



**Integrated Single Electricity Market
(I-SEM)**

Capacity Remuneration Mechanism (CRM)

DSU Compliance with State Aid

Consultation Paper

SEM-19-013

15 March 2019

EXECUTIVE SUMMARY

Within the CRM detailed design decision paper the SEM Committee determined that DSUs, contrary to other market participants, would be exempt from RO payments where the contracted demand reduction is delivered. RO difference payments would be applied to DSUs only when the demand reduction is not delivered and the Strike Price is exceeded by the MRP. This decision was made on the basis that DSUs did not have access to energy revenue which is used to offset RO payments and DSUs would therefore be placed at a disadvantage compared to other capacity providers. However SEM Committee also noted that in the medium to longer term it may be necessary to review this decision.

In their State aid decision, the European Commission accepted this approach as a transitional measure given the practical difficulties of treating DSUs in the same manner as other capacity providers in the time available. State aid approval was granted following a commitment by the RAs “to end the exemption from payback obligations for DSUs as of the delivery period starting in October 2020”.

The European Union is in the process of updating its energy policy framework under the banner “Clean Energy for all Europeans”. The latest draft of the Electricity Regulation, which forms part of this package, includes a number of obligations designed to fully integrate DSUs into electricity markets and goes beyond the requirements of the State aid decision.

SEM Committee has therefore set out, for consultation, its proposals to allow DSUs to participate in the market as required by the State aid decision and signalled within the draft Electricity Regulation.

SEM Committee considers that the optimal solution is likely to be the roll out of settlement-quality metering at each Individual Demand Site (IDS) as required and the creation of links in the Trading and Settlement Code (TSC) and the Transmission System Operators (TSO) and Market Operator (MO) systems between DSUs and IDSs to calculate the actual demand response of each DSU. This would be in addition to changes to data transfers between Meter Data Providers, the MO and the TSO.

However, given the lead times involved in system changes and the roll-out of settlement quality metering to each IDS this option would not be complete in time to be compliant with the State aid decision by October 2020. The SEM Committee therefore proposes an interim solution which would use the dispatched quantity as a proxy for the metered quantity and would use the socialisation fund to net the energy revenue paid to DSUs from that received by suppliers.

SEM Committee considers that the enduring solution is most likely to be fully compliant with the draft Electricity Regulation. Given the advanced drafting of the Regulation, SEM Committee considers it appropriate to consider only those options which are likely to be compliant with the draft legislation. However, SEM Committee further considers that it is appropriate to wait until the final form of the legislation is published rather than to implement the enduring solution at this stage which may need to be changed again.

Contents

Executive Summary..... 2

1. Introduction..... 4

 1.1 Background..... 4

 1.2 Purpose of this Consultation 6

2. Proposals For Treatment of DSUs in The CRM 7

 2.1 Overview..... 7

 2.2 Proposed Solution 8

3. Conclusions..... 13

4. Next Steps..... 14

Appendix A..... 15

1. INTRODUCTION

1.1 BACKGROUND

- 1.1.1 The detailed design of the I-SEM Capacity Remuneration Mechanism (CRM) has been developed through an extensive series of consultation and decision papers. This involved substantial interaction between stakeholders, including both System Operators and industry participants. This interaction took the form of numerous workshops and meetings in addition to the feedback from the consultations.
- 1.1.2 Decisions made during these consultations were translated into auction market rules to form the Capacity Market Code (CMC) (SEM-17-033) which was published in June 2017. The CMC sets out the arrangements whereby market participants can qualify for and participate in auctions for the award of capacity. The settlement arrangements for the Capacity Remuneration Mechanism (CRM) form part of the revised Trading and Settlement Code (TSC) (SEM-17-024) published in April 2017.
- 1.1.3 The introduction of the CRM involved formal notification to the European Commission (EC) of the proposed mechanism for purposes of State aid. This process was led by Department of Communications, Climate Action & Environment (DCCA) and Department for the Economy (DfE) who together with the Regulatory Authorities (CRU and UR) engaged with the EC in advance of the notification and during the notification process.
- 1.1.4 The EC approved the CRM on 24 November 2017¹. The first Capacity Auction took place in December 2017 to cover the period from I-SEM go-live to 30 September 2019, i.e. CY 2018/19.
- 1.1.5 The CRM buys capacity through competitive auctions which are, generally, carried out approximately four years (T-4) and one year (T-1) ahead of delivery (see SEM-16-039). The capacity purchased in each auction is determined from a capacity requirement based on the achievement of an 8 hour LOLE standard. The contribution any given capacity provider can make to delivering the capacity requirement is based on its de-rated capacity. The de-rated capacity is based on the historic reliability of different classes of assets and the size of each asset (see SEM-16-022 and the latest Capacity Requirement and De-rating Methodology, SEM-17-040b).
- 1.1.6 Capacity providers who have qualified participate in the capacity auctions and if successful are awarded a Reliability Option (RO). For existing capacity, these options have a one year duration but for new capacity can have a duration of up to 10 years.

¹ http://ec.europa.eu/competition/state_aid/cases/267880/267880_1948214_166_2.pdf

- 1.1.7 The Reliability Option requires its holder to make a difference payment whenever the Market Reference Price (MRP) rises above the Strike Price (currently set with a DSU floor price of 500€/MWh). The MRP will depend on the market in which the capacity provider has participated: DAM, IDM or Balancing Market (see SEM-15-103). If a capacity provider does not participate in any market for some or all of its obligated capacity, then the MRP for this capacity is based on the balancing market price.
- 1.1.8 Where a capacity provider has participated at its full obligated capacity in one or more of the energy markets, it will have energy revenue from that market which it can offset against the obligation to make a difference payment. To the extent that it has obligated capacity that has not participated in any of the energy markets, it is exposed to “uncovered difference payments”, i.e. it is required to make a difference payment without any energy market revenue to fund this payment. This provides the incentive for capacity providers to deliver their capacity at times of scarcity.
- 1.1.9 The obligated capacity which a capacity provider is required to deliver is based on the capacity awarded in its RO, but this is scaled down broadly in line with demand: “load following”. Load following recognises that not all contracted capacity needs to be delivered when demand is below its peak level (see SEM-15-103).
- 1.1.10 At go-live for the I-SEM, it was not possible to implement consistent treatment of units offering demand response (DSUs) in respect of their exposure to difference payments. This arose from the fact that DSUs did not have access to energy revenue which could be used to offset difference payments and DSUs would therefore be placed at a disadvantage compared to other capacity providers.
- 1.1.11 In recognising the practical issues with the treatment of DSUs, the SEM Committee determined (in the detailed decision paper² SEM-15-103) that DSUs would be exempt from RO payments where the contracted demand reduction is delivered. RO difference payments would be applied to DSUs only when the demand reduction is not delivered and the Strike Price is exceeded by the MRP.
- 1.1.12 At the time this decision was made, the SEM Committee recognised the desirability of DSUs receiving energy revenue and so allowing their treatment to be made consistent with that of other capacity providers.
- 1.1.13 In their State aid decision³, the European Commission accepted the treatment of demand response at go-live as a transitional measure given the practical difficulties of treating it in the same manner as other capacity providers in the time available. State aid approval was given on the basis that the treatment of demand response in the CRM would be brought into line with that of other capacity providers for the delivery period starting in October 2020.

² <https://www.semcommittee.com/publication/sem-15-103-capacity-remuneration-mechanism-decision-1>

³ http://ec.europa.eu/competition/elojade/isef/index.cfm?fuseaction=dsp_result&policy_area_id=3

1.1.14 The European Union is in the process of updating its energy policy framework under the banner “Clean Energy for all Europeans”⁴. This is a package of Directives and Regulations, including a new Electricity Regulation⁵, some of which were adopted at the end of 2018 with the balance expected to be formally adopted during 2019. The latest draft of the Electricity Regulation includes a number of obligations designed to fully integrate DSUs into electricity markets and goes beyond the requirements on participating in the CRM set out in the State aid decision.⁹

1.2 PURPOSE OF THIS CONSULTATION

- 1.2.1 The different treatment applied to DSUs regarding obligations to make difference payments at go-live was only allowed as a temporary measure by the State aid decision, the RAs are required by the State aid decision to deliver their commitment to end the exemption from payback obligations for DSUs from the delivery period starting October 2020.
- 1.2.2 The new draft Electricity Regulation, which forms part of the Clean Energy Package and is expected to be enacted during 2019, sets additional requirements on the integration of demand response in electricity markets that goes beyond those in the State aid decision.
- 1.2.3 This paper sets out for consultation the proposals as identified by the RAs and TSOs to ensure that DSUs are treated in a manner consistent with other capacity providers as required by both the State aid decision and the draft Electricity Regulation requirements.
- 1.2.4 Compliance with the State aid decision is required for the delivery period starting in October 2020. It is important to note that the outcome of this consultation will impact on DSUs participating in the March T-4 auction for capacity period 2022/23 and each subsequent capacity auction.

⁴ <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans>

⁵ <https://data.consilium.europa.eu/doc/document/ST-5076-2019-INIT/en/pdf>

2. PROPOSALS FOR TREATMENT OF DSUS IN THE CRM

2.1 OVERVIEW

- 2.1.1 SEM Committee sets out below, for comment by interested parties, its proposals to provide DSUs with access to the energy revenue which arises from their demand response and therefore allow DSUs to participate in the market as required by the State aid decision and signalled within the draft Electricity Regulation.
- 2.1.2 Current drafting says that the Regulation will apply from 1 January 2020 (cf. Article 65), setting a clear timetable for allowing full DSU participation in the balancing and capacity markets. Unlike Directives, Regulations do not need to be transposed into law by member states and, as currently drafted, the Regulation would bring forward and expand the obligation in the State aid approval.
- 2.1.3 Article 17 of the draft Electricity Directive sets out the key obligations with respect to DSUs in paragraph 1:
- “Member States shall allow final customers, including those offering demand response through aggregation, to participate alongside electricity generators in a non-discriminatory manner in all electricity markets.”*
- This principle is given further detail in the draft Electricity Regulation.
- 2.1.4 Article 5 of the draft Regulation sets out the obligations for demand response through aggregation in balancing markets and states that balancing markets should:
- “ensure non-discriminatory access to all market participants, including electricity generated from variable renewable sources, demand response and energy storage, be it individual or through aggregation.”*
- 2.1.5 Article 18b of the draft Regulation further sets out the obligations for demand response in the design principles for capacity mechanism and states that they should:
- “be open to participation of all resources, including storage and demand side management that are capable of providing the required technical performance.”*
- 2.1.6 The draft Regulation also requires DSUs to be balance responsible either directly or through delegation to another balance responsible party.
- 2.1.7 Within the SEM, a Demand Side Unit (DSU), is usually formed by a third-party company specialising in demand side management, which may contract with a number of individual demand sites (IDS) and aggregate them together to operate as a single DSU. Instructions to reduce demand are issued to the DSU by the TSO at an aggregate level and the DSU then co-ordinates the reduction from all its IDSs. IDSs typically use on-site generation, plant shutdown or storage technology to deliver the demand reduction.

- 2.1.8 In the first instance SEM Committee proposes amending the TSC to remove the special exemption processes currently applied to DSUs. Proposed changes to the relevant paragraphs of the TSC are set out in Appendix A.
- 2.1.9 In examining the options available which are compliant with the State aid decision, the SEM Committee has proposed only those options which it considers will also be compliant with the draft Electricity Regulation.
- 2.1.10 It is important to note that in the proposals, as set out below by SEM Committee, the energy revenue which will be credited to DSUs is currently being received by Suppliers. Each proposal removes this revenue from Suppliers in order to allow the appropriate revenue to be credited to DSUs. It is also likely that any solution will require changes in the contractual relationships between DSUs and their IDs and may also impact on the relationship between the IDS and their Supplier.
- 2.1.11 The proposals set out below will impact on DSUs operating in the market from October 2020 onwards. As the first T-4 CY2022/23 Auction is due to take place on 28 March 2019 DSUs seeking to participate in this auction must be cognisant of the impact of these proposals on their operations.

2.2 PROPOSED SOLUTION

Enduring Solution

- 2.2.1 To allow DSUs to participate fully within the energy markets, the TSOs must be able to accurately measure the demand response through the metered quantity, and to link that demand response to both the DSU and the relevant Supplier Unit.
- 2.2.2 This is currently not possible due to the inability of the MO and TSO to access settlement quality metering data from IDs given the current wholesale aggregation arrangements and the lack of infrastructure and data to map the IDs to a single DSU. In other cases, where the demand response lies 'behind the meter' there may not exist settlement quality metering at all.
- 2.2.3 SEM Committee therefore proposes a solution to, as a minimum;
- Capture on-site generation at the meter of each IDS, ensuring settlement quality metering is available at each site where it exists;
 - Determine reduced consumption at each IDS delivered through demand reduction through the development of a profile solution; and
 - Establish the necessary infrastructure to map IDs to the relevant DSU.

In order to accurately capture DSU activity and reward the DSU accordingly for its demand response

- 2.2.4 In practice this proposed solution involves installing settlement quality metering, where required, for demand response at each IDS.
- 2.2.5 For all IDSs, the proposed solution requires implementation of additional data feeds between the Meter Data Providers (MDPs) and the TSOs and Market Operator (MO).
- 2.2.6 In addition, the following amendments to the TSC would be required to
- require additional registration data for each IDS, linking it to a Supplier unit; and
 - create a relationship between the DSU and its component IDSs.
- 2.2.7 Settlement algebra of the TSC would also be amended to
- construct the Metered Quantity (QM) for each DSU from the sum of the metered demand response of each of the IDSs;
 - adjust QM for each Supplier unit by removing any metered demand response from any associated IDS, this may require adjustments to be made at the meter level prior to wholesale aggregation;
 - remove the Trading Site Supplier Unit (TSSU) on the Trading Site with the Demand Side Unit which currently exists to cancel out any activity by the DSU in the Balancing Market⁶; and
 - make any necessary adjustments to other aspects of the TSC to account for changes in the treatment of DSUs and Supplier Units, in particular changes are anticipated to be needed to the Required Credit Cover Calculations.
- 2.2.8 While this proposed solution would mainly affect the TSC, changes to other documents may be required including the Metering Code, Connection Agreements, licences etc.
- 2.2.9 This proposed solution would also require changes to the TSOs, MO and MDP systems to reflect the changes to the TSC and meter aggregation arrangements.

⁶ Currently the TSC requires the creation of a Trading Site Supplier Unit (TSSU) for every DSU. This TSSU acts as an equal and opposite unit to cancel out any activity by the DSU in the Balancing Market (TSC D.2.5.6) and prevents double-counting of the DSU activity as “measured” at the DSU and the same DSU activity at the Supplier Unit(s) where it is metered.

2.2.10 Using this proposed approach It would be possible to

- identify the actual metered volume at each IDS;
- calculate the total demand response for each DSU by combining the demand response at each IDS registered to that DSU;
- net the demand response at each IDS from the meter data of the relevant Supplier Unit.

2.2.11 The DSU would therefore be credited appropriately in the energy market for its demand response and be compliant with both the State aid decision and the current drafting of the Electricity Regulation.

2.2.12 The TSOs have advised that changes to settlement systems required for October 2020 will need to be implemented in the scheduled February 2020 software release, and therefore in development by Q4 2019. It is unlikely that the range of changes required could be developed and implemented by February 2020.

2.2.13 Accessing settlement quality metering data at each IDS would require changes to wholesale meter aggregation rules and data transfers between the MDPs and MO/TSOs, to be in place by October 2020 and it is unlikely that these would be achieved in time.

2.2.14 An alternative to this may be to permit IDSs to participate initially using their current operational metering, accepting that it is below settlement quality for a defined interim period. This would avoid the issues around obtaining settlement quality metering via changes to wholesale aggregation rules and to the MDPs systems. However, this approach would raise issues around data collection in terms of timing and the agency involved and may create issues where the data collected is clearly in error.

2.2.15 This solution involves significant changes to a range of systems and central service providers and so, in addition to extended development times, there will also be material cost implications for the whole market.

2.2.16 There may also be a cost implication to this proposed solution for some DSUs in relation to the installation of settlement quality metering at some IDSs.

2.2.17 While this proposed solution is fully compliant with the draft Electricity Regulation SEM Committee notes that the Regulation is still in draft format, until the final Regulation is published, which is expected over the next few months, SEM Committee considers that it would be advantageous to wait to ensure that any proposed system changes will be fully compliant with the new Electricity Regulation

2.2.18 Further given the requirements of this proposal, for settlement quality metering and the need for system development by the TSOs, MO and MDPs, it is unlikely that these changes would be in place to allow compliance with the State aid decision by October 2020.

2.2.19 It should be noted that there remains a timing issue for compliance with the draft Energy Regulation which currently is drafted to enter force on 1 January 2020.

Interim Solution

2.2.20 SEM Committee therefore proposes an interim solution in order to achieve compliance with the State aid decision by October 2020, with the intention of implementing the enduring solution as soon as reasonably practical.

2.2.21 This interim solution, as set out below, proposes to use the dispatched quantity rather than the metered quantity to calculate the DSU energy payments and to socialise the energy revenue paid to DSUs across all Suppliers.

2.2.22 Due to the unavailability of settlement quality metering for all IDss, SEM Committee proposes for the interim period that DSUs would be settled as if they had delivered the demand response that had been requested from the TSOs; i.e. settlement for DSUs would be based on the dispatch quantity (QD) rather than the metered quantity (QM). This proposal is in line with the existing treatment of DSUs in the TSC.

2.2.23 To ensure this approach is valid there must be an assurance that the dispatched quantity is a good proxy for the metered quantity. Therefore this approach relies on the Grid Code Dispatch Instruction compliance process being sufficient. This reliance is already supported by the testing regime set out in OC10 of the Grid Code⁷. However, if this value is being used for settlement then it may be appropriate for the RAs/TSOs to monitor compliance of DSUs with dispatch instructions – in particular, at times when the reference price rises above strike price and difference payments are made. If any ongoing issues with compliance are identified for DSUs then additional safeguards may be considered such as a review of the de rating factor for those units.

2.2.24 This approach must also net the energy paid to DSUs from the energy revenue received by Suppliers in order to avoid double-counting. However to do so accurately would require system changes to allocate DSU dispatched quantity across the component IDss and host Suppliers and a number of changes to the TSC to create relationships between IDss and DSUs.

2.2.25 Therefore, in order to achieve compliance within the State aid approval specified time period of October 2020, SEM Committee proposes to socialise the energy revenue paid to DSUs across all Suppliers through the Socialisation Fund (TSC F.21). Energy revenue paid to DSUs under the TSC could be subtracted from the balance of the Socialisation Fund and these costs would then be socialised across all Suppliers.

⁷ The Eirgrid Grid Code (OC10.4.5.2) sets out procedures used to monitor compliance with Dispatch Instructions by DSUs. Including a process for testing compliance based on comparing the DSU Energy Profile with the sum of Demand (from the Demand Sites associated with the DSU) and the DSU MW Response. This test has a 5% tolerance band. The DSU Energy Profile is data submitted by the DSU Participant under the Scheduling and Dispatch Code (SDC.1.4.4.2). DSU MW Response is a signal which must be provided by the equipment at each Demand Site under the Connection Agreement as set out in the Connection Code (CC.12.2) of the Grid Code.

- 2.2.26 To support this additional drain on the Socialisation Fund, the value of the Difference Payment Socialisation Multiplier (FSOCDIFFP_y⁸) may need to be adjusted appropriately. This is a value proposed by the SOs to the RAs by the start of June prior to each Capacity Year.
- 2.2.27 The socialisation approach should not require changes to MO or Participant systems.
- 2.2.28 A further option with this approach is to provide energy revenue to DSUs only at times when difference payments are triggered. This limits the value exposed to socialisation and strengthens the link of the monies subtracted from the Socialisation Fund to the CRM.
- 2.2.29 Views are welcome from participants on this proposal and the additional option contained in 2.2.28 above.

Alternative Considerations

- 2.2.30 The SEM Committee, in identifying potential options for complying with the State aid decision considered the option of crediting DSUs via Suppliers. This option would involve the supplier passing the relevant energy revenue to the DSU via the IDS.
- 2.2.31 While this option requires no changes to TSO or MO systems or codes it would require changes to the contractual relationships between DSUs and IDs and IDs and their host Supplier. Licence changes may also be necessary to oblige Suppliers to contract with IDs in relation to energy revenue. There may also be a requirement to specify standard contracts and/or terms to ensure that Suppliers treat all IDs and DSUs equally, regardless of their ownership.
- 2.2.32 This option requires the Supplier to identify the demand response provided by each IDS, which may require additional settlement quality data in order to determine the payment to be made.
- 2.2.33 Furthermore, significant Participant system changes are likely to be required for this option.
- 2.2.34 The SEM Committee does not consider that the crediting of DSUs by Suppliers would be wholly consistent with the draft Electricity Regulation and therefore does not consider this to be a viable option.

⁸ TSC F.19.2

3. CONCLUSIONS

- 3.1.1 In order to be compliant with the State aid requirements and the draft Electricity Regulation the SEM Committee have considered options to ensure that DSUs are treated in the same manner as other capacity providers.
- 3.1.2 Due to the timescales involved in making system changes and installing meter equipment in all IDSs the SEM Committee proposes an interim solution, with an enduring solution, which is compliant with the final Electricity Regulation to be rolled out as soon as reasonably practicable.
- 3.1.3 The key features of the interim solution are;
- Assume that the dispatched quantity for DSUs is equal to the metered quantity in the absence of settlement quality metering at each IDS.
 - Remove the TSSU for the DSU from the settlement algebra of the TSC
 - Socialise the DSU energy revenue across all suppliers through the Socialisation fund.
 - Increase the FSOCDIFFP
- 3.1.4 The interim solution will be compliant with the State aid decision but the use of QD and the Socialisation fund may be considered sub optimal for an enduring solution.
- 3.1.5 The key features of the enduring solution are;
- Installing settlement quality metering at each IDS
 - Associate each IDS with a host Supplier
 - Remove the TSSU for the DSU from the settlement algebra of the TSC
 - Amend the TSC to construct the metered quantity for each DSU from the sum of the metered demand response of each IDS.
 - Amend the TSC to adjust metered quantity for each supplier unit by removing any metered demand response from any associated IDS.
 - System changes to MDPs, MO and TSOs systems to support above changes.
- 3.1.6 SEM Committee considers that the enduring solution is the only option which will be fully compliant with the draft Electricity Regulation. Given the advanced drafting of the Regulation, SEM Committee considers it appropriate to consider only those options which are likely to be compliant with the draft Regulation. However, SEM Committee further considers that it is appropriate to wait until the final form of the direction is published rather than to implement the enduring solution at this stage which may need to be changed again.

4. NEXT STEPS

- 4.1.1 Interested parties are invited to respond to the consultation, presenting views on the proposals set out in this paper. The SEM Committee would particularly want to receive evidence supporting any alternative to the proposals, where possible supported by quantitative analysis.
- 4.1.2 The SEM Committee intends to make a decision in Q2 2019 on the approach to making DSUs compliant with State aid requirements.

Responses to the consultation paper should be sent to Lesley Robinson (Lesley.robinson@uregni.gov.uk) and Mo Cloonan (mcloonan@cru.ie) by 17.00 on 2 May 2019.

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

APPENDIX A

Changes to the TSC for CRM settlement:

F.18.4.1 The following provisions of section F.18.4 do not apply to any Capacity Market Unit which represents:

~~(a) A Demand Side Unit; or~~

~~(b) A an Interconnector.~~

F.18.5.1 The following provisions of section F.18.5 do not apply to any Capacity Market Unit which represents:

~~(a) A Demand Side Unit; or~~

~~(b) A an Interconnector.~~

F.18.6.1 The following provisions of section F.18.6 do not apply to any Capacity Market Unit which represents:

~~(a) A Demand Side Unit; or~~

~~(b) A an Interconnector.~~

F.2.7.1(a), F.2.7.2 and F.18.7.1 can be deleted in their entirety.