



**Imperfections Charge
October 2015 – September 2016**

And

**Incentive Outturn
October 2013 – September 2014**

Decision Paper

SEM-15-054

19 August 2015

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1 EXECUTIVE SUMMARY

On June 16th 2015, the Regulatory Authorities (RAs), together the Utility Regulator (UR) in Northern Ireland, and the Commission for Energy Regulation (CER) in the Republic of Ireland, published the Consultation Paper “Imperfections Charge October 2015 – September 2016 and Incentive Outturn October 2013 – September 2014”.¹ Formal responses to this Consultation Paper were received from the following four recipients²:

- Power NI Energy Ltd Power Procurement Business (PPB)
- ESB Generation & Wholesale Markets (ESB GWM)
- Irish Wind Energy Association (IWEA)
- Budget Energy Ltd

The majority of responses relate to the €2.5m incentive payment and the transparency of the modelling process surrounding it. Based on these responses, and further analysis carried out by the RAs subsequent to issuance of the Consultation Paper, the Single Electricity Market Committee (SEMC) has decided to endorse the:

1. TSOs’ 2015/16 Forecast³; and
2. TSOs’ 2013/14 Incentive Outturn⁴.

The table below displays the Imperfections tariff to be applied for the period from 1 October 2015 to 30 September 2016. The €4.47/MWh tariff represents a 20% decrease from the current tariff of €5.60/MWh.

	2015-16	2014-15	Change
Imperfections Allowance (€m)	170.70	181.20	(5.8)%
K-factor (€m)	(22.12)	5.25	
Total Allowance (€m)	148.58	186.45	(20.3)%
Forecast Demand (GWh)	33,230	33,320	(0.3)%
Tariff (€/MWh)	4.47	5.60	(20.18)%

Table 1: Imperfections Charge 2015/16 and 2014/15

¹ SEM-15-041 http://www.allislandproject.org/en/project_office_sem_publications.aspx?year=2015§ion=2

² Attached as Appendices 1-4 to this decision paper

³ SEM-15-041a http://www.allislandproject.org/en/project_office_sem_publications.aspx?year=2015§ion=2

⁴ SEM-15-041b http://www.allislandproject.org/en/project_office_sem_publications.aspx?year=2015§ion=2

2 INTRODUCTION

2.1 THE SINGLE ELECTRICITY MARKET

The all-island wholesale electricity market was established as the Single Electricity Market (SEM) in November 2007. The SEM is a centralised gross mandatory pool market, with electricity being bought and sold through the pool under a market clearing mechanism.

Generators receive the System Marginal Price (SMP) for their scheduled dispatch quantities, Capacity Payments for their actual availability and Constraint Payments for dispatches outside the market schedule due to system constraints and other specific factors.

Suppliers purchasing energy from the pool will pay the SMP for each trading period, Capacity Charges, and System Support Charges. The SEM market rules are set out in the Trading and Settlement Code (TSC)⁵. The SEM is governed by the SEM Committee (SEMC) which was set up by the Governments in the Republic of Ireland and Northern Ireland. This Committee has representatives from both RAs, UR in Northern Ireland and CER in the Republic of Ireland, together with an Independent Member. The SEM is operated by the Single Electricity Market Operator (SEMO) which is a contractual joint venture between the System Operators EirGrid and SONI.

2.2 OBJECTIVE OF PAPER

This decision paper outlines the SEMC's determination on the Imperfections Charge for the 2015-16 tariff year and also allows for the first Imperfections based TSO incentive payment to be made. Comments received from interested parties, following the publication of the Imperfections Charge Consultation Paper on 16th June 2015, are summarised throughout this paper and published on the All Island website⁶. All responses received have been duly considered in preparation of this decision paper.

2.3 OVERVIEW

The forecast Imperfections Charge is levied on electricity suppliers by SEMO on a per MWh basis. The Imperfections Charge enables SEMO to recover anticipated Dispatch Balancing Costs (DBC) net of Other System Charges, Make Whole Payments, and any net imbalance between

⁵ <http://www.sem-o.com/MarketDevelopment/MarketRules/TSC.docx>

⁶ Attached as Appendices 1-4 to this decision paper

Energy Payments and Energy Charges and Capacity Payments and Capacity Charges over the year. The forecast Imperfections Charge is adjusted to take account of any over or under recovery in previous years, through the K-factor mechanism. The Imperfections amount recovered by SEMO is used to pay generator Imperfection Charges in the year.

In 2012 the RAs introduced an incentive mechanism to encourage the TSOs to minimise the Imperfections Charge where possible. This is the first year where an incentive payment is due. Payment of the €2.5m incentive amount will be paid to the TSOs in line with the specified 75/25 proportions between Eirgird and SONI respectively.

3 THE 2015/16 FORECAST

The TSOs' 2015/16 Forecast was prepared jointly by EirGrid and SONI, and captures an all-island estimate of the Imperfections Charge for that 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 €170.7 million for the 2015/16 tariff year. This represents a 5.8% decline from the €181.2 million forecast for the 2014/15 tariff year. There are a number of key factors influencing the 2015/16 Forecast, including:

- Lower levels of forecasted interconnector imports contribute to a reduction in forecast Constraint Costs.
- A decrease in forecast fuel prices is slightly offset by a weakening exchange rate, however overall this leads to a reduction in forecast Constraint Costs.
- An increase in wind generation relative to overall demand contributes to an increase in forecast Constraint Costs.
- A provision has been made for the inclusion of Gas Transportation Capacity (GTC) charges⁷ for selected gas generating units in Northern Ireland, contributing to an increase in forecast Constraint Costs.

RESPONSE: GAS TRANSPORTATION CAPACITY CHARGES (GTC) IN NI

Budget Energy questioned the inclusion of an estimate for NI GTC in the 2015/16 Forecast, as it is yet to be defined. In their response they argued that it may be more appropriate to exclude any estimate of NI GTC until they are agreed, with any adjustment post implementation recovered through the K-factor adjustment.

SEMC Decision

The RAs have liaised with the TSOs on this point and feel that at present the assumptions made by the TSOs regarding GTC in NI are reasonable. The SEMC are satisfied with the current approach, on the basis that any divergence between this forecast and actual outturn will be captured in future K-factors, and without prejudice to the appropriate means by which gas fired generators in Northern Ireland will seek to adhere to the Bidding Code of Practice following introduction of the new arrangements.

⁷ Arrangements for Gas Transportation Capacity Charges are due to be modified in Northern Ireland from October 2015

RESPONSE: NETWORK INVESTMENT REQUIRED

IWEA highlighted the need for timely grid build-out which will help to reduce the constraint costs.

SEMC Decision

Whilst the issue of grid build-out is outside the scope of this paper, the RAs recognise that network investment will act to improve security of supply and minimise constraint costs.

3.1 RECOVERY OF IMPERFECTION COSTS

Imperfections Costs are estimated ex-ante and this estimate is then recovered during the relevant tariff period through the Imperfections Charge.

Differences between the amounts paid to dispatched generators and the amounts recovered from suppliers through the Imperfections Charge will lead to instances where SEMO will:

- Require working capital to fund payments to generators that exceed revenue collected through the Imperfections Charge, or,
- Have collected revenue through the Imperfections Charge that exceeds the amount being paid out to generators.

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 to generators (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 is used to adjust the Imperfections Charge to reflect the difference between the forecast and actual outturn in previous years. The K-factor expected to be applied to the Imperfections Charge for 2015 /16 is (€22.12m). This comprises of:

Summary of K-factor adjustment

Over-recovery in tariff year 2013/14	(€17.1m)
Estimated over-recovery for tariff year 2014/15	<u>(€5.0m)</u>
Total Imperfections K-factor to be applied in 2015/16	<u>(€22.1m)</u>

This €22.1m over-recovery is netted off the 2015/16 Forecast Imperfections Charge leading to a reduction in the Imperfections tariff for the 2015/16 tariff year.

SEMC Decision

There were no responses in reference to the specific K-factor amount. Based on the RAs K-factor model verification, the SEMC endorses the above K-factor, along with the continued use of the current working capital arrangement.

3.2 DEMAND FORECAST

The TSOs have provided a forecast demand for the 2015/16 tariff year of 33,230 GWh, representing only a minor deviation (-0.3%) from the 2014/15 forecast demand of 33,320 GWh.

3.3 IMPERFECTIONS CHARGE

Forecast DBC of €163.5 million is adjusted for forecast Make Whole Payments of €7.2 million and a K-factor of (€22.1m), to give a forecast Imperfections Charge of €148.6 million. The Imperfections Charge per MWh for the 2015/16 tariff year is based on this forecast with any actual under or over-recoveries being fed into subsequent tariff period(s) via the K-factor.

The resulting Imperfections Charge of €4.47 per MWh is derived by dividing the forecast Imperfections Charge (adjusted for the K-factor) by the forecast demand (provided by the TSOs). The comparable figure for the 2014/15 tariff year stood at €5.60 per MWh.

The trend in the Imperfections Charge is summarised in Table 2 overleaf.

IMPERFECTIONS CHARGE DECISION PAPER

	2015-2016 €m	2014-2015 €m	2013-2014 €m	2012-2013 €m	2011-2012 €m
Total Constraints costs	163.5	177.6	165.5	142.0	142.6
Uninstructed Imbalances	-	-	-	-	-
Testing Charges	-	-	-	-	-
Dispatch Balancing Costs	163.5	177.6	165.5	142.0	142.6
Energy Imbalance	-	-	-	-	-
Make whole payments	7.2	3.6	0.1	0.1	0.1
K-factor Adjustment	(22.1)	5.2	(18.9)	12.8	42.5
Other System Charges	-	-	-	-	-
Total Imperfections Charge	148.6	186.4	146.7	154.9	185.2
Forecast Demand (MWh)	33,230,000	33,320,000	33,220,000	32,900,000	34,030,000
Imperfections Charge Per MWh	4.47	5.60	4.42	4.71	5.44

Table 2: Imperfections Charge over the years

SEMC Decision

No further responses were received in relation to the 2015/16 Forecast. The SEMC endorses the 2015/16 Imperfections Charge of €4.47 per MWh.

4 INCENTIVE OUTTURN REVIEW FOR 2013/14

The 2013/14 tariff year is the second year to fall within the incentive mechanism and the first year where an incentive payment is potentially due. The TSOs' assessment provides for outturn Imperfections Costs of €150.1 million; €52.4 million lower than the ex-post adjusted Imperfections Charge. The TSOs have claimed an incentive payment of €2.5 million in their submission to the RAs. The resultant incentive payment would be applied on a 75/25 split between Ireland's Transmission Use of System (TUoS) and Northern Ireland's System Support Services (SSS) revenues respectively.

4.1 EX-POST REVIEW FACTORS

The TSOs submitted the 'Forecast Imperfections Revenue Requirement for Tariff Year 1st October 2013 to 30th September 2014' (ex-ante DBC forecast) in April 2013. This submission forecast DBC for the 2013/14 tariff year at €165.5 million. The 2013/14 Incentive Outturn paper contains the TSOs' ex-post adjustments to this €165.5 million baseline, to form the ex-post adjusted baseline of €202.5 million. Based on the allowable ex-post review factors in the Decision Paper SEM-12-033 the TSOs included the following adjustments to the ex-ante DBC forecast:

- Correction for errors in the ex-ante DBC model configuration.
- Actual demand, actual exchange rates, actual Commercial Offer Data including Modified Interconnector Unit Nominations and actual wind.
- High Impact Low Probability (HILP) events.

4.2 MODEL AMENDMENTS

The RAs note that the ex-post adjustments include corrections for the effect of errors in the original ex-ante model, with error amendments accounting for a net increase of €18.6 million to the ex-ante DBC baseline.

In order to ensure errors are minimised in the future, the RAs may consider introducing a penalty mechanism on any material errors within the forecast, via amendment to the Decision Paper SEM-12-033. The RAs have communicated this position to the TSOs.

RESPONSE: ORIGINAL FORECAST MORE REALISTIC

Budget Energy noted that comparison of actual outturn for 2013/14 of €150m versus the original forecast of €165.5m could be argued to be a better reflection of efficiency.

SEMC Decision

In accordance with the Decision Paper SEM-12-033 the SEMC feel that it is important that any ex-post review would need to take into account any external factors which heavily influenced DBC outturn during the tariff period. An effective ex-post adjustment mechanism should ensure the protection of both the TSOs and the all-island customer from potential windfall gains or losses, as it would remove some of the risk for events outside of the TSOs' influence.

Although the SEMC agrees that errors are within the TSOs control, for the reasons outlined in the Consultation paper, the SEMC endorses the correction for errors to ensure an open and transparent modelling system continues. The SEMC also notes the importance of ensuring improvement in the accuracy of models.

RESPONSE: CAUTION NEEDED WITH ANY ERROR PENALTY MECHANISM

PPB noted that the RAs are considering introducing a penalty mechanism on any material errors within the modelling forecast. PPB advised that this must be clearly thought through such that no perverse incentive is introduced. ESB GWM stated that they supported the RAs' suggestion of a penalty mechanism for any material errors within future forecasts.

SEMC Decision

The SEMC agrees that any error penalty mechanism introduced would need to ensure the continuation of an open and transparent dialogue between the RAs and the TSOs in relation to any errors identified within models. This is something that the SEMC is mindful of and any penalty mechanism introduced would need to strike the correct balance between penalisation of errors and ensuring such errors are rigorously discovered and reported.

4.3 COMBINATION OF DEMAND, WIND AND COD & MIUNS

The RAs questioned the inclusion of both Modified Interconnector Unit Nominations (MIUNs) and Commercial Offer Data (COD) as neither is listed as an ex-post review factor in the Decision Paper SEM-12-033, rather fuel prices (inc. bids) is referred to. The TSOs response outlined that when they use the phrase Commercial Offer Data (COD), the TSOs are in fact referring to the bids. Furthermore the TSOs argue that "in the case of interconnectors, MIUNs are the interconnector unit (trader) bids and so should be included in the overall bids assessment. Actual MIUNs are essential in calculating the production costs of the model along with other generator bids."

SEMC Decision

No responses were received in relation to the inclusion of either COD or MIUNs as an ex-post review factor. The SEMC decision endorses the TSOs' interpretation in this instance.

4.4 HILPS

HILP events are rare transmission, generation or interconnector outages that lead to significant increases in constraint costs. Due to their nature these events are difficult to model within the TSOs' forecast Imperfections Charge. The TSOs analysed the actual transmission outages and related outages were then grouped into HILP events. The net impact of the HILPs amounted to a €13.6 million or 7% reduction to the ex-ante DBC baseline.

Table 6 of the Decision Paper SEM-12-033 outlines the level of effect on DBC required for a HILP to qualify as an ex-post adjustment factor as, "5% of DBC baseline or €5m per event." The RAs feel the intent in the table is that each HILP be assessed individually for exceedence of either 5% or €5m in order to be included in the ex-post review. The TSOs have interpreted the Decision Paper SEM-12-033 as allowing the impact of HILPs to be grouped to meet the threshold.

The RAs accept that there is a lack of clarity over the definition of a HILP in the Decision Paper SEM-12-033. Table 6 of the Paper includes the description, "including single and multiple HILP events", and footnote 22 groups 3 units together in an example. The RAs may seek to clarify this definition in the future but are minded to follow the TSOs' interpretation in this instance.

RESPONSE: NEGATIVE HILP VALUE

PPB were surprised at the negative HILP figure as "intuitively one would expect these events to increase constraint costs unless there had been a forecast in HILP events".

SEMC Decision

The TSOs provided a response to this comment which is attached as Appendix 5 to this document. The SEMC accepts the TSOs explanation for the negative HILP figure.

No comments were received in relation to the interpretation of a HILP event and the SEMC decision follows the TSOs' interpretation of a HILP in this instance. The SEMC may seek to clarify the HILP definition in the future.

4.5 TSO EFFICIENCY GAINS

The TSOs assert that the €52.4 million saving to the ex-post adjusted Imperfections Charge was achieved largely through the following:

- The introduction of countertrading on EWIC for reserve co-optimisation in early March 2014; and
- The number of units in the Dublin operational Constraint for voltage support was reduced from three by night/two by day to two (plus EWIC) at all times.

Based on the parameters laid out in the Decision Paper SEM-12-033 the TSOs are entitled to an incentive payment of 10% for every 2.5% the outturn DBC falls below the ex-post adjusted DBC baseline. This is capped at 20% below the baseline meaning the TSOs potentially qualify for an incentive payment of €2.5 million administered across both TSOs on a 75/25 split basis.

RESPONSE: GREATER TRANSPARENCY AROUND MODELLING PROCESS NEEDED

In their response ESB GWM argue that as the model outputs directly influence the incurrence of penalties or the award of payments, an independent validation of the model used would be beneficial. ESB GWM further noted that material errors were corrected for in the model but it is not clear what the process is for validation or oversight of the model. Independent reassurance of the model's validity would be welcome. ESB GWM suggested that independent auditing of incentive claims is required in the interests of transparency and consumer benefit. Budget Energy questioned if there was a creditable external benchmarking process to verify if the incentive payment is warranted.

SEMC Decision

Using their in-house Plexos database the RAs have sense checked the TSOs' forecasts and tested assumptions within them for reasonableness. To appoint a separate party to validate the models would add an extra cost to the consumer and the benefit of doing this over and above the RAs' in-house validation is not warranted.

The SEMC is of the view that the RAs have the capabilities to carry-out the necessary model validation in-house.

RESPONSE: USE OF EWIC CREATES A CONFLICT OF INTEREST

ESB GWM stated that EWIC being used both for countertrading for reserve co-optimisation, and its inclusion in the Dublin operational constraint presents a clear conflict of interest given the ownership of EWIC.

SEMC Decision

The RAs primary objective is to ensure consumer benefit is maximised. The SEMC agrees that the use of EWIC has delivered significant cost savings to the consumer. While EWIC's ownership lies outside the scope of this paper oversight of constraint sets for technical validity remains a priority for the SEMC.

RESPONSE: TSO INCENTIVES IMPORTANT WITHIN I-SEM

ESB GWM argued that given the changes that I-SEM will bring to the role of the TSOs, clear incentives will need to be established and suggested that the RAs consult as early as possible on the TSOs' incentives in I-SEM. ESB GWM stated that this is not visible in the current project work-plan. IWEA argued that transparent and appropriate TSO incentives are an important principle of the market, and will become even more important under I-SEM.

SEMC Decision

The SEMC is aware of the importance of incentives within the new market. As the market is still being developed any incentive mechanisms within it are yet to be determined.

RESPONSE: INCENTIVE TO REDUCE LEVEL OF WIND CURTAILMENT

The IWEA welcomes the use of TSO countertrading which helps to alleviate wind curtailment. They argue that there should be further incentives to reduce the level of wind curtailment on the system and that the incentive to minimise DBC does not provide the correct signal in this instance.

SEMC Decision

Successful implementation of the "Delivering a Secure Sustainable Electricity System" (DS3) programme will increase the capability of the power system from operating at a maximum of 50% System Non-Synchronous Penetration (SNSP) to a maximum of 75%, leading to a reduction in the overall level of curtailment.

The SEMC argue that the DBC incentive mechanism provides a natural incentive to reduce the curtailment of wind. A reduction in the curtailment of wind directly reduces the level of constraint payments as less wind generators are constrained off in the schedule. DBC compensation for curtailment will cease from 01 January 2018⁸.

5 IMPERFECTIONS CHARGE SUMMARY

Based on the above decisions, the Imperfections Charge will be €4.47/MWh for the period from 1 October 2015 to 30 September 2016. The €4.47/MWh tariff represents a 20% decrease from the current tariff of €5.60/MWh, as shown in the table below.

	2015-16	2014-15	Change
Imperfections Allowance (€m)	170.70	181.20	(5.8)%
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Table 3: Imperfections Charge 2015/16 and 2014/15

⁸ Treatment of Curtailment in Tie-break situations Decision Paper SEM-13-010, 1 March 2013