

2025/26 Imperfections

Forecast Response to RA's Consultation

25 July 2025



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1. Introduction

SONI and EirGrid (the TSOs) acknowledge the publication of the Regulatory Authorities' (RAs) consultation on the imperfections charge 2025/26 (SEM-25-028)¹ published 30 June 2025 (the **Consultation Paper**) and welcome the opportunity to respond to same.

The 2025/26 Imperfections Forecast Submission (the **Forecast Submission**) outlined a requirement of €608.81m in forecast Imperfections costs for 2025/26, along with a k-factor of €183.43m which covers the outturn and forecast revenues deficit pertaining to 2023/24 and 2024/25, in accordance with Section F.12 of the Trading and Settlement Code (the **Code**). Applying the SEM demand forecast for 2025/26, this would yield a charge of €22.28/MWh (captured in Table 2 of the consultation paper). While we note that the charge for 2024/25 was €14.62/MWh they should not be compared, as doing so obscures the fact that the 2025/26 must be higher to offset the under recovery in the current year where the rate was €14.62/MWh.

Thus, we note that the forecast K-factor constitutes a notable aspect of this overall charge. This is why we requested from the RAs an increase in the charge factor to smooth the repayment of these costs by facilitating recovery within-year. We note that the RAs flagged the following reason for not approving the mid-year adjustment:

- *More recent analysis shows that when the costs associated with the Northern Ireland Security of Supply dynamic requirements are removed, the TSOs have moved from a position of -€7.5 million under recovery in March 2025 to an over recovery of +€16.4 million in April."*

It is wholly unclear why this supports the decision not to implement the charge factor. This is simply an assessment of the underlying modelling; even though the underlying modelling was decent when you remove the costs of NI SoS dynamic requirements, we have still incurred those costs, (ca. €150m at the time) and they need to be paid back.

Forecasting Imperfections is an inherently uncertain undertaking, and the TSOs have engaged with the RAs to improve the modelling and inputs where possible. We are also compliant with all reporting requirements as we outline in section 1.2 and would be open to working with the RAs on scoping the cost and requirements of an augmented reporting process. However, we note that depending on the intended scope, this will not be implementable in the short term and will drive additional investment costs.

Regarding actions that could be taken in the short to medium term to minimise imperfections charges, the TSOs have both submitted requests for additional funding across a suite of programmes that would mitigate imperfections and constraints costs, such as the Operational Tools and Capability Enhancement (OTCE) programme. Timely and full approval by the Regulatory Authorities of these resource requests would enable work to progress more quickly and deliver potentially significant benefits to consumers.

We also note that the RAs are once again consulting on whether the K-factor element should be partially recovered over one or more Tariff years. As outlined in section 1.5 below, the TSOs are opposed to the idea of multi-year recovery. It is a key principle of SEM funding that the best estimate of the k-factor would be recovered in the following year.

In the Consultation Paper, the RAs have sought views on a number of specific aspects which the TSOs address in turn below:

1.1. Views on the forecast of costs and assumptions for Tariff Year 2025/26

¹ [SEM-25-028 Imperfections Charges October 2025 - September 2026 and Reforecast Report October 2023 - September 2024 Consultation Paper.pdf](#)

Misunderstanding of Take One Out at a Time (TOOT) analysis

The TSOs' would like to highlight that there are inaccuracies quoted in section 2.0 of the consultation paper extracted below and throughout the document in relation to the inflationary impact on forecast Imperfection Costs for Tariff Year 2025/26 which are not the figures stated for items i), iii), iv) and v) below.

Tariff Year 2025/26. The TSOs forecast that the following factors, inter-alia, will have an inflationary impact on forecast Imperfections costs for Tariff Year 2025/26:

- i) "Updated Renewable Energy Sources (RES) and interconnector capacities" (€104 million);
- ii) "Article 13 of Regulation (EU) 2019/943" (€91 million);
- iii) "Forecast Generator Outages" (€75 million);
- iv) "Partial Cost Representation of Transmission Outages" (€64 million); and
- v) "Generator Portfolio Updates" (€10 million).

This is a misinterpretation of the outcome of a Take One Out at a Time (TOOT) analysis of the upward and downward drivers of Imperfections costs.

It is important for the TSOs to clarify that the TOOT analysis is a method carried out to try to demonstrate the impact of several isolated components on Imperfections Costs. The magnitude of the result of each step of the TOOT analysis does not reflect the actual Euro value measure that this component has added to the Imperfections Forecast. The Analysis to aimed to determine two things:

- Is this component an increase or decrease driver of Imperfections Costs for the upcoming tariff year and
- Estimate the *relative* impact each component relative to other components on this year's Imperfections Forecast.

Imperfections forecasting involves a complex optimization of multiple interdependent components. It is therefore not possible to determine the absolute cost of an individual component in isolation. The Imperfections Costs of a particular unit at a point in time will simultaneously satisfy several system security requirements at a time, so the cost cannot be attributed to a single component of the model. Software packages are required to determine the overall least cost generator schedule to resolve all system security requirements simultaneously which is extremely complex and often impossible to back-analyse to allocate costs for individual reasons.

The TSOs recognise that the presentation of the outcome of the TOOT analysis continues to be unclear and will review the merits of continuing with this approach in future.

Section 2.0 - iii Transmission Outages

This section of the consultation contains an inaccurate representation of the new modelling approach for Transmission outages. A new approach was developed to model the impact of Transmission outages on Imperfections due to both the concern of the immature nature of outage plans at the time of the Imperfections forecast activity and the known increased influence that this driver will have on Imperfections costs given the significant ramp up of Infrastructure projects over the coming years under the Outage Transformation workstream. The primary impact on Transmission outages to Imperfections is the increased requirement to dispatch down renewables and supplement this dispatch down with the next least cost source of generation away from the constraint area. This was modelled by inputting full renewable availability profiles to the unconstrained model to represent market clearing and restricted renewable generation availability to the constraint model based on the dispatch down levels of renewables for Transmission restriction reasons only from the 2023/24 tariff year in line with the renewable profiles modelled to forecast the 2025/26 tariff year.

1.1.1. Specifically, Regarding Generator Outages (€75m)

The TSOs' would like to re-iterate that €75m is not the isolated inflationary impact on the forecast of Imperfections costs for Tariff Year 2025/26 for generator outages.

Generator outages coupled with Transmission Constraint Groups required for system security has led to the increase in Imperfections costs. Generator outages particularly of generally in-merit plant will always be a driver for increased Imperfections costs. To satisfy Transmission Constraint Group requirements, this in-merit unit will have to be replaced by the next least cost unit to satisfy the system security requirement. If the Commercial Offer Data (COD) of this replacement unit presents a very large electricity production cost this large cost will be transferred to Imperfections Costs.

This trend was very evident in the 2024/25 tariff year particularly with the combination of the MINNI3 system security Transmission Constraint Group, detailed below and outages of Coolkeeragh C30.

Northern Ireland	not scheduled on.	Security of Supply
	Update to System Wide Transmission Constraint Group	
	System Stability (S_NBMIN_MINNI3) Minimum 1 at all times C30, KGT6, KGT7	
	Limit Type: N: >=	

This outcome is also evident from our final PLEXOS 2025/26 imperfections forecast model and has had a significant influence in Generator outages being presented as a significant upward driver of Imperfections Costs.

1.1.2. Specifically, Regarding Payments to Participants under Article 13 of Regulation (EU) 2019/943

The TSO's would like to clarify that the Imperfections Forecast Costs for 2025/26 is €608.81m and not €699.81m as quoted throughout the consultation. The TSOs' request the additional €91m as a ring-fenced quantity to offset a potential future liability associated with the Clean Energy Package Article 13(7).

This provision is sought to ensure sufficient funding to meet any potential 2020-2026 liability, without prejudice to the ongoing judicial review process. No payments would be made until the legal process is finally concluded and there is a regulatory approved calculation methodology and payment mechanism in place. We will further engage with the RAs regarding implementation of any payment mechanism.

Key assumptions regarding this provision have been discussed with the RAs and include:

- Compensation for constraint and curtailment volumes from 01 Jan 2020 to 30 Sep 2026, up to market price level (to the extent not already funded by 2024/25 Imperfections Charges).
- Any interest, finance and implementation costs, as well as any amounts that may be recovered from intermediaries, have not been included.
- Forecast based on a "first order" approximation.

1.2. Views on the Standard and Frequency of reporting Imperfections costs and drivers

The TSO's would welcome the opportunity to engage on future reporting requirements on Imperfection Costs, specifically if the RAs would be interested in setting up a programme of work to establish additional reporting outputs, which we assume the RAs would provide the necessary resources to facilitate through the respective jurisdictional funding arrangements and the lead time necessary to implement

The TSO's would like to note however, that all current achievable reporting obligations are currently being met². For example:

Substance	Reporting as of last year

² We acknowledge that there is a technical compliance issue with Condition 39 of the SONI TSO Licence as a particular date outlined in this Condition is not possible to be met. The Utility Regulator is aware of this issue and SONI have requested licence amendments to ensure future compliance.

Research or analysis conducted, and the justification for the specific values proposed, as outlined in Section F.12.1.2 of the Trading and Settlement Code	ANNEX 1 2024_25 Imperfections Forecast Report V3.pdf
Review of the quality and improvements made to the modelling methodologies	
Measures taken by the TSOs to reduce system constraints and the consequent impact such measures have had, highlighting the associated cost savings for consumers	PR5 Incentive Report to Regulator & Draft Annual Electricity Transmission Performance Report 2023
Comparison of the changes in the components and drivers of Imperfections costs on a year-on-year comparable basis (i.e. the forecast of the previous Tariff Year by comparison to the current Tariff Year forecast)	Imperfections Backcast Report 2022-2023.pdf
Systematic, clear, and comprehensive explanations of all incurred and forecast costs, including details of modelling assumptions, data inputs and detailed rationale for any changes of any modelling processes.	All costs incurred: Quarterly-Imperfections-Cost-Report-Q1-Oct-Dec-TY2024-25.pdf All cost forecasts: ANNEX 1 2024_25 Imperfections Forecast Report V3.pdf

Furthermore, in the TSO Imperfections & Constraints Multi-Year Plan 2023-2027, the enhancements in reporting noted in Section 4.0 of the consultation paper reference the introduction/enhancement of the Mid-Year Imperfections report which continues to be achieved. While noting we agree suggestion can be taken from the Imperfections reporting being carried out by other jurisdictions, it must also be pointed out that like for like reporting is often not possible particularly in jurisdictions that operate under different operational security challenges, and market rules/structures; not to mention that even within the SEM where we have the same Market Rules, we have different Grid Code, Use of System charges methodologies (i.e. STUoS in NI and DTUoS in IRE), and jurisdiction specific legal considerations.

The TSO's would also stress the importance that any determination of future reporting obligations/incentives would be vetted by the TSO's for technical feasibility in advance.

1.3. Views on Potential Actions the TSOs/RAs could take to minimise Imperfections Charges for the upcoming year

The TSOs' would like to stress that the system is always operated in a manner that aims to minimise Imperfections Costs as validated by the annual Scheduling and Dispatch audit.

The TSOs' are however also working against competing objectives like the simultaneous delivery of workstreams associated with the Operational Policy Roadmap and other initiatives to facilitate a reduction of the dispatch down of renewables in parallel with the short-term reduction in Imperfections Costs. To achieve the strategic objectives of the Operational Policy Roadmap significant network development is required as noted in the executive summary of the consultation paper. This will bring with it extensive Transmission Outage Programmes which in the short term will be a significant upward driver in Imperfections Costs with the longer-term strategic objective of reducing Imperfections Costs on an enduring basis.

The TSOs' will continue to optimise outage programmes to minimise the impact of this inflationary component of Imperfections Costs but in the confines of the longer-term strategic objective of reducing operational security requirements with the system in the delivery of the Operational Policy Roadmap.

The TSOs' will also continue to work extensively with the SEM Committee on the All-Island Programme of work that will greatly assist in increasing the operational security of the system, a reduction in market price, the achievement of the governmental targets on renewable penetration and a fair and equitable treatment of all market participants. It is also noted however while some programmes of work will have a positive impact on reducing Imperfections Costs like FASS and aspects of the Scheduling and Dispatch Programme like the Energy Storage Power Integration, it is not definitive that all measures will be downward drivers on Imperfections Costs.

Increased Interconnection can have a positive or negative impact on Imperfections depending on the market conditions that set the flows on Interconnectors. Recent trends have shown this to have a very positive impact on driving down market price but has resulted in an upward driver for Imperfections. The Influence on increased Interconnection on Imperfections is largely driven by market conditions at the time and can't definitively be considered as a downward driver of Imperfections. It is important that imperfections costs are therefore considered "in the round" with other costs which form part of end-user bills such as wholesale market prices and increased costs of network build.

Other aspects of the S&D programme can have a negative impact on Imperfections. The Non-Priority Dispatch Renewables programme is expected to be an upward driver in Imperfections but it's impact won't become fully apparent until we have final decisions on the market rules covering this workstream and the relevant participant bidding behaviour.

Section 4.0 of the consultation points to the reduction of the MINNIU System security requirement in NI from a 3 unit to a 2-unit requirement as an ongoing action to reduce Imperfections Costs. It is important to clarify that this was not a measure taken to reduce Imperfection costs. The key driver of this temporary change was a major system security concern due to run hour limitations on certain units that had to be run excessively for the preceding period.

The MINNIU TCG group contains a select number of larger conventional units that provide some key system services that maintain the system security in Northern Ireland. When the NI system was operated with 2 sets satisfying the MINNIU TCG for a period, several other controlled system security measures were also taken on the system in parallel to allow the system to operate securely in this manner which is not currently possible on an enduring basis. Since the return of large NI conventional units form forced

outage, NI has reverted to operate under a 3 set MINNIU requirement. Reducing the Minimum Unit requirements on the All-Island system (MIUON) remains a key objective of the Operational Policy Roadmap and any reduction of the MINNIU requirements will be delivered securely under this workstream.

Other SEMC determinations such as that of SEM-24-046: Demand Side Units Energy Payments and whether this will be funded through the Imperfections Cost Structure and the outcome of the legal proceedings associated with SEMC decision SEM/22/009 in relation to the Article 13(7) of Regulation (EU) 2019 / 943 will both have a significant inflationary impact on Imperfections Costs.

In conjunction with the completion of the workstreams outlined above, the TSOs' would point to effective market rules/outcomes and the application and enforcement of an effective Bidding Code of Practice for participants to reduce Imperfections Costs on the system.

1.4. Views on Potential Actions the TSOs/RAs could take to minimise Imperfections Charges in the Medium to Long Term Timeframe

The Operational Policy Roadmap, in conjunction with the achievement of the TSOs' network development plans, remains the TSOs' key strategic plan to reduce Imperfections Costs that are in our influence in the medium to long term.

SONI have recently submitted a funding request to the Utility Regulator for the first phase of a proposed Operational Tools and Capability Enhancement work package. In the EirGrid price control an equivalent funding submission was made under the Power Systems Capability Enhancement programme. A timely allowance of this funding request would allow SONI to begin work on studies to deliver on the objectives and milestones laid out in the Operational Policy Roadmap and thereby bring down imperfections costs, whilst also having assurance over the ongoing security of supply of the system and avoiding events such as those seen in Spain and Portugal earlier in 2025.

Additionally, timely progression and completion of the North-South Interconnector would have a significant impact on the levels of constraints in the market and therefore deliver a significant reduction in imperfections charges.

As highlighted, however, imperfections costs must not be considered in isolation, but in the context of other costs which form part of the end-user cost of electricity. There are often trade-offs involved between these costs. Network build-out, for example, could reduce imperfections charge but could involve significant capital expenditure costs which need to be recovered. Similarly, increased renewable penetration or interconnection may increase imperfections costs, but reduce wholesale electricity costs. Therefore, the RAs must consider all elements of the cost base in totality rather than focus on one particular sub-set of costs.

1.5. Whether the K-factor element should be partially recovered over one or more Tariff Year and if so, at what quantum

The TSOs are very concerned that the RAs have raised in the Consultation paper the potential of not, in accordance with the market arrangements, including for the return in full the forecast k factor (2023/24 outturn plus 2024/2025 estimate) in the forthcoming tariff period. We strongly reject this concept. The RAs consulted on a similar question in 2022/23 (SEM-22-045). Ultimately at this time the decision was taken by the SEMC that:

“For Tariff Year 2022/23 the Imperfections Charge will not be partially deferred, in part due to concerns around causing larger K-factors in subsequent Tariff Years...any deferral could cause significant future K-factors which could negatively impact on suppliers and customers.”

The above remains true, i.e., that deferral of cost would only add to the k-factor burden of subsequent years.

The TSOs & SEMO are aware that the K-factor is significant. That is why, in accordance with the provision of the Trading & Settlement Code (TSC) section F.12.1.4, we sought to mitigate its impact on the forthcoming imperfections tariff through our proposal in the mid-year report³ to commence recovery early through an increase in the imperfections charge factor in 2024/2025.

It is unfortunate that the RAs declined to mitigate the K factor for 2025/26 following our submission for reasons that are unclear, as outlined in the introduction. It is also very unclear why the RAs would suggest that it might be appropriate and/or beneficial to the market for EirGrid and SONI to carry any portion of the current €143m under recovery beyond the coming tariff year. Indeed, it is unclear where in the TSC the deferral of any portion of the costs is provided for.

Deferring any portion of the k-factor could ultimately lead to a situation where customers are hit with increased imperfections charges from compounding K factors.

2. Conclusion

SONI and EirGrid welcome continued engagement with the RAs on the topic of imperfections. As noted in the body of our responses above, we think that it is critical that imperfections modelling is well understood by the regulators and will review our approach in this regard.

We are also happy to work with the regulators on reporting; while cognisant that we currently meet all our achievable requirements in this regard, if the RAs would like to expand on our reporting in this space we are willing to engage on what the scope and cost of such a programme of works might be.

Regarding any actions which might minimise the cost of imperfections in the near- and longer terms, SONI and EirGrid have engaged and will continue to engage with the regulators on a number of proposed programme of works which will address some of the underlying factors driving imperfections costs, but

³ <https://cms.eirgrid.ie/sites/default/files/publications/24-25-Imperfections-Mid-Year-Report-V2.1.pdf>

we also note that imperfections costs must not be considered in isolation.

Once again, we are strongly opposed to the suggestion that the k-factor might be partially recovered over multiple years. The k-factor is a mechanism to make the imperfections balance whole and it is a key underpinning principle of the funding of the SEM that the (best estimate of the) k-factor would be recovered in the following year. The TSOs have provided a reasonable forecast k-factor in this submission. It is essential that the full value of the k-factor is provided for in the final approved costs.