

Skip Rates Behind Active Thermal Constraints

17th September 2026

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Purpose of the session

TODAY'S AGENDA

- 01 Recap of method, work to date and objective of publication

- 02 Share data publication plans

- 03 Share preview of data

- 04 Q&A 1

- 05 Share results

- 06 Q&A 2

- 07 Next steps

Our Aim

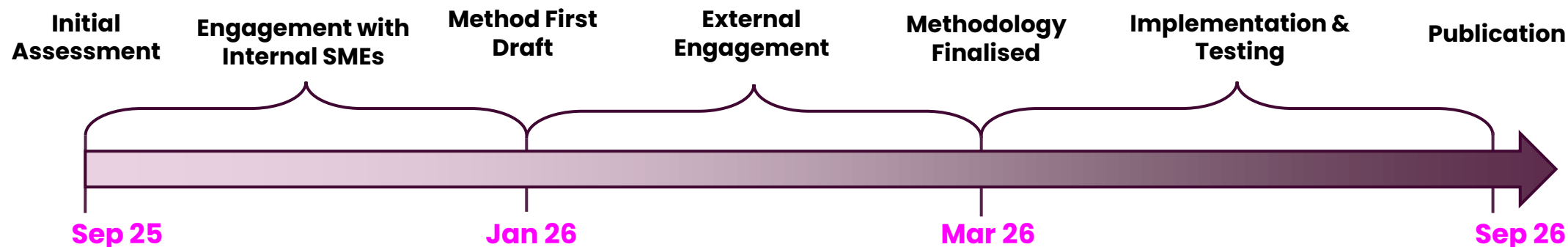
Provide transparency of dispatch decisions taken to manage active thermal constraints

Objectives

- Identify and analyse skips that occur behind thermal constraints.
- Develop a methodology to assess and measure skips within thermal constraint boundaries, accounting for:
 - Nested constraints
 - Complimentary constraints

Previous webinar outlining the method is available [here](#)

Timeline



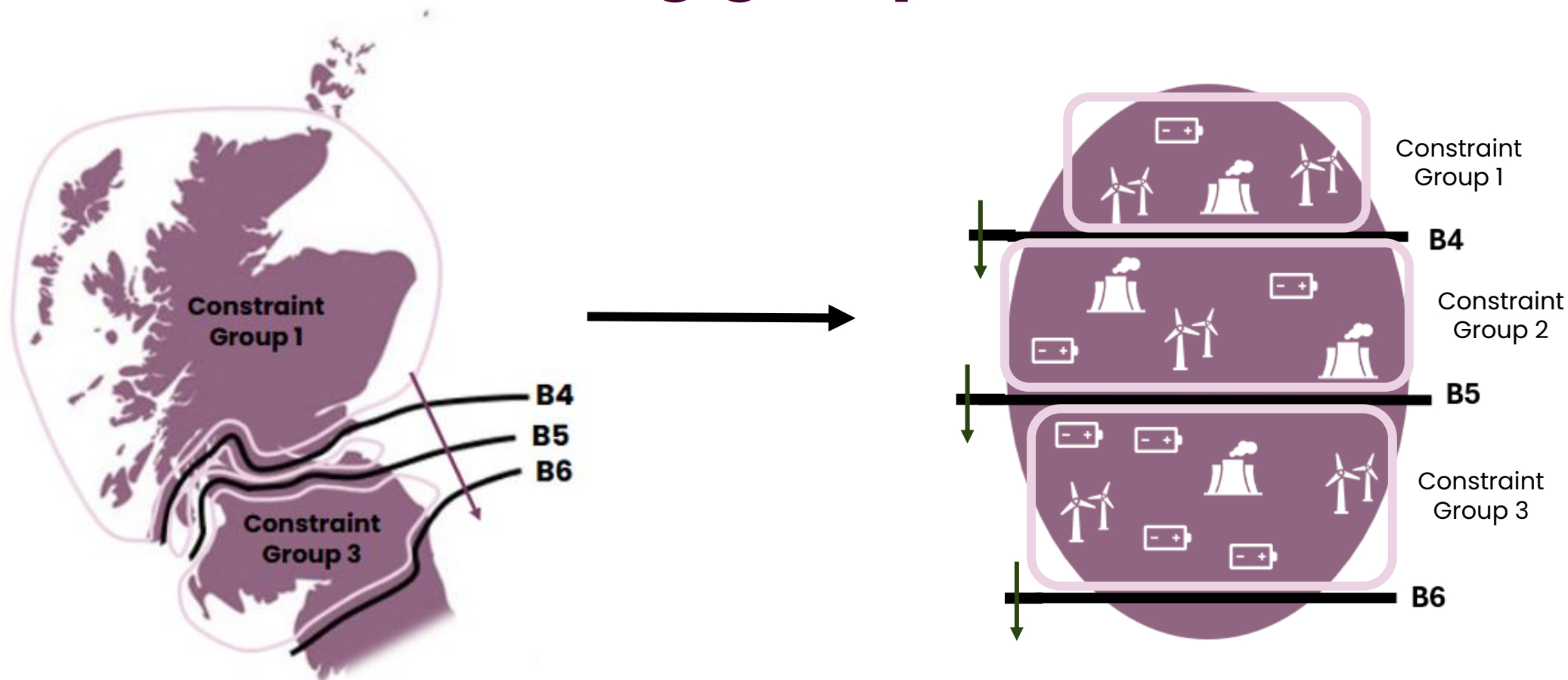
Energy Method Recap

- Units that are inaccessible to the control room in real time are excluded from consideration.
- All system actions (including those taken to manage thermal constraints) are excluded from consideration.
- The remaining units are then assessed at a **5-minute granularity**.
- Within any 5-minute period, the total volume of energy actions made by the control room are summed (separately for bids and offers). This sum is called the **imbalance requirement**.
- All feasible volume (on units that have not been excluded) is arranged in price order, and the cheapest possible units to fulfil the imbalance requirement are deemed **in merit**.
- If a unit is in merit but was not accepted by the control room, it has been **skipped**.
- Because actions taken to manage thermal constraints are removed, there is no assessment on the economic efficiency of these

What are Constraints?

- Thermal constraints are operational limits that protect physical infrastructure. They limit the power that can flow across physical wires and cables and
- can be visualised with theoretical lines drawn across the UK.
- An **active constraint** is a constraint that control engineers are currently taking actions to reduce the flow across. It is affecting dispatch decisions.
- **Export constraints** upper limit on the power that can flow out of a region. They often surround areas of high generation and low demand, such as Scotland on a windy day.
- **Import constraints** lower limit on the power that can flow into a region. They often surround areas of high demand and low generation, such as large cities.
- Constraints can also be due to voltage or stability.

The Method: Defining groups



The boundary of a group is the **largest shape** you can draw without crossing any **active constraints**.

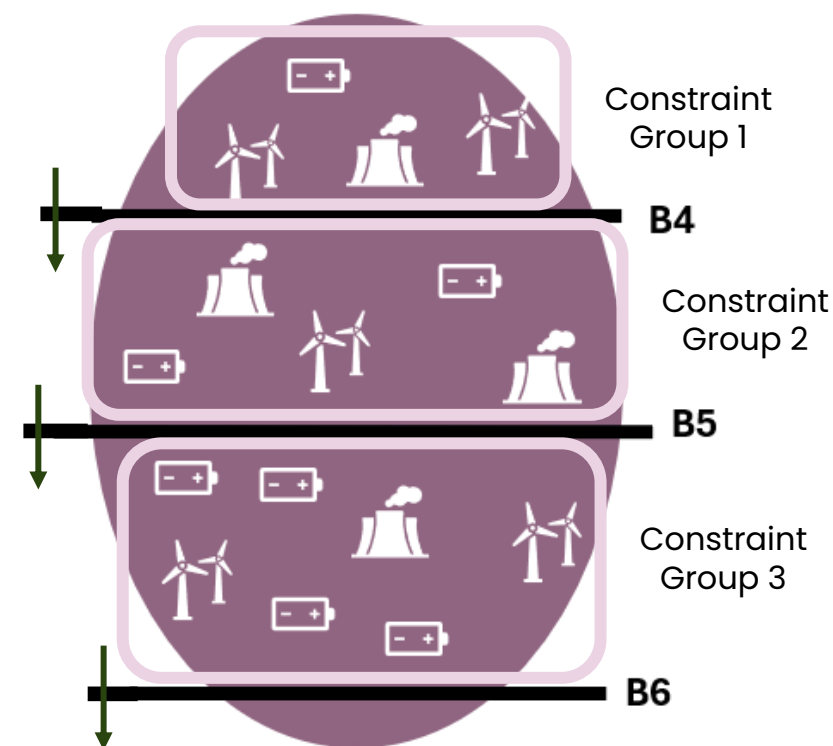
The Method: An Overview

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The following method is applied at a **5-minute granularity** within individual groups, and separately for bids and offers. Only bids are considered behind export constraints and only offers are considered behind import constraints.

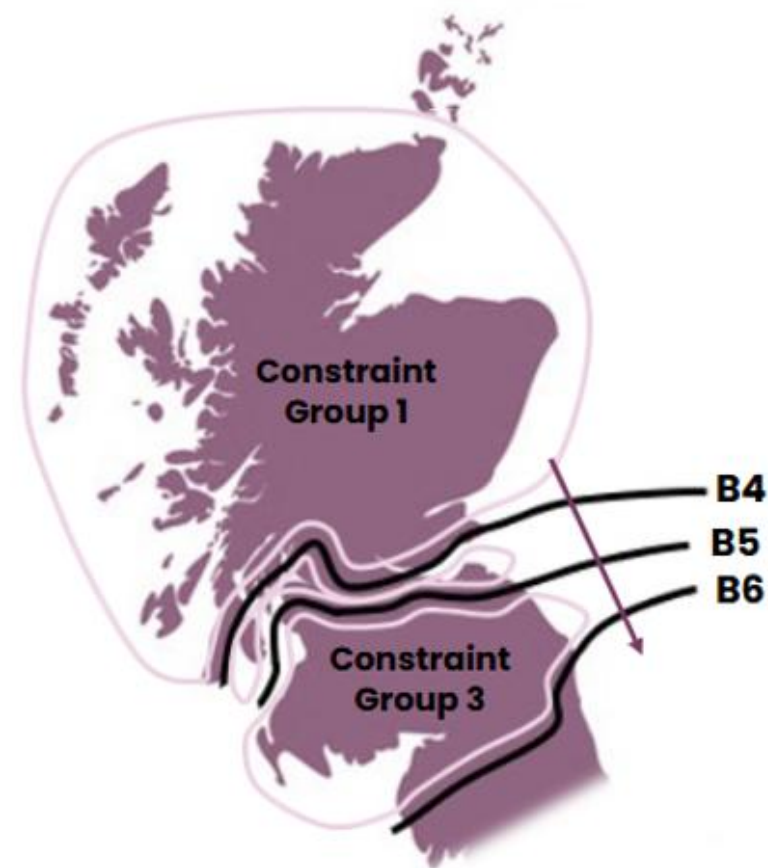
1. All feasible volume inaccessible to the control room is excluded from the analysis.
2. The total system volume of bids/offers accepted by the control room within the given group is calculated (the group imbalance requirement)
3. The cheapest feasible volume that could have fulfilled the group imbalance requirement is deemed 'in merit.'
4. Any volume deemed in merit but not accepted by the control room is considered skipped.

Assumption: All available generators have the same effectiveness in managing constraints.

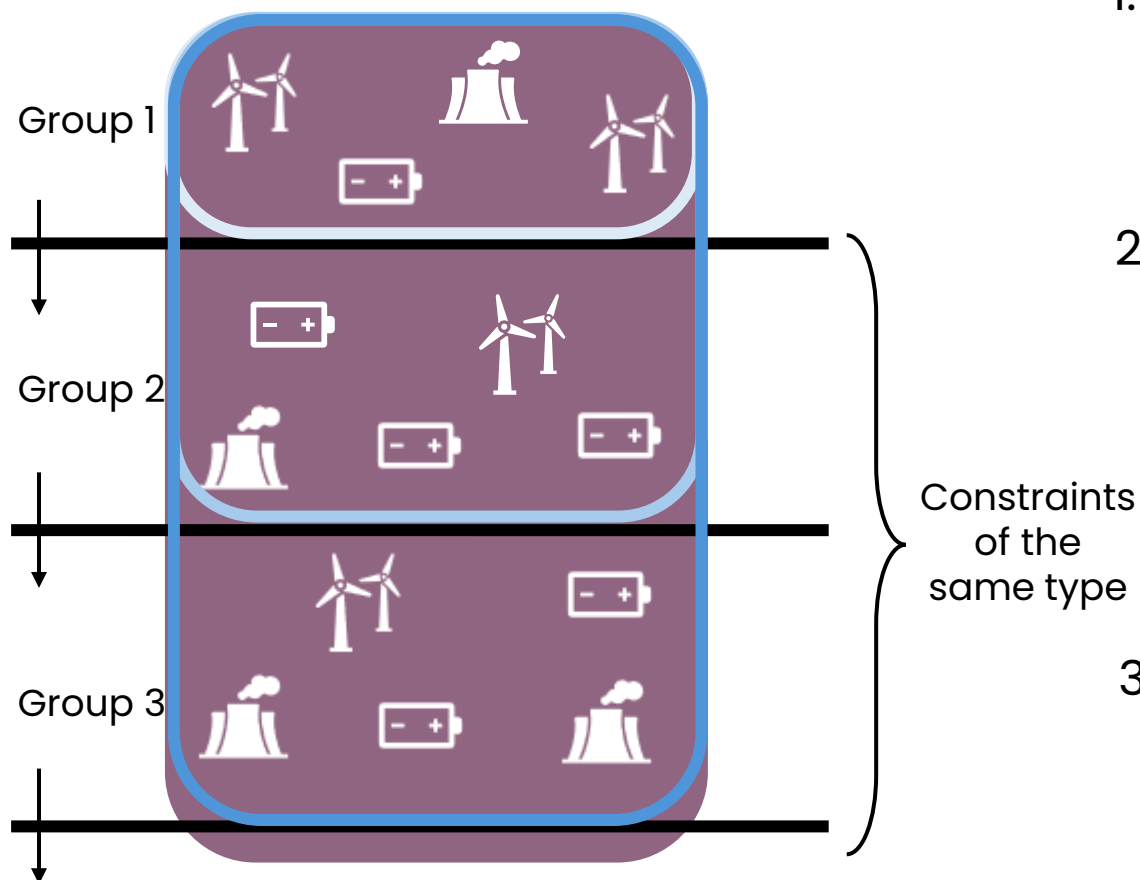


Nested Constraints

- Nested constraints are complex, as actions taken to affect one constraint boundary may affect others.
- The example to the right shows three nested export constraints.
- Any actions taken in constraint group 1 to manage B4 also affects both B5 and B6.
- Similarly, any actions taken in constraint group 2 to manage B5 also affects B6.
- This is true whether nested constraints are import, export, or mixed.



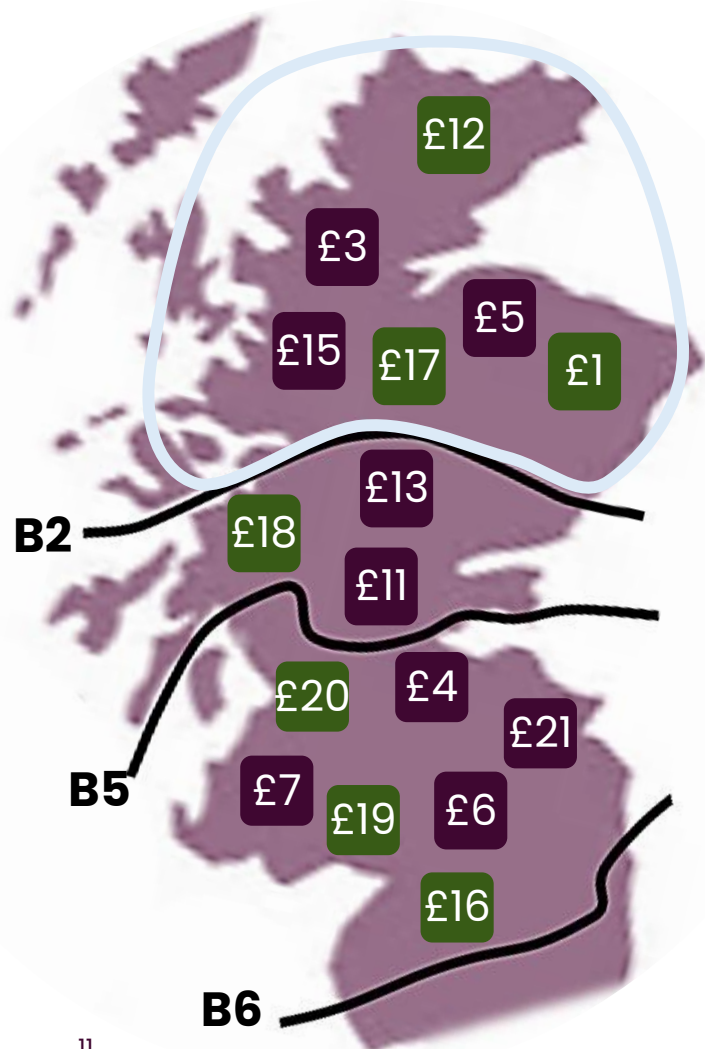
The Method – Nested Groups



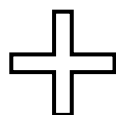
1. Calculate the skipped volume in the most constrained group as normal. (The most constrained group is the group behind the highest number of active constraints).
2. Calculate the skipped volume in the 2nd most constrained group:
 - Calculate the imbalance requirement using only units in group 2.
 - Create the feasible merit stack from all feasible volume in group 2, and any remaining volume in group 1.
3. Repeat the process with the next most constrained group in the same way:
 - Calculate the imbalance requirement using only units in group 3.
 - Create the feasible merit stack from all feasible volume in group 3, and any remaining volume in groups 1 and 2.

Example: Nested Export Constraints

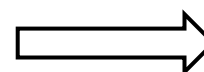
Costs represent cost to NESO



B2 Boundary Feasible Merit Stack



B2 group
imbalance
requirement
= 3 MWh



Skipped



In merit

Key: Sli.do #DTP

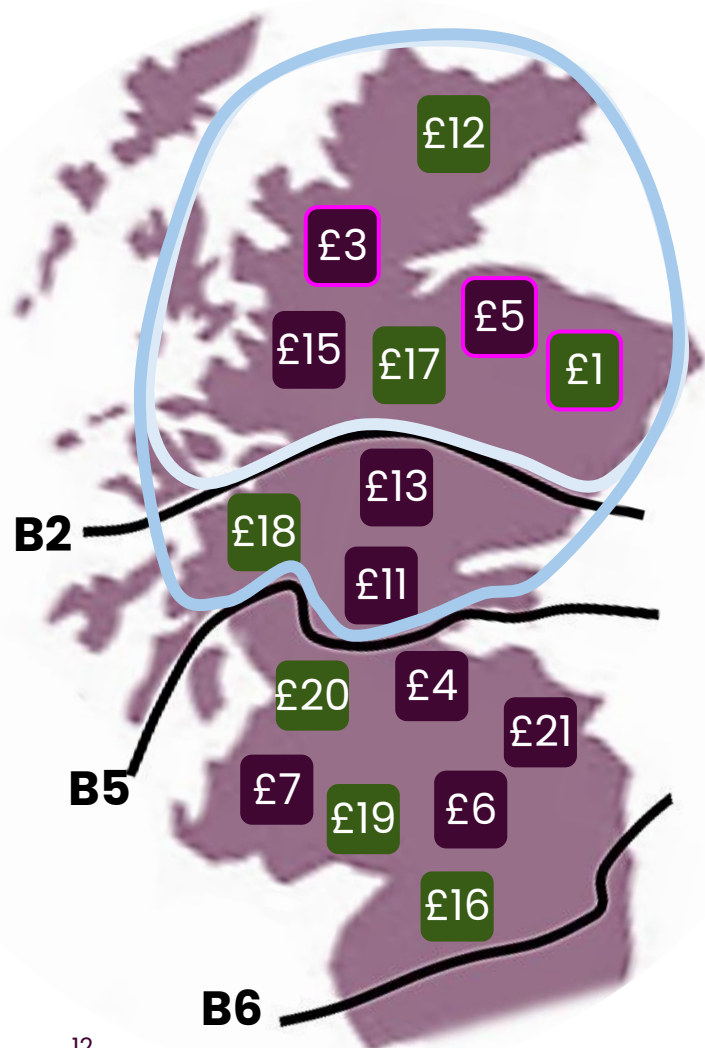
Feasible bid of 1MWh - not accepted by the control room

Feasible bid of 1MWh - accepted by the control room as a system action

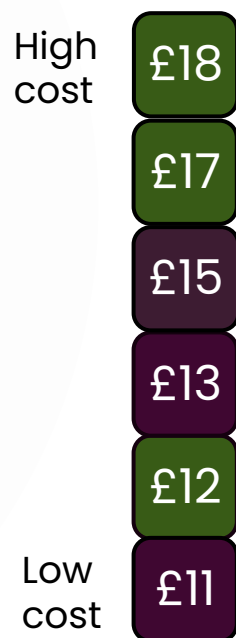
This example is simplified for illustrative purposes, and the positive cost values represents cost to NESO. The simplification does not change the underlying logic of how in-merit and skipped volumes are identified.

Example: Nested Export Constraints

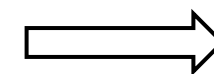
Costs represent cost to NESO



B5 Boundary Feasible Merit Stack



B5 group imbalance requirement = 2 MWh



Skipped



In merit

Key: Sli.do #DTP

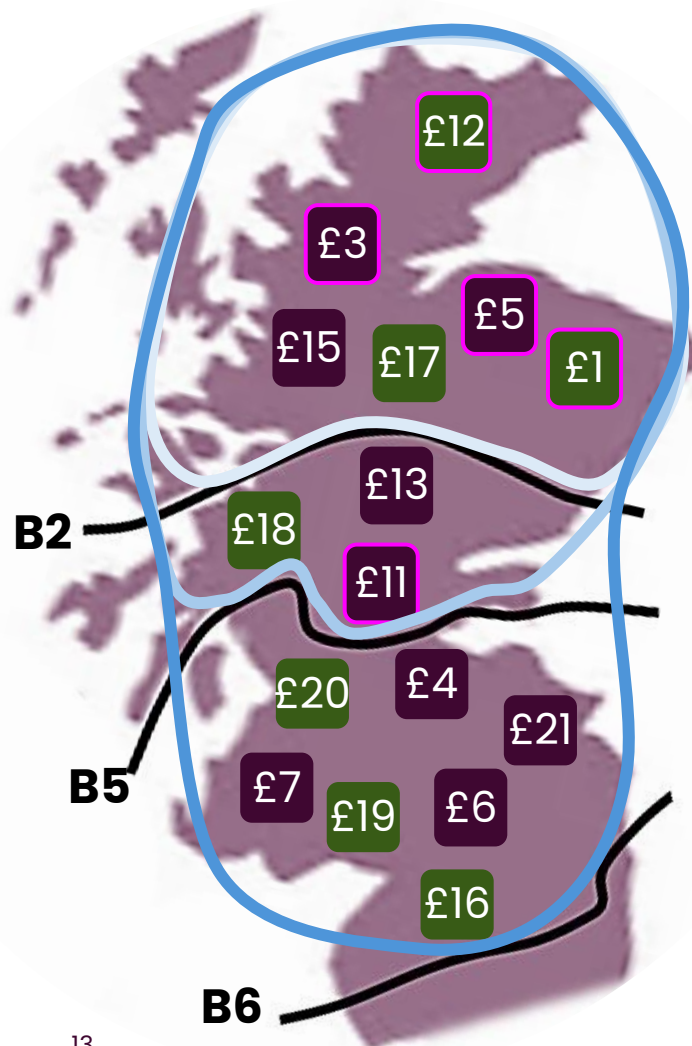
Feasible bid of 1MWh - not accepted by the control room

Feasible bid of 1MWh - accepted by the control room as a system action

This example is simplified for illustrative purposes, and the positive cost values represents cost to NESO. The simplification does not change the underlying logic of how in-merit and skipped volumes are identified.

Example: Nested Export Constraints

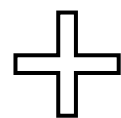
Costs represent cost to NESO



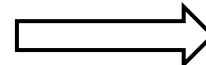
High cost



**B6 Boundary
Feasible Merit
Stack**



**B6 group
imbalance
requirement
= 4 MWh**



Key: Sli.do #DTP

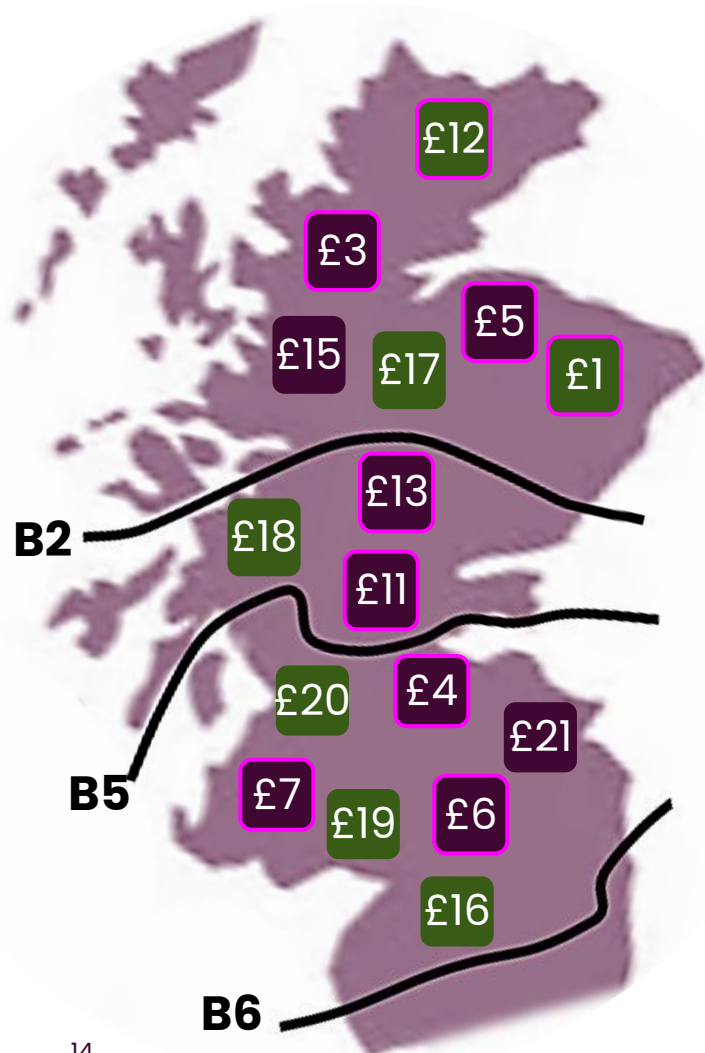
- Feasible bid of 1MWh - not accepted by the control room
- Feasible bid of 1MWh - accepted by the control room as a system action

This example is simplified for illustrative purposes, and the positive cost values represents cost to NESO. The simplification does not change the underlying logic of how in-merit and skipped volumes are identified.

In merit

Example: Nested Export Constraints

Costs represent cost to NESO



Any units in merit but not accepted by the control room are skipped

$$\text{Skip rate} = \frac{\text{Skipped volume}}{\text{Accepted volume}} = \frac{2}{9} = 22\%$$

Calculated at **5-minute granularity**

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- Feasible bid of 1MWh - not accepted by the control room
- Feasible bid of 1MWh - accepted by the control room as a system action

The Method – Exclusions

Excluded in energy method

Exclusion	Justification
Long notice units: MZT MNZT NDZ >= 31min	These units are inaccessible to the control room in balancing timescales.
Offers on wind and solar units	These technology types are weather condition dependent and therefore cannot increase output.
Volumes leaving a unit in an unstable position	Instructing a unit to a level between its SIL and SEL would result in the instruction being rejected.
All units with acceptances system tagged for voltage or inertia	Although these units were accepted for system reasons, it was not to manage thermal constraints.
All units not behind active thermal constraints	Most of these actions are assessed by the existing energy method.
Units armed for Intertrip or frequency response contracts.	These units maintain a position which ensures they can deliver upon these contracts. If the control room changes their position, they must still pay for these contracts, despite the units being unable to deliver upon them.

Feedback Summary To Date

- Overall support for the methodology, with respondents describing it as sensible and a positive step forward.
- Key requests focused on expanding scope, documenting limitations, and increasing transparency.
- Stakeholders want more granularity, particularly BMU-level reporting, along with additional metrics such as skipped volume, taken volume and pricing information.
- Primary use cases include assessing asset and trading performance, understanding the cost and impact of skips, improving dispatch and forecasting methodologies, and supporting network and curtailment modelling.
- Skip Rate is viewed as the most important headline metric, with Skipped Volume seen as a useful complementary measure.
- BMU-level breakdowns are preferred, followed by GSP Zone reporting, indicating a strong desire for actionable operational insights rather than high-level aggregate metrics.

This feedback was published previously in the final methodology document [here](#)

Data Publication

We will be publishing 2 datasets for Skips Behind Thermal Constraints

1. By BMU at monthly granularity
2. By Constraint (aligned to other NESO constraint dataset) rather than by GSP Zone at monthly granularity

Extracts of both datasets are shown on the next slides.

Data will initially be published as monthly values to ensure we adhere to security restrictions with constraint data.

We will revisit this decision and endeavour to publish data on a more granular basis in future.

The first data drop-in session will be held in 2 weeks.

Dataset 1: By Constraint

Real data

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month	constraint	skipped_volume_mwh	in_merit_volume_mwh	skip_rate
2025-01	HARSPNBLY	84.29	372.67	22.6
2025-01	SSE-SP2	5699.81	25951.1	22
2025-01	FLOWSTH	253.5	871.09	29.1
2025-01	OTHER	35620.73	438023.51	8.1
2025-01	SCOTEX	7147.65	22241.47	32.1
2025-01	SEIMPPR23	153.98	1569.02	9.8
2025-01	SSEN-S	30950.74	355032.77	8.7
2025-01	SSHARN3	116.53	409.25	28.5
2025-01	NKILGRMO	1982.48	8084.97	24.5
2025-01	SSE+GRMO	2766.79	11184.19	24.7
2025-02	SSE-SP2	6555.68	27619.14	23.7
2025-02	SSEN-S	56570.83	772516.87	7.3
2025-02	CANDUNEX	2.68	41.82	6.4
2025-02	NKILGRMO	1948.83	8501.26	22.9
2025-02	SCOTEX	20976.15	60315.82	34.8
2025-02	DRESHEX1	39.76	359.74	11.1
2025-02	HARSPNBLY	676.1	4559.26	14.8
2025-02	OTHER	48844.34	614320.49	8
2025-02	FLOWSTH	1715.27	5900.7	29.1
2025-02	SEIMPPR23	483.07	1751.86	27.6
2025-02	SSHARN3	505.87	978.42	51.7
2025-03	SSEN-S	114609.39	707808.9	16.2
2025-03	FLOWSTH	587.77	700.33	83.9
2025-03	SEIMPPR23	227.49	780.42	29.1
2025-03	SCOTEX	35710.76	129162.93	27.6

We are not able to provide the same level of transparency as we have with the energy method due to data security.

This data will be published on the at monthly granularity after the full month is complete.

You can access the data via the link here [Skip Rates | National Energy System Operator](#)

Dataset 2: By BMU

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Real data

month	bmu	bid_offer	fuel_type	skipped_volume_mwh	in_merit_volume_mwh	skip_rate
2025-01	CLDRW-1	Bid	WIND	79.75	420.21	19
2025-01	FASN3	Bid	NPSHYD	288.09	1949.82	14.8
2025-01	AG-NHAV0	Bid	NPSHYD	0	42.15	0
2025-01	VKNGW-4	Bid	WIND	2165.1	16909.82	12.8
2025-01	GRGBW-3	Bid	WIND	0	3.56	0
2025-01	STLGW-2	Bid	WIND	23.57	307.47	7.7
2025-01	STLGW-1	Bid	WIND	23.48	267.47	8.8
2025-01	PEHE-1	Bid	CCGT	1375.14	190131.88	0.7
2025-01	SANQW-1	Bid	WIND	0	8.22	0
2025-01	AG-NFLX0	Bid	OTHER	0.16	25.87	0.6
2025-01	GRIFW-1	Bid	WIND	0	106.69	0
2025-01	AG-NFLX0	Bid	OTHER	0.14	22.68	0.6
2025-01	LITRB-1	Bid	BATTERY	2093.06	4337.67	48.3
2025-01	MOWWO-	Bid	WIND	517.11	1858.3	27.8
2025-01	CLFLW-1	Bid	WIND	0	23.85	0
2025-01	WDRGW-1	Bid	WIND	1333.33	2548.02	52.3

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Questions

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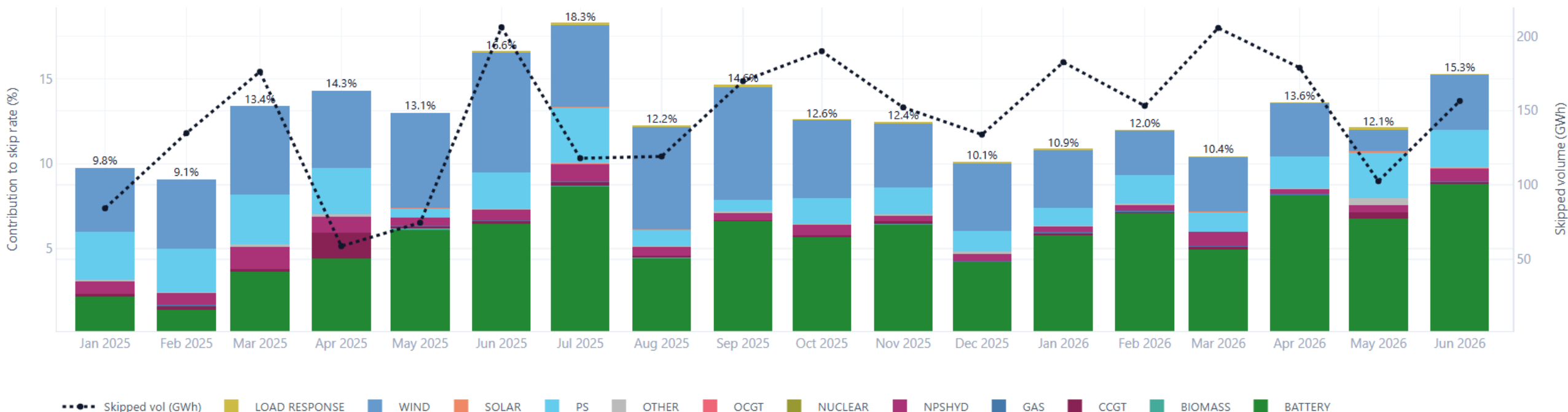
If you have any questions after the event,
please contact the following email address:
box.SkipRates@neso.energy

Results

Skips Behind Thermal Constraints – Monthly breakdown

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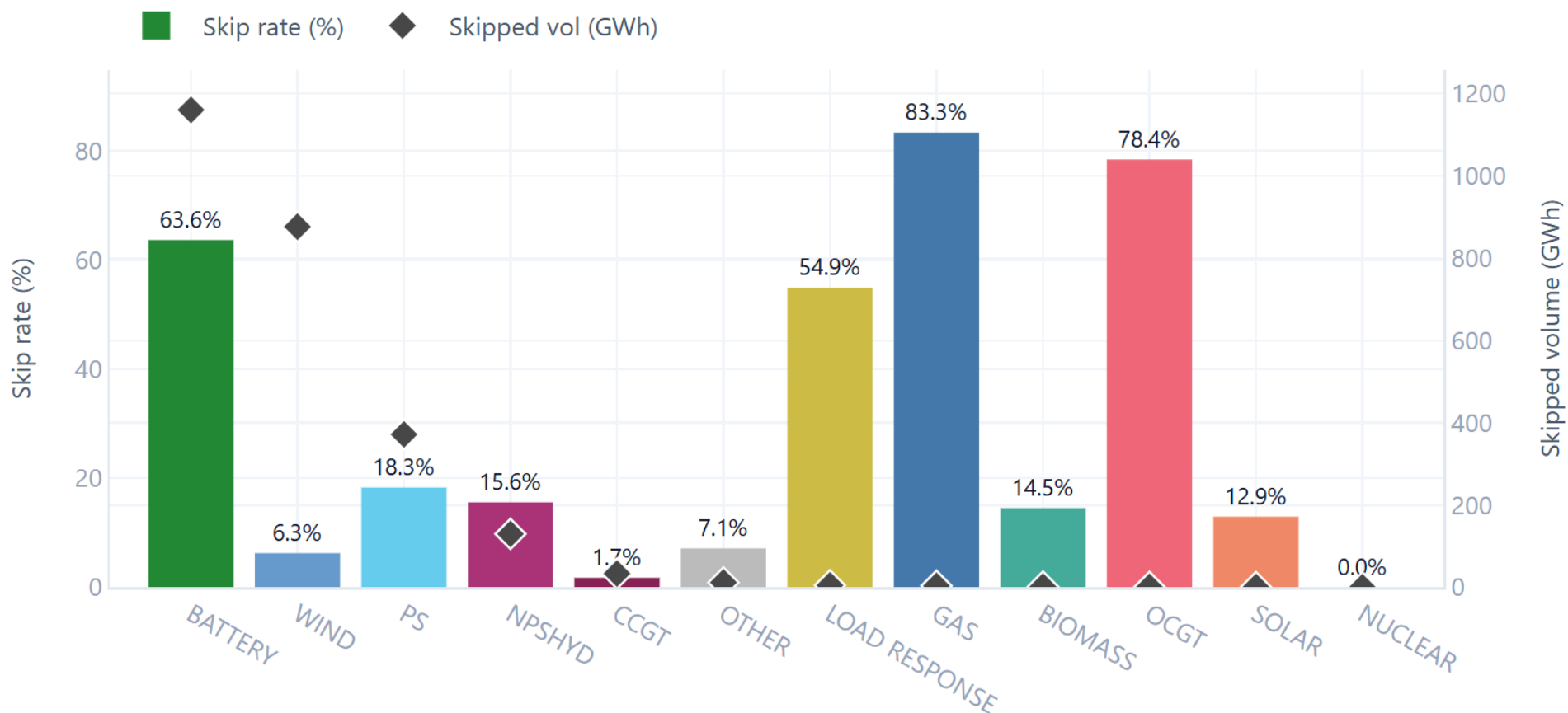
Monthly skip rate by fuel type



Skips Behind Thermal Constraints – Technology Type breakdown

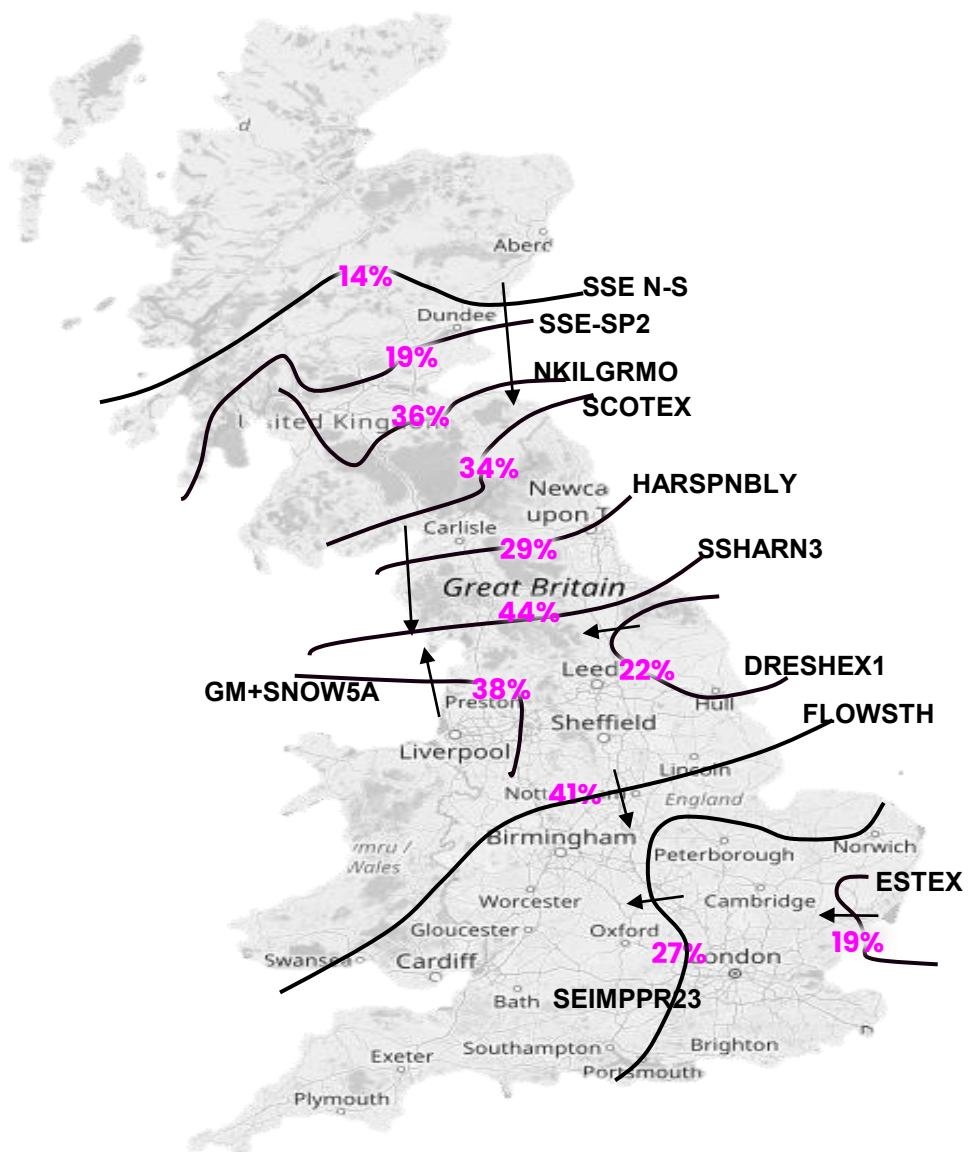
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Technology-specific skip rate



Skips Behind Thermal Constraints – Constraint breakdown

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Next steps

- Slides and recording will be published on our [Skip rates | National Energy System Operator](#) webpage
- Data will be published by close of business today and updated on a monthly basis. Data for July and August will be added during the w/c 21st September
- We will update the dashboard on our website to show Skips Behind Thermal Constraints
- We will be hosting drop-in sessions to answer any further questions. Date & Time: 30 Sep 2026, 10:00 – 10:45, please register via the link: [Register Here](#)
- **Note:** this is a chance to ask questions and have a 2-way conversation – **we will not be presenting any material**
- We will continue investigating reasons for skips and share insights at future engagement events

Questions

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box.SkipRates@neso.energy

Thank You