

**Grid Code
Modification
Recommendation Form**



Title of Recommended Proposal:

MPID 299 Reduction of Aggregator Limit to 1 MW

MPID 299

Date:	18 February 2022
Recommended at GCRP Meeting No.:	3/2021 2 November 2021
Grid Code Version:	9
Grid Code Section(s) Impacted by Recommended Proposal:	Definitions

The Reason for the Recommended Modification:

Introduction:

The Demand Side aggregation units are now well established and operations of the same are well integrated into the market scheduling systems. The Grid Code currently imposes a lower limit of 4MW on Demand Side Units (DSU) and Aggregated Generator Units (AGU). This proposal is to reduce that limit to 1MW. The dispatch of any unit via the Electronic Dispatch Interface Logger (EDIL) has a resolution of 1MW. The response of Demand Side Units (DSU) and Aggregated Generator Units (AGU) can be less than 1MW and is a reflection of the Individual Demand Sites or individual Generating Units that support the provision of the dispatch service.

No other technology has a minimum limit and the requirement for aggregators should have a similar approach.

With further introduction of Renewables there is an increased requirement to balance the system through control of demand. More Demand aggregation, below the existing 4MW limit, shall assist the ability to incorporate Renewables.

Power House Generation Assessment:

Overview:

The current 4MW limit requires the grouping together of sites that may have different technical abilities, such as duration of response and speed of response. This is not maximising the abilities of these sites for the benefit of the System and for the consumer.

Analysis & Opinion

As the aggregated sites adjust their abilities, retire, join as new, then their abilities need to be grouped for ease of aggregation by the Aggregator. This shall benefit the Capacity Market and the Balancing Market scheduling as additional capabilities are not hampered due to sites being grouped with lesser sites, just to make up the volume to 4MW. The same grouping of abilities shall also benefit the Ancillary Services market.

An **example** of this is: -

7 sites with each capable of 600kW each, equates to 4.2MW. This would match the current Grid Code requirements

3 of the sites (1.8MW) can perform Dynamic DS3 response, and the other 4 sites (2.4MW) can perform Static. The 4MW rule means that they can't be split out into separate units.

The 4 sites have different duration capabilities. 1 site (0.6MW) can do six hours, 2 sites (1.2MW) can do three hours, and the remaining site (0.6MW) can do two hours.

All sites are capable of contributing to system requirements in their own way but grouping them reduces that effectiveness.

There may be an additional IT burden in the handling of additional units, but that cost is already covered within the registration process of the markets.

Implication of Not Implementing the Modification:

Provision of Demand Side Response, under Ancillary Services and Energy shall not be maximised. With the increase in Renewable generation the lack of demand side response shall result in curtailment of renewables. Reducing the 4MW limit shall allow more Demand Side response, less reliance on large conventional plant and thus less curtailment of Renewables.

History of Progression through GCRPs, Working Group and/or Consultation:

The proposed Grid Code Modification was first presented by Brian Mongan (FERA and SONI GCRP member) to the JGCRP members as a discussion item at the July 2021 meeting. It should be noted that while the proposed Grid Code Modification is not a modification to an area of common Governance (i.e. SDC1 and SDC2), FERA is proposing the same modification to both the EirGrid and SONI Grid Codes. In the interests of efficiency and transparency, it was decided that the modification should be discussed at the JGCRP meeting.

FERA outlined the current requirements, opportunities, the impact of the modification, as well as the modification itself. Following discussion, it was agreed that both EirGrid and SONI would meet with Brian Mongan to discuss the principle of the proposal and will carry out an assessment of the proposed modification.

The meeting between FERA, EirGrid and SONI took place on 12 October 2021. While EirGrid and SONI acknowledged that they agreed the proposal has merit and would be worth considering in the future, they, as the TSOs, could not support the modification in the short term, due to the reasons detailed in “Summary Note of any Objections to the Recommended Change from GCRP Members or Consultation Responses” section below. Brian Mongan expressed concerns regarding the potential time delays to implement the modification if it was included as part of the “Shaping Our Electricity Future” programme of work. It was agreed that the Modification would be presented at the JGCRP meeting in November with the decision regarding the recommendation of the Modification being taken at the GCRP meeting.

Brian Mongan presented the modification at the JGCRP meeting on 2 November. There was significant discussion, as detailed in the JGCRP meeting minutes. Key points of the discussion include:

1. Martin Kerin (EirGrid Observer) noted that EirGrid and SONI cannot support this modification proposal at this time. He further clarified that the reason for not support the modification at this time was not due to resources but was due to the reasons detailed in “Summary Note of any Objections to the Recommended Change from GCRP Members or Consultation Responses” section below.
2. Brian Mongan (Aggregator Member – SONI) highlighted that the capacity auctions have already been run and units have their positions set for next four years. He also added that the de-rating factor discourages DSUs and Demand Side services may not be available into the future.
3. Paul Troughton (EnelX) further added that the impact is entirely on registration for this winter and next winter and won't affect capacity.
4. Anne Trotter (TSO Member - EirGrid) noted that we are all agreed that Demand Side services are a key part of the future and a lot of work is currently being done internally, in EirGrid and SONI, on DSM strategy. This strategy must be looked at in a holistic way, rather than changing rules one by one.
5. Brian Mongan (Aggregator Member – SONI) given the industry experience with FlexTech he does not accept pushing this into a long-term strategy such as Shaping Our Electricity Future. This is not about designing something new, it is about removing discrimination in the codes and increasing the ability to provide flexibility.
6. Jody O'Boyle (UR) highlighted that in Northern Ireland the figure of 4MW is referenced in Demand Side Generator licences, this would need to change if this Grid Code change goes ahead.

The November GCRP meeting took place immediately after the JGCRP meeting. The proposed Grid Code Modification was discussed further, as detailed in the meeting minutes. Following a request from Miriam Ryan, GCRP Chairperson, to members to offer their recommendation or non-recommendation, a numbers spoke:

1. Mark Coleman (Non-Synchronous Renewable Generators) is in favour of recommending this proposal. At the same time, he acknowledged the concerns of the TSO, but the Regulator will have the final call on the recommendation.
2. Eoin Sweeney (Demand Side Units) is in favour of recommending this proposal.
3. Oliver Caherty (CCGT Generators) is in favour of recommending this proposal. He recommended the TSO provide a real time example of the control centre operator concerns.

It was also noted that the TSO cannot support this proposal, at this time.

Following the completion of these discussions, it was agreed to proceed with a recommendation paper, which will note that the TSO cannot support the proposal at this time.

Summary Note of any Objections to the Recommended Change from GCRP Members or Consultation Responses:

Given the operational challenges EirGrid are facing this winter and are foreseen to be facing in subsequent winters, EirGrid cannot support this modification at this time for the following reasons:

Capacity Adequacy:

EirGrid acknowledges that the proposal would result in greater levels of availability for services by better alignment of operational characteristics and access to new service providers which would find the current requirements more difficult and restricting, resulting in greater levels of competition and diversity of sources for system services. However, there are concerns about changing the characteristics of units to be more focussed on system services, resulting in less focus on those characteristics for units to provide consistent capacity and balancing response from a system security perspective, at a time when capacity and balancing are the primary concerns for system security rather than system services.

EirGrid believes believe that this proposal is worth considering into the future, at a time when the potential impact on system security would not be so risky, when the focus will naturally move from capacity margins to enabling higher levels of investment in system services with the onset of the System Services Future Arrangements, and in the timescales where the TSOs can consider the changes necessary to their systems and processes.

Impact on dispatching of units:

There are concerns about the short-term practical impact of these changes on dispatch in the control centres. In particular, there is the potential for multiple additional small DSUs and Generator Aggregators to increase the amount of dispatch instructions required to attain the same overall MW level of response from a capacity and balancing point of view as would be possible with less instructions under the current approach. Dispatch of DSUs is a manual function performed by an operator who must first interrogate each unit's specific technical capabilities, this further adds to the operational workload in the control centres dispatching these units and monitoring the respective outputs.

A significant increase in the number of DSUs and/or Generator Aggregator Units to be dispatched for the same MW response would be detrimental to the dispatch process, especially at times of experiencing tight system margins, when these units are most likely to be required. It also results in a disproportionate amount of work being required to dispatch these units for relatively small response given the fact that this is discussing <4MW units, i.e. the amount of work to dispatch 10x1MW units to gain only 10MW of response would be the same as the amount of work to gain 4x the amount of response in 40MW with the current requirements.

Availability Declarations:

There are also concerns around the practicality of dispatching units of such a small size if they are only declaring themselves available for part of their capacity.

To take one example, say a unit is registered for 1MW, but they follow a similar availability declaration pattern to those DSUs currently seen in the market, and therefore at times they could be declaring themselves to be available for an amount less than this. In the dispatch systems it is currently only possible for a unit to declare and be dispatched to an integer value of MW, i.e. the minimum declared availability possible above 0MW is

1MW. Therefore, the unit would either have to declare for 0MW and be unavailable for dispatch or declare for 1MW yet be unable to deliver on the full MW amount as instructed.

If a unit which has a 4MW registered capacity declared themselves available to the same pattern, say just less than half or just greater than half, then the dispatch systems could see the units being issued instructions to 1MW or 2MW, as applicable below the availability level they have declared, and therefore would maintain an approach where units are dispatched to feasible levels to which they have declared themselves available. For units around 1MW registered capacity, either an approach of mandating the issuance of infeasible instructions would be required in potential contravention of Grid Code and other requirements, or changes to dispatch systems which would require significant time and cost to develop. While this issue could potentially arise for any unit, such an issue would arise much more often for the units to whom this modification is relevant than for majority of units which exist in the market.

In relation to the above, FERA has also noted that units registered for 4MW or above can also have an actual availability just below 1MW, which they declared in EDIL as 1MW and they would be dispatched as to that declaration. The concern for EirGrid is that the percentage error in the availability declarations would increase. On an individual 1 MW DSU or 1 MW generator aggregator level, this increase in percentage error would be minor, but the sum of such percentage errors over a large number of 1 MW units would be significant at a system level and could lead to operational issues.

Shaping Our Electricity Future (SOEF):

During November 2021, EirGrid and SONI jointly launched “[Shaping Our Electricity Future](#)” which is designed to advise and guide on the optimal pathway to deliver Ireland and Northern Ireland’s ultimate ambition for a renewables-based power system, while maintaining an affordable, secure, and reliable supply of electricity. Demand side flexibility will be critical to enabling the transition to 70% RES-E and facilitate electrification of the heat and transport sectors while maintaining power system security.

One of the main challenges identified in SOEF is having a planned approach to scoping, designing, and implementing the changes required to enable the transition, with the appropriate programming and sequencing of different projects. This is important because the many different aspects of network, market, and operational policies, all have impacts on each other, meaning that the most efficient means of handling them would be to consider these issues together in a more holistic way.

It also means that there are multiple major change projects needed which all require the same resources from the TSOs, RAs, industry, and system vendors. The changes needed to be implemented will be essentially on the same functions in IT systems and on the same processes. A coordinated approach is required to ensure those resources can deliver the changes which would have the greatest impact in meeting the SOEF ambitions.

Demand Side Participation Review under SOEF:

As part of SOEF, EirGrid and SONI will be working with industry to develop a Demand Side Management (DSM) strategy, which will include the participation of demand side resources in the energy, capacity and system services markets.

The key components of this strategy are to:

- Analyse the importance of Demand Side Management (DSM) on the transmission and distribution networks and the advantages it brings to the TSOs/DSOs;
- Identify the main challenges facing DSM adoption and further integration onto the network;
- Address the issue of DSU availability;
- Deliver a DSM strategy on how to address the challenges facing DSM adoption going forward, including prioritising the issues, identifying where the issues may be suited to being included in other larger pieces of system/process/policy change work, or identifying which issues will not have changes implemented over the course of the period considered for SOEF due to other priorities and limited resources.

EirGrid believes that the FERA’s proposal should be considered as part of this wider review, rather than as a standalone Grid Code Modification.

Conclusion:

Given that the level of system changes as well as the operational impact of this proposal, EirGrid believes that a holistic approach should be taken and that this proposal should be considered as part of the wider Demand Side Management (DSM) strategy under the “Shaping Our Electricity Future” Programme.

Outcome of any GCRP Meeting Actions Relating to the Recommended Modification:

At the November 2021 GCRP meeting, it was agreed to proceed with a recommendation paper, which will note that the TSO cannot support the proposal at this time.

Red-line Version of Impacted Grid Code Section(s) - show recommended changes to text:

Deleted text in ~~strike-through red font~~ and new text highlighted in *blue font*

Aggregated Demand Site

A group of **Individual Demand Sites** represented by a **Demand Side Unit Operator**, which together are capable of a **Demand Side Unit MW Capacity** equal to or above **41 MW** (and which is therefore subject to **Central Dispatch** from the TSO). Each **Individual Demand Site** comprising an **Aggregated Demand Site** shall be in one currency zone and shall have a **Demand Side Unit MW Capacity** of no greater than **10 MW**. Unless otherwise specified, information submitted in respect of an **Aggregated Demand Site** shall always be at an aggregated level.

Aggregated Generating Unit

A group of **Generating Units** represented by a **Generator Aggregator**, each of which must not have a **Registered Capacity** greater than 10MW. An **Aggregated Generating Unit** with a total **Registered Capacity** of **41 MW** or more shall be subject to Central Dispatch, ~~but one with a total Registered Capacity of less than 4 MW may be subject to Central Dispatch subject to agreement with the TSO.~~ Unless otherwise specified by the TSO or otherwise in the **Grid Code**, information submitted in respect of an **Aggregated Generating Unit** shall always be at an aggregated level.

Demand Side Unit

An **Individual Demand Site** or **Aggregated Demand Site** with a **Demand Side Unit MW Capacity** of at least **41 MW**. The **Demand Side Unit** shall be subject to **Central Dispatch**.

Demand Side Unit Operator

A person who operates a **Demand Side Unit**, with an aggregated **Demand Side MW Capacity** not less than **41 MW**.

Generator Aggregator

A person who represents several **Generating Units**, each of which does not have a **Registered Capacity** greater than 10 MW and the combined **Registered Capacity** of which is equal to or greater than **41 MW**, by in particular preparing notices under SDC1, in relation to those **Generating Units** and receiving **Dispatch Instructions** in relation to those Generating Units under SDC2. For the avoidance of doubt, a **Generator Aggregator** cannot aggregate a **Generating Unit** with an output equal to or above 10 MW.

Green-line Version of Impacted Grid Code Section(s) - show recommended final text:

Aggregated Demand Site

A group of **Individual Demand Sites** represented by a **Demand Side Unit Operator**, which together are capable of a **Demand Side Unit MW Capacity** equal to or above 1 MW (and which is therefore subject to **Central Dispatch** from the TSO). Each **Individual Demand Site** comprising an **Aggregated Demand Site** shall be in one currency zone and shall have a **Demand Side Unit MW Capacity** of no greater than 10 MW. Unless otherwise specified, information submitted in respect of an **Aggregated Demand Site** shall always be at an aggregated level.

Aggregated Generating Unit

A group of **Generating Units** represented by a **Generator Aggregator**, each of which must not have a **Registered Capacity** greater than 10 MW. An **Aggregated Generating Unit** with a total **Registered Capacity** of 1 MW or more shall be subject to Central Dispatch. Unless otherwise specified by the TSO or otherwise in the **Grid Code**, information submitted in respect of an **Aggregated Generating Unit** shall always be at an aggregated level.

Demand Side Unit

An **Individual Demand Site** or **Aggregated Demand Site** with a **Demand Side Unit MW Capacity** of at least 1 MW. The **Demand Side Unit** shall be subject to **Central Dispatch**.

Demand Side Unit Operator

A person who operates a **Demand Side Unit**, with an aggregated **Demand Side Unit MW Capacity** not less than 1 MW.

Generator Aggregator

A person who represents several **Generating Units**, each of which does not have a **Registered Capacity** greater than 10 MW and the combined **Registered Capacity** of which is equal to or greater than 1 MW, by in particular preparing notices under SDC1, in relation to those **Generating Units** and receiving **Dispatch Instructions** in relation to those **Generating Units** under SDC2. For the avoidance of doubt, a **Generator Aggregator** cannot aggregate a **Generating Unit** with an output equal to or above 10 MW.