

## Generation Capacity and Demand Capacity Limits KPIs Review

### Imbalance Settlement Group (ISG)

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Owner/author	<b>Adam Jessop</b>	Purpose of paper	<b>Decision</b>
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**Summary**      **This paper provides Elexon's annual review of the Generation Capacity and Demand Capacity (GC/DC) Limits, based on analysis of the five Key Performance Indicators (KPIs) outlined in the Generation Capacity and Demand Capacity Limit Review and Determination document.**

### 1. Background

- 1.1 Generation Capacity (GC) and Demand Capacity (DC) are estimates of the Settlement Period maximum demand and generation capacity for a BM Unit in a BSC Season. GC and DC values are used in the calculation of Parties' Credit Assessment Energy Indebtedness (CEI) and Credit Cover Percentage (CCP). Accurate values of GC and DC are essential to ensure the accurate calculation of CCP and CEI.
- 1.2 Approved BSC Modification [P357 'Removal of GC/DC tolerance parameters from BSC Section'](#) was implemented on 22 February 2018. P357 was raised in order to improve the process for reviewing and amending the GC/DC limits used to determine if a GC/DC breach occurs. Prior to P357, the GC/DC Limits were set in [BSC Section K: Classification and Registration of Metering Systems and BM Units](#) 3.4 and amending them required a BSC Modification. The [Issue 68](#) workgroup originally identified this lack of flexibility and recommended the BSC is changed. P357 was raised to move the limits from the BSC to the [BSC Website](#) and implement a more flexible process for amending them.
- 1.3 P357 introduced a requirement that the Panel establish guidance for determining and reviewing the GC/DC limits, '[Demand Capacity and Generation Capacity Limit Review and Determination](#)'.
- 1.4 The aim of the GC/DC limit review is to reduce the amount of BSC Parties that have Metered Volumes that exceed the declared GC/DC value, but are still within the tolerances that the GC/DC limits permit. This will reduce the amount of energy that is being unaccounted for in BSC Parties Credit calculations, and ultimately improve the accuracy in the CCP.
- 1.5 At the ISG's September 2019 meeting, Elexon provided the first annual review of the GC/DC Limits (ISG221/03), based on four quarterly KPI reports that covered a yearly period spanning BSC Spring Season 2018 to BSC Winter Season 2018/2019. The ISG approved changes to each of the GC/DC limits, with effect from 1 December 2019.
- 1.6 Currently, the tolerance limits are (in magnitude):

Declared GC/DC	GC/DC Limit
< 100 MW	0.3 MW
100-500 MW	1%
> 500 MW	5 MW

- 1.7 Elexon provided an update at the September 2020 ISG meeting that there would be a delay to the second GC/DC limits review (originally scheduled for the October 2020 ISG meeting), as Elexon wanted to obtain a full year's worth of new Settlement data since the changes to the GC/DC limits. This new data would cover from BSC Season Winter 2019/2020 to BSC Season Autumn 2020.

## 2. GC/DC Limits Review

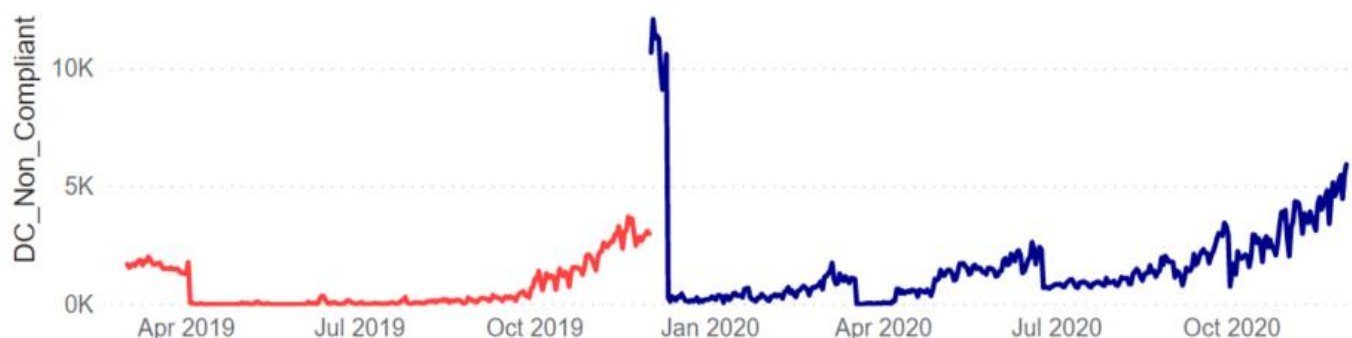
- 2.1 During the September 2020 ISG meeting update, Elexon noted that due to the recent changes to the GC/DC limits, it was not anticipated that another change to the GC/DC limits would be recommended to the ISG as part of this year's review. This is due to the impact of COVID-19, which has had an impact on supply and demand, following government advice for some businesses and buildings to shut and for the general public to stay at home.
- 2.2 Due to the impact of COVID-19 on industry, Elexon also made a decision to relax the automated GC/DC breach monitoring process, introduced with [P359 'Mechanised Process for GC/DC Declarations'](#). Prior to BSC Season Spring 2020, Elexon performed the GC/DC breach monitoring process on a weekly basis. To reduce the operational and financial burdens on BSC parties, Elexon reduced the amount of GC/DC breach monitoring process runs to just once per BSC Season. This has resulted in inconsistencies in the amount of GC/DC breaches during a BSC Season and has made it difficult to accurately determine the true impact of the changes to the GC/DC limits.
- 2.3 For this year's annual GC/DC KPI report, Elexon have developed a new reporting suite which provides data pertaining to the five KPIs outlined in the Demand Capacity and Generation Capacity Limit Review and Determination document. Elexon have decided to include not only the years' worth of new data since the first GC/DC limits review, but also the data used for the initial review. This helps visualise the impact of the GC/DC limit changes in December 2019, providing a comparison with the previous GC/DC limits.
- 2.4 The full set of KPI data is available in Attachment A.
- 2.5 Due to the complexity and volume of data, Elexon will, where appropriate, highlight notable subsets of the data. In particular, as noted in the initial GC/DC limit review in September 2019 and as suggested in the Issue 68 workgroup, the focus of the KPIs is centred on Supplier BM Unit DC breaches in the less than 100MW declared DC category. This is due to the direct relationship between Supplier BM Unit DC values and Credit Cover requirements and a majority of BM Units having a declared DC of less than 100MW. As of a snapshot taken on 18 January 2021, 4464 out of 5069 (88%) registered BM Units have a declared DC of less than 100MW.

## 3. Key Performance Indicator 1: The number of breaches of the limits for each of the GC and DC limits per BSC Season

- 3.1 Graph 1 provides a comparison of DC breaches between the previous less than 100MW declared DC limit of 2MW and the current DC limit of 0.3MW, for Supplier BM Units.

Number of DC Breaches by Settlement Date and Limit Type

Limit\_Type ● 0.3MW ● 2MW



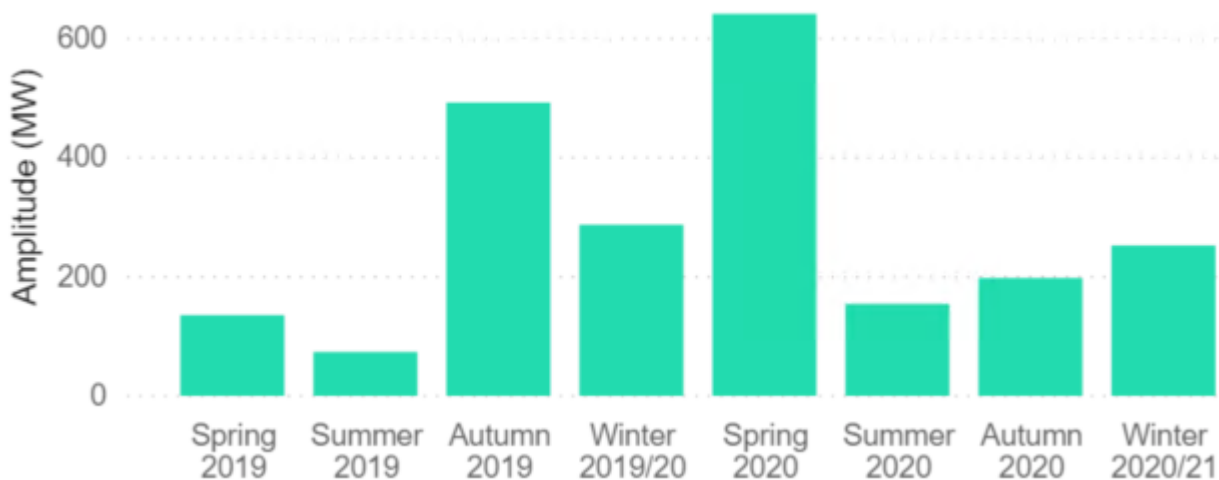
Number of DC Breaches by Settlement Date and BM Unit Type

Graph 1. Number of DC Breaches by Settlement Date

- 3.2 Graph 1 demonstrates the increase in DC breaches resulting from the changes to the <100MW declared DC limit. By reducing the DC limit from 2MW to 0.3MW, more breaches now occur on a daily basis, which are consequently identified through the GC/DC breach monitoring process. This increase in breaches has resulted in more updates to declared DC values for BM Units that previously would not have been identified against the previous 2MW limit.
- 3.3 For example, BSC Season Spring 2019 had a total of 54,981 DC breaches against the previous 2MW limit. BSC Season Spring 2020, in comparison, had a total of 79,274 DC breaches against the current 0.3MW limit (a 44% increase). BSC Season Autumn 2019 had a total of 133,638 DC breaches against the previous 2MW limit. BSC Season Autumn 2020 in comparison had a total of 264,016 DC breaches against the current 0.3MW limit (a 98% increase).
- 3.4 The periodic sharp drops in DC breaches throughout 2020 are related to the single GC/DC breach monitoring process performed each season. The process was executed approximately 6 weeks into each season to allow for more Settlement data to be available to compare declared GC/DC values against. This correlates with the drops that occur in April, July and October 2020.
- 3.5 The sharp drop that occurs in December 2019 is due to the introduction of the 0.3MW DC limit. The first GC/DC Breach monitoring run of the BSC Season Winter 2019 identified over 12,000 DC breaches against the new DC limit. Based on the amount of DC breaches that were occurring at the end of BSC Season Autumn 2019 against the previous DC limit of 2MW, the introduction of the 0.3MW limit identified approximately 9000 new DC breaches (a 300% increase). This shows the new GC/DC limits having a positive impact on reducing the amount of energy that is being unaccounted for in BSC Parties Credit calculations, and improving the accuracy in the CCP.

#### 4. Key Performance Indicator 2: The maximum and average amplitude of the breaches in MW

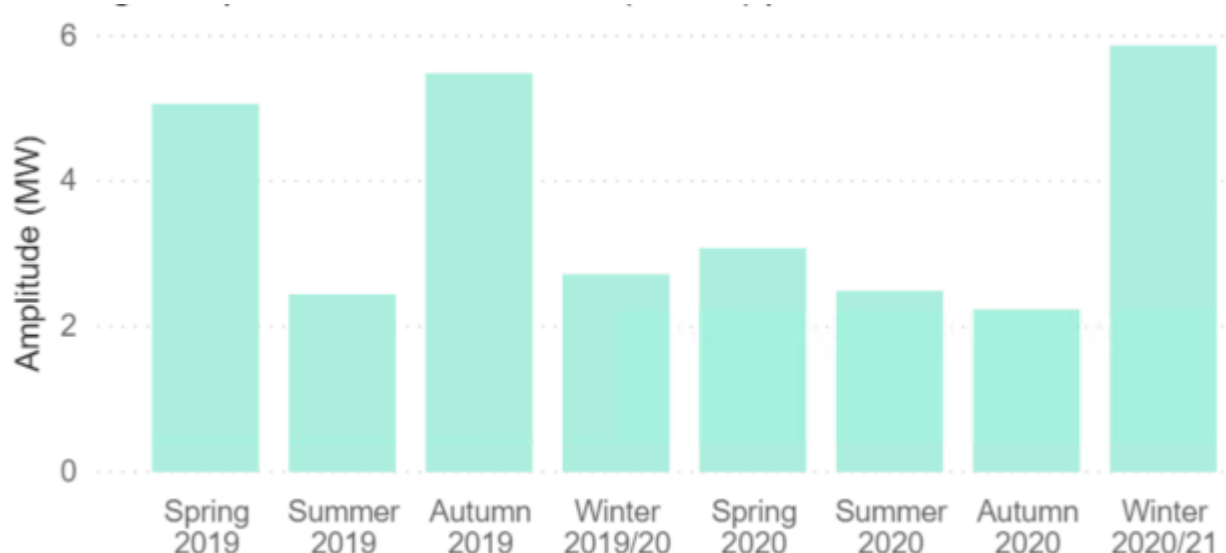
- 4.1 Graph 2 provides a view of the maximum amplitude of DC breaches for Supplier BM Units with a declared DC of less than 100MW.



**Graph 2. Maximum amplitude of DC breaches**

- 4.2 Graph 2 is useful in identifying the most significant breaches that occur each season. Elexon can utilise this graph to identify areas for further investigation. Through scrutinising the backing data, Elexon are able to identify which BM Units triggered these breaches. Usually, these breaches are not recurring throughout a season for the offending BM Unit and are often due to erroneous Settlement data entering Settlement. This can be caused by: incorrect Settlement data being processed by BSC Agents or Supplier Agents, a site holding incorrect Meter Technical Details (MTDs), or incorrect estimates being used in Settlement.
- 4.3 Elexon have investigated the maximum breaches from recent BSC Seasons and can confirm that for some of these most significant breaches each season, there was erroneous Settlement data entered into Settlement for the offending BM Units. These breaches were identified through the GC/DC breach process and consequently appealed through the GC/DC breaches appeals process by the Supplier. Some of the breaches were not identified in the single GC/DC breach process runs of the season, but Elexon have confirmed that the erroneous Settlement data has been corrected in later Settlement Runs.

- 4.4 Graph 3 provides a view of the average amplitude of DC breaches for Supplier BM Units with a declared of less than 100MW.

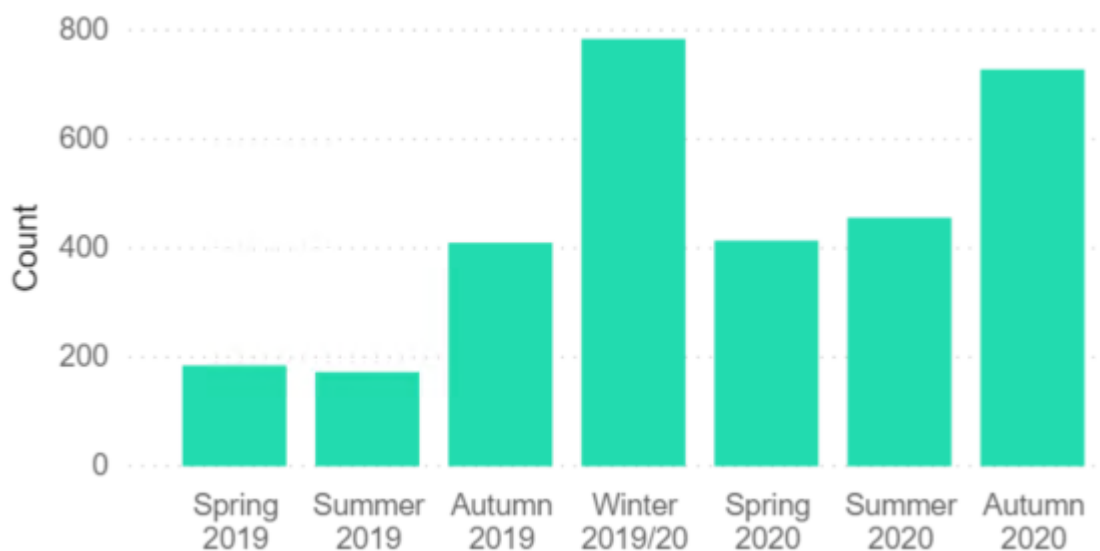


**Graph 3. Average amplitude of DC breaches**

- 4.5 Graph 3 highlights that the average DC breach per BSC Season is less than -2MW, which was the previous DC limit for DC declarations less than 100MW. The current DC limit of 0.3MW currently provides significant headroom for capturing the majority of DC breaches during a season. In conjunction with Graph 1, Elexon consider the current DC limit of 0.3MW to be suitable for the current trend of amplitude of DC breaches, which are all identified via the GC/DC breach monitoring process.

## 5. Key Performance Indicator 4: The proportion of distinct Primary BM Units that breached the GC and DC limits over a BSC Season

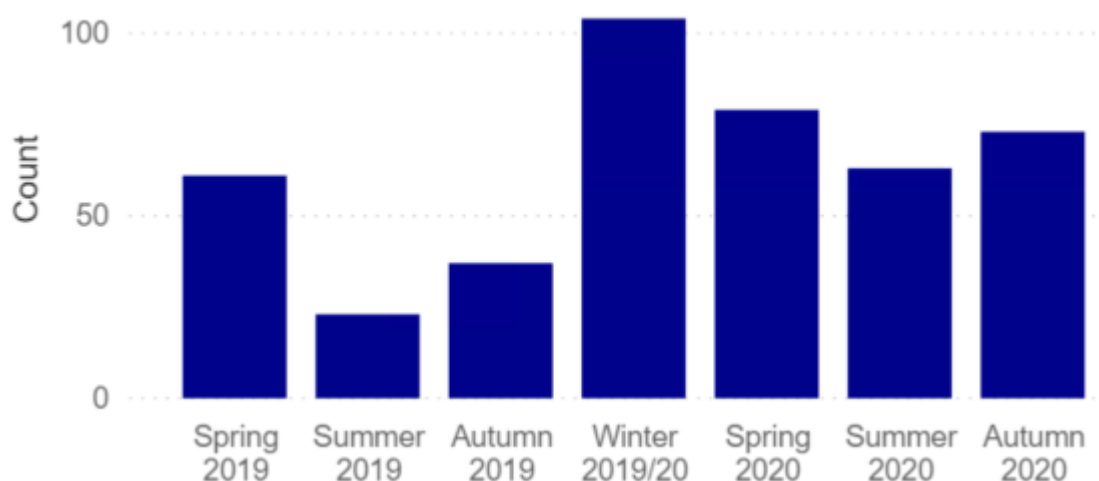
- 5.1 Graph 5 provides a view of the number of distinct BM Units with a DC breach per Season.



**Graph 5. Number of distinct BM Units with a DC breach per Season**

- 5.2 Elexon has decided not to focus on a particular GC/DC limit for KPI 4, as the inclusion of all DC limit types provides a collective view of the improvements made to the GC/DC breach monitoring process in general. The increase in the number of breaches since the introduction of the new GC/DC limits in December 2019 has resulted in more breaches being detected. This has had a positive impact on reducing the amount of energy that is being unaccounted for in BSC Parties Credit calculations.

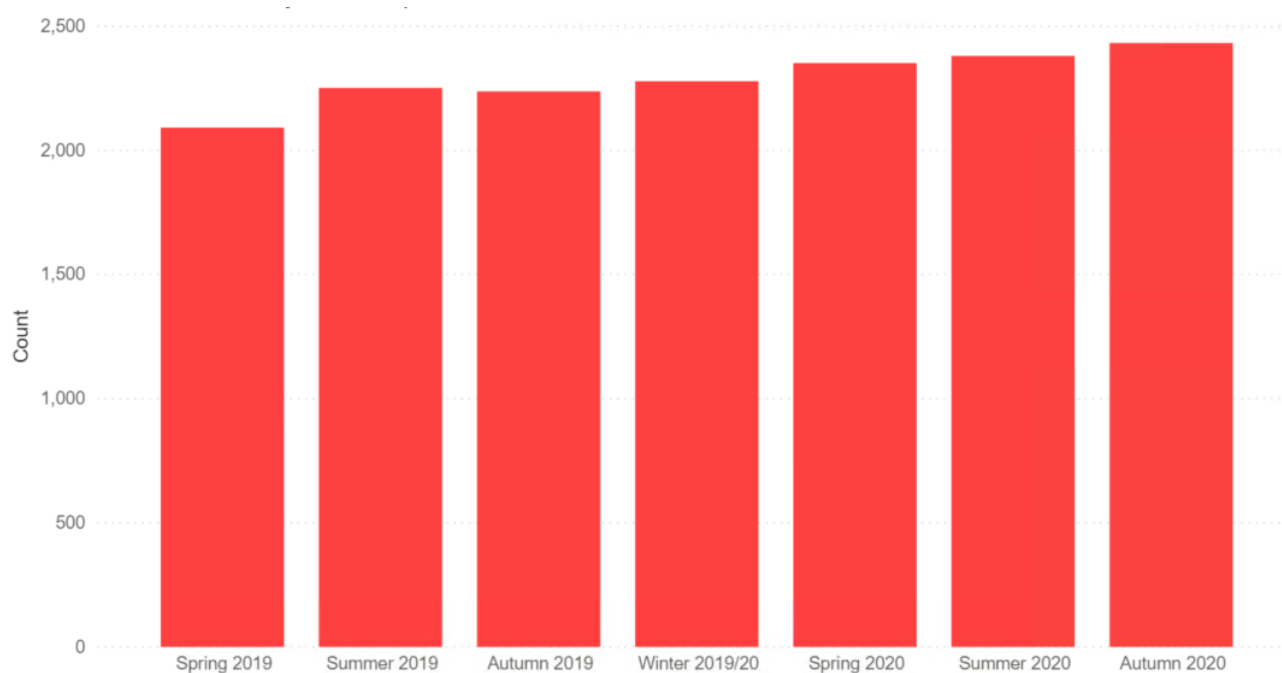
- 5.3 Similar improvements to the amount of BM Units that breach per Season have also been observed in relation to GC breaches. This is highlighted below in Graph 6.



**Graph 6. Number of distinct BM Units with a GC breach per Season**

## 6. Key Performance Indicator 5: The number of dormant Primary BM Units

- 6.1 Graph 7 provides a view of the number of dormant Primary BM Units, i.e. those with no Metered Volumes allocated to them.



**Graph 7. Number of dormant Primary BM Units**

- 6.2 As with KPI 4, Elexon has decided to include all GC/DC limits, to provide an industry wide view of the increase in the number of dormant Primary BM Units,
- 6.3 Since the last GC/DC limit review, the number of dormant Primary BM Units has increased by 195, from 2238 identified in BSC Season Autumn 2019 to 2433 in BSC Season Autumn 2020. This is an increase of 8.7%.
- 6.4 The main contributor to the increase in dormant Primary BM Units is Supplier BM Units, which during the same time period increased by 134, from 1455 to 1589 (a 9% increase).
- 6.5 Elexon has also observed a recent noticeable increase in the number of dormant Interconnector BM Units between BSC Season Summer 2020 and BSC Season Autumn 2020. Between the two seasons there was an increase of 67, from 216 dormant Interconnector BM Units, to 283 (a 31% increase).

## 7. Next Steps

- 7.1 Based on the analysis of this year's GC/DC KPIs report and the aforementioned impact of COVID-19 on BSC Parties and the GC/DC breach monitoring process, Elexon propose for no changes to be made to the current GC/DC limits.
- 7.2 The analysis provided indicates that the current GC/DC limits, introduced in December 2019, have had a positive impact in identifying inaccurate GC/DC values that would not previously have been identified. As highlighted in the analysis of KPI 2, the current GC/DC limits provide significant headroom for capturing the majority of GC/DC breaches. Elexon consider the current GC/DC limits to provide a good balance between ensuring GC/DC accuracy, whilst also still providing parties some margin for error in their seasonal and mid-seasonal GC/DC declarations.
- 7.3 Elexon will present the next annual GC/DC limits KPI review once another full year of Seasonal data is available. Elexon anticipate this to be provided at the January 2022 ISG meeting.

## 8. Recommendations

- 8.1 We invite you to:
  - a) **NOTE** the analysis presented in the paper; and
  - b) **RECOMMEND** that no changes are made to the current GC/DC Limits.

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## Attachments

Attachment A – GC/DC KPIs Report (2019/2020)

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## For more information, please contact:

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