Integrated Single Electricity Market
(I-SEM)

Energy Trading Arrangements
Basis for Supplier Charging

16th February 2017

Decision Paper
SEM-16-010

CONTENTS

1. EXECUTIVE SUMMARY

On 3 October 2016, the SEM Committee (SEMC) published a consultation on the appropriate basis for the recovery of supplier charges under the new market arrangements introduced by the I-SEM implementation project. Supplier charges are levied on suppliers in order to recover certain costs such as capacity costs, imperfections costs and Market Operator costs. In that consultation paper, the SEMC considered three approaches to the recovery of these fixed, shared costs – Net Demand (which is the business as usual approach, although no SEMC policy decision was ever explicitly made to introduce it; rather this decision was made as part of the retail market systems, without an impact assessment on the wholesale market); Non-Negative Net Demand (an amendment to the existing approach); and, Gross Demand. Whereas the first two approaches allow a supplier to net off their contracted de minimis generation from their customer demand for the purpose of calculating their supplier charges, the third approach would levy the charges on a supplier's total demand, separate to their net energy position. A detailed summary of the consultation paper is included in Section 2.

In response to the consultation, the Regulatory Authorities (the Commission for Energy Regulation and the Northern Irish Authority for Utility Regulation – 'RAs') received in excess of 360 responses. The vast majority of responses were strongly opposed to the implementation of the Gross Demand approach; two responses supported the implementation of Gross Demand; and three responses supported the implementation of Non-Negative Net Demand. While a wide array of issues were raised in the responses to the consultation, the primary recurring issue related to the financial impact that such a change to supplier charging would have on the revenue received by de minimis generators contracted to suppliers through Power Purchase Agreements (PPAs), the role of which is to facilitate Renewable Energy Feed In Tariff (REFIT) payments (in Ireland), and outside of such arrangements under the Renewables Obligation regime in Northern Ireland. In addition to this financial impact, other issues of concern included, inter alia: the compatibility of the different approaches to supplier charging with the design of the I-SEM Capacity Remuneration Mechanism (CRM); the question of recognising the capacity contribution of de minimis generators and the associated issue of the possible barriers to participation of smaller generators in the new market arrangements, in particular the CRM; the overall cost to the consumer of the different approaches; incentives for efficient investment; and the impact that such a decision would have on the ability to meet EU renewable energy targets.

Having evaluated all the responses to this consultation, in the context of its statutory obligation to protect the interest of consumers, while having regard to its other duties such as to protect the environment, the SEMC is not convinced by the stated arguments in favour of either of the net demand approaches as the basis of supplier charges for the costs of capacity, imperfections, Market Operator, Difference Payment Socialisation, Currency Adjustment and Residual Error Volume charges.

Furthermore, the SEMC considers that the arguments in favour of the Gross Demand approach are stronger than the arguments opposing this approach.

Notwithstanding this, the SEMC recognises that, due to system limitations of the Meter Data Providers (MDPs), the only available approach to the levying of supplier charges to be ready by the planned I-SEM Go-Live date is to charge suppliers for capacity, imperfections, Market Operator, Difference Payment Socialisation, Currency Adjustment and Residual Error Volume costs based on their net demand. For this reason the SEMC will instruct both the Single Electricity Market Operator (SEMO) and the MDPs to implement, as an interim solution, the necessary systems to allow the Net Demand approach to be available for I-SEM Go-Live. Also for this reason, the Trading and Settlement Code will incorporate the necessary articles to implement the Net Demand approach for supplier charges, again on an interim basis.

The SEMC has noted the responses from market participants regarding the transaction costs associated with participating in the energy and capacity markets, particularly for generators below the de minimis threshold of 10 MW. Based on the issues raised, the SEMC will examine market information, including the level of participation of different types of generation in the T-1 and T-4 CRM auctions, to include a review of costs for generators below the de minimis threshold. Any resultant recommendations will however need to be consistent with the I-SEM CRM and compliant with State Aid requirements.

As outlined above, the Net Demand approach is to be implemented as an interim solution, due to system limitations. The SEMC considers that the arguments in favour of the Gross Demand approach have considerable merit and on this basis, is minded to transition to a Gross Demand approach as the enduring approach to the levying of supplier charges. Pending a final decision on the enduring approach, the SEMC is requesting SEMO and the MDPs to ensure that their systems also have the capability to provide for a transition to a Gross Demand approach for supplier charges. The SEMC will determine the enduring approach to the basis for supplier charges at a later date, and will also set out the conditions under which a transition, which would occur no earlier than January 2020, could take place. In making this decision, the SEMC will be mindful of the planned changes to the EU Renewables Directive and the EU Regulation and Directive on the internal market for electricity related to the requirement for all generators to be balance responsible, and the role of aggregation of generation, as outlined in the directive. The SEMC will also be mindful of any conditions from DG Competition arising out of the conclusion of the State Aid notification process.

A key issue in the SEMC's consideration of the appropriate approach to supplier charging is that the Gross Demand approach is the only option that aligns with the design of the CRM being introduced as part of the I-SEM implementation project. The design of this CRM is intended to ensure a balance between those who ultimately pay capacity charges (i.e. customers) and those who receive them (i.e. generators) through the Reliability Option mechanism. This said, the SEMC sees merit with the point

made by many respondents that de minimis generation provides a capacity benefit to the system which currently reduces the TSOs' capacity requirement. The SEMC notes the view that a move to the Gross Demand approach in the absence of any other measure might inappropriately under-value any capacity contribution, while recognising that the de minimis generator, or a supplier contracting with it, does receive the full benefit of the avoided scarcity price during the periods when the Reliability Option is called.

In addition to this, the SEMC recognises the challenges posed to smaller stakeholders by the introduction of the new market arrangements compared with the current SEM. This said, the opportunities for efficient and effective participation in the market should not be understated. The SEMC has implemented a number of measures to reduce the burden on participants of interacting with the new market, providing for an Agent of Last Resort designed to the requests of industry and for capacity aggregation in the Capacity Market Code, and is examining the current detailed market rules to ascertain that there are no obstacles to aggregation by commercial aggregators in the ex-ante markets. These approaches should facilitate the participation of de minimis generation in the market, should they choose to participate.

As was noted in the consultation paper, the practice of allowing net demand go negative for the purpose of allocating supplier charges was not a policy decision made by the SEMC, but was a change made in the context of the central retail market systems, without consideration of the impact on the wholesale market. The change to the retail market in 2010 that allowed negative supplier charges (i.e. payments) to arise where a supplier's contracted de minimis generation was greater than the supplier's demand was not explicitly intended to provide a credit for supplier charges, but was implemented to allow energy charges (but not other charges that a supplier was required to pay) to go negative. The current situation in respect of supplier charges therefore exists within an absence of a specific regulatory policy. While the market in general benefits from regulatory certainty, the SEMC recognises the importance of updating policies to ensure the market arrangements are economically rational and provide the right incentives and long term price signals for efficient investment and consumption and are in the all-island consumers' interest.

2. BACKGROUND

On 3 October 2016 the SEM Committee (SEMC) published SEM-16-060, a consultation on the Basis for Supplier Charging. In this document, interested parties were asked to submit their views on the most appropriate basis on which various charges should be levied on suppliers in I-SEM. These charges include:

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

The de minimis generation threshold, i.e. the threshold for mandatory participation in I-SEM, is being maintained at a Maximum Export Capacity (MEC) of 10MW (the current de minimis threshold in SEM). Any generators with an MEC below this de minimis threshold may find a route to market through a negotiated PPA with a supplier rather than participating in the wholesale market directly. There is currently 927MW of de minimis generation installed in Ireland and Northern Ireland.

In order to accommodate a Supplier Unit's registered de minimis generation in the SEM, a decision was taken by the IGG (Industry Governance Group) of the retail market in 2010[1], to allow the value of a Supplier Unit's demand to go negative[2]. While the intention of this decision was to allow a Supplier Unit to receive the System Marginal Price (SMP) for their energy generation in periods when its registered de minimis generation exceeds its demand, a further consequence was that a Supplier Unit thenceforth receives payments arising from for all other charges against any negative demand.

The current consultation paper noted that paragraph 6.151 of the existing Trading & Settlement Code places a floor of zero on Variable Market Operator charges, which prevent the payment of negative Market Operator charges to suppliers with negative demand. However, when negative demand was permitted in 2010, no corresponding system changes to implement this floor were developed and thus suppliers with negative demand have been receiving payments of negative Market Operator charges since 2010.

All other charges are also currently applied on negative demand, which results in further explicit payments to any supplier with negative demand. This was not the intention of any explicit policy

[1] IGG Design Discussion Request DR0177

[2] 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 SEM Trading and Settlement Code is that demand is negative and generation is positive.

decision by the SEMC that there was an economic rationale for Supplier Units to receive these payments.

An arrangement which has emerged since the 2010 retail market decision is the so-called 'Supplier Lite' model. Under this arrangement, a de minimis generator enters into a PPA with a supplier which serves no customers and which has been established by the de minimis generator solely for the purpose of being the counter-party to the PPA. The supplier then receives energy payments, and also additional payments for other charges applied to its negative demand. The 'Supplier Lite' model is commonly used by participants in the REFIT support scheme in Ireland in order to avoid the need to negotiate a PPA with existing suppliers.

The current consultation paper (SEM-16-060) set out three potential interpretations of demand on which charges levied on suppliers could be based in I-SEM:

- **Net Demand by Supplier:** The net demand of a Supplier Unit is its consumption minus its registered de minimis generation. A Supplier Unit's net demand is allowed to go negative for the purposes of allocation of charges if its registered de minimis generation is greater than its consumption. This would be a continuation of the current treatment, and inconsistent with the Trading and Settlement Code;
- **Non-Negative Net Demand by Supplier:** The non-negative net demand of a Supplier Unit is its consumption minus its registered de minimis generation, with the important condition that the net demand value is floored at zero and precluded from going negative for the purpose of allocation of supplier charges; and
- **Gross Demand by Supplier:** The gross demand of a Supplier Unit is its consumption with no adjustment made for its registered de minimis generation. Therefore under this treatment, suppliers are allocated charges based on their consumption before their registered de minimis generation is netted off. To implement this, a number of system developments would be required by the MDPs and by SEMO; such changes are not achievable for I-SEM Go-Live.

A worked example was provided in the consultation paper to demonstrate the differences between these approaches. It showed that the Net Demand approach allows a supplier to reduce its exposure to charges by contracting with de minimis generation ahead of any charges being applied. This results in lower charges being allocated to the supplier, which in turn is able to compensate the de minimis generator for the avoided supplier charges (although the extent of this compensation is a private matter between the PPA counter-parties). It was also noted that the overall impact of allocating supplier charges based on net demand is a transfer between suppliers, whereby those with a low proportion of de minimis generation pay a higher share of the charges than those with a higher proportion of de minimis generation. Moreover the payment of charges falls on a smaller charging base, namely demand net of de minimis generation rather than just demand. While this effect may be small initially, as the level of de minimis generation increases the effect will be exacerbated.

The consultation paper stated that allowing a payment or crediting of capacity charges to de minimis generators which do not hold a Reliability Option does not align with the design of the I-SEM CRM. The CRM is a quantity-based mechanism and provides for Reliability Option fees only to generators which are successful in the Capacity Auction. These generators then have an obligation to make difference payments when energy prices exceed the strike price of the Reliability Option. Any approach to supplier charging that results in a capacity payment to a party not holding a Reliability Option was classed in the consultation paper as not being compatible with these fundamental aspects of the CRM.

The consultation paper outlined that the Net Demand approach fares well according to the I-SEM Assessment Criteria of Practicality/Cost, and Environmental, while the Gross Demand approach fares well according to the I-SEM Assessment Criteria of Competition, Equity, Stability, Transparency and Efficiency.

Finally, the consultation paper noted that the Gross Demand approach would require a level of change to existing data flow and analysis processes between the MDPs and SEMO, and that it is not possible for all the required changes to be implemented in time for I-SEM Go-Live. Furthermore the MDPs have not provided any cost estimates associated with implementing these changes. Therefore if Gross Demand were to be chosen as the enduring solution, it would be necessary to define interim arrangements to be adopted until such time as the Gross Demand approach was implemented.

The SEMC invited stakeholders to comment on their perceived advantages and disadvantages to the three approaches to demand in the context of supplier charging, and welcomed the submission of any information on the specific benefits to suppliers, de minimis generators and the final consumer of the different approaches.

The SEMC also invited stakeholders to submit 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. SUMMARY OF RESPONSES

The RAs have received in excess of 360 responses to the consultation paper on supplier charging. The SEMC has reviewed all responses in detail and has identified the key issues as outlined in Section 4.

4. COMMENTS RECEIVED

4.1 Compatibility with the Capacity Remuneration Mechanism (CRM)

Respondents in favour of the Gross Demand approach stated that this approach is the only solution to supplier charging which fully realises the intention of the I-SEM CRM decision that only those generators which have won a Reliability Option via the Capacity Auctions, and which have a corresponding obligation to cover difference payments during scarcity events, should receive capacity payments. They considered that continuing with the Net Demand approach in I-SEM would totally undermine the design of the CRM, which is intended to ensure a balance between those who pay capacity charges (i.e. customers) and those who receive them (i.e. generators) through the Reliability Option mechanism. If the Net Demand approach was to be continued in I-SEM, then suppliers would effectively be paying for a capacity contribution without any obligation on de minimis generators to pay back monies received when the RO strike price is exceeded and without any penalty on de minimis generators for non-delivery (a problem that will only worsen as the penetration of renewable de minimis generation increases). These respondents argued that this will exacerbate the risk of a 'hole in the hedge' for suppliers and lead to further costs for customers.

However, some respondents in favour of the Gross Demand approach stated that while it is correct that capacity charges will be in place to recover the cost of the Reliability Option scheme, it does not necessarily follow that out-of-market generation should not be able to access any payments for capacity. They pointed out that the recent Consultation Paper on the I-SEM Capacity Requirement suggests that approximately 250MW of de-rated capacity will be subtracted from the Capacity Requirement to account for out-of-market generation. This 250MW is capacity that the TSOs will not purchase on the basis that it will be provided by out-of-market generators. They feel there is a strong argument that out-of-market generators should be remunerated for this capacity contribution.

Respondents in favour of the Gross Demand approach also argued that, unlike when the SEM was established, there are now a number of competing commercial trading options available to allow fair and timely access to market for wind generators of all sizes. They stated that it is important that small generators have a route to market before any changes are made to the basis for supplier charging. They argued that the I-SEM design contains this route to market; both the Energy Trading Arrangements and the CRM will cater for aggregation.

Respondents in favour of the Non-Negative Net Demand approach were of the view that allowing entities outside the competitive CRM auction process to receive capacity payments (as negative charges) would result in inequitable treatment for successful pre-qualified competitors for capacity

contracts, and would result in increases in capacity charges for no comparable improvement in the reliability guarantee for those paying for the financial call options. They stated that this would be a distortion of the mechanism.

Respondents in opposition to the Gross Demand approach again pointed out that the detailed design for the CRM Capacity Requirement and De-rating Factors (SEM-16-051) sets out that the capacity contribution from de minimis generators will be taken into account when deciding on overall levels of capacity to procure for the system (Appendix A, Section 3.4), but noted that neither that document nor this current consultation contain proposals to ensure that the capacity contribution from de minimis generators is fairly rewarded. These respondents stated that a change from the current Net Demand approach, without any commensurate arrangements in the CRM, would lead to a sudden drop in revenue to de minimis generators and that, in the event this occurs, specific transition arrangements should be introduced to cushion this financial impact in order to avoid financial distress and potential business failure amongst de minimis generators.

Some respondents in opposition to the Gross Demand approach stated that if it were implemented then the only practical route that de minimis generators would be left with to be rewarded for their capacity would appear to be through their PPAs with suppliers. Indeed one such respondent was of the view that the RAs may expect suppliers to adjust PPA pricing to reward de minimis generators for their contribution to the supplier's net position or energy imbalance at times of system stress and high prices. They believed that this position is flawed for two reasons:

1. It assumes that the market can accurately price the risk of system stress and appropriately reward de minimis generators. Unfortunately markets do not always accurately price risk, particularly of extreme events, and there is no information on I-SEM volatility available at this point to make this assessment; and
2. Even assuming that the risk of system stress could be priced by the market, the number of suppliers in this market versus the number of de minimis generators may not ensure that there is sufficient competition for PPAs to fairly apportion the benefits.

This respondent also believed that the incentive on consumers to manage demand during times of system stress occurs from high prices (or the administered scarcity price) during these times, not from the overall level of capacity charges throughout the year, and were of the view that a change in treatment of de minimis generators will not have any appreciable impact on the peak pricing signal and associated incentive to manage demand.

Respondents in opposition to the Gross Demand approach noted that the design of the new CRM requires generators to register in the energy market to successfully compete in the auction for Reliability Options. They stated that this places significant financial and administrative burden on small-scale generators who do not benefit from the economies of scale of larger generators.

Respondents in opposition to the Gross Demand approach also noted that the SEMC highlighted in the consultation paper a concern that the retention of Net Demand creates a different treatment of de minimis non-participating generation when compared to participating generation. They argued that the concept of de minimis is in place to facilitate small scale out-of-market activity as the SEMC has previously recognised that the burden of participation is too large for individuals, and that it is impractical and inequitable to require everyone to enter the market. They are of the view that a line of demarcation is required and while the treatment of those on either side of such a line will be different this is not inconsistent; rather it is the only equitable solution.

Some respondents in opposition to the Gross Demand approach noted that the CRM is currently the subject of pre-notification discussions with DG Competition, and will need to receive State Aid approval from the European Commission, and are of the view that there are a number of aspects of the State Aid Guidelines which are not addressed by the CRM proposals.

They believe that the current design of the CRM does not adequately address the need to phase out environmentally or economically harmful subsidies. They believe that the CRM does not allow de minimis generation to participate and that therefore the capacity contribution of these units goes unrecognised. They thus believe that investment decision in small scale renewable generation are being undermined and pointed out that Article 233 of the State Aid Guidelines outlines that a generation adequacy measure should not undermine investment decisions on generation and should give preference to low-carbon generators in case of equivalent technical and economic parameters.

4.2 Cost to the Consumer

Respondents in opposition to the Gross Demand approach stated that the current de minimis arrangements have supported an increase in renewable generation connections, thus increasing capacity on the network and lowering the need for new capacity, thus benefitting the consumer.

Respondents in opposition to the Gross Demand approach, in response to the suggestion in the consultation paper that suppliers with PPAs with de minimis generation pay a lower share of overall costs, stated that the retail markets in Ireland and Northern Ireland are open and competitive. They argued that suppliers compete for contracts with de minimis generation which offer a discount to wholesale market generation and that this is in turn reflected in retail tariffs. They argued that this is the normal operation of a competitive market and that suppliers should compete for customers and generation. In response to the RA statement that *"net demand options may not meet clearly defined criteria, such as to protect the interests of consumers and promoting competition"* these respondents

argued that the net demand approaches in fact actively promote retail competition to the benefit of consumers.

These respondents stated that, in many cases, a de minimis generator will negotiate to share a portion of the so-called 'embedded benefits' via the commercial terms of its PPA with a supplier. It was stated that in the vast majority of such agreements only a small portion of such benefits accrue to the generator through the PPA (typically 30% or less) and that the supplier in question can therefore utilise the offset charges to increase value to the end consumers by virtue of reduced retail tariffs. The argument is that the concept of supplier charges costing consumers is therefore a misconception, and rather the removal of 'embedded benefits' would actually result in an increased cost to consumers as a result of suppliers losing a significant portion of revenue which has for many years become a "business as usual" line item in any supplier's P&L.

With respect to equitable cost allocation, respondents in favour of the Gross Demand approach stated that all suppliers equally benefit from the security and services which market charges fund and therefore the charges should be shared equitably between suppliers. They are of the view that the Gross Demand approach ensures that market charges are levied equitably across all demand.

Respondents in favour of the Non-Negative Net Demand approach stated that the 'Supplier Lite' arrangement is not an efficient allocative mechanism. While the consultation paper noted that it may have facilitated investment in de minimis renewables, they argued that the additional revenues derive not from real services offered to the system but from market design artefacts, and that on the other side of the transaction are service consumers who are paying more for the same level of services, or in the case of the I-SEM, even a deteriorated level of services, particularly in relation to the CRM.

4.3 Impact on De Minimis Generators

Respondents opposing the Gross Demand approach criticised a lack of consideration of the impact of this approach on de minimis generators in the consultation paper.

4.4 Incentives for Efficient Investment

Respondents in favour of the Gross Demand approach stated that it will drive efficient investment because under this approach the choice of generation investment will be influenced by the lowest cost

per MW rather than charging considerations, i.e. any distinction in charging rules between generators above and below the de minimis threshold.

Respondents in favour of the Gross Demand approach also stated that it would remove the arbitrary distinction between generation below 10MW and generation above 10MW, with respect to revenues from capacity markets and other sources. They argued that all generators should compete on a level playing field and that the market rules should not create distortions whereby certain generation becomes more attractive than it would otherwise be by virtue of a charging feature. They argued that Gross Demand charging promotes competition through a level playing field by treating all generators the same, with regard to market revenues.

Respondents in opposition to the Gross Demand approach stated that it would be discriminatory towards smaller scale generators as they would not have appropriate access to the new I-SEM and would not receive remuneration for all the benefits they bring to the system and market. They argued that the different resources available to different sizes of participant can have a bearing on treatment in the market and, as such, it can be entirely appropriate to have different treatments for de minimis and larger generators, contrary to the assertion of paragraph 2.2.18 of the consultation.

Respondents in opposition to the Gross Demand approach also stated that it would be discriminatory towards de minimis generators in Northern Ireland. In Northern Ireland approximately 18,000 domestic customers have installed solar PV panels. They noted that there is no equivalent micro generation customer base in Ireland and that the export payment made to micro generation customers in Northern Ireland is subject to a regulatory reviewed formula which includes capacity. They stated that a move away from the Net Demand approach would instantly reduce export income by circa 20% for these micro generators. Respondents in opposition to the Gross Demand approach also noted that the vast majority of PPA investors in Ireland can rely on REFIT payments to keep their generation income whole and that the equivalent investor in Northern Ireland has a different renewable support mechanism which will not pick up the shortfall. In their view this means that any move away from Net Demand has a worse adverse financial impact on these small scale investors in Northern Ireland.

Respondents in favour of the Net Demand approach stated that the 'Supplier Lite' arrangement is an important route to market for small and medium scale generators, plays an important role in encouraging competition in the PPA market, and has helped to facilitate the dual goals of generation entry and development of renewables. Given the RAs stated position in relation to current policies, they can see no reason why the existing policy would not transfer to I-SEM.

4.5 Promotion of Competition

Respondents in opposition to the Non-Negative Net Demand approach stated that it is discriminatory towards small suppliers with net negative demand. They argued that, were a situation to arise whereby the green electricity procured by a small supplier from a generator was to be valued less than the same electricity procured by a large supplier, this would have a drastic impact on competition in the market place and only serve to increase the market share of existing players whilst locking out new entry. In such circumstances, new bespoke supply companies will be unable to compete for small infrastructure projects, and will be unable therefore to grow their supply customer base.

Respondents in opposition to the Gross Demand approach stated PPAs between de minimis generators and suppliers, and the competition among suppliers to enter into same, actively promote retail competition. They argued that the Gross Demand approach would remove the competitive dynamic from the so-called PPA market and thus adversely impact retail competition.

4.6 Conflict with Government Policy

Respondents in opposition to the Gross Demand approach argued that it would be in conflict with Government policy. The Irish Government has committed to 16% of the country's energy to come from renewables in 2020. As part of this target, Ireland has a sectoral target of 40% electricity from renewables.

These respondents stated that de minimis wind generation makes up 484MW (19%) of the current installed wind capacity in Ireland and is expected to contribute approximately 1% of the overall energy target. This figure does not take into account other de minimis technologies which are also contributing to the renewable targets. They argued that if the viability of these projects is called into question and they do not survive in I-SEM then they will no longer be able to contribute to the targets. Therefore an increased amount of additional supported renewable generation would be needed to meet the 2020 targets. Any shortfall to the targets would come at a cost to the Exchequer. Some of the respondents understand that EU fines have been estimated as €100-150 million per percentage point shortfall. Many respondents argued that introducing this level of instability and regulatory uncertainty to investors in renewables undermines both SEM and Irish Government policies, which is a breach of regulatory duties.

Respondents also noted that, in December 2015, the Department of Communications, Energy and Natural Resources published the Energy White Paper entitled "Ireland's Transition to a Low Carbon Energy Future 2015 – 2030". This paper outlines a greater need for community involvement in energy

projects and the need to ensure that these projects are facilitated. Respondents argued that de minimis generators help to promote community renewable energy developments and that, therefore, any changes to the supplier charging approach would act as a barrier to community development and hence contradict Government policy.

Respondents also pointed out that the Oireachtas has added to the duties of the CER through the adoption of the Energy Bill 2016. These additional duties include:

> "(o) to have regard to the benefits of developing demand-side participation in electricity markets, including through energy efficiency, demand-response, distributed generation, energy storage and the use of digital technologies"; and
> "(p) to have regard to the facilitation of consumers to provide, consume and trade electricity that they have generated".

Respondents argued that, despite the fact that Irish Government and EU policy encourages the deployment of small and medium scale renewable generation embedded into the distribution system, so-called "de minimis benefits" are the only recognition of the added value of embedded generation to the electricity system within network and market policies.

Respondents in opposition to the Gross Demand approach stated that de minimis embedded generators have been actively promoted in Northern Ireland under the Northern Ireland Renewable Obligation (NIRO). This includes 18,000 rooftop solar generators, small scale wind turbines, biomass, anaerobic digestion, and other technologies. They stated that the investments made rely on the so-called "de minimis benefits" in addition to the reducing levels of Renewable Obligation Certificates (ROCs) in each case, and that therefore the removal of these benefits, which on average account for circa 10% of annual revenues, will undermine investments, and will also further undermine, post ROCs, any potential for further investment in small scale generators and community projects.

4.7 Stability of Charging

Respondents in favour of the Gross Demand approach are of the view that it should ensure the most stable charging regime into the future. They argued that stability of charging would help to provide confidence to suppliers in setting tariffs and thus promote competition in the market to the benefit of consumers. They further argued that the Gross Demand approach should also ensure that supplier charges per MWh are minimised as they are distributed across more demand.

Respondents in favour of the Non-Negative Net Demand approach stated that de minimis generation penetration is expected to increase significantly in the future and this, combined with the Net Demand approach and the uptake of the 'Supplier Lite' structure, would exacerbate the distributional impacts on suppliers already evident today.

4.8 Demand for PPAs

Respondents in favour of the Gross Demand approach argued that robust demand will continue in the market for PPAs with de minimis generation, as they are an extremely attractive way for suppliers to offset their energy trading requirements. They are of the view, therefore, that moving to the Gross Demand approach should not exclude or act as a barrier for de minimis generators.

Respondents in opposition to the Gross Demand approach stated that PPAs would need to be reviewed and re-negotiated and in certain circumstances, may be terminated, in the event of this approach being implemented. This would lead to significant time, cost and uncertainty for de minimis generators and for PPA counterparties. They argued that if a supplier receives no "de minimis benefits" for capacity then they cannot be shared between supplier and developer and, while it is difficult to determine the exact impact of this as it depends on commercially confidential terms of PPAs, some of the direct impacts of this can be summarised as follows:

- It directly impacts ROCs, merchant value, and value to be shared with utility PPA counterparties;
- It has implications for REFIT cash flow management; and
- It increases market collateral costs and working capital costs.

These respondents were of the view that competition in the PPA market would therefore be significantly reduced as suppliers would no longer be incentivised to contract with de minimis generation to offset market charges. Furthermore, they were of the view that any changes would affect the re-negotiation of PPAs when the current agreements expire, and this reduction in competition would ultimately be borne by customers.

The respondents in opposition to the Gross Demand approach further argued that de minimis PPAs are of greater value to suppliers as a result of the current Net Demand approach and this strengthens the negotiating position of small-scale generators when entering into PPAs with suppliers and has thus improved competition for PPAs. They stated that removing the so-called "de minimis benefits" would significantly decrease competition for de minimis contracts in the PPA market and would place

considerable risks on the route to market for small scale generators who would then be perceived as burdensome to many suppliers.

4.9 Payments to Out-of-market Units

Respondents in favour of the Gross Demand approach argued that many of the supplier charges recover specific costs arising in the market (e.g. Market Operator charge, Currency Adjustment charge, Imperfections charge, Difference Payment Socialisation charge and Residual Error Volume charge) and that there does not seem to be any case for out-of-market generators to access these charges as a payment. They considered that this is most especially true for Market Operator charges.

Respondents in favour of the Non-Negative Net Demand approach argued that the 'Supplier Lite' arrangement is not an efficient allocative mechanism. While the consultation paper noted that it may have facilitated investment in de minimis renewables, they argued that the additional revenues derive not from real services offered to the system but from market design artefacts, and that on the other side of the transaction are service consumers who are paying more for the same level of services, or in the case of the I-SEM, even a deteriorated level of services, particularly in relation to the CRM.

Respondents in favour of the Non-Negative Net Demand approach argued that this approach ensures that where a supplier is in receipt of so-called "de minimis benefits" (i.e. the netting of supplier charges), that they facilitate the realisation of the system and wider benefits through a genuine netting arrangement of their customers' demand. They argued that the only reason for holding a supply licence is to supply end-customers, and where it is used for other purposes, for example the 'Supplier Lite' arrangement, it clearly wasn't designed for those purposes. They further argued that 'Supplier Lites' are not active suppliers competing in the retail market for end customers and should not be considered as the same type of participant as traditional retail suppliers.

Respondents in favour of the Non-Negative Net Demand approach went on to argue that a supplier who has gone negative is long on generation and is not in balance. Balance responsibility is a founding principle of the I-SEM design and these respondents stated if a supplier's demand is negative then it should not be rewarded but rather should take steps to either reduce its contracted de minimis generation or increase its customer demand.

Respondents in favour of the Non-Negative Net Demand approach further argued that, under the I-SEM, there is a move away from socialised fund structures (CPM pot, DBC pot) to mechanisms with explicitly assigned rights and obligations. They were of the view that only 'rights holders' under each mechanism can rightfully command any associated payments and argued that only the Non-Negative

Net Demand approach will maintain the integrity of the payment/charge underpinnings of the new market structures in the I-SEM while not eroding the key basis for which the treatment of de minimis generation was introduced in the SEM, specifically the shield from wholesale electricity market charges. They argued that the Net Demand approach would both undermine the integrity of the new market structures and, as currently obtains, extend de minimis generation benefits beyond charge-shielding to fabricating (negative charge) payments for services not rendered.

Respondents in favour of the Net Demand approach stated that it reflects the physical reality of local embedded generation meeting local demand and reducing larger scale generation requirements. They argued that de minimis generators are typically located near to customers meaning they strengthen the distribution network and reduce the need for large-scale generation. They also argued that de minimis generation reduces the amount of demand to be served by the market and that this, in turn, reduces the volume of constraint actions taken by the TSO, and that this value should be reflected through imperfections payments made to de minimis generation. They also argued that de minimis generation also provides value for Market Operator, Currency and Difference Payment Socialisation charges by reducing demand on the system, and that de minimis generators should be remunerated for this value.

4.10 Flaws in the Regulatory Process

Respondents in opposition to the Gross Demand approach considered that the initial project team decision to levy the capacity charge on the basis of gross demand rather than net demand was not properly consulted on. Indeed they were of the view that if existing policy was to be changed then any change should have been properly consulted on at design stage, rather than being introduced through the I-SEM Market Rules Working Group (MRWG). They also had concerns in relation to the manner in which the Escalation Process of the MRWG itself was managed.

They argued that to make such a fundamental change to the I-SEM high level design at this point and in this unsubstantiated way without detailed impact assessment, is contrary to the I-SEM governance policies and procedures in place. In addition they argued that the RAs are trying to push through fundamental I-SEM market design changes “by the back door” and that this is poor regulatory practice and will inevitably lead to further escalations and delays; exacerbating the overall I-SEM timing issues currently being faced.

Respondents in opposition to the Gross Demand approach also considered that the scope of the consultation paper was too narrow and was solely focussed on the transfer of value between suppliers based on the amount of de minimis generation with which they are contracted. They argued that the

scope of the consultation should be extended to cover the effects on customers and especially de minimis generators, who they argue would be the most adversely affected by a change to Gross Demand. They also argued that the benefits of embedded generation are internationally recognised and are irrefutable, yet are absent from the consultation, and this omission is fatal to the proposed option of charging based on gross demand. Furthermore, they stated that the consultation paper ignored the substantial systems and metering costs associated with a change to the Gross Demand approach.

Some respondents in opposition to the Gross Demand approach felt that a comprehensive impact assessment should be undertaken by the SEMC before making any proposed changes to the basis for supplier charging. This impact assessment should assess the benefits that embedded generation gives to the system and the impact of any proposed changes to supplier charging on de minimis generators.

Respondents in favour of the Non-Negative Net Demand approach stated that this approach, and not the Net Demand approach, should be the de-facto regulatory starting point. They argued that the introduction of the 'Supplier Lite' structure in 2010 was not an intended design outcome but was an unintended consequence of a retail market decision. They argued thus that the true regulatory policy decision remains that which subsisted prior to that retail market change, notably charging on the basis of non-negative net demand.

4.11 Other Issues Raised

Unintended Consequences of Gross Demand

Respondents in opposition to the Gross Demand approach raised a number of unintended consequences that they believed would follow from a change to this approach. These are outlined below.

Firstly, they stated that many de minimis generators would register in the market in order to be eligible for constraint payments, and in order to participate in the Reliability Option auction, and that this would place a significant strain on both market participants and the Market Operator.

Secondly, they stated that the Public Service Obligation (PSO) levy in Ireland would increase in order to top up de minimis generators to their REFIT strike price. They argued that any decisions which would put further pressure on the PSO are likely to be met with considerable public concern.

Thirdly, they stated future investment in small scale generation would be encouraged to be 'behind the meter'. They argued that this would lead to potentially sizeable reductions in use of system payments as large factories went 'off grid'.

Inconsistencies with other I-SEM arrangements

Respondents in opposition to the Gross Demand approach stated that Trading Site Supplier Units (TSSUs) will only pay capacity charges when net importing. They argued that this is inconsistent with a gross demand treatment of a supplier with contracted de minimis generation.

5. DISCUSSION AND SEM COMMITTEE RESPONSE

5.1 Compatibility with the Capacity Remuneration Mechanism (CRM)

The SEMC first wishes to re-iterate that the intention of the I-SEM CRM design is that the only route to a Reliability Option is to participate in and be a winner in the Capacity Auction, and that only those generators with a Reliability Option and with a corresponding delivery obligation, alongside the obligation to pay back difference payments during scarcity events, should be in receipt of capacity payments. Suppliers are then responsible for paying for the costs of capacity, comprising Reliability Option fees, net of difference payments, and taking into account the so-called "hole in the hedge" whereby difference payments may have been subject to stop-loss limits.

In consideration of the Net Demand approach for supplier charges, the SEMC has two specific areas of concern with regard to capacity charges in particular. First, the SEMC considers that under the net demand approaches in I-SEM de minimis generators would be remunerated for capacity without having to pre-qualify and enter the Capacity Auction, without having any obligation to make difference payments when the Reliability Option strike price is exceeded, and without suffering any penalty for non-delivery. This means that a supplier with a PPA with a de minimis generator would be "self-supplying" capacity, via the Net Demand approach. There is no provision for a self-supply approach under the CRM design. Furthermore, and in support of this view, the SEMC wishes to note that the capacity procured through a PPA with de minimis wind is not the same product from a reliability point of view as the centrally procured capacity product. The former does not have the same incentives to be available when the capacity has highest value (at times of system stress). For these reasons the SEMC concurs with comments from some respondents that the Net Demand approach would see an increase in capacity charges for no comparable improvement in the reliability guarantee.

In addition to this, de minimis generators, under the net demand approaches, would actually receive higher payments for capacity than generators which won Reliability Options in the Capacity Auction. De minimis generators would receive payments on a per MWh load factor basis rather than on a de-rated capacity basis. For example, the TSOs' Proposed Methodology for the Calculation of the Capacity Requirement and De-rating Factors[3] shows that the indicative de-rating factor for wind generation is 12.5%. It follows that under the net demand approaches a de minimis wind generator, which was receiving capacity payments (or credits) on a per MWh generated basis at an average load factor of 30%, would receive significantly higher remuneration for capacity per MW installed than a successful wind generator in the Capacity Auction. As discussed in section 5.4, this is likely to distort incentives

[3] SEM-16-051a Appendix 1 TSOs Capacity Requirement and De-rating Factors Methodology

for investment in new generation, leading to inefficient investment decisions, in order to capture the benefits of de minimis generation that larger generators are not in a position to earn. The SEMC views this as a distortion of the CRM and believes that de minimis generators should not receive higher payments for capacity than successful participants in the Capacity Auction.

The SEMC acknowledges the point raised by respondents that the detailed design for the CRM Capacity Requirement and De-rating Factors (SEM-16-051) sets out that the capacity contribution from de minimis generators will be taken into account when deciding on overall levels of capacity to procure for the system. The indication is that approximately 250MW of de-rated capacity will be subtracted from the Capacity Requirement to account for out-of-market generation. This 250MW is capacity that the TSOs will not purchase on the basis that it will be provided by out-of-market generators and the SEMC acknowledges the argument that this capacity remuneration should be fairly remunerated.

If a scarcity event occurs, a PPA with de minimis generation will allow a supplier to avoid the Administered Scarcity Price for the volume provided by this generation and netted off the supplier's demand for energy purposes. The supplier essentially gets this benefit for providing capacity via contracted de minimis generation. While the SEMC does not have access to the commercial terms and conditions of the PPAs that suppliers enter into with de minimis generators, it is reasonable to expect that suppliers will adjust PPA pricing to account for this and reward de minimis generators for this contribution to the supplier's net energy position at times of system stress and high prices, bearing in mind that suppliers will also take account of the fact that de minimis generators are not obliged to make difference payments back to the supplier when Reliability Option strike prices are exceeded. To the extent that a de minimis generator does decide to participate directly in the market (both energy and capacity), the TSOs will adjust the level of de-rated capacity attributed to de minimis generation accordingly.

The SEMC does not accept the argument that the market cannot accurately price the risk of system stress, to enable de minimis generators to participate in the CRM auction, and thereby appropriately reward de minimis generators, or through adjusted PPA prices, adjusted for the benefit that de minimis generators provide in avoided scarcity prices. The same issue is faced by all generators in I-SEM, in terms of calculating their bids into the CRM auction, including variable renewable generators in excess of the de minimis threshold.

The SEMC is currently of the view that only the Gross Demand approach to supplier charging is compatible with the overall design of the CRM. That said, the SEMC acknowledges that it is a complex issue and acknowledges all the comments received on the issue, particularly around perceived barriers to participating in the CRM auction, and the ability to capture the value provided by de minimis generation via the CRM. The SEMC sees merit in the argument that de minimis generators should be in a position to earn the market value of the capacity they provide to the system, without having to

incur prohibitive transaction costs. The SEMC will examine what mechanisms could be warranted to reduce the costs of participation in the CRM auction, so that the capacity contribution of de minimis generators could be fairly remunerated.

The SEMC notes the comments of some respondents that the design of the I-SEM CRM contravenes EU State Aid Guidelines. However, throughout the CRM detailed design phase the SEMC considered compliance with the State Aid guidelines as a key part of its decision making, and was reflected through the assessment criteria applied during the CRM detailed design consultation process. The RAs have had extensive discussions with the European Commission in relation to the detailed design of the CRM, and will continue to engage with them now that the I-SEM CRM mechanism has been notified to the Commission. The RAs will be bound by final decisions from the European Commission in relation to State Aid clearance of the I-SEM CRM design.

The SEMC wishes to make the point here that the REFIT support schemes need to be consistent with EU State Aid Guidelines also.

5.2 Cost to the Consumer

The SEMC notes comments from respondents opposing the Gross Demand approach that the current de minimis arrangements have supported an increase in renewable generation connections that has benefitted the consumer. The SEMC is of the view that, whilst this could be the case, the interests of the consumer are best served by facilitating an efficient mix of new generation that is likely to comprise both de minimis and non de minimis generation. Supplier charges should not favour any particular class of generation. The SEMC is of the view that the interests of the consumer would be best served by ensuring that consumers only pay efficiently incurred costs that reflect the value of the services provided and by ensuring that all suppliers pay a fair share of the common costs of services that their demand incurs on the system.

The SEMC considers that the arguments made by respondents to the consultation conflate two different issues with regard to PPAs and the impact they have on competition in the retail market, and hence the benefit received by the consumer. A well-functioning PPA market means that where a supplier is able to negotiate a PPA at a lower price than another supplier (or below the cost another supplier has for buying power in the market), then that supplier should be able to use that lower cost of power purchase to lower the prices offered to consumers, thereby benefiting consumers.

The SEMC is concerned that the Net Demand approach for supplier charging is having an additional impact on retail competition that is driven, not by efficient negotiation of PPAs, but by the role of

energy purchased under a PPA to reduce a supplier's contribution to capacity, imperfections and other market charges, thereby increasing the portion of those charges paid for by suppliers without PPAs, or with a lower percentage of their generation served by PPAs.

The SEMC notes the comment that typically 30% or less of so-called 'embedded benefits' accrue to de minimis generators under the commercial terms of their PPAs with suppliers. Respondents argued that suppliers can therefore utilise their share of the 'embedded benefits' to increase value to consumers by virtue of discounted retail tariffs. However, there is currently no contractual relationship for such payments – de minimis generation is, by definition, not party to a multilateral agreement - and therefore it is not clear to the SEMC that other suppliers, and by association their customers, should be affected by these payments, through the impact of being responsible for a larger share of the centrally procured services, via the Net Demand approach.

Currently the savings on supplier charges afforded by the Net Demand approach are shared three ways: some are passed to de minimis generators through higher PPA prices and the 'Supplier Lite' model; some are passed through to consumers through lower retail tariffs; and some are retained by suppliers as contribution to margin. At present under the existing capacity payment mechanism and other market charges, there is approximately €2-3 million paid to 'Supplier Lites' in the form of negative charges per year. With respect to savings on supplier charges, as discussed above respondents have stated that typically 30% or less of these savings accrue to de minimis generators under the commercial terms of their PPAs with suppliers. Therefore typically 70% or more of the savings are passed through to consumers or retained by suppliers. The SEMC is of the view that the majority of these savings are likely to be retained by suppliers as the marginal cost of supply will still be set by the cost of procuring energy from non de minimis generators, and the SEMC would expect this to be the principal determinant of retail tariffs.

The SEMC acknowledges that the PSO levy on customer bills in Ireland could increase in order to make whole REFIT-supported de minimis generators if the Gross Demand approach was implemented. Some respondents estimated that the REFIT opportunity payment to de minimis REFIT-supported projects would increase by approximately 2c/kWh, although this depends on the prevailing energy price. However, while the PSO levy might increase, the level of supplier charges per MWh would also reduce, and the expected net impact on final consumer bills would be zero.

Looking to the future, the volume of de minimis generation is expected to increase. There is currently a large amount of de minimis wind generation in planning and over 2,000MW of de minimis solar generation has applied to connect in Ireland alone. If the Net Demand approach continues into the future then the level of supplier charges will increase per MWh, with more savings being retained by suppliers with PPAs, and the amount of monies paid out to 'Supplier Lites' in the form of negative charges will increase. Both of which will increase costs to the consumer.

The cost to the consumer of the implementation of the Gross Demand approach is not identifiable at present. While some information has been received from ESBN on the timescale and cost of such an implementation, it is a high level estimate of approximately 12 months and a cost of approximately €0.5m. Assuming a similar cost is incurred by NIE Networks (NIEN) in making the required system changes then the total implementation cost of the Gross Demand approach becomes €1m. The changes required to SEMO's Central Market System in order to implement the Gross Demand approach are more difficult to identify as a system build is currently ongoing. This makes the identification of costs for future changes difficult to assess. A full impact assessment of the implementation of the Gross Demand approach to supplier charging is unlikely to available until after I-SEM Go-Live. Any system costs involved are ultimately borne by the consumer through ESBN's and NIEN's network tariffs, and through SEMO's Market Operator charge.

The SEMC sees merit in the argument that it would be more efficient and transparent for any generator, de minimis or otherwise, to be given explicit payments for the capacity and any other services they provide to the system, as those are common services for all grid users. Those charges could then be recovered on an equitable basis from all suppliers.

Overall, the SEMC is not convinced that the Net Demand approach to supplier charges reduces overall costs to consumers. The SEMC currently considers that the Gross Demand approach, to the extent that it minimises payments to de minimis generation for services that there is no verifiable way to measure, is the approach that reduces costs to consumers.

The SEMC notes and agrees with the comments concerning equitable cost allocation and, in particular, that all suppliers benefit equally from the security and services that market charges fund and thus that it is appropriate charges should be shared equitably between suppliers. There is no self-supply option for any of these market costs – i.e. a participant cannot self-supply the Market Operator function, imperfections or capacity. The Net Demand approach treats these functions as self-supply, which is not equitable.

The desire to achieve an equitable approach to supplier charges also leads the SEMC to discount the Non-Negative Net Demand approach to supplier charges as it leads to an inequitable situation between larger and smaller suppliers. A smaller supplier is more likely to end up in the situation where it has negative demand if its de minimis generation exceeds its demand.

Lastly, the SEMC notes also the comments of respondents in favour of the Non-Negative Net Demand approach that 'Supplier Lite' is not an efficient allocative mechanism. The SEMC agrees that the additional revenues derive not from real services offered but are more as a result of a market design artefact.

5.3 Impact on De Minimis Generators

The SEMC acknowledges comments regarding the lack of the impact of Gross Demand on de minimis generators in the consultation paper. It has been the SEMC's intention, through the consultation process itself, to seek information from stakeholders on the potential impact of the different approaches. Having received such information from stakeholders, the SEMC has considered the potential impacts on REFIT-supported de minimis generators, ROC-supported de minimis generators, and merchant and out-of-support de minimis generators.

The table below provides an indicative outline of the magnitude of the credit to supplier charges that accrued to de minimis generation based on the 2016 installed generation of each type of de minimis, and the applicable charge levels. An indicative capacity factor of 30% is assumed for all de minimis generators and the capacity, imperfections and Market Operator charges are taken from the CER's Information Note "Pass through Costs for Business Electricity Customers from 1st October 2016".

				Capacity	
	MW	Capacity Factor	Hours	€/MWh	€ per Year
ROI REFIT-supported	325	30%	8760	13.65	11,658,465
ROI no REFIT	309	30%	8760	13.65	11,084,509
NI ROC-supported	344	30%	8760	13.65	12,340,036
				Imperfections	
	MW	Capacity Factor	Hours	€/MWh	€ per Year
ROI REFIT-supported	325	30%	8760	2.05	1,750,905
ROI no REFIT	309	30%	8760	2.05	1,664,707
NI ROC-supported	344	30%	8760	2.05	1,853,266
				Market Operator	
	MW	Capacity Factor	Hours	€/MWh	€ per Year
ROI REFIT-supported	325	30%	8760	0.283	241,710
ROI no REFIT	309	30%	8760	0.283	229,811
NI ROC-supported	344	30%	8760	0.283	255,841

As noted above, the actual credit earned by individual generators depends on the prices negotiated in individual PPAs, which may be less than the amounts in the table, which reflects the amount of the supplier charges that suppliers with PPAs are able to avoid paying, under a Net Demand approach. If

the auction clearing price in the CRM is below the calculated level of the Best New Entrant (BNE) today, then the capacity component will decline in I-SEM.

Under the Gross Demand approach, if suppliers do reduce the payments under the PPA contracts by an amount reflecting a reduction in the credit for supplier charges, then with competition in retail tariffs, consumers will benefit from a corresponding reduction in retail tariffs.

The SEMC considers that as long as suppliers with PPA contracts with REFIT-supported de minimis generators continue to be made whole to the REFIT reference price, the revenue of REFIT-supported de minimis generators should not be impacted by a move to the Gross Demand approach. The PPA contracts between suppliers and REFIT-supported de minimis generators are a matter for the parties involved but de minimis generators should be in receipt of at least the REFIT reference price. There is also the value of the "floor price" aspect and a REFIT balancing payment to be apportioned between the supplier and the de minimis generator as negotiated. There may, however, be an impact on cash flow management for these projects as the REFIT opportunity cost payments are not made until two years after the PSO period in question.

On the other hand, a move to the Gross Demand approach would lead to a direct reduction in revenues for Renewables Obligation-supported de minimis generators in Northern Ireland. The ROC support scheme is independent of revenue from the market and so it would provide no extra compensation to ROC-supported projects for any reduction in "market" revenues. Different types of technology receive different levels of ROC support. So-called "de minimis benefits" account for between 3% and 16.5% of annual revenue for ROC-supported de minimis generators, according to the responses to this consultation, depending on their technology and corresponding level of support.

Respondents stated that a revenue reduction in the region of 30% would be expected for merchant de minimis generators in Ireland if the Gross Demand approach was implemented. Merchant de minimis generators that had availed of the 'Supplier Lite' arrangement would not receive a top-up payment under the PSO levy. Some respondents estimated that between 0% and 30% of "de minimis benefits" are passed through to de minimis generators in PPAs with suppliers. While it is not entirely clear to the SEMC what is reflected in the term "de minimis benefits", if this reflects the sum of all supplier charges, then these merchant de minimis generators could end up with a reduction in revenue of between 0% and 9% (after their PPA was renegotiated). This is subject to a commercial negotiation process, and will vary between suppliers. For those generators that had previously received some form of support, whether REFIT or ROCs, those support mechanisms were set at a level to deliver a fair return on their investment over the life of their initial support scheme and so should not be so severely financially impacted.

The table below summarises the potential impact on revenues for the different categories of de minimis generators. Note that this is indicative only as the SEMC cannot verify the responses from

generators and does not have sight of the details of PPAs between generators and suppliers. It also should be noted that these figures are based on the current annual capacity payment sum, if the capacity pot is reduced in the I-SEM CRM then the impact will also reduce. The percentage reduction in revenues is also dependent on the overall levels of revenues in the energy markets.

Generator Category	**% Reduction in revenues**
Ireland REFIT-supported	0%
Northern Ireland ROC-supported	3% to 16.5%
Merchant / Out-of-support	Up to 30%

Regarding the impact on potential new entrants, any potential investors in de minimis generation must make the investment decision whether to go ahead and build and incur the sunk cost or not. To the extent that any new investment is financed via a support scheme, a move to the Gross Demand approach will not affect revenues over the lifetime of the support scheme. It is therefore unclear to the SEMC whether any potential projects would become unviable under a Gross Demand approach, and therefore would not be built. Any owners of existing de minimis generators that require major investment to continue operation must make the investment decision whether or not to go ahead with refurbishment and incur the associated sunk cost.

5.4 Incentives for Efficient Investment

As regards the comment that there is no reason why 'Supplier Lite' should not transfer to the I-SEM, the SEMC wishes to clarify that it has not stated that the 'Supplier Lite' model cannot transfer to I-SEM. Indeed, the SEMC is of the view that the decision on the appropriate basis for supplier charging is separate to the issue of the 'Supplier Lite' model itself. The 'Supplier Lite' structure has been used by generators supported under REFIT as this is a mechanism to enable them to receive the REFIT opportunity cost payments. Under the 'Supplier Lite' structure, these generators have become market participants in the SEM. They can continue with this approach to their commercial arrangements by becoming an active participant in the I-SEM energy market. The 'Supplier Lite' model can transfer into I-SEM under any of the three approaches, as netting for energy will continue, but 'Supplier Lites' would not be in receipt of negative charges under the Gross Demand approach and the Non-Negative Net Demand approach. The SEMC agrees that the 'Supplier Lite' arrangement can be a route to market for small generators, and that it provides a fall back opportunity for de minimis generators in the course of their PPA negotiations with suppliers. However, the key incentive on suppliers to enter into PPAs with de minimis generators is to avail of REFIT payments. If the Gross Demand approach to supplier charging was to be implemented then this incentive would remain.

The SEMC notes the comments of some respondents that there is a divergence between the revenues that can be earned by a de minimis generator and a generator above that threshold under the Net Demand approach to supplier charges. A generator above the de minimis threshold will earn market revenues equal to energy market revenues, plus capacity market revenues if they choose to participate in the CRM. A de minimis generator, with a comparable technology or capacity factor, under the Net Demand approach would earn energy market revenues, capacity revenues and additional revenues for the other supplier charges. The SEMC agrees with the concerns that this distorts the incentive to invest in generation, and agrees that the Gross Demand approach would help drive efficient investment in generation as the choice of generation investment would be influenced by factors such as flexibility, reliability and the cost per MW rather than any distinction in charging rules between generators above and below the de minimis threshold, and any difference in market revenues resulting from this.

The SEMC notes the comment of other respondents that Gross Demand would be discriminatory towards smaller scale generators. The SEMC is of the view that, under gross demand charging, de minimis generators would have a route to access the market as the netting of demand for energy would continue, and that the 'Supplier Lite' model would likely continue to offer a popular route to market. The SEMC believes that, furthermore, there would be no barrier to de minimis generators participating in the CRM auction, while the REFIT support schemes in Ireland already acknowledge that smaller sized generation plants may have additional costs and these are covered by a higher REFIT reference price for these plants.

5.5 Promotion of Competition

The SEMC notes the comments of respondents opposing the Non-Negative Demand approach that it would discriminate against small suppliers. The SEMC agrees that the approach would discriminate against smaller suppliers.

The SEMC also notes the views of respondents opposing Gross Demand that this approach would remove the competitive dynamic between suppliers to enter into PPAs with de minimis generators, which dynamic benefits retail competition. The SEMC does not agree that the competitive dynamic to enter into PPAs with de minimis generators would be adversely affected, albeit the price at which such agreements are struck might change. Nor does the SEMC believe that any changes in the characteristics of the PPA market would necessarily impair competition for retail customers.

Moreover, the SEMC is currently of the view that the implementation of the Gross Demand approach would benefit new entrants to the Irish and Northern Irish retail markets, by ensuring that a new

entrant to either retail market will face an equitable share of market costs, and that these costs would be calculated on an expanded, more stable charging basis, i.e. the total demand in both retail markets, and would not be affected by the amount of de minimis generation registered to suppliers.

5.6 Conflict with Government Policy

The SEMC notes the comments from respondents opposing Gross Demand to the effect that it would conflict with Government policy.

The Northern Ireland Renewables Obligation (NIRO) requires all Northern Ireland suppliers to source a given proportion of their total electricity supplied from renewable sources. Each year, suppliers comply with their Renewables Obligation by presenting Renewables Obligation Certificates (ROCs), by paying a buy-out price, or by a combination of the two.

Ofgem issues ROCs to eligible generators following the submission of metered data by generators. ROCs are traded throughout the UK and the Renewables Obligation buy-out price is set on a UK basis. In addition to the price paid for ROCs, some suppliers may also pay an amount to de minimis generators for the capacity.

The Irish Government has introduced a number of REFIT support schemes, which have been granted State Aid clearance by the EU, and which have been designed to incentivise the development of renewable electricity generation so as to ensure Ireland meets its goal of 40% of electricity coming from renewable sources by 2020.

The intention of the REFIT schemes is to create a business case acceptable to investors. The significant capital costs of renewable projects are incurred at the commencement of the project. Banks, the typical investor, will demand full debt repayment within the life of the support programme, which is usually 15 years. Under the EU's guidelines on State Aid, Member States may grant operating aid to compensate for the difference between the production cost of renewable energy and the market price of the form of power concerned. Such aid may be granted only for plant depreciation, and any further energy produced by the plant should not qualify for any assistance. The REFIT reference prices are set based on the production cost of each technology. Small wind has a higher reference price than large wind acknowledging its higher production cost per MW. REFIT also includes a Balancing Payment component.

Accordingly, the SEMC considers that a change to the supplier charging approach should not call into question the validity of REFIT supported renewable projects, as the REFIT scheme has been designed to provide a fair return on capital invested.

The principal objective of the SEMC is to protect the interests of consumers of electricity in Ireland and Northern Ireland, and to do so, wherever appropriate, by promoting effective competition. Under statute, the RAs have additional duties to have regard to various other considerations when coming to a decision, such as effects on the environment, and have done so with respect to this issue of the appropriate basis for supplier charges. That said, when taking any decision the SEMC must also be cognisant of the hierarchy of considerations under which it operates, whereby the protection of the interests of consumers is the principle objective in all cases. The SEMC, having taken its hierarchy of considerations into account, has contented itself that the interests of customers would not be best served by inaction on this issue.

5.7 Stability of Charging

The SEMC acknowledges the comments made by respondents in favour of Gross Demand that this approach should ensure the most stable charging regime. The SEMC agrees Gross Demand would result in supplier charges being calculated on an expanded, more stable charging basis and would not be affected by the amount of de minimis generation registered to suppliers.

The charges paid by consumers for services should reflect the underlying costs of those services, not changes in the level of de minimis generation which could have an opposite effect on the charges. So for example the capacity charge per MWh paid by suppliers should vary by the underlying cost of capacity not by both the cost of capacity and the level of de minimis generation[4], which gives the wrong signal for consumers.

The SEMC also notes the comments from respondents in favour of the Non-Negative Demand approach that de minimis generation penetration is expected to increase significantly in the future and the Net Demand approach would exacerbate the distributional impacts on suppliers. However, whilst the SEMC agrees that Net Demand leads to supplier charges being levied on a smaller and smaller subset of demand, it considers that Non-Negative Net Demand would lead to the most unstable charging regime, as the size of the charging base depends not only on the amount of de

[4] While an increase in de minimis generation may reduce the amount of capacity that is purchased under the capacity mechanism, it can increase the size of the "hole in the hedge", which in turn increases the size of the overall capacity cost that is recovered from demand

minimis generation but also on how participants happen to organise the aggregation between themselves.

The SEMC is currently of the view that charging on the basis of gross demand removes the risk of the charges per MWh increasing greatly into the future if the amount of contracted de minimis generation increases greatly.

5.8 Demand for PPAs

The SEMC acknowledges both the comments that robust demand for PPAs with de minimis generation would continue under Gross Demand and the comments that Gross Demand would remove the incentive on suppliers to contract with the de minimis generation. The SEMC is of the view that demand for PPAs is driven by REFIT policy, and absent any change in that, robust demand for PPAs will likely continue, even under the Gross Demand approach for supplier charging. In particular, the energy netting feature of PPAs will continue to provide a hedge to suppliers and will allow them to avoid ex-ante trading charges through the I-SEM Nominated Electricity Market Operator (NEMO). Perhaps more importantly, PPAs with renewable generators will continue to be the route by which suppliers can access REFIT payments from the PSO fund, which include a significant Balancing Payment, some or all of which is kept by the supplier depending on the negotiated terms of each individual PPA. It is also important to note that the REFIT reference price is a floor price rather than a two way strike price; this means that the potential energy market downside is eliminated for the supplier but the potential energy market upside is retained. Thus, the value of the Balancing Payment and the value of the floor price aspect of REFIT should mean that suppliers will continue to be incentivised to enter into PPAs with de minimis generators.

5.9 Payments to Out-of-market Units

The SEMC notes the views of respondents favouring Gross Demand that supplier charges recover specific costs and there does not seem to be any case for out-of-market generation to access these charges as a payments. The SEMC notes also the views of respondents in favour of Non-Negative Net Demand that argued that 'Supplier Lite' is not an efficient allocative mechanism and that only 'rights holders' can rightfully command any associated payments, and that Non-Negative Net Demand would avoid eroding the basis of the treatment of de minimis generation in the SEM, namely the shield from wholesale market charges. The SEMC acknowledges also the views of respondents in favour of Net

Demand that it reflects the physical reality of local embedded generation meeting local demand, which reduces the requirement for large scale generation, reduces the volume of constraint actions, and provides value for Market Operator, Currency Adjustment and Difference Payment Socialisation charges by reducing demand on the system.

The SEMC agrees with the view that payments for a service should not occur where the service is not being provided. There is no self-supply option for any of these market services – i.e. an out-of-market unit cannot self-supply the Market Operator function, imperfections or capacity. However the SEMC is not convinced by the arguments of respondents in favour of Non-Negative Net Demand that this approach realises system and wider benefits by facilitating netting against customer demand, as the services are still not being self-supplied even where netting occurs.

Nor is the SEMC convinced that reducing the amount of demand to be served by in-market generation reduces constraint costs. Embedded generation, i.e. generation that is connected to the distribution system but that is not necessarily de minimis, may provide some benefit in this regard, at least until the point at which so much embedded generation connects that it starts causing problems on the distribution system, but this is a very complex issue given that generation can flow back onto the transmission network, and can cause issues for equipment, etc. in doing so. The TSO has no control over distribution-connected generation, which limits its value in solving constraint problems. For example, a MW of de minimis generation in an import-constrained area will avoid the need for a MW of non de minimis generation (or slightly more taking losses into account), but on the other hand a MW of de minimis generation in an export-constrained zone is likely to increase the volume of non de minimis generation that has to be constrained-off. The net effect depends on which effect is bigger. The SEMC broadly agrees with the contention that, under I-SEM, only 'rights holders' under a mechanism, with explicitly assigned rights and obligations, should be in receipt of associated payments from that mechanism.

The SEMC also broadly agrees that Net Demand is not consistent with the new market structures where it allows payments to participants outside these structures for services not rendered, and is of the view, as discussed earlier, that de minimis generators, which are outside the CRM, should not receive higher capacity payments than successful pre-qualified competitors for Reliability Options.

The SEMC disagrees that Gross Demand would erode the key basis for which the treatment of de minimis generation was introduced. The main rationale for the introduction of the treatment of de minimis generation was to allow small generators to avoid the burdens of entering the energy market, not to shield suppliers from wholesale electricity market charges. And as discussed elsewhere in this paper, the key incentive on suppliers to enter into PPAs with de minimis generators is to avail of REFIT payments. With Gross Demand, the incentive would remain.

5.10 Flaws in the Regulatory Process

The SEMC notes the comments of respondents opposing Gross Demand that the decision to levy capacity charges on gross demand was not properly consulted on. The SEMC notes their views that if existing policy was to be changed then it should have been properly consulted on rather than being introduced through the I-SEM MRWG, and notes their concerns regarding the MRWG escalation process. In response to these issues raised, the SEMC has since carried out a full consultation on the issue, culminating in this decision document.

The SEMC wishes to make clear that there was no regulatory policy decision to allow the current Net Demand approach for supplier charges, nor the current 'Supplier Lite' structure. The SEMC also wishes to make clear that the Net Demand approach to recover supplier charges was never explicitly consulted or decided on as part of the I-SEM High Level Design. The SEMC is of the view that a change to the approach to supplier charges may be warranted by the change in the CRM as the current approach is inconsistent with the underlying principles of the CRM, which stated that the only way to get paid for capacity is through a Reliability Option obtained through a Capacity Auction.

The SEMC also wishes to point out that the payment of the Market Operator charge to de minimis generators in the form of negative charges should never have been happening as per the SEM Trading and Settlement Code.

The SEMC acknowledges the comments that no detailed impact assessment had been undertaken, particularly no impact assessment considering the impact on generators, detailed impact on suppliers, or wider impacts that the implementation of the different approaches might have on participants. It has been the SEMC's intention, through the consultation process itself, to seek information from stakeholders on the potential impact of the different approaches. The SEMC welcomes the information that has been provided in the responses that has enabled it to more clearly assess the impact of the approaches on different stakeholders. That said, the SEMC analysis is limited by the fact that the terms and conditions of the PPAs are confidential and not provided as part of the responses to the consultation, and may vary significantly from generator to generator.

The SEMC also notes the views from respondents favouring Non-Negative Net Demand that this approach and not Net Demand should be the de facto regulatory starting point and that the 'Supplier Lite' arrangement was not an intended outcome of the retail market design decision made in 2010. Notwithstanding the fact that the introduction of the 'Supplier Lite' structure was not an intended design outcome, the SEMC is of the view that the decision on the appropriate basis for supplier charging is separate to the issue of the 'Supplier Lite' model itself. The 'Supplier Lite' model can transfer into I-SEM under any of the three approaches, as netting for energy will continue, but

'Supplier Lites' would not be in receipt of payments in the form of negative charges under the Gross Demand approach and the Non-Negative Net Demand approach. The SEMC is also of the view that it is not strictly correct to say that Non-Negative Net Demand was in existence before the 2010 retail market decision. Before this decision, demand could not go negative for any reason, including the netting of energy, while this consultation is only considering the appropriate basis for supplier charging, and the netting of energy, including the ability to go negative, will continue under all three potential approaches.

5.11 Other Issues Raised

Unintended Consequences of Gross Demand

The SEMC acknowledges the views of respondents opposing Gross Demand regarding possible unintended consequences. However, the SEMC's view is that:

- in respect of the CRM, the SEMC will keep under review the approach to aggregation in the CRM;
- the PSO Levy may need to increase in order to bring de minimis generators up to their reference price but that this would depend on energy prices going forward and, in any case, should be offset in retail bills by the reduction in charges per MWh; and
- some future de minimis generators may be encouraged to be "behind the meter", but it is not clear how large this effect would be as it is ultimately REFIT that incentivises investment in de minimis generation.

Inconsistencies with other I-SEM arrangements

The SEMC acknowledges the comment that Trading Site Supplier Units (TSSUs) will only pay capacity charges when net importing and that this is inconsistent with treatment of de minimis generation under Gross Demand. However, the SEMC does not agree that the treatment of TSSUs and de minimis generation under Gross Demand would be inconsistent. While it is true that a TSSU will only pay charges when net importing, this is a design feature of the TSSU to put it in an analogous situation to generation and demand which is all located behind the one meter. However, in respect of de minimis generation, to the extent that there is an asymmetry between exports onto the system and imports

off it, and in terms of managing system stability, it does matter who nets with whom, and so the Gross Demand approach would not lead to an inconsistency.

6. SEM COMMITTEE DECISION

Having evaluated all the responses to this consultation, in the context of its statutory obligation to protect the interest of consumers, while having regard to its other duties such as to protect the environment, the SEMC is not convinced by the stated arguments in favour of either of the net demand approaches as the basis of supplier charges for the costs of capacity, imperfections, Market Operator, Difference Payment Socialisation, Currency Adjustment and Residual Error Volume charges. Furthermore, based on its rationale in Section 5, the SEMC considers that the arguments in favour of the Gross Demand approach are stronger than the arguments opposing this approach.

Notwithstanding the above, the SEMC recognises that, due to system limitations of the MDPs, the only available approach for the levying of supplier charges to be ready by the planned I-SEM Go-Live date is to charge suppliers for capacity, imperfections, Market Operator, Difference Payment Socialisation, Currency Adjustment and Residual Error Volume costs based on their net demand. For this reason the SEMC will instruct both SEMO and the MDPs to implement, as an interim solution, the necessary systems to allow the Net Demand approach to be available for I-SEM Go-Live. Also for this reason, the Trading and Settlement Code will incorporate the necessary articles to implement the Net Demand approach for supplier charges, again on an interim basis.

The SEMC has noted the responses from market participants regarding the transaction costs associated with participating in the energy and capacity markets, particularly for generators below the de minimis threshold of 10 MW. Based on the issues raised, the SEMC will examine market information, including the level of participation of different types of generation in the T-1 and T-4 CRM auctions, to include a review of costs for generators below the de minimis threshold. Any resultant recommendations will however need to be consistent with the I-SEM CRM and compliant with State Aid requirements.

As outlined above, the Net Demand approach is to be implemented as an interim solution, due to system limitations. The SEMC considers that the arguments in favour of the Gross Demand approach have considerable merit and on this basis, is minded to transition to a Gross Demand approach as the enduring approach to the levying of supplier charges. Pending a final decision on the enduring approach, the SEMC is requesting SEMO and the MDPs to ensure that their systems also have the capability to provide for a transition to a Gross Demand approach for supplier charges. The SEMC will determine the enduring approach to the basis for supplier charges at a later date, and will also set out the conditions under which a transition, which would occur no earlier than January 2020, could take place. In making this decision, the SEMC will be mindful of the planned changes to the EU Renewables Directive and the EU Regulation and Directive on the internal market for electricity related to the requirement for all generators to be balance responsible, and the role of aggregation of generation, as

outlined in the directive. The SEMC will also be mindful of any conditions from DG Competition arising out of the conclusion of the State Aid notification process.

7. NEXT STEPS

The next step will be to finalise the Trading and Settlement Code including the Net Demand approach. Once the new market arrangements are in place, the RAs will instigate work between SEMO and the MDPs to develop the systems needed to implement the Gross Demand approach. Based on information from the MDPs this is likely to take a minimum of 12 months to design, build and test. Separately, and after experience of operation of the market, in particular the Capacity Market, has been developed, the RAs will examine the level of participation of different types of generation in the T-1 and T-4 CRM auctions.