Integrated Single Electricity Market

(I-SEM)

Energy Trading Arrangements

Basis for Supplier Charging

Consultation Paper

SEM-16-060

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CONTENTS

1. INTRODUCTION

1.1 BACKGROUND

1.1.1 The Energy Trading Arrangements (ETA) and Capacity Remuneration Mechanism (CRM) workstreams of I-SEM have progressed through various phases, with the current focus on the implementation of the detailed design and the drafting of the detailed market rules. This will include a consultation and decision on the Trading and Settlement Code (T&SC) that will govern the enduring ETA arrangements and CRM settlement in I-SEM.

1.1.2 At the start of the design phase, the SEM Committee (SEMC) published an ETA decision paper on Building Blocks (SEM-15-064). In that paper it was decided that the De Minimis generation threshold (i.e. the threshold for mandatory participation in I-SEM) should be maintained at 10MW Maximum Export Capacity (MEC) in I-SEM. Any generators below the De Minimis threshold may find a route to market through the Agent of Last Resort (AOLR) or independent aggregation services, possibly through negotiated Power Purchase Agreements (PPAs) with a supplier. There is currently 927MW of installed De Minimis generation in Ireland and Northern Ireland in total.

1.1.3 A PPA allows a very small generator to access the energy markets without acceding to the T&SC. The PPA sets out a market based arrangement between the generator and the off-taker, where the two parties bilaterally agree under what terms the off-taker will purchase the generator's output. The wider market does not have visibility of the terms and conditions of these PPAs.

1.1.4 The I-SEM ETA Building Blocks decision paper, published on 11th September 2015, stated that "at this stage the SEM Committee is not making a decision on the charging regime for the imperfections charge or capacity charges". The SEM Committee is now consulting on the appropriate basis for charges to suppliers given that a range of concerns and queries have been raised during the detailed implementation phase. A number of options are presented and described in this consultation paper and relate to the charging basis for matters other than energy charges; energy charges are not the subject of this consultation and will continue to be charged to suppliers on a net demand basis. This includes allowing net demand to go negative.

1.1.5 In order to accommodate a Supplier Unit's registered De Minimis generation in the SEM, a decision was taken in 2010 in relation to the retail market to allow the value of demand to be negative[1]. This allows for periods where the generation from the registered De Minimis generation exceeds the demand of the Supplier Unit. While such an arrangement allows suppliers to receive System Marginal Price (SMP) benefits, a consequence is that a Supplier Unit's exposure to other charges arising under the SEM will be based on its net position of

[1] Here and throughout this paper, "negative charging" will be used to refer to the application of charges based on a negative demand position, as per common understanding, although the sign convention in the TSC is that demand is negative and generation is positive.

having negative demand. This means that the Supplier Unit will receive additional payments in the form of charges against this negative demand.

1.1.6 A number of charges will exist within I-SEM, some of which will be applied to generator units and some to supplier units. Items that fall into Supplier Charges include:

- Capacity Charges;
- Imperfections Charges;
- Variable Market Operator Charges;
- Difference Payment Socialisation Charges;
- Currency Adjustment Charges; and
- Residual Error Volume Charges.

1.1.7 In the I-SEM, Capacity Charges are recovered from suppliers as a fixed €/MWh charge across demand in a pre-defined set of half hours that are judged to be those most likely to have high LoLP values. This definition and further discussion around this decision can be found in the CRM Decision 1 Paper (SEM-15-103). The exact methodology for defining this set of half hours is going to be consulted on in the upcoming CRM Parameters consultation.

1.1.8 The Imperfections Charge is recovered from suppliers to cover the costs incurred by SEMO for make whole payments, dispatch balancing costs and the net imbalance between energy and capacity payments and charges. The total forecast imperfections cost is submitted to the RAs by SEMO and is based on research and analysis of the anticipated costs that will be incurred by SEMO in these areas over the coming year. As all cost parameters are estimated ex-ante there is a requirement to "true up" the indicative charge in the following annual period when all data is available. This is done by the application of a k-factor to the indicative charge for the next year.

1.1.9 Market Operator (MO) Charges are levied on participants in order to recover costs and expenses efficiently incurred by the Market Operator in the course of carrying out its duties. There are three different types of MO charges, namely:

- The Fixed Market Operator Generator Charge (FMOC) applicable to all participants in respect of their Generator Units;
- The Fixed Market Operator Supplier Charge applicable to all participants in respect of their Supplier Units; and
- The Variable Market Operator Charge (VMOC) applicable to all participants in respect of their Supplier Units. The VMOC is calculated based on the net demand of each Supplier Unit multiplied by a Variable Market Operator Price approved by the Regulatory Authorities.

1.1.10 Similar to the process regarding Imperfections Charges, all parameters used in the calculation of MO charges are estimated ex-ante. Therefore, the RAs give the final determination on SEMO's VMOC through the SEMO Revenue and Tariffs decision paper. Any differences between estimated charges for a given period and final approved costs are k-factored in the next annual period.

1.1.11 Currency charges will be applied to recover the anticipated costs over an annual period relating to variations in the exchange rates between the two currencies in the I-SEM. The currency costs will be forecast ex-ante and any difference between the projected and actual costs will be treated as a correction factor in the next annual period. This is a new charge in I-SEM and is considered a simplification to the process in SEM which was widely viewed as unnecessarily complex.

1.1.12 The Residual Error Volume Charge was provided for in the I-SEM ETA Markets Detailed Design decision (SEM-15-065) to cover the cost of the residual error volume (the difference between metered generation and metered demand) in each jurisdiction of I-SEM. Similar to the above charges, this will involve an ex-ante estimate of the cost being calculated and submitted to the RAs for approval. Any difference between the projected and actual costs will be treated as a correction factor in the next period. As with the charge for currency costs, this approach is considered a simplification from the current SEM approach and should provide greater certainty to participants over the course of a year.

1.1.13 The Difference Payment Socialisation charge is a new charge in I-SEM and is designed to fund a socialisation fund, which is also funded by any surplus payments that arise when difference payments from Reliability Option providers exceed those required to hedge suppliers. This socialisation fund will be used to cover any shortfall in payments to suppliers, should receipts from Reliability Option difference payments be insufficient to cover the equivalent difference payments to suppliers.

1.1.14 In the event that a supplier has contracted with De Minimis generation whose output is greater than the supplier's demand, the net demand within such a trading period will be negative. Under SEM arrangements, a number of the charges set out above are applied to the negative demand in the same way as to positive demand, meaning the supplier actually receives these charges rather than paying them.

1.1.15 Paragraph 6.151 of the current T&SC has a specific floor on demand such that negative net demand should not receive Market Operator Charges. The SEMC considers that any participant who is not carrying out a Market Operator function should never be in receipt of Market Operator payments. However, when negative net demand was permitted in 2010, corresponding systems changes to implement this requirement were not developed. As a result, small suppliers began receiving a payment for Market Operator Charges.

1.1.16 In addition to the Variable Market Operator charge, all other Supplier Charges are currently applied as negative charges resulting in payments to Supplier Units with negative demand. While this was not the intention of any previous policy decision, it has nevertheless given rise to a now common situation in SEM where Supplier Units receive charging revenues when their net demand is negative.

1.1.17 An emergent arrangement somewhat influenced by the decision to permit negative demand in 2010 is the Supplier Lite model. Under this arrangement, a De Minimis generator can form its own supply company (with no customers) and enter into a PPA with that supply company. The generator therefore receives energy payments, but also additional payments through

negative charging. This model is commonly used by participants with REFIT in RoI to avoid the need to enter a PPA with existing suppliers.

1.1.18 The crediting of negative charges is not limited to generators. The RAs understand that approximately 20,000 Northern Irish residential customers with embedded solar generation receive a capacity credit when exporting their surplus energy.

1.2 ASSESSMENT CRITERIA

1.2.1 The criteria to be used in the assessment of the alternatives, presented in the following section of this consultation paper, follow those of the I-SEM High Level Design and as agreed with the Departments in the Next Steps Decision Paper March 2013. We have developed detailed descriptions of these criteria to focus on issues that are relevant to Supplier Charges and tailored to the detailed design elements of the I-SEM.

1.2.2 These assessment criteria are set out below:

- **The Internal Electricity Market:** the market design should efficiently implement the EU Target Model and ensure efficient cross border trade.
- **Security of supply:** the chosen wholesale market design should facilitate the operation of the system that meets relevant security standards.
- **Competition**: the trading arrangements should promote competition between participants; incentivise appropriate investment and operation within the market; and should not inhibit efficient entry or exit, all in a transparent and objective manner.
- **Equity:** the market design should allocate the costs and benefits associated with the production, transportation and consumption of electricity in a fair and reasonable manner.
- **Environmental:** while a market cannot be designed specifically around renewable generation, the selected wholesale market design should promote renewable energy sources and facilitate government targets for renewables.
- **Adaptive**: The governance arrangements should provide an appropriate basis for the development and modification of the arrangements in a straightforward and cost effective manner.
- **Stability:** the trading arrangements should be stable and predictable throughout the lifetime of the market, for reasons of investor confidence and cost of capital considerations.
- **Efficiency:** market design should, in so far as it is practical to do so, result in the most economic overall operation of the power system.
- **Practicality/Cost**: the cost of implementing and participating in the I-SEM should be minimised; and the market design should lend itself to an implementation that is well defined, timely and reasonably priced.

2. DEFINITION OF DEMAND FOR I-SEM CHARGING

2.1 BACKGROUND

2.1.1 Supplier Charges are charges applied to recover the costs that are incurred on behalf of customers in the market.

2.1.2 All charges described in Section 1.1.6-10 are applied on the basis of a supplier's demand during a particular settlement period. The exact definition of demand in I-SEM is fundamental to this consultation paper and the outcome of this consultation process may have implications for De Minimis generation and Supplier Lite arrangements.

2.1.3 While the definition of demand for Supplier Charges is discussed in this section, it does not relate to the nature of energy payment treatment in I-SEM. Energy settlement will always reflect suppliers' net position.

2.1.4 The RAs consider three potential interpretations of "demand" when allocating charges to suppliers. As such there are three bases on which Supplier Charges could be allocated:

- **Net Demand by Supplier**: The net demand of a Supplier Unit is the relevant consumption minus the relevant contracted De Minimis generation. Net demand is allowed to go negative for the purposes of Supplier Charges if relevant contracted De Minimis generation is greater than the relevant consumption. This would be a continuation of the current treatment, and this is the interpretation of demand proposed by the parties which escalated issues through the I-SEM Market Rules Working Group.

- **Non-Negative Net Demand by Supplier**: The net demand of a Supplier Unit is the relevant consumption minus the relevant contracted De Minimis generation, with the important condition that the demand value is floored at zero and precluded from going negative for the purpose of the calculation of Supplier Charges.

  Gross Demand by Supplier: The gross demand of a Supplier Unit is the relevant consumption with no adjustment for De Minimis generation. Therefore under this treatment, suppliers are allocated charges based on their consumption before their contracted De Minimis generation is netted off. To achieve this, a number of system developments would be required by the Meter Data Providers and by SEMO in order to implement this treatment; such changes are not achievable for I-SEM go-live.

2.2 ASSESSMENT OF ALTERNATIVES

2.2.1 The choice of demand interpretation would alter the €/MWh level of charges, as well as the allocation of the charges to suppliers with different proportions of De Minimis generation, as elaborated upon later in this paper.

2.2.2 While a consistent approach to the basis for supplier charging has a practicality benefit, that does not necessarily entail that all charges set out in Section 1.1.6-10 should be applied on the basis of the same definition of demand. The simplicity benefit of treating all charges in the same way may be outweighed by differences between the charges that result from their specific purposes. To simplify the rest of this section, we will consider examples where the same definition of demand is applied to all Supplier Charges, however this is done only to demonstrate the relative impacts of the different approaches. These approaches are considered in turn in the following worked example and subsequent sections.

Worked Example of Demand Definitions

2.2.3 To consider the impacts of the different approaches, we can consider an example with two scenarios. In Scenario 1 we assume a set of suppliers that have different customer numbers and De Minimis generation levels. In Scenario 2, all things are held equal but the level of De Minimis is doubled. This scenario is considered a relatively realistic probability based on current trends.

2.2.4 Table 1 shows a set of example suppliers for this purpose. We then assume an approximate level of total costs that need to be recovered from industry though Supplier Charges. Table 2 to 7 show a set of examples for this purpose.

2.2.5 In Scenario 1, a level of overall De Minimis penetration has been assumed at approximately 9% of gross demand. This has been chosen to represent a plausible level that is representative of the level of De Minimis generation existing in the current SEM. For simplicity, we assume 2 million customers and 38 TWh/year as an approximation of total system demand.

2.2.6 In the two Scenarios, we have included:

- Large suppliers whose demand obligations mean that they will never offset their total demand with De Minimis generation (Suppliers A&B);
- A supplier with a relatively high proportion of De Minimis generation (Supplier C);
- Two suppliers with a relatively low proportion of De Minimis generation (Suppliers D & E); and
- A Supplier Lite arrangement (Supplier F).

Table 1: Suppliers (Scenario 1)

Supplier	A	B	C	D	E	F	Total
Number of customers supplied	736,842	526,316	421,053	210,526	105,263	-	2,000,000
Gross Demand (MWh/yr)	14,000,000	10,000,000	8,000,000	4,000,000	2,000,000	0	38,000,000
De Minimis Generation (MWh/yr)	1,200,000	600,000	1,200,000	100,000	200,000	200,000	3,500,000
Net Demand (MWh/yr)	12,800,000	9,400,000	6,800,000	3,900,000	1,800,000	-200,000	34,500,000
Non-negative Net Demand	12,800,000	9,400,000	6,800,000	3,900,000	1,800,000	0	34,700,000
%age of De Minimis	34.29%	17.14%	34.29%	2.86%	5.71%	5.71%	100.0%
%age Gross	36.84%	26.32%	21.05%	10.53%	5.26%	0.00%	100%
%age De Minimis of Gross	8.57%	6.00%	15.00%	2.50%	10.00%		9.21%

Table 2: Notional unit charges by Gross Demand (Scenario 1)

Gross Demand : **38,000,000 MWh /yr**

		Unit Charge Gross €\MWh
Total Imperfections Cost	€150,000,000	€3.95
Total Capacity charge	€500,000,000	€13.16
Total MO Charge	€15,000,000	€0.39
Total Currency	€1,000,000	€0.03
Total Res. Volume	€20,000,000	€0.53
Charge per MW\h		€18.05

Table 3: Total Supplier Charges by Gross Demand (Scenario 1)

Supplier	A	B	C	D	E	F	Total
Total Charge Gross Demand	€252,737k	€180,526k	€144,421k	€72,211k	€36,105k	€0k	€686,000k

Table 4: Notional unit charges by Net Demand (Scenario 1)

Net Demand: **34,500,000 MWh /yr**

		Unit Charge Net Demand €\MWH
Total Imperfections Cost	€150,000,000	€4.35
Total Capacity charge	€500,000,000	€14.49
Total MO Charge	€15,000,000	€0.43
Total Currency	€1,000,000	€0.03
Total Res. Volume	€20,000,000	€0.58
Charge per MW\h		€19.88

Table 5: Total Supplier Charges by Net Demand (Scenario 1)

Supplier	A	B	C	D	E	F	Total
Total Charge by Net Demand	€254,516k	€186,910k	€135,212k	€77,548k	€35,791k	-€3,977k	€686,000k

Table 6: Notional unit charges by non-negative Net Demand (Scenario 1)

Non Negative Net Demand: **34,700,000** **MWh /yr**

		Unit Charge Net Demad /MWH
Total Imperfections Cost	€150,000,000	€4.32
Total Capacity charge	€500,000,000	€14.41
Total MO Charge	€15,000,000	€0.43
Total Currency	€1,000,000	€0.03
Total Res. Volume	€20,000,000	€0.58
Charge per MW\h		€19.77

Table 7: Total Supplier Charges by Non-negative Net Demand (Scenario 1)

Supplier	A	B	C	D	E	F	Total
Total Charge Non-negative Net Demand	€253,049k	€185,833k	€134,432k	€77,101k	€35,585k	€0k	€686,000k

2.2.7 By comparing both the gross demand and net demand charging base scenarios, we can see what impact the inclusion of De Minimis has on the allocation of the total burden of charges by supplier, shown in Table . Minus figures (shown in Red) are notional savings for suppliers. Positive figures (shown in black) reflect additional charges, above the supplier's current payment level.

Table 8: Supplier Charges and impact of De Minimis Generators in Net Demand Approach (Scenario 1)

Supplier	A	B	C	D	E	F	Total
Total Charge by Gross Demand	€252,737k	€180,526k	€144,421k	€72,211k	€36,105k	€0k	€686,000k
Total Charge by Net Demand	€254,516k	€186,910k	€135,212k	€77,548k	€35,791k	-€3,977k	€686,000k
Difference (Gross - Net)	-€1,779k	-€6,384k	€9,209k	-€5,337k	€314k	€3,977k	€0k

2.2.8 In Scenario 1, we can see that suppliers with levels of De Minimis generation above the average level (Suppliers C and E) benefit in the case of net demand, being able to reduce their overall charge exposure. Conversely, Supplier D which has a low proportion of De Minimis generation, has a higher exposure under the net demand scenario, as have Suppliers A and B.

2.2.9 In this simplified example, there is no provision for an under or over-recovery of Supplier Charges as often occurs in reality. In the case of Scenario 1, the unit charges are corrected within year inclusive of the negative charge payments arising from Supplier F. This simplified example does not reflect that the payment out to Supplier F creates a shortfall within year which then needs to be addressed the following year via a k-factor. The reason for the

shortfall is that the payment of Supplier Charges to Supplier Lites, such as Supplier F, is not accounted for in the annual charge-setting process. The allocation of the shortfall this creates is reallocated to the other suppliers in the following year. For simplicity, this process is not reflected in these Scenarios.

2.2.10 To understand what each approach may yield in a future scenario of greater De Minimis penetration, a second scenario (Scenario 2) is considered. This features the same set up, with the exception of doubling the amount of De Minimis generation contracted to each supplier. This can be seen in the following tables.

Table 9: Example Suppliers (Scenario 2)

Supplier	A	B	C	D	E	F	Total
Number of customers supplied	736,842	526,316	421,053	210,526	105,263	-	2,000,000
Gross Demand (MWh/yr)	14,000,000	10,000,000	8,000,000	4,000,000	2,000,000	0	38,000,000
De Minimis Generation (MWh/yr)	2,400,000	1,200,000	2,400,000	200,000	400,000	400,000	7,000,000
Net Demand (MWh/yr)	11,600,000	8,800,000	5,600,000	3,800,000	1,600,000	-400,000	31,000,000
Non-negative Net Demand	11,600,000	8,800,000	5,600,000	3,800,000	1,600,000	0	31,400,000
%age of De Minimis	34.29%	17.14%	34.29%	2.86%	5.71%	5.71%	100.0%
%age Gross	36.84%	26.32%	21.05%	10.53%	5.26%	0.00%	100%
%age De Minimis of Gross	17.14%	12.00%	30.00%	5.00%	20.00%		18.42%

Table 10: Notional unit charges by Gross Demand (with increased De Minimis generation) (Scenario 2)

Gross Demand : **38,000,000** **MWh /yr**

		Unit Charge Gross /MWh
Total Imperfections Cost	€150,000,000	€3.95
Total Capacity charge	€500,000,000	€13.16
Total MO Charge	€15,000,000	€0.39
Total Currency	€1,000,000	€0.03
Total Res. Volume	€20,000,000	€0.53
Charge per MW\h		€18.05

Table 11: Total Supplier Charges by Gross Demand (with increased De Minimis generation) (Scenario 2)

Supplier	A	B	C	D	E	F	Total
Total Charge Gross Demand	€252,737k	€180,526k	€144,421k	€72,211k	€36,105k	€0k	€686,000k

Table 12: Notional unit charges by Net Demand (with increased De Minimis generation) (Scenario 2)

Net Demand:		**31,000,000** MWh /yr
		Unit Charge Net Demad /MWH
Total Imperfections Cost	€150,000,000	€4.84
Total Capacity charge	€500,000,000	€16.13
Total MO Charge	€15,000,000	€0.48
Total Currency	€1,000,000	€0.03
Total Res. Volume	€20,000,000	€0.65
Charge per MW\h		€22.13

Table 13: Supplier Charges by Net Demand (with increased De Minimis generation) (Scenario 2)

Supplier	A	B	C	D	E	F	Total
Total Charge Net Demand	€256,697k	€194,735k	€123,923k	€84,090k	€35,406k	-€8,852k	€686,000k

Table 14: Notional unit charges by Non-negative Net Demand (with increased De Minimis generation) (Scenario 2)

Non Negative Net Demand:		**31,400,000** MWh /yr
		Unit Charge Net Demand\MWh
Total Imperfections Cost	€150,000,000	€4.78
Total Capacity charge	€500,000,000	€15.92
Total MO Charge	€15,000,000	€0.48
Total Currency	€1,000,000	€0.03
Total Res. Volume	€20,000,000	€0.64
Charge per MW\h		€21.85

Table 15: Example Total Supplier Charges by Non-negative Demand (with increased De Minimis generation) (Scenario 2)

Supplier	A	B	C	D	E	F	Total
Total Charge Non-negative Net Demand	€253,427k	€192,255k	€122,344k	€83,019k	€34,955k	€0k	€686,000k

Table 16: Supplier Charges and impact of De Minimis Generators in Net Demand Approach (with increased De Minimis generation) (Scenario 2)

Supplier	A	B	C	D	E	F	Total
Total Charge Gross Demand	€252,737k	€180,526k	€144,421k	€72,211k	€36,105k	€0k	€686,000k
Total Charge Net Demand	€256,697k	€194,735k	€123,923k	€84,090k	€35,406k	-€8,852k	€686,000k
Difference (Gross - Net Demand)	-€3,960k	-€14,209k	€20,498k	-€11,880k	€699k	€8,852k	€0k

2.2.11 We can see in Scenario 2 more clearly the impact of using the different demand approaches, namely that the benefit or loss of using one approach over the other is **more** than double what it was in Scenario 1 for all suppliers. For example, the benefit to Supplier C of using net demand over gross demand is €9,209k in Scenario 1, but has increased to €20,498k in

Scenario 2. This suggests that the impact on the market of the differing approaches will have more significance in the future where we would expect greater De Minimis penetration.

2.2.12 In both scenarios, the level of costs to be recovered across all suppliers is the same irrespective of whether a gross or negative net demand approach is taken. However, in both cases the presence of Supplier F means that under the net approach in both scenarios, customers have to pay an additional amount to fund the negative charge that is paid to Supplier F.

2.2.13 At a macro level, the additional amount that customers have to pay is equal to the total charge applicable to Supplier F under the net demand approach, divided by the total number of customers. In Scenario 1 this would be €1.99/customer per annum on average (€3,977,000 divided by 2 million customers) and in Scenario 2, €4.43/customer per annum on average (€8,852,000 divided by 2 million customers). However, it should be noted that these average figures are purely indicative based on the Scenarios set out here. Different customer categories of different suppliers have differing exposure to these charges, and so different customer-sets contribute differently to resolving the shortfall created – dependent on the level of De Minimis generation contracted by their supplier and dependent on their supplier's pricing strategy.

2.2.14 It is also worth noting that not only does a net demand approach increase some customer bills in Scenario 2, but the relative charges that would have to be passed through to customers shows more variation between suppliers. For example, Supplier D is able to offer customers lower bills when a gross demand approach is used. In Scenario 1 this is approximately €25/customer annually, and in Scenario 2 it is over €56/customer annually. Conversely, Supplier C would have to charge customers more under the gross demand approach because it is no longer receiving the transfer of charging benefit from other suppliers. In Scenario 1, it must add approximately €21 to a customer's annual bill, and in Scenario 2 it must add approximately €49. While these figures are approximations for the purpose of illustrating the impact of the different approaches, they do indicate the scale or magnitude of the issue. This can be seen in Table 17 and 18.

Table 17: Annual Customer Impact of Charges under Scenario 1

Customer impact (Annual)	Number of customers supplied	Total Charge Net Demand	Net (€/cust)	Total Charge Gross Demand	Gross (€/cust)	Difference (€/cust) (Gross-Net)
Supplier A	736,842	€254,516k	€ 345.41	€252,737k	€ 343.00	-2.41
Supplier B	526,316	€186,910k	€ 355.13	€180,526k	€ 343.00	-12.13
Supplier C	421,053	€135,212k	€ 321.13	€144,421k	€ 343.00	21.87
Supplier D	210,526	€77,548k	€ 368.35	€72,211k	€ 343.00	-25.35
Supplier E	105,263	€35,791k	€ 340.02	€36,105k	€ 343.00	2.98
Supplier F	0	-€3,977k	€ -	€0k	€ -	

Table 18: Annual Customer Impact of Charges under Scenario 2

Customer impact (Annual)	Number of customers supplied	Total Charge Net Demand	Net (€/cust)	Total Charge Gross Demand	Gross (€/cust)	Difference (€/cust) (Gross-Net)
Supplier A	736,842	€256,697k	€348.37	€252,737k	€ 343.00	-5.37
Supplier B	526,316	€194,735k	€ 370.00	€180,526k	€ 343.00	-27.00
Supplier C	421,053	€123,923k	€ 294.32	€144,421k	€ 343.00	48.68
Supplier D	210,526	€84,090k	€ 399.43	€72,211k	€ 343.00	-56.43
Supplier E	105,263	€35,406k	€ 336.36	€36,105k	€ 343.00	6.64
Supplier F	0	-€8,852k		€0k	€ -	0.00

Net Demand by Supplier

2.2.15 As illustrated in the Scenarios set out, a net demand approach allows a Supplier Unit to reduce its exposure to charges by contracting with De Minimis generation ahead of any charges being applied. This results in lower charges being applied to the supplier, who in turn is able to compensate the De Minimis generator for the avoided cost that it has enabled.

2.2.16 Based on the Scenarios, the overall impact of pursuing a net demand approach to all Supplier Charges appears to be a cross-subsidising effect between suppliers, whereby those with a low proportion of De Minimis generation subsidise those with a higher proportion. A consequence of this cross-subsidising is that the payment of charges falls to a smaller subset of industry participants, namely those without contracted De Minimis generation. While this effect may be small initially, as De Minimis generation penetration increases the effect is exacerbated.

2.2.17 A further potential issue with a net demand approach would mean that the stated objective of the CRM policy decisions to allocate capacity charges to consumers who give rise to a need for capacity may not be achieved. This is because consumers who give rise to this need may be able to avoid any capacity charge through contracting with a Supplier Unit with a high proportion of De Minimis generation. This could have a secondary adverse impact which is that using net demand as the charging basis leads to a dilution of incentives to manage demand, thereby leading to a greater need for capacity and higher capacity costs overall.

2.2.18 Allowing a payment or crediting of capacity charges to De Minimis generators which do not hold a Reliability Option does not appear to align with the new Capacity Remuneration Mechanism. The Capacity Remuneration Mechanism is a quantity-based mechanism and provides for capacity payments only to generators who are successful in the capacity auction. Only generators which participate successfully in the capacity auction, and therefore have a Reliability Option, can receive capacity payments, and correspondingly have to make difference payments when energy prices exceed the strike price of the Reliability Option. Any approach to Supplier Charges that results in a capacity payment to a party not holding a Reliability Option, is not compatible with these fundamental aspects of the CRM. Because of the role of difference payments as part of the capacity mechanism, and the fact that under a net demand approach De Minimis generators would not be subject

to difference payments, this would lead to a different payment structure for De Minimis generators compared to other generators.

2.2.19 As mentioned previously, the net demand approach can be applied either with or without the inclusion of negative charges. Where a floor of zero is placed on net demand, a Supplier Unit would never be in a position to receive (rather than make) a payment of Supplier Charges. A De Minimis generator would be able to reduce a Supplier Unit's exposure to charges, but once the netting reaches zero there would be no further benefits relating to charging. It is noted that this may raise an issue that charging on the basis of non-negative net demand (i.e. net demand that is not allowed to go negative) may place small suppliers at a disadvantage to their larger competitors.

2.2.20 This said, in assessing the net demand approach options, we can see there are benefits of maintaining a net demand approach according to the I-SEM Assessment Criteria:

- **Practicality/Cost**: The net demand approach has practicality benefits over the gross demand approach. The data flows into SEMO are able to accommodate net consumption data more easily than the gross demand approach, where adaptations are needed. As the existing SEM basis for supplier charging, it has an inherent practicality benefit resulting from a lower level of required change and associated transaction costs for suppliers and De Minimis generators.
- **Environmental**: In light of the correspondence received by the SEM Committee from industry participants, we have been advised that the De Minimis route to market for small renewable suppliers is an important means of increasing the overall penetration of renewables in I-SEM. Insofar as net demand appears to cross-subsidise suppliers with a higher proportion of De Minimis generation, and therefore leads to the De Minimis generators who hold PPAs receiving payments from their associated Supplier Unit, the net demand approach favours De Minimis generators. On this basis, there appears a case that a net demand approach encourages this penetration of renewables.

Gross Demand by Supplier

2.2.21 A gross demand approach requires a Supplier Unit to pay charges on the basis of its total demand before considering the contribution of any contracted De Minimis generation. Charges are based purely on the size of the Supplier Unit's gross demand, irrespective of whether this demand was met through De Minimis generation or market sources. This has a number of potential impacts.

2.2.22 Existing De Minimis generators who may have assumed negative charging benefits may be faced with an unanticipated loss of value, to the extent that they do not receive payments through REFIT. In a situation where a De Minimis generator has a PPA with a Supplier Unit, they may have established revenue streams on the basis of reduced Supplier Charges due to the use of the Net Demand approach. A Supplier Unit who sees this charge reduction (such as Supplier C in the previous worked example) is able to pass a proportion of this additional value to the De Minimis generator. Furthermore, the Supplier Lite commercial arrangements

which have emerged as a result of this may be marginally less attractive if a gross demand approach were to be used.

2.2.23 In assessing the gross demand approach options, we can see there are benefits according to the I-SEM Assessment Criteria:

- **Competition**: the gross demand approach appears to have that those without access to De Minimis generation are not disadvantaged (for example, small suppliers entering the market).
- **Equity**: the gross demand approach has equity benefits over net demand approaches, as there is no transfer from the customers of suppliers with a low proportion of De Minimis generation to customers of suppliers with a high proportion of De Minimis generation (and to the De Minimis generators they are contracted with). This minimises distortions of the charging base and ensures that those suppliers without De Minimis generators to net against their customer demand are not overly burdened.
- **Stability**: the gross demand approach has stability benefits over net demand approaches due to its distribution of charges. The charging base is expanded and will likely be more stable from year to year as it is not affected by the amount of electricity produced by contracted De Minimis generators. This means charges vary with underlying costs rather than the level of De Minimis generation. This is in contrast to the net demand approach, whereas the level of De Minimis generation increases, the €/MWh charge also increases (as demonstrated in the worked example in 2.2.10).This in turn may have knock-on impacts on competition and equity.
- **Transparency**: the gross demand approach aids transparency in that it allocates charges to suppliers based on clearly defined criteria (i.e. their gross customer demand) that is not adjusted for contracted De Minimis generation. The contracting between a supplier and De Minimis generators is a commercially sensitive area without visibility to the wider market.
- **Efficiency:** the gross demand approach reduces the magnitude of Supplier Charges that feed into the end customer bill due to expanding the charging base (as seen in the worked example in 2.2.14). Although the overall cost to consumers arguably may not be impacted by the choice of demand definition if the PPA and retail markets are efficient, such an approach reduces the reliance on efficient allocations as a means to ensure overall efficiency. It does so by avoiding the potential loss of efficiency that occurs in the net demand scenario when a Supplier Unit's charges become negative (as seen in the Scenarios 1 & 2 above). Furthermore, investment in REFIT-supported generation may be more efficient, as projects above and below De Minimis generation levels would be treated in a more comparable manner. Charging based on gross demand could also result in lower k-factors year-to-year as gross demand should be easier for the TSOs to forecast than net demand.

2.2.24 The data the SEMO receives from each Supplier Unit at present only covers net consumption. As a result, the gross demand approach would necessitate changes to the SEMO's data flows and MDP aggregation systems. The current system implementation

means that it would not be possible to use gross demand at I-SEM go-live, and that an interim solution would be needed if gross demand were chosen as the enduring solution.

Conclusions

2.2.25 The focus of this consultation is on the allocation of Supplier Charges across the customers of different suppliers. The goal of the consultation process is to ensure that these charges are collected in as equitable and efficient a way as possible while maintaining consistency with other elements of the I-SEM market design. Taking the currently installed capacity of De Minimis generation and the approximate total per MWh level of Supplier Charges (approximately €17/MWh), the value of the allocation across suppliers is in the region of €50 million[2]. It is important to note that this consultation process does not impact or remove this value from the market as the same level of charges will continue to be recovered. The exception to this is revenue collected by Supplier Lites which goes directly to the generator and creates a shortfall in the total Supplier Charges revenue. This accounts for a relatively small proportion (€2-2.5 million per annum) of the total allocation arising from the netting of De Minimis generation by suppliers.

2.2.26 The SEM Committee invites industry participants to comment on the advantages and disadvantages of the various approaches to demand in the context of supplier charging. We also welcome any information on the specific benefits to suppliers, De Minimis generators and the final consumer of the differing approaches. Analysis and data supporting any rationale submitted is also welcome.

[2] This is based on an assumed load factor of 35% which would be considered optimistic.

2.3 INTERIM SOLUTION

2.3.1 If a net demand approach is chosen, this would continue to utilise existing data feeds and thus could be implemented from the point of I-SEM go-live. In this instance no interim solution is required.

2.3.2 If a gross demand approach is chosen, this would necessitate a level of change. As noted, currently SEMO cannot determine the separate "demand" and "generation" components from the net consumption data it receives, and therefore does not have visibility of suppliers' gross demand. While each supplier does receive information on the components of its own net consumption, this information is received as a series of messages from the Meter Data Providers. Therefore due to these IT limitations it will not be possible to implement gross demand as the charging basis for any Supplier Charges at I-SEM go-live.

2.3.3 If a gross demand approach were to be the preferred option, the RAs are of the view that this should be made clear in the I-SEM Trading and Settlement Code and Capacity Market Code. If this is the decision, the Codes should include legal drafting that would give effect to this approach once IT system updates make it possible.

2.3.4 The legal drafting to give effect to any SEMC decision on Supplier Charges is set out in Appendix A.

2.3.5 The following sections look at potential interim options for the different charges in this scenario.

Capacity Charge

2.3.6 The SEM Committee notes the concern that charging on the basis of non-negative net demand (i.e. net demand that is not allowed to go negative) may place small suppliers at a disadvantage to their larger competitors and agree that this may represent discrimination between suppliers. The SEMC welcomes views from respondents on whether those small suppliers are acting in a way that benefits consumers as a whole, and whether it is fair to discriminate against suppliers that do not have sufficient contracted customer demand to match the output from their contracted De Minimis generation in a given trading period.

2.3.7 The SEMC recognises that new entrant suppliers promote competition to the benefit of consumers and may contract De Minimis generation in order to grow their customer base. Such an activity has a direct benefit to consumers and therefore suggests that applying a Capacity Charge on the basis of total net demand without any restriction on negative charging is of benefit. However, Supplier Units that are set up purely for the benefit of those that own and finance De Minimis generation do not benefit consumers as a whole to the same extent. Whilst licensed as a supplier, these parties are similar to generators meaning any assessment of discrimination should also consider whether the arrangements act to

discriminate against above De Minimis generators that are mandated to participate in the wholesale market. Under the existing settlement rules, there is no transparent mechanism to differentiate between a holder of a supply licence used solely to access the market for De Minimis generation ('Supplier Lite') and a holder of a supply licence that serves end-use customers.

2.3.8 If an interim solution is required for Capacity Charges, the SEMC welcomes respondents' views on which approach should be followed.

Market Operator Charge

2.3.9 In assessing the Market Operator Charge, the SEMC considers that any participant who is not carrying out a Market Operator function should never be in receipt of Market Operator payments. Therefore Market Operator charges should not be applied to demand that was allowed to go negative.

2.3.10 If an interim solution is required, the SEMC is minded to follow an interim non-negative net demand approach for Market Operator Charges where these charges are precluded from going negative. The SEMC welcomes respondents' views on this.

Imperfections Charge and other Supplier Charges

2.3.11 If an interim solution is required for Imperfections Charges, the SEMC welcomes respondents' views on which approach should be followed, bearing in mind the above points.

2.3.12 The other Supplier Charges to be considered here are the Currency Adjustment Charge, the Residual Error Volume Charge and the Difference Payment Socialisation Charge. For simplicity, the SEMC is minded to allow any interim decisions relating to Imperfections Charges to define an approach for these other charges also.

2.4 SUMMARY OF QUESTIONS

The SEM Committee welcomes views on all aspects of this paper, including answers to the following specific questions:

A) Do you have any comments on the overall scope of supplier charging and demand interpretation described in this paper?

B) Do you believe that the range of demand interpretations offered is comprehensive? If not, what additional interpretations do you believe should be considered?

C) Do you have any comments on the impacts that the approaches described in this consultation would have on market participants? Could you provide specific information on said impacts where available?

D) What demand approaches could be adopted for the different Supplier Charges? Could you provide specific detail supporting your view, and specific data where it is available?

E) In the event of a gross demand approach being chosen, an interim solution would be required. What interim solutions should be adopted for the different Supplier Charges until the gross demand approach is implemented? (Please note no interim solution would be required for net demand and non-negative net demand).

F) In the event of an interim solution, are there any specific transition arrangements that should be considered and, if so, why?

3. NEXT STEPS

3.1.1 Interested parties are invited to respond to the consultation, presenting views on the options set out in this paper along with any evidence they feel would support any arguments made.

3.1.2 Responses to this consultation paper should be sent to Kenny Dane (Kenny.Dane@uregni.gov.uk) and Kevin Hagan (khagan@cer.ie) by 17:00 on 14th November 2016.

3.1.3 Please note that we intend to publish all responses unless marked confidential. While respondents may wish to identify some aspects of their responses as confidential, we request that non-confidential versions are also provided, or that the confidential information is provided in a separate annex. Please note that both Regulatory Authorities are subject to Freedom of Information legislation.

3.1.4 The consultation on the final text of the Trading and Settlement Code will overlap with this consultation on Supplier Charges. Therefore, the Trading and Settlement Code consultation will include blank placeholders in the sections for the text outlining the treatment of Supplier Charges, as this text will be decided though this Supplier Charges consultation.

3.1.5 The accompanying paper from the TSOs outlines the text which will be incorporated into the final Trading and Settlement Code for the implementation of any of the enduring and interim supplier charging approaches being considered in this consultation.

APPENDIX A T&SC SECTION G – DRAFT WORDING

See accompanying paper from the TSOs.