

# BP\_SO\_11.1

# Calculation of CBB

# Trade Price & Volumes

Business Process

01/07/2024 - Version 2

*EirGrid and SONI support the provision of information to the marketplace by publishing operational data, processes, methodologies and reports. This information is key to a well-functioning market and as a transparency measure, assisting understanding of our decision making processes. It is recognised that the detailed elements of our operational processes need to remain agile in the context of service priorities and technical considerations of the new market. Consequently, as operational documents these are subject to change. EirGrid and SONI therefore make no warranties or representations of any kind with respect of this document, including, without limitation, its quality, accuracy and completeness, neither do EirGrid or SONI accept liability for any loss or damage arising from the use of this document or any reliance on the information it contains.*

*The document may also contain information from external sites over which EirGrid and SONI have no control and for which we assume no responsibility.*

# Contents

<b>1. Assumptions</b>	<b>4</b>
<b>2. Process References</b>	<b>5</b>
2.1 Related Rules References .....	5
2.2 Related Documents.....	5
<b>3. Process Context</b>	<b>5</b>
3.1 Business Model Relationship .....	5
3.2 Background and Scope .....	6
<b>4. Process Objective</b>	<b>7</b>
<b>5. Roles and Responsibilities</b>	<b>7</b>
5.1 NCC/CHCC .....	7
5.2 National Grid Electricity System Operator (NGESO) .....	8
<b>6. Process Description</b>	<b>9</b>
6.1 Process Map .....	9
6.2 Process Steps.....	10
<b>7. Appendices</b>	<b>13</b>
7.1 Process Flowchart Key .....	13

# 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 references to the documents that govern the design of this business process for any of the SEM-GB interconnectors (Moyle, EWIC and Greenlink).

Document Title	Description
Interconnector Operating Protocol	The protocol operates as a common point of reference for the interconnector owner, EirGrid/SONI and NGESO in relation to the operation of the 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.
Balancing and Ancillary Services Agreement	The agreement details the provision of commercial ancillary services across the Interconnector including cross border balancing and emergency assistance prices.

### 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_11.2 CBB Trading between EirGrid/SONI and NGESO	Associated process	This process takes the prices and volumes calculated as part of this process as in input.
Balancing Market Principles Statement	Information	Describes the scheduling and dispatch process.
Methodology for determining System Operator and Non-Marginal Flags	Information	Describes the methodology on how actions are flagged for the purpose of imbalance pricing.

## 3. Process Context

### 3.1 Business Model Relationship

The 'Trading' process group details the mechanisms available to EirGrid, SONI and NGESO to exchange energy across any of the SEM-GB interconnectors (Moyle, EWIC and Greenlink). The arrangements are similar for all of them, in accordance with the operating agreements between the TSOs, and any differences are captured in the relevant steps. This process determines the prices and volumes for these exchanges with NGESO. Settlement of these services is outside the scope of this group.

## 3.2 Background and Scope

There are a number of services or actions available to EirGrid/SONI and NGE SO to exchange flows across any of the SEM-GB interconnectors, including:

- Coordinated Third Party Trading (CTPT)
- Cross Border Balancing (CBB)
- Emergency Assistance (EA)
- Emergency Instruction (EI)
- Frequency Response
- Reactive Power
- Interconnector Runback (Moyle and Greenlink only)
- Black Start Service (EWIC and Greenlink only)

The above services are collectively referred to as Cross Border Actions.

EirGrid and SONI may need to alter the Interconnector Reference Program (ICRP) calculated based on Intra-Day Market (IDA) auction results to maintain system security. Similarly NGE SO may also request a change to the ICRP. The following table summarises the key cross border actions available on the different SEM-GB interconnectors and their pricing and availability:

	Cross Border Action	Pricing	Update to Pricing	Availability	Update to Availability
1	<b>Cross Border Balancing</b>	Daily Up to 8 x P/Q pairs blocks in each direction	Up to 2 hours ahead of real time	Up to 200 MW in each direction	Updated at any time, 0 MW equals withdrawal of service
2	<b>High / Low Frequency Services (EWIC and Moyle)</b>	Priced at CBB capped by EA Price, with EA price used if CBB is not available	Annual review	Max reserve response across both EWIC and Moyle +/- 150 MW	Annual review, withdrawal of service in real time
3	<b>LFSM (Limited Frequency Sensitive Mode) (Greenlink)</b>	-	-	Up to 200 MW for Greenlink	As required
4	<b>Emergency Assistance</b>	EA Price	Annual review	EWIC: Up to 150 MW Moyle: Up to 200 MW Greenlink: Up to 150 MW	Annual review, withdrawal of service in real time
5	<b>Emergency Instruction</b>	Established post event		Always available	
6	<b>Coordinated Third Party Trading</b>	Pricing is agreed with a third party rather than between the TSOs.		Trades may be up to the full interconnector NTC. Ability to Trade is agreed with the other TSO.	

## Scope

This process covers the daily calculation and subsequent updates of prices and volumes interconnectors that are submitted to NGEESO. For Cross Border Balancing trades indicative volumes and prices are exchanged for every hour of the Operational Day by 17:00 D-1. These prices are submitted in Price/Quantity pairs blocks and can be positive, negative or zero NGEESO and EirGrid/SONI prices will be submitted electronically via Interconnector Management Platform (ICMP).

When submitting Bid and Offer prices for each hour, the TSO will submit a full set of prices for that hour. These submissions will overwrite any already submitted prices. Either TSO can revise Bid/Offer prices up until 2 hours before the start of the delivery hour. After this the prices submitted are fixed. The Available Quantity (Volume) can be redeclared at any time.

The energy that is delivered or taken on activation of the high or low frequency service (Frequency Response service) is priced based on the following rules:

- If there is no CBB price then the EA price is used
- If both CBB and EA prices are available, then the lower price is used MIN (CBB, EA)

So the price of the energy delivered on the Frequency Response service is effectively capped at the EA price.

## 4. Process Objective

The objective of this Business Process is to meet the obligations set out in the relevant agreement between the Interconnector Owner and the TSOs when it is necessary to determine the trade prices and volumes for energy exchanges between IE/NI and GB.

## 5. Roles and Responsibilities

### 5.1 NCC/CHCC

The following table provides a summary of the obligations of *NCC/CHCC* relating to *Calculation of CBB Trade Prices and Volumes*:

Function	Responsibility in relation to process	Timeline Associated
NCC/CHCC	<ul style="list-style-type: none"><li>• Calculate prices and volumes (which will be as specified in the relevant Interconnector Operating Protocol) available for Cross Border Balancing trades to offer to NGEESO on a daily basis, including updates to these prices and volumes.</li><li>• Receive electronically prices and volumes calculated by NGEESO for Cross Border Balancing trades.</li></ul>	Daily. No later than 17:00 D-1. May be updated as required.

## 5.2 National Grid Electricity System Operator (NGESO)

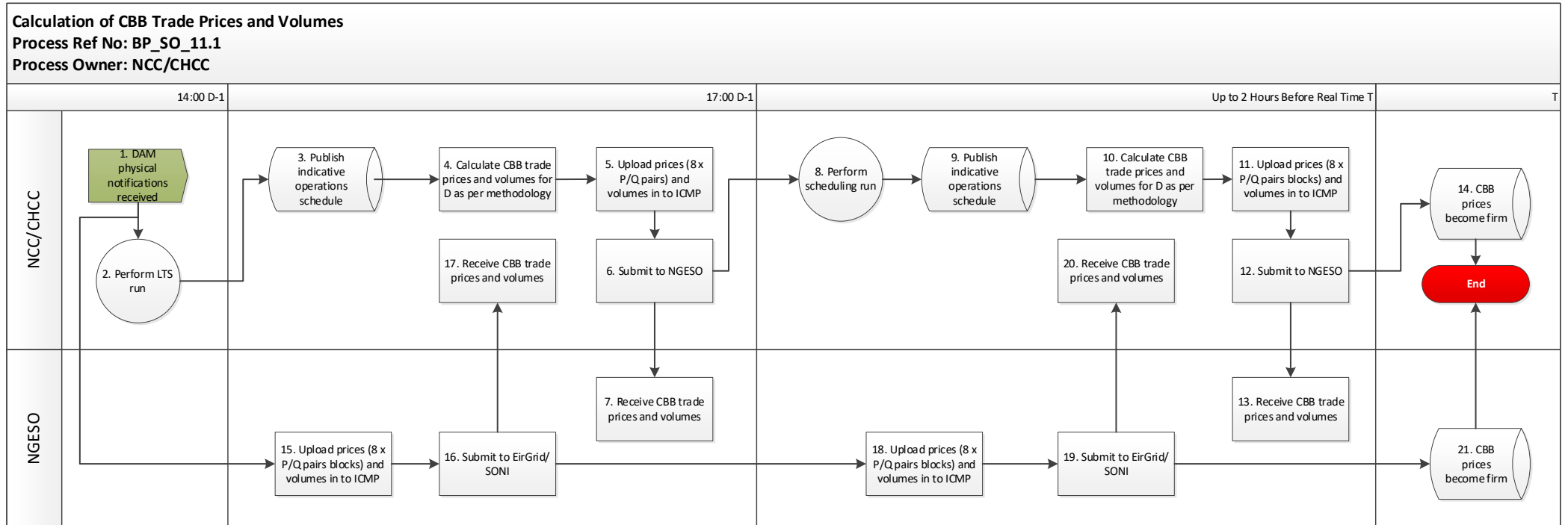
The following table provides a summary of the obligations of *NGESO* relating to *Calculation of CBB Trade Prices and Volumes*:

Function	Responsibility in relation to process	Timeline Associated
NGESO	<ul style="list-style-type: none"><li>• Calculate prices and volumes (which will be as specified in the relevant Interconnector Operating Protocol document unless otherwise specified) available for Cross Border Balancing trades to offer to SONI and EirGrid on a daily basis, including updates to these prices and volumes.</li><li>• Receive electronically prices and volumes calculated by NCC/CHCC for Cross Border Balancing trades.</li></ul>	Daily. No later than 17:00 D-1. May be updated as required.



# 6. Process Description

## 6.1 Process Map



## 6.2 Process Steps



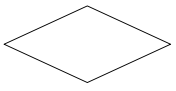



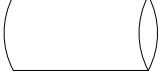

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
1	DAM physical notifications received	This is the trigger for this business process.	N/A	Market participant physical notifications	Daily 13:30	MMS
2	Perform LTS Run	Following receipt of DAM physical notifications a Long Term Scheduling run is performed.	NCC/CHCC	Indicative operations schedule	Following receipt of DAM scheduling runs, run initiated at 14:00	MMS
3	Publish indicative operations schedule	Following completion of LTS run an indicative operations schedule is published covering remainder of trading day D and D+1.	System step	Indicative operations schedule	Immediately following completion of Step 2	MMS
4	Calculate CBB trade prices and volumes for D as per methodology	The prices and volumes for CBB trading are determined as per the methodology. The default volume is that detailed in the relevant Interconnector Operating protocol unless otherwise specified.	NCC/CHCC	Prices and volumes	As required	
5	Upload prices (8 x P/Q pairs blocks) and volumes into ICMP	The calculated prices (8 x P/Q pairs blocks) and volumes (between 0 MW and 200 MW) for every 30 minutes are manually uploaded to ICMP.	NCC/CHCC	Successful upload	As required	ICMP
6	Submit to NGESO	Once uploaded the Operator submits the prices and volumes to NGESO.	NCC/CHCC	Send receipt	As required	ICMP
7	Receive CBB trade prices and volumes	Receive CBB trade prices and volumes for the next trading day.	NGESO	Trade prices and volumes	No later than 17:00 D-1	ICMP

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
8	Perform scheduling run	Long Term Scheduling and Real Time Commitment runs are performed with the latest Physical Notifications and system conditions.	NCC/CHCC	Indicative operations schedule	As required	MMS
9	Publish indicative operations schedule	Following completion of LTS run an indicative operations schedule is published covering remainder of trading day D and D+1.	System step	Indicative operations schedule	Immediately following completion of Step 8	MMS
10	Calculate CBB trade	The prices and volumes for CBB trading are determined as per the methodology. The default volume is that detailed in the relevant Interconnector Operating Protocol unless otherwise specified.	NCC/CHCC	Prices and volumes	As required	
11	Upload prices (8 x P/Q pairs blocks) and volumes in to ICMP	The calculated prices (8 x P/Q pairs blocks) and volumes (between 0 MW and 200 MW) for every 30 minutes are manually uploaded to ICMP.	NCC/CHCC	Successful upload	As required	ICMP
12	Submit to NGESO	Once uploaded the Operator submits the prices and volumes to NGESO.	NCC/CHCC	Send receipt	As required	ICMP
13	Receive CBB trade prices and volumes	Receive CBB trade prices and volumes for the next trading day.	NGESO	Trade prices and volumes	As required	ICMP
14	CBB prices become firm	CBB prices become fixed for all trades.	NCC/CHCC	Fixed prices	Rolling two-hour period ahead of real time	ICMP

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
15	Upload prices (8 x P/Q pairs blocks) and volumes into ICMP	The calculated prices (8 x P/Q pairs blocks) and volumes (between 0 MW and 200 MW) for every 30 minutes are manually uploaded to ICMP.	NGESO	Successful upload	As required	ICMP
16	Submit to NGESO	Once uploaded the Operator submits the prices and volumes to EirGrid/SONI.	NGESO	Send receipt	As required	ICMP
17	Receive CBB trade prices and volumes	Receive CBB trade prices and volumes for the next trading day.	NCC/CHCC	Trade prices and volumes	No later than 17:00 D-1	ICMP
18	Upload prices (8 x P/Q pairs blocks) and volumes into ICMP	The calculated prices (8 x P/Q pairs blocks) and volumes (between 0 MW and 200 MW) for every 30 minutes are manually uploaded to ICMP.	NGESO	Successful upload	As required	ICMP
19	Submit to NGESO	Once uploaded the Operator submits the prices and volumes to EirGrid/SONI.	NGESO	Send receipt	As required	ICMP
20	Receive CBB trade prices and volumes	Receive CBB trade prices and volumes for the next trading day.	NCC/CHCC	Trade prices and volumes	As required	ICMP
21	CBB prices become firm	CBB prices become fixed for all trades.	NGESO	Fixed prices	Rolling two-hour period ahead of real time	ICMP

# 7. Appendices

## 7.1 Process Flowchart Key

FLOWCHART KEY	
	Trigger
	Process step
	Process decision / question
	Reference to another process
	Another business process to be implemented following current step (current step is a trigger for another process)
	Process end
	System
	Data