



Constraint Costs (Imperfections Charge)

October 2022 – September 2023

and

Reforecast Report

October 2020 – September 2021

Decision Paper

SEM-22-045

7 September 2022

EXECUTIVE SUMMARY

This Decision Paper sets out the SEM Committee's decisions regarding the Tariff Year 2022/23 Imperfections Charge.

The Transmission System Operators (TSOs), EirGrid and SONI, for the all-island Single Electricity Market (SEM), control the transmission of electricity and the management of various network constraints (which heavily contribute to the Imperfections Charge). Constraints are caused by network bottlenecks (such as the North-South Interconnector, which is one of the most significant). These constraints create additional costs within the SEM as the TSOs are required to decrease or increase individual generator's electricity output to ensure the balance between electricity supply and demand is maintained.

Constraints costs form the majority of the Imperfection Charge in the 'Forecast Imperfections Revenue Requirement for Tariff Year 1 October 2022 to 30 September 2023'¹, submitted by the TSOs to the RAs in June 2022.

In their submission, the TSOs requested recovery of an Imperfections Charge of €870.81m for the Tariff Year 2022/23, compared to the €330.83m allowed for Tariff Year 2021/22². This would result in an Imperfections Tariff of €22.80 per megawatt-hour (MWh), compared to €9.19/MWh for Tariff Year 2022/23³.

This increase has been driven predominately by a significant rise in the forward prices of the key commodities that determine electricity prices i.e. gas and, to a lesser extent, carbon. The TSOs' modelling was based on commodity prices for Q4 2022 to Q3 2023 as of 9 May 2022. Since the submission of the TSOs' modelling data, future gas prices have seen further significant increase (see Figure 1, below).

¹ See: [Imperfections Revenue Requirement submission for Tariff Year 2022/23](#) and [Imperfections K-factor Submission](#)

² The TSOs' submission for Tariff Year 2022/23 includes a K-factor correction on €140.36m

³ The TSOs forecast demand for the 2022/23 tariff year is 38,200 GWh, which represents a 6.1% increase from the 2021/22 forecast demand of 36,000 GWh.

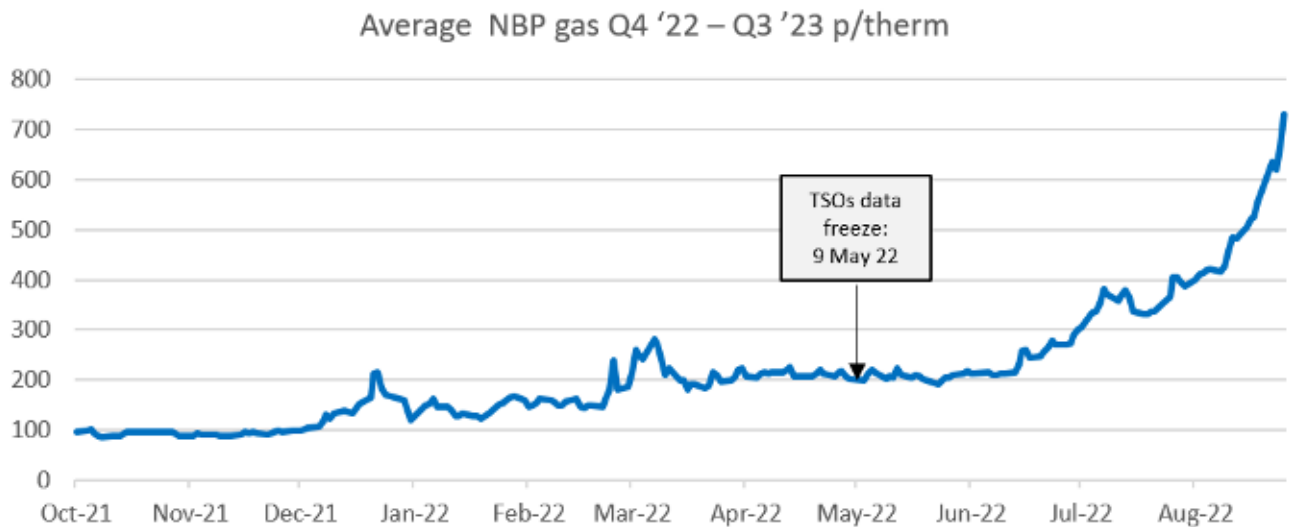


Figure 1. Average of Q4 2022 to Q3 2023 NBP gas prices in GB pence per therm from beginning of Tariff Year 2022/23 to 25 August 2022.

On 15 July 2022, the SEM Committee published a Consultation Paper, [SEM-22-038](#). The focus was to set out and receive feedback on potential ways to mitigate the effect of the TSOs' proposed Imperfections costs on electricity suppliers and, ultimately, customers.

During the consultation period, the RAs conducted further analysis of the TSOs' submission. This resulted in revising downwards the costs for the dispatch of pump storage and System Operator interconnector countertrading. This reduced overall Imperfections costs by €36.28m to €834.53m, giving an estimated Imperfections Tariff of €21.85/MWh (see Table 1, below, and Section 2.4 for details).

The record increases in forward fuel prices are the main driver of increasing Imperfections costs. The further unprecedented increases since the submission by the TSOs in May 2022 have made the forward picture even more stark. As a result, the two potential recalculation approaches included in the consultation paper are no longer appropriate. The first approach sought to use average daily projected quarterly fuel prices (Q4 2022 to Q3 2023) from the preceding 12 months (10 May 2021 to 9 May 2022) as the price input. The second alternative approach involved applying the within-year K-Factor for 2021/22 as a financial run-rate.

In light of the significant increases in wholesale fuel prices, if either option was progressed, the likely effect would be a significant under-recovery for the TSOs, resulting in a greatly increased

K-factor correction next year and the potential for a significantly higher overall Imperfections Charge in Tariff Year 2023/24.

Therefore, the SEM Committee decided to approve the revised amount, resulting in an Imperfections Charge of €834.53m for Tariff Year 2022/23 (see Table 1). This would be accompanied by a review of the Imperfections Charges forecasting process, calculation and their application, and the development and implementation of an enduring within-year biannual review of the costs covered by Imperfection Charges to ensure continued reflectivity.

	TSOs' 2022/23 submission	SEMC 2022/23 decision
Imperfections costs (€m)	730.45	694.17
K-factor (€m)	140.36	140.36
Total Imperfections Charge	870.81	834.53
Tariff (€/MWh)	22.80	21.85

Table 1: Imperfections Charges Tariff Year 2022/23: TSOs' submission and SEMC decision

In summary, the SEM Committee has decided that:

1. The RAs working with the TSOs will conduct a review of the Imperfections Charge forecasting process, calculation and their application, with the aim of reducing costs to the consumer. This will be an opportunity to consider and develop enduring solutions.
2. The Tariff Year 2022/23 Imperfections Charge will be €834.53m⁴, equivalent to an estimated Imperfections Tariff of €21.85/MWh⁵.
3. The €140.36m K-factor will be applied in full and wholly recovered in Tariff Year 2022/23.
4. The RAs will liaise with the TSOs to develop a biannual review of the costs covered by Imperfection Charges. In addition, the TSOs will bring forward proposals to the Trading

⁴ Following detailed review of the TSO submission by the RAs, allowable Imperfections costs have been revised from €870.81m to €834.53m (see Section 2.4)

⁵ Based on the TSOs' forecast demand for the Tariff Year 2022/23 of 38,200 GWh.

and Settlement Code Modification Committee to allow bidirectional alterations to the Imperfection Charge Factor.

5. The Imperfections Charge Factor (FCIMPy) will be set to 1 for the period of 1 October 2022 to 30 September 2023, subject to any alterations following the biannual review process.

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1 INTRODUCTION

This paper sets out the SEM Committee's decision regarding the Tariff Year 2022/23 Imperfections Charge and estimated Imperfections Tariff.

Under the Trading and Settlement Code, Imperfections Charges are levied on the Loss-adjusted Metered Quantities of Supplier Units. These charges are intended to recover the expected cost of Dispatch Balancing Costs (DBC) (in particular constraints costs), Fixed Cost Payments and Charges, and any other imbalances between Trading Payments, Trading Charges, Capacity Payments and Capacity Charges in the coming Tariff Year.

DBCs form the largest component of Imperfections costs and arise from network constraints and the resulting compensation paid to generators for re-dispatch. These costs are due to a combination of offer and bid prices of the re-dispatched generation, and the volumes of re-dispatched generation, resulting from how successfully the TSOs manage network constraints. Both prices and volumes have increased recently.

Section F.12 of the Trading and Settlement Code⁶ requires SEMO to propose values, for approval by the RAs, of the Imperfections Tariff (PIMPy) and Imperfections Charge Factor (FCIMPy), which are used in the calculation of Imperfections Charges. The Trading and Settlement Code also requires that SEMO sets out relevant research and analysis justifying the values proposed.

The TSOs submitted reports to the Regulatory Authorities (RAs) with their forecasts of the costs to be covered by Imperfections Charges during the period 1 October 2022 to 30 September 2023⁷. Following discussions between the RAs and TSOs, the Consultation Paper was published on 15 July 2022.

The RAs received nine responses, one of which was confidential. Table 2, below, lists non-confidential respondents. Their submissions can be found appended to this Decision Paper.

⁶ [Trading and Settlement Code](#) Part B, April 2017

⁷ See: [Imperfections Revenue Requirement submission for Tariff Year 2022/23](#) and [Imperfections K-factor Submission](#)

Respondent
Power NI
TSOs
Bord Gais Energy
Mutual Energy
Federation of Energy Response Aggregators
SSE
PrePayPower
Energia

Table 2: List of Respondents (non-confidential)

Having considered all responses, the SEM Committee sets out the estimated Imperfections Tariff to be applied for Tariff Year 2022/23 through the publication of this SEM Committee Decision Paper.

2 OVERVIEW OF TSOs’ TARIFF YEAR 2022/23 IMPERFECTIONS CHARGE SUBMISSION

The TSOs’ forecast was for an Imperfections cost of €730.45m for Tariff Year 2022/23 which, with the addition of the K-factor, would give total of €870.81m. This compares to the €330.83m allowed Imperfections cost for Tariff Year 2021/22.

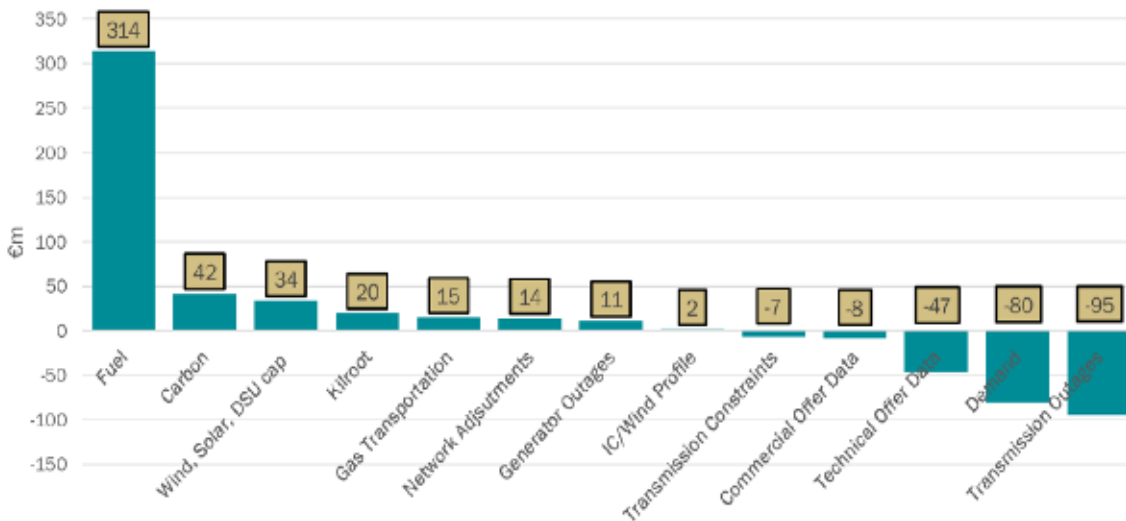


Figure 2. The key drivers of change in the TSOs’ Tariff Year 2022/23 Plexos Imperfections Costs relative to Tariff Year 2021/22⁸

⁸ See: [Imperfections Revenue Requirement submission for Tariff Year 2022/23 pg. 8](#)

Figure 2, above, details the key drivers of change compared to Tariff Year 2021/22 identified by the TSOs, with the main change being the projected increase in fuel prices.

Figure 3, below, provides more detail from the TSOs on the individual fuel price components of this increase, and shows the significant of the increases in gas prices.

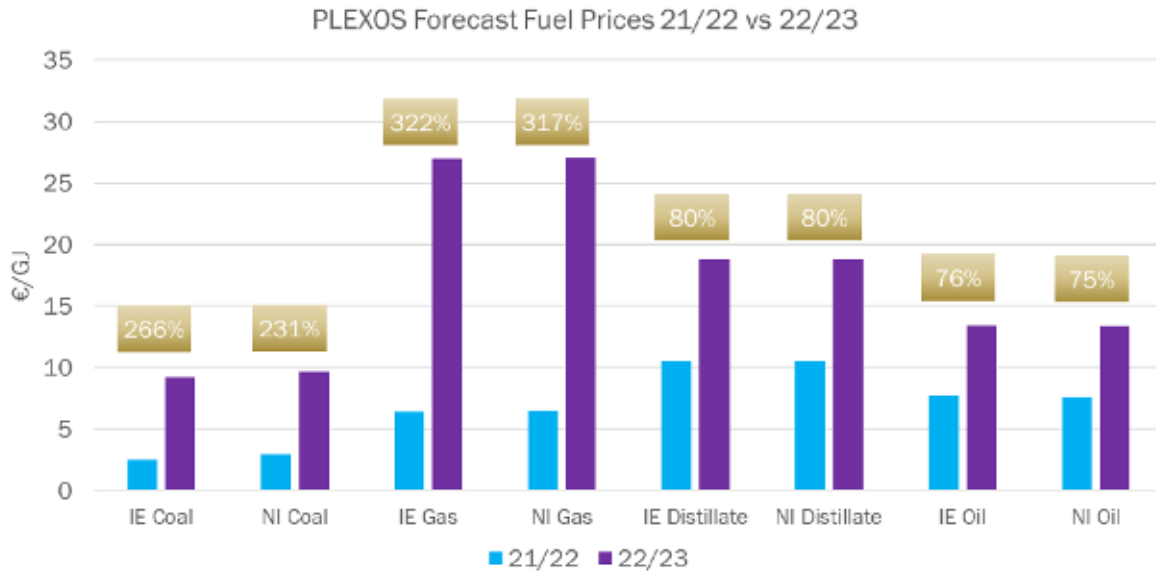


Figure 3. The increase in key fuel prices seen between Tariff Year 2022/23 and Tariff Year 2021/22⁹.

Following detailed consideration of the TSOs’ submission, the SEM Committee has decided to disallow €36.28m of the TSOs’ submitted Imperfections costs, bring the total down to €834.53m. The reduction is in relation to dispatch of pump storage units and System Operator interconnector countertrading. See Section 2.4, below, for more detail.

2.1 DISPATCH BALANCING COSTS

DBC includes Constraint Costs, Uninstructed Imbalance Payments and Generator Testing Charges. These comprise the majority of the TSOs’ forecast costs for Tariff Year 2022/23¹⁰.

⁹ See: [ibid pg.9](#)

¹⁰ In order to increase transparency around DBC, the SEMC has introduced reporting requirements on the TSOs. The TSOs provide quarterly updates on the levels of Constraint Costs, drivers behind Constraint Costs, mitigating measures being taken and other information or commentary that the TSOs believe will aid transparency in this area. These Quarterly Imperfections Costs Reports are available on EirGrid’s and SONI’s websites.

2.1.1 DBC - CONSTRAINT COSTS

Constraints costs arise when a TSO instructs generators to deviate from their intended generation schedules to manage issues such as limitations in the transmission system's capacity. Where this happens, the TSO is required to compensate generators, in accordance with Offer Prices and Bid Prices for each generator¹¹.

The TSOs' forecast constraint costs for the upcoming Tariff Year, uses a combination of a PLEXOS model and supplementary modelling. 'PLEXOS Modelled Constraints' are forecast to cost €532.94m, with the greatest proportion of the magnitude increase over Tariff Year 2022/23 due to increases in projected fuel prices. Constraints on the system are usually the root cause.

'Supplementary Modelled Constraints' are costs not captured in the PLEXOS modelling. The TSOs forecast them at €197.51m for Tariff Year 2022/23, up from €49.61m in Tariff Year 2021/22. However, the SEM Committee decided to disallow €36.28m of the TSOs 2022/23 submission (see Section 2.4).

For Tariff Year 2022/23, these constraint costs comprise the forecast DBCs, with Uninstructed Imbalances and Testing Charges forecast at zero (see Sections 2.1.2 and 2.1.3).

2.1.2 DBC - UNINSTRUCTED IMBALANCES

Uninstructed Imbalances occur when a generator deviates from the output it has been instructed by the TSOs to generate at, resulting in the TSOs having to redispatch other generators, which incurs additional costs, in order to balance the system.

The TSOs' forecast of Uninstructed Imbalances for Tariff Year 2022/23 is zero, as they have assumed the additional redispatch costs will be recovered through a separate Uninstructed Imbalance Charges.

¹¹ See: [Incentivisation of All-island Dispatch Balancing Costs \(SEM-12-033\)](#)

2.1.3 DBC - TESTING CHARGES

As a testing generator unit typically poses a greater risk of tripping, additional operating reserve is required to ensure system security is not compromised, giving rise to increased system operating costs.

The TSOs' forecast of Testing Charges for Tariff Year 2022/23 is zero, as they have assumed additional costs will be recovered through separate Testing Charges.

2.2 FIXED COST PAYMENTS

Fixed Cost Payments comprises Make Whole Payments, Recoverable Start Up Costs and recoverable No-Load Costs.

The TSOs have assumed these costs are captured in the PLEXOS Modelled Constraints.

2.3 OTHER SYSTEM CHARGES

Other System Charges (OSC) include Generator Performance Incentive Charges, Short Notice Declaration Charges and Trip Charges. They are Transmission Use of System Charges levied on Generators covering the provision of services that affect DBC and Ancillary Service Costs.

The TSOs have assumed that Generators are compliant with the Grid Code requirements resulting in no charges for recovery and a forecast of zero for OSC in Tariff Year 2022/23.

2.4 SUPPLEMENTARY MODELLING

The Supplementary Model includes forecasts for areas that PLEXOS is unable to effectively model (refer to the TSOs' submission for further details¹²). The TSOs' Tariff Year 2022/23 forecast for Constraint Costs, derived from Supplementary Modelling was €197.51m.

¹² See: [Imperfections Revenue Requirement submission for Tariff Year 2022/23](#)

2.4.1 DISPATCH OF PUMP STORAGE UNITS

The TSOs requested €35.17m for the settlement of pump storage units. In previous years, the SEM Committee acknowledged that the treatment of these units in PLEXOS differs from the revised market arrangements, while noting that the PLEXOS models already include a gap between the unconstrained and constrained efficiencies. As such, the allowance for pump storage units will be reduced in line with previous SEM Committee Imperfections costs decisions.

€18m is allowed in relation to this cost item, as the SEM Committee expect the TSOs to endeavour to match the market position of the units in dispatch as closely as possible.

2.4.2 SYSTEM OPERATOR INTERCONNECTOR COUNTERTRADING

The TSOs made a submission of €35.79m for interconnector counter trading costs for Tariff Year 2022/23. The SEM Committee notes that the information provided by the TSOs to the RAs includes two estimations.

The first estimate (the TSOs' submitted figure of €35.79m) is based on the weekly average cost for interconnector countertrades across the previous Tariff Year. The second estimate (€16.68m) is the weekly average "excluding significant outliers recorded in two weeks in September 2021". From the information provided to the RAs, the SEM Committee consider the countertrades from 5 September and 12 September 2021 skew the average and therefore the 'excluding outliers' estimate is likely to be the truer figure. Therefore, the SEM Committee has decided to allow €16.68m for interconnector countertrades in Tariff Year 2022/23.

2.4.3 CLEAN ENERGY PACKAGE COSTS

The Clean Energy Package has implications for the compensation of generator re-dispatch. However, as per SEMC's Decision ([SEM-22-009](#)) to implement and compensate any payments for curtailment from Tariff Year 2024/25, the TSOs have not included provision for additional costs as a result of the Clean Energy Package in Tariff Year 2022/23.

2.5 K-FACTOR

The K-factor is the TSOs' estimate of the shortfall of funding for the current Tariff Year, i.e. 2021/22, based on the actual outturn for the first seven months (1 October 2021 to 30 April

2022), plus a further estimate for the remaining five months of the Tariff Year (1 May 2022 to 30 September 2022).

Differences between the Imperfections costs and the Imperfections Charges paid by suppliers leads to a surplus or shortfall over the Tariff Year. SEMO refunds any surplus or recovers any shortfall through an adjustment to the estimated Imperfections Tariff in the following Tariff Year. A further adjustment is required in the subsequent Tariff Year to account for the difference between the outturn and the estimate for the remaining five months.

For the current (2021/22) Tariff Year the TSOs state in their submission, as of 30 April 2022, outturn Imperfections costs were 33% greater than had been forecast, resulting in an under-recovery of €77.81m. The TSOs have assumed, based on current forward fuel and carbon prices, that Imperfections costs will continue at a high level, resulting in an estimated under-recovery for Tariff Year 2021/22 of €150m¹³.

The difference between the outturn and estimated under/over-recovery for the last five months of 2020/21 was €9.64m. Therefore, the total K-factor to be applied in Tariff Year 2022/23 is €140.36m (see Table 3).

Item	€ million
Actual over-recovery 2020/21	9.64
Estimated under-recovery 2021/22	-150.00
Total K-factor to be applied 2022/23	-140.36

Table 3. TSOs' K-factor calculation for 2022/23

3 COMMODITY PRICE VOLATILITY

The consultation on Imperfections Charges for Tariff Year 2022/23 opened on 15 July and the SEM Committee made its decisions at its meeting on 25 August. During this time, future gas prices for the relevant period (Q4 2022 to Q3 2023) increased by an average of 157%. However, gas

¹³ See: [Imperfections K-factor Submission](#)

prices rose by 220% between the dates of the TSOs' data freeze date (9 May) and the SEM Committee meeting¹⁴.

The most significant factor in Imperfections costs (both absolute and increase) is the cost of fuel. The TSOs estimated the actual cost of fuel for Tariff Year 2022/23 at €405m. If the increase in gas prices were applied to the TSOs' estimate it would result in fuel costs for Imperfections in the region of €1.29bn.

The current difficulties in estimating forward commodities prices are not limited to increasing prices. Day-to-day volatility is also a problem with swings of over 10% seen. Therefore, while the overall trend is of commodity price increase, the pervading effect is one of uncertainty. While Imperfections fuel costs alone could be over €1bn for Tariff Year 2022/23, it is not necessarily likely. However, its possibility needs to be part of the SEM Committee's decision-making.

4 REVIEW OF THE TSOs' 2022/23 IMPERFECTIONS CHARGE SUBMISSION

The TSOs proposed an Imperfections Charge of €870.81m for the Tariff Year 2022/23¹⁵. This includes PLEXOS and Supplementary Modelled costs of €730.45m, most of which are attributable to Constraint Costs¹⁶. Adding the K-factor adjustment results in a total forecast Imperfections Charge of €870.81m, which, when divided by the forecast demand, of 38,200 GWh¹⁷, equates to an estimated Imperfections Tariff of €22.80/MWh for Tariff Year 2022/23¹⁸. This compares to €330.83m or €9.19/MWh in Tariff Year 2021/22.

In the Consultation Paper, the RAs requested views on:

¹⁵ Revised by the SEM Committee following the consultation period to €834.53m due to reductions in allowance for pump storage and interconnector countertrading (see Section 2.4)

¹⁶ Following the consultation period, the SEM Committee decided to revise the Supplementary Modelled costs to €694.17m due to reductions in allowance for pump storage and interconnector countertrading (see Section 2.4)

¹⁷ The TSOs forecast demand for Tariff Year 2022/23

¹⁸ The SEM Committee updated this figure to €21.85/MWh in line with the revised Imperfections cost of €834.53m (see Section 2.4)

1. The reasonableness of the TSOs' forecast of costs and their assumptions for Tariff Year 2022/23 (see Section 3.1);
2. If there are actions the TSOs could take to minimise Imperfections Charges (see Section 3.1);
3. Calculating the Imperfections Tariff for Tariff Year 2022/23 on *either* applying daily projected quarterly fuel and carbon costs averaged over a 12-month period, *or* utilising the K-factor in a run rate approach (see Section 3.2);
4. Whether the K-factor element should be partially recovered over one or more Tariff Year and, if so, the number of years and quantum (see Section 3.3);
5. Implementation of a biannual review of the Imperfection Charge and a proposed modification to the Trading and Settlement Code to allow bidirectional alterations to the Imperfection Charge Factor (see Section 3.4).

4.1 REASONABLENESS OF TSOs' COSTS AND ASSUMPTIONS AND ACTIONS THE TSOs' COULD TAKE TO MINIMISE IMPERFECTIONS CHARGES

The TSOs attributed the increase in forecasted Imperfections Charge to higher fuel prices (€314m increase, based on 9 May 2022 prices) to price spikes and volatilities in the commodity futures markets following the Russian invasion of Ukraine.

As with previous years' submissions by the TSOs, the primary Imperfections costs are DBCs, in particular constraint costs.

The Consultation Paper requested stakeholders' views on the TSOs' Tariff Year 2022/23 costs forecasts and the assumptions used. Stakeholders were also asked for suggestions on whether there is more the TSOs could do to minimise DBCs and other costs covered by the Imperfections Charge.

Comments Received

All respondents provided comments regarding the TSOs' costs and assumptions, and suggestions of actions to minimise future Imperfections Charges. Stakeholders thought there was scope for

improvement, or at least areas which could be examined in detail to ascertain whether the current approach remains the most suitable.

One respondent questioned whether using a single point in time for fuel and carbon prices would fully capture the volatility in future commodity markets. Another queried the TSOs dispatch priorities, asking if security of supply “at any cost” continued to be appropriate.

Others looked at specific elements of how cost calculation, for example around interconnector countertrading and whether dividing the total Imperfections Charge by ‘constrained MWh’ (rather than using forecast total demand) could better represent actual Imperfections.

One stakeholder suggested a way to minimise costs in the short-term would be to spread the recovery over a number of years, thereby reducing the impact on customers of the significant increase represented by the TSOs’ proposed Imperfections Charge.

The TSOs in their consultation response emphasised the independent review of their modelling and that they had only included costs / assumptions that they could quantify at the time of preparing the forecast.

RAs’ Response

Notwithstanding the validity of assumptions used in modelling, the RAs continue to be concerned about measures the TSOs could take to minimise Imperfections costs.

The RAs acknowledge the ongoing work between the individual TSOs and RAs around constraints. As part of the Price Review 5 Electricity Networks process¹⁹, the CRU introduced an incentive which required EirGrid to establish a set of planned measures to reduce/curtail imperfection costs over the PR5 period. However, the RAs also note that demonstrable progress in these areas is weaker than expected. The CRU has raised concerns around EirGrid’s failure to provide requested items including a report on all constraints, a methodology on how it intends to address them, and EirGrid’s lack of plan on how to resolve Transmission Constraint Groups.

Following a recent review of its licence by the UR, SONI no longer has specific incentives to reduce level of Dispatch Balancing Costs, with these now being within the scope of SONI’s Evaluative

¹⁹ See CRU: [Price Review 5 Electricity Networks](#)

Performance Framework. Nevertheless, the UR is concerned that SONI has not clearly set out what activity or actions it is going to take to positively affect system wide costs. For example, balancing costs are large and forecast to increase significantly, so the UR would expect more evidence and/or clarity of short-term and strategic longer-term actions which SONI could take to affect these.

SEM Committee Decision

Having considered the comments raised by stakeholders in relation to the TSOs' cost forecasts and assumptions, the SEM Committee has decided to require the RAs to work with TSOs to conduct a review of the Imperfections Charges forecasting process, calculation and their application, with the aim of reducing costs to the consumer. This will be an opportunity to consider and develop enduring solutions.

4.2 PROPOSED AMENDED APPROACH TO IMPERFECTIONS CHARGE CALCULATION

The TSOs' modelling is based on commodity prices for Q4 2022 to Q3 2023 as of a 'data freeze' on 9 May 2022. By taking prices on a single day, the RAs were concerned the TSOs' figures were at risk of being atypical and, as such, might not account for the significant volatility and price spikes in commodity markets since February 2022.

The Consultation Paper proposed two alternative approaches (using 12-month historical prices or applying a run rate approach) and invited comment from stakeholders.

4.2.1 12-MONTH HISTORICAL AVERAGE FUEL PRICES

As outlined in the Consultation Paper, an option to better reflect the volatility of forward fuel and carbon prices could be to apply averages for Q4 2022 to Q3 2023, taken daily for the 12 months preceding the data freeze, that is from 10 May 2021 to 9 May 2022.

At the request of the RAs, the TSOs' modelled commodity prices based on a 12-month historical average. They are 47% lower for fuel, and 25% lower for carbon than in their original submission²⁰. This results in fuel costs of €217m and carbon costs of €90m, a total of €307m. In comparison, the total fuel and carbon cost in the TSOs' original submission was €512m.

²⁰ Price decrease estimates depend on type of fuel: coal 54%, gas 47%, gasoil 30%, LSFO, 19%. Carbon estimated decrease is 25%. See Appendix 7 of the appended Forecast Imperfections Revenue Requirement

Comments Received

Seven respondents provided comments to the consultation question on the merits of applying a 12-month average price for fuel and carbon prices, all of whom considered it an inappropriate solution.

While some acknowledged the approach had been used elsewhere for similar calculations, the general opinion of respondents was that the 12 months from May 2021 to May 2022 does not reflect the current - or the likely near-future - volatility, nor the continuing trend in unprecedented high commodity prices, as most of the 12-month period predates the war in Ukraine.

RAs' Response

At the time that the 12-month historical average price approach was developed, it appeared it would be more representative of prices from Q4 2022 - Q3 2023 than the fixed-date approach used by the TSOs. Nevertheless, the Consultation Paper acknowledged the current and predicted volatility in fuel prices meant a significant level of uncertainty remained. In the intervening weeks this volatility has continued and worsened due to geo-political circumstances. In addition, the RAs note that inflation continues to increase in Ireland, the UK, and the Euro area.

Uncertainty regarding commodity prices is likely to impair the accuracy of estimating Imperfections charges no matter which approach is used. Nonetheless, the current evidence suggests that applying a calculation based on 12-months' historical fuel and carbon prices (even if this were to be updated to, say, August 2021 – August 2022) would be more significantly affected by the uncertainty than the other possibilities set out in the Consultation Paper.

SEM Committee Decision

The SEM Committee has decided that while the 12-month historical price approach would have significant merit under previous circumstances, that does not extend to the current conditions of increasing prices and sustained volatility. As such, the 12-month historical price method is not appropriate and will not be used to calculate Imperfections Charges for Tariff Year 2022/23.

4.2.2 FINANCIAL RUN RATE

The second alternative set out in the Consultation Paper was to use a run-rate approach. This seeks to avoid using highly uncertain predictions by extrapolating the within-year K-Factor performance and price conditions.

Comments Received

The potential for using a run rate approach based on the K-factor for Tariff Year 2022/23 was addressed by seven respondents. There was some disagreement, with several supporting the idea as a way to incorporate contemporary market performance and conditions, and would help to smooth the impact of cost increases. However, others considered there is a risk it would underestimate costs, resulting in under-recovery, which would, in turn, increase future K-factor corrections. A further respondent considered the PLEXOS model used in the TSOs' submission was more representative than the run rate approach, as it models every hour of the upcoming Tariff Year.

RAs' Response

As outlined in the Consultation Paper, there is merit in using a run rate approach as it is based on actual outturn figures, unlike the projections used in both the TSOs' fixed-date approach and the 12-month historical prices alternative.

Nevertheless, the run rate, while based on seven months (or possibly longer) of actual data can only serve as a proxy, which would inevitably become weaker the longer the extrapolation. To apply the K-factor as run rate for Tariff Year 2022/23 would mean extrapolating for the following 12 months. In effect, it assumes the predicted variance between forecast and outturn for Tariff Year 2021/22 is replicated in Tariff Year 2022/23.

As noted above in Section 3.2.1, there is risk attached to using historical prices at a time of significant volatility. Assuming all other elements – such as the level of constraints on the system – will be equal, if fuel and carbon prices are greater in Tariff Year 2022/23 than estimated using the run rate approach, there is potential for under-recovery that would need to be recouped through an increase in K-factor in Tariff Year 2023/24.

The run rate approach as set out in the Consultation Paper would recover €620.89m of the TSOs' predicted costs of €834.53m in Tariff Year 2022/23. However, recent and current commodity prices indicate even the TSOs' requested amount would lead to a significant under-recovery.

The underlying Imperfections costs (i.e. excluding any K-factor) for Tariff Year 2023/24 are impossible to estimate with any degree of certainty at this time. Nonetheless, assuming a similar level to that estimated by the TSOs 2022/23 (€730m), then the addition of K-factor of ~€206m (the difference between the run rate recovery and the TSOs' full amount) could lead to Imperfections Charges in Tariff Year 2023/24 of ~€1bn.

This would result in an increase to the estimated Imperfections Tariff mid-year following the biannual review alteration to the Imperfections Charge Factor and/or a significant increase to the K-factor for Tariff Year 2023/24. In turn, this could exacerbate as yet unknown difficulties from commodity price increase and volatilities.

SEM Committee Decision

The SEM Committee acknowledges and appreciates the arguments put forward by consultation respondents for and against applying a run rate approach for calculating the Imperfections Charge for Tariff Year 2022/23. It is clear much of the argument centres on the volatility and projected significant increases of forward fuel and carbon prices.

Therefore, to mitigate the risk of even greater Imperfections Charges in Tariff Year 2023/24 and of large K-factor swings in subsequent Tariff Years, the SEM Committee has decided to allow full recovery of Imperfections costs in Tariff Year 2022/23.

4.3 PARTIAL DEFERRAL OF K-FACTOR RECOVERY

At €140.36m²¹ the K-factor requested by the TSOs for Tariff Year 2022/23 is significantly greater than any for previous Tariff Year, however, the K-factor for Tariff Year 2019/20 was larger as a proportion of Imperfections Charges (31.1% compared to 19.2% for Tariff Year 2022/23).

The Consultation Paper invited comments on both the principle and practicalities of a partial delay to K-factor recovery.

²¹ €140.36m comprises an estimated €150m under-recovery for Tariff Year 2021/22 and a €9.64m actual over-recovery for Tariff Year 2020/21

Comments Received

Seven respondents provided feedback to the consultation question on potentially spreading the K-factor recovery over subsequent Tariff Years, with the majority supporting the proposal.

One respondent acknowledged partial deferral of the K-factor carries the risk that Imperfections Charges will be at an elevated level for longer but considered the approach was reasonable given cost pressures on customers. Another agreed, suggesting a three-year recovery period, while a further respondent suggested a five-year recovery period, which would be kept under review should costs, return to historic norms. However, one other respondent said that if prices were to rise further any deferral of the K-factor would increase the burden on future consumers.

In their consultation response, the TSOs outlined their opposition to the proposal stating that it was a key principle of SEM funding that the K-factor is recovered in the following year. In addition, they pointed out that while they used a low forecast in their submission, their latest figures indicated this was conservative.

RAs' Response

Given the significant K-factor under-recovery amount proposed by the TSOs for Tariff Year 2022/23, the subsequent impact on suppliers and, ultimately, customers, the RAs considered the possibility of delaying the recovery.

The RAs note that the TSOs in their submitted report, outline the uncertainty in their calculations, primarily due to continued commodity price increases and inflation. The TSOs state their modelling of the K-factor produced a range of results of between €150m and €200m under-recovery²².

SEM Committee Decision

As stated in Section 3.2.2, the SEM Committee has decided 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. The same reasoning applies to the suggestion of partial deferral K-factor for Tariff Year 2022/23: while the proposal merited consultation, any deferral

²² TSOs' [Forecast Imperfections Revenue Requirement Tariff Year 2022/23 v2.0](#) pg. 35

could cause significant future K-factors which could negatively impact on suppliers and customers. Therefore, the SEM Committee has decided that the K-factor should be recovered in full in Tariff Year 2022/23.

4.4 BIENNIAL REVIEW AND TRADING AND SETTLEMENT CODE MODIFICATION

A biennial review of the Imperfection Charge would allow for mid-Tariff Year recalculation of the Imperfection Charge Factor to ensure it remained reflective of actual costs being incurred by the TSOs. Under this proposal, the RAs would develop an enduring method for monitoring Imperfections costs and for recalculating estimated Imperfections Tariff should projected Imperfections costs diverge significantly in either direction from the amounts assumed before the start of the Tariff Year.

The Trading and Settlement Code²³ (Section F.12.1.4) provides for situations of significant variation between forecast and outturn costs to be addressed through within-year alterations to the Imperfections Charge Factor. At present, the Code only supports amendments to the Imperfections Charge Factor in situations of under-recovery.

The RAs requested feedback from stakeholders on implementation of a biennial review process and whether the Trading and Settlement Code should be amended to allow for alteration of the Imperfections Charge Factor where there is significant over-recovery.

Comments Received

Most respondents provided comments on proposals for the development of a biennial review process while two addressed the proposed modification of the Trading and Settlement Code.

Respondents saw a biennial review as allowing Imperfections Charges to be more reflective of changes to actual costs, helping ensure the RAs respond to developments more quickly, which would be in the interests of customers. However, there was some concern expressed around the possibility of a review leading to changes to customers' tariffs mid-year, which could increase uncertainty and suppliers' administrative burden. This view led one respondent to suggest the review should be for information only.

²³ [Trading and Settlement Code](#) Part B, April 2017

The two respondents to directly address the proposed modification of the Trading and Settlement Code commented positively, noting that allowing the Imperfection Charge Factor to reduce as well as increase would give assurance that where assumptions like fuel costs do not hold there is an opportunity to vary the tariff appropriately.

RAs' Response

The RAs are aware that EirGrid use the TSOs' Quarterly Reports as part of its Incentives and Reporting mechanism with the CRU, which, in turn, is designed to help address network constraint issues and their associated costs as part of Price Review 5²⁴.

Work to reduce constraints is welcomed and the RAs have no wish to duplicate workstreams, nor to put in place onerous requirements. Nevertheless, the RAs' note the CRU has highlighted that as part of the Price Review 5 incentive framework EirGrid's constraints reporting requires improvement.

Therefore, it would be appropriate to put in place a biannual review to build on the TSOs' Quarterly Imperfections Cost 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.

At present, such under or over-recovery is addressed through the K-factor mechanism. With a biannual review, if the projected over or under-recovery was assessed to be consequential, either in monetary terms or as a proportion of the Imperfections Charge, it could be addressed on a six-monthly rather than annual basis. This should make the process more responsive and help manage the unpredictability of cost inputs.

Due to the significant volatility in fuel prices, it is possible that any biannual review could forecast an Imperfections Charge over-recovery. As such, the introduction of a biannual review would only be appropriate if it can result in the decrease as well as an increase in the Imperfections Charge. The Trading and Settlement Code currently only provides for amendments to the Imperfections Charge Factor in situations of under-recovery: to address for over-recovery, the Trading and Settlement Code needs to be modified.

²⁴ See: [PR5 Regulatory Framework, Incentives and Reporting](#)

The RAs acknowledge comments that such modification to the Trading and Settlement Code could result in implementation challenges for suppliers. Nevertheless, it remains the case that increasing the Imperfections Charge Factor is currently facilitated by the Code and, so, any such uncertainty already exists.

Allowing for bidirectional Imperfection Charge Factor changes should also make the process more flexible and better able to respond to the significant and continued commodity price and inflation volatility, which, ultimately, should benefit consumers.

SEM Committee Decision

The SEM Committee has decided to require the TSOs to work with the RAs to develop an Imperfections biannual review process. To help facilitate this, the TSOs will bring forward proposals to Trading and Settlement Code Modification Committee to update section F.12.1.4 to allow bidirectional amendments to the Imperfections Charge Factor.

5 SEM COMMITTEE DECISIONS

Following thorough assessment of consultation responses, the SEM Committee has made the following decisions in relation to the Imperfections Charge :

- 1.** The RAs working with the TSOs will conduct a review of the Imperfections Charges forecasting process, calculation and their application, with the aim of reducing costs to the consumer. This will be an opportunity to consider and develop enduring solutions;
- 2.** The Imperfections Charge for Tariff Year 2022/23 will be €834.53m, which gives an estimated Imperfections Tariff of €21.85/MWh ;
- 3.** The €140.36m K-factor will be applied in full and wholly recovered as part of the Imperfections Charge for Tariff Year 2022/23;
- 4.** The RAs will liaise with the TSOs to develop a biannual review of the costs covered by Imperfection Charges. In addition, the TSOs will bring forward proposals to the Trading and Settlement Code Modification Committee to allow bidirectional alterations to the Imperfection Charge Factor;

5. The Imperfections Charge Factor (FCIMPy) will be set to 1 for the period of 1 October 2022 to 30 September 2023, subject to any alterations following the biannual review process.