07 November 2012

Agreed Procedure Notification

Mod\_24\_12: Amendments to the MIUN Calculator to address instances of Excess Area

# Modifications Committee Extraordinary Meeting 45 Minutes

Proposer outlined the background of the proposal advising that this scenario has never happened previously and although it is unlikely to occur, SEMO deem it prudent to preclude it as a possibility. Proposer presented slides on proposal, providing a summary of the current MIUN Calculation process, a description of the MIUN issue identified and a summary of the proposed solution. Proposer advised that under the current rules, there are two situations where previously determined MIUNs may not be fixed: 1. if there is a change in ATC, or 2. if the net interconnector (IC) flow is within Deadband limits (if applicable). As part of its ongoing extension of testing, SEMO has identified a further scenario in which previously determined MIUNs may not be fixed. This is known as “Extreme Ramping” or Scenario 35. (For characterisation of “Extreme Ramping”, please see slide 3 of the MIUN presentation).

Previously determined MIUNs may not be held firm in situations where Excessive Area occurs, as currently the MIUN Calculator does not account for such instances. Proposer further advised that this is not consistent with the Intra-Day Trading design or the principles underpinning the EU Congestion Management Guidelines. Proposer advised that the proposed solution ensures that the MIUN calculator aims to identify and address these instances where Excessive Area occurs. The proposed solution aims to ensure that:

* + previously determined MIUNs are fixed
	+ a feasible IC profile is produced
	+ |MIUN|<=|IUN| in all cases



MO Member advised that if approved, it would be hoped to implement the proposal by the end of November ’12.

Chair queried as to whether the scenario as discussed in the proposal is the sole problematic scenario that has been identified. SEMO representative confirmed that a number of scenarios have been created with the same problem in order to ensure that the rules apply in all cases.

Generator Member queried as to whether the issue is purely theoretical, or whether it has material impacts. MO Member advised that it is theoretical, reiterating that it has never occurred in live operations, however if it were to occur, the impact would be the potential degradation of MIUNs whereby they would not be fully fixed or the MIUN Calculator would come up with an infeasible IC schedule. Chair clarified that this could cause a knock on effect on Market Schedule Dispatch.

Chair queried that if the process identifies if MIUNs from the previous run can move towards the IUNs, will the MIUNs be preserved, as opposed to IUNs. SEMO representative confirmed the MIUNs would be preserved. Chair further queried if the MIUNs were moved out of the Deadband, would the previous run MIUN remain equal to zero. SEMO representative confirmed this.

Chair noted legal drafting changes on Slide 9. Proposer advised of a further legal drafting change to definition section (as set out in actions below).

Chair commented that it is probable a sudden drop in one Trading Period could occur followed by a jump in the subsequent Trading Period. Proposer advised the rules state that EA1 MIUNs are preserved first. SEMO representative confirmed that this is a possibility however that in this circumstance its severity would be limited.

DSU Member queried as to whether the scenario is likely only when the IC has hit its maximum flow in one direction or the other, or whether extreme ramping only has this effect. SEMO representative advised that the issue is not related to limits; it is related to ramping over multiple Trading Periods (“Run Through”), followed by a change in the dominant direction of ramping between gates (EA1, EA2, WD1), leading to Excessive Area. Chair queried as to whether “Excessive Area” could occur in EA1. SEMO representative advised EA1 would not be affected as it depends on the relative nature of the nominations in subsequent gates. Chair clarified that it is dependent on whether a net switch in direction is created.

Proposer provided overview of legal drafting changes. Committee were satisfied with the changes as proposed. SEMO representative noted that in relation to Excessive Area, multiple instances can occur in one day and that it would be necessary to work backwards from the end of the day in order to avoid an infeasible IC Profile.

SEMO representative noted that the scenarios as laid out in 23(c) & 23(e) are where a minute by minute approach is not feasible, MIUNs are set to zero in period of Ramping as no other option exists.

Chair commented that the proposed legal drafting changes are reasonable and presentation was clear.

Generator Member stated that this issue is not new, and queried as to whether it has the reason it has recently been deemed a potential problem to live operations is due to Intra-Day Trading? Generator Member advised that without IDT, this scenario would not have happened as trade in other directions was not possible.

Generator Member queried as to what the implications of not implementing the proposal would be. Chair advised that the proposal is centred around MIUN preservation. Chair queried as to what the cost of the proposal was. Proposer advised that if implemented, the proposal would incur a cost of €29,700 plus testing.

# Notification

As per Section 2.223 of the T&SC, the Modifications Committee wish to notify the RAs of the  effective date for Agreed Procedure Mod\_24\_12 *Amendments to the MIUN Calculator to address instances of Excessive Area* to be the date the vendor confirms with the Market Operator to be the earliest date in which the change can be implemented in the Market Systems. The MO will publish the date at least one week in advance of it becoming effective.

# Legal Drafting

As agreed at Extraordinary Meeting 45, the following legal drafting changes apply:

* Change Last Run Start and Last Run Stop to Previous Run Start and Previous Run Stop (Slide 9)
* Instances of Excessive Area Volume should be changed to Excessive Area.

Final legal drafting is set out below:

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| --- | --- |
| **“Excessive Area”** | In respect of a particular Trading Period and the current MIUN Calculator run, any instance where either the Remaining Area is greater than zero and the sum of all positive Original IUNs for all Interconnectors Units for which Original MIUNs have not yet been calculated is less than the Remaining Area, or the Remaining Area is less than zero and the sum of all negative Original IUNs for all Interconnectors Units for which Original MIUNs have not yet been calculated is greater than the Remaining Area |
| **“Remaining Area”** | In respect of a particular Trading Period and the current MIUN Calculator run, the area under the Interconnector Dispatch Schedule minus the sum of all Original MIUNs for all Interconnector Units for which such Original MIUNs have been calculated |
| **“Current Run Start”** | In respect of the current MIUN Calculator run, the start point of a period of ramping up or ramping down at the maximum Interconnector Ramp Rate, within such period where a particular instance of Excessive Area which is not equal to zero occurs |
| **“Current Run Stop”** | In respect of the current MIUN Calculator run, the end point of a period of ramping up or ramping down at the maximum Interconnector Ramp Rate, within such period where a particular instance of Excessive Area which is not equal to zero occurs |
| **“Previous Run Start”** | In respect of the most recently completed MIUN Calculator run for the same Trading Day and Interconnector, the start point of a period of ramping up or ramping down at the maximum Interconnector Ramp Rate that overlaps with the period within the current MIUN Calculator run that is defined by the Current Run Start and Current Run Stop points |
| **“Previous Run Stop”** | In respect of the most recently completed MIUN Calculator run for the same Trading Day and Interconnector, the end point of a period of ramping up or ramping down at the maximum Interconnector Ramp Rate that overlaps with the period within the current MIUN Calculator run that is defined by the Current Run Start and Current Run Stop points |

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 Original IUN or, where an Original MIUN has previously been determined , the Original MIUN.
4. In calculating the MIUNs for each Trading Period:
	1. where the sum of the IUNs is greater in absolute terms than the absolute value of the Interconnector Import ATC, the IUNs will be reduced such that the resulting MIUN will respect the import ATC value.
	2. where the sum of all IUNs is greater in absolute terms than the absolute value of the Interconnector Export ATC, the IUNs will be reduced such that the resulting MIUNs will respect the export ATC value.

Application of the Interconnector Ramp Rate

1. The Interconnector Ramp Rate applies to the sum of all the IUNs (i.e. import and export) and not to any individual IUNs.
2. Where the sum of all IUNs for a particular Trading Period and Interconnector, is equal for two consecutive Trading Periods, each corresponding MIUN for that Trading Period shall be set equal to the relevant IUN.
3. Ramping may take place over any number of Trading Periods, including Trading Periods within the previous day if necessary. Where ramping occurs over multiple Trading Periods and there is a conflict in the rules as set out in this Appendix, the ramping rules shall take precedence.
4. 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) and the values (A) and (B) are of the same sign, ramping in respect of the Unit shall occur in order to reach the value of the IUN for Trading Period (B) by the start of Trading Period (B).
5. 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) and the values (A) and (B) are of the same sign, ramping in respect of the Unit shall occur at the start of Trading Period (B). This ramping may take place over any number of Trading Periods.
6. Where the value of an IUN for a Trading Period (B) is of opposite sign to the value of the IUN for the immediately preceding Trading Period (A), ramping shall occur by the end of Trading Period (A) for the value of the IUN in Trading Period (A) and ramping shall occur at the start of Trading Period (B) for the value of the IUN in Trading Period (B).
7. Where IUNs change direction between successive Trading Periods (i.e. from positive to negative or negative to positive) and a Deadband does not apply, ramping shall occur such that the value at the boundary between the two affected Trading Periods is zero.
8. 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

1. An Interconnector may have an associated Deadband, within which the relevant Interconnector is not able to operate.
2. The Deadband for an Interconnector shall apply between (but excluding) the Minimum Interconnector Export Level and the Minimum Interconnector Import Level.
3. 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.
4. Where an Interconnector has a Deadband, the Interconnector shall be considered to ramp between zero (0) and the associated Minimum Interconnector Import Level instantaneously.
5. Where an Interconnector has a Deadband, the Interconnector shall be considered to ramp between zero (0) and the associated Minimum Interconnector Export Level instantaneously.

Adjustments when Net Interconnector Flow is within a Deadband

1. 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.
2. 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:
	1. Where the sum of the IUNs net to exactly zero:
		1. 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.
		2. 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.
	2. 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.
	3. Where the sum of IUNs for each direction are outside the Deadband:
		1. The IUNs in the same direction (i.e. import or export) as the Dominant Direction used in the calculation of MIUNs will remain unchanged;
		2. 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.

***Fixing of MIUNs in subsequent MIUN calculation runs***

1. In calculating the MIUNs in each Trading Period, each MIUN calculation shall, where possible:
	1. Fix the Original MIUNs for Interconnector Units associated with the EA1 Gate Window where such Original MIUNs have been determined.
	2. Fix the Original MIUNs for Interconnector Units associated with the EA2 Gate Window where such Original MIUNs have been determined.
	3. Fix the Original MIUNs for Interconnector Units associated with the WD1 Gate Window where such Original MIUNs have been determined.
	4. Allocate the remaining energy available as defined by the Interconnector Dispatch Schedule to Interconnector

Treatment of SO Interconnector Trades

1. 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).
2. In all cases SO Interconnector Trades will be reduced first as required to minimise the effect on IUNs.

**Treatment of Excessive Area**

1. In any Trading Period where:
	1. the Remaining Area is greater than zero and the sum of all positive Original IUNs for all Interconnectors Units for which Original MIUNs have not yet been calculated is less than the Remaining Area, or
	2. the Remaining Area is less than zero and the sum of all negative Original IUNs for all Interconnectors Units for which Original MIUNs have not yet been calculated is greater than the Remaining Area,

each such instance shall be addressed in reverse chronological order (i.e. latest within the relevant Trading Day first) as follows:

1. Identify the start point (“Current Run Start”) and end point (“Current Run Stop”) of the continuous period of ramping within which the Excessive Area occurs, where such period of ramping is part of the Interconnector Dispatch Schedule as calculated within the current MIUN Calculator run. A continuous ramping period through zero MW shall be considered to be two separate periods of ramping (each with start and end points).
2. Identify the start point (“Last Run Start”) and end point (“Last Run Stop”) of the continuous period of ramping within which the Excessive Area occurs, where such period of ramping is part of the most recently calculated Interconnector Dispatch Schedule for the same Trading Day and Interconnector. A continuous period of ramping through zero MW shall be considered to be two separate periods of ramping (each with start and end points).
3. If the Current Run Start and Current Run Stop points are both within Trading Periods where the corresponding sum of the IUNs for all Interconnector Units for which Original MIUNs have not been determined is zero, then proceed to step 23e. Otherwise, proceed to step 23d.
4. Move the “Current Run Stop” time on a minute-by-minute basis towards the corresponding “Last Run Stop” point and recalculate the area under the curve as defined by the Interconnector Dispatch Profile and the associated Excessive Area, until Excessive Area in the affected Trading Period does not apply. The Current Run Stop point shall not be moved beyond the Last Run Stop point. If all instances of Excessive Area are addressed and a feasible Interconnector profile is produced, proceed to step 23f. Otherwise, proceed to step 23e.
5. If a profile cannot be determined from step 23c or 23d such that Original MIUNs are preserved and a feasible Interconnector profile is determined:
	* 1. The MIUNs for the Units for which MIUNs have not previously been determined will be set to zero for all Trading Periods between (and including) the start and the end of the ramping period which caused the Excessive Area to occur.
		2. The Interconnector Dispatch Schedule will be adjusted to ensure a feasible profile, which shall ensure preservation of all Original MIUNs.
		3. Proceed to step 23f.
6. Allocate the difference between the area under the calculated Interconnector Dispatch Schedule and the sum of all Original MIUNs to those Interconnector Units for which Original MIUNs have not previously been determined.