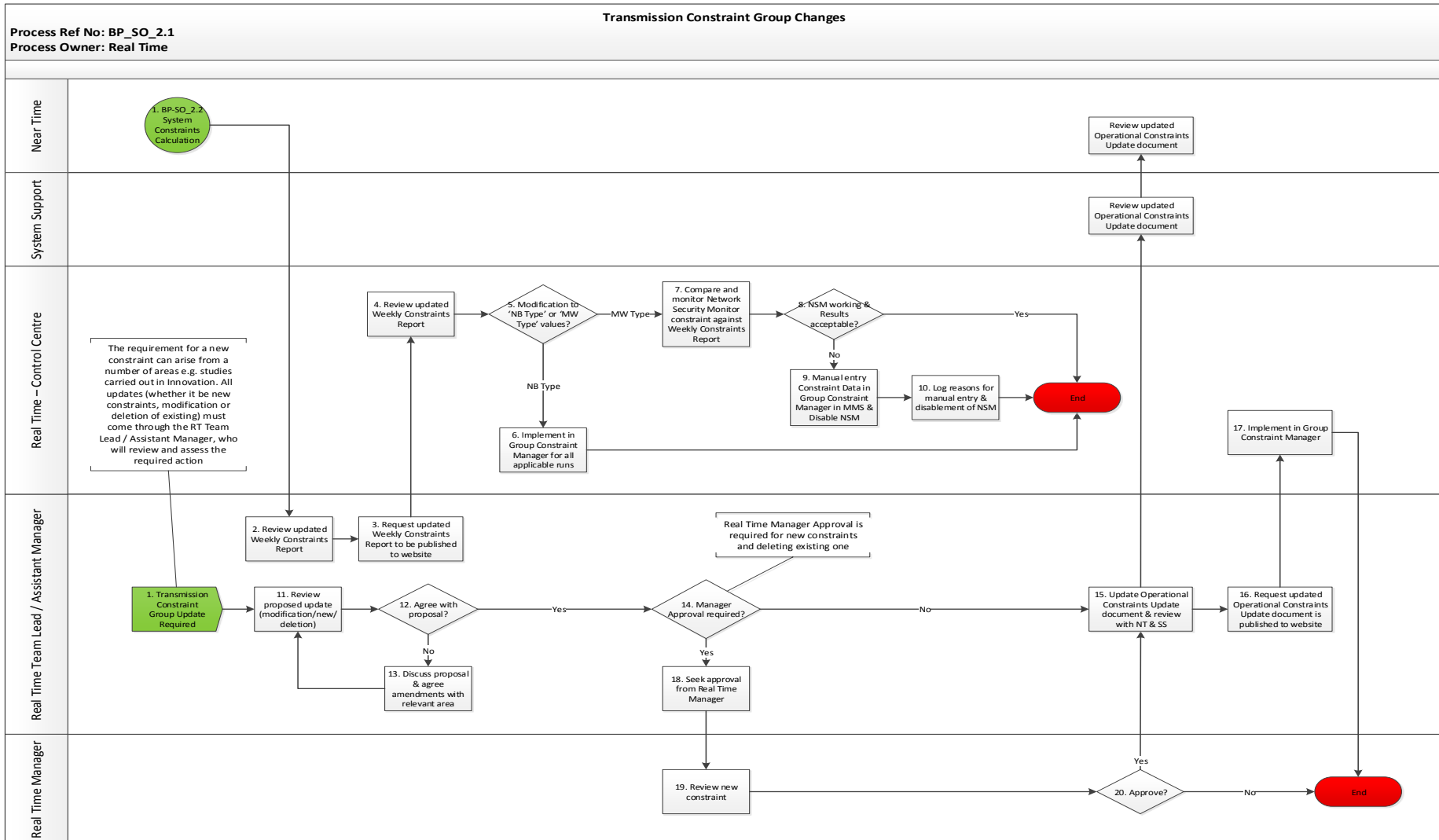## Article 26   Timescale for implementation

1. The SAOA will enter into force 3 months after its approval by the Regulatory Authorities of Ireland and Northern Ireland (not earlier than 14th June 2019) in accordance with SOGL article 118 (2).

Article 27   Language

The reference language for this SAOA shall be English.

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Appendix 1 – Operational Constraints process

Transmission Constraint Group Changes

Process Ref No: BP_SO_2.1
Process Owner: Real Time

Near Time

1. BP-SO_2.2.
System
Constraints
Calculation

Review updated
Operational Constraints
Update document

System Support

Review updated
Operational Constraints
Update document

Real Time – Control Centre

The requirement for a new constraint can arise from a number of areas e.g. studies carried out in Innovation. All updates (whether it be new constraints, modification or deletion of existing) must come through the RT Team Lead / Assistant Manager, who will review and assess the required action

4. Review updated
Weekly Constraints
Report

5. Modification to
'NB Type' or 'MW
Type' values?

MW Type →

7. Compare and
monitor Network
Security Monitor
constraint against
Weekly Constraints
Report

8. NSM working &
Results
acceptable?

Yes →

NB Type

9. Manual entry
Constraint Data in
Group Constraint
Manager in MMS &
Disable NSM

10. Log reasons for
manual entry &
disablement of NSM

End

6. Implement in
Group Constraint
Manager for all
applicable runs

Real Time Team Lead / Assistant Manager

1. Transmission
Constraint
Group Update
Required

2. Review updated
Weekly Constraints
Report

3. Request updated
Weekly Constraints
Report to be published
to website

11. Review
proposed update
(modification/new/
deletion)

12. Agree with
proposal?

Yes →

Real Time Manager Approval is
required for new constraints
and deleting existing one

14. Manager
Approval required?

No →

15. Update Operational
Constraints Update
document & review
with NT & SS

16. Request updated
Operational Constraints
Update document is
published to website

No

13. Discuss proposal
& agree
amendments with
relevant area

Yes

18. Seek approval
from Real Time
Manager

17. Implement in Group
Constraint Manager

Real Time Manager

19. Review new
constraint

Yes

20. Approve?

No →

End

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Process Steps:

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
1	Trigger: Constraint Update Required/System Constraints Calculation	The trigger for this process may be the Near Time process of 'System Constraints Calculation' or an update to a permanent constraint following analysis. The requirement for a new constraint can arise from a number of areas e.g. studies carried out in Innovation. All updates (whether it be new constraints, modification or deletion of existing) must come through the RT Team Lead/Assistant Manager, who will review and assess the required action. If it is triggered following 'Systems Constraints Calculation' process go to step 2. If it is based from other studies go to step 11.	Real Time Team Lead/Assistant Manager/Near Time	N/A	Weekly and ad hoc as required	N/A
2	Review updated Weekly Constraints Report	Real Time Team Lead/Assistant Manager will	Real Time Team	N/A	As required	N/A

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
		review the Weekly Constraints Report.	Lead/Assistant Manager			
3	Request updated Weekly Constraints Report to be published to the website	Real Time Team Lead/Assistant Manager will request that the updated Weekly Constraints Report to be published to the TSO area of the I-SEM website.	Real Time Team Lead/Assistant Manager	N/A	As required	N/A
4	Review updated Weekly Constraints Report	Review the updated Weekly Constraints Report to identify any amendments or updates that need to be applied to the scheduling runs.	Real Time – Control Centre	N/A	As required	N/A
5	Modification to 'NB Type' or 'MW Type' values?	Is the update a modification to a 'NB Type' or a 'MW Type'? - • 'NB Type' refers to number of units, e.g. 1, 2 or 3 and just requires a unit to be ON to satisfy the constraint. • 'MW Type' is a range that a unit or a group of units must be between to satisfy the constraint. E.g. 600	Real Time – Control Centre	N/A	As required	N/A

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
		MW > X < 800 MW. If it is to a 'NB Type' go to step 6. If it is to a 'MW Type' go to step 7.				
6	Implement in Group Constraints Manager for all applicable runs	Implement changes from Weekly Constraints Report in Group Constraints Manager in MMS for all relevant scheduling runs (LTS, RTC, and RTD). Once this step has been completed the process ends and no further action is required.	Real Time – Control Centre	GCM updated	As required	Group Constraints Manager (MMS)
7	Compare and monitor Network Security Monitor constraint against Weekly Constraints Report	Compare and monitor Network Security Monitor constraint against Weekly Constraints Report to ensure that MW values are within the correct range.	Real Time – Control Centre	N/A	As required	Network Security Monitor (MMS)
8	NSM working & Results acceptable?	Are the results acceptable & Network Security Monitor working as expected? If yes, the process ends and no further action is required. If no go to step 9.	Real Time – Control Centre	N/A	As required	Network Security Monitor (MMS)

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
9	Manual Entry of Constraint Data in Group Constraints Manager in MMS & Disable NSM	If the results from the comparison are not acceptable and the Network Security Monitor is not performing as expected, the Real Time User will have to manually enter the constraint into MMS via the Group Constraints Manager functionality. The process ends once this step is complete and no further action is required.	Real Time – Control Centre	GCM updated	As required	Group Constraints Manager (MMS)
10	Log reasons for manual entry & disablement of Network Security Monitor	If the constraint has been entered manually and Network Security Monitor disabled, the reasons for this must be logged for future reference.	Real Time – Control Centre	GCM updated	As required	All Island Contact Centre Log
11	Review proposed update (modification/new/deletion)	If the proposed update has come from analysis performed outside of the System Constraints Calculation process, the Real Time Team Lead/Assistant Manager will review the proposal before making any operational	Real Time Team Lead/Assistant Manager	N/A	As required	N/A

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
		updates.				
12	Agree with proposal?	If the Real Time Team Lead/Assistant Manager agrees with the proposal, go to step 14. If they do not agree with it or have follow-up questions go to step 13.	Real Time Team Lead/Assistant Manager	N/A	As required	N/A
13	Discuss proposal & agree amendments with relevant area	Real Time Team Lead/Assistant Manager should discuss the proposal with the relevant team proposing the change, e.g. Innovation and make amendments, if required.	Real Time Team Lead/Assistant Manager	N/A	As required	N/A
14	Manager Approval required?	If the Real Time Team Lead/Assistant Manager is satisfied with the proposed change, they need to assess if Real Time Manager approval for the change. Manager approval is required for new constraints and deletion of existing ones. If Manager approval is	Real Time Team Lead/Assistant Manager	N/A	As required	N/A

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
		required go to step 18. If it is not required go to step 15.				
15	Update Operational Constraints Update document & review with Near Time & System Support	As part of updating the Operational Constraints Update document, Real Time will seek Near Time and System Support to review updates being made at an operational level.	Real Time Team Lead/Assistant Manager	N/A	As required (no more than weekly)	N/A
16	Request updated Operational Constraints Update document is published to website	The updated Operational Constraints Update document is then published to EirGrid and SONI websites.	Real Time Team Lead/Assistant Manager	Operational Constraints Update document updated and published	As required	Website
17	Implement in Group Constraint Manager	Control Centre staff implements the changes in Group Constraints Manager in MMS once they have been approved by the Real Time Management for all scheduling runs.	Real Time – Control Centre	GCM updated	As required	Group Constraints Manager (MMS)
18	Seek approval from Real Time Manager	If the request is for a new constraint, then approval from the Real Time Manager is	Real Time Manager	Approval requested	As required	Email

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
		required. Real Time Team Lead/Assistant Manager should contact Real Time Manager and request approval.				
19	Review new constraint	Review new constraint request, assess and approve, if satisfied.	Real Time Manager	N/A	As required	Email
20	Approve?	If the Real Time Manager approves the modification request go to step 15. If not, the process ends and modification cannot be implemented without the required approval.	Real Time Manager	N/A	As required	Email