Integrated Single Electricity Market (I-SEM)

Aggregator of Last Resort Decision Paper

SEM-15-063

11 September 2015

EXECUTIVE SUMMARY

The European Union (EU) is building an internal market for electricity and gas to help deliver energy supplies that are affordable, secure and sustainable. This is underpinned by the implementation of the European Electricity Target Model (EU Target Model) arising from the EU's Third Energy Package. Specifically, the EU Target Model is a set of harmonised arrangements for the cross-border trading of wholesale energy and balancing services across Member States. In this context, the SEM Committee committed to implementing the Integrated Single Electricity Market (I-SEM) that will go-live in Q4 2017, replacing the current Single Electricity Market (SEM) arrangements.

The CACM Regulation came into force on 14 August and Article 83 imposes obligations on Northern Ireland and Ireland in the period from now until December 2017 to implement preparatory transitional arrangements leading to full implementation and full compliance by 2017. Both DETI and DCENR have now consulted on their proposals with respect to updating/amending national legislation to permit the replacement of the SEM in line with this commitment.

The High Level Design (HLD) of the Integrated Single Electricity Market stipulated that an Aggregator of Last Resort (AOLR) shall be provided for in the new market design. This Decision Paper sets out the SEM Committee's conclusions on the four key aspects of the AOLR consulted on: Operation and Functions; Governance and Procurement; Cost Recovery and Incentives; and, Participant Eligibility.

The SEM Committee published a Consultation Paper on the AOLR Framework on 5th December 2014, and held a subsequent public workshop on the issue. The Consultation Paper set out a range of functions that the AOLR could perform for eligible generators including;

(1) trading in the Day Ahead Market (DAM), Intra-day Market (IDM) and Balancing Market (BM);

(2) pooling risk across the portfolio;

(3) assuming market responsibilities such as being the signatory to trading codes; and

(4) submitting nominations to the TSOs.

Three models were set out:

I. a “Portfolio Settlement Approach” in which the AOLR would undertake all four functions;

II. an “Individual Settlement Approach” in which the AOLR would undertake all functions except pooling of risk; and

III. a “Passive Approach” in which the AOLR would undertake no active trading but utilise a formulaic forecast of demand, either with or without the pooling of risk.

Responses to the Consultation Paper were largely in favour of the Passive Approach, as it was considered by respondents to avoid the high cost of the Portfolio Settlement Approach and Individual Settlement Approach, while additionally mitigating possible conflicts of interest. However, there was a minority view that it lacked a mechanism for IDM trading, with the greater support from these respondents being for the Portfolio Settlement Approach.

The SEM Committee has carefully considered these responses. It considers that an important principle of the AOLR is that, where possible, its costs should be borne by the beneficiaries. It considers that both the Portfolio Settlement and Individual Settlement Approaches could be prohibitively expensive to participants, and that both of these approaches could impact negatively on commercial offerings. It concurs with the view of most respondents that that the costs of the Passive Approach are likely to be modest, and that this option provides a cost effective approach.

Therefore the SEM Committee has decided that the AOLR should be developed on the basis of the Passive Approach set out in the Consultation Paper. Other decisions in this paper focus on the implementation of a Passive Approach.

The AOLR will facilitate the participants’ trading in the DAM but will not exercise judgement in executing such trades, instead selling on the basis of pre-defined, formulaic calculations. DAM price expectations will not influence these trades, and to the extent that a unit’s dispatch output varies from these ex-ante trades it will be exposed to the imbalance price. If intraday auctions are implemented, then the AOLR will be able to participate in these as a price taker, following the same approach as with the DAM. If the IDM is only a continuous trading platform, there will need to be more work undertaken to develop the detailed rules for AOLR trading as part of the detailed rules development and implementation phase.

The default position will be that AOLR will submit offers on a unit basis, and settlement will be unit based. However, the SEM Committee would not wish to preclude allowing participants to pool their risk, if they deemed this function desirable. If there is a demand from participants for the pooling of risk, how this can be implemented in imbalance settlement will be considered in the implementation phase.

Two approaches to the procurement of AOLR services were set out in the Consultation Paper. First, the Regulatory Authorities would run a process to procure the AOLR, and second, that the TSOs would be appointed as delivery agent, and that they would run the process to procure or establish the AOLR. Should the process be TSO led, the issue of whether this would be undertaken in house, or outsourced to avoid potential conflicts of interest was raised. The Consultation Paper also invited parties to identify if they would be interested in being the AOLR.

As the SEM Committee has decided that the Passive Approach is to be implemented, given that the AOLR is undertaking a passive function and not actively trading, the potential concerns regarding the TSOs' conflict of interest are largely mitigated. Consequently, it is proposed that the TSOs take on the role of AOLR; this should not require any legislative changes. The SEM Committee considers that the TSOs should undertake this role on an enduring basis, rather than the transitional basis envisaged in the Consultation Paper.

The third area consulted on concerned the recovery of AOLR costs, and incentives on the AOLR. On the issue of cost, the question was raised as to whether the costs of the AOLR should be borne solely by participants using it. The Consultation Paper proposed that, if the Passive Approach were adopted, then general incentives on the TSOs would apply. Should either the Portfolio Settlement Approach or Individual Settlement Approach be adopted, then incentives could be considered. First, a best endeavours approach under which, assuming adequate competition to provide the service, the tender approach would identify the least-cost/highest-participant revenue provider. Second, AOLR generators would be paid a discounted benchmark price, referenced to the DAM or a combination of market prices.

The SEM Committee considers that the identifiable costs of the AOLR should be borne by its participants. The AOLR will levy a fee for its services, and this will be subject to regulatory scrutiny to ensure that it does not create a barrier to entry. The fee structure will be determined during the implementation phase. As the AOLR is passive there is no requirement for incentives to be placed on the AOLR to secure optimal revenue for participants.

Regarding the eligibility of participants to avail themselves of AOLR services the SEM Committee has concluded that all generation below the 10MW de-minimis level, and

all renewable generation, including wind, will be entitled to use the AOLR. Given this facility exists, the SEM Committee considers that there will be commercial incentives on generators above a certain size, or with specific characteristics, to bid independently into the ex-ante markets. This approach aligns with the HLD decision that the AOLR should provide a route to market for all small players. This will allow for increased volumes to be traded through the ex-ante markets. The SEM Committee considers that there should be separate forecasts used for the volumes of wind generation, and other generator technologies in order to more closely reflect the forecast volumes to be bid into the ex-ante market.

Publication of this Decision Paper allows the detailed rules drafting and implementation for the I-SEM to commence. Appendix A of this Decision Paper contains a list of issues to be addressed in the implementation phase arising from this paper. Both DETI and DCENR have now consulted on their proposals with respect to updating/amending national legislation to permit the replacement of the SEM in line with this commitment. The implementation of this AOLR detailed design will then be the subject of decisions to be taken in line with the amending legislation proposed in each SEM jurisdiction.

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1 INTRODUCTION

1.1.1 The decision of the SEM Committee on the High Level Design (HLD) of the Integrated Single Electricity Market stipulates that an Aggregator of Last Resort (AOLR) shall be provided for in the new market design.

1.1.2 The purpose of this document is to set out the SEM Committee's decision on the design of the AOLR. The Decision Paper is broken into four areas: Operation and Functions; Governance and Procurement; Cost Recovery and Incentives; and Participant Eligibility.

1.1.3 Both DETI and DCENR have now consulted on their proposals with respect to updating/amending national legislation to permit the replacement of the SEM in line with this commitment. The implementation of this detailed design will then be the subject of decisions to be taken in line with the amending legislation proposed in each SEM jurisdiction.

1.1.4 The SEM Committee published a Consultation Paper on the AOLR Framework on 5th December 2014. This was following by a public workshop in Dundalk on 16th December 2014. 29 non confidential responses were received to the Consultation Paper and these were published on the All Island Project website on 12th March 2015. Responses were received from the following interested parties.

- AES
- Beam Wind
- BG Energy
- Bearna Gaoithe Power Supply
- Brookfield Renewable Ireland
- Cenergise
- Cronelea Windfarm
- Dunmore Wind Power
- EirGrid
- Electricity Association of Ireland
- Electroroute
- Energia
- ESB
- Gemserv
- Cronalaght Windfarm
- Greenoge Windfarm
- Irish Wind Energy Association
- Irish Wind Farmers Association
- Jennings O'Donovan
- Killybegs Wind Power
- Lisdowney Wind Farm

- Meitheal na Gaoithe Energy Supply
- Moneenatieve Wind Farm
- North West Wind
- Power NI
- Power NI PPB
- Renewable Energy Systems (RES)
- SSE
- Tynagh Energy

1.1.5 The Consultation Paper and the non-confidential responses received can be found here. http://www.allislandproject.org/en/wholesale_overview.aspx?article=42fcf70e-4c80-4889-ab01-7dc941ad9b14.

2 ISSUES CONSULTED UPON

2.1 OPERATION AND FUNCTION

Functions of the AOLR

2.1.1 The Consultation Paper first addressed the functions that the AOLR could perform and respondents were asked to comment on whether these functions were appropriate and whether other functions should be considered.

2.1.2 The functions outlined were:

- Undertaking trading in the DAM, IDM and BM on behalf of eligible generators.
- Pooling of risks across the portfolio
- Assuming market responsibilities (e.g. Signing up to Trading and Settlement Code)
- Submission of nominations to the TSOs

Operation of the AOLR

2.1.3 Three models were then set out based on a combination of some or all of these functions.

2.1.4 The first model was the Portfolio Settlement Approach which was based on all four of the functions outlined.

2.1.5 The second model was the Individual Settlement Approach which undertook all the functions except that of pooling risk (associated with forecast error) across the portfolio. This approach added a layer of complexity in that each generator is required to issue instructions to the AOLR for volumes and associated prices to be submitted into the DAM and IDM. Hence the participant would be carrying all the risks with regard to revenues received and exposure to the imbalance price.

2.1.6 The third model was the Passive Approach whereby a formulaic approach would be used based on a forecasting tool. No active trading in the ex-ante markets is undertaken, with the aggregator acting as a price taker. This model would undertake two or three of the functions. In other words, participants would sign up to the market(s) individually and participants would be settled individually. However, there would be an option for the risk to be pooled across the portfolio.

2.2 GOVERNANCE AND PROCUREMENT

2.2.1 The Consultation Paper then sets out a number of options with regard to governance, procurement, the service provider and highlighted any issues arising under each topic. Some topics are specific to particular models outlined in the operation of the AOLR section of the paper. For example, under the Passive Approach, procurement of the service is not required, as the AOLR would be procured as part of the market systems. This is compared to the two other models where it would be a separate legal entity that would need to be procured.

Procurement of AOLR Services

2.2.2 There were two options with regard to who should undertake procurement of the AOLR. In the first option, the RAs would put a regulatory framework in place (new licence requirement for an AOLR) and run a competition or process to procure the AOLR.

2.2.3 A second option would be to appoint the TSOs as the delivery agent of the AOLR framework and they would run a competition or similar establishment process. This arrangement could be enforced through a condition in the current TSO licence.

The AOLR service provider

2.2.4 Were the RAs to establish a framework for procurement of the AOLR, the entity providing the service would be selected through a competitive tendering process. However under the TSO-led approach a question arises as to whether the TSOs could perform the service in-house or be mandated to outsource the service through a competitive tender.

2.2.5 A number of potential issues were raised in the paper for comment in respect of the TSO-led procurement process, particularly in respect to conflict of interest concerns.

2.2.6 Lastly, in this section respondents were asked to provide comment on:

a) whether they would have any interest in being the AOLR service provider and;
b) the approach that should be taken with respect to dissemination of information from the AOLR. The paper suggests that the average €/MWh received by participants could be published along with a breakdown of the fee associated with the operational and capex costs.

2.3 INCENTIVES AND COST ALLOCATION

Recovery of Costs

2.3.1 In this section of the Consultation Paper, respondents were asked to comment on issues surrounding cost recovery of the AOLR. In particular, views were sought on whether the costs of the AOLR should be borne by only those participants using it, and whether there were concerns that the AOLR could become a stranded asset in the event that a small number of participants chose to use it.

Incentives

2.3.2 Were the TSOs or RA procurement and/or TSO operation to be the favoured approach, it would appear possible to provide incentives on the costs of the service for the Portfolio and Individual Settlement Approaches, while the incentives in the Passive Approach would be linked to general incentives on the System Operator.

2.3.3 Hence two approaches were outlined that would be applicable under the Portfolio and Individual Settlement Approaches.

2.3.4 The first was the best endeavours approach whereby, contingent on sufficient competition to provide the AOLR service, providers would be incentivised to provide a least cost, highest revenue for its participants given the competitive design of the tender process to select a provider that obtains maximum revenues across the market timeframes.

2.3.5 The second option would be a benchmark against the market price whereby providers could offer to pay the AOLR generators a reference price discounted by a percentage or fixed amount. While the DAM price could be used as a reference price, it could be possible also to use the BM or a combination of the DAM and BM.

2.4 PARTICIPANT ELIGIBILITY

2.4.1 The last section of the Consultation Paper discusses the options around which participants should be able to avail of the AOLR service.

2.4.2 It was proposed that there is no upper limit to wind generation that is eligible to sign up to an aggregator and likewise there should be no lower eligibility limit for participation i.e. generation under the de minimis level of 10MW could avail of the AOLR service.

2.4.3 A question was also posed as to whether the following participant types should be able to avail of the service, and if permitted should they be grouped such that the risk inherent for the participant type is only borne by

those participants should pooling of risk be a function of the AOLR (i.e. only wind is exposed to the commercial risks arising due to wind forecast errors)

- All generation below the de-minimis threshold of 10MW including thermal;
- All renewable generation, and;
- Small demand.

3 SUMMARY OF RESPONSES RECEIVED

3.1.1 This section sets out a summary of the responses received to the SEM Committee Consultation on the Aggregator of Last Resort Framework (SEM-14-106).

3.2 OPERATION AND FUNCTION

Functions of the AOLR

3.2.1 Some respondents agreed with the functions outlined, with one respondent stating participants should have the option to undertake the commercial decisions themselves.

3.2.2 There was a mixed response with regard to the 'last resort' nature of this mechanism. Some respondents noted that the AOLR revenues should be discounted to ensure that it is only a "back stop" route to market. These respondents also noted that some of the functions proposed went beyond what is required of a competitive, third-party aggregator. Conversely, some respondents noted concerns that the AOLR would not be a viable route to market based on the proposals outlined and hence the financeability of projects under these arrangements would be questionable (this opinion was largely based on the low levels of expected volumes that would partake in this mechanism and hence the resultant costs to participants in the AOLR should no socialisation of costs be applicable).

Operation of the AOLR

3.2.3 In general, respondents were largely in favour of the Passive Approach outlined in the Consultation Paper for a number of reasons.

3.2.4 Firstly, some respondents believed that the participant fee associated with the Portfolio and Individual Settlement Approaches would be prohibitively expensive due to high capex and operational costs that they believed would be associated with these options, particularly relative to the volumes they expected to use the AOLR. One respondent noted that they anticipate this to be around 200MW of installed capacity and hence the cost per MWh will likely be a barrier to entry. They considered that the Passive Approach would avoid these high costs.

3.2.5 Secondly, many respondents considered that the Passive Approach would mitigate many of the significant issues identified in the Consultation Paper, namely those related to conflicts of interest, incentives, stranding of assets and cross-subsidisation.

3.2.6 A number of respondents were not in favour of the Passive Approach. These respondents cited the lack of a mechanism for IDM trading in the Passive

Approach as being a major short-coming. In most cases, these respondents supported the Portfolio Approach. One of these respondents stated that the AOLR should be a combination of both the Portfolio and Individual Settlement Approach.

3.2.7 Five respondents set out alternatives as to how the AOLR should operate:

- One respondent proposed an alternative to the Passive Approach whereby a fully mechanistic approach (i.e. the Passive Approach) would be used with a significantly discounted market price that would incentivise commercial aggregators to enter the market.

- Another respondent outlined an alternative whereby the AOLR would be essentially a contract of last resort. There would be an auction for different providers to act as counterparties to generators unable to contract in I-SEM and the design of universal contractual terms would sit with the RAs.

- Three respondents proposed that an approach akin to the Offtaker of Last Resort in GB that could be implemented.

3.2.8 Lastly, two respondents outlined a mechanism whereby, under the Passive Approach, quantities could be sold or bought in the IDM in accordance with a defined rule set. Specifically, based on updated forecasts of output, the AOLR could buy/sell additional volume in the IDM at specific times at pre-determined prices, e.g. the DAM price less a predefined discount.

3.3 GOVERNANCE AND PROCUREMENT

3.3.1 Most respondents stated that the RAs should procure and license the AOLR and a number stated that the legislative changes required should not be a barrier to facilitating this arrangement.

3.3.2 A number of respondents commented that the TSOs should neither provide the AOLR service in-house, nor procure the service through an external tendering process. These respondents cited conflict of interest concerns and the risk that the AOLR would be cross-subsidised as the primary reasons for this position.

3.3.3 Respondents noted that the issues in the paper are largely mitigated under the Passive Approach, both in terms of governance and procurement and, with regard to incentives and cost allocation as discussed in the next section.

3.3.4 One respondent noted that, given the experience of the Supplier of Last Resort in Ireland, there was a risk that tendering for an AOLR, whether led by the RAs or the TSO, might fail to attract any interest. However, a number of

respondents expressed interest in being the AOLR. Most of these respondents noted, though, that they would need to see further details before making a commitment.

3.3.5 Lastly, most respondents agreed that transparency of the AOLR's activities and revenues was important, both to allay cross-subsidisation concerns (were it to be an in-house function of the TSO) and, to promote competition from commercial aggregators.

3.4 INCENTIVES AND COST ALLOCATION

Recovery of Costs

3.4.1 The majority of respondents stated that the costs of the AOLR should be paid for by those participants using its services. However, it was noted by a number of respondents that such fees should not inhibit market entry and this concern was contingent on the take up of the service if the costs are to be borne by the AOLR participants. These respondents stated that this concern reinforced their support for the Passive Approach as it would be significantly less costly to implement compared to the other proposed approaches.

3.4.2 One participant noted, however, that in the event that tendering the AOLR service either attracted little interest from providers and hence resulted in interest only at excessive cost, then these costs would need to be socialised.

3.4.3 One respondent noted that there should be an array of fee structures available to participants given their different financing structure. This ranged from guaranteed minimum revenue, pegging of revenues to a reference price, or maximised revenue.

Incentives

3.4.4 In general, respondents noted that incentives were not applicable were the Passive Approach to be implemented. Were either the Portfolio or Individual Settlement Approach to be implemented then incentives would become relevant.

3.4.5 These respondents also commented that, under a competitive tender approach to procurement, subject to adequate competition, there should be no incentives required as a competitive tendering process would select the AOLR that would maximise revenues for its participants. These respondents believed that incentives would likely only be required where there was regulatory intervention in the event of a lack of competition in the procurement process.

3.4.6 A number of respondents were of the view that a regulatory discount should be applied to the market price, such that the AOLR would be truly a 'last

resort' option for participants. However, another respondent stated that such a discount to the market price would be used as a reference for project financing and hence there would be a need to ensure it did not provide a barrier to entry in light of Government targets for renewables in electricity.

3.5 PARTICIPANT ELIGIBILITY

3.5.1 The majority of respondents agreed that there should be no threshold limits for wind participation in the AOLR.

3.5.2 There was a mixed response with regard to allowing other generation types to avail of the AOLR services. Some commented that it should be available only to variable generation given its inherent forecasting risk exposure in I-SEM. One respondent noted that allowing other types of generation would add unnecessary complexity to design and system implementation. Others noted that the AOLR should be available to those generators that are unable to obtain power purchase agreements with suppliers.

3.5.3 In general, several respondents stated that small demand participants should not be able to avail of the AOLR services with one respondent noting that facilitating demand participants would be an entirely different role.

3.5.4 Those respondents who agreed that the AOLR should be open to other types of generation unable to contract in the I-SEM also agreed that such generation should be grouped based on its risk exposure in the ex-ante markets resulting from the variability of the fuel source (should pooling of risk be a function of the AOLR).

3.6 OTHER ISSUES RAISED

3.6.1 There were a number of similar comments made by a number of respondents that did not fall exclusively under the topics raised in the paper but merit inclusion.

3.6.2 The first was around concerns raised regarding the timing of the AOLR consultation. In particular, that without sufficient information of the detailed design of the market arrangements it was difficult to comment on the proposals in the consultation.

3.6.3 The second general comment concerned whether the AOLR would be an enduring feature or whether it would be provided as a transitional measure pending the emergence of commercial aggregation services. A majority of respondents felt that the AOLR should be implemented on an enduring basis as otherwise any benefits accruing would be eroded under a transitional approach i.e. that an AOLR needs to be in place for an investment timeframe

as otherwise the benefits could potentially be undermined. One respondent noted that the need for an AOLR could be reviewed periodically such that the AOLR service could be provided as long as it was deemed necessary.

3.6.4 Another (confidential) respondent stated their view, that in all cases, the AOLR should be able to access any below de minimis benefits available to a supplier in off-setting demand. By this they appear to be referring to the ability of de minimis generators to act as negative demand at a supplier unit and to access the capacity charge as opposed to the capacity payment and to access the imperfections charge.

3.6.5 Lastly, there was a recurring comment with regard to how the AOLR would interact with Government support schemes.

4 SEM COMMITTEE RESPONSE

4.1.1 The SEM Committee notes the general concern from industry that the AOLR consultation has pre-empted the details of the I-SEM Energy Trading Arrangements. However, given the timelines regarding the I-SEM implementation, it was necessary to consult on this issue prior to the consultation on the I-SEM detailed market design. The SEM Committee is of the view that publishing the Consultation Paper at the time it was published has not compromised any part of the AOLR framework design. However, in recognition of the concern, the decision on the AOLR is being taken on the basis of the decisions taken in the ETA Detailed Design as a whole as the publication of the final Decision Papers for both workstreams have been progressed in tandem and are being published simultaneously.

4.1.2 The SEM Committee notes that the majority of respondents in favour of the AOLR believe that it should be implemented on an enduring basis rather than on a transitional basis, as stipulated in the I-SEM High Level Design (HLD) Decision. Notwithstanding that it would be a departure from the HLD, given that the AOLR will passive and inbuilt into the systems (as outlined in subsequent chapters), it would be pragmatic to have as an enduring solution given that the cost of running should not be significant and it is a last resort option for those generators unable to contract with suppliers in I-SEM.

4.2 OPERATION AND FUNCTION OF THE AOLR

4.2.1 The SEM Committee agrees with respondents that the costs of the AOLR should be borne by its beneficiaries where possible. However these implementation costs and operational costs should not be such that they outweigh the benefits of the AOLR and hence become prohibitive for potential participants. Furthermore, under the Passive Approach, the capital costs are likely to be relatively modest and as such, recovery of the annualised costs of this system from a potentially large number of small participants may be more costly than the AOLR system itself.

4.2.2 As highlighted at the public workshop on the AOLR on 19 December 2014, and in responses, the SEM Committee notes the concerns that the level of participants that are likely to avail of the AOLR service will be quite low.

4.2.3 On this basis, the SEM Committee sees considerable merit in the argument that a) both the Portfolio Approach and the Individual Settlement approach could be prohibitively expensive for its participants and b) that both these approaches may impact negatively on commercial offerings.

4.2.4 **In light of the above the SEM Committee has decided that the AOLR should be developed on the basis of the Passive Approach set out in the**

Consultation Paper. Hence the focus of the remainder of this paper will concentrate on outlining the detailed design of the 'passive' AOLR and its implementation in I-SEM under the various topics outlined in the Consultation Paper.

4.2.5 For clarity, given that it was raised by some respondents, the RAs do not consider that the AOLR would be an entity that offers regulated PPAs to those participants that cannot access them through the market (similar to the Offtaker of Last Resort in GB). The reasons for this are twofold.

4.2.6 Firstly offering regulated PPAs to small players is outside the scope of this consultation and was not included as part of the HLD. The I-SEM HLD decision states the following in respect of the AOLR:

- *The I-SEM will include a transitional mechanism to help smaller players to access the market in ex-ante timeframes without necessarily needing to invest in trading capability of their own. This aggregator or offtaker of last resort will help to mitigate particular risks for smaller players in transitioning to a new market design based on their active participation. The existing role of intermediaries will continue to be facilitated.*
- *The intention of any such mechanism would be* ***to facilitate participation of smaller players in the DAM and IDM****, through the provision of bidding and settlement transaction services.*

4.2.7 Under such a regulated PPA offering approach, these participants would not be participating in the DAM or IDM but a supplier would do so on their behalf.

4.2.8 Secondly, placing a regulated PPA offering requirement approach would need at least a supply licence change and perhaps a legislative change.

4.2.9 Lastly, as one respondent noted, an offtaker approach has the potential to be in direct competition with commercial aggregation providers, an outcome which is not intended under the HLD nor is it desired by participants as reflected in their responses.

4.2.10 Hence, this is not an approach that the RAs are considering this at this time. However, this decision does not preclude such a mechanism being developed in the future. As noted above, this may require a change to legislation.

Operation of the Passive Approach

4.2.11 The primary purpose of the AOLR is to facilitate the participation of smaller players, especially smaller variable generation, in the ex-ante markets. Therefore, the AOLR will primarily undertake the following functions (and possibly a second – see section 4.2.23) as outlined in the Consultation Paper:

- ***Undertake trading in the ex-ante markets on behalf of eligible generators (i.e. submission of bids/offers in the ex-ante markets).***

4.2.12 Regarding trading in the ex-ante market, the Passive Approach envisages that the AOLR will not exercise judgement but will sell quantities in the DAM based on a pre-determined formulaic calculation with pre-defined inputs, i.e. based on the forecast & participants' technical availability, the AOLR will sell at the clearing price by acting as a price-taker, rather than attempting to set the price.

4.2.13 This process would involve the following steps:

- Each participant declares to the AOLR the relevant technical availability of the generating units. Thus, a participant with, say, a 10MW site, but which has a 2.5MW turbine down for maintenance, would declare a technical availability to the AOLR of 7.5MW for the duration of its downtime. An assumed default position for the technical availability will be used for each participant which would minimise their administrative burden. A likely position would be that the AOLR assumes 100% technical availability of each participant unless told otherwise. This could be declared during the registration process.

- The TSOs' forecast will then be used to determine the output of each unit in the AOLR based on the forecast and the technical availability data. For wind, the TSO forecasting will be at unit level if greater than 5MW while those less than 5MW will likely need to be extrapolated as these sites currently fall below the Grid Code controllability requirements and hence are not providing availability data to the TSOs.

- Sell Offers will be submitted to EUPHEMIA for each hour over the trading day, as a pre-determined percentage of the forecasted output.

- The AOLR will in all likelihood act as a price taker in the DAM. The exception to this would be where AOLR users might wish to bid in a way that does not expose them to significant negative prices in ex-ante markets.

4.2.14 As can be seen, the AOLR will not exercise any commercial judgement on behalf of its participants. Specifically, any expectation of the price in the DAM will not influence the volumes bid into this timeframe even if the price at the DAM stage is consistently lower than the imbalance price i.e. the calculated volume based on availability and the TSOs' forecast will always be submitted to EUPHEMIA regardless of price expectations.

4.2.15 To the extent that the output of the unit differs from its traded volume (allowing for any non-energy actions), that unit shall be exposed to the imbalance price (e.g. if part or all of the unit is forced out unexpectedly).

4.2.16 A set percentage of the forecast wind output could be submitted to EUPHEMIA rather than the exact forecast. This percentage would be agreed between each AOLR participant and the AOLR such that a predefined percentage split between timeframes is set by the participant. Depending on their expectation of prices in each timeframe, it may be more beneficial to AOLR users to split their volumes between the DAM and BM timeframe by holding back a percentage of volume from the DAM. Further, this percentage split can be redefined periodically by participants once enough time has passed to allow participants to quantify the commercial implications of selling volumes in the DAM vs the BM. Alternatively all participants could have the same predefined percentages as agreed through a consultation process. It is proposed that a decision in this regard (individual or generically defined parameters) will be taken during implementation whereby eligible participants can agree with the AOLR on the optimal approach to be implemented.

4.2.17 Participants in the AOLR will be responsible for their own Grid Code compliance.

Intraday Trading

4.2.18 If intraday auctions are implemented in the I-SEM then the AOLR should participate, most likely as a price taker, in these auctions based on updated forecast information. This methodology will follow the one used for the DAM and will incorporate a minimum tolerance change in the updated forecast, below which no volume will be submitted to the IDM (i.e. when the delta between DAM forecast and IDM forecast is > X MW, it triggers an action to trade in the IDM).

4.2.19 However if only the continuous (Cross Border Intraday) XBID solution is available then consideration needs to be given to an alternative solution. This was referenced in some responses. The SEM Committee is of the view that this issue is more difficult in the context of a continuous market. The TSOs, in their response, suggested an approach to intraday trading. This approach is grounded in the fixing of bidding rules for all units availing of the service and ensuring that there should be no discretion within the AOLR. The SEM Committee sees merit in such an approach and agrees that a key aspect should be ensuring that there is not discretional trading by the AOLR on behalf of the generators. The SEM Committee is of the view that the detailed rules development and implementation phase is the best place to develop the very specific rules of IDM trading by the AOLR but is of the view that it should be closely based on the following methodology:

- At an agreed time (or at the time when the difference between DAM and IDM forecast meets a minimum defined threshold), the AOLR will place a bid or offer into the IDM market for each unit. The price entered will be a predefined percentage of the prevailing IDM price for that period (the prevailing IDM price plus a % for a bid and the prevailing IDM price less a

% for an offer). This prevailing IDM price may be a market index of the IDM price or other publicly available IDM Order Book information.

- The percentage volume submitted into each timeframe will be predefined along with the timing(s) of the volume(s) entered to the IDM.
- If the bid/offer is not executed after a predefined time period, it could be withdrawn and resubmitted at another less favourable predefined % and resubmitted.
- The volumes for each unit entered to the IDM by the AOLR would need to meet a predefined minimum MWh level tolerance (i.e. when the delta between DAM forecast and IDM forecast is > X MWh, it triggers an action to trade a volume on behalf of the unit in the IDM).

Unit Based Settlement

4.2.20 The AOLR will submit bids into the ex-ante markets on a unit by unit basis and hence participants will be settled on a unit by unit basis whereby any differences between the volumes sold on their behalf (allowing for any non-energy actions), and the participants' metered output, is cashed out at the imbalance price.

4.2.21 The passive AOLR outlined in this paper is a data processing function whereby the AOLR facilitates trading on behalf of those participants in a mechanistic way into the ex-ante markets on a unit by unit basis. Imbalance settlement of these participants will also be on a unit by unit basis. However, as envisaged, the passive AOLR does not have a direct role in imbalance settlement which means that the AOLR on its own will not carry out any pooling of risk associated with forecast error.

4.2.22 The Consultation Paper put forward the pooling of risk as one of the functions that might be carried out by the AOLR. No strong preference for the inclusion of such a function in the AOLR or otherwise was clear based on respondents' comments The approach being put forward here with unit based participation in the ex-ante markets may not easily lend itself to pooling of risk in imbalance settlement.

4.2.23 Should eligible AOLR participants deem this pooling of risk a desirable function it can explored further in the implementation phase as to whether this approach could be implemented in imbalance settlement. At this stage it does appear that such an approach is not straightforward given the implementation option being chosen. However, once the I-SEM imbalance settlement vendor has been assigned it can be determined whether or not this functionality is implementable or whether additional arrangements could be put in place to achieve this. Such an arrangement, if possible, could have wider implications for commercial aggregators and other portfolio participants and hence any decision in this regard would need to take cognisance of this.

4.2.24 The SEM Committee is of the view that no provision should be made in relation to accessing the de minimis benefits referred to by one respondent. In particular, the de-minimis benefits referred to should not necessarily be relied upon to be in place in the future. Indeed, they have not always been in place in the SEM for all de minimis generators. In addition, not including de minimis benefits in the AOLR scope would not stop such generators accessing the benefits as supplier units should that route be available.

Worked Example of the Passive Approach

4.2.25 This trading approach is best illustrated through an example of one unit in the AOLR.

Unit characteristics are:

- 50MW installed capacity;
- Unit technology is wind; and
- The unit is 100% technically available.

An example of a set of predefined parameters are:

- Split between timeframes is 100%DAM, 0%IDM, 0%BM;
- Prevailing IDM price plus/minus 10% is used as the AOLR's IDM price offer/bid;
- Prevailing IDM price plus/minus 20% is used as the AOLR's IDM price offer/bid if trade not executed after 30 minutes; and
- The minimum tolerance for an IDM trade is 1MW.

Assumptions:

- No TSO actions are considered (curtailment event or local constraint);
- A volume is submitted to IDM at 4 hours before IDM gate closure which was triggered by the delta between the DAM and IDM forecast being exceeded;
- The first IDM trade is not executed within the 30 minute window while the second IDM trade is executed.

AOLR Activity & Revenues in each timeframe	
Day Ahead Market	
Wind Forecast at DAM	45 MWh
Volume in DAM (Price Taker bid)	45 MWh (45MWh*100%)
DAM Price	€60 /MWh
DAM Revenue	€2,700
Intraday Market	
Wind Forecast during IDM	25 MWh
1st Volume to IDM at 4 hours prior to real time	Offer to buy 20 MWh [(45MWh-25MWh)*(100%+0%)]
1st IDM Offer Price	€66 /MWh (€60*110%)
2nd Volume to IDM at 3.5 hours prior to real time	Offer to buy 20 MWh [(45MW-25MW)*(100%+0%)]
2nd IDM Offer Price	€72 /MWh (€60*120%)
IDM Revenue	-€1,440
Balancing Market	
Actual Wind Production	30 MWh
Imbalance Price	€65 /MWh
Imbalance Volume	5 MW (30MW-45MW+20MW)
BM Revenue	€325
Total Revenue	€1,585 (€2,700 - €1,440 + €325)
Average Price	€52.83 /MWh

Market Obligations & Registration Procedure

4.2.26 With an approach where the AOLR participants will be settled on a unit by unit basis, the AOLR would not need to hold any accounts with the NEMO as they will not be pooling revenues from the markets nor will they be an intermediary in the cash flows from imbalance settlement and the participant. This means the AOLR would not take any ownership of energy however they will be party to the markets as a trading member.

4.2.27 This was a key issue put forward in the Consultation Paper in relation to potential conflicts of interest for the TSOs. In particular, it was questioned whether the TSOs should take any active role in the energy market. A number of respondents were concerned on this point also. Indeed, the TSOs raised this issue in their response and have suggested that the implementation of Option 3 should be done in the most passive way possible and in a way that does not involve them taking any ownership of energy but rather carrying out trading in a very mechanistic manner on behalf of AOLR participants.

4.2.28 With the implementation of this approach, each participant will be required to sign up to the markets individually, set up an account with the imbalance

settlement operator and undertake the necessary obligations, including posting of the required credit cover. This also means the credit cover arrangements will not be pooled by the AOLR and therefore each eligible participant will be required to post individual credit cover regardless of being in the AOLR or otherwise.

4.2.29 The SEM Committee recognises that such arrangements can be onerous for small players, particularly with respect to the fees to join these markets. A high level search of publically available fee structures at EU Power Exchanges indicates that joining fees can be upwards of €25,000[1]. Notably though, there are arrangements for 'membership light' indicated in the fee publications of at least some power exchanges. However, at this stage, a decision regarding the fee structures for AOLR participants cannot be defined until the implementation phase of I-SEM when the fee structures for all market participants are being defined. However, the SEM Committee recognises that in order for the AOLR to meet its objectives, a practical and workable solution must be sought for small players.

4.2.30 It is likely that the AOLR will be a full member in the ex-ante markets and hence will pay the full membership fees associated with being a full member. This fee will be passed onto participants of the AOLR as discussed in section 4.4 below.

4.2.31 If an approach cannot be put in place which provides a cost effective route to market for small participants utilising the approach above, a different implementation approach will need to be considered. This approach could see the AOLR set up within the imbalance settlement arrangements and could see the AOLR take ownership of the participant's energy which is traded with the NEMO. Under such an arrangement, the AOLR would still be bidding in a mechanistic manner.

4.2.32 Regarding the registration and charging fees associated with imbalance settlement, the RAs will also consider these arrangements as part of the implementation phase of the I-SEM.

4.2.33 Any requirements under the Grid Code shall not be impacted by participation in the AOLR. In other words, the obligations for generators that are greater or equal to the 5MW under the Grid Code will remain and similarly those unit under this threshold will be treated as stipulated in the Grid Code regardless of joining the AOLR or otherwise.

[1] APX Price List, BELPEX Fees, EPEX Spot Price List

Transparency

4.2.34 Most respondents agreed that the transparency of the AOLR was important both in terms of promoting competition and cross-subsidisation issues. Notwithstanding that these issues are largely mitigated under the Passive Approach, it is not proposed to define the exact information that the AOLR should publish in this paper. Instead transparency of the AOLR will be addressed as part of the general market publications in I-SEM which will include an additional annual report by the AOLR on its operations.

4.3 GOVERNANCE AND PROCUREMENT

Procurement

4.3.1 Under the Passive Approach, the traded volumes are based on a pre-determined methodology. Without the need for any trading strategies the AOLR is purely an administrative function. Hence, the issues discussed in the Consultation Paper regarding potential conflicts of interest are largely mitigated should the TSOs undertake this role.

4.3.2 Therefore it is proposed that the Passive AOLR will be an in-house function that will be a part of the imbalance market systems and processes. This means that there will be no standalone procurement process required to select the AOLR entity as the TSOs and imbalance settlement operator will procure the required AOLR systems as part of its general procurement for the I-SEM.

Governance

4.3.3 In terms of governance, at this early stage the RAs are of the view that, implementing the passive AOLR may not require legislative change or a new licence arrangement as it could fall under the TSO and Market Operator Licence framework. However, as part of the I-SEM Governance and Licensing workstream, the legal robustness of the current licensing arrangements shall be considered in this context and the appropriate actions will be taken as needed.

4.3.4 Given that the AOLR will be procured as part of the overall I-SEM system changes and given the relatively modest capital costs expected of the Passive Approach, it is therefore pragmatic that the AOLR will remain as a backstop route to market on an enduring basis.

4.3.5 As stated previously, the volumes traded in each timeframe will be agreed periodically between the AOLR and its participants. The parameters that can be adjusted periodically will be as follows:

- The percentage of the forecast volumes that is submitted to each timeframe (e.g. %DAM, %IDM & %BM of forecast volume)

- The trigger for entering bid(s)/offer(s) to the IDM (i.e. X hours before IDM gate closure or a minimum delta change in forecast)
- The percentage applied to the reference IDM price for volumes sold in the IDM (i.e. the prevailing or last IDM price less X% if forecast increases and the prevailing or last IDM price plus X% if the forecast decreases)
- The minimum MW tolerance required to trigger a volume entered to the IDM (i.e. X MW +/- change in forecast from the DAM forecast triggers a volume bid/offered to the IDM)

4.3.6 Determination of these parameters will be decided through a consultation process led by the AOLR which will include working group between eligible participants and the AOLR that will fall under the purview of the RAs.

4.4 INCENTIVES AND COST ALLOCATION

Incentives

4.4.1 The Consultation Paper discussed potential incentives on the AOLR. However, given that Passive Approach is being proposed, no incentives on the AOLR to seek out optimal revenues for its participants will be required. Therefore, it is proposed that there shall be no incentive mechanism implemented for the AOLR outside of the general incentive regulation on the TSOs and imbalance settlement operator.

Cost Allocation

4.4.2 The costs associated with the implementation of the AOLR and its operation will be borne by its participants insofar as they are identifiable.

4.4.3 The AOLR will charge a fee for providing this service that would cover the costs of setting up and running this mechanism. However, the set up costs are expected to be relatively small when compared to the overall procurement of the I-SEM systems and hence it may not be possible to identify them during the procurement process. Furthermore, it may be more efficient to socialise these set up costs, as the mechanism for recovering these set up costs through an annualised fee might be greater than the actual cost being recovered.

4.4.4 It is worth noting also that there are wider benefits to market participants in having Day Ahead participation by these smaller players so there may be merit in socialising this cost. Therefore it is proposed that a decision to socialise these set up costs will be made during the systems procurement process.

4.4.5 The fee charged to participants will be subject to regulatory oversight so that it does not pose a barrier to entry. Where it was determined that the fees

were prohibitive, there may be a case to socialise some of these costs. It is not anticipated that this would be the case however, until sufficient competition arises from commercial aggregators in the market, it is important that the AOLR is a viable route to market for eligible participants. A periodic review could be carried of the fees associated with the AOLR given the fee per MW is contingent on the level of participation in the AOLR. This review could also provide a review of the competition in the market from aggregators which would inform a decision on the regulation of these fees, if appropriate.

4.4.6 As mentioned above, the fees associated with the AOLR participants joining the ex-ante markets and the clearing house for imbalance settlement will also be determined at the implementation phase of the I-SEM project. However, it is envisaged that the SEM Committee will look for the relevant NEMO to have a charging structure available which meets the needs of the AOLR. As discussed, above, if this is not possible an alternative implementation approach will be considered.

4.4.7 Given the variable nature of wind, the TSOs currently utilise a wind forecasting tool that aids decisions to ensure that sufficient generation is available to balance the system and to ensure the technical requirements of the system are not breached. This forecast will be used by the AOLR to determine the volumes in the ex-ante market and hence any fee paid by AOLR participants will not reflect the cost of the wind forecast service provision as this cost is already socialised through network charges.

4.4.8 The fee structure for the AOLR will be developed as part of the implementation phase of the AOLR which will be approved by the RAs.

4.5 PARTICIPATION

4.5.1 The SEM Committee concurs with the general view of respondents that demand participants should not be able to avail of the AOLR services primarily on the basis that this would be a different role entirely than the one outlined. Hence, demand participants will not be able to avail of this AOLR service.

4.5.2 As noted there was a mixed response from respondents with regard to participation from generation types other than wind. It is proposed therefore to allow all generation participants below the de minimis level of 10MW and all renewable technologies to avail of the AOLR service for the following reasons:

- The I-SEM HLD Decision stated that the AOLR should provide a route to market for small players

- Given the concerns highlighted in the responses with respect to participation in the AOLR, widening participation to other generation types other than wind should increase the volumes in the AOLR.

4.5.3 Participation by generation other than wind means that separate forecasts will be used in the trading volume calculation in each market for each unit type. The registration process will identify the technology type and hence the appropriate forecast. For example, a participant with a biomass site and a wind generating site might use a forecast of maximum output if 100% technically available for its biomass site whereas the TSOs' wind forecast is used for a wind unit to determine the volumes to bid into the DAM/IDM.

4.5.4 Lastly, as proposed in the Consultation Paper and as alluded to above, there shall be no upper limit to wind that can participate in the AOLR. The reason for this is that there is likely be a natural tipping point at which the larger generators would see greater benefits to bidding independently into the markets by giving them greater control over their portfolio of generation.

5 CONCLUSION

5.1.1 The AOLR will undertake the Passive Approach as outlined in the Consultation Paper. This means that the AOLR will provide a mechanism for eligible participants to trade in the ex-ante markets. This mechanism will be mechanistic and will encourage commercial aggregators to enter the market. This 'passive' AOLR will be an in-house function within the market systems. The following table summarises the SEM Committee's decision with regard to the Aggregator of Last Resort in the I-SEM.

- The AOLR's purpose is to facilitate smaller players' participation in the DAM and IDM.
- The AOLR will act passively meaning it will bid volumes into the ex-ante markets based on a predefined methodology that is based on the TSOs' wind forecast (where applicable) and unit's technical availability.
- The traded volumes methodology parameters will be set between the AOLR and its eligible participants. These parameters will be set through an AOLR led consultation process, including working groups that will be under the governance of the RAs.
- Each participant will be settled individually on a unit-by-unit basis and will need to register with the market(s) independent of the AOLR. The AOLR will not be involved in any energy transactions and hence each participant will need to set up accounts with the imbalance settlement clearing body.
- Pooling of risk will not be a core function of the AOLR but may be possible in imbalance settlement. This functionality is to be investigated in the implementation phase.
- The AOLR will be an in-house function within central market systems and will be an enduring solution, rather than on the transitional basis described in the High Level Design.
- The costs of the AOLR will be borne by its participants to the extent possible but will be subject to regulatory oversight so that the associated fees are not prohibitive.
- Participation in the AOLR will be limited to renewable generation of all sizes and de minimis generation (<10MW) of all technologies.

6 APPENDIX A. AOLR ISSUES FOR THE DETAILED RULES AND IMPLEMENTATION PHASE.

	Issue	Responsible	Timeframe for Decision/Implementation
1	Detailed rules drafting for the AOLR	Mods Committee	2015/16
2	Development of registration and institutional framework for the AOLR	TSO/MO	2015/16
4	Development of processes underpinning the AOLR	TSO/MO	2015/16/17
5	Approval of AOLR Market Parameters	RAs	2017
6	Approval of AOLR charging regime	RAs	2017