Imperfections Charge

October 2021 – September 2022

And

Reforecast Report

October 2019 – September 2020

Consultation Paper

SEM-21-053

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1 EXECUTIVE SUMMARY

The Regulatory Authorities (i.e. UREGNI & CRU) are consulting on the Transmission System Operators (i.e. EirGrid & SONI) Imperfections Revenue Requirement submission for tariff year 2021/22 (i.e. 1/20/2021 to 30/09/2022), prior to issuing its final decision on the 2021/22 Imperfections Charge.

The purpose of the Imperfections Charge is for the Transmission System Operators (TSOs) to recover the total expected costs associated with managing the transmission system. The Single Electricity Market (SEM) Imperfections Charge, which is levied on suppliers by SEMO, is made up of a number of components, the largest of which relates to Dispatch Balancing Costs (DBC). Given the forecast element to the Imperfections Revenue Requirement, such costs are also subject to a K factor adjustment.

On the 26 May 2021, the TSOs submitted the following documentation to the Regulatory Authorities (RAs) in to order to enable the RAs arrive at a decision on setting of the 2021/22 Imperfections Tariff:

- 'Forecast Imperfections Revenue Requirement for Tariff Year 1st October 2021 to 30th September 2022'; and
- 'Reforecast Report for Tariff Year 1st October 2019 to 30th September 2020.

The TSOs have forecast an Imperfections Revenue Requirement of €473.09 million for the 2021/22 tariff year, which is greater than €301.47 amount allowed for the 2020/21 tariff year. A significant driver of this increase in the TSOs forecasted Imperfections Revenue Requirement is estimated higher fuel prices. These have increased costs by €99 million relative to 2020/21. The TSOs have made a submission of €10 million in relation to interconnector counter trading costs in the 2021/22 tariff year. This is the first year in which the TSOs have submitted a provision for these costs.

The TSOs made a submission in relation to potential costs arising from the implementation of Article 13 of the Regulation (EU) 2019/943. In relation to this submission, the RAs noted that the methodology applied by the TSOs to calculate these costs did not align with the proposals set out by SEMC in its recent consultation paper (SEM-21-026). The RAs therefore requested that the TSOs resubmit these costs on the basis of the latest methodology set out in (SEM-21-026). The TSOs subsequently acknowledged that under the RAs' latest proposals, these costs would be likely to be small for the tariff periods in question. The RAs' therefore propose not including a provision in relation to potential costs arising from the implementation of Article 13 of the Regulation (EU) 2019/943. Any costs that may arise due to the implementation of Article 13 of the Regulation (EU) 2019/943 will be recoverable by the TSOs in subsequent tariff years.

With reference to the K factor adjustment mechanism, the TSOs have proposed a K factor adjustment of -€10.18m for inclusion in the 2021/22 imperfections tariff. Taking into account the TSOs' 2021/22 imperfections tariff proposal and the proposed K factor adjustment of €-10.18m, this results in a 2021/22 Imperfections Charge of €9.19 per megawatt-hour (MWh), compared with €8.96 per MWh for the 2020/21 tariff year, as shown in Table 1 below.

	2021-22 RA Proposal	**2020-21 Decision**	**Change relative to 20/21**
Imperfections	€ 341.01	€ 301.47	13.12%
K factor (€m)	-10.18	-0.37	
Total Allowance (€m)	€ 330.83	€ 301.10	9.87%
Forecast Demand GWh	36,000	33,600	
Tariff (€/MWh)	**€ 9.19**	**€ 8.96**	**2.56%**

Table 1: Imperfections Charge - 2021/22 TSO proposal versus 2020/21 Decision.

The RAs invite stakeholders' feedback on the TSOs' Imperfections Revenue Requirement for tariff year 2021/22 (deadline for responses is close of business on Friday 23 July 2021). Following consideration of stakeholders' feedback, the RAs intend publishing its decision in August 2021.

1 INTRODUCTION

The Regulatory Authorities (i.e. UREGNI & CRU) are consulting on the Transmission System Operators (i.e. EirGrid & SONI) Imperfections Revenue Requirement submission for tariff year 2021/22 (i.e. 1/20/2021 to 30/09/2022), prior to issuing its final decision on the 2021/22 Imperfections Charge.

On the 26 May 2021, the TSOs submitted the following documentation to the Regulatory Authorities (RAs) in to order to enable the RAs arrive at a decision on setting of the 2021/22 Imperfections Tariff:

- 'Forecast Imperfections Revenue Requirement for Tariff Year 1st October 2021 to 30th September 2022'[1] (2021/22 Forecast); and
- 'Reforecast Report for Tariff Year 1st October 2019 to 30th September 2020'[2] .

The purpose of the Imperfections Charge is for the Transmission System Operators (TSOs) to recover the total expected costs associated with managing the transmission system, and is levied on suppliers by SEMO.

Such costs include anticipated Dispatch Balancing Costs (DBC) - less Other System Charges, Fixed Cost Payments, any net imbalance between Energy Payments and Energy Charges and Capacity Payments and Capacity Charges over the tariff year, with adjustments for previous years as appropriate, via the K factor. The K factor adjustment mechanism enables any under or over recovery of Imperfections Costs, in the previous year and an estimate for the current year, to be accounted for in the upcoming tariff year.

The costs making up the Imperfections Charge are depicted in Figure 1 below, and a description of each provided in section 2 of this consultation paper.

[1] Refer to Annex 1 for a copy of the TSOs' Forecast Imperfections Revenue Requirement for 2021/22 Tariff Year

[2] Refer to Annex 2 for a copy of the TSOs' Reforecast Report for Tariff Year 2019/20. The Reforecast Report is an overview of how the original forecast, reforecast (PLEXOS) only and the actual outturn compare.

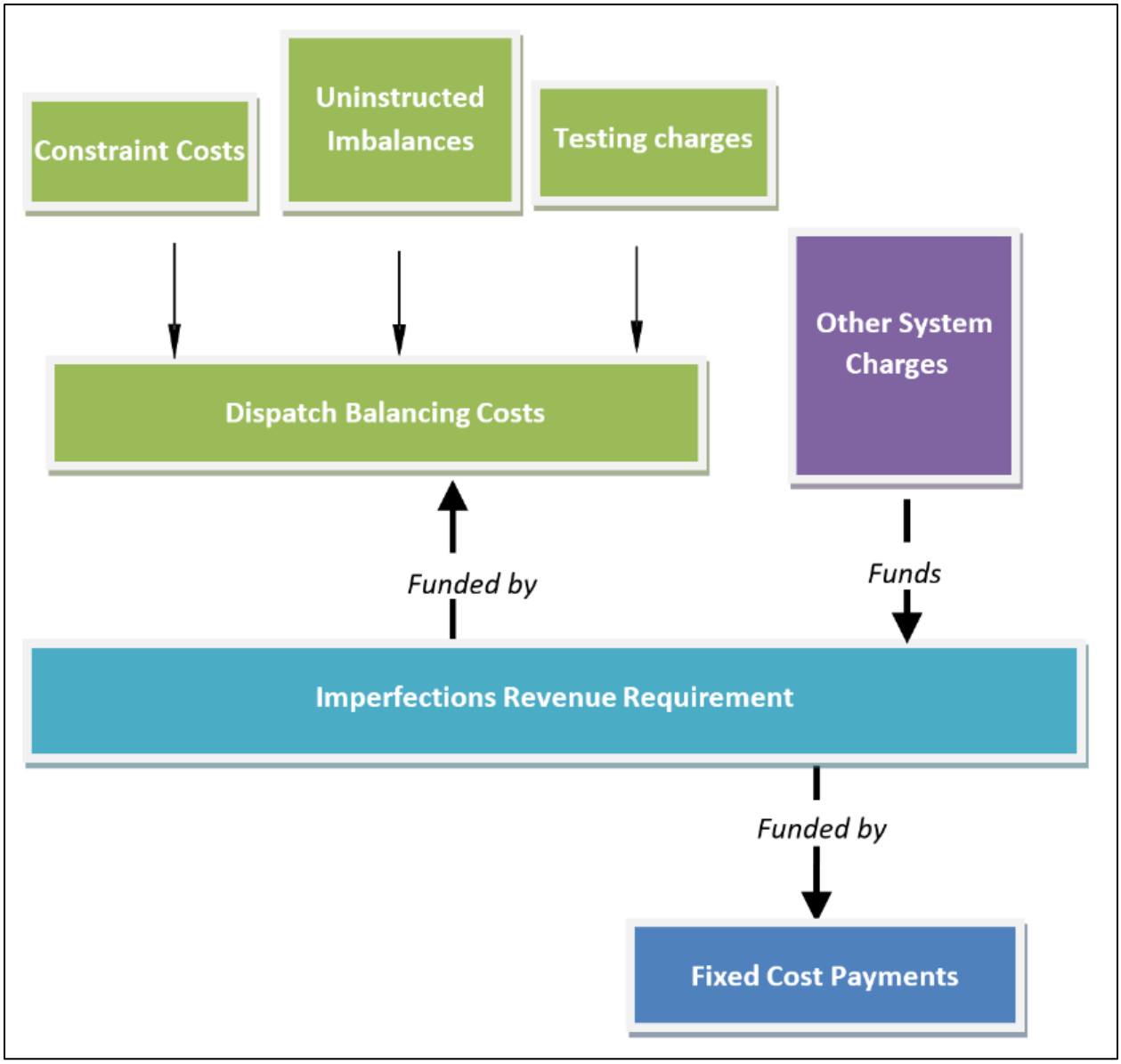

Figure 1: Imperfections Charge Components

2 TSOs' 2021/22 FORECAST IMPERFECTIONS REVENUE REQUIREMENT

The TSOs' 2021/22 Forecast was prepared jointly by EirGrid and SONI, and captures an all-island estimate of the Imperfections Charge for the 2021/22 tariff year. All costs are estimated ex-ante and recovered from suppliers on a MWh basis, through the Imperfections Charge. The TSOs have forecast an Imperfections revenue requirement of €473.09 million for the 2021/22 tariff year.

This represents a 56.93% increase from the €301.47 million final decision for the 2020/21 tariff year. There are a number of key factors influencing the TSOs' 2021/22 forecast imperfections cost forecast. Figure 2 details the key drivers of change in the 2021/22 Plexos Imperfections Costs calculation, relative to 2020/21.

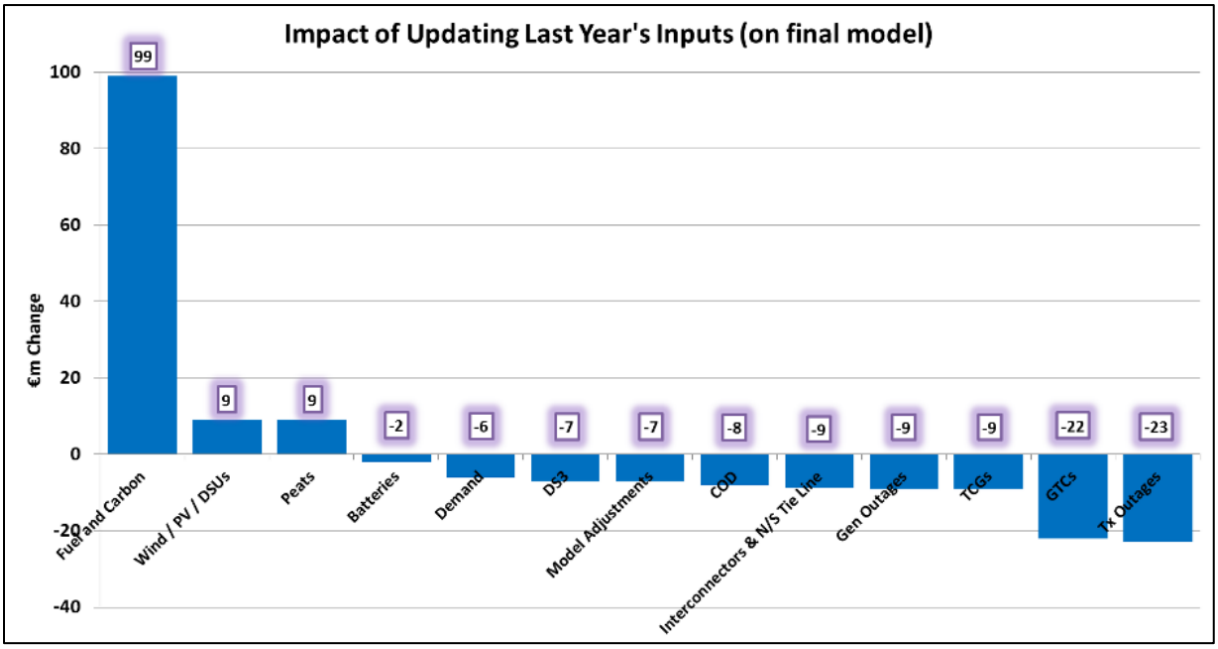

Figure 2. The key drivers of change in the TSOs' 2021/22 Plexos Imperfections Costs relative to 2020/21.

As stated above, a key driver in the TSOs' 2021/22 forecast an Imperfections revenue requirement, is an increase in fuel price forecasts relative to 2020/21. Figure 3 details the this change for some key fuel price inputs applied in the TSOs' imperfections model.

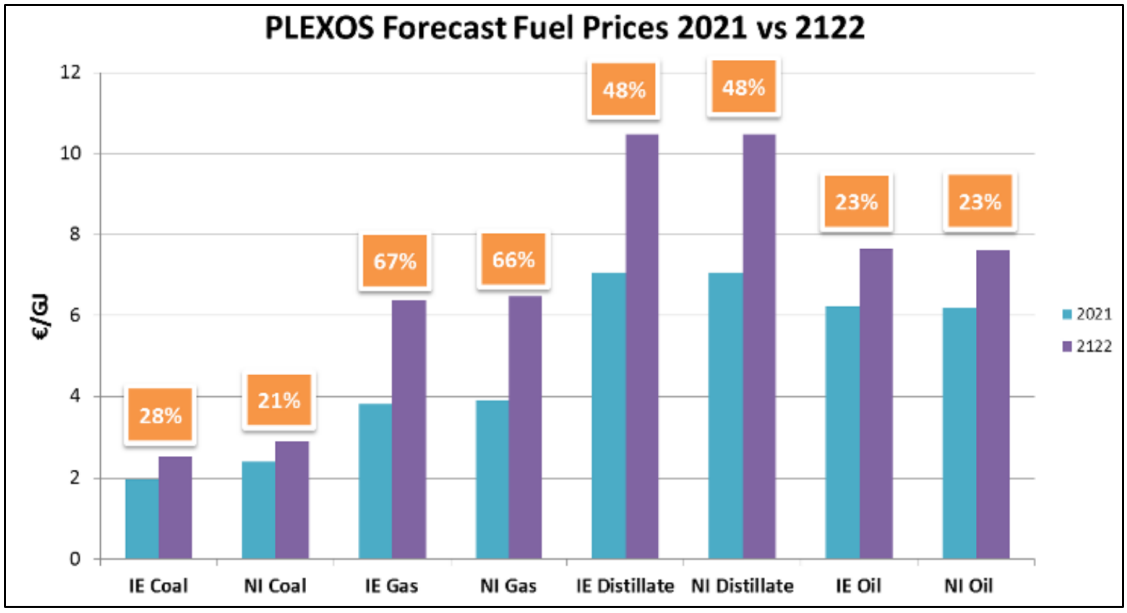

Figure 3. The increase in key fuel prices seen between 2021/22 and 2020/21.

Detail on the forecasts for each of the Imperfections Charge components is provided below and further information regarding the 2021/22 Forecast is provided by the TSOs in their submission to the RAs (refer to Annex 1).

2.1 DISPATCH BALANCING COSTS

DBC refers to the sum of Constraint Payments, Uninstructed Imbalance Payments and Generator Testing Charges. DBCs of €348.59 million make up the majority of the TSOs' proposed Imperfections Charge for 2021/22. [3]

2.2 DBC - CONSTRAINT PAYMENTS

Constraint Payments contribute to the majority of the TSOs' 2021/22 DBC forecast, as Uninstructed Imbalances and Testing Charges are forecast at zero. Constraint Costs arise due to the TSOs having to dispatch some generators differently from the ex-post market unconstrained schedule, in real time, to ensure security of supply on the system. Generators receive Constraint Payments to compensate them for any difference between the market schedule and actual

[3] 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.

dispatch. A generator that is scheduled to run by the market but which is not run in the actual dispatch (or run at a decreased level) is 'constrained off/down'; a generator that is not scheduled to run or runs at a low level in the market, but which is instructed to run at a higher level in reality is 'constrained on/up'.

PLEXOS Modelled Constraints

The forecast Constraint Costs are partly derived using the PLEXOS modelling tool. The RAs have performed an initial review of the TSOs' PLEXOS model and have sense checked the TSOs' modelling assumptions. The RAs note that the PLEXOS element of the TSOs' Constraint Costs forecast is €291.40 million. The reasons for this increase are detailed in the bullet points in section 2 above. Further details on the assumptions underlying the TSOs' PLEXOS Constraints are detailed within the TSOs' submission to the RAs.[4]

Supplementary Modelling Constraints

As it is not possible to model all Constraint Cost drivers in PLEXOS, part of the TSOs' Constraint forecast is made up of supplementary modelling results. The supplementary model includes forecasts for areas that PLEXOS is unable to effectively model (refer to the TSOs' submission for further details). The 2021/22 forecast for Constraint Costs, derived from supplementary modelling, is €56.60 million. A provision of €0.59 million for Secondary Fuel start-up tests has been made within the supplementary model.

Combining both the PLEXOS and supplementary modelling Constraints, a forecast of €348.59 million has been received from the TSOs in relation to 2021/22 Constraint Costs. This represents an increase of 21.85% from the 2020/21 decision of €286.09 million.

2.3 DBC - UNINSTRUCTED IMBALANCES

Uninstructed Imbalances occur when there is a difference between a generator unit's dispatch quantity and its actual output. Uninstructed Imbalances and Constraint Costs are related, with Uninstructed Imbalances having a direct effect on Constraints Costs, as TSOs re-dispatch generators to counteract the impact of Uninstructed Imbalances on the system.

[4] Refer to Annex 1: Forecast Imperfections Revenue Requirement for Tariff year 2021/22

A forecast of zero is included for Uninstructed Imbalances as it is assumed that the additional Constraint Costs as a result of Uninstructed Imbalances will, on average, be recovered by the Uninstructed Imbalance payments for the forecast period.

2.4 DBC - TESTING CHARGES

The testing of generator units results in additional operating costs to the system, in order to maintain system security. As a testing generator unit typically poses a higher risk of tripping, additional operating reserve will be required to ensure that system security is not compromised, which will give rise to increased Constraint Costs.

A forecast of zero is included for Testing Charges, as it is assumed that any testing generator unit will pay Testing Charges to offset the additional Constraint Costs that will arise from out-of-merit running of other generators on the system as a result of the testing.

2.5 FIXED COST PAYMENTS

Fixed Cost Payments in the new market comprise of: Make Whole Payment, Recoverable Start Up Costs and recoverable No-Load Costs. In their 2021/22 submission, the TSOs have not sought a provision for Fixed Cost Payments for the 2021/22 tariff year. In their submission, the TSOs have assumed that the majority of these costs have been captured in their PLEXOS model.

2.6 OTHER SYSTEM CHARGES

Other System Charges (OSC) are levied on generators whose failure to provide necessary services to the system lead to higher DBC and Ancillary Service Costs. OSC include charges for generator units which trip or make downward re-declarations of availability at short notice.

In their submission the TSOs assume that generators are compliant with Grid Code and that no charges will be recovered through Other System Charges i.e. a forecast of zero is included for OSC for the 2021/22 tariff year. The TSOs note that any deviation from this assumption will result in an increase in DBC, and that any monies recovered through Other System Charges will net off the resultant costs to the system in DBC.

2.7 CLEAN ENERGY PACKAGE COSTS

The TSOs made an initial submission to the RAs in relation to potential costs arising from the implementation of Article 13 of the Regulation (EU) 2019/943. The TSOs made a submission for these costs from the period 1 January 2020 to 30 September 2022. The TSOs made an initial submission to the RAs in relation to these costs. In relation to this submission, the RAs noted that the methodology applied by the TSOs to calculate these costs did not align with the proposals set out by SEMC in its recent consultation paper (SEM-21-026).

The RAs therefore requested that the TSOs resubmit these costs on the basis of the latest methodology set out in (SEM-21-026). The TSOs subsequently acknowledged that under the RAs' latest proposals, these costs would be likely to be small for the tariff periods in question. The RAs' are therefore proposing not to include a provision in relation to potential costs arising from the implementation of Article 13 of the Regulation (EU) 2019/943. Any imperfections costs that may arise due to the implementation of Article 13 of the Regulation (EU) 2019/943 will be recoverable by the TSOs in subsequent tariff years.

2.8 K-FACTOR

Imperfections Costs are estimated ex-ante and recovered during the following tariff period, through the Imperfections Charge through a K factor mechanism.

Differences between the amount of Imperfections Charges paid out by SEMO to generators and the amounts paid to SEMO by suppliers will lead to instances where SEMO will:

i. Require working capital to fund Imperfections Costs that exceed revenue collected through the Imperfections Charge, or,

ii. Have collected revenue through the Imperfections Charge that exceeds the amount being paid out on Imperfections Costs.

To allow for the first scenario, SEMO may require funding from EirGrid Group to cover fluctuations during the tariff period. Any allowed under-recovery of revenue during the tariff period will be paid to SEMO, in the subsequent tariff period(s), with the appropriate amount of interest. This reflects the cost of short-term financing required to meet SEMO's working capital needs.

Similarly, for situations where the revenue recovered by SEMO through the Imperfections Charge is greater than that paid out in Imperfections Costs (second scenario above), the Imperfections Charge in the following tariff period will be reduced by an appropriate amount to reflect the allowed over-recovery and the associated interest.

The K factor mechanism accounts for any under or over recovery of Imperfections Costs, in previous periods and the current period and adjusts the following period's tariff accordingly. The K factor submitted by the TSOs to be applied to the Imperfections Charge for 2021/22 is €-10.18m, owed by the TSOs. A summary of the K factor adjustment is as follows:

Under-recovery in tariff year 2019/20	€10.92m
Estimated over-recovery for tariff year 2020/21	€-21.1m
Total Imperfections K factor to be applied in 2021/22 (monies owed)	€-10.18m

This €-10.18 million over-recovery would usually be applied to the 2021/22 forecast Imperfections Charge leading to a decrease in the Imperfections Charge for the 2021/22 tariff year. The RAs are minded to allow the full over-recovery to be applied to the 2021/22 tariff.

3 PROVISIONAL IMPERFECTIONS CHARGE FOR 2021/22 TARIFF

The RAs have received a proposal of €348.59 million of constraint costs for the 2021/22 tariff year. As the other components of DBC are forecast at zero, this figure equates to the forecast for the DBC. The TSOs have also forecast Fixed Cost Payments of €0 million. The TSO have also made an submission to the RAs in relation to potential costs arising from the implementation of Article 13 of the Regulation (EU) 2019/943. The TSOs' forecast Imperfections cost for 2021/22 stands at €473.09 million. The RAs proposed allowed revenue for the 2021/22 Tariff year is €341.01.

Allowing for the K factor adjustment, provides a total forecast Imperfections Charge of €330.83 million, which when divided by the forecast demand, of 36,000 GWh,[5] equates to a potential Imperfections Charge of €9.19/MWh for the 2021/22 tariff year, which is an increase on the current 2020/21 tariff year figure of €8.96/MWh. Any under or over recovery of Imperfections

[5] The TSOs forecast demand for the 2021/22 tariff year is 36,000 GWh, which represents a 7.1% increase from the 2020/21 forecast demand of 33,600 GWh.

Costs in the 2021/22 tariff year will feed into the K factor of subsequent tariff years. The trend in the Imperfections Charge is summarised in Table 2 below:

€ million	2021-22 RA Proposal	2020-21	2019-20	2018-19	2017-18	2016-17	2015-16
Total Constraints costs	341.01	271.09	256.97	190.44	177.6	144.3	163.5
Uninstructed Imbalances		-			-	-	-
Testing charges		-			-	-	-
Dispatch Balancing Costs	341.01	271.09	256.97	190.44	177.6	144.3	163.5
Energy Imbalance		-			-	-	-
Fixed Cost Payments	-	15.38	14.35	7.19	2.7	2.5	7.2
K factor Adjustment	(10.18)	(0.37)	84.44	(13.86)	(7.34)	(77.6)	(22.1)
Other System Charges		-	-	-	-	-	-
Total Imperfections Charge	**€ 330.83**	**286.10**	**355.76**	**183.77**	**173.02**	**69.2**	**148.6**
Forecast Demand ('000 MWh)	36,000	33,600	34,200	35,200	34,550	33,700	33,230
Imperfections Charge/ MWh	**9.19**	**8.51**	**10.40**	**5.22**	**5.00**	**2.05**	**4.47**

Table 2: Imperfections Charge over time

4 RAs' INITIAL REVIEW OF THE TSOs 2021/22 IMPERFECTIONS REVENUE REQUIREMENT

The RAs have completed an initial review of the TSOs' Imperfections Revenue Requirement, and is minded to allow the majority of the TSOs forecasted costs. However, the RAs are considering the following provisions in particular prior to publishing its final decision:

- Provision of €15.6 million for the settlement of Pumped Storage units in the new market. In previous years, the RAs acknowledged that the treatment of these units in PLEXOS differs from the new market, while noting that the PLEXOS models already include a gap between the efficiencies. In their 2021/22 submission a gap in efficiencies between the unconstrained and constrained efficiencies is set to 70% and 54% respectively. The RAs propose to make a reduced allowance for this element in keeping with previous decisions. A RAs are proposing an allowance of €8 million in relation to this cost item, and would expect the TSOs to strive to match the market position of the units in dispatch as closely as possible.

- A provision of €10 million in relation to interconnector counter trading costs. The TSOs have made a submission of €10 million in relation to interconnector counter trading costs

in the 2021/22 tariff year. This is an estimated figure submitted by the TSOs. In their submission, the TSOs demonstrated that €5.6 million in interconnector counter trading costs have were incurred by the TSO in the past 12 months, which may warrant a reduction in the provision.

- The RAs propose not including a provision in relation to potential costs arising from the implementation of Article 13 of the Regulation (EU) 2019/943. Based on the proposals set out by SEMC in its recent consultation paper (SEM-21-026), these costs would be minimal for the tariff period in question. The RAs note that any costs that may arise due to the implementation of Article 13 of the Regulation (EU) 2019/943 will be recoverable by the TSOs in subsequent tariff years.

Prior to arriving at a final decision, the RAs invites stakeholders views on the TSOs' submission.

5 NEXT STEPS

The RAs invites stakeholders' responses on the TSOs' Imperfections Revenue Requirement. All responses received will be published, unless the respondent specifically requests otherwise. Accordingly, respondents should submit any sections that they do not wish to be published in an appendix that is clearly marked "confidential".

Responses to this paper should be forwarded, in electronic form, to Patrick Harney (pharney@cru.ie) and Billy Walker (billy.walker@uregni.gov.uk) by close of business on Friday 23 July 2021.

Following consideration of responses received and further review of the TSOs' submission, the RAs intend publishing a decision in August 2021.