IFA2 Interconnector between France and England

Methodology Statement for Determination of System-to-System Flow

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1. Requirement for Methodology Statement

1.1 This Methodology Statement is produced for the purposes of paragraph 7.5 of Section R of the Balancing and Settlement Code (BSC).

2. Objective of Methodology

2.1 The methodology given in section 3 below describes the basis on which the system-to-system flow will be determined for the purposes of paragraph 7.5.3 of Section R of the BSC. This description is supported by the information on implementation of the methodology set out in section 4.

3. Methodology

3.1 The system-to-system flow will be determined from instructions issued by the System Operator (NGESO) or the Externally Interconnected System Operator (RTE), or issued automatically by equipment armed by IFA2 Interconnector (IFA2) or RTE to respond to events on the Total System or the External System. The acceptance by the Transmission Company of any Bid or Offer submitted by an Interconnector User in respect of an Interconnector BM Unit does not constitute an Interconnector instruction in this Methodology.

3.2 The system-to-system flow will be determined in manner consistent with paragraph 7.5 of Section R of the BSC. Accordingly, any system-to-system flow on the Interconnector will not affect, or form part of, the Interconnector Scheduled Transfer (IST). If the difference between the IST and the physical capability of the Interconnector is reduced after an Interconnector instruction has been issued the system-to-system flow may be reduced as necessary.

4. Implementation

4.1 The implementation of this methodology is agreed between NGESO and RTE. For information purposes an outline of the processes used to implement this methodology is given in Appendix A. However NGESO recognises that any material changes to the way in which the methodology is implemented (as described in Appendix A) will require a revised Statement to be resubmitted to the Authority for further approval.

5. Definitions

5.1 Unless stated otherwise, terms and expressions used in this methodology statement shall have the same meanings given to them in the BSC.

Appendix A

Operational Process for Determining the System-System Flow on the IFA2 France-England Interconnector

A1 Calculate the Interconnector Scheduled Transfer (IST)

The Interconnector Scheduled Transfer is based on Mid Channel Nominations (MCN) submitted by Interconnector Users in accordance with the IFA2 Access Rules and associated IFA2 User Agreements. Each User's aggregate MCN data will be consistent with Physical Notifications submitted to NGESO and each MCN must be within the Net Transfer Capacity (NTC) as defined in the Operating Protocol.

A2 Calculate the Scheduled Mid-Channel Reference Program (SMCRP)

The Scheduled Mid Channel Reference Program is based on the same MCN data that is used to determine the IST. The IFA2 interconnector facilitates multiple Users on the Interconnector, and for this reason the dynamic characteristic of the Interconnector is not fully included in the MCN data submitted. The SMCRP will, as far as possible, give the same energy transfer in each trading period as the MCN data used to determine the IST, within the agreed dynamic characteristic for the Interconnector. The effect on System-System Flows caused by intraday capability on the IFA2 interconnector is included in Section A7 of this Appendix. Section A7 refers to day-ahead Scheduled Mid Channel Reference Programme (SMCRP), intraday SMCRPs and the Final Scheduled Mid Channel Reference Programme (FSMCRP).

A3 Variations to the FSMCRP

After the FSMCRP has been agreed it may be necessary to vary the Mid-Channel Reference Program (MCRP). When this occurs for reasons other than those specified in paragraph 7 of section R of the BSC this will constitute a system-to-system flow. Examples of these services include;

1) Emergency Assistance service, is procured close to real time (within 15 minutes) and allows NGESO and RTE to increase flow onto their respective systems or reduce flow away their respective systems,

2) System Intertrip which facilitates an instant reduction in delivery or removal of energy to NGESO and

3) Ramp Management variations which may be used to minimise the impact of MCRP ramps on frequency control.

A4 Volume of System-to-System Changes

Where the instruction to change the MCRP has been given for a reason that will give rise to a system-to system flow then the change to the MCRP will be a system-to-system change. The volume associated with a system-to-system change will be calculated from the previous MCRP as described below:

Consider the simple FSMCRP shown in figure 1.

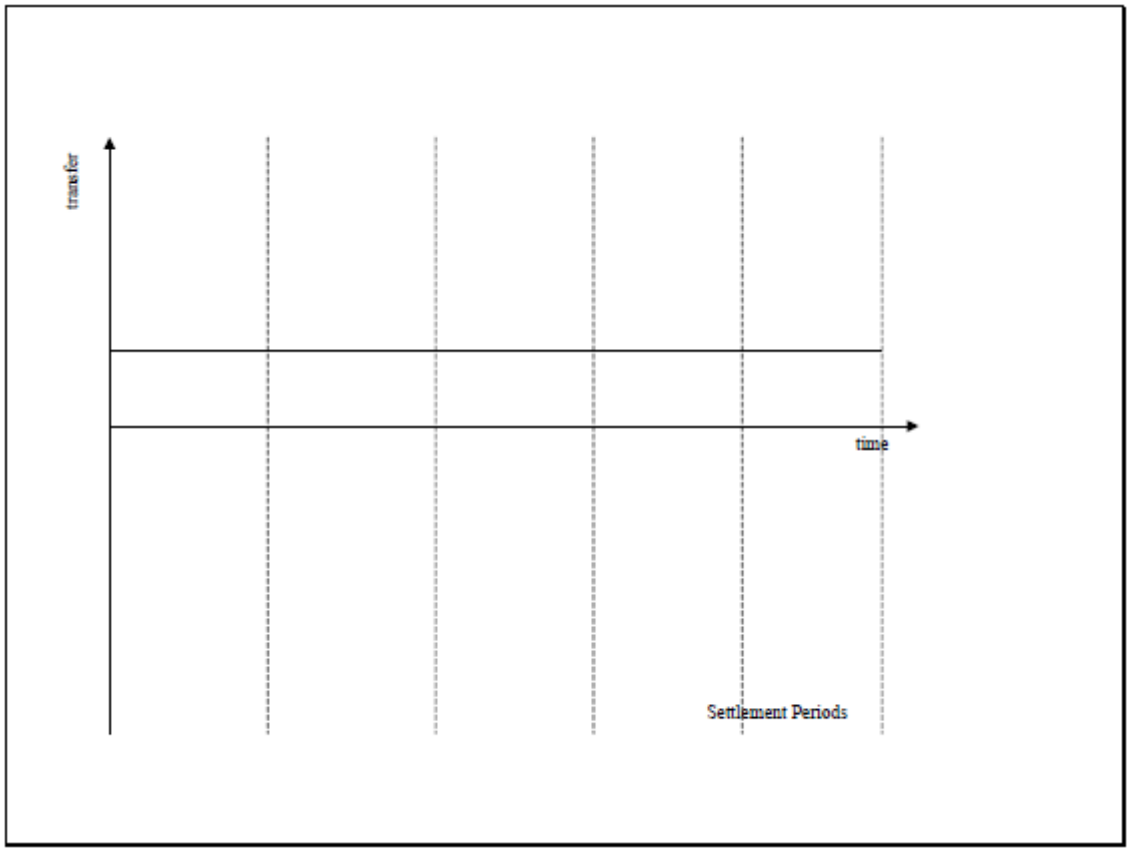

Figure 1 Final Mid Channel Reference Programme

NGESO or RTE makes a request to vary the MCRP (this request being accepted by the other party) or consequential to the automatic initiation of equipment armed by IFA2 and/or RTE SA to respond to events on the Total System or the External System.

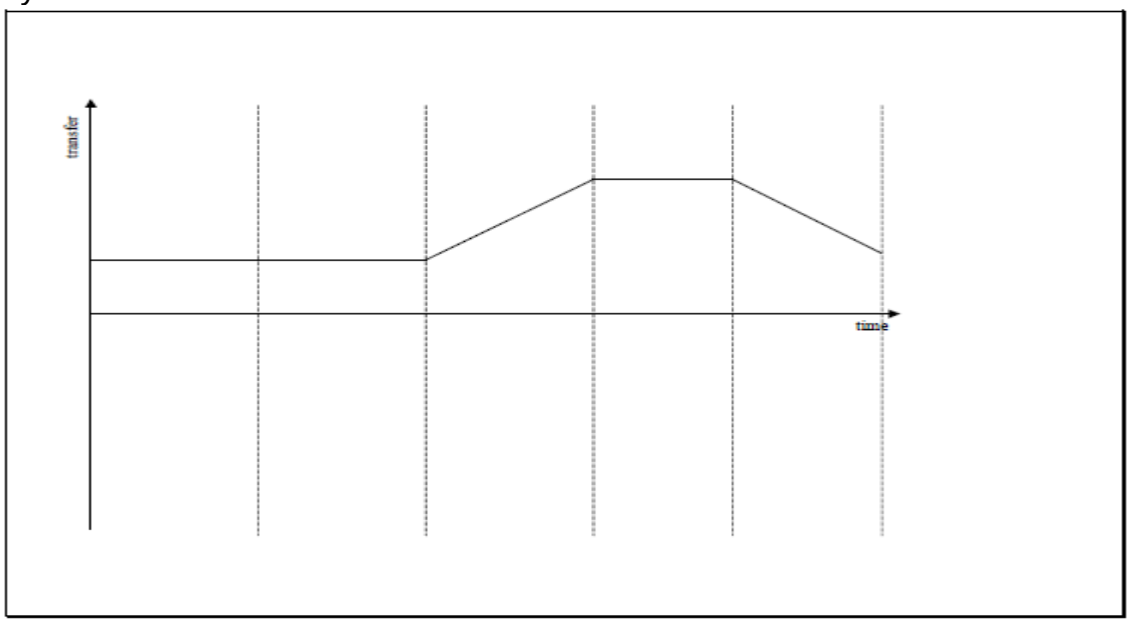

Figure 2 MCRP revised for system-to-system flow

Labelling the FSMCRP as $MCRP_0$, and the revised MCRP as $MCRP_1$ and any subsequent revisions to the MCRP are numbered in sequence then the change in instructed transfer volume is calculated as the difference between the previous and revised programmes ($MCRP_{n-1}$ and $MCRP_n$,) for the changes to the MCRP.

The change in the instructed transfer in settlement period j, caused by acceptance of the new Mid Channel Reference Programme n is given by:

$$\Delta T_{n,j} = \int_0^{30} \max\left(-IC_j(t), \min\left(IC_j(t), MCRP_{n,j}(t)\right)\right) - \max\left(-IC_j(t), \min\left(IC_j(t), MCRP_{n-1,j}(t)\right)\right) dt$$

where

$MCRP_{n,j}(t)$	Is the instantaneous transfer t minutes from the start of settlement period j for Mid Channel Reference Programme n
$\Delta T_{n,j}$	Is the change in transfer volume resulting from the acceptance of the revised MCRP ($MCRP_n$) in settlement period j
$IC_j(t)$	Is the actual instantaneous interconnector mid channel capacity t minutes from the start of settlement period j. Such that the actual transfer is in the range $\pm IC_j(t)$.

This is shown graphically below:

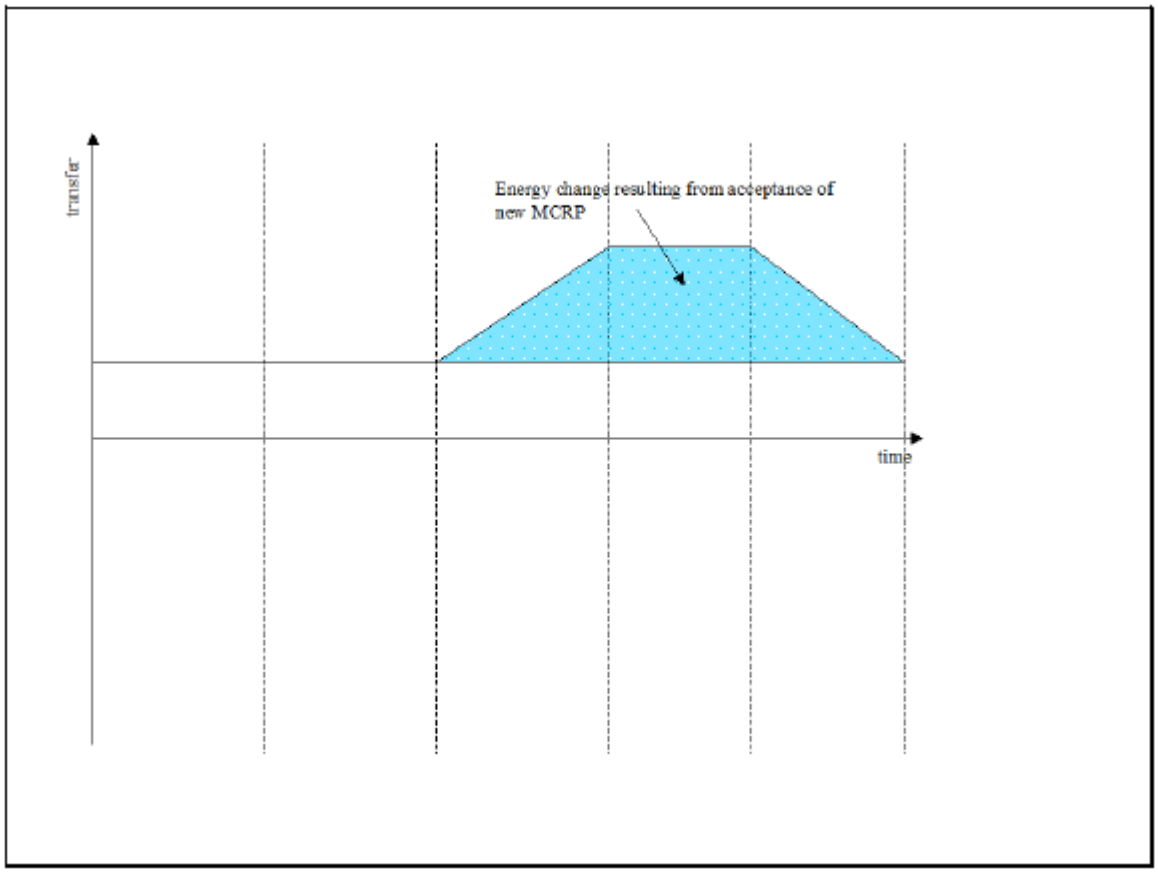

Figure 3: Change in instructed transfer volume arising from change in MCRP

The total volume of system-to-system change (T_j) will be the sum of all changes in instructed transfer volume arising due to system-to-system flows.

A5 Volume of System-to-System Flow (SSF)

The total volume of system-to-system change is calculated at Mid Channel. It is then adjusted for Interconnector Losses to determine the System-to-System Flow. This adjustment uses the Mid Channel Loss Factor (MCLF, currently 0.01725).

A6 Metered Volume for Transmission Company Interconnector BM Units

The system-to-system flow is calculated and the Metered Volume allocated to the Transmission Company Interconnector BM Units (TCIBMU) as shown below:

$SSF = T_j * (1-x*MCLF)$

Where x= 1 if Net Flow across the Interconnector in the settlement period is France to England, else -1

If direction of SSF is from France to England

TCIBMU(Production) = SSF TCIBMU(Consumption) = 0

If direction of SSF is from England to France

TCIBMU(Production) = 0 TCIBMU(Consumption) = SSF

A7 Revisions to Appendix A

This appendix is provided for information purposes only. If material changes occur to the planned operational process for determining the system-to-system flow on the France-England Interconnector then this appendix will be revised accordingly.