The Single Electricity Market (SEM)

Agreed Procedure 2: Interconnector User Capacity Right Calculation and Dispatch Notification

Version 10.0

21 October 2011

SEM Agreed Procedure

Title	Agreed Procedure 2: Interconnector User Capacity Right Calculation and Dispatch Notification
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DOCUMENT HISTORY

Version	Date	Author	Comment
1.0	18/10/2006	SEM Implementation Team	Incorporation of more comments
2.3a	10/04/2007	Regulatory Authorities	Updated with RA397 and Code 1.3
2.7	25/04/2007	Regulatory Authorities	Internal review
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4.0	20/11/2007	Modification Panel Secretariat	Incorporating RA-Approved Mod_45_07
4.1	24/10/2008	Modification Committee Secretariat	Mod_59_08: Interconnector Unit Nominations-Net Zero Flow
4.2	24/11/2008	Modification Committee Secretariat	Mod_60_08: Changes to AP2 to reflect MO obligation to calculate MIUNs in enduring Code and IA responsibility to calculate and submit ATC.
5.0	07/04/2009	SEMO	SEMO Baseline Documentation at V5.0
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10.0	21/10/2011	SEMO	SEMO Baseline Documentation at V10.0

RELATED DOCUMENTS

Document Title	Version	Date	By
Trading and Settlement Code	V10.0	21/10/2011	SEMO
BETTA Operational Procedures	Version 3.0	Nov 2005	SONI
Moyle Interconnector Procedures	Version 1.0	07th March 2005	SONI
Agreed Procedure 1 "Participant and Unit Registration and Deregistration"			
Agreed Procedure 4 “Transaction Submission and Validation”			
Agreed Procedure 6 “Publications”			

Agreed Procedure 11 "Market System Operation, Testing, Upgrading and Support"			

1. INTRODUCTION

1.1 BACKGROUND AND PURPOSE

This Agreed Procedure describes the specific procedures for the treatment of Interconnectors which connect the Transmission Systems of Ireland or Northern Ireland with systems outside Ireland and Northern Ireland and which interact with the SEM (the "Single Electricity Market"). This Agreed Procedure sets out the processes for the operation of Interconnectors as required by the Trading and Settlement Code (the "Code") and with which Parties to the Code must comply.

1.2 SCOPE OF AGREED PROCEDURE

This Agreed Procedure is a definition of procedural steps to be followed by the Market Operator, Interconnector Owner, Interconnector Administrator(s), System Operator(s) and Participants. It forms an annexe to, and is governed by, the Code. This document is a statement of process and procedure. Parties' rights and obligations are set out in the Code.

1.3 DEFINITIONS

Save as expressly defined, words and expressions defined in the Code shall have the same meanings when used in this Agreed Procedure. Abbreviations and definitions that are specific to this Agreed Procedure are set out within Appendix 1.

References to particular sections relate internally to this Agreed Procedure unless specifically noted.

1.4 COMPLIANCE WITH AGREED PROCEDURE

Compliance with this Agreed Procedure is required under the terms as set out the Code.

2. DESCRIPTIVE OVERVIEW

Interconnectors and their Units have special treatment under the SEM which differs from that of other Generator Units.

The Code provides that an Interconnector Owner shall register an Interconnector using Type 1 Channel, and in doing so shall appoint an Interconnector Administrator to perform day-to-day functions under the Code. The Interconnector Administrator will be designated as the responsible Party for all Type 2 Channel and Type 3 Channel communications in respect of an Interconnector.

Any procedures established for the interface to any relevant market outside SEM are outside the scope of this Agreed Procedure.

For each Interconnector, an Interconnector Error Unit and an Interconnector Residual Capacity Unit shall be registered. The Interconnector Error Unit is used for managing and settling Interconnector imbalances. The Interconnector Residual Capacity Unit is intended for the utilisation of residual capacity by the relevant System Operator, subject to commercial agreement.

On registration of an Interconnector, the Interconnector Owner shall ensure that the Interconnector Administrator is registered and that the Interconnector Error Unit is registered to the Interconnector Administrator. The System Operator shall register the Interconnector Residual Capacity Unit.

The procedures to be followed by the Interconnector Administrator in determining the Active Interconnector Unit Capacity Holdings and in managing Interconnector operations fall outside the scope of this Agreed Procedure.

In this Agreed Procedure, whenever a Party is required to submit data via a Type 1 Channel, then the person submitting the data on behalf of that Party must be duly authorised to do so, pursuant to Agreed Procedure 11 "Market System Operation, Testing, Upgrading and Support".

For any values in MW or MWh for an Interconnector, positive values relate to imports to the Pool and negative values relate to exports from the Pool.

2.1 REGISTRATION OF INTERCONNECTOR ENTITIES

An Interconnector is registered in accordance with Agreed Procedure 1 "Participant and Unit Registration and Deregistration". As part of this process, the Interconnector Owner determines the identity of the Interconnector Administrator and the parties responsible for the registration of the Interconnector Residual Capacity Unit and the Interconnector Error Unit.

The Interconnector Owner maintains the Interconnector Registration Data in accordance with Agreed Procedure 1 "Participant and Unit Registration and Deregistration".

The Interconnector Administrator may also maintain the Interconnector Technical Data which is a subset of the Interconnector Registration Data, in accordance with this Agreed Procedure.

2.2 AVAILABLE TRANSFER CAPACITY

The Available Transfer Capacity of an Interconnector is determined by the relevant Interconnector Administrator and is notified to the Market Operator by 10:00 on TD-2.

Revisions to the Available Transfer Capacity after the initial notifications shall be notified to the Market Operator by the relevant Interconnector Administrator as soon as possible following any change in the Available Transfer Capacity.

2.3 INTERCONNECTOR UNIT NOMINATIONS AND MODIFIED INTERCONNECTOR UNIT NOMINATIONS

2.3.1 Pre Gate Window Closure

Interconnector Users may only submit Commercial Offer Data to each Gate Window for the Interconnector Unit which corresponds with that Gate Window, in respect of the corresponding Interconnector. Each Interconnector Unit shall be defined by the following data items:

- The Interconnector to which the Interconnector Unit is registered;
- The Participant ID; and
- The Gate Window Identifier with which the Interconnector Unit is associated.

A Data Transaction containing Commercial Offer Data for Interconnector Units shall include:

- Identification of the Interconnector Unit to which the Commercial Offer Data relates;
- An identifier of the Gate Window to which the Data Transaction relates. The identifier of the Gate Window must match the Gate Window to which the Data Transaction is submitted;
- Up to ten Price Quantity Pairs per Trading Period in the relevant Trading Day; and
- Maximum Interconnector Unit Import Capacity and Maximum Interconnector Unit Export Capacity per Trading Period in the relevant Trading Day.

The Market Operator shall reject any Commercial Offer Data submission for any Interconnector Unit where the identifier of the Gate Window as submitted within the associated Data Transaction does not correspond with the Interconnector Unit Gate Window Identifier.

In accordance with the Code, where no valid Commercial Offer Data is submitted in respect of an Interconnector Unit in a Trading Period, the Maximum Interconnector Unit Import Capacity and the Maximum Interconnector Unit Export Capacity shall be set to zero by the Market Operator.

The Interconnector Administrator shall submit the Active Interconnector Unit Capacity Holding Data for each Interconnector Unit prior to the EA1 Gate Window Closure that is consistent with the Interconnector Available Transfer Capacity (ATC) in each direction.

2.3.2 Calculation of Modified Interconnector Unit Nominations

Following the completion of each Ex-Ante One MSP Software Run, Ex-Ante Two MSP Software Run, and Within Day One MSP Software Run, the Market Operator shall:

- Determine Interconnector Unit Nominations for each Interconnector Unit and for each Interconnector based on the relevant inputs (including Commercial Offer Data, Interconnector Technical Data and, in the case of the Ex-Ante One MSP Software Run only, the Active Interconnector Unit Capacity Holding). In calculating the Interconnector Unit Nominations, the Ramp Rate for each Interconnector Unit will be set to a value of 99999.9 MW/min, and the relevant Accepted Aggregate Interconnector Ramp Rate will be applied as a limit across all corresponding Interconnector Units.
- Calculate the Modified Interconnector Unit Nominations (MIUNs), separately for each Interconnector pursuant to paragraph 2.71, by applying the Accepted Aggregate Interconnector Ramp Rate and with respect to the rules in Appendix 2 – Calculation of Modified Interconnector Unit Nominations. The Market Operator shall, in calculating the Modified Interconnector Unit Nominations (MIUNs), take into account the most recently

Accepted Available Transfer Capacity for the relevant Interconnector for the Trading Day. Submit to each Interconnector User in respect of its Interconnector Units the corresponding MIUNs, in accordance with Table 1.

- Submit Aggregate Modified Interconnector Unit Nomination (AMIUNs) to the relevant System Operator, in accordance with Table 1. AMIUNs represent aggregate import and export MW values per Trading Period over each Interconnector registered.

The Market Operator shall not calculate Modified Interconnector Unit Nominations in respect of an Interconnector Unit where:

- Commercial Offer Data was not Accepted within the Gate Window corresponding to the particular MSP Software Run Type for the relevant Trading Day; or
- Interconnector Unit Nominations have not been calculated as a result of any completed MSP Software Run Type in respect of the relevant Trading Day.

Table 1 – Scheduled calculation and submission Timings for IUNs, MIUNs and AMIUNs

MSP Software Run	Interconnector Unit Nominations	Modified Interconnector Unit Nominations	Aggregate Modified Interconnector Unit Nominations
Ex-Ante One MSP Software Run	By 11:00 on the day prior to the Trading Day	By 11:00 on the day prior to the Trading Day	By 11:00 on the day prior to the Trading Day
Ex-Ante Two MSP Software Run	By 13:00 on the day prior to the Trading Day	By 13:00 on the day prior to the Trading Day	By 13:00 on the day prior to the Trading Day
Within Day One MSP Software Run	By 09:30 on Trading Day	By 09:30 on Trading Day	By 09:30 on Trading Day

2.4 SO INTERCONNECTOR TRADES

The System Operator using the Interconnector Residual Capacity Unit shall be entitled under the terms of the Code, subject to commercial agreement, to make SO Interconnector Trades across the relevant Interconnector in either direction, using any available Interconnector capacity which is not allocated to Interconnector Users under the aggregate of the prevailing Modified Interconnector Unit Nominations.

SO Interconnector Trades in respect of any Trading Period must be conducted as follows:

1. For each Trading Period that is within the WD1 Trading Window:
    a. Where an MSP Software Run Cancellation applies in respect of the Within Day One MSP Software Run, SO Interconnector Trades shall be conducted after publication of the associated MSP Software Run Cancellation Report.
    b. Otherwise, SO Interconnector Trades shall be conducted after:
        i. calculation of the Within Day One Market Schedule and the associated Modified Interconnector Unit Nominations; and
        ii. after submission to the relevant System Operator of the associated Aggregate Modified Interconnector Unit Nominations.

2. For each Trading Period that is not within the WD1 Trading Window:

    a. Where an MSP Software Run Cancellation applies in respect of the Ex-Ante Two MSP Software Run, SO Interconnector Trades shall be conducted after publication of the associated MSP Software Run Cancellation Report.

    b. Otherwise, SO Interconnector Trades shall be conducted after:

        i. calculation of the Ex-Ante Two Market Schedule and the associated Modified Interconnector Unit Nominations; and

        ii. after submission to the relevant System Operator of the associated Aggregate Modified Interconnector Unit Nominations."

2.5 POST EA1 GATE WINDOW CLOSURE REDUCTIONS IN ATC

In the event of a reduction in the magnitude of the Available Transfer Capacity (this includes reductions in the absolute magnitude of the Maximum Import Available Transfer Capacity and/or the Maximum Export Available Transfer Capacity) after the EA1 Gate Window Closure, then the following shall be performed:

- The Interconnector Administrator shall, as soon as possible, notify the Market Operator of the revised Available Transfer Capacity values via the Available Transfer Capacity Data Transaction.
- The Market Operator shall, as soon as possible, recalculate the Modified Interconnector Unit Nominations and shall re-issue such MIUNs to each Interconnector User for each of their Interconnector Units. The Modified Interconnector Unit Nominations shall be recalculated by the Market Operator in accordance with the rules in Appendix 2 - Calculation of Modified Interconnector Unit Nominations.
- The Market Operator shall, as soon as possible, recalculate the Aggregate Modified Interconnector Unit Nominations (AMIUNs) and shall re-issue such AMIUNs to the relevant System Operator.

2.6 POINT OF APPLICATION OF VALUES

All values which are expressed in MW, MW/min or MWh and which are not Loss-Adjusted in relation to an Interconnector, Interconnector Units, Interconnector Residual Capacity Units or Interconnector Error Units shall be applicable at the point of Connection.

3. PROCEDURE DEFINITION

3.1 INTERCONNECTOR REGISTRATION DATA MAINTENANCE

The Interconnector Owner or Interconnector Administrator as appropriate shall inform the Market Operator of changes to the Interconnector Technical Data at least 29 days prior to the Trading Day. Upon receipt, the Market Operator shall confirm receipt of the data by email by 11:00 on the Working Day following receipt. In the absence of receipt of such confirmation, the relevant Party shall re-submit the relevant data.

Within 1 Working Day of receipt, the Market Operator shall submit the revised Interconnector Technical Data to the relevant System Operator.

3.2 ACTIVE INTERCONNECTOR UNIT CAPACITY HOLDINGS

Each Interconnector Administrator shall determine the Active Interconnector Unit Capacity Holdings for its Interconnector (consisting of the Active Interconnector Unit Import Capacity Holding and the Active Interconnector Unit Export Capacity Holding) for each Trading Period in the Optimisation Time Horizon. The Active Interconnector Unit Capacity Holding Data Transaction shall be submitted to the Market Operator by the Interconnector Administrator, by the EA1 Gate Window Closure, as set out in Appendix K of the Code.

The Market Operator shall notify each Interconnector User of its Active Interconnector Unit Capacity Holdings in respect of its registered Interconnector Units (where capacity is held), as soon as possible following receipt of the associated Data Transaction.

3.3 INITIAL AVAILABLE TRANSFER CAPACITY NOTIFICATION

The Interconnector Administrator shall determine the Available Transfer Capacity (consisting of the Maximum Import Available Transfer Capacity and the Maximum Export Available Transfer Capacity) for each Interconnector for each Trading Period in the Optimisation Time Horizon. The Available Transfer Capacity Data Transaction shall be submitted by the Interconnector Administrator to the Market Operator by the EA1 Gate Window Closure, as set out in Appendix K of the Code.

The Market Operator shall publish the Available Transfer Capacity via the MPI and the Market Operator Website, as soon as possible following receipt of the associated Data Transaction.

3.4 UPDATES TO AVAILABLE TRANSFER CAPACITY

Whenever there is a change to the ATC on an Interconnector after the initial notification in 3.2, the following shall apply:

- The relevant Interconnector Administrator shall notify the System Operator, as soon as possible.
- Where any change in ATC occurs prior to the EA1 Gate Window Closure, the relevant Interconnector Administrator shall submit the revised ATC to the Market Operator as soon as possible, in accordance with the Interconnector Available Transfer Capacity Data Transaction set out in Appendix K of the Code.
- The relevant Interconnector Administrator for each corresponding Interconnector shall submit the final ATCs to the Market Operator by TD+1 12:00 hours, in accordance with the Interconnector Available Transfer Capacity Data Transaction set out in Appendix K of the Code.

Whenever there is a change in Available Transfer Capacity prior to the EA1 Gate Window Closure, then the Interconnector Administrator shall submit the revised data to the Market Operator and shall, where possible, take account of such change in order to recalculate and

resubmit the Active Interconnector Unit Capacity Holdings prior to the EA1 Gate Window Closure.

Whenever there is a reduction in ATC, from the ATC used to produce the Active Interconnector Unit Capacity Holdings, prior to the calculation of the MIUNs by the Market Operator, then where possible, the Market Operator shall take into account the reduction in ATC in calculating the MIUNs (in paragraph 3.5 of this Agreed Procedure).

Whenever there is a change in ATC after the initial calculation of MIUNs, then the Market Operator shall recalculate revised MIUNs, taking into account the corresponding change in ATC. The revised MIUNs shall each be in the same direction and must not exceed in absolute magnitude the value of the corresponding IUNs.

The Market Operator shall submit:

1. as soon as possible after identifying the change in ATC, the revised MIUNs to the relevant Interconnector Users.
2. as soon as possible after receiving notification of the reduction in ATC, the Aggregate MIUNs to the relevant System Operator.

3.5 MODIFIED INTERCONNECTOR UNIT NOMINATIONS

Modified Interconnector Unit Nominations are derived from the outputs of an MSP Software Run. The Market Operator shall complete scheduled MSP Software Runs that are conducted prior to the end of the Trading Day (taking into account the provisions in respect of MSP Software Run Cancellation), using the corresponding Commercial Offer Data for the Interconnector Units, a Ramp Rate for each Interconnector Unit set to a value of 99999.9 MW/min, and the Accepted Aggregate Interconnector Ramp Rate for the relevant Interconnector, applied as a limit across all Interconnector Units.

- The Ex-Ante One MSP Software Run shall be performed to determine the Ex-Ante One Market Schedule by 11:00 hours on the day prior to the Trading Day. For each Interconnector Unit, the Ex-Ante One MSP Software Run shall, in addition to the other input data, use the corresponding Active Interconnector Unit Capacity Holdings.
- The Ex-Ante Two MSP Software Run shall be performed to determine the Ex-Ante Two Market Schedule by 13:00 hours on the day prior to the Trading Day.
- The Within Day One MSP Software Run shall be performed to determine the Within Day One Market Schedule by 09:30 hours on the Trading Day.

The Interconnector Unit Nominations for each Interconnector Unit and Trading Period are equal to the corresponding value of Market Schedule Quantity as calculated by the relevant MSP Software Run.

Following the successful completion of an MSP Software Run that is prior to the end of the Trading Day, the Market Operator shall calculate the Modified Interconnector Unit Nominations (based on the Interconnector Unit Nominations) and submit such relevant calculated values to Interconnector Users as soon as possible. In addition to such calculations, the Modified Interconnector Unit Nominations shall be calculated in respect of a particular Trading Day, on submission of an Available Transfer Capacity Data Transaction after the calculation of Interconnector Unit Nominations for the relevant Interconnector as derived from the Ex-Ante One MSP Software Run.

As soon as possible following each calculation of Modified Interconnector Unit Nominations, the Market Operator shall:

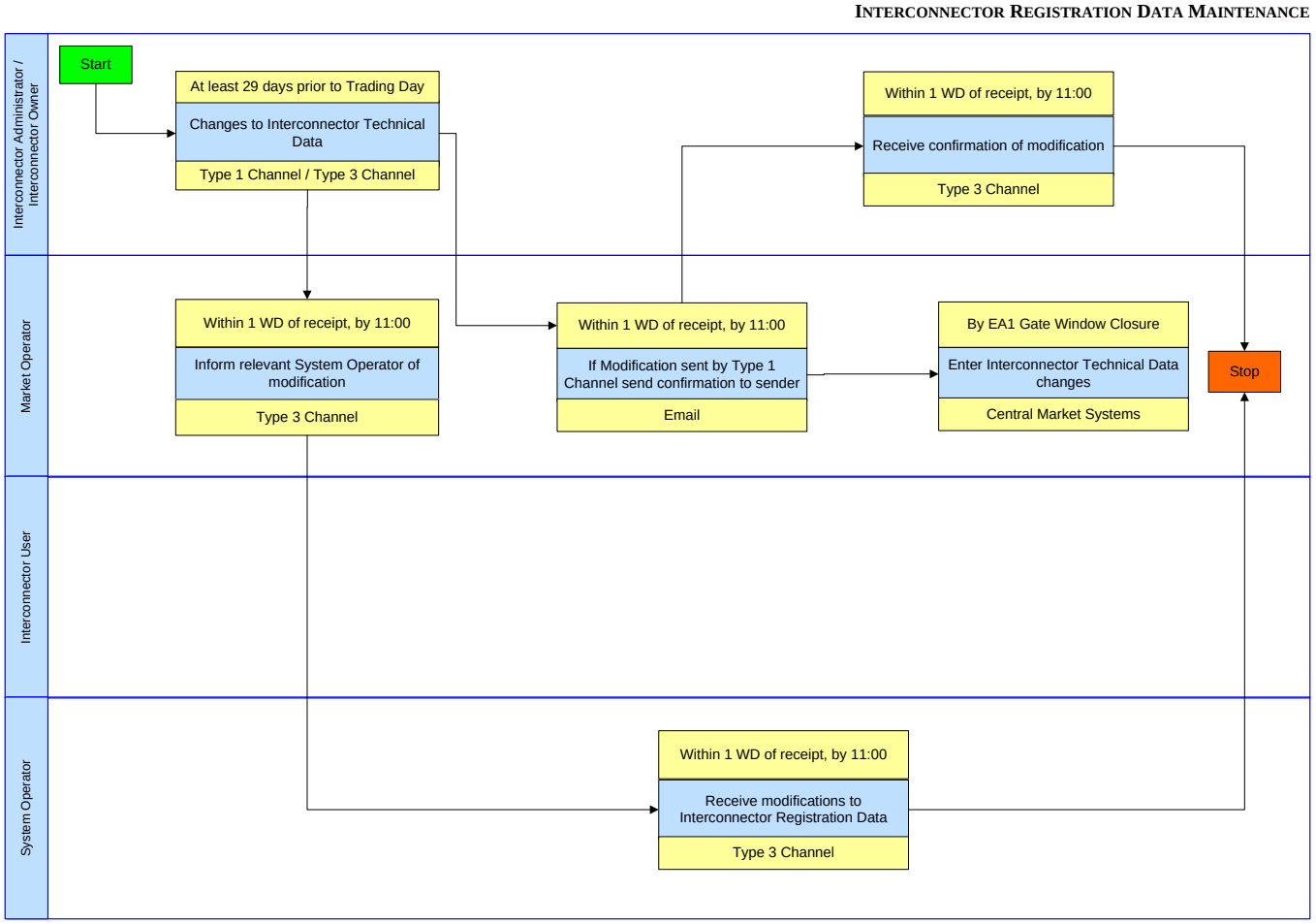
- Submit the Aggregate Modified Interconnector Unit Nominations for each Interconnector to the relevant System Operator.

- Submit the Modified Interconnector Unit Nominations in respect of each Interconnector to the relevant Interconnector Administrator.
- Submit the Modified Interconnector Unit Nominations in respect of the Interconnector Units as registered to the relevant Interconnector User.

4. PROCEDURAL STEPS

Swimlanes are provided as an illustration of the Procedural Steps. The Procedural Steps take precedence, in the event of conflict between the swimlanes and the Procedural Steps.

4.1 SWIMLANE - INTERCONNECTOR REGISTRATION DATA MAINTENANCE

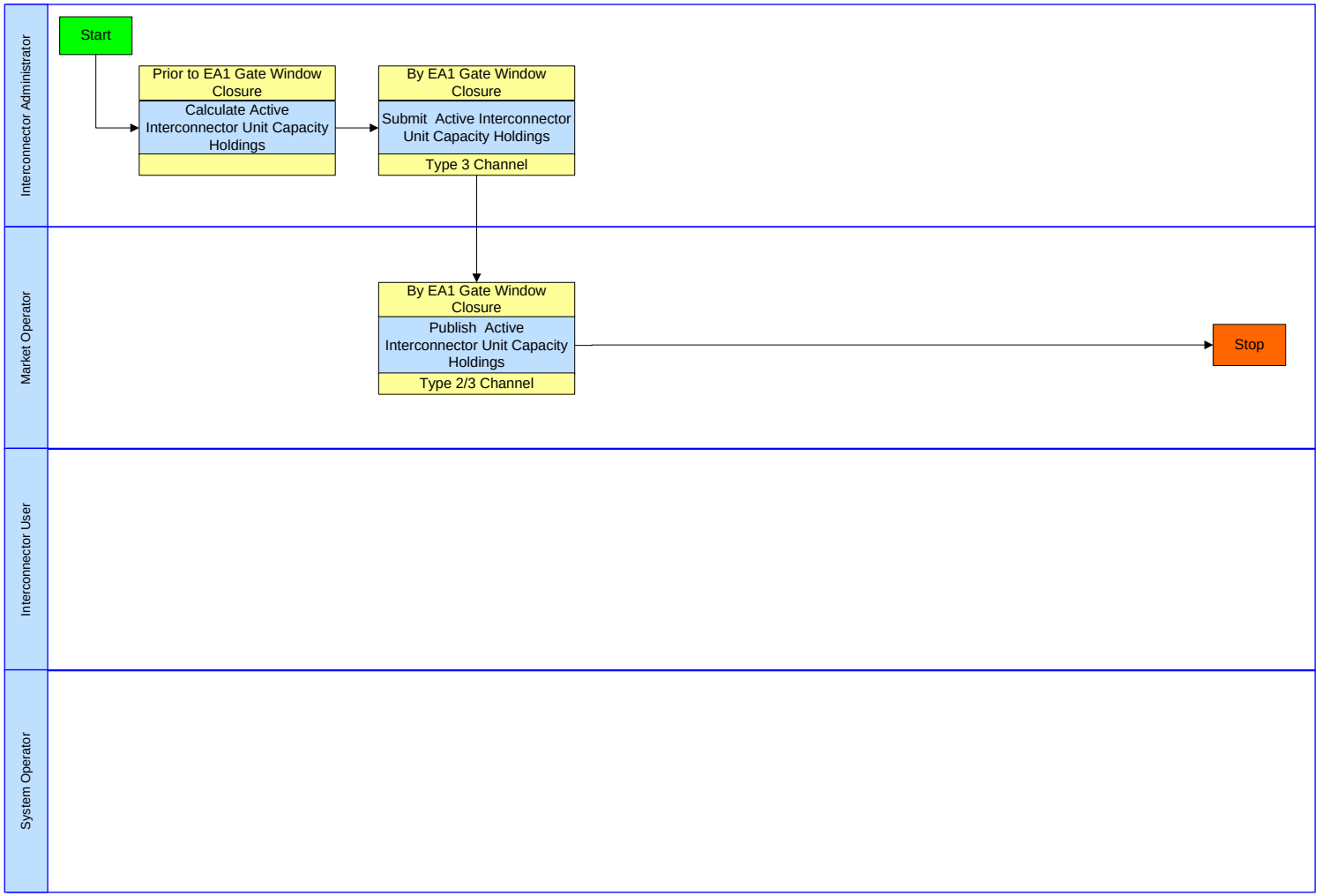


4.2 INTERCONNECTOR TECHNICAL DATA MAINTENANCE

#	Procedural Step	Timing	Method	By/ From	To	Data Transaction
1.1	Submit changes to Interconnector Technical Data	At least 29 days prior to the Trading Day	Type 1 Channel / Type 3 Channel	Interconnector Administrator / Interconnector Owner	Market Operator	Interconnector Technical Data
1.2	Notify change in Interconnector Technical Data	Within 1 WD of receipt, by 11:00 hrs.	Type 3 Channel	Market Operator	System Operator	Interconnector Technical Data
1.3	If the Interconnector Technical Data Transaction has been received via Type 1 Channel, send confirmation to Sending Party.	Within 1 WD of receipt, by 11:00 hrs	Email	Market Operator	Interconnector Administrator / Interconnector Owner	
1.4	Enter Interconnector Technical Data changes in Central Market Systems. **End Process**	By the EA1 Gate Window Closure for the Trading Day	Central Market Systems	Market Operator	-	Interconnector Technical Data

4.3 SWIMLANE - ACTIVE INTERCONNECTOR UNIT CAPACITY HOLDINGS

SUBMISSION OF ACTIVE INTERCONNECTOR UNIT CAPACITY HOLDINGS (AIUCH)

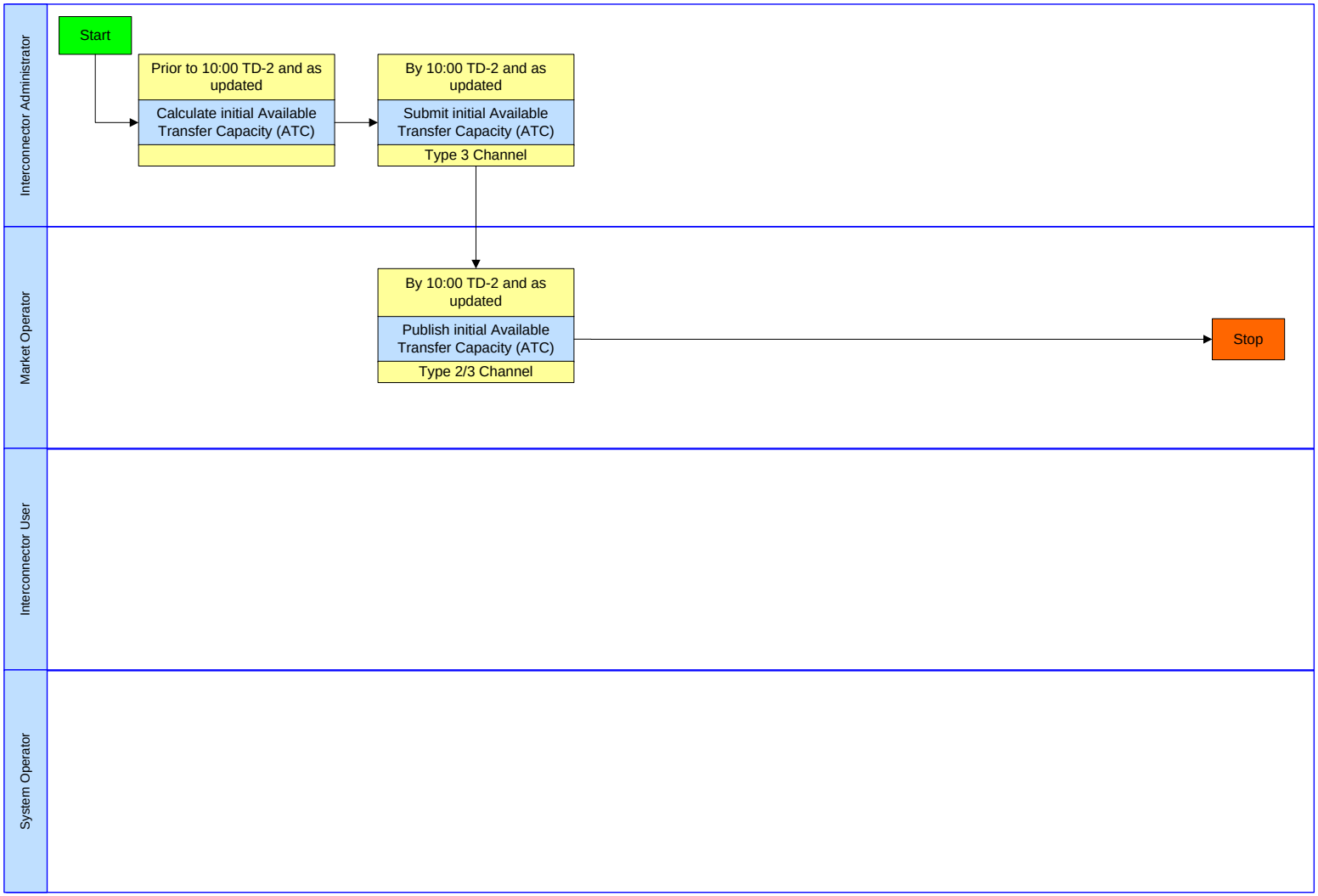


4.4 SUBMISSION OF ACTIVE INTERCONNECTOR UNIT CAPACITY HOLDINGS

#	Procedural Step	Timing	Method	By/ From	To	Data Transaction
2.1	Calculate the Active Interconnector Unit Capacity Holdings for the relevant Interconnector Units and submit to the Market Operator.	EA1 Gate Window Closure	Type 3 Channel	Interconnector Administrator	Market Operator	Active Interconnector Unit Capacity Holding
2.2	Notify Interconnector Users of their Active Interconnector Unit Capacity Holdings. **End Process.**	EA1 Gate Window Closure	Type 3 Channel	Market Operator	Interconnector Users	Active Interconnector Unit Capacity Holding

4.5 SWIMLANE - INITIAL AVAILABLE TRANSFER CAPACITY NOTIFICATION

SUBMISSION OF INITIAL AVAILABLE TRANSFER CAPACITY (ATC)

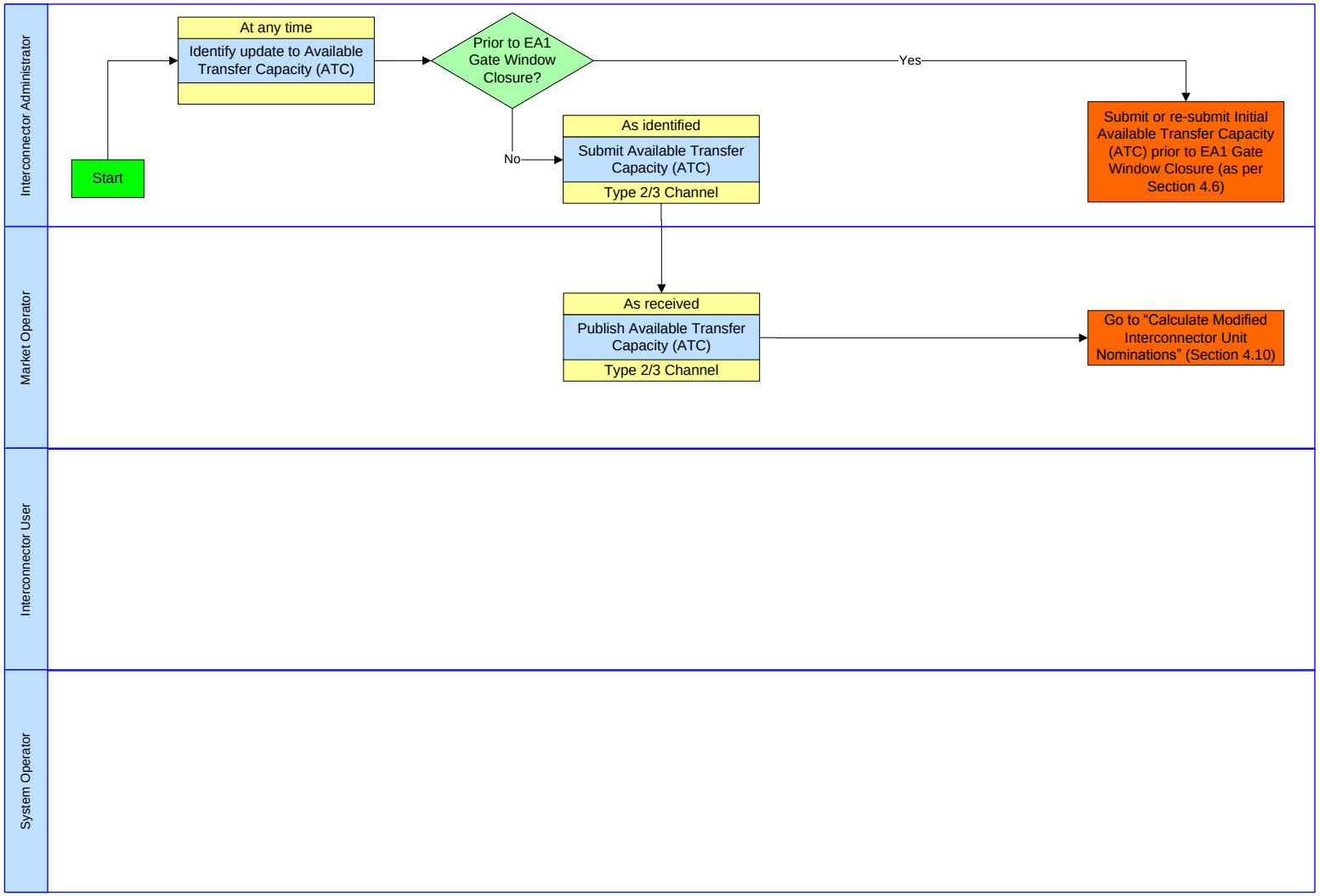


4.6 SUBMISSION OF INITIAL AVAILABLE TRANSFER CAPACITY

#	Procedural Step	Timing	Method	By/ From	To	Data Transaction
3.1	Calculate the Available Transfer Capacity for the relevant Interconnector and submit to the Market Operator.	10:00, TD-2 and as updated	Type 3 Channel	Interconnector Administrator	Market Operator	Interconnector Available Transfer Capacity
3.2	Publish the Interconnector Available Transfer Capacity Data Transaction. **End Process.**	10:00, TD-2 and as updated	Market Operator Website	Market Operator	General Public	Interconnector Available Transfer Capacity

4.7 SWIMLANE – UPDATES TO AVAILABLE TRANSFER CAPACITY

SUBMISSION OF UPDATE TO AVAILABLE TRANSFER CAPACITY (ATC)



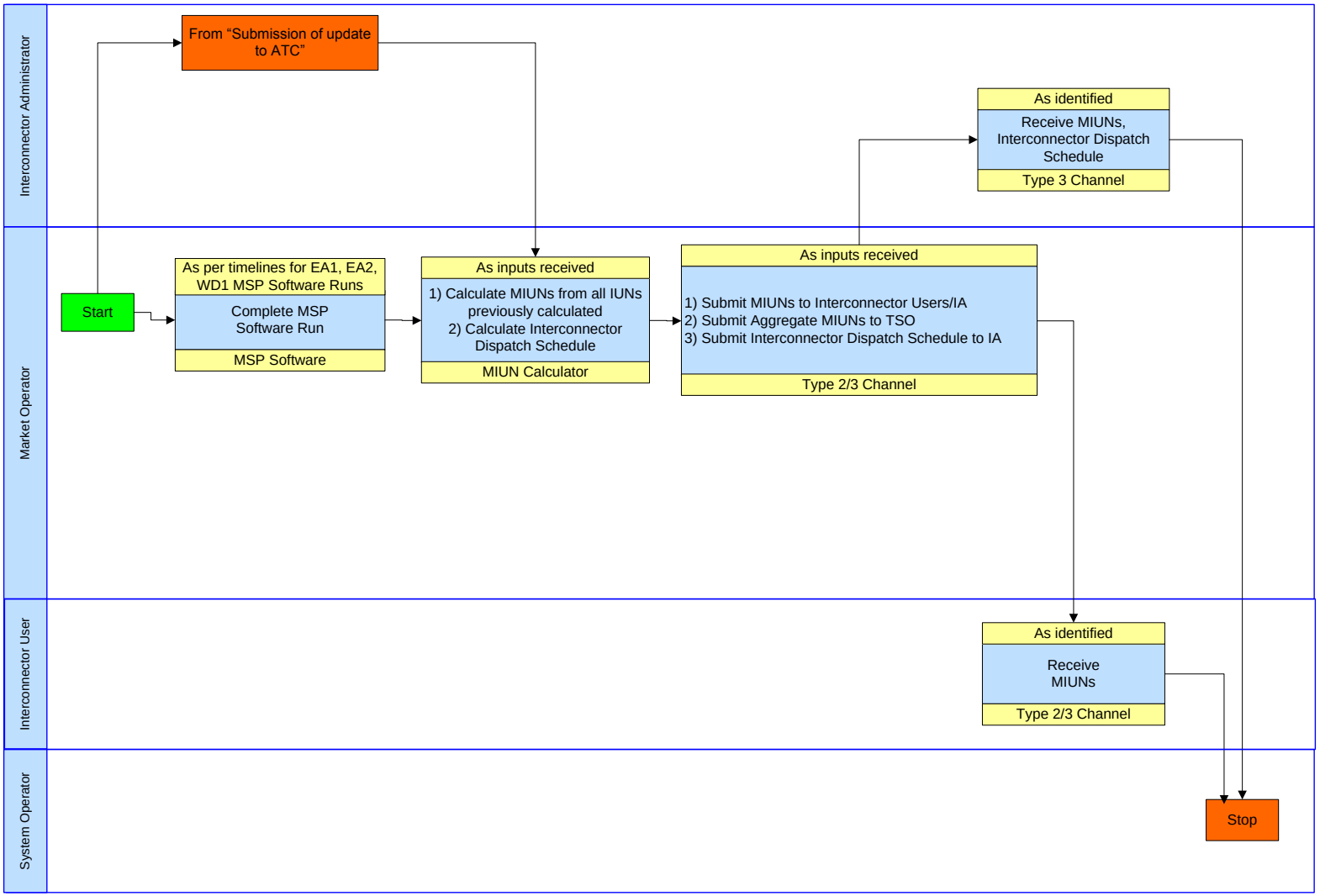
4.8 UPDATES TO AVAILABLE TRANSFER CAPACITY

#	Procedural Step	Timing	Method	By/ From	To	Data Transaction
4.1	Identify an update to Interconnector Available Transfer Capacity for a particular Interconnector. Continue from step 4.2.	As occurs	-	Interconnector Administrator	-	
4.2	• If an update is identified by the EA1 Gate Window Closure, include in initial ATC Data Transaction as detailed in section 4.6, plus use to calculate the Active Interconnector Unit Capacity Holdings Data Transaction. **End Process.** • If an update is identified after the EA1 Gate Window Closure: o If after the end of the Trading Day, submit data as part of revised Interconnector Available Transfer Capacity Data Transaction. Continue from step 4.4; else o Submit Interconnector ATC Data Transaction, then continue from step 4.3.	As occurs	Type 3 Channel	Interconnector Administrator	Market Operator	Interconnector Available Transfer Capacity Revised Interconnector Available Transfer Capacity
4.3	As received, publish Interconnector Available Transfer Capacity data. **End Process**, then continue with the process as set out in section 4.10 (starting at step 5.1).	As soon as possible post receipt	Type 3 Channel	Market Operator	Market Operator website	Interconnector Available Transfer Capacity

#	Procedural Step	Timing	Method	By/ From	To	Data Transaction
4.4	Submit final ATC to Market Operator. **End Process.**	By TD+1 12:00 hours	Type 3 Channel	Interconnector Administrator	Market Operator	Interconnector Available Transfer Capacity

4.9 SWIMLANE – CALCULATION OF MIUNs

CALCULATION OF MODIFIED INTERCONNECTOR UNIT NOMINATIONS (MIUNS)



4.10 CALCULATION OF MODIFIED INTERCONNECTOR UNIT NOMINATIONS

	Procedural Step	Timing	Method	By/ From	To	Data Transaction
5.1	Start either: • On submission of an Available Transfer Capacity Data Transaction after the calculation of Interconnector Unit Nominations for the relevant Interconnector as derived from the Ex-Ante One MSP Software Run, continue from step 5.2; or • On successful completion of an Ex-Ante One MSP Software Run, Ex-Ante Two MSP Software Run or Within Day One MSP Software Run, continue from step 5.2. •	By EA1 Gate Window Closure	Type 3 Channel	Interconnector Administrator / System Operator	Market Operator	-
5.2	Calculate Modified Interconnector Unit Nominations for all Interconnector Units where the associated Interconnector Unit Nominations have been previously calculated for the associated Trading Period and the Interconnector Dispatch Schedule. The Modified Interconnector Unit Nominations will be based on the latest Accepted values of: • Interconnector Unit Nominations • Interconnector Registration Data	As soon as possible, once inputs are received	MIUN Calculator	Market Operator	-	-

	Procedural Step	Timing	Method	By/ From	To	Data Transaction
5.3	Submit MIUNs to Interconnector Users.	As soon as possible	MPI	Market Operator	Interconnector Users	Modified Interconnector Unit Nominations
5.4	Submit Interconnector Dispatch Schedule to Interconnector Administrator.	As soon as possible	Type 3 Channel	Market Operator	Interconnector Administrator	Interconnector Dispatch Schedule
5.5	Submit Aggregate Modified Interconnector Unit Nominations to relevant System Operator(s). **End Process.**	As soon as possible	Type 3 Channel	Market Operator	System Operator(s)	Aggregate Modified Interconnector Unit Nominations

APPENDIX 1: DEFINITIONS AND ABBREVIATIONS

DEFINITIONS

Accepted	As defined in the Code
Active Interconnector Unit Capacity Holding	As defined in the Code
Active Interconnector Unit Capacity Holding Data	As defined in the Code
Active Interconnector Unit Export Capacity Holding	As defined in the Code
Active Interconnector Unit Import Capacity Holding	As defined in the Code
Aggregate Interconnector Ramp Rate	As defined in the Code
Aggregate Modified Interconnector Unit Nomination	As defined in the Code
Agreed Procedure	As defined in the Code
Available Transfer Capacity	As defined in the Code
Capacity Payment	As defined in the Code
Change Point	As defined in Appendix 2 – Calculation of Modified Interconnector Unit Nominations
Code	As defined in the Code
Commercial Offer Data	As defined in the Code
Ex-Ante One (EA1) Market Schedule	As defined in the Code
Ex-Ante One (EA1) MSP Software Run	As defined in the Code
Ex-Ante Two (EA2) Market Schedule	As defined in the Code
Ex-Ante Two (EA2) MSP Software Run	As defined in the Code
Gate Window Closure	As defined in the Code
Interconnector	As defined in the Code
Interconnector Administrator	As defined in the Code
Interconnector Dispatch Schedule Data Transaction	As defined in the Code
Interconnector Error Unit	As defined in the Code
Interconnector Owner	As defined in the Code
Interconnector Registration Data	As defined in the Code
Interconnector Residual Capacity Unit	As defined in the Code
Interconnector Technical Data	As defined in the Code

Interconnector Unit	As defined in the Code
Interconnector Unit Nominations	As defined in the Code
Interconnector User	As defined in the Code
Interconnector Technical Data	As defined in the Code
Intersection	As defined in Appendix 2 – Calculation of Modified Interconnector Unit Nominations
Logical Interconnector	As defined in Appendix 2 – Calculation of Modified Interconnector Unit Nominations
Market Operator	As defined in the Code
Market Operator Website	as defined in Agreed Procedure 1 "Participant and Unit Registration and Deregistration"
Market Participant Interface	as defined in Agreed Procedure 1 "Participant and Unit Registration and Deregistration"
Market Schedule Quantity	As defined in the Code
Maximum Export Available Transfer Capacity	As defined in the Code
Maximum Export Available Transfer Capacity	As defined in the Code
Maximum Interconnector Unit Export Capacity	As defined in the Code
Maximum Interconnector Unit Import Capacity	As defined in the Code
Modified Interconnector Unit Nominations	As defined in the Code
Minimum Interconnector Export Level	As defined in the Code
Minimum Interconnector Import Level	As defined in the Code
MIUN Calculator	As defined in the Code
No Load Cost	As defined in the Code
Optimisation Time Horizon	As defined in the Code
Participant	As defined in the Code
Party	As defined in the Code
Pool	As defined in the Code
Price Quantity Pair	As defined in the Code
Quantity	As defined in the Code
Ramp Rate	As defined in the Code
Regulatory Authorities	As defined in the Code
Run-Through	As defined in Appendix 2 – Calculation of Modified Interconnector Unit Nominations

Settlement Period	As defined in the Code
Single Electricity Market	As defined in the Code
Start Up Costs	As defined in the Code
SO Interconnector Export Quantity	As defined in the Code
SO Interconnector Import Quantity	As defined in the Code
SO Interconnector Trade	As defined in the Code
System Operator	As defined in the Code
Trading Day	As defined in the Code
Trading Period	As defined in the Code
Trip	As defined in Appendix 2 – Calculation of Modified Interconnector Unit Nominations
Unit	As defined in the Code
Within Day One (WD1) Market Schedule	As defined in the Code
Within Day One (WD1) MSP Software Run	As defined in the Code

ABBREVIATIONS

AMIUN	Aggregate Modified Interconnector Unit Nomination
ATC	Available Transfer Capacity
CMS	Central Market Systems
IUN	Interconnector Unit Nomination
MIUN	Modified Interconnector Unit Nomination
MPI	Market Participant Interface
MSQ	Market Schedule Quantity
SEM	Single Electricity Market
TD	Trading Day

APPENDIX 2: CALCULATION OF MODIFIED INTERCONNECTOR UNIT NOMINATIONS

INTRODUCTION

This Appendix describes in general terms the rules used by the Market Operator to calculate Modified Interconnector Unit Nominations from the Interconnector Unit Nominations.

DEFINITIONS

In this Appendix:

"Change Point"	is a point that occurs whenever any Interconnector Unit Nomination changes or whenever the Aggregate Interconnector Ramp Rate changes
"Intersection"	means the situation where the Interconnector is dispatched upwards but before the target can be achieved the Interconnector must be dispatched downwards in order to achieve the next Change Point's target
"Logical Interconnector"	means the interconnector in which electricity flows in one direction, i.e. electricity flowing from Scotland to Northern Ireland will form one logical interconnector and electricity flowing from Northern Ireland to Scotland will form another logical interconnector
"Run-Through"	Means the situation where the Interconnector is dispatched upwards but cannot achieve its target by the next Change Point, and cannot achieve the Change Point's expected position at the Change Point boundary
"Trip"	Means a technical failure on an Interconnector which causes a reduction in the magnitude of the Available Transfer Capacity in either direction
"Deadband"	Means the energy band between the Minimum Interconnector Import Level and the Minimum interconnector Export Level
" Dominant Direction"	Is the direction of the net Interconnector Unit Nominations in the last Trading Period in which there was an interconnector flow i.e. import or export

RULES FOR THE CALCULATION OF THE MODIFIED INTERCONNECTOR UNIT NOMINATIONS ("MIUN")

Values of MIUNs

1. MIUNs shall be calculated for each Interconnector separately.
2. The value of each MIUN, in respect of a particular Interconnector Unit and for a particular Trading Period, must be in the same direction (i.e. both positive or both negative) as the corresponding Interconnector Unit Nomination (IUN).

3. The value of each MIUN, in respect of a particular Interconnector Unit and for a particular Trading Period, must not exceed in absolute magnitude the corresponding IUN.
4. In calculating the MIUNs for each Trading Period:
    a. where the sum of the positive IUNs is greater in absolute terms than the absolute value of the Interconnector Import ATC, the positive IUNs will be scaled pro rata such that the resulting MIUN will respect the import ATC value.
    b. where the sum of all IUNs is greater in absolute terms than the absolute value of the Interconnector Export ATC, the negative IUNs will be scaled pro rata such that the resulting MIUNs will respect the export ATC value.

Application of the Interconnector Ramp Rate

5. The Interconnector Ramp Rate applies to the sum of all the IUNs (i.e. import and export) and not to any individual IUNs. As a result, IUNs between and within each Trading Period shall start and finish ramping at the same time.
6. Where the sum of all IUNs for a particular Trading Period and Interconnector, is equal for two consecutive Trading Periods, each corresponding IUN for that Trading Period shall be considered to ramp instantaneously.
7. Any IUNs moving in opposition to the net Interconnector flow are deemed to move instantaneously on the Change Point boundary (the instant ramp).
8. Any IUNs moving in the same direction as the Net Interconnector Flow are allocated the instant ramp on a pro-rata basis, with the Interconnector Ramp Rate being divided up pro-rata to the IUNs moving in the opposite direction to the Net Interconnector Flow.
9. Ramping may take place over any number of Trading Periods, including Trading Periods within the previous day if necessary.
10. Where the absolute value of an IUN for a Trading Period (B) is less than the absolute value of the IUN in the immediately preceding Trading Period (A), the IUN shall be ramped in order to reach the value of the IUN for Trading Period (B) by the start of Trading Period (B).
11. Where the absolute value of an IUN for a Trading Period (B) is greater than the absolute value of the IUN for the immediately preceding Trading Period (A), the IUN shall start ramping at the start of Trading Period (B). This ramping may take place over any number of Trading Periods.
12. Where IUNs change direction between successive Trading Periods(i.e. from positive to negative or negative to positive), ramping shall occur such that the value at the boundary between the two affected Trading Periods is zero.
13. If a Trip occurs on an Interconnector, then the sum of all IUNs shall be considered to ramp instantly to the revised value of ATC.

Application of the Minimum Interconnector Import Level, Minimum Interconnector Export Level and Deadband

14. An Interconnector may have an associated Deadband, within which the relevant Interconnector is not able to operate.
15. The Deadband for an Interconnector shall apply between (but excluding) the Minimum Interconnector Export Level and the Minimum Interconnector Import Level.
16. Any Interconnector for which the Minimum Interconnector Export Level and Minimum Interconnector Import Level are equal to zero shall be considered to have no Deadband.

17. Where an Interconnector has a Deadband, the Interconnector shall be considered to ramp between zero (0) and the associated Minimum Interconnector Import Level instantaneously.
18. Where an Interconnector has a Deadband, the Interconnector shall be considered to ramp between zero (0) and the associated Minimum Interconnector Export Level instantaneously.
19. Where an Interconnector has a Deadband, any instant ramp resulting from the Interconnector passing through the Minimum Interconnector Export Level, zero (0) MW or Minimum Interconnector Import Level shall be allocated to the individual Interconnector Unit Nominations that are ramping at the time of the instant ramp.

Adjustments when Net Interconnector Flow is within a Deadband

20. If the total IUNs for a Trading Period are in the Deadband and all IUNs are in the Dominant Direction, then each of the IUNs should be considered to be zero for the purpose of calculating the MIUNs.
21. Where IUNs exist in both directions and the sum of all IUNs for a particular Interconnector and Trading Period is within the Deadband for the Interconnector:
    a. Where the sum of the IUNs net to exactly zero:
        i. If the sum of the IUNs in each direction are within the Deadband, then the IUNs used in the calculation of MIUNs in both directions shall be reduced to zero.
        ii. If the sum of the IUNs in each direction are outside the Deadband, the IUNs used in the calculation of MIUNs in both directions will remain unchanged.
    b. If the sum of the IUNs in any direction are within the Deadband, the IUNs in that direction shall be considered to be zero for the purpose of calculating the MIUNs.
    c. Where the sum of IUNs for each direction are outside the Deadband:
        i. The IUNs in the same direction (i.e. import or export) as the Dominant Direction used in the calculation of MIUNs will remain unchanged;
        ii. The IUNs in the opposite direction (i.e. import or export) to the Dominant Direction shall be reduced on a pro-rata basis, such that the resulting net flow is outside the Deadband.

Treatment of SO Interconnector Trades

22. SO Interconnector Trades can only occur once the final set of Ex-Ante MIUNs in respect of a particular Trading Period have been determined by the Market Operator (i.e. resulting from an Ex Ante One MSP Software Run, Ex Ante Two MSP Software Run or Within Day One MSP Software Run).
23. In all cases SO Interconnector Trades will be reduced first as required to minimise the effect on IUNs.