Proposed Testing Tariff Rates Recommendations Paper

2019

3rd October 2018

EIRGRID SONI

Executive Summary

Testing tariffs are currently applied to Units Under Test (UUT) in the Single Electricity Market (SEM) on the basis of the MW capacity[1] of the generator unit. The tariffs are dependent upon the type of test being carried out and the impact to system security. There are a number of costs that the Transmission System Operators (TSOs) consider are appropriate for inclusion in the testing tariffs. These costs relate to the additional operational reserve carried to maintain system security when a unit is testing, the effect a UUT has on unit commitment decisions, and the costs incurred when a UUT output drops very quickly.

Given that the new Integrated Single Electricity market (I-SEM) is due to go live in Ireland and Northern Ireland on 01 October 2018, EirGrid and SONI (the TSOs) published a consultation paper proposing a number of different options for the calculation of Testing Tariffs for 2018 from the implementation of I-SEM (the Consultation Paper) on 2 June 2017[2]. Comments were received from a number of parties. The TSOs issued their recommendations paper to the RAs in March 2018[3]. On 10 May 2018 the SEM Committee approved the I-SEM Testing Tariffs for 2018[4] (effective from I-SEM Go-Live until 31 December 2018).

Testing tariffs were approved from I-SEM 'Go-Live' until 31st December 2018, as follows:

1. Proposed rates for High Impact Testing[5] (Tariff A[6]) for I-SEM 2018 were significantly reduced (from SEM rates). The Unit Commitment and Reserve element of Testing Tariff A remained, but the Tripping element was removed, as it is assumed that in I-SEM the UUT will already have to pay for this by being balance responsible in the market.
2. Testing Tariff for Low Impact Testing (Tariff B) was removed for the I-SEM portion of 2018.

For 2019 it is proposed to make no change to these testing tariffs (which were approved for the I-SEM portion of 2018) other than to update them using the 2018/2019 Imperfections Forecast Plexos model.

[1] Also referred to as the Registered Capacity or Maximum Generation Capacity
[2] http://www.eirgridgroup.com/site-files/library/EirGrid/ISEM-Testing-Tariffs-Consultation-Paper.pdf
[3] https://www.semcommittee.com/sites/semc/files/media-files/SEM-18-027a%20TSOs%20Recommendation%20paper%20on%20I-SEM%20portion%20of%202018%20Testing%20Tariffs.pdf
[4] https://www.semcommittee.com/publications/sem-18-027-i-sem-portion-2018-testing-tariffs-decision-paper
[5] High impact testing (Tariff A) is when new units are being commissioned on the power system for the first time, when existing units require testing on returning from outages, and for testing which is determined to be high risk. The impact of the UUT is an increase in the costs associated with maintaining system security.
[6] Under the current SEM arrangements Tariff A is applied for high impact testing and Tariff B is applied for low impact testing

Acronyms

UUT	Unit Under Test
I-SEM	Integrated Single Electricity Market
OSC	Other System Charges
RA	Regulatory Authority
SEM	Single Electricity Market
SND	Short Notice Declaration
SONI	System Operator Northern Ireland
TSO	Transmission System Operator
FPN	Final Physical Notification
PN	Physical Notification

1. INTRODUCTION

The Trading and Settlement Code (Part B[7]) requires the System Operators, if requested by the Regulatory Authorities (RAs), to make a report to the RAs at least four (4) months before the start of the year proposing values for the testing tariffs for the upcoming year.

For 2019 it is proposed to make no change to these testing tariffs (which were approved for the I-SEM portion of 2018) other than to update them using the 2018/2019 Imperfections Forecast Plexos model.

[7] https://www.semcommittee.com/sites/semcommittee.com/files/media-files/SEM-17-024c%20Trading%20and%20Settlement%20Code%20Part%20B%20%28clean%29.pdf

2. PROPOSED TESTING TARIFF RATES I-SEM 2018 CONSULTATION RESPONSES

2.1 TSOs' Proposed Option for Low Impact (Tariff B) Testing

The TSOs are of the view that following the introduction of I-SEM, UUT will be balance responsible and therefore proposed that the Testing Tariff for Low Impact Testing (Tariff B) be removed.

2.2 TSOs' Proposed Option for High Impact (Tariff A) Testing

The TSOs propose the following option, for High Impact Testing Rates (Tariff A), applicable for 2019, as outlined in Table 1 below.

NOTE: the TSOs propose that no provision for a probability of a trip would be made in the Testing Tariff and that any trips are levied automatically through the settlement system. This ensures that UUT which do not trip are not unduly charged through the tariff, i.*e.* ***the trip element of the testing tariff is removed.***

	Retain Current Charge
Unit Commitment Imperfection Costs	This is the same as the existing Testing Tariff A i.e. the UUT pays for the additional Imperfection cost of unit commitment as it is determined to be unreliable and may not meet its load profile. The UUT will be dispatched so that no Uninstructed Imbalances should apply since the UUT is paying for additional unit commitment. No SNDs will be levied, except if the unit trips unexpectedly.
Reserve Imperfection Costs	This is the same as the existing Testing Tariff A i.e. the UUT pays for the additional Imperfection cost of proving reserve if it drives the system reserve requirement as the Largest Single Infeed.
System Services Reserve Costs	This is the same as the existing Testing Tariff A i.e. the UUT pays for the additional System Services cost for the reserve paid to units which are providing the additional requirement. This is on the basis that the UUT drives the system reserve requirement as the Largest Single Infeed.
Trip Charge Costs	This proposes that no provision for a probability of a trip would be made in the Testing Tariff and that any trips are levied automatically through the settlement system. This ensures that UUT which do not trip are not unduly charged through the tariff.

Table 1: Summary of Cost Recovery Proposal for High Impact (Tariff A) Testing

3. TSOs' Recommendation

The TSOs recommend that for low impact (Tariff B) testing no tariff should be applied, and for high impact (Tariff A) testing the arrangements outlined in Table 1 should be applied. The rationale for these recommendations is outline below.

3.1 Low Impact Testing

For low impact testing (Tariff B) the TSOs will assume that the unit is reliable, will meet the FPNs which it submitted and is not an increased risk of tripping. The TSOs propose that no testing tariffs should be applied to a UUT categorised as low impact. This was the original proposal given in the Consultation Paper which was generally supported by the respondents.

For low impact testing the TSOs propose that any UUT which trips should be automatically levied a trip charge through the automated OSC settlement system. This ensures that UUT, which do not trip are not unduly charged. Also SNDs will be applied as if the unit was in normal operation. (The RAs have recently approved the TSOs' proposal, in the 2018/2019 Harmonised Other System Charges consultation, to reduce the 2018/2019 Trip and SND charges to 50% of the 2017/2018 tariff rate.)

3.2 High Impact Testing

For high impact (Tariff A) testing there may still be associated costs, such as unit commitment and reserve costs, which will not be paid for by the UUT being balance responsible in the market. If these remaining imperfections costs do materialise and are not paid for by the UUT, then they would be passed on to suppliers and the end consumer; the TSOs believe that this is an undesirable outcome. Following the introduction of I-SEM, UUT will be balance responsible and the TSOs therefore do not recommend inclusion of a testing charge associated with tripping, at this time. The TSOs believe that the unit commitment and reserve elements of the high impact testing should be retained for 2019, and are recommending the testing the arrangements outlined in Table 1, should be applied for high impact (Tariff A) testing.

The TSOs propose the rates for high impact testing outlined in Table 2 below, are applicable in 2019. The methodology used for calculating the testing tariffs is as per the I-SEM Testing Tariffs Decision Paper published on 10 May 2018[8], updated using 2018/2019 Imperfections Forecast Plexos model.

[8] https://www.semcommittee.com/news-centre/i-sem-portion-2018-testing-tariffs-decision-paper

	MW	High Impact Testing			
		Reserve System Services Cost €/MWh	Reserve Imperfection Cost €/MWh	Unit Commitment €/MWh	Total Charge €/MWh
GEN <50	50	€ -	€ -	€0.69	€0.69
50 < GEN ≤100	100	€ -	€ -	€2.67	€2.67
100 < GEN ≤ 150	150	€ -	€ -	€3.47	€3.47
150 < GEN ≤ 200	200	€ -	€ -	€3.88	€3.88
200 < GEN ≤ 250	250	€ -	€ -	€3.97	€3.97
250 < GEN ≤ 300	300	€ -	€ -	€4.04	€4.04
300 < GEN ≤ 350	350	€ -	€ -	€4.15	€4.15
350 < GEN ≤ 400	400	€0.05	€0.04	€3.72	€3.81
400 < GEN ≤ 450	450	€0.24	€0.37	€2.68	€3.29
450 < GEN	500	€0.46	€1.07	€2.21	€3.74

Table 2: 2019 Proposed Testing Tariff Cost Components

The TSOs are of the view that I-SEM and OSC will recover any unreliability of the UUT and any imperfections costs being passed through to suppliers, arising as a consequence of UUT behaving unreliably, will be minimal. However the TSOs may recommend re-introduction of the trip element of Testing Tariffs in future years, should material imperfections costs arise in I-SEM, as a consequence of UUT behaving unreliably.

In addition the TSOs propose that any UUT which trips, should be automatically levied a trip charge, through the automated OSC settlement system. This ensures that UUT which do not trip are not unduly charged. No SNDs will be applied unless the unit trips.

4. SUMMARY

In summary, the TSOs recommend the following:

1. The TSOs recommend ongoing removal of Testing Tariffs for low impact testing (Tariff B), effective from 1st January 2019 to 31st December 2019.

2. For high impact testing (Tariff A), the TSOs recommend testing tariffs, as per Table 2 above, effective from 1st January 2019 to 31st December 2019.

3. The TSOs may recommend re-introduction of Testing Tariffs for low impact testing (Tariff B) and /or a testing element for high impact testing (Tariff A) in future years, should material imperfections costs arise in I-SEM, as a consequence of UUT behaving unreliably.

4. In addition the TSOs propose that:

    a. Any UUT which trips, should be automatically levied a trip charge, through the automated OSC settlement system
    b. For low impact testing: SNDs would be applied as if the unit was in normal operation
    c. For high impact testing: SNDs will continue to apply if a unit trips unexpectedly.

APPENDIX 1 - The Selection Guideline for I-SEM Testing Tariffs

I-SEM: OVERVIEW OF NEW ARRANGEMENTS FOR GENERATING UNIT TESTING

A1.1. Background of I-SEM

The Integrated Single Electricity Market (I-SEM) is a new wholesale electricity market arrangement for Ireland and Northern Ireland. The new market arrangements are designed to integrate the all-island electricity market with European electricity markets, enabling the free flow of energy across borders. It consists of a number of markets including:

The **Day-Ahead Market (DAM)** is a single pan-European energy trading platform in the ex-ante time frame for scheduling bids and offers and interconnector flows across participating regions of Europe. The DAM involves the implicit allocation of cross-border capacity through a single centralised price coupling algorithm. The algorithm, taking into account the cross-border capacity advised by the TSOs, determines prices and physical positions for all participants in all coupled markets.

The **Intra-Day Market (IDM)** allows participants to adjust their physical positions closer to real time. The need to adjust their positions can arise for a number of reasons, including orders failing to clear in the DAM, new information becoming available (e.g. plant shutdowns and changes to forecasts), congestion on interconnectors driving price differentials between zones, and asset less traders wishing to exit their positions. The long-term model for a single European trading platform is based on continuous cross border trading. However, at go-live, intraday trading is only continuous within the SEM (within-zone), where bids and offers are continuously matched on a first-come-first-served basis. Three cross-border intraday auctions are also run using a version of the DAM algorithm.

The **Balancing Market (BM)** determines the imbalance price for settlement of the TSO's balancing actions and any uninstructed deviations from a participant's notified ex ante position. The BM is different from the other markets in that it reflects actions taken by the TSO to keep the system balanced and secure—for example, any differences between the market schedule and actual system demand, variations in wind forecasting, or following a plant failure. The BM uses a rules based flag-and-tag process to determine the spot price in each 5 minute imbalance pricing period. The highest priced unflagged offer that is dispatched sets the imbalance price in each period. The flag-and-tag process excludes bids and offers that are scheduled due to system constraints. The imbalance price for the 30 minute imbalance settlement period is the average of the six imbalance prices.

Participants are responsible for meeting their ex ante commitments and when they cannot they are financially exposed in the BM. Energy actions in the BM are settled at the imbalance price. Additional payments or charges are incurred for uninstructed deviations from the schedule at the imbalance settlement price. Non-energy actions (e.g. reserves, voltage, congestion on lines, etc.) are settled at either the bid or offer price or the imbalance price, depending on whether the generating unit is constrained up or down.

I-SEM arrangements are due to go live on 1st October 2018.

A1.2. Scheduling & Dispatch and the Balancing Market

Physical Notifications (PNs) are submitted by market participants as their best estimate of their intended level of generation and/or consumption, reflecting their expected ex-ante contracted position. The Balancing Market requires market participants to have submitted PNs with COD representing their incremental and decremental costs to move from this position to the TSOs by DAM gate closure (13:30 day-ahead). This forms the starting position for the scheduling process. Market Participants are permitted to change their PNs and COD after this time and up to Gate Closure of the Imbalance Settlement Period (each

thirty minute period beginning on each hour or half hour). The Final Physical Notifications (FPN) are the final committed value that a participant wishes to generate and/or consume. The TSO may need to deviate from these positions to manage system constraints, provide system services and for energy balancing reasons. The TSOs operate a continuous scheduling process to ensure the latest market and system information feeds into the actual dispatch.

A1.3. Units Under Test in I-SEM

The concept of Within Day and Full Day Tests is not being applied in I-SEM. Testing can be split in to two categories: Significant and Minor testing as defined in EirGrid and SONI Grid Codes below.

Significant Test

An Operational Test with a total duration of equal to or greater than 6 hours or where the Active Energy produced during the total duration of the test is equal to or greater than:

(i) 3 times the Active Energy which would be produced by the Test Proposer's Plant during 1 hour of operation at the Plant's Registered Capacity; or

(ii) 500 MWh

Minor Test

An Operational Test with a total duration of less than 6 hours in any Trading Day or were the active energy produced during the total duration of the test is less than:

(i) 3 times the Active Energy which would be produced by the Test Proposer's Plant during 1 hour of operation at the Plant's Registered Capacity; and

(ii) 500 MWh

All testing requires approval from the TSO. Depending on type of test, Significant or Minor different timelines and criteria for approval will be applied.

All unit types capable of submitting PNs will be required to go under test in I-SEM. Once a unit has identified a need to carry out a test, pre-approval for the proposed test is required from the TSO. Once the test has been pre-approved, participants submit a unit under test physical notification (UUT PN) via the market participant interface specifying the period that the generating unit is requested to be under test with corresponding test flags. Any PN submission that includes a UUT PN with an associated test flag will require final approval by the TSO before it is accepted in the Market Management System (MMS) and subsequent scheduling runs. Any subsequent modifications to a test PN, including cancellation is also subject to TSO approval.

After a UUT PN has been approved, the unit is considered 'under test' for all periods that contains a test flag. The UUT PN is fixed for all scheduling runs, meaning that scheduling system will not deviate from the test schedule even if such deviations would appear economic. The unit will receive dispatch instructions to follow its test schedule in the normal manner for the duration of the testing. The TSOs will only dispatch a unit away from its test schedule for reasons of system security. Participants may also submit COD with their UUT PN although this will not normally be utilised in the scheduling and dispatch tools during the test period. However, in the event that the TSO must override the scheduling and dispatch tool and manually dispatch a unit away from its test profile for security reasons, the applicable commercial data will apply to the settlement of the TSO action (an inc or dec) in the same way as any other TSO action. If the unit is not capable of following its Dispatch Instructions for any reason and requests a change in output then this should be managed using Dispatch Instruction Test Flags in EDIL. This is to ensure that the unit is treated correctly in settlement, i.e. uninstructed imbalances.

In I-SEM a UUT is not required to go under test for a full trading day and can request to go under test for a subset of half hour Imbalance Settlement Periods. In I-SEM all unit types can go under test with the exception of units which have priority dispatch and which are not dispatchable, units which are not dispatchable and not controllable, or Interconnector Residual Capacity Units.

A1.4. Tariff Structure

A UUT must provide the TSO with certain information as required by the Grid Codes. Based on this information the TSO will ascertain whether the testing will cause an increased impact above that of normal operation or whether no additional impact is envisaged. If there is an increased impact then the TSOs will require an additional unit or units to be dispatched to make up any shortfall in generation, to ensure that the system demand can be met at all times. In contrast, based on the information provided by the unit, if the testing is determined to result in no additional impact then the TSOs will not require an additional unit or units to be dispatched. Based on these two criteria the TSOs propose that the two tariff structure remains. These two proposed tariffs relate to high impact and low impact testing.

A1.5. Selection Criteria

It is proposed that a UUT will automatically be assigned as high impact testing. As part of the approval process with the TSOs, as outlined in the Grid Codes, the UUT will be required to submit information on the testing taking place. The TSOs will then decide whether the testing is determined to be high or low impact based on the decision criteria outlined in Figure 1.

A1.5.1. New or Refurbished Units Under Test

It is proposed that any UUT which is new or refurbished[9] will be assigned as high impact for the full duration of their testing.

A1.5.2. Existing Units

If an existing unit is carrying out testing in I-SEM then it is proposed that it will automatically default to the high impact tariff. Based on the information provided by the UUT during the approvals process the TSOs will determine if the UUT can move from the high impact tariff to the low impact tariff. The rationale for this is that the UUT will be required to share information with the TSOs on what type of works have been completed as this may require Grid Code testing to be conducted to determine if the UUT is safe to be reconnected to the system.

[9] Refurbished means any unit which has undergone any electrical or mechanical changes.

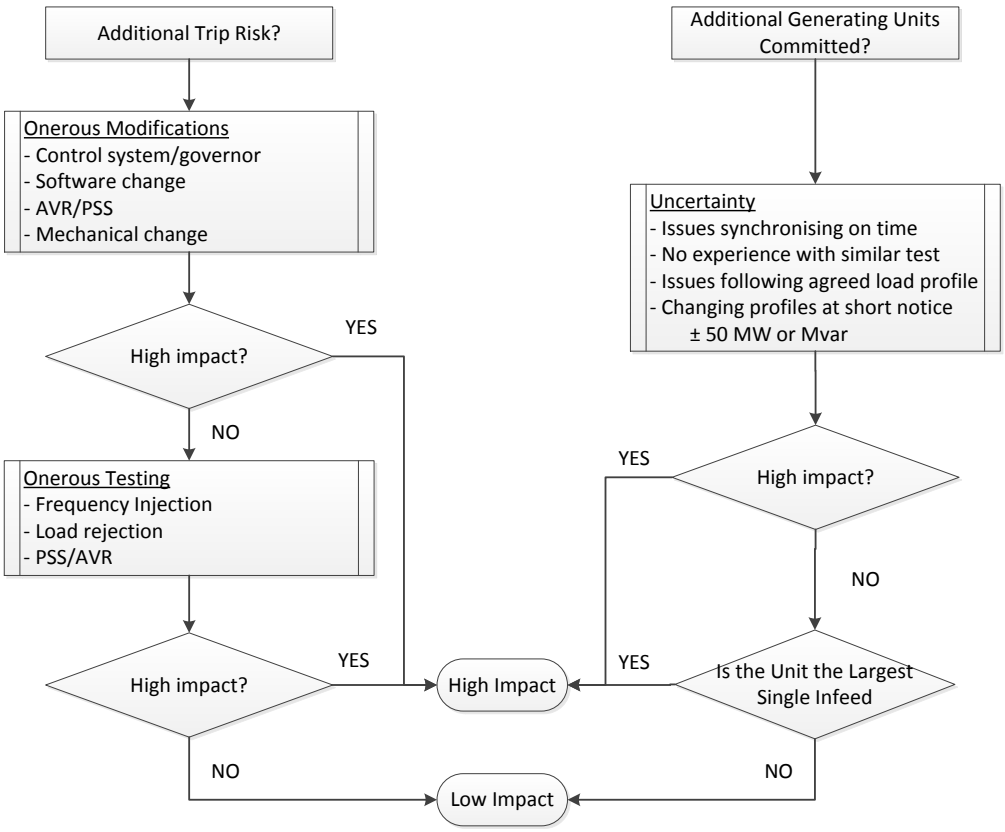

Figure 1: Proposed Tariffs – High and Low Impact

A1.6.1 High Impact Testing

In I-SEM the cost components associated with high impact testing are determined to be a) unit commitment imperfection costs b) reserve imperfection costs and c) system service reserve costs as detailed in Table 2. (The trip element of the testing tariff has been removed as the TSOs assume that I-SEM and OSC will recover any unreliability of the UUT and any imperfections costs being passed through to suppliers, arising as a consequence of UUT behaving unreliably, will be minimal.)

	MW	High Impact Testing			
		Reserve System Services Cost €/MWh	Reserve Imperfection Cost €/MWh	Unit Commitment €/MWh	Total Charge €/MWh
GEN <50	50	€ -	€ -	€0.69	€0.69
50 < GEN ≤100	100	€ -	€ -	€2.67	€2.67
100 < GEN ≤ 150	150	€ -	€ -	€3.47	€3.47
150 < GEN ≤ 200	200	€ -	€ -	€3.88	€3.88
200 < GEN ≤ 250	250	€ -	€ -	€3.97	€3.97
250 < GEN ≤ 300	300	€ -	€ -	€4.04	€4.04
300 < GEN ≤ 350	350	€ -	€ -	€4.15	€4.15
350 < GEN ≤ 400	400	€0.05	€0.04	€3.72	€3.81
400 < GEN ≤ 450	450	€0.24	€0.37	€2.68	€3.29
450 < GEN	500	€0.46	€1.07	€2.21	€3.74

Table 2: 2019 Proposed Testing Tariff Cost Components

A1.6.2 Low Impact Testing

For low impact testing (Tariff B) the TSOs will assume that the unit is reliable, will meet the FPNs which it submitted and is not an increased risk of tripping. Therefore the TSOs propose that no testing tariffs should be applied to a UUT categorised as low impact.

APPENDIX 2 - Methodology

A2.0 Costs Attributable to UUT

As per A1.6.1. above, the TSOs have identified three cost components, which are directly attributable to the high impact UUT in I-SEM, and therefore should be recovered through the Testing Tariff mechanism (Tariff A):

a) unit commitment imperfection costs
b) reserve imperfection costs
c) system service reserve costs

The methodology used for calculating the testing tariffs is as per the I-SEM Testing Tariffs Decision Paper published on 10 May 2018[10], updated using 2018/2019 Imperfections Forecast Plexos model:

A2.1. Unit Commitment Imperfection Costs

A high impact UUT can be regarded as unreliable as it may not start or run as scheduled, or it may become unavailable at short notice. In this case, the energy that the UUT would have generated had it been running will need to be replaced so that demand can be met. This power must be provided by online units as the notice time that the UUT gives of its unavailability may not be sufficient time to start and run up another generator unit.

To manage the risk to the system that this unreliability poses, the TSO must constrain on additional unit(s) to mitigate the risk of the UUT becoming unavailable. The additional unit commitment imperfection cost component is intended to represent the cost arising from scheduling this additional generation.

Calculation Methodology
This calculation utilises outputs from the relevant Plexos model. In this case, the annual run hours for each unit in the base case without a UUT are compared to the annual run hours for each unit in the case with a UUT. The additional run hours is the difference in run hours between the two cases and represents the number hours of generation in a year displaced by the UUT. The model is run over a year to capture as accurately as possible all testing conditions.

The TSO may need to run some displaced generation to mitigate the risk of the UUT becoming unavailable. The cost of running this additional generation is estimated as the idling cost (€/hr) of the particular generator times its additional run hours. The cost is then summed over all units and converted to a per MWh basis by dividing the total figure by the product of the amount of hours in a year times the size of the UUT. The calculation is then repeated for a number of UUT sizes to provide a range of charges banded by unit registered capacity. The resulting Unit Commitment Imperfection Costs for 2019 are shown in Table 2 above.

[10] https://www.semcommittee.com/publications/sem-18-027-i-sem-portion-2018-testing-tariffs-decision-paper

A2.2. Reserve Imperfection Costs

Additional reserve constraint costs and increased costs of operating reserve are likely to occur when the UUT is deemed to be a high risk to the system and operating reserve levels above normal requirements are necessary. When the output of the UUT exceeds the normal operating reserve requirement, the TSOs will increase primary operating reserve (POR) and secondary operating reserve (SOR) for system security. For this reason additional reserve constraint costs and increased costs of operating reserve are applicable for high impact testing.

Testing tariffs in I-SEM are applied on the basis of the registered capacity of the UUT. To prevent over recovery of testing charges it is necessary to take account of load factors and to apply a load factor adjustment. Without the application of this load factor adjustment the UUT would be covering the cost of additional operating reserve at times when its output was such that only normal operating reserve was required. The load factor adjustment is designed in such a way that the costs recovered over the entire duration of testing will cover the total cost of the increased operating reserve payments to other generators and the additional reserve constraint during that same period.

The load factor adjustments were calculated by analysing a sample set of generators that had previously completed commissioning testing in SEM. Based on the testing tariff bands the load factor at which the generator in that band exceeds the normal operating reserve requirement was calculated. It is only when the generator exceeds this load factor that it is actually causing an increase to the operating reserve requirement. The load factor adjustment is the percentage of total MWh outputted when the UUT exceeded this load factor.

A2.2.1 Reserve Constraint Cost

In the unconstrained market schedule, generation is scheduled in order of increasing cost until demand is met. This usually means that efficient thermal generators (such as CCGTs) are scheduled at high output and more expensive, less efficient generators are not scheduled as frequently.

In order to provide operating reserve, efficient thermal generators are pulled back, or constrained down, from their most economic generating level, and additional more expensive generators are dispatched or constrained on to meet system demand. This is called a reserve constrained schedule. The reserve constraint cost arises from the difference in production cost between the unconstrained market schedule and the more expensive reserved constrained schedule.

A generator under test may require extra operating reserve to cover the additional risk of that generator tripping. Carrying extra reserve in this manner means that the reserve constrained schedule will deviate further from the unconstrained market schedule and result in additional reserve constraint costs. This cost must be accounted for and the calculation methodology below describes how this cost is determined.

Calculation Methodology

The additional reserve constraint cost is calculated using the production cost outputs from a validated reserve constrained model of I-SEM. The modelling is performed using the Plexos modelling tool. The model uses the Regulatory Authorities validated generator dataset to represent the generators in I-SEM. The transmission system is not modelled.

The additional reserve constraint cost is then found by taking the difference in production cost between a base case model with a ‘normal’ reserve requirement and a model with an additional reserve requirement over and above the ‘normal’ requirement. The cost is then converted to a per MWh basis by dividing the total figure by the product of the amount of hours in a year times the registered capacity of the UUT. The

calculations are then repeated for a number of UUT sizes to provide a range of charges banded by unit size. The load factor adjustment is then applied to produce the final €/MWh rate applicable to each band of registered capacity.

The resulting Reserve Imperfection Costs for 2019 are shown in Table 2 above.

A2.2.2. System Services Reserve Cost

The constraint cost for the increase in operating reserve is recovered by the additional reserve constraint cost component. Generator units on the system also receive an ancillary service payment for the availability and provision of operating reserve. The extra ancillary service reserve payments are not captured by the additional reserve constraint calculation methodology. The rates at which operating reserve is paid are set out in the AS Statement of Payments and Charges for the relevant Tariff Year. It is considered appropriate that the UUT, which is causing an incremental increase in operating reserve, should cover the incremental cost of increased operating reserve payments through the testing tariff mechanism.

Calculation Methodology

The aim of this methodology is to recover the cost of the increased operating reserve payments to the other generators on the system. It is appropriate that the UUT should cover these costs when its output is such that additional reserve is required. Furthermore the UUT should only cover the cost of the increase in operating reserve above the normal operating reserve requirement. The normal operating reserve requirement referenced in the text assumes the largest single infeed (currently EWIC at 504 MW) is synchronised to the power system and is generating at its maximum output.

By applying the load factor adjustment to the ancillary service payment rates for operating reserve, a €/MWh value is calculated that can be added to the testing tariff as the reserve premium component. The reserve premium is made up of primary, secondary, and tertiary operating reserve payment rates multiplied by the load factor adjustment appropriate to the particular testing tariff band.

The resulting System Services Reserve Costs for 2019 are shown in Table 2 above.