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Interpreting NESO's Skip Rate Datasets

2025 Supporting Document

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Introduction

This document provides a detailed breakdown of the datasets published on the Skip Rate section of NESO's [data portal](#), building on the methodology developed alongside LCP Delta. For comprehensive details on this methodology, please refer to the [Skip Rate](#) section of the website. These datasets offer crucial insights into the understanding of Skip Rates, aligning with NESO's remit and transparency efforts in this area.

About Skip Rate Datasets

We have published five datasets on our website:

1. Summary
2. In Merit All BM
3. In Merit Post System Action
4. Exclusion Reasons
5. Technology Type Summary

Key details:

- Update frequency: day-plus-one, on working business days. This means that a dataset published on a given day will include information up to midnight of the previous day.
- Data range: From 15-12-2024 to present.
- Format: CSV, with "In Merit All BM", "In Merit Post System Action" and "Exclusions" available as monthly files.

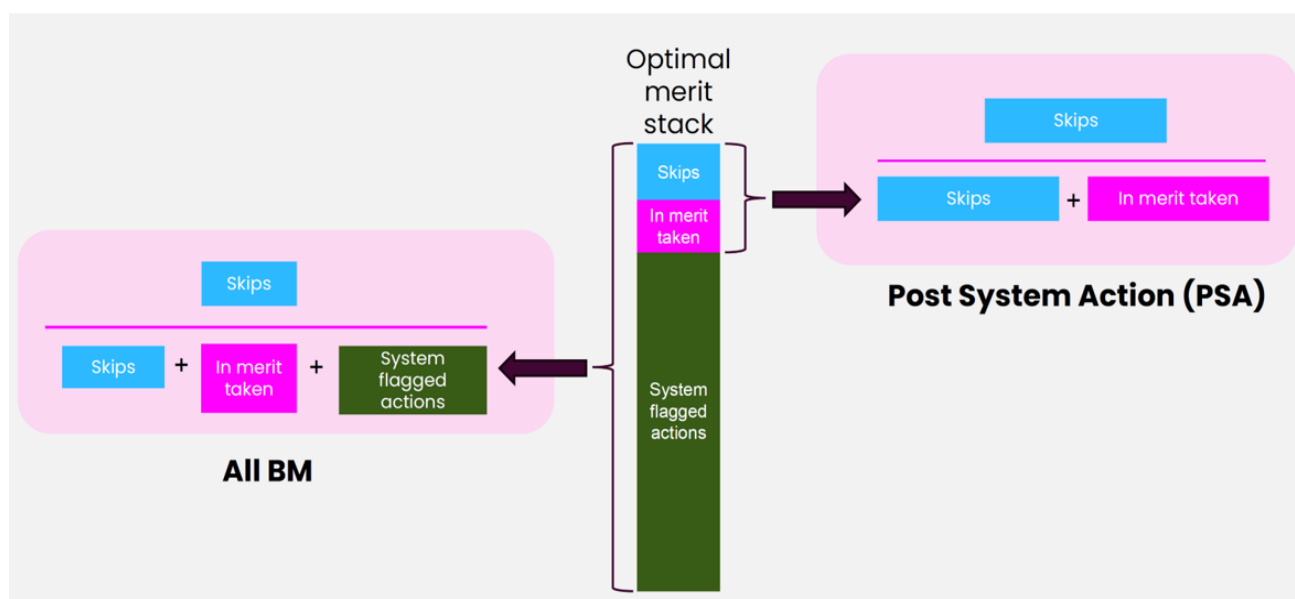
Access options:

- Direct download: available for all datasets.
- API access: possible to automate the download process.
- Datasets exploration: functionality available on the website for Exploratory Data Analysis (EDA) through queries and filtering.
- Dashboard on skip rates website: It allows users to visualise skip rates and skipped volume at their chosen level of granularity. This includes viewing the data by Settlement Period, day, week or month, as well as filtering to show specific units or providers.

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Overview of Datasets

All the data contained in the datasets revolves around the definitions of Skip Rate. See below a visual representation and both definitions for a clear understanding:



All Balancing Mechanism (All BM) Skip rate -> A measure of skips, considering all BM actions that could have been taken over the relevant period.

Post System Actions (PSA) Skip Rate -> A more focused measure of skips, where system actions are disregarded.

The definitions provided, along with the methodology explained [here](#), determine the data contained in the datasets.

Below is a high-level description of all the available datasets:

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Dataset Name	Description
Summary	This dataset provides skip rate data for offers and bids aggregated to 30-minute Settlement Periods across all stages of the methodology. Some metrics include the percentage and total volume of skipped transactions in MWh for the All Balancing Mechanism (All BM) and Post System Actions (PSA).
In Merit All BM	This dataset shows the Volume Adjusted in Merit Stack for the All BM calculation of skip rates, broken down into 5-minute intervals. It contains price information as well as available, accepted, skipped, and In Merit volume for Balancing Mechanism Units (BMUs) which were in cost merit.
In Merit Post System Action	This dataset shows the Volume Adjusted in Merit Stack for the PSA calculation of skip rates, also broken down into 5-minute intervals. It contains price information as well as available, accepted, skipped, and In Merit volume for BMUs which were in cost merit.
Exclusion reasons	This dataset details the bids and offers across all fuel types that were excluded, including the exclusion reason and stage.
Technology Type Summary	This dataset provides a breakdown of skip rates by technology type. It presents two definitions of skip rates by technology type, based on stage 5 of the PSA (Post System Action) definition.

Datasets Breakdown

See below a more detailed breakdown of the contents of the datasets available:

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Summary Dataset

The Summary dataset offers an overview of skip rates and volumes aggregated to 30-minute settlement periods, detailing information across all stages (0-5). Each column provides insights into the percentage and volume of offers and bids skipped before and after system actions.

Time period (00:00-00:30)		All BM for offers (% and skipped volume)		All BM for bids (% and skipped volume)					
Date	Stage	All BM Skip Rate Offers %	All BM Total Volume Skipped Offers MWh	Post System Action Skip Rate Offers %	Post System Action Total Volume Skipped Offers MWh	All BM Skip Rate Bids %	All BM Total Volume Skipped Bids MWh	Post System Action Skip Rate Bids %	Post System Action Total Volume Skipped Bids MWh
2025-02-01T00:00:00Z	0	82.75	248.17	82.75	248.17	41.63	199.08	41.63	199.0
2025-02-01T00:00:00Z	1	82.75	248.17	82.75	248.17	41.63	199.08	41.63	199.0
2025-02-01T00:00:00Z	2	82.75	248.17	82.75	248.17	41.63	199.07	41.63	199.0
2025-02-01T00:00:00Z	3	8.05	24.15	39.01	24.15	41.46	198.24	41.53	198.2
2025-02-01T00:00:00Z	4	5.87	17.6	28.42	17.6	41.46	198.24	41.53	198.2
2025-02-01T00:00:00Z	5	5.02	14.56	27.85	14.56	41.46	198.24	41.53	198.2

Stage (0-5)

Post System Action (PSA) for offers (% and skipped volume)

Post System Action (PSA) for bids (% and skipped volume)

Note: Skipped volume is the same in All BM and PSA because the only difference is the denominator

Fig 1: sample of summary dataset

Data Structure and Components

Column Name	Description
Date	The starting time of the settlement period, formatted as a timestamp.
Stage	Indicates stage of the Skip Rate methodology (0-5).
All BM Skip Rate Offers %	Skip Rate percentage for offers during that stage. As per All BM skip rate definition.
All BM Total Volume Skipped Offers MWh	Total skipped volume, in megawatt-hours (MWh), for offers. As per All BM skip rate definition.
Post System Action Skip Rate Offers %	Skip Rate percentage of offers during that stage. As per PSA Skip Rate definition.

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Column Name	Description
Post System Action Total Volume Skipped Offers MWh	Total skipped volume, in MWh, for offers. As per PSA Skip Rate definition.
All BM Skip Rate Bids %	Skip Rate percentage for bids during that stage. As per All BM Skip Rate definition.
All BM Total Volume Skipped Bids MWh	Total skipped volume, in MWh, for bids. As per All BM Skip Rate definition.
Post System Action Skip Rate Bids %	Skip Rate percentage for bids during that stage. As per PSA Skip Rate definition.
Post System Action Total Volume Skipped Bids MWh	Skipped volume, in MWh, for bids. As per PSA Skip Rate definition.

Key Points and metrics explanation

- The skipped volume is consistent across both the All BM and the PSA columns. This is due to how we define these metrics, where the only change in these two calculations is the denominator.
- The dataset enables a comprehensive view of skip rates and volumes across different stages and types of actions.

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In Merit All Balancing Mechanism Dataset

This dataset captures detailed bids and offers for the Volume Adjusted In Merit Stack in five-minute intervals. It includes all technology types and stages, serving as a measure of skips and reflecting the stages of exclusion (0 to 5) for each settlement period.

Filter on both to see the in-merit stack

Volume that was skipped

Time period (00:00-00:05)

Bid or Offer

Stage (0-5)

Available volume & average price

Pair ID in merit

Volume that was in merit

Date	BM Unit	Fuel	Bid/Offer	Stage	Available Volume MWh	Average Price £/MWh	Pair id	Accepted Volume MWh	In Merit Volume MWh	Skipped Volume MWh
2025-02-01T00:00:00	COSO-1	CCGT	Offer	0	62.76	130.0	1	0.0	18.37	18.37
2025-02-01T00:00:00	CONTB-1	BATTERY	Bid	0	1.42	95.41	-1	1.42	1.42	0.0
2025-02-01T00:00:00	MOYEW-1	WIND	Offer	0	4.33	95.0	1	0.0	4.33	4.33
2025-02-01T00:00:00	PNFB-1	BATTERY	Bid	0	0.83	94.0	-1	0.83	0.83	0.0

BMU and fuel type

Volume that was accepted, as a subset of the in-merit volume

Fig 2: sample of In Merit All BM dataset

Data Structure and Components

Column Name	Description
Date	The date and time of the entry, formatted as 5-minute timestamp providing the start and the end of the period.
BM Unit	The identifier of the BMU unit involved.
Fuel	The type of fuel / technology of BMU.
Bid/ Offer	Indicates whether the entry is a Bid or an Offer.
Stage	Indicates the stage at which the volume was considered "In Merit." You can filter for bids at a given Stage to view the Volume Adjusted In Merit stack at that stage.

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Column Name	Description
Available Volume MWh	The total available volume in MWh for the BMU during the given period.
Average Price £/MWh	The average price per MWh associated with the available volume.
Pair Id	Pair ID that was in merit.
Accepted Volume MWh	The volume in MWh that was accepted.
In Merit Volume MWh	The volume in MWh that was in merit, during the given period.
Skipped Volume MWh	The volume in MWh that was skipped.

Key Points

1. Units In Merit

- The dataset shows the units that should have been taken based on the skip rate methodology.
- The number of units at a specific stage may vary, remaining constant, increase, or decrease. This depends on the volume that each unit has available to meet the imbalance requirement (volume of energy needed to balance the grid in real-time).

2. Total In Merit Volume

- The sum of the In Merit Volume column for each 5-minute period and stage equals the imbalance requirement.
- Between stages, the total 'In Merit Volume' (and therefore the imbalance requirement) either stays the same if no accepted volume is excluded or decreases if accepted volume is excluded. The number of units can increase, decrease, or remain the same.

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3. Comparison with other Published Data

Note: This dataset does not show all units that were instructed so the sum of the accepted volume does not match the total accepted volume datasets shown in Elexon as shown in the [Settlement bid-offer stack by settlement period](#). This is because:

- We publish only units that are deemed to be in merit (if a unit was accepted out-of-merit it will not be shown on the dataset).
- We apply exclusions to the accepted volumes, based on the skip rate methodology.
- We publish the datasets at 5-minute granularity whereas Elexon publishes by settlement period.

In Merit PSA Dataset

The In Merit PSA dataset provides insights into the units and actions which were in merit but without system actions. It is a more targeted measure of skips as it provides insights solely into energy actions that were priced in merit.

Data Structure and Components

This dataset is structured with the same columns as the In Merit All BM dataset (please see above). This consistency allows for cross-comparison and data interrogation.

Key Points and differences between both datasets

- PSA considers skipped volume as a proportion of volume taken for energy reasons
- All BM considers skipped volume as a proportion of all volume taken. As such, PSA is a subset of All BM, with All BM including additional rows showing units that are deemed to have been taken in merit to manage the system.
- The schema across both datasets is the same.

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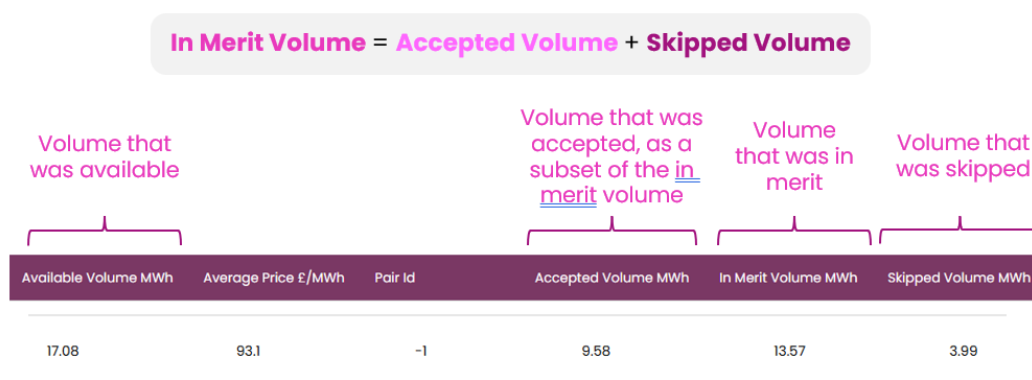
Worked Example

In this section, we will examine an example of the relationship between the "In Merit Volume," "Accepted Volume," and "Skipped Volume".

Expected Relationship:

For non-marginal units (units at the least economically attractive price of those in the in merit stack) the sum of the "Accepted Volume" and the "Skip Volume" should equal the "Volume In Merit". This is not necessarily the case for marginal units.

Example Scenario:



In Merit Volume (13.57 MWh) = Accepted Volume (9.58 MWh) + Skipped Volume (3.99 MWh)

Sum of In Merit Volume is the imbalance requirement -> filter by time, stage, bid/offer

Fig 3: visual example of relationships between volumes

Consider the example above to illustrate this relationship:

- **In Merit Volume:** 13.57 MWh
- **Accepted Volume:** 9.58 MWh
- **Skip Volume:** 3.99 MWh

In this example, the sum of the "Accepted Volume" (9.58 MWh) and the "Skip Volume" (3.99 MWh) equals the "In Merit Volume" (13.57 MWh). This demonstrates the expected relationship.

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Calculating Imbalance Requirement

- By summing the "In Merit Volume" column for a specific five-minute period, you can determine the imbalance requirement for that interval.

Exclusion Reasons Dataset

This section explains the exclusions dataset, detailing the units excluded and the reasons for their exclusion. It aids understanding of the exclusion stages. Please note that some units might be shown as excluded from the "Feasible Merit Stack," while others are excluded from the "Accepted Merit Stack." The exclusion reason provides additional context for these exclusions.

Date ↑	BM Unit	Fuel	Bid/Offer	Excluded from Accepted or Feasible Merit Stack	Exclusion Stage	Pair Id	Average Price £/MWh	Excluded Volume MWh	Exclusion Reason
2025-02-01T23:55:00	CLAYB-2	BATTERY	Bid	Feasible Merit	2	-1	70.74	1.42	Behind constraint
2025-02-01T23:55:00	VKNGW-1	WIND	Bid	Accepted	2	-1	-4.75	7.83	Behind constraint
2025-02-01T23:55:00	AG-HUM02	BATTERY	Bid	Feasible Merit	2	-1	70.04	0.58	Behind constraint
2025-02-01T23:55:00	EECL-1	CCGT	Offer	Accepted	2	1	129.0	15.48	Behind constraint

Fig 4: sample of Exclusion dataset.

Data Structure and Components

Column Name	Description
Date	The timestamp related to the time/ settlement period when the exclusion occurred.
BM Unit	BMU unit involved in the exclusion.
Fuel	The type of fuel / technology for BMU.

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Column Name	Description
Bid/ Offer	Indicates whether the action was a bid or an offer.
Excluded From Accepted or Feasible Merit Stack	Specifies whether the exclusion was from the accepted or feasible merit stack.
Exclusion Stage	Specific stage of the methodology where the exclusion occurred.
Pair Id	Pair ID that was in merit.
Average Price per MWh	The average price of the excluded volume per MWh.
Excluded Volume MWh	The amount of energy volume excluded in MWh.
Exclusion Reason	The reason why the unit was excluded.

Common Exclusion Criteria and Stages

The table below shows all possible exclusion reasons for each stage.

Table of Exclusion Reasons

Stage	Exclusion Reason
1	Wind offer
2	Behind constraint
2	Unit ramping between 0 and SEL or 0 and SIL
2	Inaccessible very long notice unit
2	Invalid physical/dynamic parameter
3	System-tagged
4	Unwind
5	Inaccessible long notice unit
5	Long notice 0 to SIL or 0 to SEL
5	Inaccessible pumped storage through zero
5	Cannot take a long notice unit offline

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Examples and Specific Cases

- A unit may be excluded for multiple reasons within the same stage:

5	-1	88.0	1.25	Long notice 0 to SIL or 0 to SEL, Cannot take a long notice unit offline
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- This example shows a unit that was excluded due to "Long Notice" and "Cannot Take a Long Notice Unit Offline." Both reasons are listed if applicable.
- If a unit is excluded at one stage, it will remain excluded in subsequent stages, except in specific cases. See below:
 - This can occur because constraint headroom and footroom calculations occur at stage 2, 3, 4, and 5. Unit 1 may be excluded at a given stage because it was not one of the cheapest units to fill the headroom. However, one of the cheaper units (Unit 2) behind the same constraint may be excluded at a following stage. Unit 1 may now fit into the headroom of the constraint at a subsequent stage.

5	-1	73.39	0.58	Behind constraint, Cannot take a long notice unit offline
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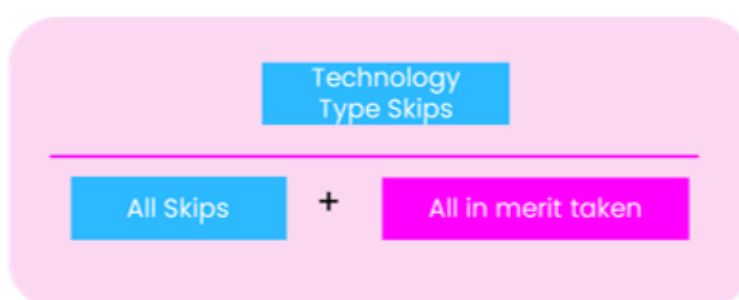
- For instance, if a unit is deemed to be behind an active constraint but also excluded for other reasons (e.g. as shown above), the dataset will have both reasons listed.

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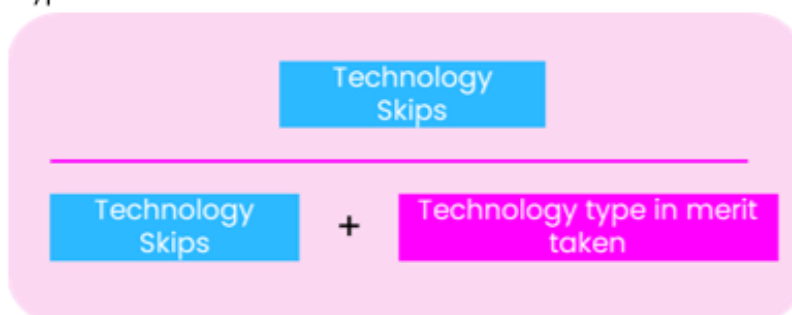
Technology Type Skip Rate Summary

This dataset provides Skip Rate metrics for all technology types aggregated to 30-minute granularity. We present two views of skip rates by technology type, based on stage 5 of the PSA (Post System Action) definition:

Relative Technology Skip Rate: Skipped volume by technology type as a percentage of all in-merit



Technology Specific Skip Rate: Skipped volume by technology type as a percentage of in-merit by technology type



Below is a sample of the dataset including all technology types available in the BM for that settlement period:

Date	Bid_Offer	Technology	Relative Technology Skip Rate (%)	Technology Specific Skip Rate (%)	In-merit Volume (MWh)	Skipped Volume (MWh)
2024-12-15T00:00:00	Bid	NPSHYD	50	100	0.01	0.01
2024-12-15T00:00:00	Bid	PS	50	100	0.01	0.01
2024-12-15T00:00:00	Offer	BATTERY	43.87	60.69	208.77	126.71
2024-12-15T00:00:00	Offer	CCGT	0.41	1.46	80.06	1.17

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Column Name	Description
Date	The starting time of the settlement period, formatted as a timestamp
Bid_Offer	Indicates whether the entry is referring to bids or offers
Technology	Type of technology
Relative Technology Skip Rate (%)	Skipped volume by technology type as a percentage of all In merit volume
Technology Specific Skip rate (%)	Skipped volume by technology type as a percentage of In Merit volume by technology type
In Merit Volume (MWh)	Total In Merit volume, in MWh, per technology for the specified settlement period
Skipped Volume (MWh)	Skipped MWh volume per technology for the settlement period.

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Using the Datasets Together

This section walks through an example of how to integrate the datasets for analysis on how the skip rate methodology works, focusing on a specific five-minute interval.

Example Details: **8th February, 03:40–03:45, offers (All BM)**

Initial view – Stage 0

At Stage 0 and using the In Merit All BM dataset, you can view which units are in merit.

bm_unit	fuel	average_price_per_MWh	pair_id	in_merit_volume_MWh
BROCW-1	WIND	10.5	1	2.47
BNWKW-1	WIND	95	1	0.93
LCLTW-1	WIND	95	1	5.5
MOYEW-1	WIND	95	1	4.5
TULWW-1	WIND	95	1	1.25
TULWW-2	WIND	95	1	1.87
TRLGW-1	WIND	100	1	1.08
AG-JUKP01	BATTERY	120	1	0.17
EECL-1	CCGT	128.9	1	35
RHEI-4		128.9	1	0.92
RHEI-4		128.9	2	1.75
RHEI-4		128.9	3	1.42
MRWD-1	CCGT	129	1	12.64

Key points:

Units and Prices: Lists the units, their prices, In Merit volumes, pair_ids, and other information (not relevant for the purpose of this example).

Total In Merit Volume: At Stage 0, the total In Merit volume for this period is 69.5 MWh.

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Transition from Stage 0 to Stage 1

bm_unit	fuel	available	average_price_per_MWh	pair_id	in_merit_volume_MWh
AG-JUKP01	BATTERY	0.17	120	1	0.17
EECL-1	CCGT	35	128.9	1	35
RHEI-4		0.92	128.9	1	0.92
RHEI-4		1.75	128.9	2	1.75
RHEI-4		1.42	128.9	3	1.42
MRWD-1	CCGT	15	129	1	15
NTRVB-1	BATTERY	3.33	129.9	1	3.18
SHOS-1	CCGT	18.33	129.9	1	6
SHOS-1	CCGT	18.5	129.9	2	6.05

Stage 1 Stack:

- All wind units have been excluded from the "Feasible Merit stack" because they are wind offers, in line with the exclusions at stage 1.

Key take aways:

- Exclusion Impact: Excluding wind units affects the composition of the In Merit stack.
- Additional Units added: New units added to the stack as other units are excluded. For example, SHOS-1 and NTRVB-1 are added to replace the wind volume that was excluded.
- Consistent In Merit Volume: As no accepted volume has been excluded (only feasible volume exclusions), the In Merit volume remains at 69.5 MWh

We can cross reference this with the exclusions dataset and find the following:

bm_unit	fuel	excluded_from_a	pair_id	exclusion_reason
BNWKW-1	WIND	Feasible Merit	1	Wind offer
BROCW-1	WIND	Feasible Merit	1	Wind offer
LCLTW-1	WIND	Feasible Merit	1	Wind offer
MOYEW-1	WIND	Feasible Merit	1	Wind offer
TRLGW-1	WIND	Feasible Merit	1	Wind offer
TULWW-1	WIND	Feasible Merit	1	Wind offer
TULWW-2	WIND	Feasible Merit	1	Wind offer

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Transition from Stage 1 to Stage 2

This section explains the changes and adjustments in the dataset as it transitions from Stage 1 to Stage 2, focusing on unit exclusions and volume adjustments.

- Stage 1:
 - Several units share the same price.
 - Volume Distribution: Volumes are assigned proportionally based on availability of these units. In merit volume remains constant at 69.5 MWh.

bm_unit	fuel	average_price_per_MWh	pair_id	in_merit_volume_MWh
AG-JUKP01	BATTERY	120	1	0.17
EECL-1	CCGT	128.9	1	35
RHEI-4		128.9	1	0.92
RHEI-4		128.9	2	1.75
RHEI-4		128.9	3	1.42
MRWD-1	CCGT	129	1	15
NTRVB-1	BATTERY	129.9	1	3.13
SHOS-1	CCGT	129.9	1	2.08
SHOS-1	CCGT	129.9	2	2.1
ARNKB-1	BATTERY	129.94	1	3.83
COVNB-1	BATTERY	140	1	4.08

Changes in Stage 2

bm_unit	fuel	excluded_from_accepted	exclusion_stage	pair_id	exclusion_reason
ARNKB-1	BATTERY	Accepted	2	1	Behind constraint
COVNB-1	BATTERY	Accepted	2	1	Behind constraint
NTRVB-1	BATTERY	Accepted	2	1	Behind constraint

Exclusions:

- Three battery units are excluded from the "Accepted Stack."
- These units were accepted but are excluded as they are deemed to have been taken to manage an active constraint.

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Constraint Handling:

- The exclusion indicates that these units were specifically instructed for constraint management.
- These are assumed to have been taken in merit in the All BM merit stack.

bm_unit	fuel	average_price_per_MWh	pair_id	in_merit_volume_MWh
AG-JUKP01	BATTERY	120	1	0.17
EECL-1	CCGT	128.9	1	35
RHEI-4		128.9	1	0.92
RHEI-4		128.9	2	1.75
RHEI-4		128.9	3	1.42
MRWD-1	CCGT	129	1	15
NTRVB-1	BATTERY	129.9	1	3.13
SHOS-1	CCGT	129.9	1	2.08
SHOS-1	CCGT	129.9	2	2.1
ARNKB-1	BATTERY	129.94	1	3.83
COVNB-1	BATTERY	140	1	4.08

Impact on Marginal Units and Volume Adjustments:

- Volume Adjustment for Affected Marginal Units:
 - NTRVB-1: This unit's accepted volume (3.13MWh) was included in the All BM merit stack as it was used to manage an active constraint.
 - Additional Units: Two other BMUs, ARNKB-1 and COVNB-1, were also behind active constraints. Their accepted volume is assumed to have been taken in merit in the All BM merit stack for system reasons.
- Exclusion Reasons:
 - Although these units appear in the exclusion reasons due to system constraints, they are deemed to have been taken in merit in the All BM merit stack to manage a constraint.

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- Dataset Considerations:
 - If this analysis were based on the "In Merit Post System Actions" dataset, these BMUs would have been excluded, highlighting the difference in dataset interpretation.
 - The imbalance requirement in the PSA method only includes energy volume but All BM method includes volume required for both energy and system requirements.
- Maintaining In Merit Volume:
 - To keep the overall In Merit volume at 69.5 MWh, the In merit volume of another unit (SHOS-1) was decreased proportionally.
 - This adjustment ensures that the total In Merit volume remains consistent despite the inclusion of units that were necessary to meet system requirement.
- Summary:
 - The adjustments reflect the management of constraints for this period while maintaining a consistent imbalance requirement and therefore In Merit volume.

Transition from Stage 2 to Stage 3

This section reflects how the dataset changes according to the methodology as it progresses from Stage 2 to Stage 3, when applying unit exclusions and system tagging.

Changes in Stage 3: Updated List (total in merit volume remains constant at 69.5 MWh)

bm_unit	fuel	average_price_per_MWh	pair_id	in_merit_volume_MWh
AG-JUKP01	BATTERY	120	1	0.17
EECL-1	CCGT	128.9	1	34.39
RHEI-4		128.9	1	0.88
RHEI-4		128.9	2	1.67
RHEI-4		128.9	3	1.36
NTRVB-1	BATTERY	129.9	1	3.11
ARNKB-1	BATTERY	129.94	1	3.83
COVNB-1	BATTERY	140	1	4.08
SEAB-2	CCGT	194	1	20

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Exclusion reasons:

bm_unit	fuel	excluded_from_accepted	exclusion_stage	pair_id	exclusion_reason
EECL-1	CCGT	Accepted	3	1	System-tagged
SEAB-2	CCGT	Accepted	3	1	System-tagged

Unit removal:

- Note that "SHOS-1" unit, present in Stage 2, is removed in Stage 3 but is not listed among the exclusion reasons, indicating it was not explicitly excluded but was pushed out of the merit stack by another unit that was deemed necessary.

System Tagging and Inclusion:

- Accepted volume from EECL-1 and SEAB-1 is system tagged. This volume is considered necessary to manage the system.
- Consequently, they are classified as taken in merit. Therefore, they are regarded as necessary to fulfil the 69.5MWh imbalance requirement.

Impact on Volume and Marginal Units:

- Since these units are considered necessary, a reduced amount of volume is required from other units. Consequently, volume from SHOS-1 is now not in merit.

Summary

- The transition from Stage 2 to Stage 3 involves evaluating system-tagged accepted volume. In the All BM dataset, these actions are considered necessary and assumed to be in merit. However this volume is not included in PSA calculations. Therefore, units that were included at Stage 2 may no longer be classified as such.
- The dataset reflects these operational adjustments, demonstrating how system requirements influence unit selection and volume distribution.

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Transition from Stage 3 to Stage 4

In this example, there are no unwinds in the feasible In Merit stack, resulting in no exclusions and the dataset remains unchanged.

Transition from Stage 4 to Stage 5

This section explains the adjustments as the dataset moves from Stage 4 to Stage 5, the final stage of exclusions.

Stage 4:

bm_unit	fuel	stage	average_price_per_MWh	pair_id	in_merit_volume_MWh
AG-JUKP01	BATTERY	4	120	1	0.17
EECL-1	CCGT	4	128.9	1	34.39
RHEI-4		4	128.9	1	0.88
RHEI-4		4	128.9	2	1.67
RHEI-4		4	128.9	3	1.36
NTRVB-1	BATTERY	4	129.9	1	3.11
ARNKB-1	BATTERY	4	129.94	1	3.83
COVNB-1	BATTERY	4	140	1	4.08
SEAB-2	CCGT	4	194	1	20

Stage 5:

bm_unit	fuel	stage	average_price_per_MWh	pair_id	in_merit_volume_MWh
AG-JUKP01	BATTERY	5	120	1	0.17
EECL-1	CCGT	5	128.9	1	35
MRWD-1	CCGT	5	129	1	3.29
NTRVB-1	BATTERY	5	129.9	1	3.11
ARNKB-1	BATTERY	5	129.94	1	3.83
COVNB-1	BATTERY	5	140	1	4.08
SEAB-2	CCGT	5	194	1	20

Total in merit volume = 69.5 MWh

Exclusion Details:

bm_unit	fuel	exclusion_id	pair_id	average_price_per_MWh	excluded_volume	exclusion_reason
RHEI-4		5	1	128.9	0.92	Inaccessible long notice unit
RHEI-4		5	2	128.9	1.75	Inaccessible long notice unit
RHEI-4		5	3	128.9	1.42	Inaccessible long notice unit
SHOS-1	CCGT	5	1	129.9	18.33	Inaccessible long notice unit
SHOS-1	CCGT	5	2	129.9	18.5	Inaccessible long notice unit

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Unit Exclusions:

- RHEI-4 is excluded as it is a "Long Notice Unit" and therefore inaccessible.
- To address the required volume, SHOS-1 would have been re-added to the in merit stack; however, it is excluded due to the reasons outlined above.
- MRWD-1 is added to the in merit stack to provide the remaining required volume.

Summary:

The stage 5 Volume Adjusted In Merit Stack represents the most cost-effective way to meet imbalance requirements accounting for the exclusion criteria.

Conclusion

This document has been designed to offer guidance and support for users looking to understand the Skip Rate datasets published on our website. If you need further clarifications or have any questions, please do not hesitate to get in touch with us at box.SkipRates@neso.energy

Appendices

A: References and Further Reading:

NESO [Skip Rate Methodology and Implementation Guide](#)

NESO [Data Portal](#)

NESO Skip Rates [website](#)

LCP [Methodology](#)

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B: Glossary of Terms:

Term	Definition
Acceptance Stack	This stack contains the units that were issued BOAs and serves to assess the volume instructed within a specified 5- minute interval. This is used alongside the Feasible Merit Stack to evaluate the proportion of this volume that was in merit.
Feasible Merit Stack	This is the comprehensive list of all the units that could have been instructed. The feasible volume that accepted units could have delivered is included in the Feasible Merit Stack
Imbalance Requirement	This is the total volume of bids or offers accepted within a specific 5- minute period after all exclusions have been made for a given stage.
Volume Adjusted Merit Stack	This denotes the final list of units representing the most cost-effective means to meet the imbalance requirement. The portion of the volume from this stack that was accepted is deemed to be 'accepted in merit', while the volume not accepted from this stack is referred to as 'skipped' volume.
Import Constraint	This refers to the limitation on the amount of volume that can be imported into a specific boundary.
Export Constraint	This refers to the limitation on the amount of volume that can be exported out of a specific boundary.
Constraint Limit	This is a restriction required to control flow in and out of the boundary to ensure the safety and reliability of the system. To ensure a margin of safety, we apply a reduction factor to the original constraint limit: <ul style="list-style-type: none"> • $0.95 * \text{Limit}$ (applicable to positive export constraint limits and negative import constraint limits) • $1.05 * \text{Limit}$ (applicable to positive import constraint limits and negative export constraint limits)
Adjusted Flow or PN of a constraint	This metric retrospectively analyses the impact that BOAs had on a constraint. It represents the transfer that would have occurred if NESO had not issued BOAs for the constraint.
Unwind	<ul style="list-style-type: none"> • Feasible volume from a negative pair ID on a unit which has been sent an offer volume in a given 5- minute period • Feasible volume from a positive pair ID on a unit which has been sent a bid volume in a given 5-minute period

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	<ul style="list-style-type: none"> Where a BOA has been sent, the skip rate methodology does not consider the option of bringing the BOA back to its PN by instructing it through the bid price of a positive pair ID or an offer price of a negative pair ID. <p>Unwinds are treated the same as any other feasible volume for stages 1 – 3 inclusive.</p> <p>Unwinds are also considered when calculating which units can fill available head room / foot room for a constraint in stages 2 & 3</p>
Skipped Volume	This refers to the amount of offer or bid volume in MWh that is deemed available to balancing engineers and In Merit but not accepted during the dispatch process.
Long Notice	MZT >= 31mins MNZT >= 31mins NDZ >= 31mins
Very Long Notice	MZT > 12hours MNZT > 12hours NDZ >= 89mins
Skip Rate – All BM	<p>This metric refers to the proportion of bid or offers volume in cost merit and not accepted compared to the total amount of accepted volume for a given 5-minute period.</p> <p>This is calculated as:</p> $\frac{\text{Total Skipped Volume, MWh}}{\text{Total Imbalance Requirement, MWh}} \times 100\%$
Skip Rate – Post System Actions	<p>This metric refers to the proportion of bid or offers volume in cost merit and not accepted compared to the total amount of accepted volume (excluding system tagged volume) for a given 5-minute period.</p> <p>This is calculated as:</p> $\frac{\text{Total Skipped Volume, MWh}}{\text{Total Imbalance Requirement, MWh} - \text{System Tagged Volume, MWh}} \times 100\%$
Marginal Units	Units that are in merit with the least attractive price are called Marginal units. For offers, this is the units with the highest price and for bids this is the units with the lowest price.