

Performance Thresholds

Performance Assurance Board (PAB)

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Summary	N/A		

1. Background

- 1.1 As a response to the COVID-19 lockdown, the PAB approved a number of derogations to BSC obligations and temporarily suspended some Performance Assurance Techniques (PATs), including Error and Failure Resolution (EFR), in order to support the industry.
- 1.2 EFR was resumed for all issues that were not directly related to achieving of the Half Hourly (HH) (99% from SF onwards) and Non-Half Hourly (NHH) (97% at RF) Settlement performance standards in September 2020.
- 1.3 In October 2020, the PAB carefully considered the best approach to take to monitoring and managing issues associated with the Performance Standards, including the deployment of EFR, during a particularly challenging time for Suppliers to manage. The committee agreed the following approach by a majority at that meeting:
 - There would be an ongoing quarterly review approach taken to managing performance standards and the application of EFR as a response to these issues.
 - Elexon and the PAB's efforts would be predominantly focused on Suppliers with the largest volume of non-compliant estimation ('focus Suppliers');
 - That the focus Suppliers from November 2020 to January 2021 would be Suppliers with a monthly volume of non-compliant estimation above 2,000MWh. This approach would be applied individually to the Half Hourly (HH) Measurement Class (MC) C, HH Sub 100 kWh (MCs E, F and G), and NHH markets. It was the intention that this threshold would reduce as the industry performance improved;
 - Suppliers that were in EFR for performance standard issues in a particular market sector immediately prior to the first COVID-19 lockdown that were focus Suppliers were asked to provide EFR plans in December 2020 in accordance with BSCP538 "EFR";
 - Whilst performance improvement forecasts are usually expected in plans for performance standards issues, the PAB recognised that this would be extremely challenging to do accurately in the current environment. Therefore, it agreed that whilst there were significant restrictions, Suppliers in EFR would not be required to submit a performance improvement forecast. However, the committee highlighted that it will be beneficial if Suppliers begin to consider forecasts and include them in their plans where possible along with confidence levels. The committee stated it would be understanding if performance targets are missed and EFR escalation would not be applied whilst there were significant restrictions in place.
 - EFR would be considered for Suppliers that are not currently in EFR and have a monthly non-compliant estimation volume of above 2,000MWh at this meeting (reporting on Settlement Dates for November 2020 at

R1 and November 2019 at RF). There is an update in relation to these threshold and associated EFR recommendations provided to you this month;

- Suppliers within EFR could provide performance improvement plans over a quarter and then update them for the following quarter, until the impacts from COVID-19 have stabilised;
- The EFR exit threshold for Suppliers in EFR would be to have a volume of less than 1,000MWh of non-compliant estimation a month; and
- That the PAB expected that all Suppliers, not just the focus Suppliers, were expected to work to meet or maintain the Settlement standards.

- 1.4 At its January 2021 PAB meeting, the PAB considered whether the decision to re-apply EFR should be reversed in the light of the latest lockdown.
- 1.5 The committee acknowledged that the latest lockdown would frustrate Suppliers attempts to get Meter Reads but also noted the potential impacts on the industry of estimated energy including:
- Incorrect Settlement volumes and charges;
 - Increased imbalance charges as Suppliers are not using the correct volumes to forecast; and
 - Increased issues with customer billing and complaints.
- 1.6 These issues could increase the likelihood of Suppliers failing which, in turn, places a further financial burden on BSC Parties.
- 1.7 Consequently, the PAB decided that the deployment of EFR should be continued for the Suppliers with the largest volume of estimation under the standard. This allows the PAB to gain an understanding of the efforts of Suppliers to obtain reads and reduce processing issues in order to mitigate these issues and can request further action is taken where appropriate. However, it reinforced that a “light touch” would be taken to EFR during this period of lockdown and that it understood the issues currently being faced by Suppliers.
- 1.8 The PAB also noted that the number of focus Suppliers had increased which would make it harder for Elexon and the PAB to maintain the level of oversight that had been expected in October. Elexon confirmed that this would be considered at this February review of the thresholds and approach.
- 1.9 This quarterly review provides:
- Updated analysis on the inaccuracy associated with estimated data and how that appears to have changed as a result of the pandemic;
 - A re-appraisal of the threshold of non-compliant estimation for the focussed Suppliers and the current EFR exit criteria, and
 - The recommendations for the deployment of EFR to Suppliers as a result of the re-appraisal.

The review does not re-visit the principle of whether EFR should be applied to address Performance Standard issues during these circumstances as this was robustly debated in October and then again in January with a majority decision that EFR was appropriate on both occasions.

2. Updated analysis on the impact of NHH estimation on Settlement

Estimation inaccuracy by Settlement Runs and by year

- 2.1 This month Elexon has completed further Data Transfer Network (DTN) analysis focussed on the NHH market, as there is more reliance on estimation in that market at present. Here the estimation process is less adaptable to take account of changing consumption than the HH market. We recognise that the DTN does not provide full coverage of the industry flows but provides us with insight.
- 2.2 This analysis aggregates estimated consumption and compares it to the subsequent actual consumption aggregated at a daily Metering System level. When assessing the inaccuracy we looked at the gross difference, i.e. ignoring the direction. The following table is a view of NHH estimation inaccuracy by Settlement Run:

Run	AA entered	Unique MPANs	No of EACs	% error
R1		100,855	1,367,038	22.08%

Run AA entered	Unique MPANs	No of EACs	% error
R2	112,251	577,696	22.81%
R3	81,368	196,046	24.49%
RF	48,476	85,650	26.67%
Total	140,634	2,226,430	22.60%

2.3 This analysis indicates that estimation inaccuracy increases as the estimate ages. This is even taking into consideration the netting aspect of NHH estimation which uses looking forward consumption value (i.e. EAC). As estimation inaccuracy increases in later runs, it is reasonable to infer that this trend would continue after RF and some Suppliers within the EFR technique have highlighted AAs that were 50% to 85% higher than the AAs obtained after RF.

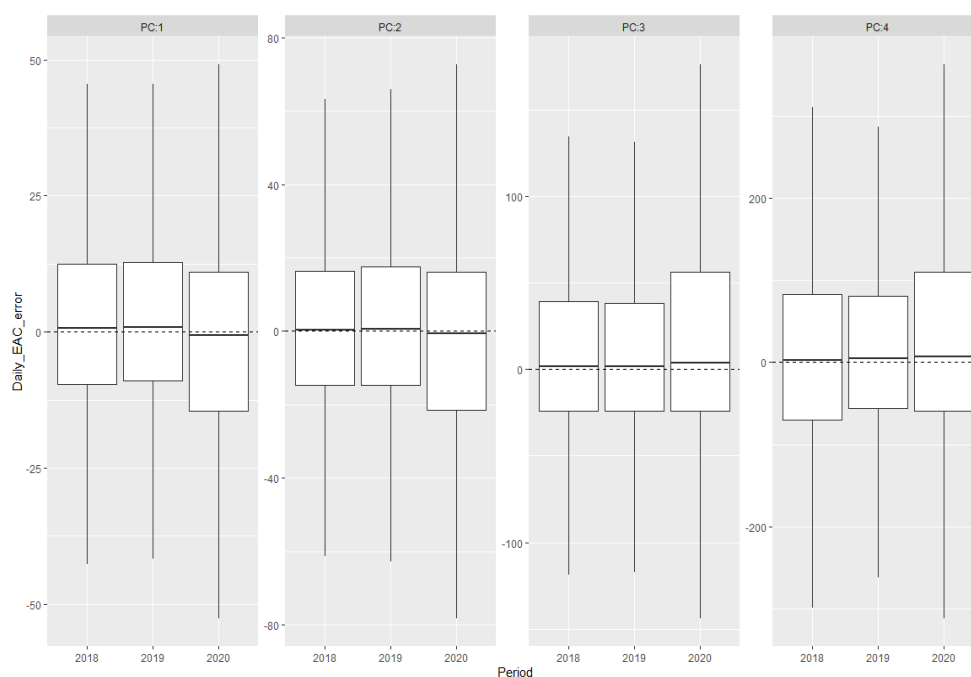
2.4 Elexon has also produced an updated view of NHH estimation inaccuracy changes over time (in aggregate for all Reconciliation Settlement Runs, i.e. R1 to RF). Please note, estimation error is assigned to a yearly period based on the date the actual Meter read was entered into Settlement.

Period	Unique MPANs	No of EACs	% error
2018	113,910	652,056	22.37%
2019	117,553	750,736	21.42%
2020	120,325	823,638	23.91%
Total	140,634	2,226,430	22.60%

2.5 This shows that whilst estimation inaccuracy had reduced in 2019 (likely as a result of the in excess of 2.4m Smart Meters installed in the period), it increased in 2020 (likely as a result of Meters being read less frequently and being based on past consumption that did not reflect the lockdown volumes). A full view of estimation for the past three years, for each of the runs is set out in the Appendix.

The changing trends of estimation inaccuracy

2.6 It is also important to remember that estimation can both overstate and understate consumption. The impact of lockdown on the directional aspect of estimation accuracy can be seen further when looking at the distribution of estimation error in NHH Profile Classes one to four.



2.7 The boxplots above set out the distribution of daily EAC error for each of the Profile Classes one to four in 2018, 2019 and 2020 respectively for the random sample of ~140k NHH Metering Systems. The middle horizontal dotted line at zero represents where there was no inaccuracy from the EACs and the solid lines

within each box show the average (median) daily EAC error for that Profile Class in that year based on the EAC to AA conversions. A median above the dotted line outlines a tendency for the estimation to overstate consumption whereas a median below the dotted line outlines a tendency for the estimation to understate consumption.

- 2.8 As you can see above, in 2018 and 2019 estimation on average tended to overstate consumption across all four of the Profile Classes. However, in 2020 this changes.
- 2.9 For the domestic Profile Classes (one and two) during 2020, the direction of average estimation inaccuracy flips where it tended to understate consumption. This is to be expected and aligns with what participants have told us as the lockdown has resulted in more people being at home and using more energy, i.e. not reflective of historical consumption on which looking forward EACs were based.
- 2.10 The small and medium business site Profile Classes (three and four) during 2020 still shows that estimation, on average, tended to overstate consumption, but it has become more pronounced/skewed in 2020 where there is more likely to be larger overstatements of consumption. Again, this is to be expected and what participants have told us because many of these businesses have been closed for the lockdown periods and the estimates would have been based on past consumption when they were operating normally. The derogated process that Elexon and the PAB put in place to allow Data Collectors to accept amended EACs from Suppliers to account for this change in consumption would have mitigated this issue to an extent for some of the largest sites where evidence of reduced consumption was available. The derogations would also have added to the EAC converting to a lower AA however, as deemed reads were entered as part of this process, creating forward looking EACs and AAs.

What these changes mean for Settlement accuracy

- 2.11 As noted above, we have seen NHH estimation inaccuracy increase as a result of changes in demand which can be attributed to the pandemic. This increase in estimation inaccuracy will have also increased the amount of unaccounted energy that is redistributed to Suppliers through GSP Group correction. As GSP Group Correction Factors are subject to large variances (noise) on a daily/weekly/monthly basis due to the impact of profiling NHH consumption, Annual Demand Ratio (ADR) provides a more stable view of changes in correction factor trends.

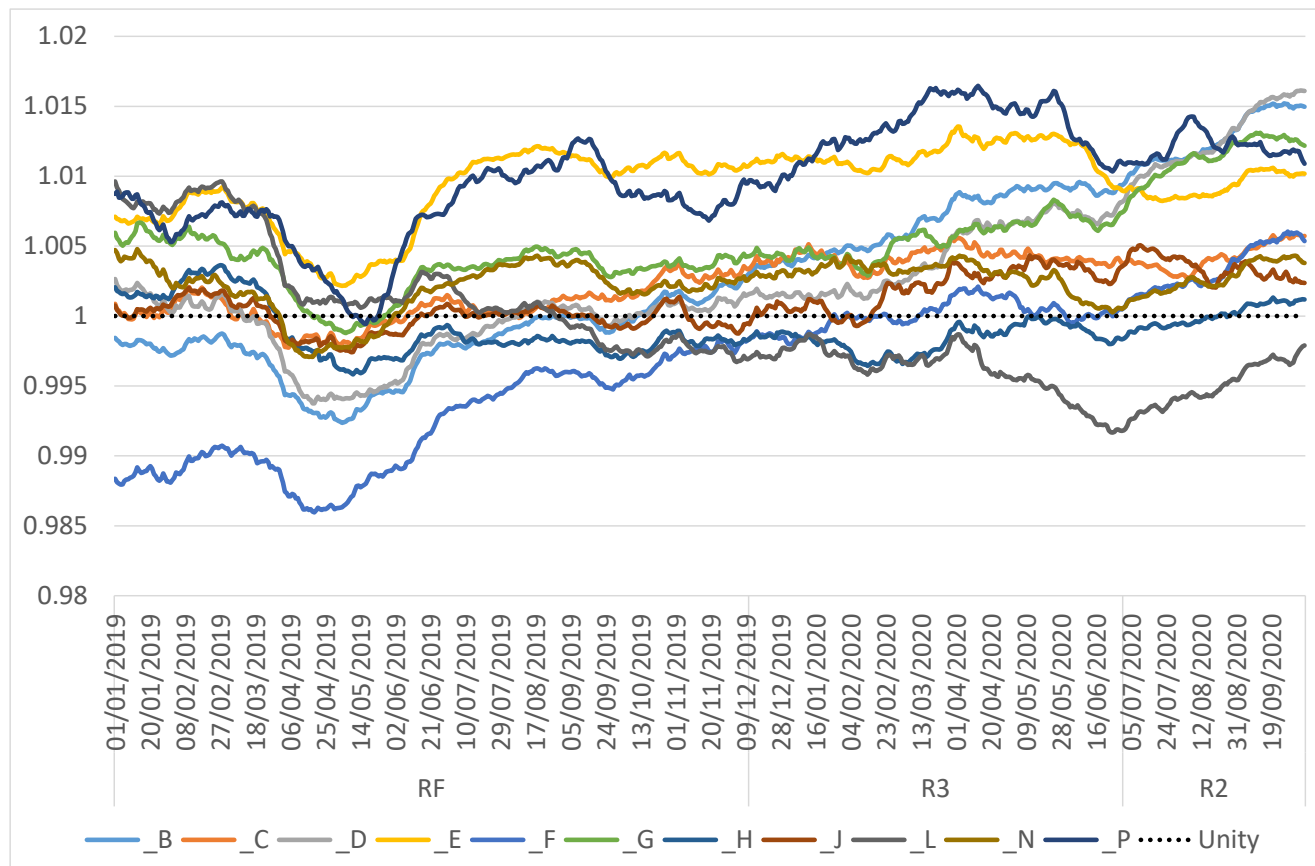
What is ADR?

- 2.12 ADR is a measure of the variation between the total annual profiled NHH consumption and the total annual metered NHH consumption (as deduced from GSP Group Takes and HH consumption). ADR is:
- $$\text{(annual GSP Group Take minus annual HH consumption)} / \text{(total annual profiled NHH consumption)}$$
- or equivalently;
- $$\text{annual corrected/annual uncorrected consumption, which approximately equates to average annual GSP Group Correction Factor.}$$
- 2.13 ADR provides a high-level understanding of the overall performance of the NHH SVA market and identifies any significant under-/over-accounting of energy. Whilst the theoretical 'ideal' value of ADR is 1, variations of +/- 1.5% are to be expected due to inaccuracies in line loss estimates and a small usage of estimates at Final Reconciliation (RF) run.
- Values of less than 1 may result from:
- the over-accounting of import energy in SVA,
 - the under-accounting of export energy in SVA or
 - under-accounting of Grid Supply Point (GSP) metering.
- Values of greater than 1 may result from:
- the under-accounting of import energy in SVA,
 - the over-accounting of export energy in SVA or
 - over-accounting of GSP metering.
- 2.14 Whilst ADR is a good high level KPI of the health of a GSP Group, it also has limitations in that it provides the net effect of all Settlement Errors so under-recording will offset over-recording. ADR is also extremely volatile at earlier Settlement Runs (due to the large amount of estimated NHH consumption) so we only apply monitoring

thresholds from R2 onwards. And finally, with ADR being a 365 day moving average, it can take time for potential errors/trends to become apparent.

Have we seen any changes in trends in ADR?

- 2.15 We have observed an increasing trend in ADR across most GSP Groups in recent months as highlighted in the graph below (**please note** we have excluded GSP Groups _A, _K and _M as there are other known/suspected issues causing ADR movements). This suggests systematic under-accounting of import energy in SVA or the over-accounting of export energy in SVA with the latter being less likely.



- 2.16 This could indicate that, whilst there will be some netting off of the under-estimation of NHH domestic sites with the over-estimation in the small to medium business sites, the impact of the domestic under-estimation is having a biggest net impact on Settlement. This could be causing the rise in ADR we're observing across most GSP Groups. This net effect would make sense as the energy share between domestic Profile Classes one and two and non-domestic Profile Classes three and four is approx. 77% to 23% respectively.
- 2.17 However, it's worth noting that the rising trend in ADR that we're seeing in most GSP Groups could also be caused other issues such as increased energy theft or additional inaccuracy associated with profiling as demand patterns have changed. In addition, whilst we have focused on NHH estimation accuracy initially, systematic understating of HH estimation could also be a contributing factor.

3. Comparison of potential materiality in the NHH market between February 2020 and February 2021

- 3.1 The table below shows the potential material impact of increased estimation across all market sectors and increased NHH estimation inaccuracy over the last year.

	February 2020	February 2021
Industry average performance %	96.44% at RF	95.01% at RF
Volume of estimation MWh	449,715	647,446
Estimation Inaccuracy % (based on Elexon DTN sample)	27% (average inaccuracy at RF in 2019 as prior to pandemic)	28.5% (average inaccuracy at RF in 2020 to reflect pandemic)
Potential inaccurate Volume based when inaccuracy % applied	121,423	184,528
Credit Assessment Price(CAP) for relevant Settlement Days per MWh	75	54
Materiality (£GBP)	£9,106,725	£9,964,512

- 3.2 This highlights that, despite a decreased CAP price for the Settlement Dates at RF in the February 2021 report, the impact of increased estimation in the NHH market combined with the increased estimation inaccuracy is likely to have resulted in an increased materiality to Settlement.

4. Prioritising based on the volume of energy under the standards

- 4.1 When monitoring Settlement performance, Elexon checks both the Settlement performance against the appropriate standard for each Measurement Class and Supplier MPID, and the monthly volume of energy under the standard. This enables us to prioritise our investigations and apply Performance Assurance Techniques (PATs) to the Supplier MPIDs with the largest volume of estimates below the applicable standards.
- 4.2 This can result in Suppliers being prioritised above those with a lower percentage performance due to the total volume of energy (and, as a consequence, the estimated energy) being higher.
- 4.3 This approach enables Elexon and the PAB to take actions to more rapidly understand and, where possible, work to reduce the volume of estimated energy under the standard.
- 4.4 Elexon does not recommend a change of this approach at this time, as the majority of non-compliant estimation volume is still concentrated in a relatively small number of Suppliers. However, it is important that all Suppliers continue to work to improve their performance.

5. Performance Overview, changes over the last quarter and potential impacts in the next which we need to consider

Looking at the volume of non-compliant estimation in all three market areas based on February 2021 reporting (which reports on Settlement Days in November 2020 at R1 and Settlement Days in November 2019 at RF), we can see that two thirds of this is currently within the NHH market. This is something that we need to consider when reassessing the threshold for focus Suppliers in each of the areas:

Market Area	Settlement Run and standard used for current view	Settlement month used in current view	Industry Average	Volume under the standard MWh	% of the impact per market area
HH MC C	R1 99% (standard required at SF but assessed due to risk based approach at R1)	November 2020	98.02%	90,233	23%
HH MC E,F and G	R1 99%	November 2020	94.60%	42,642	11%
NHH	RF 97%	November 2019	95.01%	258, 509	66%
Total:				391,384	

- 5.1 The following table shows the key changes that have taken place since the last review:

		HH	Sub 100kW	NHH
Industry Average performance	September 2020	97.87 %at R1	94.23% at R1	95.98 % at RF
	February 2021	98.02% at R1	94.60% at R1	95.01% at RF
Volume of non-compliant estimation	September 2020	94,423MWh	36,821MWh	113,281MWh
	February 2021	90,233MWh	42,642MWh	258, 509MWh
Number of Suppliers above current 2,000MWh monthly threshold	September 2020	11/76	5/67	11/125
	February 2021	14/78	6/67	21/126

- 5.2 The HH MC C and HH Sub 100kW industry average has increased slightly since the September report period. However, we are expecting that this could now reduce as we saw an industry-wide decrease at SF over the Christmas period.
- 5.3 We are also aware that whilst, largely HH operational work has continued, two HH Meter Operator Agents (MOAs) and Data Collectors (DCs) that we are aware of stopped or reduced their onsite activity. One HHMOA has also experienced system issues. These issues, alongside the lockdown closures and restrictions resulting in reduced access to undertake fixes or obtain manual reads, are likely to result in a drop in performance at the start of the next quarter.
- 5.4 However, we are aware that one of the agents has now increased onsite activity substantially and, as the infection rates have reduced across the country, a number of the restrictions currently in place may start to ease. It is likely that, unless the national restrictions have resulted in wide-spread closures, that the total volume of energy for these markets will increase for the next two months of reporting, in line with the usual seasonal fluctuations. When the total volume of energy increases, then so too does the volume of energy under the standard unless performance significantly increases.
- 5.5 NHH Performance at RF has been consistently dropping since the first lockdown. However, performance at the earlier runs has been improving for a number of months. R2 performance, which had dropped to 66% is now back to around 75% which is similar to where it was prior to the first lockdown. R3 had dropped to 83% and has now increased to around 87%. R3 is still three percent away from its performance prior to the first lockdown, however.
- 5.6 There are still three months until RF hits the lowest point reached at R3 prior to some recovery. It is therefore possible (and now, likely, given we are in a period of further restrictions) that RF will continue to drop over the next quarter.
- 5.7 The total volume of energy for the upcoming quarter will also continue to increase for the next two months of PAB reporting, based on the volumes for this period at R3. These two points together would be likely to result in an increased number of focus Suppliers if the threshold were to stay at the current 2,000MWh volume. Last month the PAB noted that the number of focus Suppliers in the NHH market has increased and raised concerns that this could result in a loss of sufficient central focus. Elexon highlighted that this would be an issue to consider and address in this review.

6. Recommendations for the threshold for Focus Suppliers and EFR for the next quarter

- 6.1 Elexon has considered the following points in order to set the thresholds for the next quarter:
- The current number of Suppliers that fall above a number of different potential thresholds for each market area (below);
 - The relative volume of non-compliant estimation between each of the market areas; and
 - The potential changes to the total volume of energy alongside the other potential changes coming up in the next three months.

HH MC C – 23% of all non-compliant estimation

6.2 Elexon considered the effectiveness of the following thresholds for the HH market:

Threshold	No of Suppliers	Vol of non-compliant energy	% coverage of non-compliant energy in this market
2,000	14	79,570	88%
4,000	7	59,982	66%
5,000	5	50,605	56%

6.3 Elexon concluded that a threshold of 4,000MWh and a market coverage of 66% of the non-compliant estimation would:

- Cover the majority of non-compliant estimation whilst ensuring the number of focus Suppliers is proportional to the level of impact for that market area; and
- Allow for the fact that the total volume of energy (and therefore the volume of estimation under the standard) is likely to increase over the next two months which could result in more Suppliers crossing the 4,000MWh threshold in the upcoming months.

HH Performance Sub 100kW – 11% of all non-compliant estimation

Threshold	No of Suppliers	Vol of non-compliant energy	% coverage of non-compliant energy in this market
2,000	6	24,417	57%
4,000	3	15,820	37%
5,000	1	6,557	15%

6.4 Elexon concluded that a threshold of 4,000MWh and a market coverage of 37% of the non-compliant estimation would:

- Ensure that some focus remained on this market area which, prior to the pandemic, was one of the larger areas of concern (as the industry average for MC C was above the standard at R1 but not SF) whilst ensuring that this is proportional to the current percentage of total non-complaint estimation in this market area; and
- Allow for the fact that the total volume of energy (and therefore the volume of estimation under the standard) is likely to increase over the next two months which could result in more Suppliers crossing the 4,000MWh threshold in the upcoming months.

NHH Performance – 66% of all non-compliant estimation

Threshold	No of Suppliers	Vol of non-compliant energy	% coverage of non-compliant energy
2,000	21	245,939	95%
4,000	13	222,312	86%
6,000	10	208,437	81%
8,000	8	194,788	75%
10,000	6	176,256	68%
20,000	5	161,740	63%

Threshold	No of Suppliers	Vol of non-compliant energy	% coverage of non-compliant energy
30,000	3	109,803	42%
40,000	1 (expect 2 soon)	40,501	16%

6.5 Elexon concluded that a threshold of 4,000MWh and a market coverage of 86% of the non-compliant estimation would:

- Cover the vast majority of non-compliant estimation whilst ensuring the number of focus Suppliers is at a manageable to maintain sufficient focus and
- Allow for the fact that the total volume of energy (and therefore the volume of estimation under the standard) will increase over the next two months (based on the volumes at R3 for the relevant Settlement Days) which could result in more Suppliers crossing the 4,000MWh threshold in the upcoming months.

7. Review of EFR exit requirement and EFR exit recommendation

7.1 In October 2020, the PAB agreed that Suppliers were no longer required to maintain a performance average above the relevant standard for three months to exit EFR and agreed that that an EFR exit threshold for performance standards issues would be set and reviewed on a quarterly basis.

7.2 This threshold was initially set so that Suppliers with a volume of below 1000MWh of non-compliant energy would be able to exit EFR so that Elexon and the PAB's focus could remain on the Suppliers with the largest Settlement impact.

7.3 Whilst the EFR entry threshold has been raised for this quarter, Elexon does not recommend raising the volume of non-compliant estimation required to exit EFR at this time. This is because it is hoped that the threshold need only remain high for a short period whilst significant restrictions are in place and whilst the total volume of energy is high in each market. Elexon is keen to avoid Suppliers exiting and re-entering EFR too regularly as it that will not be an efficient approach for Elexon or Suppliers.

Appendix

a) - Full breakdown of NHH estimation inaccuracy for the last three years by year and run type

Period	Run_AA_entered	Unique_MPANs	No_of_EACs	Pct_error
2018	R1	62,229	367,916	21.81%
2018	R2	75,130	188,948	23.03%
2018	R3	48,002	71,477	23.63%
2018	RF	18,809	20,453	26.00%
2018	Total	113,439	648,794	22.42%
2019	R1	67,550	459,169	20.83%
2019	R2	74,952	192,922	21.98%
2019	R3	44,670	67,269	23.22%
2019	RF	20,752	26,705	27.30%
2019	Total	116,942	746,065	21.49%
2020	R1	70,616	535,359	23.48%
2020	R2	74,406	192,343	23.63%
2020	R3	36,463	55,957	27.40%
2020	RF	22,883	35,631	28.53%
2020	Total	119,818	819,290	23.97%
Total	Total	140,113	2,214,149	22.66%

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