

# Day-Ahead Interconnector Net Transfer Capacity Procedure

28<sup>th</sup> June 2024

Revision 0



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# 1. Introduction

## 1.1. Scope

This document describes the process by which EirGrid and SONI calculate and apply day-ahead *adequacy-based* Net Transfer Capacity (NTC) limits on interconnectors between the island of Ireland and Great Britain.

The following does not fall under the scope of this document:

- The application of NTC limits for reasons that are not related to adequacy on the island of Ireland;
- The application of NTC limits by interconnector owners in the context of a fault, planned outage or otherwise;
- The application of NTC limits or Intraday Trading Limits by National Grid Electricity System Operator (NGESO);
- The determination and application of ‘Long-Term’ NTC limits<sup>1</sup>.

## 1.2. Background

Net Transfer Capacity is the maximum power exchange between two power systems that is compatible with the operational security standards applicable in both systems, taking into account technical uncertainties regarding future network conditions. In the context of adequacy, NTC limits equate to the maximum amount of power that can be exported from the EirGrid or SONI power systems without causing either system to enter a System Alert (**Amber**) state. In basic terms, the NTC limit is the point beyond which there is insufficient generation capacity on the system to compensate for the loss of the largest single MW infeed on the system, in the event of which load shedding may be necessary to maintain the system frequency within secure limits.

## 1.3. Process Overview

The All-Island Scheduling Engineer performs day-ahead NTC calculations using a bespoke macro-based ‘Margin Check’ spreadsheet tool. For each trading period this tool calculates whether either jurisdiction is in Margin Warning state (ROI only), System Alert (**Amber**) state or System Emergency (**Red**) state, based on the following input data for the relevant trading day:

- Forecast jurisdictional demand;
- Forecast jurisdictional wind & solar generation;
- Forecast availability of non-renewable generation, energy-limited units<sup>2</sup> & demand side units;
- Forecast availability of Temporary Emergency Generation (TEG) units;
- Transmission constraints on generation in each jurisdiction and constraints on flows between both jurisdictions;
- Size of the anticipated Largest Single Infeed (LSI) in each jurisdiction;
- Physical availability of each interconnector and hypothetical interconnector flows.

Day-ahead calculation of NTC limits takes place in advance of the first intraday auction (IDA1) market gate closure. This auction couples the SEM and BETTA electricity markets and determines interconnector flows between the island of Ireland and Great Britain across the following trading day. These flows are market-firm from 23:00 through to 11:00, with the potential for flows from 11:00 through to 23:00 to change based on the outcome of the second intraday auction (IDA2). The NTC limits calculated at day-ahead may be applied in the coupled IDA1 and IDA2 auctions to prevent interconnector flows that are likely to cause either

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<sup>1</sup> Per [https://www.sem-o.com/documents/general-publications/BP\\_SO\\_13.1\\_Interim\\_Long\\_Term\\_Coordinated\\_Capacity\\_Calculation.pdf](https://www.sem-o.com/documents/general-publications/BP_SO_13.1_Interim_Long_Term_Coordinated_Capacity_Calculation.pdf) & [https://www.sem-o.com/documents/general-publications/BP\\_SO\\_13.2-Interim-Long-Term-NTC-Change.pdf](https://www.sem-o.com/documents/general-publications/BP_SO_13.2-Interim-Long-Term-NTC-Change.pdf)

<sup>2</sup> Primarily run-of-river hydro & battery units.

or both jurisdictions to enter System Alert (**Amber**) state, or to mitigate the severity of a probable System Alert (**Amber**) or System Emergency (**Red**) state in either jurisdiction.

For a given trading day the decision on whether to apply the calculated NTC limits in the IDA1 and IDA2 auctions is taken by the EirGrid / SONI control rooms, in consultation with EirGrid / SONI management, based on an assessment of risk. Inter alia, this risk assessment takes into account:

- Forecast adequacy in Great Britain;
- Day-Ahead Market (DAM) price spreads between SEM & BETTA;
- Current prevailing market-based interconnector flows & system conditions;
- Indications from NGEESO of amenability to facilitate countertrades.

## 1.4. Document Overview

This document describes the process by which day-ahead adequacy-based NTC limits are calculated and applied in three distinct stages:

- NTC Calculation (Section 2);
- NTC Decision Making (Section 3);
- Application of NTC Limits (Section 4).

The document further describes policy on the assumptions used in the NTC calculation process and requirements for record keeping and transparency:

- NTC Calculation Assumptions (Section 5);
- Records & Reporting (Section 6).

Pursuant to the SEMC Decision Paper, SEM-24-025, 28 March 2024 on *Compensation Arrangements for Net Transfer Capacity (NTC) Reductions*<sup>3</sup>, the TSOs were requested to identify development of actions that would assist in reducing the number of days that NTC limits would need to be applied. These actions, including actions to mitigate the risk of not having reduced NTC, are summarised in Appendix B.

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<sup>3</sup><https://www.semcommittee.com/files/semcommittee/2024-03/NTC%20decision%20March%202024%20for%20publication.pdf>

# 2. Net Transfer Capacity Calculation

## 2.1 Roles & Responsibilities

All process steps are to be executed by the **All-Island Scheduling Engineer**, consulting the **All-Island Dispatch Engineer** where necessary.

## 2.2 Process Timing

The target time for completion of the NTC calculation stage of the process is 13:45 on the day prior to the trading day for which NTC calculations are being performed. The timing of the execution of the process is dependent on the availability of up-to-date wind and solar forecasts (refer to Section 5.2).

## 2.3 Process Steps

Step	Step Description
1	The <b>All-Island Scheduling Engineer</b> will use the dedicated 'Margin Check' spreadsheet tool to undertake the NTC calculation. This will be saved as a record of the NTC calculations undertaken, in accordance with Section 6.2 of this procedure.
2	For each jurisdiction the total demand, wind generation and solar generation forecasts are imported into the tool, in accordance with Sections 5.1 and 5.2 of this procedure.
3	For each jurisdiction the anticipated availability of market-based dispatchable plant, as at the time the NTC calculations are performed, is entered into the tool. Amendments are made to the anticipated availability of the plant to account for outage plans, forced outages, unit testing and unit notification times, in accordance with Sections 5.3 & 5.4 of this procedure.
4	For each jurisdiction the anticipated availability of all DSUs that are <i>incapable of running on an indefinite basis</i> , is entered into the tool. The data in the tool is amended to reflect running of these DSUs in each jurisdiction at least twice during the trading day, in accordance with Section 5.5 of this procedure.
5	For each jurisdiction the total MW availability and maximum energy capacity of all battery units that are <i>capable of sustaining a MW output equal to their MEC for at least 2 hours (when fully charged)</i> are entered into the tool, as is the total MW availability of all battery units that are incapable of same. The data in the tool is amended to reflect running of the former set of batteries for one 90 minute period during the trading day, in accordance with Section 5.6 of this report.
6	For ROI the total anticipated availability of all TEG units is entered into the tool. Amendments are made to the anticipated availability of the TEG units to account for outage plans, forced outages, unit testing and unit notification times, in accordance with Sections 5.11.
7	For each jurisdiction amendments are made to the data in the tool to reflect the anticipated impact of transmission constraints on the availability of generation, in accordance with the provisions of Section 5.8.
8	For ROI the total anticipated availability of all energy-limited run-of-river hydro units is entered into the tool and the Hydro Control Centre (HCC) is asked to provide an indication of intended running of these units across the following trading day. The data in the tool is amended to reflect running of the hydro units across the trading day in accordance with Section 5.7 of this procedure.
9	The maximum ROI-to-NI and NI-to-ROI Total Transfer Capacity (TTC) limits are entered into the tool. These values shall reflect those published in the most recent applicable Weekly Operational Constraints Update

Step	Step Description
	report <sup>4</sup> . For each trading period the TTC limits are adjusted to reflect variations in forecast renewable generation and other factors, in accordance with Section 5.9 of this procedure.
10	The maximum MW output of the Largest Single Infeed (LSI) in each jurisdiction i.e., the largest unit expected to be available in each jurisdiction, across the following trading day (excluding the interconnectors) is entered into the tool, in accordance with Section 5.10 of this procedure.
11	Based on the data entered in Steps 1 to 10, and on a starting assumption of a maximum export on each interconnector, the tool calculates whether either or both jurisdictions would be in a System Alert ( <b>Amber</b> ) state or System Emergency ( <b>Red</b> ) state in each trading period of the following trading day, or in Margin Warning state in the case of ROI only. The tool indicates the shortfall in each trading period for each jurisdiction, which equates to the minimum quantity of MW required to just lift the relevant jurisdiction(s) out of System Alert ( <b>Amber</b> ) state, taking into account support that can be provided by the other jurisdiction where available.
12	For each trading period where a shortfall is indicated for NI, the hypothetical export on the Moyle interconnector is reduced by the shortfall amount in the tool. If the shortfall exceeds the maximum export capacity of the interconnector then the flow is set to zero, meaning a System Alert ( <b>Amber</b> ) state or worse will still be indicated for NI.
13	For each trading period where a shortfall is indicated for ROI, the hypothetical export on the EWIC interconnector is reduced by the shortfall amount in the tool. If the shortfall exceeds the maximum export capacity of the interconnector then the flow is set to zero, meaning a System Alert ( <b>Amber</b> ) state or worse will still be indicated for ROI.
14	In any trading period where a shortfall is still indicated in one jurisdiction but not the other, having already limited the hypothetical flow on the interconnector in that jurisdiction to zero in the tool, the hypothetical export on the interconnector in the other jurisdiction is reduced by the shortfall amount subject to the fact the reduction is capped by the remaining available headroom for additional inter-jurisdictional support per the TTC limits, and by the fact that the minimum assumed flow on the interconnector is zero (no imports).
15	The calculated flows on each interconnector, at which each jurisdiction is predicted to just avoid System Alert ( <b>Amber</b> ) state or where the severity of a predicted System Alert ( <b>Amber</b> ) state or System Emergency ( <b>Red</b> ) state has been minimised, forms the basis of proposed NTC values. Adjustments are made to these values to ensure that they respect the standard or applicable ramp rate of each interconnector <sup>5</sup> .
16	The <b>All-Island Scheduling Engineer</b> contacts the <b>All-Island Dispatch Engineer</b> to discuss, verify and, if necessary, adjust the NTC values calculated for each interconnector.

<sup>4</sup> <https://www.sem-o.com/publications/general-publications/index.xml?query=constraints&page=&sort=uploaded&order=desc>

<sup>5</sup> 5 MW/min (300 MW per trading period) on each interconnector as at the time of publication of this document.

# 3. NTC Decision Making

## 3.1 Roles & Responsibilities

Roles and responsibilities for the NTC decision making stage of the process are as indicated in the ‘Responsible’ column of the table in Section 3.3.

## 3.2 Process Timing

The target time for completion of the NTC decision making stage of the process is 14:00 on the day prior to the trading day for which NTC calculations are being performed.

## 3.3 Process Steps

This stage of the process is only executed if the calculated NTC limits on one or more interconnectors are lower than the maximum physical capacity of those interconnectors.

Step	Step Description	Responsible
1	Assess the probability of interconnector flows in the export direction on the trading day for which NTC calculations have been performed by comparing DAM prices in the BETTA and SEM markets for that trading day.	All-Island Scheduling Engineer
2	Assess the adequacy situation in GB on the trading day for which NTC calculations have been performed by consulting the following: <ul style="list-style-type: none"> <li>BETTA prices, per Step 1 above;</li> <li>GB wind generation forecast;</li> <li>Near term GB margins.</li> </ul>	All-Island Scheduling Engineer
3	Contact NGESO to advise them of the implications of exports beyond calculated NTC limits on adequacy in ROI and/or NI and determine the amenability of NGESO to facilitate countertrades in the event that market-based interconnector flows exceed the calculated limits.	All-Island Scheduling Engineer
4	Based on the information gathered in Steps 1 to 3 above, decide whether to seek approval from EirGrid/ SONI operations management to apply NTC limits on one or more interconnectors. This risk-assessment-based decision shall also take into account: <ul style="list-style-type: none"> <li>Current or frequent recent requirements to perform significant countertrading to ensure either or both jurisdictions avoid entering System Alert (<b>Amber</b>) or System Emergency (<b>Red</b>) state, owing to calculated NTC limits not having been applied (or otherwise);</li> <li>Potential practical difficulties executing post-IDA2 countertrades for the period from 11:00 to 13:00, if adequacy during this period may be critical.</li> </ul> If a decision is taken not to seek approval to apply NTC limits on any interconnector then the process ends, otherwise refer to Step 5.	All-Island Scheduling Engineer



Step	Step Description	Responsible
5	<p>Decide whether to approve the application of the calculated NTC limits on one or more interconnectors, on foot of a discussion of the limits and associated risk assessment with the <b>All-Island Scheduling Engineer</b>.</p> <p>Decision is to be taken by the following:</p> <ul style="list-style-type: none"> <li>• Relevant System Operational Manager or Director of Operations (Monday to Friday, excluding bank holidays); or</li> <li>• Operations Charge Engineer (weekends &amp; bank holidays).</li> </ul> <p>If a decision is taken not to apply NTC limits on any interconnector then the process ends, otherwise refer to Section 4.</p>	<p><b>EirGrid/ SONI Operations Management</b></p>

# 4. Application of NTC Limits

## 4.1 Roles & Responsibilities

Roles and responsibilities for the NTC limit application stage of the process are as indicated in the ‘Responsible’ column of the table in Section 4.3.

## 4.2 Process Timing

The timing of each process step is as indicated in the ‘Timing’ column of the table in Section 4.3.

## 4.3 Process Steps

Step	Step Description	Timing	Responsible
1	Submit email to <b>SEMO Trading Operations</b> with details of the NTC limits that are to be applied on each interconnector in the ex-ante market and in relevant SEM IT applications, copying the relevant interconnector owner(s) and seeking acknowledgement of receipt of email from <b>SEMO Trading Operations</b> via telephone.	By 14:00	<b>All-Island Scheduling Engineer</b>
2	Identify whether the NTC limits received in Step 1 are more binding than those submitted by the relevant interconnector owner(s) or by NGESO. Update the NTC values in the ex-ante market and in relevant SEM IT applications where necessary.	By 15:30	<b>SEMO Trading Operations</b>
3	Notify ENTSO-E of updated NTC limits on relevant interconnector(s) via the Interconnector Management Platform (ICMP) application.	By 15:30	<b>SEMO Trading Operations</b>
4	Submit email to the <b>All-Island Scheduling Engineer</b> confirming the application of the NTC limits as requested in step 1, copying the relevant interconnector owner(s) and seeking acknowledgement of receipt of email from the <b>All-Island Scheduling Engineer</b> via telephone.	By 15:30	<b>SEMO Trading Operations</b>
5	Notify relevant interconnector owner(s) of the application of NTC limits via telephone.	Directly Following Step 4	<b>All-Island Scheduling Engineer</b>

# 5. NTC Calculation Assumptions

## 5.1 Forecast Demand

The total forecast demand assumed for each jurisdiction for each trading period shall precisely match the corresponding values from the latest available MMS LTS scheduling run, as at the time the NTC calculations are performed. No manipulation of this data is permitted.

## 5.2 Forecast Wind & Solar Generation

The total forecast wind & solar generation assumed for each jurisdiction for each trading period shall be the average of the latest forecasts provided by the two renewables forecast providers circa 13:00 during Daylight Saving Time or circa 12:00 outside of Daylight Saving Time. No manipulation of this data is permitted.

## 5.3 EDIL Availability

For each jurisdiction the total assumed availability of plant dispatchable via EDIL shall exactly match the total availability calculated by EDIL as at the time the NTC calculations are performed.

## 5.4 Long Notice Plant & Plant Outages

Any unit that is not synchronised or scheduled to synchronise, as at the time the NTC calculations are performed, is to be assumed unavailable until 18:30 that day *plus* the expected notification time of the unit as at 18:30. The assumed notification time of the unit shall reflect the expected heat state of the unit as at 18:30. The total assumed unavailability of all such plant shall be reflected in the NTC calculations for each trading period for each jurisdiction.

Amendments shall be made to account for other differences between the currently declared availability of units in EDIL and the expected availability of those units across the day for which the NTC calculations are being performed. These amendments shall:

- Reflect the scheduled start and end of planned outages of units as per the committed outage programme, the Nord Pool REMIT platform<sup>6</sup> and/or any other authoritative sources of unit availability information:
  - Any unit scheduled to return from short term planned outage (an outage with a duration of 7 days or less) shall be assumed available across relevant trading periods;
  - Any unit that has very recently tripped or is returning from long term outage (an outage with a duration of greater than 7 days) shall not be assumed available for the purposes of NTC calculations given the increased risk of the unit failing to synchronise.
- Reflect expected changes in the declared availability of units based on unit-specific factors e.g., the ability of a unit to run at a higher MW output for several hours without violating emissions limits;
- Discount the availability of units that are scheduled to be carrying out testing;
- Not reflect the impact of transmission constraints on generation, which is dealt with separately.

For audit purposes the details of assumptions regarding the above shall be recorded in accordance with the requirements of Section 6.1.

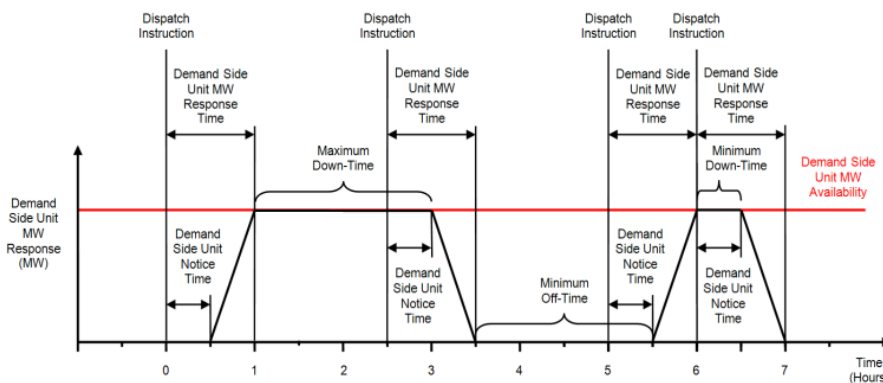
## 5.5 Demand Side Units

In each jurisdiction the total availability of DSUs to be fully or partially discounted from the NTC calculations shall be the summation of the declared EDIL availabilities of all DSUs incapable of running on an indefinite basis, as at the time the NTC calculations are performed.

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<sup>6</sup> <https://umm.nordpoolgroup.com/#!/messages?publicationDate=all&eventDate=nextweek&areas=10Y1001A1001A59C>

It shall be assumed that all DSUs in each jurisdiction run at least twice across the day for which NTC calculations are being performed. As per the DSU Grid Code requirements shown in the diagram below, the DSU runs shall have a maximum duration of 2 hours and shall be spaced apart by at least 3 hours. The DSU runs shall coincide with the periods of tightest margin in each jurisdiction.



## 5.6 Batteries

‘Short run’ battery units are defined as battery units that cannot sustain a MW output equal to their Maximum Export Capacity (MEC) for a period of 2 hours or more. Given the nature of these units, and their importance in terms of system services provision, ‘short run’ battery units shall not be considered available for the purposes of NTC calculations. The total potential MW contribution from ‘short run’ battery units to be discounted from the NTC calculations shall be the summation of the declared EDIL availabilities of the relevant battery units in each jurisdiction as at the time the NTC calculations are performed.

‘Long run’ battery units are defined as battery units that can sustain a MW output equal to their MEC for at least 2 hours when fully charged. For the purposes of NTC calculations the total energy available from ‘long run’ battery units shall be assumed to equal their expected total energy availability when fully charged. This assumes that the units can be fully charged in advance of any need to utilise them.

For the purposes of NTC calculations, ‘long run’ battery units shall be considered available for a single 90-minute run at their total collective declared availability in EDIL, as at the time the NTC calculations are performed. In order to maximise NTC values the 90-minute run shall be timed to coincide with the period of tightest generation margins within the trading day. A 90-minute run of the ‘long run’ battery units is assumed instead of a 2-hour run due to performance issues observed across the existing suite of battery units as at the time of publication of this document.

The total assumed availability of ‘long run’ battery units participating in the 90-minute run shall be adjusted to reflect the scheduled commencement of any planned unit outage and the scheduled return to service of any units from planned outage, as per the committed outage programme, the Nord Pool REMIT platform and/or any other authoritative source of unit availability information. For audit purposes the details of assumptions regarding the above shall be recorded in accordance with the requirements of Section 6.1.

## 5.7 Hydro Generation

For the purposes of NTC calculations the assumed contribution of run-of-river hydro generation to the overall supply and demand balance shall reflect the forecast running of the units as indicated by the ESB Hydro Control Centre (HCC) via phone call and/or email. The values entered shall be based on the information provided by HCC and the currently declared availability of each unit in EDIL as at the time the calculations are performed. For audit purposes details of the information provided by HCC shall be recorded in accordance with the requirements of Section 6.1.

## 5.8 Transmission Constraints

The full or partial unavailability of plant due to anticipated transmission constraints shall be reflected in NTC calculations. For each trading period and each jurisdiction, the magnitude of the constraints shall take account of all transmission outages that are scheduled to commence or end across the day for which the NTC calculations are being performed. Plant on forced outage, as at the time the NTC calculations are performed, shall be assumed to remain on forced outage. Assumed transmission constraints shall take into account renewable generation forecasts and shall be supported by load flow analysis where necessary.

For audit purposes the details of how the transmission constraint values were determined shall be recorded in accordance with the requirements of Section 6.1.

## 5.9 Inter-Jurisdiction Total Transfer Capacity Limits

The maximum TTC limit assumed in the North-South and South-North flow directions shall align with the values published in the most recent applicable Weekly Operational Constraints Update report. For each trading period the TTC shall be adjusted to reflect variations in forecast wind & solar generation, where relevant. The TTC limits may be amended in the following circumstances:

- A forced outage or tripping of one or more key items of transmission equipment is deemed to have rendered the original TTC calculations obsolete;
- The LSAT Real Time or Look Ahead functions indicate system security violations for N-G loss of the largest single infeed in either jurisdiction.

Deviations from the published TTC limits should be based on the findings of load flow studies and / or any corrective actions recommended by LSAT. For audit purposes the reasons and justification for any deviations from the published TTC limits shall be recorded in accordance with the requirements of Section 6.1.

## 5.10 Jurisdictional Largest Single Infeeds

The size of the Largest Single Infeed (LSI) in each jurisdiction shall equal the maximum MW output of the largest unit expected to be available in each jurisdiction across the period for which NTC calculations are being performed. This shall take account of units that are scheduled to commence a planned outage or scheduled to return from planned outage, as per the committed outage programme, the Nord Pool REMIT platform and/or any other authoritative sources of unit availability information.

## 5.11 Temporary Emergency Generation

In Ireland the total amount of Temporary Emergency Generation (TEG) to be included in NTC calculations for the EWIC interconnector shall be the summation of the declared EDIL availabilities of all TEG units, as at the time the NTC calculations are performed.

Amendments shall be made to account for differences between the currently declared availability of TEG units in EDIL and the expected availability of those units across the day for which the NTC calculations are being performed. Any such amendments shall be made in accordance with the general principles outlined in Section 5.4.

For audit purposes the details of assumptions regarding the above shall be recorded in accordance with the requirements of Section 6.1.

# 6. Records & Transparency

## 6.1 Logging

The ‘Margin Check’ spreadsheet used to perform the NTC calculations includes fields for notes to be used to record the details, reasoning and/or justification for all assumptions made in accordance with Sections 5.4, 5.6, 5.7, 5.8, 5.9 and 5.11.

## 6.2 Filing

Upon finalisation of NTC calculations the ‘Margin check’ spreadsheet used to perform the NTC calculations shall be saved for posterity and audit purposes.

## 6.3 External Reporting

Pursuant to Section 6 of the SEMC Decision Paper SEM-24-025, 28 March 2024 on Compensation Arrangements for Net Transfer Capacity (NTC) Reductions<sup>7</sup>:

1. Where decisions to reduce NTC are taken ahead of the coupled auctions, the TSOs are required to publish information supporting their decision on their websites within five working days.

These “*Interconnector Net Transfer Capacity Reduction*” reports are compiled by the System Operations Back Office and published for the Moyle Interconnector on the SONI website<sup>8</sup>, and for EWIC on the EirGrid website<sup>9</sup>.

2. Every three months the TSOs are required to prepare a report for the Regulatory Authorities on all reductions, including the reason for each reduction.

This report is also to be published on the TSOs’ websites.

Sample report:

Wednesday 1 May 2024

Hourly NTC reductions: System Security

Time (xx:00)	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22
MW	0	0	0	0	0	0	0	0	125	240	201	250	197	143	76	0	0	0	156	207	249	283	420	360

Contributing factors (forecast)	Yes (+)	Additional information / reasons
Demand		Normal seasonal profile (morning + evening peak)
Renewable generation (Wind/PV)	•	Low wind forecast for morning and evening periods
Plant availability (Conventional/BESS/DSU/TEG)		2 large units and a number of smaller units unavailable
Long notice units	•	One large unit at long notice
Energy-limited units (Hydro/DSU/BESS)		DSU & batteries were considered in the margin over morning and evening peaks
Transmission constraint		No significant constraints limiting generation
Support from Northern Ireland	•	No support available over the day from 08:00
TEG availability		TEG units were available
Testing		A number of units were testing on the day but not considered for margin purposes
Other		n/a
System State after NTC reductions		Normal State was anticipated throughout the day

<sup>7</sup><https://www.semcommittee.com/files/semcommittee/2024-03/NTC%20decision%20March%202024%20for%20publication.pdf>

<sup>8</sup> <https://www.soni.ltd.uk/library/>

<sup>9</sup> <https://www.eirgrid.ie/publications>

# Appendix A: Acronyms & Abbreviations

- BETTA - British Electricity Trading Transmission Arrangements
- DAM - Day-Ahead Market
- DSU - Demand Side Unit
- EDIL - Electronic Dispatch Instruction Logger
- ESB - Electricity Supply Board
- EWIC - East West Interconnector
- EMS - Energy Management System
- GB - Great Britain
- HCC - Hydro Control Centre
- ICMP - Interconnector Management Platform
- IDA1 - Intraday Auction 1
- IDA2 - Intraday Auction 2
- LSAT - Long-Term Security Assessment Tool
- LSI - Largest Single Infeed
- LTS - Long Term Scheduling
- MEC - Maximum Export Capacity
- MMS - Market Management System
- NGESO - National Grid Electricity System Operator
- NI - Northern Ireland
- NTC - Net Transfer Capacity
- REMIT - Regulation on Wholesale Energy Market Integrity & Transparency
- ROI - Republic of Ireland
- SEM - Single Electricity Market
- SEMO - Single Electricity Market Operator
- TEG - Temporary Emergency Generation
- TTC - Total Transfer Capacity

# Appendix B: NTC Risk Mitigation Actions

Pursuant to Section 6 of the SEMC Decision Paper, the TSOs were requested to identify development of actions that would assist in reducing the number of days that NTC reductions would need to be applied. These actions, including actions to mitigate the risk of not having reduced NTC, are summarised below.

Actions	Comment
<p><b>Risk-based decision-making</b></p> <p>The updated procedure introduces risk-based decision-making, which may result in the NTC not being set down at times when the day-ahead NTC calculation indicates that one (or both) of the jurisdictions might enter Alert state if exports were not limited.</p> <p>The risk assessment will be based on:</p> <ul style="list-style-type: none"> <li>• Forecast generation adequacy in Great Britain;</li> <li>• Day-Ahead Market (DAM) price spreads between SEM &amp; BETTA;</li> <li>• Current prevailing market-based interconnector flows &amp; system conditions;</li> <li>• Indications from NGEESO of amenability to facilitate countertrades</li> </ul>	<p>For a given trading day the decision on whether to apply the calculated NTC limits in the IDA1 and IDA2 auctions will be taken by the EirGrid / SONI control rooms, in consultation with EirGrid / SONI management, based on an assessment of risk.</p> <p>Should the risk materialise intraday, mitigation will include intraday measures listed below (some of which will be activated under a System Alert or Emergency State, as indicated).</p>
<p><b>Market notice</b></p> <p>A market notice may be issued day-ahead (including when the NTC would otherwise have been set down).</p>	<p>While market response to such messages has been limited, this is considered important in the interests of enhanced transparency.</p>
<p><b>The NTC reduction period</b></p> <p>The NTC may on some days only be set down from 11:00 to 13:00 in the trading period for the next day.</p> <p>On days that system margins are expected to be very tight, the NTC may be set down for the full period.</p>	<p>This timing should allow sufficient time to arrange the required trades after the IDA2 file comes in at 08:40.</p>
<p><b>Temporary Emergency Generation (TEG)</b></p> <p>TEG which is commissioned and available (currently c.240 MW) is included in the NTC calculation for EWIC. The remainder (410 MW) will also be included when commissioned.</p>	<p>TEG will be dispatched as a last resort to support committed exports for EWIC if all other measures are unsuccessful (including intra-day trades).</p>
<p><b>Intraday trades</b></p> <p>System operator (SO/SO) and cross-border third party trades will be pursued on the day to avoid a System Alert or Emergency state.</p>	<p><i>(This is not an ex-ante remedial action)</i></p>
<p><b>Emergency Assistance</b></p> <p>Where intraday trades (and TEG in the case of EWIC) are insufficient to prevent a System Alert with committed exports, Emergency Assistance will be implemented in accordance with the IOP for Moyle and EWIC.</p>	<p><i>(This is not an ex-ante remedial action)</i></p> <p>This action will only be implemented after TEG has been deployed in Ireland.</p>
<p><b>Emergency Instruction</b></p> <p>Where intraday trades (and TEG in the case of EWIC) are insufficient to prevent a System Emergency state with committed exports, Emergency Instruction will be implemented in accordance with the IOP for Moyle and EWIC.</p>	<p><i>(This is not an ex-ante remedial action)</i></p> <p>This action will only be implemented after TEG has been deployed in Ireland.</p>