Business Process

BP_SO_11.2 Cross Border Balancing Trading between EirGrid / SONI and National Grid Electricity Transmission

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EIRGRID SONI

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1 ASSUMPTIONS

Assumptions made during the design of this process include:

- This is an all-island business process, meaning the same process will be used across both jurisdictions on the island, Ireland and Northern Ireland. It can be conducted by the relevant team in either Dublin or Belfast;
- The following business process addresses all requirements, including roles, tools, and activities that will enable the TSO to achieve its objectives;
- All required systems, including MMS and ICMP are in place. They offer all required functionalities to support business needs; and
- System security issues identified ahead of real time should be managed through the routine scheduling and dispatch process and resolved ahead of real time to reduce the dependency on cross border actions.

2 PROCESS REFERENCES

2.1 RELATED RULES REFERENCES

The following table provides a list of documents that govern the design of this business process.

Document Title	Relevant Section	Description
Moyle Interconnector Operating Protocol	• Chapter 8 MI Instructions • Appendix K MI CBB Service	The protocol operates as a common point of reference for Moyle, SONI and NGET in relation to the operation of the Moyle Interconnector, covering the following areas; outage planning, day-ahead user data and transfer programme agreement, real time operation and post event review and general management.
EWIC Interconnector Operating Protocol	• Chapter 8 EWIC Instructions • Appendix L EWIC CBB Service	The protocol operates as a common point of reference for EIDAC, EirGrid and NGET in relation to the operation of the EWIC Interconnector, covering the following areas; outage planning, day-ahead user data and transfer programme agreement, real time operation and post event review and general management.
EWIC Balancing and Ancillary Services Agreement	• Clause 6 Cross Border Balancing	The agreement details the provision of commercial ancillary services across the East West Interconnector including cross border balancing.
Moyle Balancing and Ancillary Services Agreement	• Clause 6 Cross Border Balancing	The agreement details the provision of commercial ancillary services across the Moyle Interconnector including cross border balancing.

2.2 RELATED DOCUMENTS

The following table provides a list of documents that are related to this business process.

Document Title	Relationship	Description
BP_SO_11.1 Calculation of CBB Trade Price & Volumes	Related Process	Prices and volumes for CBB actions are calculated and are used for determining trades and for settlement purposes.

BP_SO_11.3 Interconnector Emergency Actions	Related Process	There are emergency actions that can be initiated by either TSO that will alter the physical flow on the interconnector in real time.
MMS User Guide for System Operations	System Guide	Includes detailed procedures on how to implement process steps in MMS.
ICMP User Guide for System Operations	System Guide	Includes detailed procedures on how to implement process steps in ICMP and also steps for manual entry of CBB trades.
Methodology for determining System Operator and Non-Marginal Flags	Information	Appendix N of the Trading and Settlement Code requires the TSO to publish a methodology on how actions are flagged for the purpose of imbalance pricing.
Balancing Market Principles Statement	Information	Public guide to the scheduling and dispatch process.

3 PROCESS CONTEXT

3.1 BUSINESS MODEL RELATIONSHIP

The 'Trading' process group details the mechanisms available to EirGrid, SONI and National Grid Electricity Transmission plc (NGET) to exchange energy across the Moyle and EWIC interconnectors. The arrangements are similar for both Moyle and EWIC in accordance with the operating agreements between the TSOs, and any differences are captured in the relevant process steps.

Cross border actions used close to real time (less than two and a half hours before delivery) allow the TSOs to exchange energy across the interconnectors. This process group covers determining prices and volumes for these exchanges and their delivery. This document covers cross border balancing actions and the provision of high and low frequency services. For further details on emergency assistance and instructions refer to BP_SO_11.3 Interconnector Emergency Actions. Settlement of these services is outside the scope of this group.

3.2 BACKGROUND AND SCOPE

Background

There are a number of services or actions collectively referred to as Cross-Zonal Actions available to EirGrid/SONI and NGET to exchange flows across the EWIC and Moyle interconnectors, including:

- Coordinated Third-Party Trading (CTPT)
- Cross Border Balancing (CBB)
- Emergency Assistance (EA)
- Emergency Instruction (EI)
- Frequency Deviation Cross-Zonal Flow

EirGrid and SONI may need to alter the Interconnector Reference Program (ICRP) calculated based on Day-Ahead Market (DAM) and Intra-Day Market (IDA) auction results to maintain system security. Similarly National Grid Electricity Transmission plc (NGET) may also request a change to the ICRP. Section 3.4.6 of the Balancing Market Principles Statement summarises the key cross-zonal actions available on both Moyle and EWIC interconnectors.

Scope

Cross Border Balancing

Note that utilisation of the CBB service will not normally be scheduled by EirGrid/SONI, i.e. scheduling of trades under the CBB service will normally be disabled in the MMS. The following sections describe how the service would be utilised if scheduling of trades was enabled in the MMS or in the event of a trade being required to reflect automatic triggering of frequency response.

CBB is available from 2-2.5 hours ahead of real time and may be used to manage system security issues that arise in that timeframe. At least 30 minutes notice should be given to the start of the requested trade. The maximum volumes available for CBB are as defined in the relevant Interconnector Operating Protocol (IOP) for each interconnector. The profile must always start and finish on an existing firm ICRP, be for a period when prices are fixed and use the normal operational ramp limit. Once a CBB trade has been agreed the updated Interconnector Reference Program (ICRP) can only be undone via an Emergency Assistance.

MMS may be used to identify a need for CBB trading in the relevant Real Time Commitment (RTC) scheduling run. Based on prices entered in the scheduling system the MMS varies the operating limits on the ICRP. The result is a series of spot MW values proposed in MMS which are sent to Interconnector Management Platform (ICMP) for conversion in to an updated ICRP to achieve the desired spot MW values.

The operator reviews the proposed trade in ICMP. All trades are reviewed and agreed in ICMP including those proposed by NGET.

For each confirmed trade in ICMP a non-marginal flag is assigned to the trade for each 5 minute imbalance pricing period. The trade will be excluded (no flag will be applied) from the imbalance pricing calculation if the ICRP equals the maximum NTC (in either direction) for that interconnector or is ramping up or down for the full five minute period. Otherwise all trade volumes and associated prices as per above table are included in imbalance pricing. Pricing information submitted by the TSOs is also sent to MMS for this purpose.

Frequency Response

Assumed available unless specifically withdrawn via fax in Real Time. A subsequent fax is required to re-enable it. Starts at time of relay operation or frequency deviation above or below at defined point and continues for the whole duration of the provision of response, or if triggered by frequency in GB a maximum of 30 minutes before ramping back to original ICRP. It is treated the same as CBB trades. As both interconnectors are on dynamic frequency response in Ireland and Northern Ireland if the response is triggered it is generally for a short duration and as such is ignored in settlement. If the response is for a longer duration it will be settled afterwards.

4 PROCESS OBJECTIVE

The objective of this Business Process is to meet the following obligations under the Interconnector Operating Protocols, namely:

1) EWIC Interconnector Operating Protocol, Chapter 8 EWIC Instructions
2) Moyle Interconnector Operating Protocol, Chapter 8 MI Instructions

5 ROLES AND RESPONSIBILITIES

5.1.1 REAL TIME

The following table provides a summary of the obligations of the Real Time team relating to CBB Trading:

Function	Responsibility in relation to process	Timeline Associated
Real Time	• Initiate CBB trading with NGET if required and ensure all trades are correctly entered in the systems for imbalance pricing and for scheduling.	• As required
	• Review NGET's request for CBB trading and approve any trades entered in the systems for imbalance pricing and scheduling.	• Following receipt of trade request from NGET.
	• Ensure all frequency response trades are correctly reflected in the systems for returning the interconnector to schedule and for inclusion in imbalance pricing.	• If frequency response is of short duration then it is ignored in the systems. If the frequency response is of a longer duration it is settled later by the Settlement team.

5.1.2 SETTLEMENT

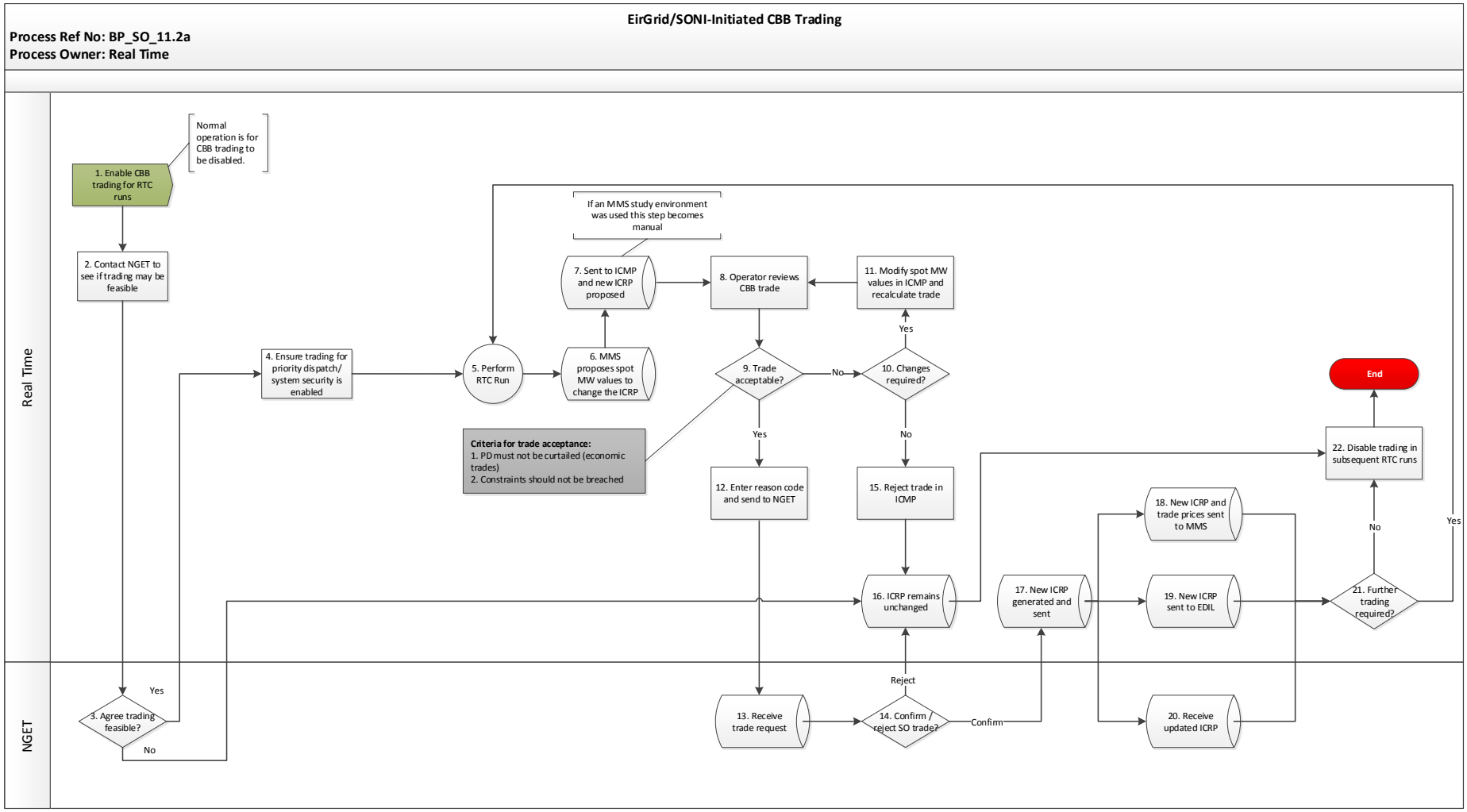
The following table provides a summary of the obligations of the Settlement team relating to CBB Trading:

Function	Responsibility in relation to process	Timeline Associated
Settlement	• For long duration Frequency Response events settle with NGET as a trade	• As required

6 PROCESS DESCRIPTION

6.1 LEVEL 3 PROCESS

6.1.1 PROCESS MAP – EIRGRID/SONI-INITIATED CBB TRADING



6.1.2 PROCESS STEPS - EIRGRID/SONI-INITIATED CBB TRADING

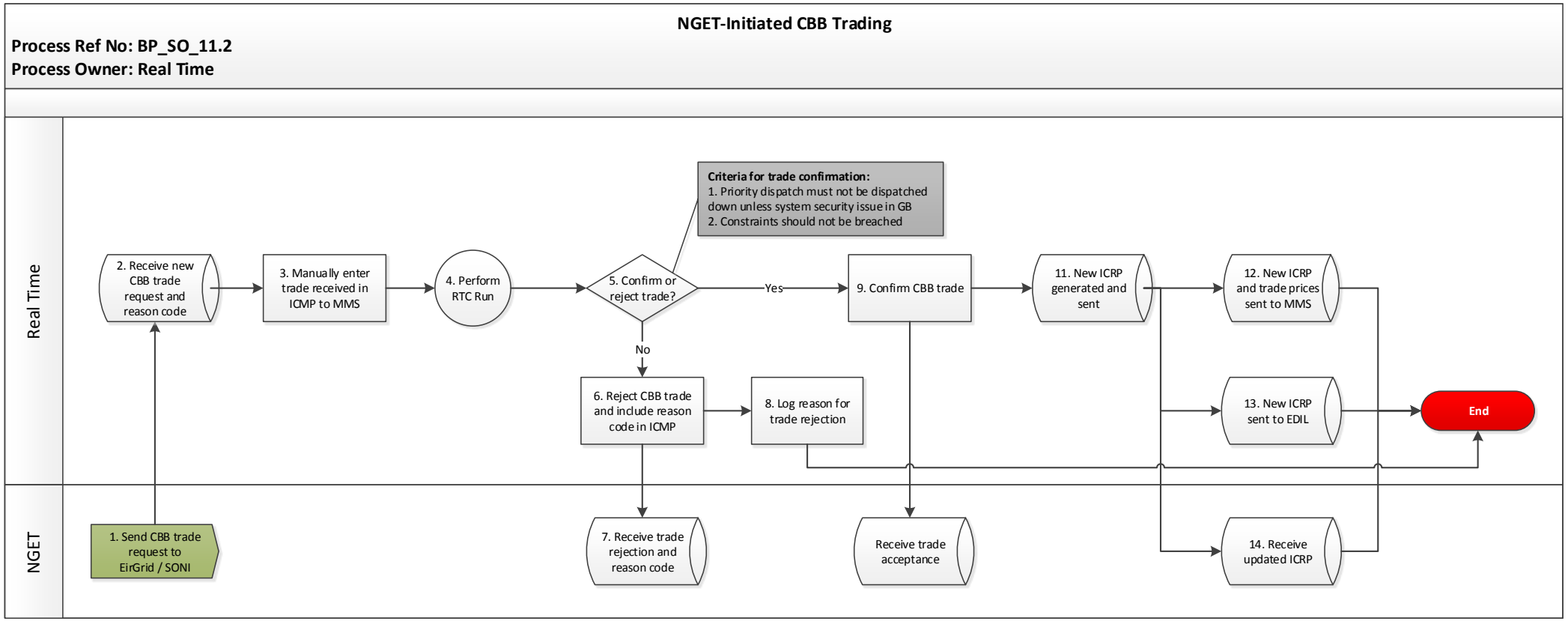
#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
1	Enable CBB trading for RTC runs	This is the trigger for this process. **Note: Normal operation is for CBB trading to be disabled.**	Real Time	N/A	As required	MMS
2	Contact NGET to see if trading may be feasible	Phone NGET to see if any trading is feasible on both interconnectors.	Real Time	Phone call	As required	Phone
3	Agree trading feasible?	Determine if trading is feasible on one or both interconnectors. If yes, go to Step 4. If no, go to End.	NGET	Decision	As required	Phone
4	Ensure trading for priority dispatch/system security is enabled	Ensure trading for priority dispatch/system security is enabled in the MMS	Real Time	N/A	As required	MMS
5	Perform RTC Run	A Real Time Commitment run should be initiated (if not done automatically) with trading enabled	Real Time	Indicative operations schedule	As required	MMS
6	MMS proposes spot MW values to change the ICRP	The RTC run varies the ICRP by proposing spot MW value changes to it on a decremental ‘priority dispatch’ price.	System Step	Spot MW values	Automatically following Step 7, an RTC run is expected to take 5 minutes to run.	MMS

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
7	Sent to ICMP and new ICRP proposed	The spot MW values proposed from SCUC are converted to a new ICRP using the operational ramp limit in the system. Note: If the spot MW values to alter the ICRP are proposed in an offline or study environment then this becomes a manual step to get the values from SCUC to ICMP.	System Step	Proposed trade	As required	ICMP
8	Operator reviews CBB trade	Review the proposed trade	Real Time	N/A	As required	ICMP
9	Trade acceptable?	Is the trade acceptable? **Criteria for trade acceptance:** 1. Priority Dispatch must not be curtailed 2. Constraints should not be breached If no, go to Step 10. If yes, go to Step 12.	Real Time	Decision	As required	ICMP
10	Changes required?	If the trade is not acceptable, are there changes required? If yes, go to Step 11. If no, go to Step 17.	Real Time	Decision	As required	ICMP
11	Modify spot MW values in ICMP and	If the trade is not acceptable the operator can manually edit the trade until it is	Real Time	N/A	As required	ICMP

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
	recalculate trade	acceptable and a new ICRP is generated. Proceed to step 10.				
12	Enter reason code and send to NGET	Enter the reason code in the system and send the proposed trade. One of the following reason codes should be used: **CBB Priority** **CBB Security**	Real Time	Proposed trade	As required	ICMP
13	Receive trade request	The proposed trade request including reason code is received.	NGET	Trade request	As required	ICMP
14	Confirm / reject SO trade?	Confirm or reject the proposed trade request? If rejected, go to Step 16. If confirmed, go to step 17.	NGET	Trade confirmation or rejection	As required	ICMP
15	Reject trade in ICMP	If no changes are required then the trade should be rejected in the system.	Real Time	Trade rejection	As required	ICMP
16	ICRP remains unchanged	Once a proposed trade is rejected in ICMP there is no change to the ICRP and the trade does not proceed. Proceed to Step 24.	System Step	N/A	As required	ICMP
17	New ICRP generated and sent	Following approval of trade by NGET, a new ICRP is automatically generated and sent.	System Step	New ICRP	As required	ICMP

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
18	New ICRP and trade prices sent to MMS	New ICRP and trade prices sent to MMS for inclusion in scheduling, imbalance pricing & reporting.	System step	New ICRP	As required.	MMS
19	New ICRP sent to EDIL	New ICRP sent to EDIL for control of the interconnector.	System step	New ICRP	As required.	EDIL
20	Receive updated ICRP	New ICRP sent to NGET for information.	System step	New ICRP	As required.	ICMP
21	Further trading required?	Is further trading required? If no, proceed to step 24. If yes, proceed to step 7.	Real Time	Decision	As required	N/A
22	Disable trading in subsequent RTC runs.	If trading is not feasible or no further trading is required it should be disabled in subsequent RTC runs.	Real Time	N/A	As required	MMS

6.1.3 PROCESS MAP – NATIONAL GRID ELECTRICITY TRANSMISSION PLC-INITIATED CBB TRADING



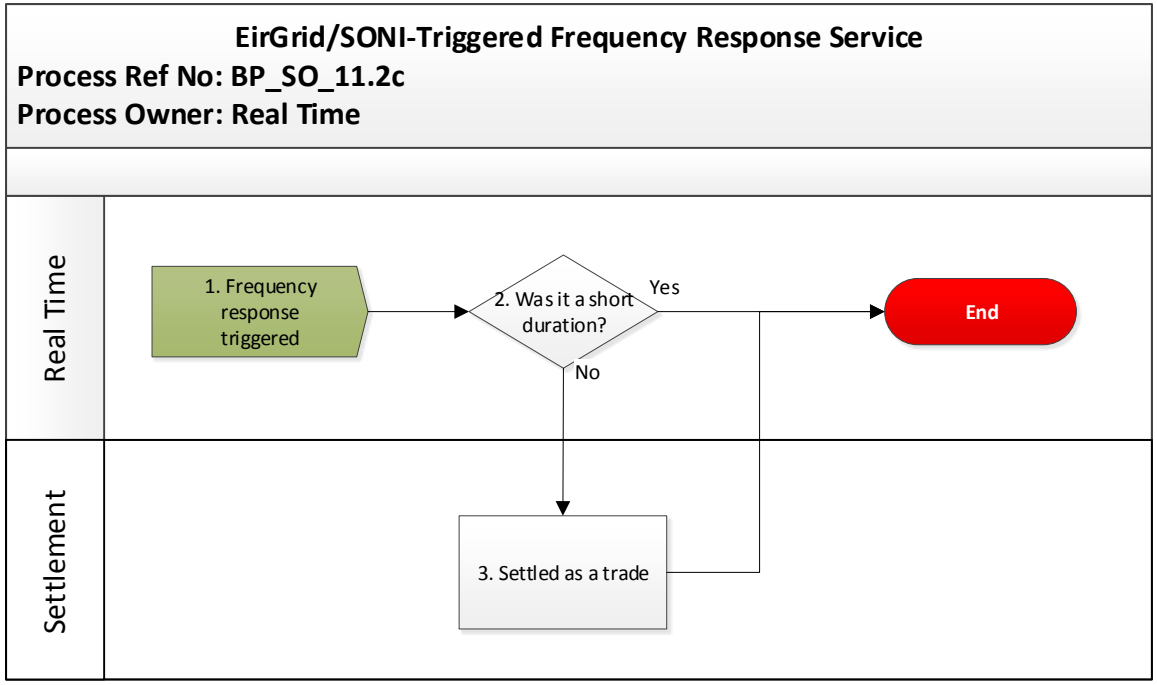
6.1.4 PROCESS STEPS - NATIONAL GRID ELECTRICITY TRANSMISSION PLC-INITIATED CBB TRADING

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
1	Send CBB trade request to EirGrid / SONI	This is the trigger for this process.	NGET	Trade request	As required	ICMP
2	Receive new CBB trade request and reason code	Operator receives notification of a new trade request in the system.	Real Time	N/A	As required	ICMP
3	Manually enter trade received in ICMP to MMS	The requested trade should be manually copied in to SCUC.	Real Time	N/A	As required	ICMP - SCUC
4	Perform RTC Run	A Real Time Commitment run should be initiated (with EirGrid / SONI trading disabled) in an offline study environment.	Real Time	Indicative operations schedule	10 mins after step 3	SCUC
5	Confirm or reject trade?	The output of the RTC run should be examined to determine if proposed trade should be confirmed or rejected. If the trade results in priority dispatch dispatch-down or breach of any system constraints then it should be rejected. If the trade is for system security in GB then priority dispatch dispatch-down in both Ireland and Northern Ireland is acceptable. If the trade is rejected, go to Step 6. If the trade is confirmed, go to Step 9.	Real Time	Decision	As required	N/A

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
6	Reject CBB trade include reason code in ICMP	One of the following reasons should be used when rejecting a trade: **System Security** **Inconsistency with the ICRP** **Inconsistency with declared parameters** **Miscellaneous**	Real Time	Trade rejection	As required	ICMP
7	Receive trade rejection and reason code	The proposed trade rejection including reason code is received.	System Step	Notification	As required	ICMP
8	Log reason for trade rejection	The reason for rejecting the trade should be clearly logged for future IOP discussions. There are no further steps.	Real Time	Log entry	As required	All-island Control Centre Log
9	Confirm CBB trade	If the trade is ok to proceed then it should be confirmed in the system.	Real Time	Proposed trade	As required	ICMP
10	Receive trade acceptance	Receive trade acceptance	System Step	Notification	As required	ICMP
11	New ICRP generated and sent	Following approval of trade by NGET, a new ICRP is automatically generated and sent.	System Step	New ICRP	As required	ICMP
12	New ICRP and trade prices sent to MMS	New ICRP and trade prices sent to MMS for inclusion in scheduling, imbalance pricing & reporting.	System step	New ICRP	As required.	MMS
13	New ICRP sent to	New ICRP sent to EDIL for control of the	System step	New ICRP	As required.	EDIL

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
	EDIL	interconnector.				
14	Receive updated ICRP	New ICRP sent to NGET for information.	System step	New ICRP	As required.	ICMP

6.1.5 PROCESS MAP – EIRGRID/SONI-TRIGGERED FREQUENCY RESPONSE

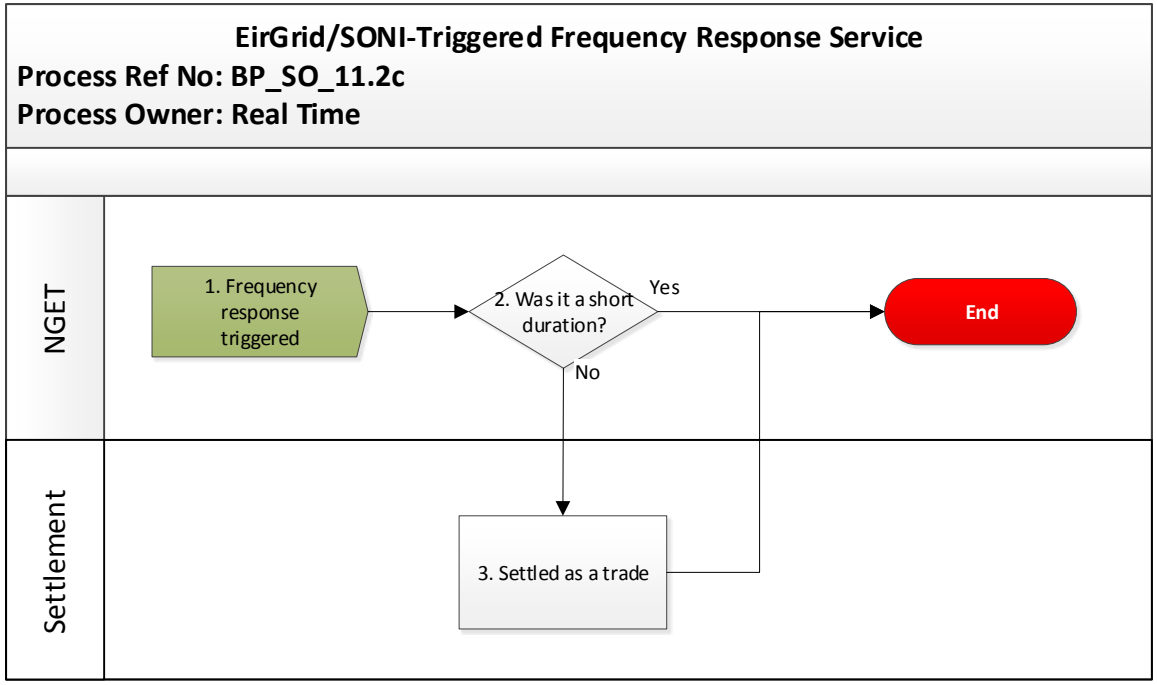


6.1.6 PROCESS STEPS - EIRGRID/SONI-TRIGGERED FREQUENCY RESPONSE

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
1	Frequency response triggered	This is the trigger for this process.	Automatic	N/A	As required	EMS
2	Was it a short duration?[1]	If yes, process ends. If no, go to step 3.	N/A	N/A	As required	N/A
3	Settled as a trade	If the frequency event was of long enough duration it will be settled by the Settlement Team as a trade with NGET after the event.	Settlement	Settlement with NGET	As required	Settlement

[1] Frequency response provision tends to be for a very short duration and therefore very small in terms of energy. If the duration of the frequency response is short it will not be settled as a trade. Exact duration/energy to be agreed with NGET.

6.1.7 PROCESS MAP – NATIONAL GRID ELECTRICITY TRANSMISSION PLC-TRIGGERED FREQUENCY RESPONSE



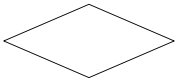
6.1.8 PROCESS STEPS – NATIONAL GRID ELECTRICITY TRANSMISSION PLC-TRIGGERED FREQUENCY RESPONSE

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
1	Frequency response triggered	This is the trigger for this process.	Automatic	N/A	As required	EMS
2	Was it a short duration?[2]	If yes, process ends. If no, go to step 3.	N/A	N/A	As required	N/A
3	Settled as a trade	If the frequency event was of long enough duration it will be settled by the Settlement team as a trade initiated by NGET after the event.	Settlement	Settlement with NGET	As required	Settlement

[2] Frequency response provision tends to be for a very short duration and therefore very small in terms of energy. If the duration of the frequency response is short it will not be settled as a trade. Exact duration/energy to be agreed with NGET.

7 APPENDICES

7.1 PROCESS FLOWCHART KEY

FLOWCHART KEY	
	Trigger
	Process step
	Process decision / question
	Reference to another process
	Process end
	System (automatic step)