

2022/23 Imperfections

Mid-Year Review

04 April 2023 (V3.0)



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Revision	Date	Description
v1.0	04/04/23	Issued to RAs
v2.0	19/05/23	Issued to RAs incorporating RAs feedback
v3.0	20/06/23	Published on EirGrid/SONI website. Note: while the report was published in June 2023, all estimates provided in this Mid-Year report are based on best available data at the point of preparation (15 March 2023).

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1. Summary

EirGrid and SONI are Transmission System Operators (TSOs). In this role, we take actions to ensure supply of power and system security to customers across the system in real time. The cost of these actions is known as the imperfections costs. We pay for these via the revenue we get from suppliers through the Imperfections Charges.

The purpose of this report is to describe the analysis undertaken by the TSOs mid-way through the 2022/23 Tariff Year, analysing the imperfections costs against the revenue recovered for same. This review is prepared per the decision in [SEM-22-45](#).

The TSOs reviewed 5 months of actual imperfections costs and revenue and prepared a revised forecast of cost and revenue for the next 7 months.

The estimates we provided in this Mid-Year report are based on best available data at the point of preparation (15 March 2023). The k-factor estimates prepared in May 2023 will be based on the best available data at that time and as such will differ from the data set out in this report.

Table 1 outlines our current projection of imperfections cost and revenue to 30 Sept 23.

	Original (€m) ¹	Updated Forecast Outturn (15 March 2023) (€)	Difference
Projected Imperfections Costs	694.17	576.00	118.17
k-Factor	140.36	140.36 ²	
Total Imperfection Charges	834.53	716.36	118.17
Imperfections Revenue	834.53	777.00	57.53
Overall Outturn Position ³ - Over Recovery		60.64	

Table 1: 22/23 Projection of Imperfections Revenue and Costs to 30 Sept 23

In developing our projections of imperfections costs to 30 Sept 23 we considered the following key drivers:

- a) Fuel costs are a key factor in imperfections costs. The original forecast was finalised in May 2022 while fuel cost was volatile. Since Feb 23, wholesale fuel prices are at a level that is currently expected to persist to Sept 23. We therefore used the average weekly spend for Feb 23 (~€8.8m) as a predictor of what costs are likely to be going forward. This is lower than the average actual weekly cost (~€12.5m) between 01 Oct 22 and 28 Feb 23. While we have used wholesale fuel as a predictor, it should be noted that imperfections costs are based on many related factors including participant data submission, trading behaviour, SNSP and imbalance price.
- b) Provision for costs not considered in original forecast but included in updated projection on 15th March are:
 - o Introduction of DSU Energy Payments: This is an additional cost that will be introduced in the second half of the year due to within year timing of decision and proposed effective date. A conservative provision of €25.5m has been included.

¹ Original Numbers as per SEMC Decision SEM-22-045 - Table 1

² Note an updated forecast outturn of the K factor has not been included, as it was unavailable at the time of compiling this report. Where available it will be included in future years reports. The actual outturn K factor will be reflected in the 2023/2024 Imperfections submission.

³ Where at the end of a period an Over Recovery is known/forecast it is subtracted from the revenue requirement in the following period. Where at the end of a period an Under Recovery is known/forecast it is added to the revenue requirement in the following period

- In the original forecast, no transmission outages in Ireland were considered. However, several significant outages are planned between now and 30 Sept 23 that will increase imperfections. A provision of €13m has been included in our projection to account for these.
- Consideration was required, using actual data available of imperfection revenue received to date. This has been lower than anticipated, therefore we adjusted down the forecast of same for subsequent months.

As noted above, the Charge Factor allows for adjustment where the imperfection costs are or are forecast to outturn are significantly more or less than the imperfections revenue forecast to be received in the period. Under the Trading and Settlement Code, the TSOs can request a revision to the Charge Factor within the Tariff Year, if it is apparent that the variance is at a level that would not be appropriate to include as an adjustment in subsequent years (known as the “k factor”).

As shown in Table 1, as at the time of the mid-year review it is predicted that the end of year position will be a -€61m over-recovery based on current analysis. The TSOs invite consideration of this analysis by the Regulatory Authorities, and whether this delta would merit a change to the Imperfections Charge Factor.

It should be noted that the analysis in this report is based purely on a cash-flow comparison of imperfections cost against imperfections **revenue**. This comparison is aligned with how the k factor is determined.

The TSOs also publish a Quarterly Report (published on [EirGrid](#) and [SONI](#) websites). This reports on imperfections costs against the **original forecast costs**. For the sake of clarity, this Mid-Year Report compares cost against **revenue** while the Quarterly Report compares against the **original forecast cost**. The comparison of costs against revenue (rather than cost against forecast cost) ensures an accurate view of the net position rather than a one-sided cost-only position.

2. Background

In the 2022/23 Imperfections Decision Paper ([SEM-22-45](#)), following on from the [TSO imperfections submission 2022/23](#) the SEMC decided that “*The RAs will liaise with the TSOs to develop a biannual review⁴ of the costs covered by the Imperfections Charge. Therefore, it would be appropriate to put in place a biannual review to build on the TSOs’ Quarterly Imperfections Costs Reports and the calculations the TSOs currently use to determine the within-year K-factor. The biannual review would aim to provide a comprehensive estimate of whether any given Tariff Year is likely to result in an Imperfections Charge over or under-recovery*”.

The purpose of this report is to comply with this SEMC decision. In addition, this report would be a natural point at which a change to the Charge Factor may be proposed.

The Trading and Settlement Code (as per Mod_13_22) states that: “*The Market Operator may, of its own accord or in response to a request from the Regulatory Authorities, make an additional interim reports to the Regulatory Authorities during the Year that reviews the recovery of costs or other matters as the Regulatory Authorities may request, that may result in, proposing revisions to the Imperfections Charge Factor in the event that the values as originally proposed are, in the opinion of the Market Operator or Regulatory Authorities, likely to either: (a) do not provide for the adequate recovery of anticipated costs and such under recovery is such that it is. (b) over provide for the recovery of anticipated costs and such over recovery is such that it is not appropriate to include as an adjustment in subsequent Years.*”

The Charge Factor is a Trading and Settlement Code mechanism which allows for adjustment of the Imperfections Charge if it is apparent that the variance between cost and revenue is of a level that would not be appropriate to include as an adjustment in subsequent years. It allows for an adjustment to the Imperfections Charge to a level which that may more accurately reflect costs to revenues. It is intended to enable the revenues required to be recovered within the given year and thus minimise the k-factor for the relevant Tariff Year.

⁴ The title “biannual review” is now referred to as “Mid-Year Report” to reflect the intention that it is produced approximately at the mid-point (after 5 months of data) of the Tariff Year.

3. Imperfections Costs

3.1. Imperfections cost 01 Oct 22 to 30 Sept 23

We have estimated the imperfections costs up to 30 Sept 23.

This done by combining:

- actual cost for 01 Oct 22 to 28 Feb 23,
- projection costs from 01 Mar 23 to 30 Sept 23 based on recent historic data as well as an additional provision for a) DSUs and b) transmission outages. These are two additional areas that were not present in the original forecast but are likely to feature in upcoming months.

22/23 Imperfections revised forecast	1 Oct 22 to 30 Sep 23 (€m) (15 March 2023)
Imperfections Actual Cost (01 Oct 22 to 28 Feb 23) (-€12.5m per week)	269
Imperfections Projected Cost (01 Mar 22 to 30 Sept 23) Based on recent weeks average spend (-€8.8m per week)	268
Provision for DSUs and Tx Outages (Not accounted for in original forecast)	39
Total Imperfections Tariff Cost - Forecast for year end	576

Table

2: Imperfections Cost - Forecast for year end.

As shown in Table 3, we then compared this updated imperfections cost projection to the approved *ex ante* assumed revenue requirement (excluding the K-Factor). This analysis suggests that the outturn costs may be lower than the original forecast by €118.17m. However, in assessing the likely outturn position in terms of the potential k-factor the outturn revenues forecast position must also be taken into consideration this is addressed later in this paper in Section 4.

22/23 Imperfections	1 Oct 22 to 30 Sep 23 (€m) (15 March 2023)
Imperfections original Costs SEM-22-45	694.17
Imperfections revised Cost	576.00
Total Delta	118.17

Table

3: Imperfections Cost - Forecast for year end.

Wholesale fuel costs are a key driver in imperfections costs and the reduction in fuel costs from that forecast at the time of setting the imperfections requirement is a significant factor in this difference. It should be noted that energy markets were particularly unstable in May 2022 when the forecast was originally prepared, and the updated forecast reflects the increasing stability seen in the fuel costs in recent months.

3.2. How we projected imperfections costs for 01 Mar 23 to 30 Sept 23

As shown in Figure 1, since Feb 23, fuel prices have become relatively stable and are at a level that is currently expected to persist for the rest of the Tariff Year. The source for future fuel prices was the Thomson Reuters website as of 10 March 2023.

We have therefore based our projection for future months by using the average weekly spend for Feb 23 (~€8.8m) as a predictor of what costs are likely to be going forward. This is lower than the actual average spend we have seen between 01 Oct 22 and 28 Feb 23 of €12.5m per week. While we have used wholesale fuel as a predictor, it should be noted that imperfections costs are based on many related factors including participant data submission, trading behaviour, SNSP and imbalance price.

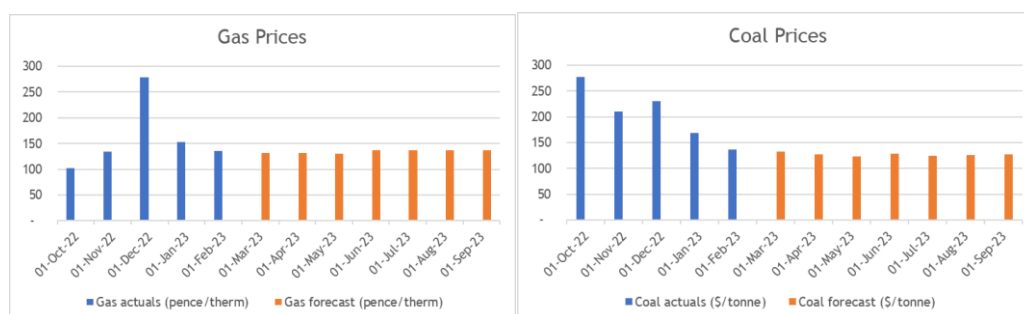


Figure 1: Wholesale Fuel Costs

In addition, there are two areas that were not present in the original forecast which are likely to feature for the rest of the year; DSU Energy Payments and Transmission Outages which are outlined in sections below.

DSU Energy Payments

An additional factor that will be introduced in the second half of the year will be the additional costs of DSUs.

Modification_02_23 will enable additional energy payments to DSUs at all times (not only at times of scarcity). Additional costs will arise through the CIMB component and the CEAUDSU component will be ended. These payments will be funded by Imperfections until further review.

DSU Energy Payment modification is going to the SEM Oversight Committee meeting in April 2023, to be implemented thereafter. The modification could increase DSU CIMB payment by €62.8m based on a conservative approach from DSU data for calendar year 2022. TSOs envisage additional energy costs of €25.5m on a pro-rata basis, for the remainder of the Tariff Year (May 23 to 28 Sep 23).

It should be noted that the impact of the DSU Energy payment modification is complex to forecast and depends on a variety of factors like trading/bidding strategy, system demand, Imbalance Settlement Price (PIMB), availability and the dispatched quantity.

There is an additional risk that these payments could result in additional imperfection costs if the participants choose to change trading/bidding behaviour.

Transmission Outages

It is anticipated that several transmission outages that will impact imperfections costs will take place between now and Sept 23. These outages would have not been included in the original 22/23 Forecast. As they fit in around margins, the temporal aspect of this would not be possible to forecast.

As a best estimate, data from last year was used to identify the cost difference of having no IE transmission outages vs having a realistic number of outages. When we performed a PLEXOS study excluding all IE transmission outages, the imperfections cost difference was €13m. We therefore used this cost as a proxy for the cost of reasonable level of transmission outages.

4. Imperfections Revenue

4.1. Imperfections revenue 01 Oct 22 to 30 Sept 23

The outturn imperfections revenue, recovered via the Imperfection Charge, up to 30 Sept 23 was estimated by combining actual revenue for 01 Oct 22 to 28 Feb 23 with our most recent projection of what costs from 01 Mar 23 to 30 Sept 23 will be, shown in Table 4.

22/23 Imperfections Tariff Revenue	1 Oct 22 to 30 Sep 23 (€m) (15 March 2023)
- Original Tariff Revenue Requirement (Includes k-factor of €140m as per SEM-22-45)	834.53
Imperfections Actual Revenue (01 Oct 22 to 28 Feb 23)	341.00
Imperfections Projected Revenue (01 Mar 22 to 30 Sept 23) Projection based on typical monthly energy profile	436.00
Imperfections Tariff Revenue - Forecast for year end	777.00

Table 4: Imperfections Revenue - Forecast to year end.

As shown in Table 5, we then compared our imperfections revenue projection to the *ex ante* Approved Revenue. From this analysis, we predict that there will be an under recovery against what was forecast of €57.6m (this does not take into account any change in the actual K factor from 2021/2022 from that included in the forecast K factor of -€140m).

22/23 Imperfections	1 Oct 22 to 30 Sep 23 (€m) (15 March 2023)
Original Tariff allowed (includes k-factor of -€140m as per SEM-22-45)	834.53
Imperfections Tariff Revenue - Forecast for year end	777.00
Revenue under recovery	(57.53)

Table 5: Imperfections Revenue Projection compared to Approved Revenue

Thus, we expect to collect less money (-€58m) to fund imperfections than originally envisaged would be collected. The driver for this currently forecast under recovery is due to the outturn demand on which charges are levied and recovered. The forecast demand employed to set the imperfections changes was 38,200 GWh. Actual demand as at the point of the Mid-Year review (estimated at 15,600 GWh based on meter readings at that point in time) and as reflected in the actual revenues received at the end of February is lower than the forecast would have envisaged.

4.1. Projection of Imperfections Revenue for 01 Mar 23 to 30 Sept 23

Our projection of imperfection revenue was based on a consideration of:

- Actual energy consumed between 01 Oct 22 and 28 Feb 23 (which as noted above is below what would have been anticipated based on the underlying forecast demand),

- Typical energy consumed by month (we assume 44% of energy is consumed between 01 Oct 22 and 28 Feb 23 and 56% is consumed between 01 Mar 23 and 30 Sep 23, based on the analysis of historic data).
- The meter data is subject to M+4 and M+13 resettlement. Our end of year position with respect to demand and revenue will always be different from actual initial figures and/or any projections we make in advance.

5. Conclusion

A summary of our projected end of year imperfections cost and revenue is shown in Table 6. We anticipate an over-recovery of ~€61m. The TSOs invite consideration of this analysis by the Regulatory Authorities, and whether this delta would merit a change to the imperfections Charge Factor.

22/23 Imperfections	Updated Forecast Outturn 1 Oct 22 to 30 Sep 23 (€m) (15 March 2023)
Projected Imperfections Costs	576.00
Less k-Factor (as per SEM-22-45)	140.36
Projected Imperfections Revenue	777.00
Overall Forecast Outturn Position ⁵ - Over recovery for year	60.64

Table 6: 22/23 Projection of Imperfections Revenue and Costs to 30 Sept 23

The estimates we provided in this Mid-Year report are based on best available data at the point of preparation (15 March 2023). The k-factor estimates prepared in May 2023 that will be included in the calculation of the Imperfections Charge for 2023/2024 will be based on the best available data at that time and as such will differ from the data set out in this report.

⁵ Where at the end of a period an Over Recovery is known/forecast it is subtracted from the revenue requirement in the following period. Where at the end of a period an Under Recovery is known/forecast it is added to the revenue requirement in the following period.