Harmonised Other System Charges Consultation Paper

Tariff Year

01 October 2020 to 30 September 2021

8 April 2020

ABBREVIATIONS

DETI	Department of Enterprise, Trade and Investment
DSU	Demand Side Unit
GPI	Generator Performance Incentive
HICP	Harmonised Index of Consumer Prices
LTS	Long-Term Schedule
UK	United Kingdom
PPM	Power Park Module
OSC	Other System Charges
QEX	Ex-Ante Quantity
RA	Regulatory Authority
RoCoF	Rate of Change of Frequency
RPI	Retail Prices Index
SEM	Single Electricity Market
SND	Short Notice Declaration
SONI	System Operator Northern Ireland
TSO	Transmission System Operator
WFPS	Wind Farm Power Station

1 EXECUTIVE SUMMARY

Other System Charges (OSC) are levied on generators, which fail to provide necessary services to the system, leading to higher Imperfections Costs. The OSC include charges for generators, if their units Trip, or make downward re-declarations of availability, at short notice. Generator Performance Incentive (GPI) charges were harmonised between Ireland and Northern Ireland on the 01 February 2010. These charges are specified in the Transmission Use of System Charging Statements, which are approved by the Regulatory Authorities (RAs) in Ireland and Northern Ireland. The arrangements are defined in both jurisdictions through the Other System Charges policies, the Charging Statements and the Other System Charges Methodology Statement.

In this year's Annual Tariff Consultation (2020/2021) the TSOs are proposing to:

- Increase the rate of Trip Charges and Short Notice Declarations (SND) for generators without a Day Ahead Market position (QEX) to that which aligns with 2017/18 tariff before the introduction of the revised SEM arrangements.
- Retain the reduced rate of Trip Charges and Short Notice Declarations for generators with a Day Ahead Market position (QEX), adjusting for inflation.
- Introduce Short Notice Declarations for Demand Side Units (DSU) above a SND tolerance of 5 MW.
- Retain the Primary Operating Reserve GPI rate from 2019/20, adjusted for inflation.
- Retain the Secondary Fuel GPI rate from 2019/20, adjusted for inflation.
- Retain the RoCoF GPI rate from 2019/20, adjusted for inflation.
- Retain the OSC rates approved for the 2018/2019 tariff year, only adjusting for inflation at forecast rate, for the following GPIs:
    - Minimum Generation
    - Governor Droop
    - Secondary Operating Reserve
    - Tertiary Operating Reserve 1
    - Tertiary Operating Reserve 2
    - Reactive Power

The TSOs welcome comments from industry on these proposals.

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2 INTRODUCTION

Other System Charges (OSC) are defined in the Transmission Use of System Statement of Charges and include Trip Charges, Short Notice Declaration charges and Generator Performance Incentive charges. These Other System Charges are levied on underperforming generators who unexpectedly trip off the system or re-declare at short notice, causing a re-dispatch of other plant at a cost to the end consumer. The Generator Performance Incentive (GPI) charges are levied on those generators which fail to comply with specific standards in the Grid Code.

GPIs are designed to incentivise compliance with respect to the Grid Code and are not linked with DS3 System Services Agreements.

The Trip Charge incentivises generators to minimise the number of trips and to aim for slow tripping, when a trip is unavoidable. The Trip Charge is designed to incur higher charges, the higher the MW loss seen by the power system. A charge applies for all full trips and/or partial trips where the reduction is greater than or equal to the trip threshold.

Short Notice Declarations (SNDs) incentivise generators to avoid changing declarations at short notice or at least provide maximum notice. The Notice Time Weight is an empirical weighting corresponding to the relative importance of notice time from 8 hours up to real time.

For the 2019/20 tariff proposal, the TSOs suggested changes to the Trip and SND charges based on whether a generator was balance responsible or not (i.e. had a Day Ahead Market position, QEX). The proposal was to continue with a reduced rate (introduced in 2018/2019) for units which had a QEX and to return to the previous higher rates for generators without a QEX (rate applicable in 2017/2018, as adjusted for inflation). In the OSC 2019/20 Decision Paper[1] the RAs did not accept the TSOs' proposal to increase the trip and SND charges for generators without a Day Ahead Market position, due to the limited amount of data available since the start of the revised SEM arrangements, but noted they would consider this recommendation further, if still required, when more data was available.

For 2020/2021, the TSOs are proposing the same changes based on extensive data from over 12 months of operation under the revised SEM arrangements. Over this period, the TSOs have observed that units, which trip and are not liable for imbalance charges (i.e. no QEX), pay significantly less than those which have a QEX. As a result, for the 2020/2021 tariff year the TSOs are proposing to increase the trip charge for these units without a QEX back to the rates that were charged in tariff year 2017/2018, having adjusted them for inflation.

[1] https://www.semcommittee.com/sites/semc/files/media-files/SEM%20-19-038%20OSC%20decision%20paper%202019-20%20pb1.1.pdf

3 REVIEW OF EXISTING OSC

3.1 Short Notice Declarations and Trip Charges

In the event of a generator unit dropping output a Trip Charge is levied on the service provider depending on how the unit tripped (i.e. slow wind down, fast wind down, direct trip). The charge is intended to incentivise behaviour that enhances system security and reduces operating costs. The proposed rates for the various categories of unit trip are set at a level which seeks to recover an amount of costs which is representative of the power system impact. The purpose of the Trip Charge is to minimise the number of trips and, when a trip is unavoidable, to incentivise a Generator to reduce output as slowly as possible.

In the event of a generator unit making a downward declaration of its availability at short notice a Short Notice Declaration (SND) Charge is levied on the service provider depending on the amount of notice given. The charge is intended to incentivise behaviour that enhances system security and reduces constraint costs.

As an input to this consultation, the TSOs completed a comprehensive review of the Settlement SND and Trip charge data covering the past three tariff years 2016/17, 2017/18 and 2018/19. As part of this assessment the possible changes triggered by the revised SEM arrangements (starting October 2018) were explored to ascertain whether the changes have an impact on the level of charges and the ongoing need to incentivise good behaviour.

Proposal for Tariff Year 2018/2019

For the tariff year 2018/2019, SND and Trip Charge rates were reduced by 50% from the previous tariff year. The rationale for the change was that the introduction of the new market arrangements would make generators balance responsible, thus incentivising generators to meet their Day-Ahead Market contracted position (QEX) to avoid the cost of any energy imbalance. The proposal for 2018/2019 was seen as reasonable, given the requirement of generators to be balance responsible, under the revised market arrangements. However, it was recommended by the RAs that the appropriateness of these new rates be reviewed, when further operating experience of the revised SEM arrangements was available.

The tariff year 2018/2019 saw a substantial drop in the total Trip and SND charges for the year but with a slight increase in both the number of SNDs and Trips.

Proposal for Tariff Year 2019/2020

For the tariff year 2019/20, it was proposed to retain the 50% reduction for units that have a QEX but to increase the charge for units that do not have a QEX. This was in recognition of the fact that units which are not balance responsible are not incentivised to the same degree (i.e. are not exposed to Imbalance Charges). The proposed increased charges for Generating Units without a QEX would align with the original 2017/2018 tariff rates. This proposal was not approved by the RAs, due to the due to the limited amount of data available since the start of the revised SEM arrangements, but the RAs noted that they would consider this recommendation further, if still required, when more data was available.

Proposal for Tariff Year 2020/21

The TSOs are now satisfied that there is sufficient data to comprehensively review the tariff rates introduced in 2018/2019. Since the start of the revised SEM arrangements in October 2018, data has been analysed in relation to Trips Charges and SND Charges and this data shows that Generating Units which do not have a QEX (approximately 25% of all trippings) are considerably less exposed to charges than those which do. This is due to the Imbalance Charge which units with a QEX are now liable for, under the revised SEM arrangements, if they trip. Units that have tripped from above 100 MW without a QEX are not required to pay for lost generation through imbalance charges.

For units without a QEX, the data shows that the reduced rates introduced in 2018 no longer reflect the potential cost to the system of a tripping or SND. These units have received the benefit of paying a trip charge that is 50% of what it would have been if the rates from tariff year 2017/18 had been retained. Upon tripping, the total charges to a generator without a QEX can be a factor of ten times lower than an equivalent tripping of a generator with a QEX. As a result, the TSOs deem that the lower rate for units without a QEX is no longer an appropriate incentive for good behaviour, but agree that the reduced rates introduced in 2018/2019 are still applicable to generators with a QEX.

It should also be factored in that, since the introduction of the revised SEM arrangements, the potential cost of a trip or SND is no longer exclusively based on the production costs of replacing the loss of the scheduled generation and associated system services. Under the new market arrangements, a trip and/or SND can now impact Imbalance Price and hence the cost of charges to all participants and imperfections, in the affected trading periods. This change to market design is not currently reflected in Trip Charges or SND Charges, since there is no mechanism for linking a Trip Charge or SND to the Imbalance Price, for the trading periods in question. This means that Generating Units without a QEX are in no way exposed to the volatility of the market, if they were to suddenly become unavailable. This is not the case for Generating Units with a QEX, which are continuously exposed to potential Imbalance Charges and the volatility of the Imbalance Price at the time of tripping.

Another important aspect of Generating Units, which are scheduled without a QEX, is that they are regularly scheduled to maintain operational security requirements. Generating Units without a QEX are therefore often integral to the secure operation of the transmission system. It is for this reason that the TSOs are proposing these charges are applied.

Hence the TSOs propose increasing the Trip and SND rates, for units without a QEX, back to the rates that were charged in tariff year 2017/2018, having adjusted them for inflation.

3.2 Generator Performance Incentive Charge

It is important for the efficient and economic operation of the system that generators maintain the performance required of them in the respective Grid Codes. Harmonised arrangements were established in 2010 for Generator Performance Incentive Charges to monitor performance on an all-island basis. These arrangements intended to quantify and track generation performance, identify non-compliance with standards and help evaluate the performance gap between what is needed and what is being provided by generators in an evolving power system.

The introduction of GPIs has placed focus on generator performance and highlighted the level of compliance of certain Generating Units, leading to improved performance of certain Generating Units in relation to the required Grid Code compliance.

3.2.1 GPI Operating Reserve

For the tariff year 2018/2019, the POR GPI rate was increased from €0.13 to €0.52/MWh (i.e. since 1st October 2018). A comprehensive review of the Settlement data for Operating Reserve charges from November 2017 to September 2019 shows that a small number of Generation Units are being charged the majority of the total Operating Reserve GPI charged for this period. These units are predominately priority dispatch units or units scheduled to maintain operational security requirements in Ireland. As a result, these units are frequently scheduled and any declaration of reserve below their Grid Code POR capability will result in the need to schedule additional reserve elsewhere, thereby increasing imperfections costs. Due to the resultant imperfections cost, the TSOs are proposing to retain the charge at the rate for 2019/20, apart from inflation rate increases.

3.2.2 GPI Minimum Generation

The Minimum Generation GPI is focussed on incentivising Generating Units not to declare a minimum generation above the value which is specified as its Minimum Generation (expressed in MW). This Minimum Generation value can differ depending on jurisdiction or whether the unit has a relevant Grid Code derogation[2]. A reliable Minimum Generation will allow the TSOs to effectively schedule generation for the valley load periods especially during times of high wind generation.

More recently the TSOs have observed the increased need for Generating Units not only to meet their Minimum Generation obligation but also to provide essential system services reliably at minimum MW output. With a larger penetration of wind on the system and the challenge of increasing renewable targets, the provision of system services at low conventional MW output is becoming increasingly important.

A generator scheduled and dispatched to its minimum generation but not providing system services (such as reserve), will result in the additional Imperfections costs. For example, during a high wind and

[2] http://www.eirgridgroup.com/site-files/library/EirGrid/OSC-methodology-statement-1819.pdf

low load scenario, large conventional generating units will often be scheduled and dispatched to their minimum generation. If the conventional generating units are not providing system services at this MW output, then the scheduling tools may have to commit additional units to provide these services during the trading periods impacted. The scheduling tools will often schedule smaller, potentially more costly, fast-responding generating units in order to maximise priority dispatch at the expense of Imperfections Costs, as a result of scheduling of units without a QEX.

It is the TSOs' opinion that the Imperfections cost of dispatching Generating Units to Minimum Generation output, without system services provision, merits further investigation and analysis, in future years.

The TSOs are proposing to retain the charge at the rate for the tariff year 2019/20, apart from adjusting for inflation.

3.2.3 GPI RoCoF

A RoCoF GPI was introduced in June 2016 in line with the publication of the RAs' RoCoF decision papers[3]. There have been significant advancements in the relation to the RoCoF implementation project. However, not all units have demonstrated compliance and therefore the project has not fully closed. Hence charges are still being applied to a very small number of units. A review of the appropriateness of the tariff may be merited following closure of the RoCoF project. However, until such time, the TSOs propose to continue to apply the rate for the tariff year 2019/20, apart from adjusting for inflation.

3.2.4 GPI Secondary Fuel

The TSOs are proposing to retain the charge at the rate for the tariff year 2019/20, apart from adjusting for inflation.

3.2.5 GPI Reactive Power

The TSOs are proposing to retain the charge at the rate for the tariff year 2019/20, apart from adjusting for inflation.

[3] https://www.uregni.gov.uk/sites/uregni.gov.uk/files/media-files/Decision_Paper_on_the_Rate_of_Change_of_Frequency_Grid_Code_Modification.pdf and https://www.cru.ie/wp-content/uploads/2014/07/CER14081-ROCOF-Decision-Paper-FINAL-FOR-PUBLICATION.pdf

4 NEW OTHER SYSTEM CHARGES (OSC)

4.1 Power Park Modules

There have been significant strides by wind farm operators over the last number of years in terms of achieving Grid Code compliance through achieving Operational Certification. The TSOs continue to observe that the majority of new wind farms connected to the system are compliant with their Grid Code requirements. The TSOs also continue to use other methods to incentivise good active power compliance from wind farms via their categorisation in terms of the application of constraints and curtailment.

There is an increasing need for reactive power control at certain locations on the transmission system. This drives the need for reactive power compliance amongst all connected units, including Power Park Modules. This issue is often associated with windfarms, since problems with voltage regulation persist in low demand areas, with a high amount of transmission cabling and wind farm connections.

The continued compliance of all Generating Units with Grid Code reactive power capability requirements, is becoming increasingly important for operation of the transmission system. Power Park Modules are not currently subject to GPIs, but the TSOs will continue to monitor this area and may seek to introduce GPIs in future years, as appropriate, such as for reactive power compliance.

4.2 Time to Synchronise from Instruction

The review of Grid Code compliance in 2019 has shown that in a small number of cases, the time to synchronise from instruction, for Generating Units, is greater than that required by the Grid Code. This can cause difficulty for the scheduling tools, since the time to synchronise may be outside the horizon time of the Long-Term Schedule (LTS). The TSOs are not proposing a GPI for tariff year 2020/2021, but will continue to monitor the issue in future years.

4.3 Demand Side Units (DSU)

The TSO is recommending the introduction of SND charges for DSUs. The reliability of DSUs, both in terms of their availability and ability to follow Dispatch Instructions (DIs), is important for operation of the transmission system. Also following OSC consultations in previous years, a number of industry responses have suggested that the TSOs should apply GPIs to DSUs, given the increasing volume of such units connected to the transmission system, in both jurisdictions.

The TSOs are recommending introduction of a SND, with a threshold of 5 MW, to apply for sudden unavailability of DSUs. The SND will not apply for when a DSU declares down, due to the elapsing of the maximum period of time during which demand reduction of a DSU can be dispatched.

The TSOs will continue to monitor the performance of all units, including DSUs. The TSOs will review the need to propose additional charges/GPIs for DSUs, as relevant in the future, such as for compliance with Dispatch Instructions.

4.4 Emerging Non-Conventional Technologies

The TSOs recognise the changing nature of the transmission system and the emergence of new technologies and services. However, it is still deemed too early to propose any GPI in relation to evolving technologies. The TSOs will continue to monitor these technologies and propose GPIs, should they be required in future years.

5 PROPOSED RATES

The following sections define the rates used for the Other System Charges (OSC).

With respect to the blended inflation rate, the TSOs are aligning to the methodology approved by the RAs in applying a blended rate. However, the Utility Regulator has indicated that the Consumer Price Index (CPI) should be used going forward, instead of the Retail Price Index (RPI).

The TSOs, therefore, propose the following methodology to be applied:

- 75% * Central Bank HICP forecast from the latest available quarterly report adjusted for the relevant tariff timeframe; plus
- 25% * Office of Budgetary Responsibility CPI forecast from the latest available quarterly report adjusted for the relevant tariff timeframe.

According to the latest Office of Budgetary Responsibility report (Mar 2020) the current CPI year on year inflation forecasts in the UK for the 2020/21 tariff year equates to c.+1.7% while the latest Central Bank report (Q1 2020) forecasts HICP in Ireland for the same period at c.+1.7%.

Source		**2020**	**2021**	**Tariff Year Methodology**	**2019/2020 Tariff Year**	**Blended Rate Methodology**	**Blended rate**
OBR March 2019	CPI	1.4%	1.8%	(0.014*25% + 0.018*75%)	1.7%	1.7*25%	0.425
Central Bank Q1 2020	HICP	1.4%	1.8%	(0.014*25% + 0.018*75%)	1.7%	1.7*75%	1.275
Blended Rate							**1.7%**

Table 4.0: Proposed Inflation Rate Increase

On this basis, and recognising the relative balance between Ireland and Northern Ireland, the forecast blended rate for the forthcoming 2020/21 period is 1.7% as shown in Table 4.0.

5.1 Trip Charges

The proposed Trip Constants for the 2020/21 tariff year are shown in Table 4.1. There are no changes proposed.

	2018-2019	2019-2020	2020-2021
Direct Trip Rate of MW Loss	15 MW/s	15 MW/s	15 MW/s
Fast Wind Down Rate of MW Loss	3 MW/s	3 MW/s	3 MW/s
Slow Wind Down Rate of MW Loss	1 MW/s	1 MW/s	1 MW/s
Direct Trip Constant	0.01	0.01	0.01
Fast Wind Down Constant	0.009	0.009	0.009
Slow Wind Down Constant	0.008	0.008	0.008
Trip MW Loss Threshold	100 MW	100 MW	100 MW

Table 4.1 Proposed Trip Constants

Based on the reasoning in Section 3.2, Table 4.2 contains the Trip Charge proposals for units with a QEX while Table 4.3 contains the Trip Charge proposals for units without a QEX.

Charge	**2017-2018**	**2018-2019**	**2019-2020**	**2020-2021 (1.7%)**
Direct Trip Charge Rate	€4,322	€2,161	€2,195	**€2,232**
Fast Wind Down Charge Rate	€3,242	€1,621	€1,647	**€1,675**
Slow Wind Down Charge Rate	€2,161	€1,081	€1,098	**€1,117**

Table 4.2: Proposed Trip Rates For Units With a QEX

Charge	**2017-2018**	**2018-2019**	**2019-2020**	**2020-2021 (1.7%)**
Direct Trip Charge Rate	€4,322	€2,161	€2,195	**€4,396**
Fast Wind Down Charge Rate	€3,242	€1,621	€1,647	**€3,297**
Slow Wind Down Charge Rate	€2,161	€1,081	€1,098	**€2,198**

Table 5:3: Proposed Trip Rates For Units Without a QEX

5.2 Short Notice Declarations

A SND can have the same impact on scheduling and dispatch as that of trips. These short notice outages can have a significant effect on the ability of the TSO to schedule and dispatch in an economic manner and also to manage Transmission Constraint Groups which are essential to the secure operation of the transmission system.

Similar to Trip Charges, the TSOs believe the reduced rate of SND introduced in 2018/19 is not appropriate for generators without a QEX. If the unit does not have a QEX, then the reduced rates do not reflect the cost to the TSOs of a SND, since the unit will not be liable for Imbalance Charges in the Balancing Market if they are scheduled.

There must be adequate incentives for generators without a QEX to optimise their availability in the Balancing Market to allow the TSOs to manage system constraints, trips and sudden drops in wind generation (compared to forecasts), and ultimately reduce costs to the end consumer.

Table 4.3 shows the proposed SND Constants for 2020-21.

SND Constants	2018-2019	2019-2020	2020-2021
SND Time Minimum	5 min	5 min	5 min
SND Time Medium	20 min	20 min	20 min
SND Time Zero	480 min	480 min	480 min
SND Powering Factor (Notice time weighting curve)	-0.3	-0.3	-0.3
SND Threshold	15 MW	15 MW	15 MW
DSU SND Threshold	N/A	N/A	5 MW
Time Window for Chargeable SNDs	60 min	60 min	60 min

Table 4.3: Proposed SND Constants

Table 4.4 shows the proposed SND Charge Rate for Generating Units with a QEX.

SND Charge Rate	2017-2018	2018-2019	2019-2020	2020-2021
SND Charge Rate	€76 / MW	€38 / MW	€38 / MW	€39 / MW

Table 4.4: Proposed SND Charge Rate for units with a QEX

Table 4.5 shows the proposed SND Charge Rate for Generating Units without a QEX. The TSOs are proposing a return to the 2017/2018 tariff year adjusted for inflation.

SND Charge Rate	2017-2018	2018-2019	2019-2020	2020-2021
SND Charge Rate	N/A	N/A	N/A	€77 / MW

Table 5:5: Proposed SND Charge Rates for units without a QEX

5.3 GPI Charges

The proposed GPI Constants, GPI Declaration Based Charges and GPI Event Based Charges for the 2019/2020 tariff year are outlined in Table 4.6, Table 4.7 and Table 4.8 respectively. The TSOs are proposing to make no changes, apart from adjusting for inflation.

GPI Constants	**2018-2019**	**2019-2020**	**2020-2021**
Late Declaration Notice Time	480 min	480 min	480 min
Loading Rate Factor 1	60 min	60 min	60 min
Loading Rate Factor 2	24	24	24
Loading Rate Tolerance	110%	110%	110%
De-Loading Rate Factor 1	60 min	60 min	60 min
De-Loading Rate Factor 2	24	24	24
De-Loading Rate Tolerance	110%	110%	110%
Early Synchronous Tolerance	15 min	15 min	15 min
Early Synchronous Factor	60 min	60 min	60 min
Late Synchronous Tolerance	5 min	5 min	5 min
Late Synchronous Factor	55 min	55 min	55 min
Secondary Fuel Availability Factor	0.9	0.9	0.9

Table 4.6: Proposed GPI Constants

	2018-2019	**2019-2020**	**2020-2021**
GPI Declaration Based Rates	**€ / MWh**	**€ / MWh**	**€ / MWh**
Minimum Generation	1.29	1.31	1.33
Max Starts in 24 hour period	0.00	0.00	0.00
Minimum On time	0.00	0.00	0.00
Reactive Power Leading	0.32	0.32	0.32
Reactive Power Lagging	0.32	0.32	0.32
Governor Droop	0.32	0.32	0.32
Primary Operating Reserve	0.52	0.53	0.54
Secondary Operating Reserve	0.13	0.13	0.13
Tertiary Operating Reserve 1	0.13	0.13	0.13
Tertiary Operating Reserve 2	0.13	0.13	0.13
Secondary Fuel Availability	0.03	0.03	0.03

Table 4.7: Proposed GPI Declaration Based Charge Rates

The Event Based GPIs will remain at zero (i.e. Loading Rate, De-Loading Rate, Early Synchronisation and Late Synchronisation).

6 SUMMARY AND NEXT STEPS

Comments on this consultation paper are invited from interested parties. Preferably these should be aligned and referenced with the relevant sections and sub-sections of this document. If confidentiality is required, this should be made explicit in the response, otherwise the submissions will be published on the TSOs websites[4]. Please note that, in any event, all responses will be provided to the RAs. **The closing date for responses is 5pm on 11th May 2020.**

- Comments should be submitted to tariffs@eirgrid.com or tariffs@soni.ltd.uk;
- The TSOs will consider all comments received on the consultation paper and make recommendations to the RAs based on these;
- The RAs may approve/reject the recommendations proposed by the TSOs in light of the responses received; and
- The TSOs will implement in accordance with the regulatory decision.

[4] www.eirgrid.com and www.soni.ltd.uk