

# 221/03 - GENERATION CAPACITY AND DEMAND CAPACITY LIMITS REVIEW

**MEETING NAME** Imbalance Settlement Group (ISG)

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**Purpose of paper** Decision

**Classification** Public

**Summary** This paper sets out ELEXON's recommended changes to the current GC/DC limits, based on analysis from the four previously reported GC/DC KPI Reports.

## 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 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 Currently, the tolerance limits are (in magnitude):

Declared GC/DC	GC/DC Limit
< 100 MW	2 MW
100-500 MW	2% of declared value
> 500 MW	10 MW

- 1.4 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'](#).
- 1.5 At ISG's June 2019 meeting, ELEXON provided the fourth and final GC/DC KPI report, which covered BSC Season Winter 2018. Concluding a full year's worth of data collection and reporting, ELEXON agreed to return to the ISG's September 2019 meeting with a recommendation as to whether the GC/DC Limits should be changed, based on analysis of the KPI reports. The four KPI reports are provided in attachments A-D.
- 1.6 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.

## 2. Review methodology

- 2.1 For reviewing the GC/DC limits, ELEXON will focus analysis on one of the four KPI reports. This choice will be based on which BSC Season recorded the most instances of GC/DC values being exceeded, without breaching the GC/DC limit itself. The rationale behind this decision is that any actual GC/DC breaches are

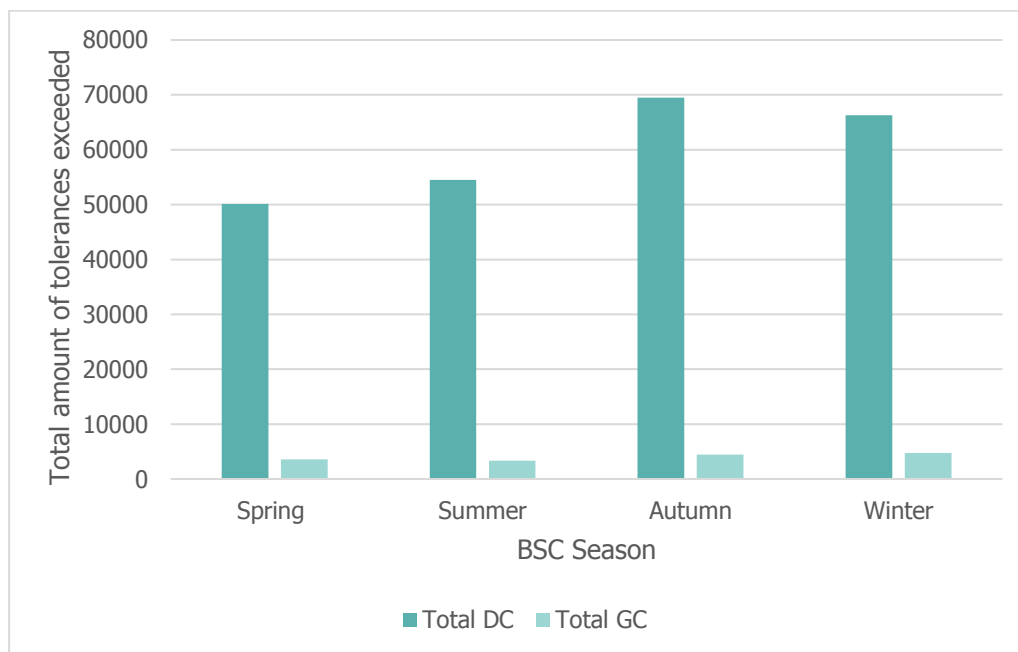
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already being identified and resolved through the automated GC/DC breach monitoring process, introduced with [P359 'Mechanised Process for GC/DC Declarations'](#).

- 2.2 Once a focus season has been chosen, ELEXON will make use of the principles of Probability Density Function (PDF), to provide a density distribution of all the instances where a GC/DC value has been exceeded, but has not breached the GC/DC limit. This will help in identifying where the highest concentration of exceeded declarations occur. ELEXON will derive any alternative GC/DC values based on median values, as this provides the midpoint of the distribution of exceeded tolerances and reduces the impact of outliers in the data.
- 2.3 As suggested in the Issue 68 workgroup, the focus of ELEXON's efforts should be on Suppliers trading in the 2MW DC limit category. In recent years, the amount of new Suppliers entering the market has increased rapidly. New Suppliers are able to bypass the Credit Cover requirements by declaring zero DC whilst building their customer base. This can reach thousands of customers before the current low DC limit of 2MW is triggered. Because of this, ELEXON will focus on the 2MW DC Limit category. Other GC/DC limits will be considered for change where there is sufficient evidence of the limits not being used as intended.

### 3. Focus season

- 3.1 Upon reviewing the four KPI reports, ELEXON have decided to focus on the data from the KPI report pertaining to BSC Season Autumn 2018.
- 3.2 The below graph shows the total amount of exceeded GC and DC values from each BSC Season, with BSC Season Autumn 2018 having the highest amount (69,493 for DC and 4475 for GC). This provides the biggest impacting Season and takes a worst-case scenario for a given year, where changes to the limits would be most effective.



- 3.3 Although BSC Season Autumn 2018 had the most exceeded GC/DCs, this is not indicative of Seasonal trends. ELEXON checked seasonal data from 2017, and there is a steady increase over time with the amount of exceeded GC/DCs each season. This increase over time is also evident with the amount of active BM Units each season as outlined in the below table.

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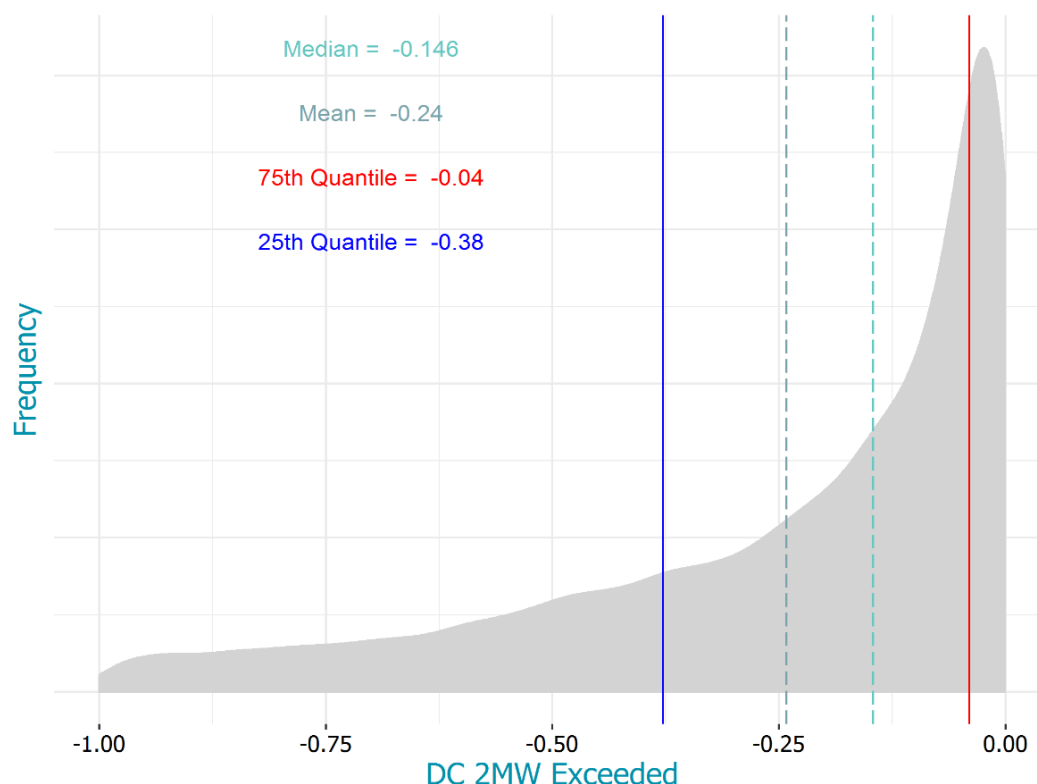
BSC Season	Active BMUs
Spring	1964
Summer	2036
Autumn	2106
Winter	2128

- 3.4 The correlation between the increase in active BMUs and exceeded tolerances implies the issue of under-declared GC/DCs will become more prevalent over time.
- 3.5 Of the 69,493 exceeded DC values in BSC Season Autumn 2018, 68,707 of those (98.87%) were in the <100MW category. This large proportion is evident in the other seasons reported on, ranging from 95.60% to 99.16%.
- 3.6 The high proportion of exceeded DC values and the increase in active BMUs indicates that most of the under-declared DCs are due to new Suppliers entering the market. This data reflects the views of the Issue 68 workgroup, where there was a preference to focus efforts on the DC values of new and/or small suppliers.

### 4. GC/DC limit review

#### <100MW category (DC)

- 4.1 For exceeded DC values in the <100MW category, the below graph illustrates PDF being applied to identify the median of the density distribution of by how much DC values were exceeded.



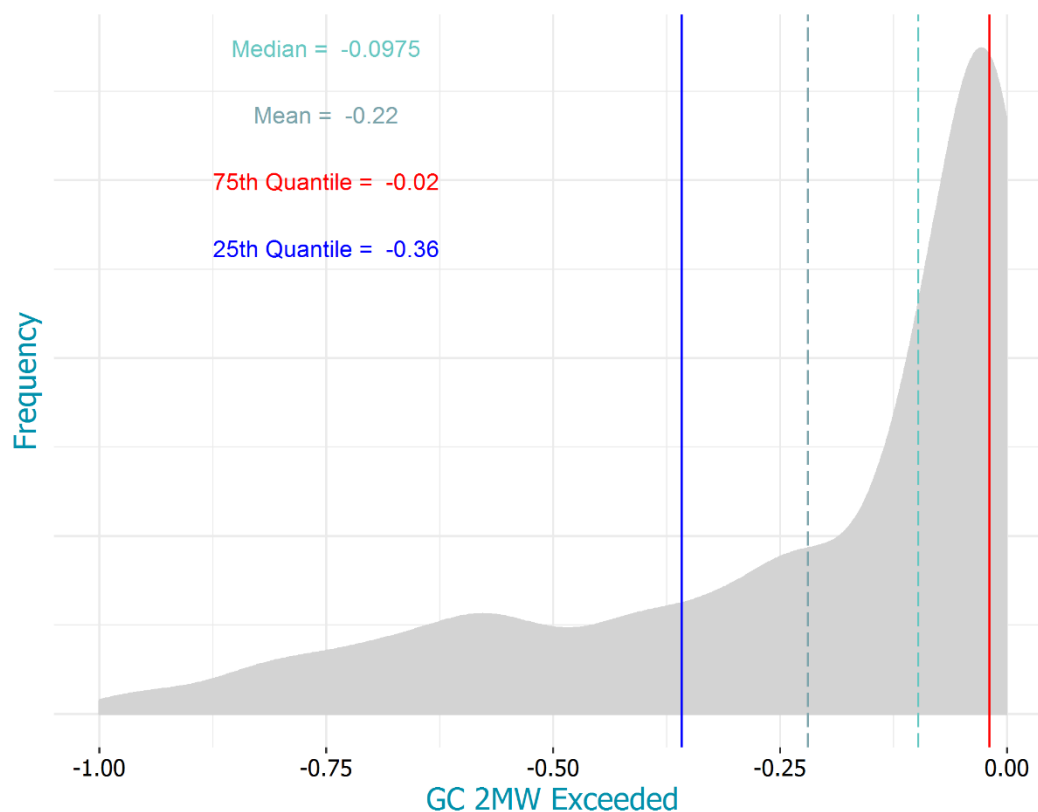
- 4.2 The median of the density distribution is -0.146MWh, or -0.292MW. The median value of -0.292MW captures approximately 50% of the instances where the declared DC value was exceeded.

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- 4.3 ELEXON are therefore proposing the DC limit for declared DC values of <100MW to be changed from -2MW to -0.3MW. For simplicity, the median value of -0.292MW has been rounded to -0.3MW. This new proposed DC limit is a reduction of 85% of the current limit.
- 4.4 ELEXON consider this a reasonable reduction, which will still allow Parties a small level of tolerance on their declarations before the automated GC/DC monitoring process detects a breach. The DC limit could be lowered further, but there would be a reduced effectiveness for Energy captured, while ultimately increasing the administrative efforts related to the GC/DC breaches and appeals process for ELEXON, BSC Central Services and BSC Parties.
- 4.5 This proposed value also closely matches the Issue 68 workgroups initial suggestion, outlined in the [Issue 68 – Issue Report](#), which was to lower the DC limit to 0.2MW.

### <100MW category (GC)

- 4.6 For exceeded GC values in the <100MW category, the below graph illustrates PDF being applied to identify the median of the density distribution of by how much GC values were exceeded.

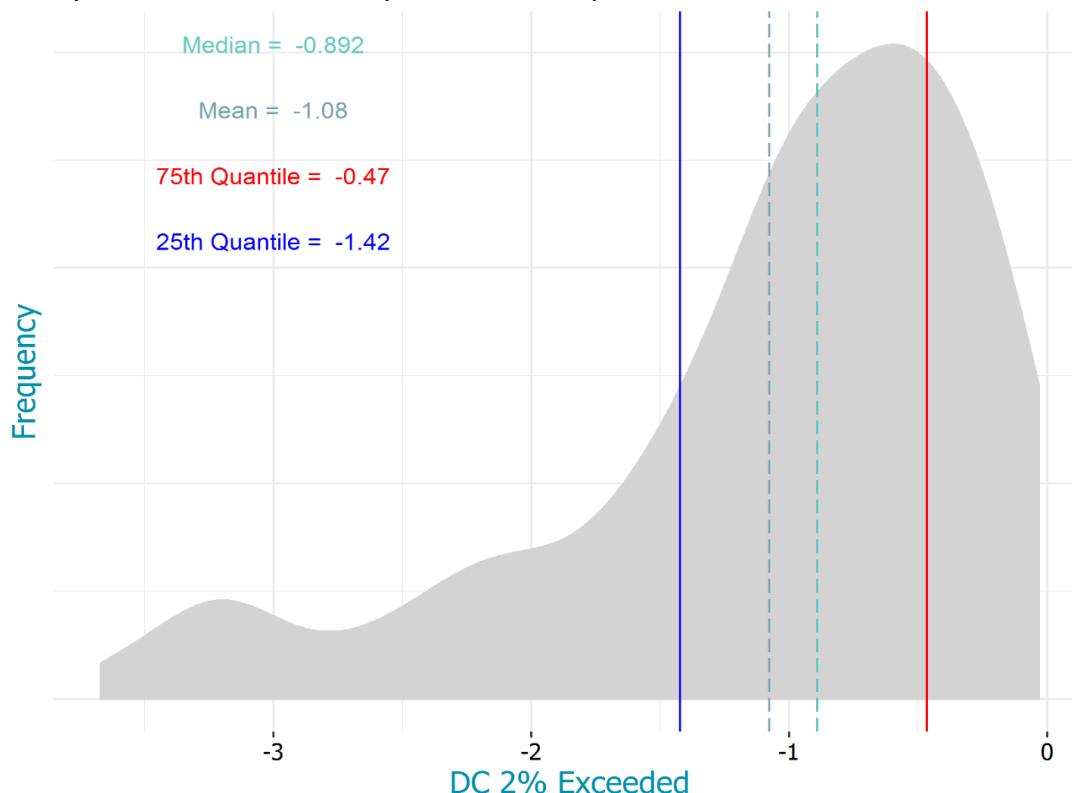


- 4.7 The median of the density distribution is -0.098MWh, or -0.196MW. The median value of -0.196MW captures approximately 50% of the instances where the declared GC value was exceeded.
- 4.8 Considering exceeded GC values are usually only approximately 5-10% of all exceeded GC/DC values in a Season, ELEXON believe this 0.2MW value could be relaxed to 0.3MW, matching the proposed DC limit value of the same category. This would continue the pre-existing consistency and simplicity of the GC/DC limit categories.

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### 100-500MW category (GC and DC)

- 4.9 For exceeded DC values in the 100-500MW category, the below graph illustrates PDF being applied to identify the median of the density distribution of by how much DC values were exceeded.



- 4.10 The median of the density distribution is -0.89%. The median value of -0.89% captures approximately 50% of the instances where the declared DC value was exceeded.
- 4.11 During BSC Season Autumn 2018, there were 718 instances where the declared DC was exceeded in the 100-500MW category. Of those 718 instances, 500 were instances that actually breached the DC limit of 2%. Despite BSC Season Autumn 2018 being used as the focus season for analysis, it was actually the season that had the best compliance within the 100-500MW category. The chart in appendix 1, which summarises all exceeded thresholds and breaches for the four KPI reports, shows varied levels of compliance throughout 2018 within this category.
- 4.12 Appendix 1 shows that GC values within the same category were much less of an issue compared to DC values. In other words, the limit is currently effective as-is for GC. Furthermore, DC breaches within the 100-500MW category are also relatively low when compared to the <100MW category,
- 4.13 Although ELEXON originally planned to leave the current 2% limit as is, further consideration highlighted this could cause issues with the proposed changes to the >500MW GC/DC category. For example, if a party declared a DC of 499MW, the 2% limit would allow a tolerance limit of up to 508.8MW. This would allow for a higher limit than if a party declared 500MW, where the proposed new 5MW limit would allow a tolerance limit of only 505MW. Effectively, there is the potential for parties to abuse the limits by declaring just under 500MW.
- 4.14 The above graph highlights a median of the density distribution at -0.89%, which could be rounded up to 1%. Changing the current 2% limit to 1%, would coincide with the proposed halving of the >500MW limit,

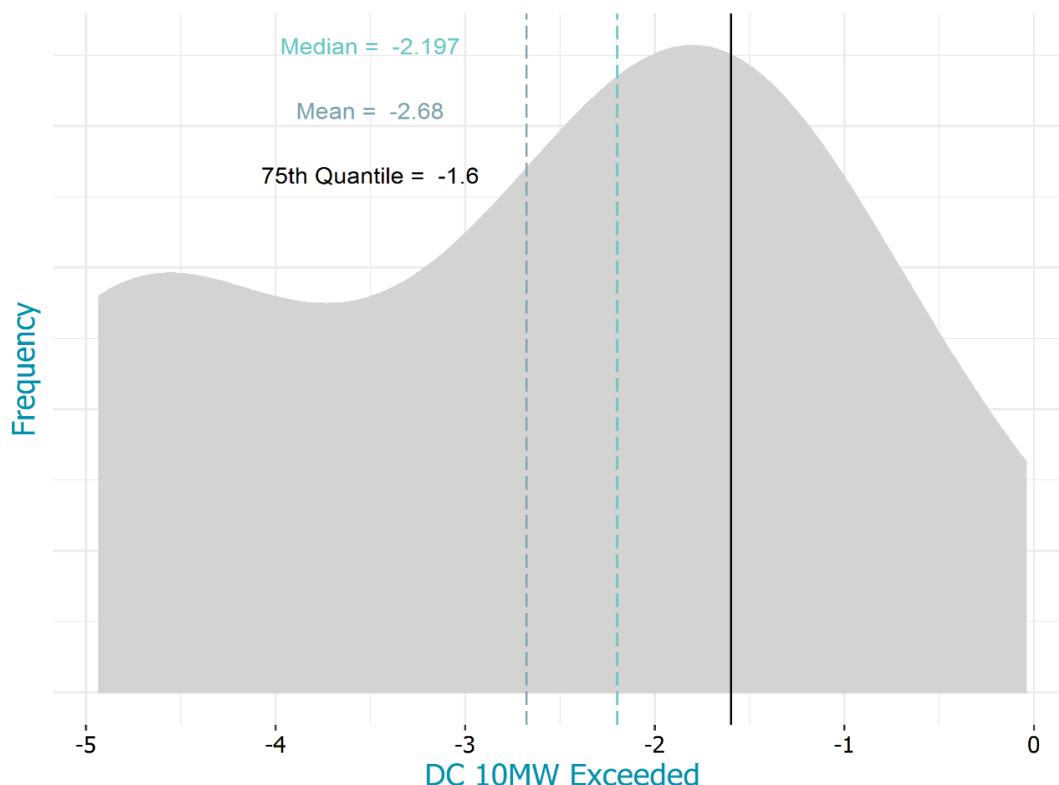
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negating this potential scenario happening. With a 1% limit, the same declaration of 499MW would only allow up to 404.9MW.

- 4.15 ELEXON are therefore proposing the DC limit for declared DC values of 100-500MW be changed from 2% to 1%.

### >500MW category (GC and DC)

- 4.16 For exceeded DC values in the >500MW category, the below graph illustrates PDF being applied to identify the median of the density distribution of by how much DC values were exceeded.



- 4.17 The median of the density distribution is -2.2MWh or -4.4MW. The median value of -4.4MW captures approximately 50% of the instances where the declared DC value was exceeded.
- 4.18 Although the amount of instances where the declared DC are exceeded in this category are relatively low compared to the other limit categories, the volumes of energy associated within the >500MW category are more significant.
- 4.19 Appendix 1 shows that there are less instances of exceeded GC values within the same limit category than DC. There are very few instances however where the exceeded tolerance results in an actual breach. For BSC Season Autumn 2019, of the 284 instances where the declared GC was exceeded, none of these resulted in a breach. This highlights that the current limit of 10MW may be too lenient. It should be noted however, that all of these instances were related to Directly Connected (T\_) BM Units, which are exempt from Credit calculations based on GC/DC values.
- 4.20 ELEXON propose that the GC/DC limit for the >500MW category be lowered from 10MW to 5MW. Although the Issue 68 workgroup originally expressed an interest in leaving the 2% and 10MW limits unchanged, the data in Appendix 1 shows that there are still volumes of energy being unaccounted for in DC declarations. A reduced GC/DC limit would help in mitigating this risk.

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### 5. Next steps

- 5.1 As outlined in the [Demand Capacity and Generation Capacity Limit Review and Determination](#) document, any changes to GC/DC limits will become effective from the beginning of the next BSC Season following committee approval. The next available BSC Season for implementation will be BSC Season Winter 2019.
- 5.2 ELEXON will notify both the CRA and BSC Parties of the new GC/DC limits shortly after committee approval, to allow time for any system or process changes.
- 5.3 ELEXON can provide another review of the GC/DC limits, should the ISG wish to initiate one in the future.

### 6. Recommendations

- 6.1 We invite you to:
  - a) **AGREE** that the current 2MW limit for GC/DC declarations <100MW be reduced to 0.3MW, with effect from 1 December 2019;
  - b) **AGREE** that the current 2% limit for GC/DC declarations between 100-500MW be reduced to 1%, with effect from 1 December 2019;
  - c) **AGREE** that the current 10MW limit for GC/DC declarations >500MW be reduced to 5MW, with effect from 1 December 2019; and
  - d) **NOTE** that ELEXON will notify CRA and BSC Parties of the new values and their effective from date.

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## Appendices

### Appendix 1 – Consolidated breach and exceeded tolerances data

		DC		GC	
BSC Season	Limit Type	Breaches	Exceeded Tolerances	Breaches	Exceeded Tolerances
Spring	2MW	3347	47934	458	2968
	2%	235	1906	32	73
	10MW	17	298	2	519
Summer	2MW	3120	54071	668	2974
	2%	292	452	36	70
	10MW	0	5	0	295
Autumn	2MW	11237	68707	1066	4108
	2%	500	716	36	83
	10MW	56	70	0	284
Winter	2MW	11065	64864	995	4333
	2%	1090	1307	22	149
	10MW	126	144	0	276

## Attachments

Attachment A – Spring 2018 GC/DC KPI Report

Attachment B – Summer 2018 GC/DC KPI Report

Attachment C – Autumn 2018 GC/DC KPI Report

Attachment D – Winter 2018 GC/DC KPI Report

### For more information, please contact:

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