

ENHANCED FREQUENCY RESPONSE

Invitation to tender for pre-qualified parties

8th July 2016 v2.2



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1 Eligibility

- 1.1 **This document is intended to give parties who pre-qualified for the enhanced frequency response tender event the necessary information to structure their bids and apply for a contract. Parties who have not pre-qualified will not be accepted into this tender round, however we anticipate that there will be future opportunities for the procurement of enhanced frequency response and would encourage potential providers to notify NGET of their contact details.**

2 Introduction

- 2.1 National Grid Electricity Transmission (NGET) is the System Operator for the National Electricity Transmission System in Great Britain. As part of our responsibilities as System Operator, we are required to ensure that the National Electricity Transmission System is balanced on a moment by moment basis. In order to achieve this, NGET procures balancing services. In particular, NGET procures a service known as dynamic frequency response, whereby providers automatically vary their power consumption or production (technology dependent) to compensate for deviations in system frequency away from the nominal Great Britain frequency of 50Hz.
- 2.2 The changing generation mix in Great Britain is reducing the contribution that synchronous generation makes to the energy market, which in turn is reducing the level of system inertia, particularly on low demand days when there is a high penetration of renewable plant. Lower system inertia affects the ability of the System Operator (SO) to manage the system frequency within normal operating limits. This in turn will drive the procurement of larger volumes of the existing frequency response products. We are therefore investigating alternative solutions, one of which is the creation of an enhanced frequency response (EFR) service. The aim of this service will be to improve management of system frequency pre-fault, i.e. to maintain the system frequency closer to 50Hz under normal operation, however as a dynamic service there will also be a benefit in post-fault frequency containment.
- 2.3 On 22nd September we published an invitation for expressions of interest (EOI) in the provision of this new service. The intention of this invitation was to provide a gauge of the market interest. Through this invitation we asked interested parties to provide details of the assets they were proposing to use, their specific technical characteristics and how they performed against a year of second by second frequency data, and any commercial or regulatory issues that they saw as barriers. We received 68 submissions from a wide variety of parties with a total capacity submitted in excess of 1.3GW, 888MW of that being from battery projects. Of the submissions received, 60 provided sufficient information for their projects to pre-qualify for the tender event described in this invitation to tender (ITT).

3 Contractual Requirements

- 3.1 The ITT sets out NGET's contracting requirements, general policy requirements, and the general tender conditions relating to this procurement process ("Procurement Process").
- 3.2 The appointed supplier(s) will be expected to deliver the enhanced frequency response service as set out in the Service Description from a date no later than 18 calendar months from the publication of tender results on the NGET website (unless NGET has agreed to an extension). No other commercial service that involves the use of the active power contracted to EFR may be provided from the assets at the same time as EFR without NGET's approval, this would constitute a material breach and would result in termination of the provider's contract. For the avoidance of doubt, EFR assets cannot concurrently provide dual services but can provide different services within a day if they are not contracted for EFR at these different times.
- 3.3 NGET's contracting and commercial approach in respect of the enhanced frequency response service is set out at Appendix C - Terms and Conditions of Contract~~Appendix C - Terms and Conditions of Contract~~ ("Contract"). By submitting a tender response, you are agreeing to be bound by the terms of this ITT and the Contract without ~~further~~ negotiation or material amendment (save for changes necessary to reflect the type and technical characteristics of the tendered plant)~~amendment~~.
- 3.4 The Contract awarded will be for a duration of up to four years from the Commercial Operations Date (COD).
- 3.5 Whilst parties may bid in for multiple sites (subject to each of them meeting the tender pre-requisites) and multiple service offerings, each pre-qualified party will be capped at a total of 50MW of accepted tenders. The 50MW cap will apply at the Pre-Qualified Party level, i.e. a single Pre-Qualified party could not create a number of SPV delivery companies and benefit from the 50MW cap applying to each SPV.
- 3.6 If you intend to contract to provide the service through a special purpose company, that must be stated in your tender submission and the ownership and management structure of that entity must be clearly explained, including the names of the other parties investing in or providing services to the SPV. It will also be necessary to demonstrate that the SPV will be in a position to satisfy the pre-qualification criteria. Any failure to meet these requirements is likely to result in your tender submission being rejected.
- ~~3.5~~3.7 In the event that you have any concerns or queries in relation to the Contract, you should submit a clarification request in accordance with the provisions of this ITT (Appendix B - Clarification Request~~Appendix B - Clarification Request~~) by the Clarification Deadline (as defined below in the Timescales section of this ITT). Following such clarification requests, NGET may issue a clarification change to the Contract that will apply to all potential suppliers submitting a tender response.

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- ~~3-63.8~~ NGET is under no obligation to consider any clarifications / amendments to the Contract proposed following the Clarification Deadline, but before the Tender Response Deadline (as defined below in the Timescales section of this ITT). Any proposed amendments received from a potential supplier as part of its tender submission shall entitle NGET to reject that tender response and to disqualify that potential supplier from this Procurement Process.
- ~~3-73.9~~ By submitting a tender response in connection with this Procurement Process, potential suppliers confirm that they will, and that they shall ensure that any consortium members and/or subcontractors will, comply with all applicable laws, codes of practice and statutory guidance.
- ~~3-83.10~~ Six weeks after the tender deadline, NGET will publish the results of the tender process on the Enhanced Frequency Response website: <http://www2.nationalgrid.com/Enhanced-Frequency-Response.aspx>. This publication will include details of all successful and unsuccessful tenders. By participating in this Procurement Process, you agree to such disclosure and/or publication by NGET.

4 Timescales

Invitation to Tender Pack Issued	15 th April 2016
Clarification Deadline	4 th July 2016
Tender Event Opens	11 th July 2016
Tender Response Deadline	15 th July 2016
Publication of Results	26 th August 2016
Post Tender Milestone Test	28 th February 2017
Latest Service Start Date	1 st March 2018

5 Tender Conditions

- 5.1 Application of these Tender Conditions – In participating in this Procurement Process and/or by submitting a tender response it will be implied that you accept and will be bound by all the provisions of this ITT and its Appendices. Accordingly, tender responses should be on the basis of and strictly in accordance with the requirements of this ITT.
- 5.2 Third party verifications – Your tender response is submitted on the basis that you consent to NGET carrying out all necessary actions to verify the information that you have provided.
- 5.3 Information provided to potential suppliers – Information that is supplied to potential suppliers as part of this Procurement Process is supplied in good faith. The information contained in the ITT and the supporting documents and in any related written or oral communication is believed to be correct at the time of issue but NGET will not accept any liability for its accuracy, adequacy or completeness and no warranty is given as such.
- 5.4 Potential suppliers to make their own enquires – You are responsible for analysing and reviewing all information provided to you as part of this Procurement Process and for forming your own opinions and seeking advice as you consider appropriate. You should notify NGET promptly of any perceived ambiguity, inconsistency or omission in this ITT and/or any in of its associated documents and/or in any information provided to you as part of this Procurement Process through the Clarification Process.
- 5.5 Amendments to the ITT – At any time prior to the Tender Response Deadline, NGET may amend the ITT. Any such amendment shall be issued to all potential suppliers, and if appropriate to ensure potential suppliers have reasonable time in which to take such amendment into account, the Tender Response Deadline shall, at the discretion of NGET, be extended. Your tender response must comply with any amendment made by NGET or it may be rejected.
- 5.6 Compliance of tender response submission – Any tenders offered should be on the basis of and strictly in accordance with the ITT and all other documents and any clarifications or updates issued by NGET as part of this Procurement Process.
- 5.7 Format of tender response submission – Tender responses must be provided through the web portal, a link to which will be provided prior to the Tender Response Deadline. Tender responses must include uploaded scanned copies of the relevant documents specified and be completed in all areas.
- 5.8 Bid Bond – Prior to the Tender Response Deadline, a bid bond sufficient to cover the MW capacity of the tender response per site location must be posted ~~with to the holding company~~ NGET (EFR Contract Team, D2, National Grid House, Warwick Technology Park, Gallows Hill, Warwick, CV34 6DA) and a scanned copy sent to commercial.operation@nationalgrid.com. The value of the bid bond is £25,000 per MW, and may be provided by cash; or Letter of Credit ~~or Parent Company Guarantee~~ (subject to the issuing institution meeting Standard and Poor/Moody's credit rating

BBB/Baa or above). The bid bond must be on demand and not be conditional. In the event that a successful ~~tender~~ tender does not enter into a Contract or fails the Post-Tender Milestone Test or fails to commission by the commercial operations date (which may be extended), a ~~termination payment will be due which will equal the amount of the bid bond claim will be made for the full bond amount.~~ For the avoidance of doubt, different service offerings tendered in from the same assets will not require multiple bid bonds to be posted. Bid bonds will be returned forto unsuccessful tenderers on the date of publication of results, and from successful parties on the date of commercial operations.

5.9 Rejection of tender responses or other documents – A tender response or any other document requested by NGET as part of the tender exercise may be rejected which if it:

- contains gaps, omissions, misrepresentations, errors or uncompleted sections;
- contains hand written amendments which have not been initialled by the authorised signatory;
- does not reflect and confirm full and unconditional compliance with all of the documents issued by NGET forming part of the ITT;
- contains any caveats or any other statements or assumptions qualifying the tender response that are not capable of evaluation in accordance with the evaluation model or requiring changes to any documents issued by NGET in any way;
- is not submitted in a manner consistent with the provisions set out in this ITT;
- is received after the Tender Response Deadline.

5.10 Disqualification – If you breach these Tender Conditions, if there are any errors, omissions or material adverse changes relating to any information supplied by you at any stage in this Procurement Process, if any other circumstances set out in this ITT, and/or in any supporting documents, entitling NGET to reject a tender response apply and/or if your staff, partner companies, sub-contractors and advisers attempt:

- to inappropriately influence this Procurement Process;
- to fix or set the price for the enhanced frequency response service;
- to enter into an arrangement with any other party that such party shall refrain from submitting a tender response;
- to enter into any arrangement with any other party (other than another party that forms part of your consortium bid or is your proposed sub-contractor) as to the prices submitted;
- to collude in any other way;

- to engage in direct or indirect bribery or canvassing by you or your appointed advisers in relation to this Procurement Process,

5.11 NGET shall be entitled to reject your tender response in full and to disqualify you from this Procurement Process. Subject to the “Liability” Tender Condition below, by participating in this Procurement Process you accept that NGET shall have no liability to a disqualified potential supplier in these circumstances.

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5.145.12 Tender costs – You are responsible for obtaining all information necessary for preparation of your tender response and for all costs and expenses incurred in preparation of the tender response. Subject to the “Liability” Tender Condition below, you accept by your participation in this procurement, including without limitation the submission of a tender response, that you will not be entitled to claim from NGET any costs, expenses or liabilities that you may incur in tendering for this procurement irrespective of whether or not your tender response is successful.

5.125.13 Rights to cancel or vary this Procurement Process - By issuing this ITT, entering into clarification communications with potential suppliers or by having any other form of communication with potential suppliers, NGET is not bound in any way to enter into any contractual or other arrangement with you or any other potential supplier. It is intended that the remainder of this Procurement Process will take place in accordance with the provisions of this ITT but NGET reserves the right to terminate, suspend, amend or vary (to include, without limitation, in relation to any timescales or deadlines) this Procurement Process by notice to all potential supplier in writing. Subject to the “Liability” Tender Condition below, NGET will have no liability for any losses, costs or expenses caused to you as a result of such termination, suspension, amendment or variation.

5.135.14 Partners and sub-contractors – It is your responsibility to ensure that any staff, partner companies, sub-contractors and advisers abide by these Tender Conditions and the requirements of this ITT.

5.145.15 Liability – Nothing in these Tender Conditions is intended to exclude or limit the liability of NGET in relation to fraud or in other circumstances where NGET’s liability may not be limited under any applicable law.

5.155.16 Withdrawal – You may withdraw your tender submission by submitting a formal request in writing to NGET, to be received prior to the date of Publication of Results. This will not be a breach of the tender conditions and will not result in a call upon the bid bond.

5.165.17 Validity - Your tender response must remain open for acceptance by NGET for a period of 120 days from the Tender Response Deadline. A tender response not valid for this period may be rejected by NGET.

6 Service Description

- 6.1 Any proposed assets must deliver the service as specified in this section. These criteria have been identified as being the optimum to ensure consistency of service and facilitate competition between potential providers. Please note that these requirements have been developed and refined as a result of feedback provided by pre-qualified parties through the invitation for expressions of interest, and therefore differ from those previously communicated.

Technical Requirements

- 6.2 The assets must deliver active power to the grid as a proportional response to a change in system frequency outside of the deadband. Proportionality of the response means that active power increase/decrease has to be proportional to the frequency deviation from 50Hz. Within the deadband the assets do not have to deliver proportional response.
- 6.3 Delay in executing the frequency response is the time delay that occurs from the frequency deviation to delivering the MW response to the grid. This time delay includes the time that the frequency monitoring device takes to detect a frequency deviation plus the time for instructing a response and the time for the assets to deliver the MW change in output. This time delay must be no greater than 1s in total, with the time delay for detection and instructing response no greater than 500ms.

Delivery Envelopes

- 6.4 The assets must deliver continuous active power as described in one of the two service envelopes. These envelopes are illustrated in more detail in [Appendix A - Service Envelopes](#)~~Appendix A - Service Envelopes~~. These envelopes have been designed to be at their narrowest range for any frequency that is likely to be post-fault (i.e. at the times we need frequency response to manage the system).
- 6.5 Both services include an upper, lower and reference profile. For the purposes of EFR provision, assets must ensure their output is within the upper and lower envelopes at all times, failure to do so will impact upon the Service Performance Measure and therefore availability payment. The reference profile is exactly halfway between the upper and lower profiles, and the purpose of it is to provide a target profile for assets that do not have a finite energy capacity and therefore do not need to manage a state of charge.
- 6.6 The deadband is defined as the frequency range between reference point C and D, i.e. the frequency range where the reference profile is at zero MW output. Within this range the active power of the assets does not need to respond proportionally to the system frequency. The input/output of the EFR assets within the deadband must not exceed 9% of the maximum input/output, e.g. for a 20MW EFR service the maximum input/output in the deadband would be ± 1.8 MW.

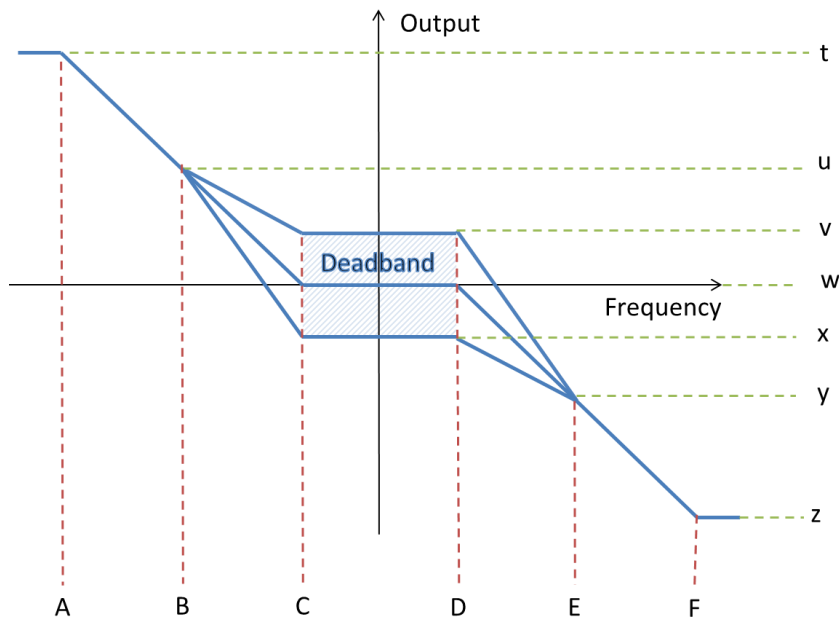


Figure 1

Reference Point	Service 1 (Hz)	Service 2 (Hz)
A	49.5	49.5
B	49.75	49.75
C	49.95	49.985
D	50.05	50.015
E	50.25	50.25
F	50.5	50.5

Table 1

Reference Point	Service 1 (%Capacity)	Service 2 (%Capacity)
t	100%	100%
u	44.44444%	48.45361%
v	9%	9%
w	0%	0%
x	-9%	-9%
y	-44.44444%	-48.45361%
z	-100%	-100%

Table 2

Ramp Rates

6.7 Assets may act within the upper and lower envelopes to ensure they are prepared to provide a continuous service in the future (e.g. for a battery by managing state of charge), subject to the following limitations on ramp rates.

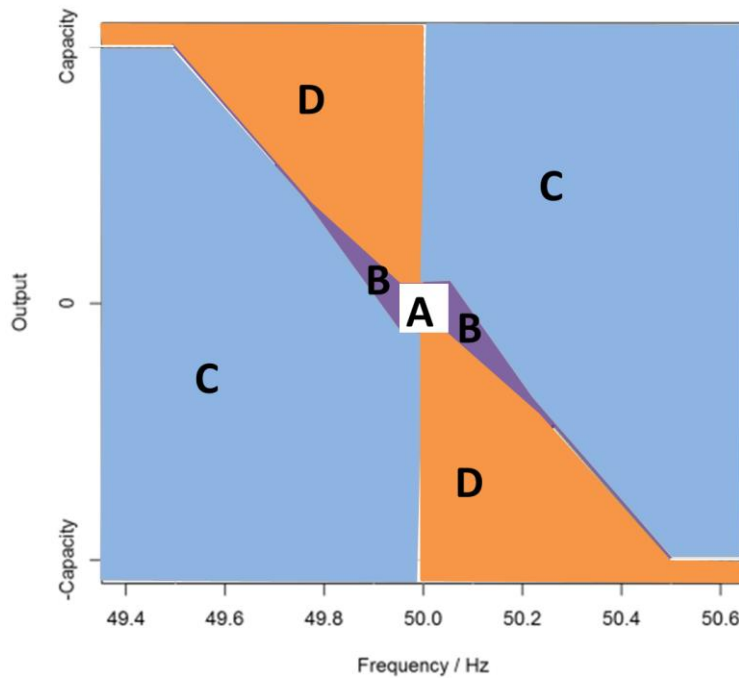


Figure 22

6.8 For the shaded areas A, B, C and D the ramp rate must comply with the following values, unless such compliance would breach the service envelope.

Area	Maximum Ramp Rate as a percentage of Operational Capacity (MW/s)	Minimum Ramp Rate as a percentage of Operational Capacity (MW/s)
A	1%	0%
B	See 6.11, below	See 6.11, below
C	200%	0%
D	10%	0%

Table 33

6.9 For the avoidance of doubt, the inclusion of ramp rates C and D does not legitimise the operation of EFR assets outside of the service envelopes. Operation in these areas will result in penalties to the availability payment through the Service Performance

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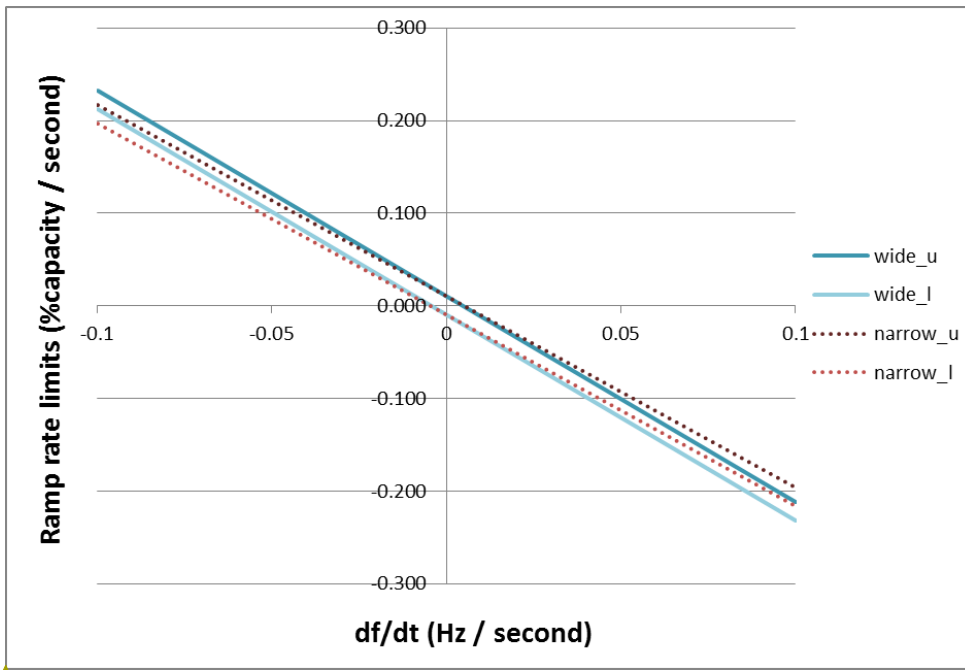


Figure 3

For Ramp Rate Zone B	Maximum Ramp Rate	Minimum Ramp Rate
Service 1 (wide)	$-2.222 \frac{df}{dt} + 0.01$	$-2.222 \frac{df}{dt} - 0.01$
Service 2 (narrow)	$-2.066 \frac{df}{dt} + 0.01$	$-2.066 \frac{df}{dt} - 0.01$

Table 4

6.12 These limits are required to ensure that output changes in a proportional way to frequency, whilst allowing providers some flexibility in service provision. It does require continuous measuring of df/dt which given inherent inaccuracies will delay the response to a very fast frequency deviation, however it reduces the chances of delivery overshoot and unpredictable behaviour.

6.11

6.126.13 Figure 4 shows the logic we would expect a provider to use, in high-level terms, when determining the EFR output from their assets. For the avoidance of doubt, the service envelope always takes precedence over the ramp rate limits. Therefore ramp rate limits will be overridden where the output of the EFR assets is near the edge of the envelope, as shown in Figure 3.

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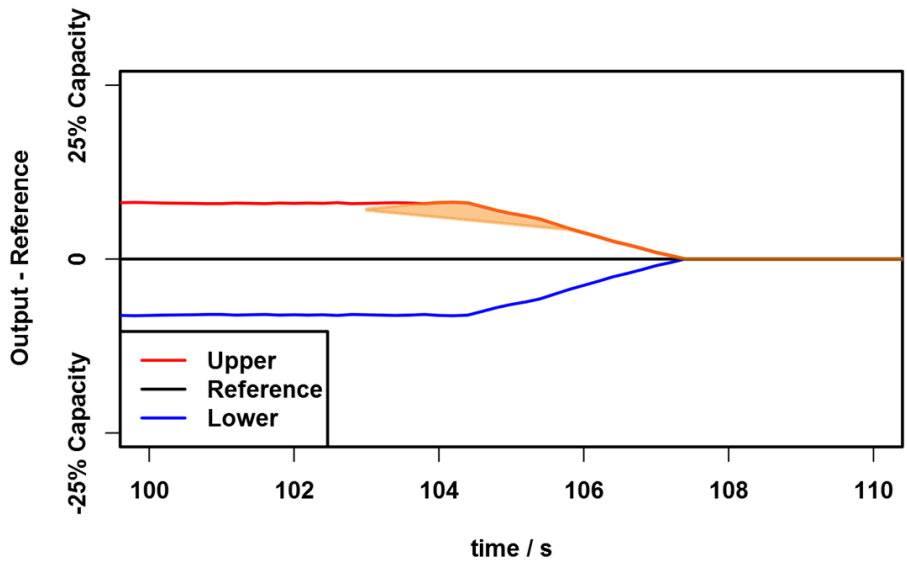
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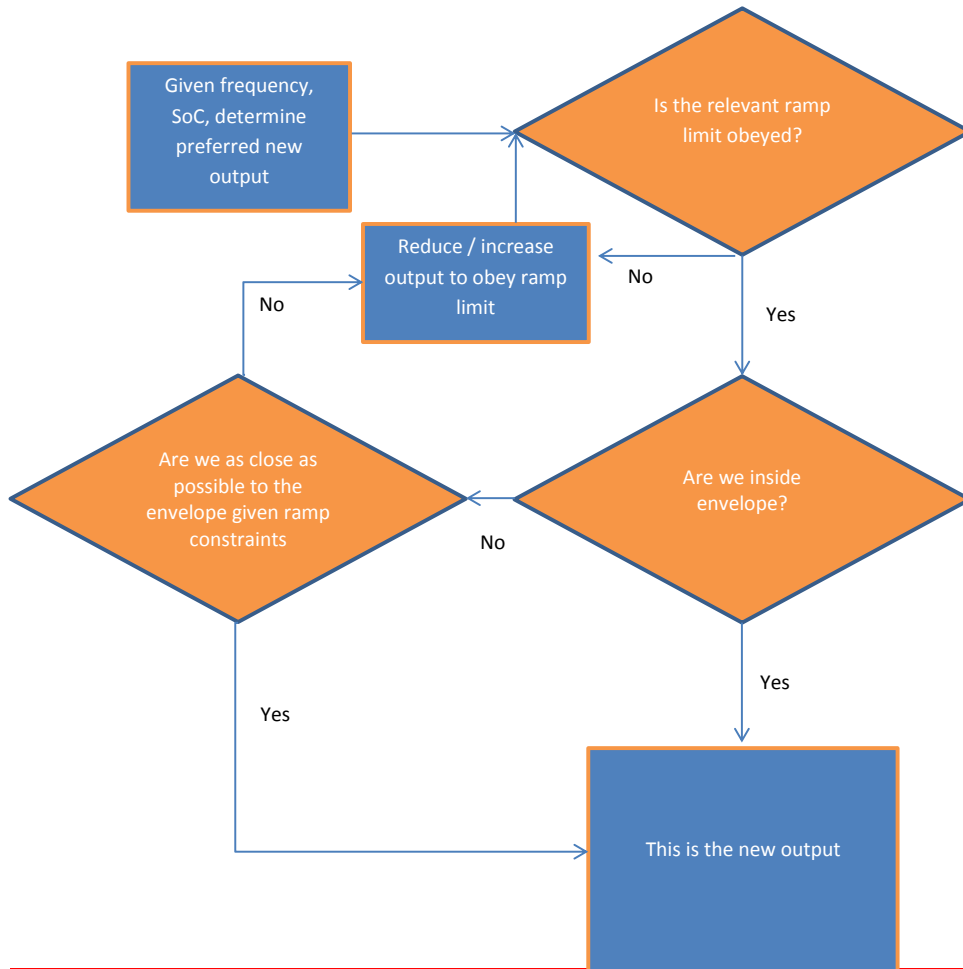


Figure 34

6.14 For example, if the frequency is 50.15Hz, which is within Zone B for Service 1, and is falling by a rate of 0.05Hz/s, then the acceptable ramp rate range is calculated as follows (note these rates are overridden when in conflict with the Service Envelope):

Maximum (%Operational Capacity/s):

$$\left(-\frac{1}{0.45}(-0.05) + 0.01\right) * 100 = 12.11\%$$

Minimum (%Operational Capacity/s):

$$\left(-\frac{1}{0.45}(-0.05) - 0.01\right) * 100 = 10.11\%$$

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6.15 As a further example, if the frequency is at 49.9Hz, which is within Zone B for Service 1, and is stable or unchanging, then the acceptable ramp rate range is calculated as follows (note these rates are overridden when in conflict with the Service Envelope):

Maximum (%Operational Capacity/s):

$$\left(-\frac{1}{0.45}(0) + 0.01\right) * 100 = 1\%$$

Minimum (%Operational Capacity/s):

$$\left(-\frac{1}{0.45}(0) - 0.01\right) * 100 = -1\%$$

Duration

6.136.16 The assets must be able to deliver at 100% EFR capacity (i.e. at reference points A and F) for a minimum of 15 minutes ~~under normal operating conditions from the optimum state of charge at which the assets are planning to offer EFR from, e.g. 50% of total energy capacity.~~ For storage assets, this equates to a ~~minimum~~ **maximum** power to energy ratio of 2C (i.e. discharge from maximum operational capacity to minimum operational capacity in 30 minutes). Delivery beyond this period is ~~beneficial but~~ not a requirement, and will not be considered during the assessment process. ~~This performance must be maintained for the term of the contract.~~

6.146.17 Should the frequency remain at or beyond either 49.5 or 50.5Hz for 15 consecutive minutes, then the time period immediately following this period and lasting until the frequency has ~~returned to the deadband plus 30 minutes, remained within the deadband for a whole settlement period~~ will be classed as an extended frequency event. The extended frequency event will be excluded from the calculation of the Service Performance Measure, and NGET will not penalise assets which cease delivery of the EFR service in this period. For the avoidance of doubt, EFR assets may continue to deliver EFR within the extended frequency event.

Symmetry

6.156.18 The capacity of high and low response must be symmetrical (i.e. +capacity = - capacity, e.g. 20MW of EFR must be comprised of 20MW HF and 20MW LF). The duration of high and low response may be different, but each must meet the minimum of 15 minutes as described in 6.166.14.

Connection Requirements

6.166.19 The intention of the EFR service is to enhance security of supply on the GB network. Whilst NGET does not unduly discriminate based on connection location, the requirements on a DNO connection do not meet the necessary Grid Code minimum security standards. Therefore to ensure that the EFR assets are available during periods of system stress, which are the very periods during which EFR is required, it is necessary to require that EFR assets meet the requirements of the Grid Code Connection Conditions for fault ride-through.

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6.20 Assets used to provide EFR must comply with the fault ride-through conditions specified in Grid Code Connection Conditions CC.6.3.15. In summary, these conditions require that the assets remain transiently stable and connected to the system for a short circuit fault lasting up to 140ms and voltage dips lasting longer than 140ms. Storage assets are classed as DC Converter Stations for the purposes of meeting these conditions for EFR.

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~~6.17~~

6.21 Parties should note that as part of their connection offers they made be required to meet other conditions of the Grid Code such as voltage control. These will be on an individual basis and do not form part of the requirements for the EFR service, parties should speak to their distribution or transmission connections team for more details¹.

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6.22 ~~Assets should have a Firm connection (i.e. SQSS-compliant; full export is available under N-1 conditions) or a connection that is temporarily non-Firm whilst awaiting network reinforcement (i.e. not SQSS-compliant; possible curtailment during N-1 conditions in the wider network). Where this standard of connection is not provided, parties must provide more information under paragraph 7.2.~~

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6.23 ~~Assets must not be in an existing area of Active Network Management.~~

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6.24 ~~For the avoidance of doubt, the above requirements do not apply to aggregated true demand assets.~~

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~~6.18~~

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Proving Test

~~6.19~~6.25 Prior to Commercial Operation Date (COD), NGET will agree with the provider a testing programme to ensure that the asset(s) meet the required service specification. The Proving Test and Testing Procedure will test the ability of the assets(s) to meet the enhanced frequency response service based on the principles below. For true demand assets, this test will be required at the aggregated platform level:

- (A) Frequency injection tests using a number of offline frequency injection profiles
- (B) Monitoring of control signals in response to the injection profiles
- (C) Monitoring of active power of the asset(s) in response to the injection profiles

¹ <http://www2.nationalgrid.com/uk/services/electricity-connections/>

<http://www2.nationalgrid.com/UK/Our-company/electricity/Distribution-Network-Operator-Companies/>

- (D) All data to be recorded at a resolution of 100Hz (i.e. one reading every 10ms), otherwise test signals should conform to the requirements of Connection Condition 6.6.2 of the Grid Code, raw data to be provided to NGET as .csv files
- (E) Response of the asset(s) to be within the service specification
- (F) Assessment of the proportionality of the response from the assets(s) to the injected frequency signal in line with the service specification
- (G) Assessment of the time delay in delivering response from the injection signal, which includes the time that the frequency monitoring device takes to detect a frequency deviation plus the time for instructing a response and the time for the asset(s) to deliver the MW change in output in line with the service specification
- (H) Assessment of the sustainability and repeatability of response
- (I) Assessment of the accuracy and stability of the response to ensure uniform delivery of output power
- (J) Simulations or simulated tests are not acceptable

Service Delivery

~~6.206.26~~ The service will be deemed available for all settlement periods that have been specified in the tender by the Applicant. In the event of a reduction in the MW capacity of the service for reasons that are not either force majeure or relief events as specified in the contract, or if the EFR assets are operating outside of the relevant Service Envelope, the availability payment will be reduced through the application of a Service Performance Measure. For the avoidance of doubt, the availability payment will not remunerate over-delivery against the ~~contracted operational~~ capacity.

~~6.246.27~~ This SPM will act in two ways: firstly by reducing the availability payment for any affected settlement periods, and secondly by reducing the annual service performance that the contract is measured against.

Calculation of the Service Performance Measure

~~6.226.28~~ The Service Performance Measure (SPM) will be calculated per Settlement Period as the average of the second by second ~~performance measure (SBSPM) ratio of Normalised Response against the service envelope at a given frequency value (the SBSPM). This will be calculated as 1-abs(Normalised Response – closest point on the Envelope), with a collar of zero.~~ Normalised Response is the ratio of Actual Response delivered in that second against the ~~Contracted-Operational~~ Capacity (which will be the tendered MW value). If the Normalised Response is within the envelope, the ~~ratio SBSPM~~ is set at 100%. This is illustrated in ~~Figure 4~~Figure 5.

~~6.236.29~~ For example, the system frequency is F and a 10MW asset operates at 7MW in response to F . The Normalised Response is therefore 70% (7 divided by 10). The envelope limits at frequency F are 68%-71%, therefore the SBSPM is set at 100% for that second as 70% is within the envelope. If the envelope limits were 72%-75% then

the assets would have under-delivered and the SBSPM would be calculated using the closest relevant limit, i.e. $1 - \text{abs}(70\% - 72\%) = 98.2\%$ (for over-delivery outside of the envelope the formula is reversed, i.e. the Normalised Response would be the denominator). The SPM is the average of the SBSPM over a Settlement Period.

6.246.30 If the frequency has remained at or outside of the values which require 100% service delivery for more than 15 minutes in a single event (an “extended frequency event”), then the ratio used to calculate the SPM will be set at 100% from that point until such time as the frequency has returned to, or gone past, the deadband for a continuous settlement period plus 30 minutes.

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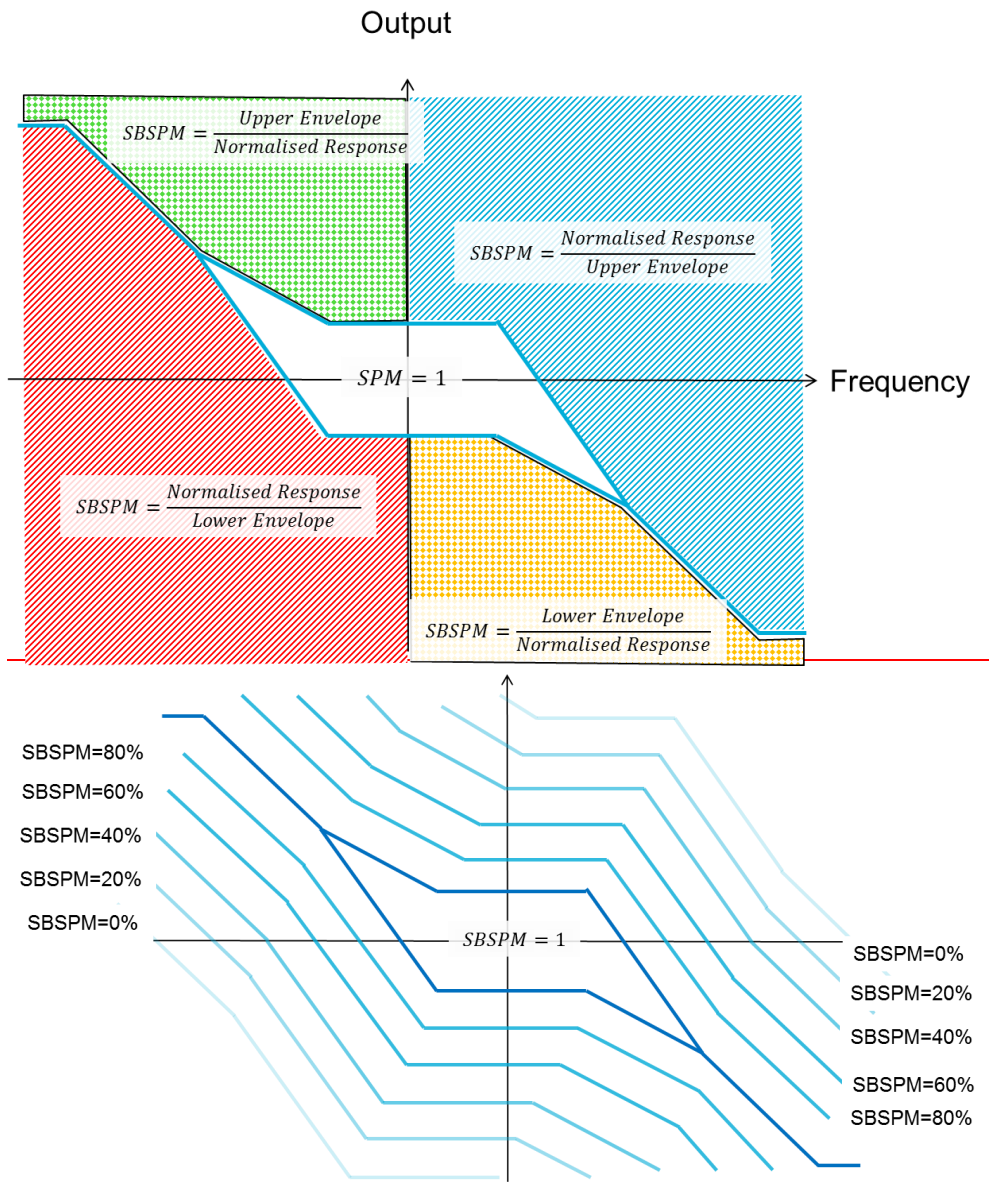


Figure 45

~~6.256.31~~ Please note that for any hours you have specified in the tender as not providing the service your Contracted Capacity will be zero, i.e. these periods do not count in the calculation of the SPM.

Calculation of the Availability Factor

~~6.266.32~~ The payment reduction will be applied through the Availability Factor, which is a performance banding that applies for a range of SPMs, e.g. a performance in the band ~~60~~75%-95% will have a payment reduction to 75%.

Service Performance Measure	Availability Factor
< 4 <u>5</u> 0%	0%
≥ 4 <u>5</u> 0% < 6 <u>7</u> 5%	50%
≥ 6 <u>7</u> 5% <95%	75%
≥95%	100%

Table 5

This payment reduction will affect the payment for that settlement period only.

Calculation of the Annual Service Performance Measure

~~6.276.33~~ The SPM will also be used to calculate an Annual Service Performance Measure, which will be the average of all SPMs over a rolling 12 month period. If the ASPM is below 95%, NGET will look to discuss the underperformance with the provider with a view to identifying underlying causes and mitigation measures. Ultimately, this process could result in termination of the contract if the ASPM is below 50%.

~~6.286.34~~ For the avoidance of doubt, planned maintenance periods will count towards your SPM in both ways, i.e. you will not get paid for those Settlement Periods as the SPM will generate an Availability Factor of zero, and those Settlement Periods will be included in the calculation of the Annual Service Performance Measure.

~~6.296.35~~ *As an example, an asset providing 15MW of EFR for 20 hours per day would have $20 * 2 = 40$ half hourly settlement periods each with an SPM and Availability Factor. If it had an Availability Price of £5/MW/h it would be being paid:*

$$15\text{MW} * £5/\text{MW/h} * 20 \text{ hours} = £1,500 \text{ per day}$$

~~6.306.36~~ *If on one day it had three Settlement Periods where the SPM was calculated as being 90%, 84% and 55%, the Availability Factor for the periods would be 75%, 75% and 50% respectively. Therefore on that day it would be being paid*

(remembering that SPM applies to half-hourly settlement periods rather than whole hours):

$$(15\text{MW} * \text{£5/MW/h} * 18.5 \text{ hours}) + (15\text{MW} * \text{£5/MW/h} * 1 \text{ hours} * 75\%) + (15\text{MW} * \text{£5/MW/h} * 0.5 \text{ hours} * 50\%) = \text{£1,462.50}$$

Metering

~~6.34~~6.37 Monitoring of system frequency must be to 0.01Hz maximum error and monitoring of active power output must be to 1% maximum error under reference environmental and system voltage conditions, ~~and both~~ The measurement of system frequency must have a maximum sample rate of 10Hz or one reading every 100ms to ensure operation of the assets as per the service specification, however for data reporting (6.38) only one value per second is required to be reported through the web portal. The measurement of active power must have a maximum sample rate of 1Hz or one reading per second. All other metering requirements should be as per Section L of the Balancing and Settlement Code² and the associated Codes of Practice.

Data Reporting

6.38 Providers must make available to NGET an electronic facility (e.g. web portal) showing live second by second active power, and for assets with a limited energy volume (e.g. batteries), the facility should also include live second by second state of charge as a percentage of available energy capacity. ~~The facility must also allow NGET to extract such data for the previous six twelve months.~~ For aggregated assets this should be at an aggregate level, however individual data should be available on request in the event of a performance issue.

6.39 The electronic facility must also allow NGET to extract such data for the previous twelve months, including high resolution frequency data (i.e. sub-second readings). All data must be time-stamped.

~~6.32~~6.40 Providers must also send to NGET a monthly performance report, the format of which will be provided by NGET, detailing for each settlement period during that month:

- the total expected EFR capacity available to NGET (i.e. the tendered MW value)
- the total actual EFR capacity that was made available to NGET
- the calculated SPM
- the calculated Availability Factor
- the calculated availability payment
- whether any settlement period(s) included an extended frequency event

~~6.33~~6.41 The monthly performance report must also detail:

² <https://www.elexon.co.uk/bsc-related-documents/balancing-settlement-code/bsc-sections/>

- The expected availability payment for that month
- The Annual Service Performance Measure (APSM) for the previous 12 months

6.346.42 NGET will periodically audit the performance of the assets against the relevant monthly performance report to ensure accuracy.

7 Assessment Criteria and Value Periods

7.1 You will have your tender response evaluated as set out below:

Stage 1: Tender responses will be checked to ensure that they have been completed correctly and all necessary information has been provided as detailed below. Tender responses correctly completed with all relevant information being provided will proceed to Stage 2. Any tender responses not correctly completed in accordance with the requirements of this ITT and/or containing omissions may be rejected at this point. Where a tender response is rejected at this point it will automatically be disqualified and will not be further evaluated.

Stage 2: If an Applicant succeeds in passing Stage 1 of the evaluation, then it will have its detailed tender response to the requirements evaluated in accordance with the assessment methodology set out below.

Contracts will be awarded based on the above two-stage assessment process, subject to the **Applicant Cap** and the **NGET Requirement Cap**.

Stage 1

7.2 Stage 1 information is to be provided in PDF format in a single document and uploaded to the tender website prior to the Tender Response Deadline. A failure to comply with one or more requirements shall entitle NGET to reject a tender response in full. Commercially sensitive information that is not germane to the assessment process may be redacted from the submission.

Company Name – Parties must provide NGET with the Certificate of Incorporation for the proposed tender party who will deliver, own and operate the assets providing the service and who will enter into the Contract (the “Applicant”), ~~this is limited to one per being the~~ pre-qualified party. If the Applicant intends to provide the service through and may or be one or more a SPVs created specifically for the purposes of owning and operating the assets, that must be specified in the tender submission. Any SPV or proposed SPV must provide list the shareholdings. details must be provided of its ownership and management structure in accordance with paragraph 3.6. If these requirements are not strictly met then the tender submission is likely to be rejected.

Site Location – Applicants must demonstrate they have a chosen site(s). This should include map, grid reference, site diagram, grid connection point, MPAN (where known). For DSR assets, MPANs, site addresses and contact details must be provided as and when they become available. For the avoidance of doubt, planning permission is not required at this stage.

Programme of Works – Applicants must be able to provide a programme of works for their proposed site location(s) and assets, ideally from their EPC contractor. This must include detail on milestones and mitigating measures. For aggregated demand providers this should be in the form of a growth plan, setting out the timeframe for achieving the contracted capacity and list targeted customers.

7.3 Connection Offer – Applicants must demonstrate that they have a valid connection offer(s) for the site(s) in question, and that the connection date(s) is for no later than 18 months from contract award. Any restrictions on operation must be stated (i.e. if the offer is non-firm), and reasoning why the restrictions will not affect the provision of EFR must be given to NGET's satisfaction. The connection must not be in an existing area of Active Network Management. If a connection offer is not provided, evidence that a connection application has been made should be provided instead, along with evidence that an offer is likely to be forthcoming with a date that will meet the required service start date. However the demonstration of such a connection offer with a valid connection date will be ~~a condition precedent for any successful tender, and will be~~ required by the Post Tender Milestone Test. For existing assets, evidence must be provided that the relevant connection agreement is in place to allow the service to be delivered (e.g. BCA, BEGA, etc.). Any restrictions on operation must be stated (i.e. if the agreement is non-firm), and reasoning a full explanation as to why the restrictions will not affect the provision of EFR must be given to NGET's satisfaction. The connection must not be in an existing area of Active Network Management. As with a new site, if this is not provided then evidence that a modification application or similar has been applied for will be considered. The connection offer/agreement must match the name of thebe addressed to the tenderer or have been novated to the company provided, or the relationship demonstrated if an SPV (where is being usedrelevant) and relate to, the site location and land rights, and must be for a capacity no less than the tendered MW.

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Land Rights – Applicants must demonstrate they have the legal right to use the land defined in the site location(s). This may be through an option to lease the land for the term of the contract, an active lease for the term of the contract, or freehold ownership of the land. For the avoidance of doubt, this does not include any easements between the site and connection point. A memorandum of understanding, lock-out agreement or licence to occupy are not sufficient demonstration of commitment. The demonstration of land rights must match the name of the company provided, or be capable of being assigned to an SPV, where relevant.

Financing – Applicants must demonstrate that they have agreed investment-financing in place, either through demonstration of internal governance sign-off or through a Letter of Intent from the funding party (subject to that party's due diligence process), and that there are no conditions of that investment-financing that may negatively impact on the provision of service. Any Letter of Intent must be specific to the project(s) named in the Application, and not be a general offer of funding to the Applicant. The information must matchreflect the name of the company providedtendering, or the relationship demonstrated if an SPV is being used, and the site location.

Construction Contract – Applicants must demonstrate they have either contracted with an EPC and/or OEM provider to deliver the proposed assets at the site location, or have received bids from EPC/OEM contractors for the proposed asset(s). The information provided must matchreflect the name of the company tendering, or the relationship demonstrated if an SPV is being used, the site location and land rights, and have a proposed commissioning date earlier than the long stop date.

Declaration – Applicants must declare that the information contained and submitted in the tender is true and correct and that the relevant declarations are true and correct, and that the entirety of the same has been authorised by the board of directors of the Applicant.

Stage 2

7.47.3 Tender responses will be evaluated and compared against the forecast cost of alternative action for the time periods specified by the Applicant as being available for the provision of enhanced frequency response. These time periods may affect the calculation of individual components of the cost of alternative action, and this is noted where applicable. For the avoidance of doubt, NGET will not be using the duration of the service in the assessment; - 15 minutes or 30 minutes ~~has~~ will be treated as having the same alternative cost.

7.4 The assessment is based on cost rather than price, i.e. the total cost to NGET rather than the unit price offered through the tender. The forecast cost of alternative action is calculated from three variables: cost of creating reserve, cost of holding, cost of positioning.

7.5 Where two tenders are assessed as having equal value (to one decimal place), tenders with a connection compliant with paragraph 6.22 of this document will be accepted first.

7.6 The cost of creating additional reserve is based on the level of reserve held on synchronized generators to deliver the required frequency response, and is known as Reserve for Response. For each 0.55MW of low or high response we hold 1MW of reserve on synchronised units, and this forms one of the components of Operating Reserve along with STOR and other actions (this ratio is based on the proportion of pull back on a typical thermal generator operating at Optimum Load Point that is delivered as response for a -0.5Hz frequency drop, and is currently 55%).

7.7 It is calculated by identifying the avoided positive and negative reserve volumes as above (also known as headroom and footroom), and multiplying them by value estimates which are based on historic costs and consideration of future cost drivers. This gives a cost for headroom and a cost for footroom, which combine to form the cost of creating additional reserve. Whilst figures are not published specifically on reserve for response, it will be similar to other reserve services such as STOR as it is these services which would be procured as part of the alternative action.

7.8 There is no additional value from EFR in creating reserve for response, and hence the value is the same as for existing dynamic frequency response assessment.

7.9 The cost of holding is to cover the holding payments that generators providing mandatory frequency response are paid. These prices are individual to the generator and can be updated on a monthly basis. There is a price for each service, i.e. Primary, Secondary and High, and the majority of generators are instructed into PSH mode and are therefore paid the sum of the holding prices. For the purposes of tender assessment the cost of holding is calculated using the historic average holding prices,

which can be found in the Monthly Balancing Services Statements (MBSS)³, and then extrapolated for the periods in question. This is then multiplied by the volume of PSH that would be required to replace the volume of EFR, which at certain times may be a greater ratio than 1:1.

$$\text{Holding Cost per SP (£)} = [(P_{MWh} \times P_{\text{£/MWh}}) + (S_{MWh} \times S_{\text{£/MWh}}) + (H_{MWh} \times H_{\text{£/MWh}})] \times \text{EFR Value Uplift}$$

7.10 There is additional value from EFR above existing dynamic frequency response services, and therefore the assessment will use an EFR value uplift. The uplift will depend on the time of day and season, and also on the chosen service envelope (Service 1 or Service 2). Service 24 has the most value to NGET and will receive the full EFR uplift, Service 12 has partial value as it does not fully displace existing dynamic services due to the deadband being wider than the ±0.015Hz required for dynamic Primary, Secondary and High, and will receive a partial uplift.

7.11 The EFR uplift in any settlement period will depend on the forecast demand and system inertia. These variables are difficult to predict as they depend on the weather and penetration of asynchronous generation such as wind and solar, however forecasts of Primary response requirements can give an indication of the periods of time where the EFR service will be more valuable (see Figure 5, Figure 6 and Figure 7). The solid line represents the mean value, while the dotted lines show the 2.5% and 97.5% percentile.

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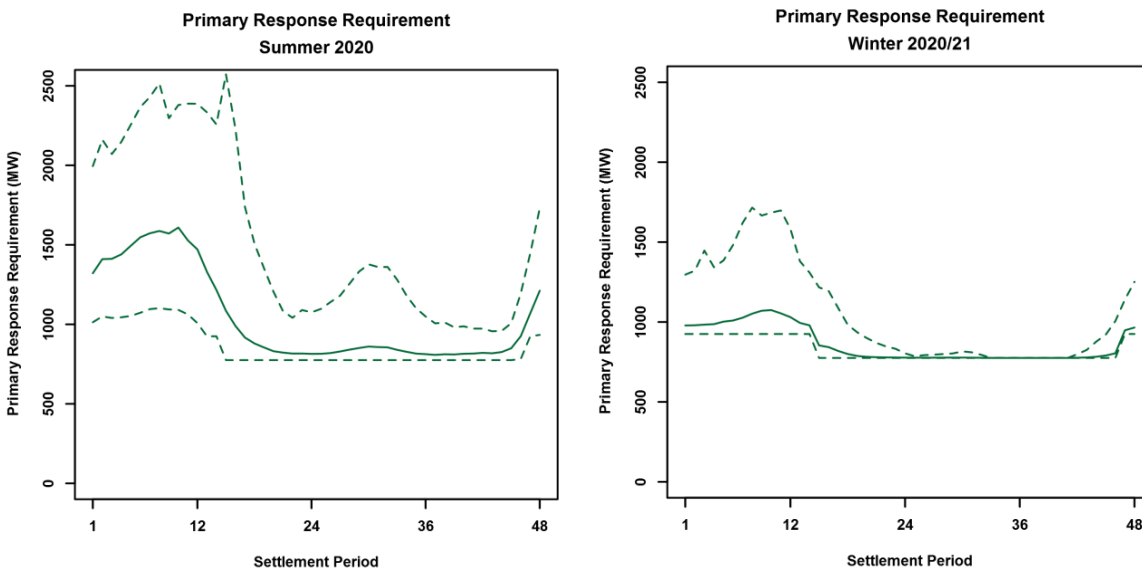


Figure 56

³ <http://www2.nationalgrid.com/UK/Industry-information/Electricity-transmission-operational-data/Report-explorer/Services-Reports/>

Figure 6

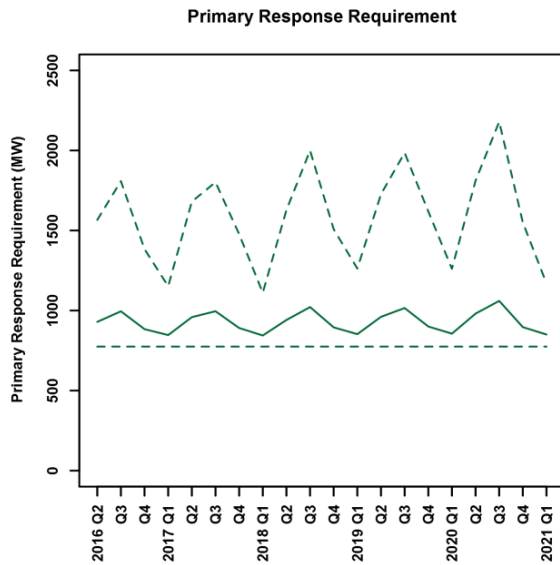


Figure 7

7.12 The cost of positioning is to cover the estimated net cost of repositioning a generator through the Balancing Mechanism (BM) such that its output is at the optimal load point to provide frequency response. This is calculated from the total Bids, Offers (Ofr), Total BOA volume (ΣMWh_{BOA}) and Total Response Requirement ($\Sigma MW_{Response}$) as follows:

$$BOA \text{ Price Forecast } (\text{£/MWh}) = (Bid_{MWh} \times Bid_{\text{£/MWh}}) + (Ofr_{MWh} \times Ofr_{\text{£/MWh}})$$

$$BOA \text{ Volume Forecast (MWh)} = (\Sigma MWh_{BOA} / \Sigma MW_{Response}) * \text{Tendered MW}$$

7.13 There is no additional value from EFR in avoided repositioning costs, and hence the value is the same as for existing dynamic frequency response assessment.

7.14 These three costs are then used to calculate the cost of the alternative action, along with an uncertainty factor to account for forecasting uncertainties. An example of this is shown in ~~Table 6~~ (figures are not meant to be representative of actual values).

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	LF (Primary & Secondary)	HF	Total Cost £/month
Holding			
MW	10	10	57,600
£/MW/h	4.2	4	
Positioning			
MWh (monthly)	6300	680	27,240

£/MWh	4	3	
Margin/Footroom			
MW	18	18	52,364
£/MW/h	3.00	1.00	137,204

Table 6

7.15 The volume and cost estimates used in the calculation of the above figures will vary over the day and season, however the Monthly Balancing Services Summary (MBSS)⁴ data can be used to give a view on these, as can the post-tender assessment reports for FFR and STOR.

7.16 NGET may reject any tender response where the price for the service is considered by NGET to be abnormally low following the relevant processes set out under EU procurement rules.

Applicant Cap

7.17 Each Applicant will only be awarded a maximum capacity of 50MW of enhanced frequency response (and for these purposes the Applicant shall include any SPV or other related company in which it has any direct or indirect interest, save to the extent separately pre-qualified, that seeks to enter into a Contract). Where an Applicant has greater than 50MW of tenders where the Overall Price for each meet the pricing and technical criteria, the tenders will be accepted in economic order until the 50MW cap has been reached. This may mean that a tender with a lower MW capacity but higher cost may be accepted over a larger MW capacity but lower cost, if accepting the latter would breach the 50MW cap. The Applicant Cap is subject at all times to the NGET Requirement Cap.

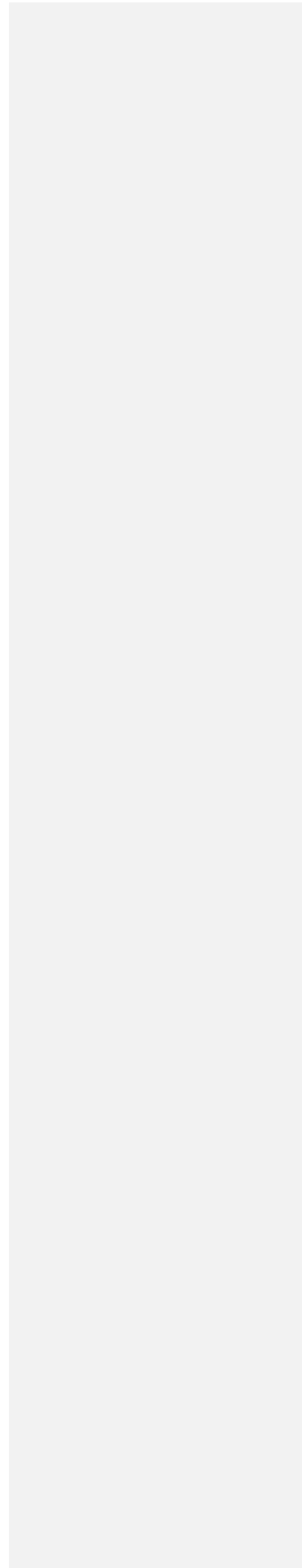
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NGET Requirement Cap

7.18 The maximum MW capacity of tender responses that NGET will award contracts to is 200MW. In the event that greater than 200MW of tenders are received where the Overall Price for each meet the pricing and technical criteria, the tenders will be accepted in economic order until the 200MW cap has been reached. This may mean that a tender with a lower MW capacity but higher cost may be accepted over a larger MW capacity but lower cost, if accepting the latter would breach the 200MW cap.

7.18.19 The 200MW cap applies to both Service 1 and 2 together. As part of the Stage 2 assessment, the proportion of the two service types procured will depend on how beneficial each tender is against the alternative cost.

⁴ <http://www2.nationalgrid.com/UK/Industry-information/Electricity-transmission-operational-data/Report-explorer/Services-Reports/>



Appendix A - Service Envelopes

Service 1

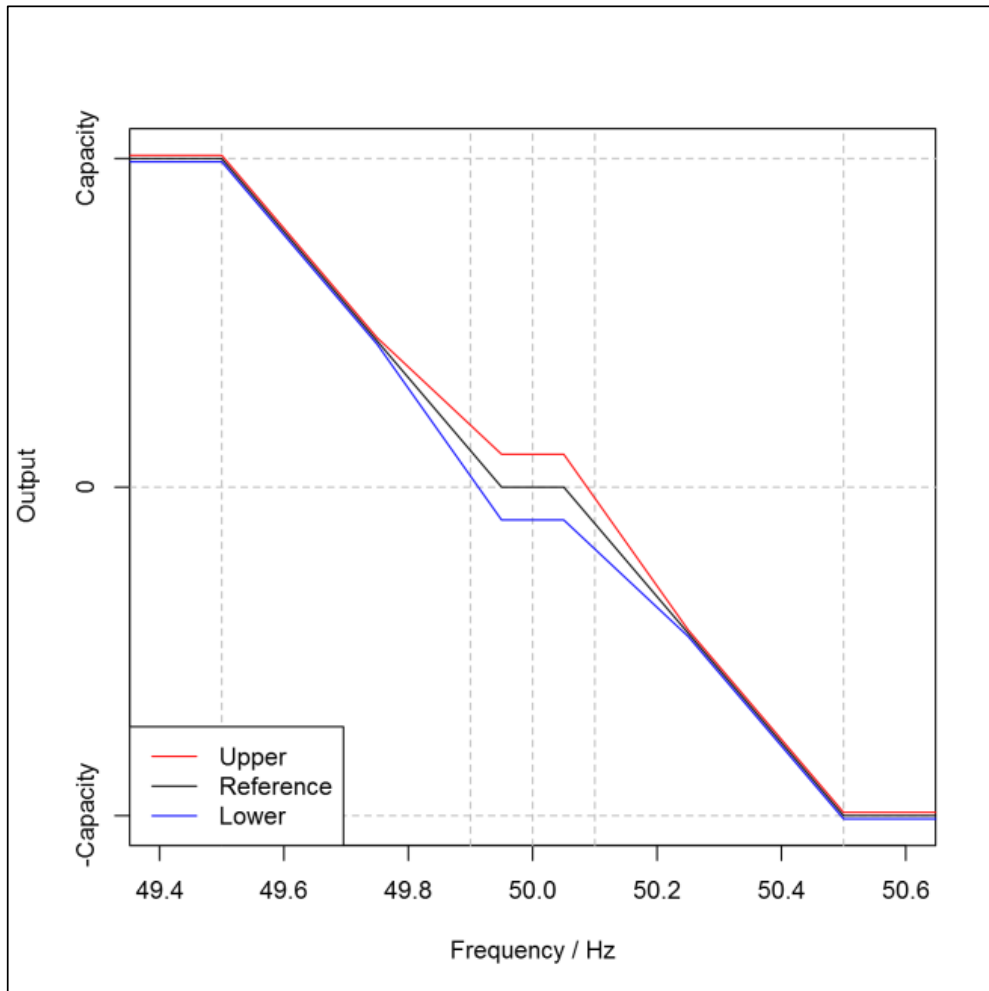


Figure 89

(Hz)	(%Capacity)
49.5	100%
49.75	44.44444%
49.95	$\pm 9\%$
50.05	$\pm 9\%$
50.25	-44.44444%
50.5	-100%

Table 7

Service 2

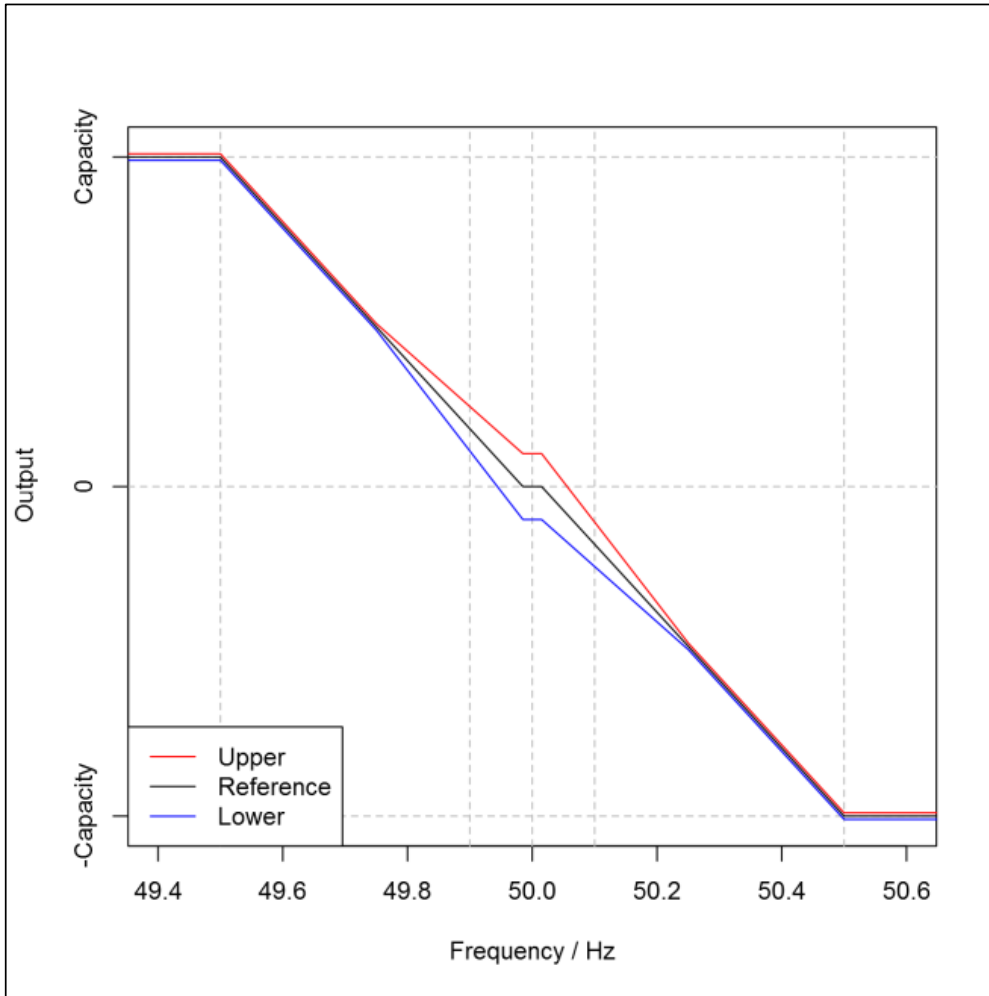


Figure 940

(Hz)	(%Capacity)
49.5	100%
49.75	48.45361%
49.985	±9%
50.015	±9%
50.25	-48.45361%
50.5	-100%

Table 8

Appendix B - Clarification Request

All clarification requests should be submitted to commercial.operation@nationalgrid.com by the Clarification Deadline, as set out in the Timescales section of this ITT. NGET is under no obligation to respond to clarification requests received after the Clarification Deadline.

Any clarification requests should clearly reference the appropriate paragraph in the ITT documentation and, to the extent possible, should be aggregated in tabular form rather than sent individually, see example below. NGET will not consider change marked legal text.

NGET reserves the right to issue any clarification request made by you (excluding your company name), and the response, to all potential suppliers unless you expressly require it to be kept confidential at the time the request is made.

NGET may at any time request further information from potential suppliers to verify or clarify any aspects of their tender response or other information they may have provided. Should you not provide supplementary information or clarifications to NGET by any deadline notified to you, your tender response may be rejected in full and you may be disqualified from this Procurement Process.

Example Clarification Request:

Paragraph reference	Paragraph Heading	Comment / Clarification
3.4	Contractual Requirements	What is the process for notifying NGET of a clarification?

Table 9

Appendix C - Terms and Conditions of Contract

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INDICATIVE DRAFT – SUBJECT TO CONTRACT

DATED _____ 2016

NATIONAL GRID ELECTRICITY TRANSMISSION PLC

and

[_____]

**AGREEMENT
RELATING TO THE PROVISION OF
AN ENHANCED FREQUENCY RESPONSE SERVICE**

CONTRACT LOG NO: [_____]

SUBJECT TO CONTRACT

Draft date: ~~24 June~~ 7 July 2016

© National Grid Electricity Transmission plc

INDICATIVE DRAFT – SUBJECT TO CONTRACT

- 1.2.4 except where the context otherwise requires, any reference to an Act of Parliament or any Part or Section or other provision of, or Schedule to, an Act of Parliament shall be construed, at the particular time, as including a reference to any modification, extension or re-enactment thereof then in force and to all instruments, orders or regulations then in force and made under or deriving validity from the relevant Act of Parliament;
- 1.2.5 references to the masculine shall include the feminine and references in the singular shall include references in the plural and vice versa; and
- 1.2.6 except where the context otherwise requires, any reference to a “person” includes any individual, partnership, firm, company, corporation, joint venture, trust, association, organisation or other entity, in each case whether or not having separate legal personality.

2. COMMENCEMENT AND EXPIRY DATE

- 2.1 ~~Subject to Clause 3, the~~The provisions of this **Agreement** shall come into effect ~~enpursuant to the~~ **Effective Date** ~~terms of Clause 3.~~
- 2.2 Subject always to earlier termination in accordance with the terms of this Agreement, this **Agreement** shall continue in force and effect until the **Expiry Date**.

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3. CONDITIONS PRECEDENT

- 3.1 The provisions of this **Agreement** (other than this Clause 3 and any other provision that is expressly stated to take effect from the **Effective Date**) shall be subject to and conditional upon the **Provider** demonstrating to the **Company’s** reasonable satisfaction that the **Facility**:
- 3.1.1 [has been **Commissioned**; and]²
- 3.1.2 has successfully completed the **Commissioning Proving Test**.
(together, the “**Conditions Precedent**”) by the **Long Stop Date**.
- 3.2 [The **Provider’s** progress in satisfying the **Conditions Precedent** shall be assessed by the **Company** by reference to the **Post Tender Milestones** on the **PTM Date** and:
- 3.2.1 if the **Company** considers the **Post Tender Milestones** to have been satisfied (or, in its absolute discretion, waives any such requirement), it shall notify the **Provider** in writing accordingly; or
- 3.2.2 if the **Company** considers that the requirements of the **Post Tender Milestones** have not been satisfied and, in the **Company’s** reasonable opinion, there is no reasonable prospect of the **Provider** being capable of satisfying the **Post Tender Milestones** within two months after the

² New Facility only

INDICATIVE DRAFT – SUBJECT TO CONTRACT

PTM Date, this **Agreement** (to the extent in force) shall terminate automatically and the **Company** may issue a demand for payment under the **Bid Bond** for the full bond amount,

in either case, such notice to be given to the **Provider** as soon as reasonably practicable after the **PTM Date**. For the avoidance of doubt, any incorrect, wrongful or inadvertent declaration given by the **Provider** in attesting to the achievement of any **Post Tender Milestones** (where applicable) shall constitute a material breach of the terms of this **Agreement** and, in such event, the provisions of Clause 16.2.3 shall apply]³.

3.3 The **Provider** shall use its reasonable endeavours to satisfy the **Conditions Precedent** and shall provide the **Company** with reasonable evidence of satisfaction by not later than the **Long Stop Date** and:

3.3.1 the **Company** shall, acting reasonably, notify the **Provider** as soon as reasonably practicable after receipt of evidence either:

3.3.2 that it considers the **Conditions Precedent** to have been satisfied and that the **Commercial Operations Date** has therefore occurred; or

3.3.3 that it considers the **Conditions Precedent** have not been satisfied and, in the **Company's** opinion, there is no reasonable prospect of the **Provider** being capable of satisfying the **Conditions Precedent** within two months after the **Long Stop Date**.

3.4 If the **Company** issues a notice under Sub-Clause 3.3.3 or if no evidence is received under Clause 3.3 by the **Long Stop Date**, this **Agreement** (to the extent in force) shall terminate automatically and the **Company** may issue a demand under the **Bid Bond** for the full bond amount.]⁴

3.5 [The provisions of Appendix 5 (*Commissioning and Testing*) shall apply in connection with the **Commissioning** and testing of the **Facility**.]⁵

4. **ENHANCED FREQUENCY RESPONSE SERVICE SPECIFICATION**

4.1 The **Provider** shall provide the **Enhanced Frequency Response** service to the **Company** from the **Facility** in accordance with the terms of this Clause 4, Clause 5 [and **Appendix 4** (*Provisions relating to an Aggregated Facility*)]⁶ and as otherwise provided in this **Agreement**.

4.2 The **Parties** agree that the **Enhanced Frequency Response** service to be provided by the **Provider** to the **Company** during each **Service Period** shall comprise making available for delivery and delivery (when there is a **Frequency Deviation**) from [the **Facility**] [the **EFR Systems** comprised in the **Aggregated Facility** on a portfolio basis]⁷ of:

³ New Facility only

⁴ New Facility only

⁵ New Facility only

⁶ Aggregated Facility only

⁷ Aggregated Facility only

INDICATIVE DRAFT – SUBJECT TO CONTRACT

4.2.1 [an increase in **Exports**] [decrease in Imports], by reference to the **Baseline**, in response to a fall in **System Frequency**; and

4.2.2 [an increase in **Imports**]⁸ [decrease in **Exports**], by reference to the **Baseline**, in response to an increase in **System Frequency**,

in each case of an amount for a given **Frequency Deviation** defined by the response range within the **Service Envelope**.

[4.3 The **Provider** shall from time to time allocate one of more **EFR Systems to the Aggregated Facility** in accordance with Appendix 4 (*Provisions relating to an Aggregated Facility*) for the purposes of enabling **Enhanced Frequency Response** to be made available from the **EFR Systems** comprised in the **Aggregated Facility** on a portfolio basis.]⁹

5. **DELIVERY OF RESPONSE**

Subject to any **Availability Reduction Notice** and any **Relief Event**, the **Provider** shall, in respect of each **Settlement Period** in a **Service Period**, procure that [the **Facility**] [the **EFR Systems** comprised in the **Aggregated Facility** on a portfolio basis]¹⁰ respond[s] to any **Frequency Deviation** in accordance with the **Frequency Response Service Specification**.

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6. **REDUCED AVAILABILITY**

6.1 The **Provider** shall notify (“**Availability Reduction Notice**”) the **Company** in writing using the applicable form set out in Appendix 6 (*Email Forms*) forthwith upon becoming aware that the ability of the **Facility** to provide the **Enhanced Frequency Response** service in accordance with the **Frequency Response Service Specification** has been reduced:

6.1.1 by an amount equal to or exceeding the lesser of 5MW and the level of **Contracted Capacity** of the **Facility**; or

6.1.2 by an amount between 1MW and 5MW if such reduction is expected to continue for a period of two hours or more.

6.2 Following an **Availability Reduction Notice** the **Provider** shall take all reasonable steps to restore the full capability of the **Facility** (and keep the **Company** reasonably informed of progress in restoring the capability) to the level of the **Contracted Capacity** and shall, using the applicable form set out in Appendix 6 (*Email Forms*), notify the **Company** when the capability of the **Facility** has been restored.

6.3 For the avoidance of doubt, the **Provider** may not submit an **Availability Reduction Notice** to facilitate, or for reasons connected

⁸ Storage Facility only

⁹ Aggregated Facility and Storage Facility only

¹⁰ Aggregated Facility only

INDICATIVE DRAFT – SUBJECT TO CONTRACT

with, the provision from the **Facility** of commercial services to third parties.

7. **PAYMENT**

In consideration of the **Provider** making the **Enhanced Frequency Response** available, the **Company** shall pay to the **Provider** in accordance with Clause 14 (*Payment Procedure*) a payment (the “**Availability Payment**”) calculated in accordance with Part 1 of Appendix 7 (*Average Deemed Available Capacity and Service Performance Measure*). For the avoidance of doubt, no further payment shall be made in respect of the delivery of **Enhanced Frequency Response**.

8. **GRID CODE AND DISTRIBUTION CODE**

The provision by the **Provider** of the **Frequency Response** service shall not relieve it of any of its obligations in relation to the **Facility** or affect such obligations (where applicable) set out in the **Grid Code** or any **Distribution Code**, including CC6.3.15 (*Fault Ride Through*) of the **Grid Code** (for which purposes, a **Storage Facility** shall be treated in the same manner as a DC Converter Station (as defined in the **Grid Code**)).

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9. **MAINTENANCE OF FACILITY**

The **Provider** shall procure that the **Facility** [each **EFR System** comprised in an **Aggregated Facility**] is maintained and operated in accordance with **Good Industry Practice** and to such a reasonable standard that the **Provider** can meet its obligations to provide the **Enhanced Frequency Response** service in accordance with the terms of this **Agreement**.

10. **WARRANTY AND INDEMNITY**

10.1 The **Provider** hereby warrants to the **Company** that it has full power and authority to enter into this **Agreement** and perform its obligations hereunder, including without limitation that the availability and delivery of the **Enhanced Frequency Response** service from the **Facility** pursuant to and in accordance with this **Agreement** does not and will not cause it, or any site owner, to be in breach of, or to otherwise be non-compliant with, any **Legal Requirement** and/or any agreement with any person.

10.2 The **Provider** warrants that it will issue an **Availability Reduction Notice** in respect of the **Facility** if the delivery of **Enhanced Frequency Response** would otherwise cause any breach or non-compliance as described in Clause 10.1.

10.3 In the event that any warranty made under Clauses 10.1 and/or 10.2 is breached, the **Provider** shall indemnify the **Company** against all and any claims which may be brought against the **Company** by any other person connected to or using the **User System** of a **Public Distribution System Operator** or any other **User System** or the owner of operator of

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any **User System** or any other person whatever arising out of or resulting from such breach. Such indemnity shall include any legal costs and expenses reasonably incurred in the contesting of such claims including the court costs and reasonable attorney's fees and other professional advisors' fees. The **Parties** agree and accept that all such legal costs and expenses expressed to be the subject of such indemnity shall be treated as direct losses.

10.4 The provisions of this Clause 10 shall take effect from and including the Effective Date and shall continue to bind the Parties after termination of this Agreement.

11. **PROVISION OF OTHER SERVICES**

11.1 Subject to Clause 11.2, the **Provider** hereby undertakes to the **Company** that, as at the **Effective Date** (and such undertaking shall have effect from and including the Effective Date) neither it nor any site owner is, and will not in any **Service Period** during the **Operational Period** be, a party to an agreement or arrangement with any **Public Distribution System Operator** or electricity supplier or other person to provide any service from the **Facility** which may impair the **Provider's** ability to provide the **Enhanced Frequency Response** service and/or perform its obligations under this **Agreement**, and the **Provider** will indemnify the **Company** against any losses, liabilities, claims, expenses and demands which the **Company** might suffer as a result of the **Provider** being in breach of the provisions of this Clause 11.1.

11.2 The **Provider** may, without prejudice to any other provision of this **Agreement**, including the **Company's** rights of termination and the calculation of the **Availability Payment**:

11.2.1 participate in the **Capacity Market**; and/or

11.2.2 participate in the provision of other **Balancing Service** (including for the provision of reactive power (as defined in the **Grid Code**)) outside (but not within) any **Service Period**.

12. **COMMUNICATIONS**

12.1 Any notification ("**Operational Notice**") required by this **Agreement** to be given in any of the forms set out in Appendix 6 (*Email Forms*) shall be made by email (to the email address(es) specified therein or as may otherwise be notified in writing by the relevant **Party** to the other) save as may be otherwise agreed by the **Parties**. Any- notice other than an **Operational Notice** shall be given in accordance with Clause 30 (*Notices*).

12.2 The **Parties** consent to the recording of all telephone conversations between them relating in whole or in part to this **Agreement** where required by any **Legal Requirement**, and each **Party** agrees to notify its employees of that consent and obtain their consent to that recording if required by law.

13. **MONITORING AND TESTING**

Monitoring

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- 13.1 To enable the **Company** to monitor the availability and delivery of the **Enhanced Frequency Response** service, the **Provider** shall make and record (and retain for a period of 12 months) second by second measurements of **System Frequency**, reduction in the **Contracted Capacity** notified in an **Availability Reduction Notice**, prevailing **State of Charge** (in the case of a **Storage Facility**) and **Actual Response**, from the **Facility** throughout all **Service Periods** (for the purposes of this Clause 13, the “relevant data”) and shall make the relevant data available to the **Company** via an online portal. If the online portal is unavailable at any time, the **Provider** shall make the relevant data available to the **Company** on request in such format as the **Company** may reasonably require.
- 13.2 Without prejudice to the generality of Clause 13.1, and in accordance with the methodology set out in Appendix 7 (*Average Deemend Available Capacity and Service Performance Measure*), the **Company** reserves the right to assess the **Operational Capacity** of the **Facility** during any **Service Period** (the “**Sample Period**”) in accordance with the following provisions:-
- (a) the **Company** may notify the **Provider** at any time by notice in writing that it wishes to invoke this Clause 13.2, and such notice shall specify the **Sample Period** (which shall be within the 12 months prior to the date of notice, and shall be a maximum period of 12 months);
- (b) the **Actual Response** shall be ascertained by reference to the relevant data referred to in Clause 13.1.
- 13.3 [The **Provider** shall allow or procure for the **Company**, its employees, agents, suppliers, contractors and subcontractors such access to the **Facility** as the **Company** may reasonably require for the purposes of inspecting the **Facility** during the **Provider’s** working hours and provided that the **Company** has given the **Provider** at least 10 **Business Days’** notice of any requirement for such access.]¹¹
- 13.4 The **Provider** hereby grants to the **Company** the right to collect and record data from any **On-Site Monitoring Equipment** at the **Company’s** own cost.

Testing

- 13.5 At any time during the **Operational Period** the **Company** may notify the **Provider** in writing (“**Proving Test Notice**”) that it wishes to undertake a **Proving Test** in relation to the **Facility**, provided that the **Facility** has not been declared wholly unavailable in an **Availability Reduction Notice** and subject to a maximum in any calendar year of two **Proving Tests** (such maximum not including the **Commissioning Proving Test** or any **Re-Tests**). The following provisions shall apply:-
- (a) the **Company** shall be permitted to undertake such **Proving Test** and the **Provider** shall:-

¹¹ Not applicable to an Aggregated Facility.

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- (i) propose a date (within 20, but not earlier than 5, **Business Days** after the **Proving Test Notice**) for the **Proving Test** to be carried out in relation to the **Facility** ("**Proving Test Date**"); and
 - (ii) act reasonably with a view to agreeing the detailed programme for the **Proving Test**, which shall be consistent with the principles in Part 2 of Appendix 5 (*Commissioning and Testing*) and which, if not agreed by the **Proving Test Date**, shall be determined by an **Expert** in accordance with Clause 22.3 and, following such determination, the **Provider** shall propose a new date for the **Proving Test** within 20, but not earlier than 5, **Business Days** after that determination;
- (b) the **Provider** shall be responsible for undertaking the **Proving Test** but shall do so in liaison with the **Company** and in connection therewith:-
 - (i) whilst there is no obligation for the **Company** to attend the **Proving Test** (and the **Company's** failure to attend shall not invalidate the **Proving Test**), the **Provider** shall allow reasonable access to the **Company's** personnel and contractors to witness the **Proving Test**; and
 - (ii) the **Provider** shall (on request) provide to the **Company** the results of the **Proving Test** by email and any such reasonable additional evidence as the **Company** may reasonably require for the purposes of demonstrating performance of the **Facility** during the test;
- (c) [Not Used]
- (d) if the **Company** determines (acting reasonably) that the **Facility** has passed the **Proving Test**, then:-
 - (i) it shall notify the **Provider** in writing accordingly within ten (10) **Business Days** after the completion of the **Proving Test**; and
 - (i) the reasonable costs incurred by the **Provider** in connection with the carrying out of the **Proving Test** shall be paid to the **Provider** by the **Company** by reference to the next practicable **Monthly Statement**;
- (e) if the **Company** determines that the **Facility** has failed the **Proving Test**, then:-
 - (i) it shall notify the **Provider** in writing accordingly within ten (10) **Business Days** after completion of the **Proving Test**;

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- (ii) the **Provider** shall be deemed to have served an **Availability Reduction Notice** specifying an **Operational Capacity** of OMW for the **Facility** with effect from the **Proving Test Date** until such time as the **Company** notifies the **Provider** by email that a **Re-Test** has successfully been passed;
- (iii) the **Provider** shall reimburse the reasonable costs incurred by the **Company** in carrying out the **Proving Test** (and any **Re-Test**) pursuant to this Clause 13.5) by reference to the next practicable **Monthly Statement**;
- (iv) the **Provider** shall provide the **Company** with reasons for the failure, and may subsequently notify the **Company** when it is ready to carry out a **Re-Test** whereupon the provisions of Clause 13.5(b) to (e) shall apply to that **Re-Test**; and
- (v) if the **Facility** fails a **Proving Test** (including any **Re-Test**) for substantially the same reason on two or more subsequent occasions in any period of twelve (12) calendar months and/or if the total number of **Proving Tests** (including any **Re-Test**) a **Facility** fails is more than five in aggregate during the term of this **Agreement**, then the **Company** shall have the right to terminate the **Agreement** in accordance with Clause 16.2.

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14. PAYMENT PROCEDURE

- 14.1 As soon as reasonably practicable and no later than eight (8) **business days** **Business Days** after the end of each calendar month, the **Provider** shall send to the **Company**:
 - 14.1.1 its calculation of the **Service Performance Measure** and the component value of **ADAC** (defined in Appendix 7 (*Average Deemed Available Capacity and Service Performance Measure*)) for each **Settlement Period** in a **Service Period** during that calendar month (“**Relevant Settlement Period**”);
 - 14.1.2 its calculation of the corresponding **Availability Payments** due to it for the **Relevant Settlement Period**; and
 - 14.1.3 a report, in such form and containing such information as the **Company** reasonably requires from time to time in relation to the provision of **Enhanced Frequency Response** in each **Relevant Settlement Period**.
- 14.2 No later than the tenth (10th) **Business Day** following receipt by the **Company** of the data referred to in Clause 14.1 (or any revised data submitted pursuant to Clause 14.3), the **Company** shall send to the **Provider** a statement (the “**Monthly Statement**”) consisting of:
 - 14.2.1 its calculation of **Availability Payments** due to the **Provider** in respect of each **Relevant Settlement Period** in the previous calendar month;

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- 14.2.2 any adjustments (where applicable) to be made with respect to previous **Monthly Statements** pursuant to Clauses 14.3, 14.4 or 14.5; and
- 14.2.3 the resulting net amount due to or from the **Provider**.
- 14.3 If the **Company** disagrees with the information provided by the **Provider** pursuant to Clause 14.1, it shall produce to the **Provider** the evidence which it relies upon in support of such disagreement. The **Parties** shall discuss and endeavour to resolve the matter, and any changes to the original data agreed to be made by the **Parties** shall be reflected by the **Company** in the relevant **Monthly Statement**.
- 14.4 If the **Provider** disagrees with any dates, times, facts or calculations set out in a **Monthly Statement**, including for the avoidance of doubt any changes to the original data provided by the **Provider** pursuant to Clause 14.1 which were disputed by the **Company** and not agreed by the **Provider**, then it shall produce to the **Company** the evidence which it relies upon in support of such disagreement. The **Parties** shall discuss and endeavour to resolve the matter, and any revisions to a **Monthly Statement** agreed as a result thereof shall appear in the **Monthly Statement** next following the date of resolution of the dispute. The dates, times, facts and calculations set out in the **Monthly Statement** shall be binding upon the **Parties** until such time as they are reversed or revised by agreement between the **Parties** or by decision of an **Expert** in accordance with Clause 22.
- 14.5 Where:-
- 14.5.1 the **Company** discovers that any previous **Monthly Statement** contains an arithmetic error or omission; or
- 14.5.2 any change is made to a previous final run (if any) of a settlement calculation which includes a change in any of the facts or matters upon which the final settlement run was based which facts or matters formed the basis upon which any previous **Monthly Statement** was prepared; or
- 14.5.3 the **Company** becomes aware of any facts (other than facts falling within Clauses 14.5.1 and 14.5.2) which show that the **Provider** was not entitled to receive a payment already made,
- the **Company** shall adjust the account between itself and the **Provider** accordingly in the next **Monthly Statement** which it issues, setting out the reason why the adjustment has been made and the provisions of Clause 14.4 shall apply mutatis mutandis to such adjustments. In the absence of fraud, the **Company** may not invoke the provisions of this Clause 14.5 with respect to the contents of any **Monthly Statement** after the period of 12 months commencing at the start of the month of issue of such **Monthly Statement**, after which date such **Monthly Statement** shall be final and conclusive as to the amounts payable with respect thereto.
- 14.6 [Not used]
- 14.7 The **Company** shall pay to the **Provider** the amount specified in the **Monthly Statement** within three (3) **Business Days** after the date of

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issue and the **Provider** shall pay to the **Company** any amount shown as due from the **Provider** in such statement within three (3) **Business Days** after the date on which such statement is issued.

- 14.8 If either **Party** (the “**Defaulting Party**”) fails to pay any amount under any provision of this **Agreement** by the due date for payment, then such **Defaulting Party** shall pay to the other **Party** interest on such overdue amount from and including the due date of such payment to (but excluding) the date of actual payment (as well after as before judgment) at the **Base Rate** plus 3%. Any interest shall accrue from **Day to Day**.
- 14.9 If it is agreed or otherwise determined under Clauses 14.3 or 14.4 that the **Provider** was entitled to a further payment from the **Company**, that sum shall be reflected in the **Monthly Statement** next following such determination, and interest shall be payable at the **Base Rate** on the amount of such further payment from the date on which that sum would have been payable had it been included in the **Monthly Statement** for each applicable **Relevant Settlement Period** until the **Day** prior to the actual date of payment.
- 14.10 If, following a dispute or by virtue of the provisions of Clauses 14.3 or 14.4 it is determined or agreed that the **Provider** was not entitled to any payment it has received, then the **Company** shall be entitled to interest at the **Base Rate** on the amount so paid from the date of payment until the date of repayment or the date when the **Company** makes payment to the **Provider** which takes such amount into account.
- 14.11 Notwithstanding any other provision of this **Agreement** (save for Clause 14.5.3), the **Parties** shall not be limited in any way as to the evidence they may rely upon in any **Proceedings** arising out of or in connection with payment for the **Enhanced Frequency Response** service under this **Agreement** and the **Parties** agree that in the event and to the extent that either **Party** succeeds in proving in any such **Proceedings** that the **Enhanced Frequency Response** service was or was not provided, the successful **Party** shall (without prejudice to any liquidated damages provision of this **Agreement**) be entitled to repayment of the sums already paid or payment of sums not paid as the case may be in respect of the **Enhanced Frequency Response** service together with interest (if any) in accordance with the provisions of this **Agreement**.
- 14.12 Save as otherwise expressly provided in this **Agreement**, sums payable by one **Party** to the other pursuant to this **Agreement** whether by way of charges, interest or otherwise shall (except to the extent otherwise required by law) be paid in full, free and clear of and without deduction, set-off or deferment in respect of any disputes or claims whatsoever provided that the **Parties** shall be entitled to set off any payment due and payable by the other **Party** under this **Agreement** against any payment it makes to the other **Party** under this **Agreement**.
- 14.13 All amounts specified hereunder shall be exclusive of any **Value Added Tax** or other similar tax and the **Company** shall pay to the **Provider** **Value Added Tax** at the rate for the time being and from time to time properly chargeable in respect of the making available and/or supply of the **Enhanced Frequency Response** service under this **Agreement**

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and such payments shall be made in accordance with the latest HMRC guidelines (as updated from time to time).

- 14.14 All payments by the **Company** to the **Provider** under this **Agreement** will be made by payment to the **Provider's** bank account details of which are given in Appendix 10 (*Bank Details*) unless otherwise notified to the **Company** in writing.
- 14.15 The submission of all **Monthly Statements** and facts and other evidence in support thereof and any questions in connection therewith from the **Company** to the **Provider** and vice versa in accordance with this Clause 14 must be made, in the absence of agreement to the contrary between the **Parties**, by 19.00 hours on the **Business Day** concerned.
- 14.16 The **Provider** hereby irrevocably consents to the operation of a self-billing system by the **Company** with regard to the payment for the **Enhanced Frequency Response** service to be provided pursuant to this **Agreement** and will at all times throughout the term of this **Agreement** maintain such consent. The **Provider** hereby undertakes to do (at the **Company's** cost) all acts and things reasonably necessary to enable the **Company** to comply with the regulations of HM Customs and Excise as regards the self-billing of the **Enhanced Frequency Response** service.
- 14.17 The provisions of this Clause 14 shall survive termination of this **Agreement**.

15. **LIMITATION OF LIABILITY**

15.1 Subject to Clause 15.3 and save where any provision of this **Agreement** provides for an indemnity or the payment of liquidated damages, the **Parties** agree and acknowledge that neither **Party** (the "**Party Liable**") nor any of its officers, employees or agents shall be liable to the other **Party** for loss arising from any breach of this **Agreement** other than for loss directly resulting from such breach and which at the date of this **Agreement** was reasonably foreseeable as not unlikely to occur in the ordinary course of events from such breach in respect of:

- 15.1.1 physical damage to the property of the other **Party**, its officers, employees or agents; and/or
- 15.1.2 the liability of such other **Party** to any other person for loss in respect of physical damage to the property of any person subject, for the avoidance of doubt, to the requirement that the amount of such liability claimed by such other **Party** should be mitigated in accordance with general law,

and provided further that the liability of either **Party** in respect of all claims for such loss shall not exceed £five hundred thousand pounds (£500,000) per incident or a series of related incidents.

15.2 Nothing in this **Agreement** shall exclude or limit the liability of the **Party Liable** for death or personal injury resulting from the negligence of the

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Party Liable or any of its officers, employees or agents and the **Party Liable** shall indemnify and keep indemnified the other **Party**, its officers, employees or agents, from and against all such and any loss or liability which such other **Party** may suffer or incur by reason of any claim on account of death or personal injury resulting from the negligence of the **Party Liable** or any of its officers, employees or agents.

- 15.3 Subject to Clause 15.2 and save where any provision of this **Agreement** provides for an indemnity or the payment of liquidated damages, neither the **Party Liable** nor any of its officers, employees or agents shall in any circumstances whatsoever be liable to the other **Party** for:-
- 15.3.1 any loss of profit, loss of revenue, loss of use, loss of contract or loss of goodwill; or
- 15.3.2 any indirect or consequential loss; or
- 15.3.3 loss resulting from the liability of the other **Party** to any other person howsoever and whensoever arising save as provided in Clause 15.1.2 and Clause 15.2.
- 15.4 Each **Party** acknowledges and agrees that the other **Party** holds the benefit of Clauses 15.1, 15.2 and 15.3 for itself and as trustee and agent for its officers, employees and agents.
- 15.5 The rights and remedies provided by this **Agreement** to the **Parties** are exclusive and not cumulative and exclude and are in place of all substantive (but not procedural) rights or remedies express or implied and provided by common law or statute in respect of the subject matter of this **Agreement**, including (without limitation) any rights either **Party** may possess in tort which shall include actions brought in negligence and/or nuisance. Accordingly, each of the **Parties** hereby waives to the fullest extent possible all such rights and remedies provided by common law or statute and releases the other **Party**, its officers, employees and agents from all duties, liabilities, responsibilities or obligations provided by common law or statute in respect of the matters dealt with in this **Agreement** and undertakes not to enforce any of the same except as expressly provided herein.
- 15.6 For the avoidance of doubt, the **Parties** acknowledge and agree that nothing in this **Agreement** shall:
- 15.6.1 exclude or restrict or otherwise prejudice or affect any of the rights, powers, privileges, remedies, duties and obligations of the **Secretary of State** or the **Authority** under the **Act**, any **Licence** or otherwise howsoever; or
- 15.6.2 exclude or restrict or otherwise prejudice the rights, powers, duties and obligations of the **Company** or the **Provider** which are conferred or created by the **Act** or the **Transmission Licence**.
- 15.7 Each of Clauses 15.1, 15.2, 15.3 and 15.4 shall:-
- 15.7.1 be construed as a separate and severable contract term, and if one or more of such Clauses is held to be invalid, unlawful or otherwise

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unenforceable the other or others of such Clauses shall remain in full force and effect and shall continue to bind the **Parties**; and

15.7.2 survive termination of this **Agreement**.

15.8 For the avoidance of doubt, nothing in this Clause ~~045~~ shall prevent or restrict any **Party** enforcing any obligation (including suing for a debt) owed to it under or pursuant to this **Agreement**.

15.9 Each **Party** acknowledges and agrees that the provisions of this Clause ~~045~~ shall apply from and including the Effective Date and have been the subject of discussion and negotiation and are fair and reasonable having regard to the circumstances as at the date of this **Agreement**.

16. TERMINATION

16.1 The **Provider** may terminate this **Agreement** forthwith by notice in writing to the **Company** if:-

16.1.1 the **Company** shall fail to pay (other than by inadvertent error in funds transmission which is discovered by the **Provider**, notified to the **Company** and corrected within five (5) **Business Days** following such notification) any material sum properly due or owing from it pursuant to this **Agreement** according to its terms and such non-payment remains unremedied and not disputed in good faith and upon reasonable grounds at the expiry of ~~fifteen (15)~~ **Business Days** immediately following receipt by the **Company** of written notice from the **Provider** of such non-payment; or

16.1.2 in respect of the **Company**:-

- (a) an order of the **High Court** is made or an effective resolution passed for its insolvent winding-up or dissolution; or
- (b) a receiver (which expression shall include an administrative receiver within the meaning of Section 29 of the Insolvency Act 1986) of the whole or any material part of its assets or undertaking is appointed; or
- (c) an administration order under Section 8 of the Insolvency Act 1986 is made or any other steps are taken to appoint an administrator or if a voluntary arrangement is proposed under Section 1 of that Act; or
- (d) it enters into any scheme of arrangement (other than for the purpose of reconstruction or amalgamation upon terms and within such period as may previously have been approved in writing by the **Authority**); or
- (e) it is unable to pay its debts within the meaning of Section 123(1) or (2) of the Insolvency Act 1986 save that such section shall have effect as if for £750 there was inserted £250,000 (and the **Company** shall not be deemed to be unable to pay its debts if any demand for payment is being contested in good faith by it with recourse to all appropriate measures and procedures);

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- and in any such case within ~~fourteen (14)~~ **Days** of appointment of the liquidator, receiver, administrative receiver, administrator, nominee or other similar officer, such person has not provided to the **Provider** a guarantee of future performance by the **Company** of this **Agreement** in such form and amount as the **Provider** may reasonably require.
- 16.2 The **Company** may terminate this **Agreement** forthwith by notice in writing to the **Provider** if:-
- 16.2.1 the **Provider** shall fail to pay (other than by inadvertent error in funds transmission which is discovered by the **Company**, notified to the **Provider** and corrected within five (5) **Business Days** thereafter) any material sum properly due or owing from the **Provider** to the **Company** pursuant to this **Agreement** according to its terms and such non-payment remains unremedied and not disputed in good faith and upon reasonable grounds at the expiry of ~~fifteen (15)~~ **Business Days** immediately following receipt by the **Provider** of written notice from the **Company** of such non-payment; or
- 16.2.2 the **Company** notifies the **Provider** at the end of any rolling twelve (12) month period (“reference period”) that the **Annual Service Performance Measure** for the **Facility** is less than 50% over the reference period as calculated in accordance with Appendix 7 (*Deemed Available Capacity and Service Performance Measure*) and the **Annual Service Performance Measure** remains below 50% on a rolling twelve (12) month basis as calculated on the date falling two (2) months after the end of the reference period;
- 16.2.3 the **Service Provider** is in material breach of any other obligation under this **Agreement** and, in the case of a breach that is capable of remedy, has not remedied that breach within thirty (30) days (or such longer period as may reasonably be required for remedy) after receipt of notice from the **Company** identifying the breach and requiring its remedy;
- 16.2.4 the provisions of Clause 13.5(e) ~~(iii)~~ apply;
- 16.2.5 a failure by the **Provider** to propose a date under Clause 13.5(a)(i); or
- 16.2.6 in respect of the **Provider**:-
- (a) an order of the **High Court** is made or an effective resolution passed for its insolvent winding up or dissolution; or
 - (b) a receiver (which expression shall include an administrative receiver within the meaning of Section 29 Insolvency Act 1986) of the whole or any material part of its assets or undertaking is appointed; or
 - (c) an administration order under Section 8 of the Insolvency Act 1986 is made or any other steps are taken to appoint an administrator or if a voluntary arrangement is proposed under Section 1 of that Act; or
 - (d) it enters into any scheme of arrangement (other than for the purpose of reconstruction or amalgamation upon terms and

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within such period as may previously have been approved in writing by the **Authority**); or

- (e) it is unable to pay its debts (within the meaning of Section 123(1) or (2) of the Insolvency Act 1986 save that such sections shall have effect as if for £750 there was inserted £250,000 and the **Provider** shall not be deemed to be unable to pay its debts if any demand for payment is being contested in good faith by the **Provider** with recourse to all appropriate measures and procedures);

and in any such case within 14 **Days** of appointment of the liquidator, receiver, administrative receiver, administrator, nominee or other similar officer, such person has not provided to the **Company** a guarantee of future performance by the **Provider** of this **Agreement** in such form and amount as the **Company** may reasonably require.

16.3 The **Company** acknowledges that the **Provider** may need to arrange funding to develop the **Facility** and that the funder may require as a condition of the availability of that finance to enter into a direct agreement with the **Company**. The **Company** shall act in good faith (at the cost and expense of the **Provider**) to negotiate such a direct agreement where reasonably required by the **Provider**, on terms to be agreed by the **Company** (acting reasonably) but not so as to impose any financial obligation on the **Company** and provided always that it shall not be unreasonable for the **Company** to refuse to enter a direct agreement where the terms of such direct agreement negatively impacts, or are likely to negatively impact, the provision of **Enhanced Frequency Response** in accordance with the terms of this **Agreement**.

16.4 Either **Party** may terminate this **Agreement** forthwith by notice in writing to the other in the circumstances described in Clause 23.5 (*Force Majeure*).

16.5 The provisions of this Clause 16 shall take effect from and including the Effective Date. Termination of this **Agreement** shall not affect any rights or obligations of the **Parties** which have accrued at the time of such termination.

17. **ASSIGNMENT**

17.1 Subject to Clause 17.2, this **Agreement** is personal to the **Parties** and neither **Party** shall assign, transfer, mortgage, charge, sub-contract or deal in any other manner with any or all of its rights and obligations under this **Agreement** without the prior written consent of the other **Party** (such consent not to be unreasonably withheld, conditioned or delayed).

17.2 The **Provider** may:

17.2.1 assign the benefit of its interests and obligations in this **Agreement** to a financial institution providing funding for the development of the **Facility**;
or

17.2.2 sub-contract the operation of the **Facility** to a third party operator.

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17.3 The provisions of this Clause 17 shall take effect from and including the Effective Date.

18. CONFIDENTIALITY

18.1 General Restrictions

18.1.1 Subject to the exceptions provided in Clause 18.2 (and to the extent otherwise expressly permitted by this **Agreement**) neither **Party** shall, at any time, whether before or after the expiry or sooner termination of this **Agreement**, without the prior consent of the other **Party** in writing (not to be unreasonably withheld or delayed), divulge or suffer or permit its officers, employees, agents or contractors to divulge to any person or permit use by any person (other than disclosure to or use by any of its or their respective officers or employees to the extent that such disclosure and use is required to enable such persons properly to carry out their duties) of:-

18.1.1.1 any of the contents of this **Agreement**;

18.1.1.2 any commercially confidential information relating to the negotiations concerning the entering into of this **Agreement**;

18.1.1.3 any commercially confidential information which may come to a **Party's** knowledge in the course of such negotiations; or

18.1.1.4 any commercially confidential information concerning the operations, contracts, commercial or financial arrangements or affairs of the other **Party**.

18.1.2 Each **Party** undertakes to use information referred to in Clause 18.1.1 and disclosed to it by the other **Party** solely for the purposes of this **Agreement** or its business and shall not use it for any other purpose or for the purposes of any third party.

18.2 Exceptions

18.2.1 The restrictions imposed by Clause 18.1 shall not apply to the disclosure of any information:-

18.2.1.1 which now or hereafter comes into the public domain otherwise than as a result of a breach of a confidentiality obligation or which either **Party** can show was in its written records prior to the date of disclosure of the same by the other **Party** under this **Agreement** or which it receives from a third party in circumstances where the **Party** concerned could not reasonably have been expected to know that such third party was not independently entitled to disclose it;

18.2.1.2 which is required by a **Legal Requirement** or pursuant to the rules of the **Electricity Arbitration Association** or pursuant to the rules or regulations of the **Financial Conduct Authority** to be disclosed to any person who is authorised by law or pursuant to the rules of the **Electricity Arbitration Association** or pursuant to the rules or regulations of the **Financial Conduct Authority** to receive the same;

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- 18.2.1.3 which is required to be disclosed by the regulations of any recognised exchange upon which the share capital of the **Party** making the disclosure (or its parent undertaking) is or is proposed to be from time to time listed or dealt in, or is required to be disclosed by the **Panel on Takeovers and Mergers**;
- 18.2.1.4 to a court, arbitrator or administrative tribunal in the course of **Proceedings** before it to which the disclosing **Party** is a party;
- 18.2.1.5 in accordance with the provisions of the **BSC** or pursuant to any **Licence** of the **Party** concerned including for the avoidance of doubt in the case of the **Company** pursuant to any of the statements published by it under or pursuant to its **Licence**;
- 18.2.1.6 to any authorised consultants, banks, financiers, insurers or professional advisers to, or legitimate potential investors in, the disclosing **Party**;
- 18.2.1.7 to the **Provider's** sub-contractors, in circumstances where it has first notified the **Company** in writing of its intention to make such disclosure and procured the execution and delivery to the **Company** of an undertaking executed by the person to whom the disclosure is proposed to be made in the same terms mutatis mutandis as the undertakings contained in this Clause 18;
- 18.2.1.8 by either **Party** to any parent, subsidiary or fellow subsidiary undertaking on a “need to know” basis only; or
- 18.2.1.9 required or expressly permitted to be disclosed under the terms of any agreement or arrangement (including this **Agreement**, the **Grid Code**, the **Distribution Code** and the **Fuel Security Code**) to which both the **Parties** have agreed to be bound.
- 18.2.2 In this Clause 18.2, the words “parent undertaking”, “subsidiary undertaking” and “fellow subsidiary undertaking” shall have the meanings as provided in Sections 1161 (4) and 1162 (1) – (6) of the Companies Act 2006.
- 18.3 Third parties
- In relation to any information disclosed by either **Party** in any of the circumstances described in Clause 18.2.1.6 (other than to its authorised professional advisers) and 18.2.1.8 the **Party** shall procure that the information to be disclosed is at all times kept confidential by the recipient as if the terms of this Clause 18 (including without limitation Clause 18.4) applied to such recipient and for that purpose shall obtain from such recipient appropriate undertakings as to confidentiality, non-disclosure and use.
- 18.4 Procedures
- With respect to the information referred to in Clause 18.1.1, both **Parties** shall ensure that:-
- 18.4.1 such information is disseminated within their respective organisations on a “need to know” basis only;

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18.4.2 employees, directors, agents, consultants and professional advisers who are in receipt of such information are made fully aware of the **Party's** obligations of confidence in relation thereto; and

18.4.3 any copies of such information, whether in hard copy or computerised form, will clearly identify the information as confidential.

18.5 Termination

Notwithstanding any other provision of this **Agreement**, the provisions of this Clause 18 shall take effect from and including the **Effective Date** and shall continue to bind the **Parties** after termination of this **Agreement**, in whole or in part, for whatever reason.

19. **WAIVER**

19.1 No delay by or omission of any **Party** in exercising any right, power, privilege or remedy under this **Agreement** at any time after the **Effective Date** shall operate to impair such right, power, privilege or remedy or be construed as a waiver thereof. Any single or partial exercise of any such right, power, privilege or remedy shall not preclude any other or further exercise thereof or the exercise of any other right, power, privilege or remedy. Payment of any sum or the submission of any **Monthly Statement** by the **Company** to the **Provider** under this **Agreement** shall not operate to impair or be construed as a waiver of any right, power, privilege or remedy the **Company** may have against the **Provider** or the **Provider** against the **Company** under this **Agreement** or otherwise whatsoever and howsoever arising or arisen.

19.2 The provisions of this Clause 19 shall take effect from and including the **Effective Date**.

20. **COUNTERPARTS**

This **Agreement** may be executed in any number of counterparts and by the **Parties** on separate counterparts, each of which when executed and delivered shall constitute an original but all the counterparts shall together constitute but one and the same instrument. For the purposes of this Clause 20, the delivery of a facsimile or PDF email copy of a signed counterpart of this **Agreement** shall be deemed to be valid signature thereof provided that the **Party** so delivering a facsimile or PDF email copy hereby undertakes to deliver an original copy of this **Agreement** forthwith following such facsimile or email transmission. The provisions of this Clause 20 shall take effect from and including the **Effective Date**.

21. **VARIATIONS**

21.1 Subject always to Clauses 21.2 and 21.3, and with effect from the **Effective Date**, no variations or amendments to this **Agreement** shall be effective at any time after the **Effective Date** unless made in writing and signed by or on behalf of both the **Company** and the **Provider**.

21.2 The **Company** and the **Provider** shall effect any amendment required to be made to this **Agreement** by the **Authority** or as a result of a change in the **Transmission Licence** or an order or directions made pursuant

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to **the Act** or a licence or as a result of settling any of the terms hereof or otherwise as required by this **Agreement** and the **Provider** hereby authorises and instructs the **Company** to make any such amendment on its behalf and undertakes not to withdraw, qualify or revoke such authority or instruction at any time.

21.3 The **Company** and the **Provider** shall effect any amendment to Clause 14 regarding the date of submission by the **Company** of **Monthly Statements** to the extent in the **Company's** reasonable opinion necessary to reflect any change from time to time in the date of submissions of data pursuant to the **Balancing and Settlement Code**, and the **Provider** hereby agrees to enter into such variation of this **Agreement** within a reasonable period of time from written notice of such requirement being provided to it by the **Company**.

21.4 Any amendments made by The **Company** pursuant to Clauses 21.2 and 21.3 shall be notified to the **Provider** in writing as soon as reasonably practicable following the **Company** being aware of the need for amendment.

22. **DISPUTE RESOLUTION AND EXPERT DETERMINATION**

22.1 Save where expressly stated in this **Agreement** to the contrary and subject to any contrary provision of the **Act** or any **Licence** or the rights, powers, duties and obligations of the **Authority** or the **Secretary of State** under the **Act**, any **Licence** or otherwise howsoever, any dispute or difference of whatever nature howsoever arising under, out of or in connection with this **Agreement** between the **Parties** shall be and is hereby referred to arbitration pursuant to the arbitration rules of the **Electricity Arbitration Association** in force from time to time.

22.2 Whatever the nationality, residence or domicile of either **Party** and wherever the dispute or difference or any part thereof arose, the law of England shall be the proper law of any reference to arbitration hereunder and in particular (but not so as to derogate from the generality of the foregoing) the provisions of the Arbitration Act 1996 (notwithstanding anything in Section 108 thereof) shall apply to any such arbitration wherever the same or any part of it shall be conducted.

22.3 Where any provision in this **Agreement** provides, or the **Parties** have agreed, for a dispute or difference between the **Parties** to be referred to an independent expert ("**Expert**") the following provisions shall apply, and no **Party** shall commence proceedings in any court in respect of or otherwise in connection with such dispute:

| **2522.3.1** the **Expert** shall be jointly appointed by the **Parties** and shall be a person of good repute with the relevant skills and technical experience to be able to make a fair and reasoned determination having regard to the nature of the dispute or difference;

| **2522.3.2** the **Parties** agree that the **Expert** shall act as an expert and not as an arbitrator and shall decide those matters referred to him using his skill, experience and knowledge and with regard to all such other matters as he in his sole discretion considers appropriate;

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- 2522.3.3 if the **Parties** cannot agree upon the selection of an **Expert**, the **Expert** shall be determined by the President for the ~~{Law Society of England and Wales}~~;
- 2522.3.4 all references to the **Expert** shall be made in writing by either **Party** with notice to the other being given contemporaneously, and the **Parties** shall promptly supply the **Expert** with such documents and information as he may request when considering any referral;
- 2522.3.5 the **Expert** shall be requested to use his best endeavours to give his decision upon the question before him as soon as possible in writing following its referral to him, his decision shall, in the absence of fraud or manifest error, be final and binding upon the **Parties**;
- 2522.3.6 the **Parties** shall equally share the **Expert's** fees and expenses unless the **Expert** determines otherwise; and
- 2522.3.7 save to the extent otherwise expressly provided herein or in the determination by the **Expert**, this **Agreement** shall take effect from and including the **Effective Date** and shall, to the extent necessary for the **Parties** to perform their obligations under this **Agreement**, continue to bind the **Parties** after termination.

23. **FORCE MAJEURE**

- 23.1 In so far as either **Party** is prevented from performing any of its obligations under this **Agreement** due to an event or circumstance of **Force Majeure**, then with effect from the **Effective Date**, neither the **Provider** nor the **Company** (as the case may be) shall be deemed to be in breach of such obligations for so long as the circumstance of **Force Majeure** continues to prevent such performance.
- 23.2 The **Party** affected by the **Force Majeure** shall give to the other **Party** promptly upon becoming aware of an event or circumstance of **Force Majeure**, a written communication describing the **Force Majeure** (including, without limitation, the nature of the occurrence and its expected duration) and the obligations which it is prevented from performing and shall continue to furnish regular reports with respect thereto to the other **Party** during the period of **Force Majeure**.
- 23.3 As soon as is reasonably practicable, following an event or circumstance of **Force Majeure**, the **Parties** shall discuss how best to continue their respective obligations as set out in this **Agreement**.
- 23.4 For the avoidance of doubt the non-performance of either **Party's** obligations pursuant to this **Agreement** arising prior to the event or circumstance of **Force Majeure**, shall not be excused as a result of the event or circumstance of **Force Majeure**.
- 23.5 Either **Party** shall have a right to terminate this **Agreement** in accordance with Clause 16.3 if a **Party** has been prevented from performing its obligations pursuant to the **Agreement** due to an event or circumstance of **Force Majeure** for a continuous period of six (6) months.

24. **JURISDICTION**

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- 24.1 Subject and without prejudice to Clause 22 and to Clause 24.4, both **Parties** irrevocably agree that only the courts of England and Wales are to have jurisdiction to settle any disputes which may arise out of or in connection with this **Agreement** and that accordingly any suit, action or proceeding (together in this Clause 24 referred to as "**Proceedings**") arising out of or in connection with this **Agreement** may be brought to such courts.
- 24.2 Each **Party** irrevocably waives any objection which it may have now or hereafter to the laying of the venue of any **Proceedings** in any such court as is referred to in Clause 24 and any claim that any such **Proceedings** have been brought in an inconvenient forum and further irrevocably agrees that judgment in any **Proceedings** brought in the courts of England and Wales shall be conclusive and binding upon such **Party** and may be enforced in the courts of any other jurisdiction.
- 24.3 Each **Party** which is not incorporated in any part of **Great Britain** agrees that if it does not have, or shall cease to have, a place of business in **Great Britain** it will promptly appoint, and shall at all times maintain, a person in **Great Britain** to accept service of process on its behalf in any **Proceedings** in **Great Britain**.
- 24.4 For the avoidance of doubt nothing contained in the foregoing provisions of this Clause 24 shall be taken as permitting a party to commence **Proceedings** in the courts where this **Agreement** otherwise provides for **Proceedings** to be referred to arbitration.

24.5 The provisions of this Clause 24 shall take effect from and including the Effective Date.

25. **GOVERNING LAW**

This **Agreement** shall with effect from and including the Effective Date, be governed by and construed in all respects in accordance with English law.

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26. **SEVERANCE OF TERMS**

If any provision of this **Agreement** is or becomes or is declared invalid, unenforceable or illegal by the courts of any jurisdiction to which it is subject or by order of the Commission of the European Communities or by order of the **Secretary of State**, such invalidity, unenforceability or illegality shall not prejudice or affect the remaining provisions of this **Agreement** which shall continue in full force and effect notwithstanding such invalidity, unenforceability or illegality. The provisions of this Clause 26 shall take effect from and including the Effective Date.

27. **ENTIRE AGREEMENT**

- 27.1 This **Agreement** contains or expressly refers to the entire agreement between the **Parties** with respect to the subject matter hereof, and expressly excludes any warranty, condition or other undertaking implied at law or by custom, and supersedes all previous agreements and understandings between the **Parties** with respect thereto.

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27.2 Each of the **Parties** acknowledges and confirms that it is not aware of any representation, warranty or other undertaking not fully reflected in the terms of this **Agreement** and upon which it has relied in entering into this **Agreement**. To the extent that any such representation, warranty or other undertaking exists, each **Party** irrevocably and unconditionally waives any right it may have to claim damages for breach of warranty and/or to rescind this **Agreement** unless such warranty or misrepresentation was given or made fraudulently.

27.3 The provisions of this Clause 27 shall take effect from and including the Effective Date.

28. **THIRD PARTY RIGHTS**

The **Parties** hereby acknowledge and agree for the purposes of the Contracts (Rights of Third Parties) Act 1999 and with effect from and including the **Effective Date** that no rights, powers or benefits are or shall be conferred on any person pursuant to this **Agreement** except for such rights, powers and benefits as are expressly conferred on the **Parties** hereto in accordance with, and subject to, its terms.

29. **DISCLOSURE OF INFORMATION**

The **Provider** hereby consents with effect from and including the Effective Date to the disclosure and use by the **Company** of data and other information relating to this **Agreement** and the provision of the **Enhanced Frequency Response** service in an anonymised or aggregated format and/or otherwise as part of its **Monthly Balancing Services Summary Statement**.

30. **NOTICES**

30.1 For the purposes of this **Agreement** and with effect from and including the **Effective Date**, save as may be otherwise specified in respect of ~~operational notices~~ Operational Notices and save as specified in Clause 30.2, any notice or other communication required to be given by the **Company** or the **Provider** to the other in writing under, or in connection with matters contemplated by, this **Agreement** shall be sent to the following address and/or facsimile number and marked for the attention of the person named below:

the **Company**: National Grid Electricity Transmission plc
System Operator
National Grid House
Warwick Technology Park
Gallows Hill
Warwick CV34 6DA
Facsimile number: 01926 655630
For the attention of: The Company Secretary

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Copy to: System Operator

Facsimile number: 01926 656612

~~Email: otoperationalissues@nationalgrid.com~~

the **Provider:** []
[]
Facsimile number: []
For the attention of: []
Copy to: []

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~~30.2 Save for any **Operational Notices**, any notification required by this **Agreement** to be given by email shall be made to the email addresses and marked for the attention of the person named below:~~

~~The **Company:** For the attention of: []~~

~~Email: otoperationalissues@nationalgrid.com~~

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~~The **Provider:** For the attention of: []~~

~~Email: []~~

~~31. **31. EMR**~~

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~~31.1 Notwithstanding any confidentiality obligations and any restriction on the use or disclosure of information set out in this **Agreement**, the **Provider** consents to the **Company** and each of its subsidiaries using all and any information or data supplied to or acquired by it in any year under or in connection with this **Agreement** for the purpose of carrying out its **EMR Functions**.~~

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~~31.2 The provisions relating to the resolution of disputes set out in this **Agreement** (if any) are subject to any contrary provision of an **EMR Document**.~~

~~31.3 Where for the purposes of this provision only:~~

“AF Rules” has the meaning given to “allocation framework” in section 13(2) of the Energy Act 2013;

“Capacity Market Rules” means the rules made under section 34 of the Energy Act 2013 as modified from time to time in accordance with that section and The Electricity Capacity Regulations 2014;

“EMR means The Energy Act 2013, The Electricity

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Document” Capacity Regulations 2014, the Capacity Market Rules, The Contracts for Difference (Allocation) Regulations 2014, The Contracts for Difference (Definition of Eligible Generator) Regulations 2014, The Contracts for Difference (Electricity Supplier Obligations) Regulations 2014, The Electricity Market Reform (General) Regulations 2014, the AF Rules and any other regulations or instruments made under Chapter 2 (contracts for difference), Chapter 3 (capacity market) or Chapter 4 (investment contracts) of Part 2 of the Energy Act 2013 which are in force from time to time;

“EMR Functions” has the meaning given to “EMR functions” in Chapter 5 of Part 2 of the Energy Act 2013.

31.4 The provisions of this Clause 31 shall take effect from and including the Effective Date.

IN WITNESS WHEREOF the hands of the duly authorised representatives of the **Parties** at the date first above written.

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SIGNED BY [] FOR AND ON BEHALF OF NATIONAL GRID ELECTRICITY TRANSMISSION PLC	
SIGNED BY [] FOR AND ON BEHALF OF []	

APPENDIX 1

DEFINITIONS

“the Act”	the Electricity Act 1989 as amended;
“Active Network Management”	means an automatic system for the management by a Public Distribution System Operator of Imports and Exports to its local Distribution System for the purposes of maintaining the security of supply of the Distribution System and maximising capacity;
“Active Power”	has the meaning given to it in the Grid Code ;
“Active Energy”	has the meaning given to it in the Balancing and Settlement Code ;
“Actual Response”	has the meaning given to it in Part 1 of Appendix 7 (<i>Average Deemed Available Capacity and Service Performance Measurement</i>);
“Actual Start Date for Commissioning”	means the date the Facility is to be Commissioned , being a date notified to the Company by the Provider in accordance with Part 1 Appendix 5 (<i>Commissioning and Testing</i>);
“Aggregated Facility”	means a notional Facility specified in Appendix 3 (<i>Aggregated Facility</i>);
“Agreement”	this agreement (including the Appendices) as amended, extended, supplemented, novated or modified from time to time;
“Allocated”	means, in relation to an EFR System , allocated at the relevant time to an Aggregated Facility in accordance with the provisions of Appendix 4 (<i>Provisions relating to an Aggregated Facility</i>), and “ Unallocated ” shall be construed accordingly;
“Annual Service Performance Measure”	the average of the values of the Service Performance Measures over a twelve (12) month period commencing on the Commercial Operations Date or any anniversary of that date;
“Apparatus”	all equipment in which electrical conductors are used, supported or of which they may form a part;
“Authority”	has the meaning set out in the Transmission Licence ;
“Availability Rate”	as defined in Appendix 9 (<i>Availability Rate</i>);

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“Availability Reduction Notice”	has the meaning given to it in Clause 6.2;
“Availability Payment”	as defined in Clause 7 (<i>Payment</i>);
“Balancing and Settlement Code” or “BSC”	has the meaning given to that term in the Transmission Licence ;
“Balancing Services”	has the meaning given to that term in the Transmission Licence ;
“Baseline”	in relation to a Storage Facility, EFR BM Unit, EFR Interconnector or an EFR System other than a Storage Facility , has the meaning given to that term in the definition of Contracted Capacity ;
“Base Rate”	in respect of any Day the rate per annum which is equal to the base lending rate from time to time of Barclays Bank plc as at close of business on the immediately preceding Business Day ;
“BM Unit”	has the meaning given to it in the Balancing and Settlement Code ;
“Bid Bond”	means the bid bond issued for the benefit of the Company and submitted by the Provider in accordance with the rules of the Tender ;
“Business Day”	a week-day other than a Saturday or Sunday on which banks are open for domestic business in the City of London;
“Capacity Market”	the capacity market as set out in the EMR Document and as governed by the Electricity Capacity Regulations 2014 and the Capacity Market Rules;
“Commercial Operations Date”	means the date on which the Conditions Precedent have been satisfied or waived in full;
“Commissioning”	means, where applicable, the process of commissioning an EFR BM Unit or an EFR System in accordance with the Provider’s contract with a third party contractor and “ Commissioned ” shall be construed accordingly;
“Commissioning Proving Test”	means the test to be undertaken in accordance with Parts 1 and 2 of Appendix 5 by the Provider ;
“Competent Authority”	means the Authority or any local, national or supra-national agency, authority, department, inspectorate, minister, official, court, tribunal or public or statutory person (whether autonomous or not) of the United

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Kingdom (or the government thereof) or the member states of the European Union which have jurisdiction over the **Company** or the subject matter of this **Agreement**;

- “Conditions Precedent”** means the conditions precedent set out in Clause 3.1;
- “Connection and Use of System Code” or “CUSC”** the Connection and Use of System Code designated by the **Secretary of State** as from time to time amended;
- “Contract Award”** means [] 2016, being the date of contract award pursuant to the **Tender**;
- “Contracted Capacity”** means:
- i. in relation to a **Storage Facility**, its maximum capacity (expressed in MW and assuming, where relevant, that its **State of Charge** permits) for:
 - (a) Imports of **Active Power** from the **System** from a level of 0 MW (the **“Baseline”**); and
 - (b) **Exports of Active Power** to the **System** from the **Baseline**; or
 - ii. in relation to an **EFR BM Unit**, its maximum capacity (expressed in MW) for:
 - a. reducing **Exports of Active Power** to the **System** from the level of specified in the **Final Physical Notification** for the **Facility** (the **“Baseline”**); and
 - b. increasing **Exports of Active Power** to the **System** from the **Baseline**; or
 - iii. in relation to an **EFR Interconnector**, its maximum capacity (expressed in MW) for:
 - a. increasing or reducing **Imports of Active Power** from the **System** from a level equal to the **Final Interconnector Scheduled Transfer** (as that term is defined in the **BSC**) (the **“Baseline”**); and
 - b. increasing or reducing **Exports of Active Power** to the **System** from a level equal to the **Baseline**;
 - iv. in relation to an **EFR System** other than a **Storage Facility**, its maximum capacity

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(expressed in MW) for:

- a. reducing **Imports of Active Power** to the **System** from a level equal to the average **Import** in the previous four (4) **Settlement Periods** (the “**Baseline**”); and
- b. increasing **Imports of Active Power** to the **System** from a level equal to the **Baseline**,

in each case, being the value offered by the **Provider** under the **Tender** as set out in Appendix 2;

“**Day**”

means a calendar day;

“**Deadband**”

means the area so described in [Figure 1] in Part 1 of Appendix 8 (*Frequency Response Service Specification*);

“**Defaulting Party**”

as defined in Clause 14.8;

“**Development Extension Event**”

means:

- (a) an **NG Default Event**; or
- ~~(b)~~ downtime in the operation of the **Distribution System** or **National Electricity Transmission System** to which an **EFR BM Unit** or **EFR System** is connected or to be connected to the extent not attributed to, or caused or contributed to by, an act or omission on the part of the **Provider** or any of its employees, agents, contractors or subcontractors;
- ~~(b)~~(c) in relation to the **Provider** or as applicable to an **EFR System**, an event or circumstance of **Force Majeure**;
- ~~(d)~~ delays in completing, connection and/or energising a grid connection to the extent not attributable to, or caused or contributed to, by an act or omission on the part of the **Provider** or any of its employees, agents, contractors or subcontractors and which could not have been reasonably foreseen by the **Provider** at the **Effective Date** exercising **Good Industry Practice**; or
- ~~(e)~~(e) delays in completing or obtaining any consents required to the development of an **EFR BM Unit** or **EFR System** (and all associated and ancillary works) not caused

by the **Provider** or any of its employees, agents, contractors or subcontractors which could not have been reasonably foreseen by the **Provider** at the **Effective Date** exercising **Good Industry Practice**.

“Directive”	means any present or future directive, request, requirement, instruction, code of practice, direction or rule of any Competent Authority and any modification, extension or replacement thereof;
“Distribution Code”	means the Distribution Code drawn up by the Public Distribution System Operators pursuant to the terms of their respective Distribution Licences as from time to time revised in accordance with those licences;
“Distribution Licence”	means a licence issued under section 6(1)(c) of the Act ;
“Distribution System”	means all or part of a distribution system in Great Britain operated by a Licensed Distribution System Operator and as defined in the Balancing and Settlement Code ;
“Effective Date”	means the date of this Agreement ;
“EFR BM Unit	means a BM Unit utilised for the provision of Enhanced Frequency Response ;
“EFR Interconnector”	means an interconnector (as that term is defined in the Transmission Licence) utilised for the provision of Enhanced Frequency Response ;
“EFR System	means Plant, System and/or Apparatus (or a collection of Plant, Systems and/or Apparatus) other than an EFR BM Unit or an EFR Interconnector utilised for the provision of Enhanced Frequency Response ;
“Electricity Arbitration Association”	the meaning attributed to the phrase “Electricity Industry Arbitration Association” in the Grid Code ;
“Embedded Facility”	means a Facility that is connected to a Distribution System ;
“Enhanced Frequency Response”	means the provision and delivery of Frequency Response in accordance with the Frequency Response Service Specification and in accordance with the terms of this Agreement ;

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“Expected Start Date for Commissioning”	means the date determined and specified by the Provider (acting reasonably) on which the Facility is expected to commence commissioning in accordance with Appendix 5 (<i>Commissioning and Testing</i>), which date shall not be later than the Longstop Date ;
“Expert”	as defined in Clause 22.3;
“Expiry Date”	the fourth (4 th) anniversary of the Commercial Operations Date <u>provided that where the Conditions Precedent are not satisfied by the Target Long Stop Date, the Expiry Date shall be the fourth (4th) anniversary from the Target Long Stop Date;</u>
“Export”	means a flow of electricity at any instant in time from the Facility to the System ;
“Facility”	means the EFR BM Unit , or the EFR System specified in Appendix 2 (<i>EFR BM Unit(s) and/or EFR System(s)</i>) or the Aggregated Facility specified in Appendix 3 (<i>Aggregated Facility</i>) (as the case may be);
“Force Majeure”	<p>in relation to either Party any event or circumstance which is beyond the reasonable control of such Party but subject thereto including without limitation act of God, strike lockout or other industrial disturbance, act of the public enemy, war declared or undeclared, threat of war, terrorist act, blockade, revolution, riot, insurrection, civil commotion, public demonstration, sabotage, act of vandalism, lightning, fire, storm, flood, earthquake, accumulation of snow or ice, lack of water arising from weather or environmental problems, explosion, governmental restraint, Act of Parliament, other legislation, bye law and Directive (not being any order, regulation or direction under Section 32, 33, 34 and 35 of the Act) and which results in or causes the failure of that Party to perform any of its obligations under this Agreement provided always that the following shall not be construed as being beyond the reasonable control of a Party:-</p> <ul style="list-style-type: none">(a) lack of funds of that Party,(b) an event or circumstance caused by the negligence of that Party or its officers or employees,(c) failure of the Facility where due to a failure

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	to maintain in accordance with Clause 09;
“Frequency Deviation”	the meaning attributed to it in the CUSC ;
“Frequency Response”	active power response to locally measured grid frequency;
“Frequency Response Service Specification”	the service specification described in Appendix 8;
“Fuel Security Code”	the Agreement of that title designated as such by the Secretary of State , as from time to time amended;
“Good Industry Practice”	in relation to any undertaking and any circumstances the exercise of that degree of skill, care and diligence which would reasonably and ordinarily be expected from an experienced operator engaged in the same or similar type of undertaking under the same or similar circumstances;
“Grid Code”	means the Grid Code drawn up pursuant to the Transmission Licence , as from time to time revised in accordance with the Transmission Licence ;
“Grid Connection Point”	means the point of connection of a EFR BM Unit and/or EFR System to the National Electricity Transmission System or any Distribution System or User System ;
“Import”	a flow of electricity at any instant in time to the Facility from the System ;
“Independent Engineer”	means an independent engineer appointed by the Provider for the purposes of certifying the successful completion of the Commissioning Proving Test and that the EFR BM Unit and EFR System meets the Frequency Response Service Specification for the purposes of Appendix 5 (<i>Commissioning and Testing</i>), whose identity and terms of appointment have been approved in writing by the Company ;
“Legal Requirement”	means any Act of Parliament, regulation, licence or Directive of a Competent Authority ;
“Licensed Distribution System Operator”	has the meaning given to it in the Balancing and Settlement Code ;
“Long Stop Date”	means, subject to any Development–Extension Event , the date falling eighteen calendar months (or such later date as the Company may in its absolute

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~~discretion agree) after the date of contract award extension~~ pursuant to the ~~Tender~~ provisions of Appendix 5, the Target Long Stop Date;

- “**Maximum Contract Capacity**” in relation to an **Aggregated Facility**, means 50MW;
- “**Minimum Contract Capacity**” in relation to an **Aggregated Facility**, means 1MW;
- “**Monthly Balancing Services Summary Statement**” means a service report produced by the **Company** each month and published on the **Company’s** website showing a summary of the tender assessments for balancing services and the cost of balancing services for the month in question;
- “**Monthly Statement**” as defined in Clause 14.1;
- “**National Electricity Transmission System**” has the meaning given to it in the **Grid Code**;
- “**NG Default Event**” means, in respect of any obligation on the part of the **Provider** under this **Agreement**:
- (a) the failure of the **Company** or any of its employees, agents, contractors or subcontractors (excluding the **Provider** and its own contractors and subcontractors) to materially fulfil any material obligation pursuant to this **Agreement**;
 - (b) any act or omission of the **Provider** which is at the instruction of the **Company** which, except in the case of an urgent telephone instruction from the national control centre, shall be via email unless given in consequence of an act or default on the part of the **Provider** or any of its employees, agents, contractors or subcontractors; or
 - (c) breach of statutory duty by the **Company**,
- in each case to the extent causing the **Provider** to fail to fulfil that obligation;
- “**On-Site Monitoring Equipment**” means on-site equipment used to provide measurement of the delivery of the enhanced **Frequency Response** service including measurement of real power, reactive power and grid frequency. **On-Site Monitoring Equipment** will

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typically consist of a power quality meter and associated current transformers and voltage transformers;

“Operational Capacity” means, in relation to the **Facility**, the **Contracted Capacity** of the **Facility** as adjusted by any **Availability Reduction Notice**);

“Operational Period” means the period commencing on the **Commercial Operations Date** and ending on the **Expiry Date**;

“Party” each person for the time being and from time to time a party to this **Agreement** and any successor(s) in title to, or permitted assign(s) of, such person;

“Party Liable” as defined in Clause 15.1;

“Plant” means fixed and moveable items used in the storage, generation and/or supply and/or transmission and/or distribution of electricity other than the **Apparatus**;

“Post Tender Milestone” in relation to the **Facility** means:

(a) the grant by the relevant local planning authority (on terms and conditions reasonably acceptable to the **Company**) of permission for the proposed erection, construction operation and/or site clearance required (including all and any ancillary erections, structures and equipment, plant and apparatus) and use of the **EFR BM Units** and/or **EFR Systems** for the provision of **Enhanced Frequency Response** in accordance with the terms of this **Agreement**, or (at the **Company’s** sole discretion) a declaration that it has obtained the necessary planning permission(s) that may be required to enable the **Provider** to deliver its project for the purposes of providing **Enhanced Frequency Response** in accordance with the terms of this **Agreement**;

(b) evidence (to the **Company’s** reasonable satisfaction) that:

- (i) the **Provider** has either a leasehold or freehold interest in land upon which the applicable **EFR BM Unit** and/or **EFR System(s)** is (or is to be) situated; and
- (ii) the **Provider** has commenced development and construction operations at the site,

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or (at the **Company's** sole discretion) a declaration by the **Provider** that it has met the obligations referred to at (b)(i) and (b)(ii) above.

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- (c)– evidence by way of a declaration from the **Provider** that is has in place (as can reasonably be expected to be in place by the **PTM Date**), without limitation, those consents, permissions, approvals, licences, exemptions and other permits (in legally effectual form as may be necessary to commence, carry out, maintain and ensure the provision of **Enhanced Frequency Response** in accordance with the terms of this **Agreement**, or (at the **Company's** sole discretion) evidence by way of a certificate from an independent consultant (based in the **United Kingdom** and who has sufficient experience and expertise in assessing the consenting requirements for the construction and operation of facilities similar to the **Provider's** system) that the **Provider** has, or can reasonably be expected to have, the necessary consents, permissions, approvals, licences, exemptions and other permits in place to enable the **Provider** to deliver **Enhanced Frequency Response** in accordance with the terms of this **Agreement** by no later than the **Commercial Operations Date**;

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- (d) where this was not fully provided at the **Tender** stage, evidence (to the **Company's** reasonable satisfaction) of the entry by the **Provider** into a binding agreement (on terms acceptable to the **Company**) for the connection of the **EFR BM Unit** or **EFR System** to the public electricity supplier distribution system or to the National Electricity Transmission System to receive a supply or electricity from and export electricity into the distribution system or the National Electricity Transmission System, or (at the **Company's** sole discretion) a declaration that is has entered into a suitable grid connection agreement that will enable the **Provider** to deliver **Enhanced Frequency Response** in

accordance with the terms of this **Agreement**;

- (e) — evidence (to the **Company's** reasonable satisfaction) that the **Provider** has put in place the necessary orders for such plant, equipment, apparatus, machinery and other materials with long procurement and/or delivery periods; and
- (f) — where such a contract was not entered into at the **Tender** stage, evidence (to the **Company's** reasonable satisfaction) of the entry by the **Provider** into a binding engineering procurement and construction contract and/or a supply agreement with an original equipment manufacturer (as applicable) for the provision of relevant equipment and services in developing the **EFR BM Unit** or **EFR Systems** (including all ancillary and associated works in relation thereto) on terms and conditions reasonably acceptable to the **Company**, or (at the **Company's** sole discretion) evidence by way of a certificate from an independent consultant (who can be based in the European Union but who has sufficient experience and expertise in assessing the necessary requirements for the construction and operation of facilities similar to the **Provider's** system in the United Kingdom) that, given the terms of such agreement(s), there is a reasonable prospect of achieving **Commissioning** in time to deliver **Enhanced Frequency Response** by no later than the **Commercials Operations Date**.

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“Proceedings”

as defined in Clause 24.1;

“Proving Test Window”

means the period over which the **Proving Test** is to take place, as described in Part 2 Appendix 5 (*Commissioning and Testing*);

“Proving Test”

means a test to be undertaken in accordance with Clause 13.5 and the principles set out in Appendix 5, Part 2;

“Proving Test Notice”

has the meaning given to that term in Clause 13.5;

“PTM Date”

means the date on which the **Provider's** achievement of the **Post Tender Milestones** is to be assessed, being the date falling six calendar months after the

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	date of contract award pursuant to the Tender ;
“Public Distribution System Operator”	a holder of a Distribution Licence who was the holder of, or is a successor to a company which was the holder of a Public Electricity Supply Licence , relating to distribution activities in Great Britain ;
“Public Electricity Supply Licence”	a licence granted under Section 6(1)(c) of the Act prior to the coming into force of section 30 of the Utilities Act 2000;
“Relevant Settlement Period”	means a Settlement Period falling within a Service Period ;
“Relief Event”	means: <ul style="list-style-type: none">(a) an NG Default Event;(b) a de-energisation of the relevant Grid Connection Point to the extent not attributed to, or caused or contributed to by, an act or omission on the part of the Provider or any of its employees, agents, contractors or subcontractors;(c) in relation to the Provider or as applicable to a Facility, an event or circumstance of Force Majeure; or(d) in the case of a Storage Facility, a Frequency Event commencing from the time at which the frequency has remained at or passed either 50.5Hz or 49.5Hz for 15 consecutive minutes and lasting until the frequency has returned to the Deadband plus 30 minutes;
“Re-Test”	means: <ul style="list-style-type: none">(a) in relation to a failed Commissioning Proving Test, each subsequent Commissioning Proving Test carried out in accordance with paragraph 10 of Appendix 5 Part 1; or(b) in relation to a failed Proving Test, each subsequent Proving Test carried out in accordance with Clause 13.5(e);
“Secretary of State”	the same meaning as in the Act ;
“Service Envelope”	means the service envelope specified in the Tender and so indicated within the Envelope Lower line and Envelope Upper line in Figure 1 by reference to

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Table 1 in Part 1 Appendix 8 (*Frequency Response Service Specification*);

“Service Performance Measure”	has the meaning given in, and calculated in accordance with, Appendix 7 (<i>Average Deemed Available Capacity and Service Performance Measurement</i>);
“Service Period”	means [as stated in the Provider’s Tender];
“Service Week”	means 23:00 hours on a [Sunday] to the instant in time before 23:00 hours on the following [Sunday];
“Settlement”	has the meaning given to it in the Balancing and Settlement Code ;
“Settlement Period”	has the meaning given to it in the Balancing and Settlement Code ;
“State of Charge”	in relation to a Storage Facility that incorporates batteries, means the level of charge (expressed as a percentage of the maximum energy capacity of the Facility);
“Storage Facility”	means a Facility that includes equipment that converts electricity into a form of energy, stores energy for a period of time, and reconverts the stored energy into electrical energy in a controlled manner;
“System”	the National Electricity Transmission System or any Distribution System as the case may be;
“System Operator”	means the Company in its capacity as operator of the National Electricity Transmission System ;
“System Frequency”	means the number of alternating current cycles per second (expressed in Hertz) as measured at the Grid Connection Point of the BM Unit or EFR Unit or as otherwise agreed by the Company (acting reasonably);
“Target Frequency”	has the meaning attributed to it in the CUSC ;
“Target Long Stop Date”	<u>means the date falling eighteen (18) calendar months from the date of the Contract Award;</u>
“Tender”	means the procurement process for Enhanced Frequency Response undertaken pursuant to the invitation to tender issued by the Company on 15 th April 2016 as revised and published by the Company

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on 24 June 2016;

“Transmission Licence”

the **Licence** granted to the **Company** under Section 6(1)(b) of the **Act**;

“User System”

the meaning attributed to it in the **Grid Code**;

“Value Added Tax”

Value Added Tax as defined by the Value Added Tax Act 1994 and any modification or re-enactment thereof and any new tax of a similar nature.

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APPENDIX 2

PART 1 EFR BM UNIT OR EFR SYSTEM

EFR BM Unit and/or EFR System ID	Location	Nearest GSP	Contracted Capacity

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APPENDIX 3 – AGGREGATED FACILITY

	UNIT ID	Allocated
<u>Aggregated Facility</u>	[]	

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APPENDIX 4 – PROVISIONS RELATING TO AN AGGREGATED FACILITY

1. The **Provider** shall allocate and may re-allocate one or more **EFR System(s)** to an **Aggregated Facility** by way of a valid **Allocation Notification** pursuant to paragraph 3, such that the aggregated **Enhanced Frequency Response** capacity at that **Aggregated Facility** shall be equal to or greater than the **Minimum Contract Capacity** but shall not exceed the **Maximum Contract Capacity** (failing which, the **Provider** shall issue a **Availability Reduction Notice** for that **Aggregated Facility** for each **Service Period** in the relevant **Service Week** showing an availability of OMW).

Introduction of new EFR Systems

2. The **Provider** may, with the **Company's** written consent, propose a new **EFR System** in accordance with the following provisions:
 - 2.1 each new **EFR System** proposed by the **Provider** shall either be:
 - (a) notified to the **Company** by the **Provider** by email, such notice setting out the operational details for such new **EFR System**; or
 - (b) be specified in Appendix 3 (*Aggregated Facility*) and have its details set out in a subsequent verification request notice to be made by the **Provider** to the **Company** by email setting out the operational details for that **EFR System**;
 - 2.2 [each notice shall be signed by the **Provider** and counter-signed by or on behalf of the owner or operator of the proposed new **EFR System**];
 - 2.3 the **Aggregated Facility** comprising the new **EFR System** shall then be subject to approval by the **Company** (at its sole discretion) and subject to passing a **Commissioning Proving Test**, and if so approved the notice form shall be countersigned by or on behalf of the **Company** and returned to the **Provider** by **facsimile**/email as soon as reasonably practicable following the **Commissioning Proving Test**; and
 - 2.4 the proposed new **EFR System** shall be eligible for the purposes of providing **Enhanced Frequency Response** from the date and time such form is returned by the **Company** to the **Provider** duly counter-signed.

Allocation and re-allocation

3. It is agreed by the **Parties** that with respect to an **Aggregated Facility**, the **Provider** may:
 - 3.1 allocate to that **Aggregated Facility** one or more **EFR Systems** which are at that time **Unallocated**; and
 - 3.2 re-allocate to that **Aggregated Facility** any **EFR System** that at that time, is already allocated to another **Aggregated Facility**,and in each case in accordance with the procedure set out in Paragraph 2.
4. Any such allocation or re-allocation of an **EFR System** to an **Aggregated Facility** shall be notified by the **Provider** to the **Company** by email (an "**Allocation Notification**") in accordance with Paragraph 5.

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5. An **Allocation Notification** shall only be valid if:
- 5.1 received by the **Company** not later than 14.00 hours on the Wednesday immediately preceding commencement of the relevant **Service Week** in which the allocation or re-allocation is expected to take effect;
- 5.2 the **Company** is satisfied that appropriate communications and metering equipment have been installed at the **EFR System(s)** allocated to the **Aggregated Facility** to enable the instruction and monitoring of the delivery of the **Enhanced Frequency Response** service from the **Aggregated Facility**; and
- 5.3 an aggregation methodology (approved by the **Company**) has been developed by the **Provider** to determine the availability and provision of **Enhanced Frequency Response** from the **Aggregated Facility**.
6. With respect to each valid **Allocation Notification**, the **Company** shall confirm the same by counter-signing the **Allocation Notification** and returning it to the **Provider** by email no later than 09.00 hours on the Friday immediately preceding the relevant **Service Week** in which the allocation or re-allocation is expressed to take effect.
7. The **Provider** may not make in excess of ~~25 Allocation~~ **twenty five (25) Allocation Notifications** during any period of twelve (12) calendar months, provided always that any confirmation by the **Company** of a valid **Allocation Notification** pursuant to Paragraph 5 shall be effective and conclusive in confirming the same notwithstanding that such limit is thereby exceeded.
8. If an **Allocation Notification** is invalid, in accordance with Paragraph 5, then it shall be treated as if it were never submitted.

Amendment/Removal of EFR Systems

9. The **Parties** may agree in writing from time to time changes to the **Enhanced Frequency Response** capability of an **EFR System** or that an **Unallocated EFR System** shall be removed from this **Agreement** and cease to be effective for the purposes of this Appendix 4, in each case in accordance with the following provisions:
- 9.1 details of each proposed change or removal shall be notified by the **Provider** to the **Company** by email;
- 9.2 [where the **Provider** proposes to change the **Enhanced Frequency Response** capability of an **EFR System**, each such notice shall be counter-signed by or on behalf of the owner or operator of the **EFR System**]; and
- 9.3 such proposed change or removal shall then be subject to approval by the **Company** (at its sole discretion) within twenty (20) days of receiving the notice duly signed and counter-signed by or on behalf of the **Company** and returned to the **Provider** by email.

APPENDIX 5 - COMMISSIONING AND TESTING

PART 1 – COMMISSIONING

1. Acting in accordance with **Good Industry Practice** the **Provider** shall use reasonable endeavours to order and to procure the delivery and construction of each **EFR BM Unit** and/or **EFR System** so that, subject to successful commissioning, the **Commercial Operations Date** for that **EFR BM Unit** or **EFR System** will occur no later than the **Long Stop Date**.
2. Forthwith upon becoming aware of any actual or anticipated delay such that the **Provider** no longer has a reasonable expectation that the **Commercial Operations Date** for an **EFR BM Unit** or **EFR System** will occur prior to the **Long Stop Date**, the **Provider** shall notify the **Company** in writing and shall specify the reasons for the delay, whereupon the **Parties** shall discuss and endeavour to agree an extension to the **Long Stop Date** with respect to that **EFR BM Unit** or **EFR System**, provided always that:-
 - a. any such extension, and any terms relating thereto, shall only be effective where agreed in writing by the **Company** (at its sole discretion); or
 - b. the **Long Stop Date**, but not the **Expiry Date** (which, for the avoidance of doubt, shall occur on the date falling ~~eighteen (18) calendar months after the date of contract award pursuant to the Tender~~ **four (4) years from Target Long Stop Date**), shall be extended automatically (and subsequently confirmed in writing by the **Company**), to the extent the delay(s) in question is due to a **Development Extension Event** and:-
 - ~~b.~~
 - i. the **Provider** shall have acted in a commercially prudent manner and used reasonable endeavours to mitigate the same; and
 - ii. such delay does not cause the **Target Long Stop Date** for that **EFR BM Unit** or **EFR System** to be extended by more than six (6) months in aggregate.
3. At least three (3) months before the **Expected Start Date for Commissioning** for the **EFR BM Unit** or **EFR System**, the **Provider** will confirm to the **Company** in writing the **Actual Start Date for Commissioning** or (shall specify an alternative date as the **Actual Start Date for Commissioning** (being, save where necessary by reason of a **Development Extension Event** or where otherwise agreed at the **Company's sole discretion**, no later than the **Target Long Stop Date**), the proposed date and time of the **Commissioning Proving Test** and at the same time shall confirm (or otherwise reduce) the **Contracted Capacity** of that **EFR BM Unit** or **EFR System** (which shall not be less than the **Minimum Contract Capacity**).
4. Following receipt by the **Company** of confirmation from the **Provider** under Paragraph 3, the **Parties** will discuss in good faith and endeavour to agree:-
 - a. the procedure for the **Commissioning Proving Test**, to be consistent with the principles in Part 2 of this Appendix 5, which if not agreed by the date ten (10) days after such notice, shall be determined pursuant to paragraph 6 below; and
 - b. the date and time of the **Commissioning Proving Test**.

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5. The **Commissioning Proving Test** shall take place during the **Proving Test Window**, which shall be a continuous period of not less than four (4), nor more than ten (10), **Settlement Periods**.
6. If the **Parties** have not agreed in writing the procedure for the **Commissioning Proving Test** by the date specified in paragraph 4a, then either **Party** may refer the matter to the **Expert** for determination in accordance with Clause 22.3. In the case of such a reference the **Expert** may also determine an extension to the **Long Stop Date** to the extent the **Expert** considers necessary in light of the circumstances to accommodate the **Commissioning Proving Test**.
7. The **Provider** shall (at its own cost) be responsible for undertaking the **Commissioning Proving Test** but shall do so in liaison with the **Company** and without limitation shall give reasonable access to the **Company's** personnel and contractors to witness the **Commissioning Proving Test**. There is no obligation for the **Company** to attend the **Commissioning Proving Test** and the **Company's** failure to attend such testing shall not cause the **Commissioning Proving Test** to be failed. The **Provider** shall, as soon as reasonably practicable following completion of the **Commissioning Proving Test**, provide to the **Company**:
 - a. a certificate of the **Independent Engineer** certifying that the **EFR BM Unit** or **EFR System** has successfully completed the **Commissioning Proving Test** and that the **EFR BM Unit** and **EFR System** meets the **Frequency Response Service Specification**; or
 - b. any such reasonable additional evidence as the **Company** may reasonably require for the purposes of demonstrating performance of the **EFR BM Unit** or **EFR System** during the **Commissioning Proving Test**.
8. Where paragraph 7a applies, the **Commissioning Proving Test** shall be deemed to have been passed with effect from the issue of the **Independent Engineer's Certificate**. Where paragraph 7b applies, the **Company** shall use reasonable endeavours to notify in writing the outcome of the **Commissioning Proving Test** to the **Provider** as soon as practicable after completion of the **Commissioning Proving Test**, and in any event on or before 14:00 hours on the date that is twenty (20) **Business Days** after the later of (1) completion of the **Commissioning Proving Test** or (2) the date by which the **Provider** shall have delivered to the **Company** all test data derived from the **Commissioning Proving Test** (where the **Company** was not in attendance) and all such other evidence required and/or requested by the **Company** to enable it to make its decision for such purpose). The **Company's** notification shall include reasons to justify its decision whether or not it considers (acting reasonably) that the **EFR BM Unit** or **EFR System** has met the **Frequency Response Service Specification** and that the **Commissioning Proving Test** has been passed.
9. In the event that the **Independent Engineer** issues his certificate in accordance with paragraph 7a or the **Company** notifies the **Provider** in accordance with Clause 8 that the **Commissioning Proving Test** has been passed and the **EFR BM Unit** and **EFR System** meets the **Frequency Response Service Specification**, thereupon,

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that **EFR BM Unit** or **EFR System** may be utilised by the **Provider** for the **Enhanced Frequency Response** service.

10. In the event that the **Independent Engineer** does not issue his certificate in accordance with paragraph 7a or the **Company** notifies the **Provider** that the **Commissioning Proving Test** has been failed and that the **EFR BM Unit** or **EFR System** does not meet the **Frequency Response Service Specification**, then subject always to paragraph 11 the **Provider** shall as soon as possible respond to the **Company** with its reasons for the failure, and shall subsequently notify the **Company** in writing when the failure has been addressed, whereupon the provisions of paragraphs 4 to 9 inclusive shall apply in respect of any subsequent **Re-Test**.
11. Each **Party** shall bear its own costs in relation to the **Commissioning Proving Test** in relation to the **EFR BM Unit** or **EFR System** including, in the case of the **Provider**, the costs of any **Independent Engineer**). In relation to the second and any **Re-Test** the **Provider** shall be responsible not only for its own costs but also shall reimburse to the **Company** all the **Company's** reasonable costs reasonably incurred as a direct result of any **Re-Test**.
12. For the avoidance of doubt, each **Party** shall bear the risk of, and the other **Party** shall have no liability to the **Party** in respect of, loss and damage to that **Party's** plant or Apparatus caused during or as a result of any **Commissioning Proving Test** (save to the extent that such loss or damage is caused by that other **Party's** breach of its obligations under this **Agreement**).

PART 2 – PROVING TEST¹²

The **Commissioning Proving Test** and **Proving Tests** (including **Re-Tests**) throughout the term of this **Agreement** will be undertaken to test the ability of the **EFR BM Unit** or **EFR System** to meet the **Frequency Response Service Specification** based on the principles below:

- (A) Frequency injection tests using a number of offline frequency injection profiles to be agreed by the **Parties**
- (B) Monitoring of control signals in response to the injection profiles
- (C) Monitoring of active power of the **EFR BM Unit** or **EFR System** in response to the injection profiles
- (D) All data to be recorded at a resolution of 100Hz, otherwise test signals should conform to the requirements of Connection Condition 6.6.2 of the **Grid Code**, raw data to be provided to the **Company** as .csv files

¹² Some changes may be required to the principles in this Appendix 7, Part 2 for Aggregated Facilities

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- (E) Response of the **EFR BM Unit** or **EFR System** to be within the **Frequency Response Service Specification**
- (F) Assessment of the proportionality of the response from the **EFR BM Unit** or **EFR System** to the injected frequency signal in line with the **Frequency Response Service Specification**
- (G) Assessment of the time delay in delivering response from the injection signal, which includes the time that the frequency monitoring device takes to detect a frequency deviation plus the time for instructing a response and the time for the **EFR BM Unit** or **EFR System** to deliver the MW change in output in line with the **Frequency Response Service Specification**
- (H) Assessment of the sustainability and repeatability of response. Any such assessment to reflect that this **Agreement** requires the **EFR BM Unit** or **EFR System** to deliver against a minimum performance threshold over time (the **Service Performance Measure**) rather than for any specified duration
- (I) Assessment of the accuracy and stability of the response to ensure uniform delivery of output power
- (J) Simulations or simulated tests are not acceptable
- (K) For an **Aggregated Facility**, all testing must be done at the aggregated level and be for the whole portfolio

RESPONSE TABLE

Table 2

[Service 1]: dynamic frequency response (primary, secondary, high)				
Low frequency response				
δf_p (Hz)	Response delivered in primary timeframes (% of capacity)	Response delivered in secondary timeframes		
		$\delta f_s = -0.10\text{Hz}$	$\delta f_s = -0.20\text{Hz}$	$\delta f_s = -0.30\text{Hz}$
-0.10	11.11111	11.11111		
-0.20	33.33333	33.33333	33.33333	

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-0.30	55.55556	55.55556	55.55556	55.55556
-0.40	77.77778	77.77778	77.77778	77.77778
-0.50	100	100	100	100
Response delivered in high timeframes (% of capacity)				
frequency deviation from Target Frequency				
$\delta f_h = +0.10$ Hz	$\delta f_h = +0.20$ Hz	$\delta f_h = +0.30$ Hz	$\delta f_h = +0.40$ Hz	$\delta f_h = +0.40$ Hz
11.11111	33.33333	55.55556	77.77778	100



[Service 2]: dynamic frequency response (primary, secondary, high)				
Low frequency response				
δf_p (Hz)	Response delivered in primary timeframes (% of capacity)	Response delivered in secondary timeframes		
		$\delta f_s = - 0.10$ Hz	$\delta f_s = - 0.20$ Hz	$\delta f_s = - 0.30$ Hz
-0.10	17.52577	17.52577		
-0.20	38.1433	38.1433	38.1433	
-0.30	58.76289	58.76289	58.76289	58.76289

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-0.40	79.38144	79.38144	79.38144	79.38144
-.05	100	100	100	100
Response delivered in high timeframes (% of capacity)				
frequency deviation from Target Frequency				
$\delta f_h = +0.10$ Hz	$\delta f_h = +0.20$ Hz	$\delta f_h = +0.30$ Hz	$\delta f_h = +0.40$ Hz	$\delta f_h = +0.50$ Hz
17.52577	38.1443	58.76289	79.38144	100

For the avoidance of doubt, for a **Frequency Deviation** at a given time between the values given in the table above, the level of response shall be calculated by linear interpolation.

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APPENDIX 6

EMAIL FORMS

FORM A

PROVISION OF A FREQUENCY RESPONSE SERVICE

FORM FOR

AVAILABILITY REDUCTION NOTICE

We hereby notify you of the withdrawal of the **Enhanced Frequency Response** service from Facility []

Facility:
Explanation of reduction:
Operational Capacity reduced to (in MW):
Expected duration of reduction (in hours):
Affected Settlement Period(s):

Email Sent By (Print name): Date:
Time: Signature:

Acknowledged by National Grid (Print name):
Signature: Date: Time:
Email:.....

National Grid Control
Fax number: 0870 602 4805 Standby Fax: 0870 602 4802
Telephone: 0870 240 6961 Standby Telephone: 0844 892 0360

FORM B

PROVISION OF A FREQUENCY RESPONSE SERVICE

FORM FOR

RECTIFICATION OF CAPABILITY

We hereby notify you of the rectification of capability of the **Enhanced Frequency Response** service from **Facility:**

Explanation of Rectification:

Email Sent By (Print name): Date: Time:

Signature:

A. ACKNOWLEDGED BY NATIONAL GRID (PRINT NAME):

.....

Signature: Date: Time:

Email:.....

National Grid Control

Fax number: 0870 602 4805

Telephone: 0870 240 6961

Standby Fax: 0870 602 4802

Standby Telephone: 0844 892 0360

APPENDIX 7

Average Deemed Available Capacity and Service Performance Measurement

Part 1 – Calculation

Definitions

CC_j = the **Contracted Capacity** of the **EFR BM Unit** or **EFR System** prevailing in **Settlement Period j**, as reduced by any loss of capability to the extent caused by any **Relief Event** (other than an **NG Default Event**)

OC_j = the **Operational Capacity** of the **EFR BM Unit** or **EFR System** prevailing in **Settlement Period j**, as reduced by any loss of capability to the extent caused by any **Relief Event** (other than an **NG Default Event**)

\sum_s^j is the summation over each second s in **Settlement Period j**;

NR_s is the actual normalised response delivered at time s , measured in whole seconds, and is equal to $\frac{\text{Actual Response}_s}{OC_j}$

Actual Response_s is the actual response provided by the **EFR BM Unit** or **EFR System** being the change in **Active Power** from the **Baseline** of the **EFR BM Unit** or **EFR System**, as measured by **On-Site Metering/Monitoring Equipment**, from the **Grid Connection Point** at time s , measured in whole seconds;

AT is the accuracy threshold and is equal to 0.01;

Envelope Lower_s is a normalised response representing the **Frequency Response Service Specification** for the **EFR BM Unit** or **EFR System**, and corresponding to the locally measured **System Frequency** at time s , measured in whole seconds, and read from the **Envelope Lower** line defined in Appendix 8 (*Frequency Response Service Specification*);

Envelope Upper_s is a normalised response representing the **Frequency Response Service Specification** for the **EFR BM Unit** or **EFR System**, and corresponding to the locally measured **System Frequency** at time s , measured in whole seconds, and read from the **Envelope Upper** line as defined in Appendix 8 (*Frequency Response Service Specification*).

Calculation of Average Deemed Available Capacity

For the **EFR BM Unit** or **EFR System**, an **Average Deemed Available Capacity** (ADAC_j) per **Settlement Period**, for the purposes of determining the capacity in MW, will be calculated as follows:

$$ADAC_j = \text{zero where } CC_j = 0$$

Otherwise:

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$ADAC_j = CC_j$ if in **Settlement Period j** the capability of the **EFR BM Unit** or **EFR System** is adversely affected by an **NG Default Event**,

Otherwise:

$$ADAC_j = \frac{\sum_s^j OC_s}{1800}$$

Calculation of Service Performance Measure

$SPM_j =$ **Service Performance Measure** for **Settlement Period j**,

Where:

$SPM_j = 1$ if CC_j is equal to 0 or if in **Settlement Period j** the capability of the **EFR BM Unit** or **EFR System** is adversely affected by a **Relief Event**,

Otherwise:

$$SPM_j = \frac{\sum_s^j SBSPM_s}{1800}$$

Where $SBSPM_s$ is the second by second performance measure through **Settlement Period j**, and is calculated as:

$SBSPM_s = 1$ if the following are both true:

$$NR_{s+1} \geq \textit{Envelope Lower}_s - AT ; \text{ and } NR_{s+1} \leq \textit{Envelope Upper}_s + AT$$

Otherwise $SBSPM_s$ is calculated as follows:

If...	...then $SBSPM_s =$
$NR_{s+1} > \textit{Envelope Upper}_s$	Higher of $1 - abs(NR_{s+1} - \textit{Envelope Upper}_s)$ and zero
$NR_{s+1} < \textit{Envelope Lower}_s$	Higher of $1 - abs(NR_{s+1} - \textit{Envelope Lower}_s)$ and zero

Part 2 – Availability Payments

The **Availability Payment** will be calculated as follows:

$$AP_m = \frac{AR}{2} \sum_j^m (ADAC_j \times AF_j)$$

Where:

AP_m is the **Availability Payment** for calendar month m;

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- \sum_j^m is the summation over all **Settlement Periods** j in the **Service Period** for calendar month m;
- AR is the **Availability Rate** (£/MW/h);
- ADAC_j is as defined in Part 1 Appendix 7 (*Average Deemed Available Capacity and Service Performance* measure) (expressed in MW);
- AF_j is the Availability Factor per **Settlement Period** j, determined from the following table:

Where:

Service Performance Measure	Availability Factor
<50%	0%
≥50% <75%	50%
≥75% <95%	75%
≥95%	100%

APPENDIX 8

FREQUENCY RESPONSE SERVICE SPECIFICATION

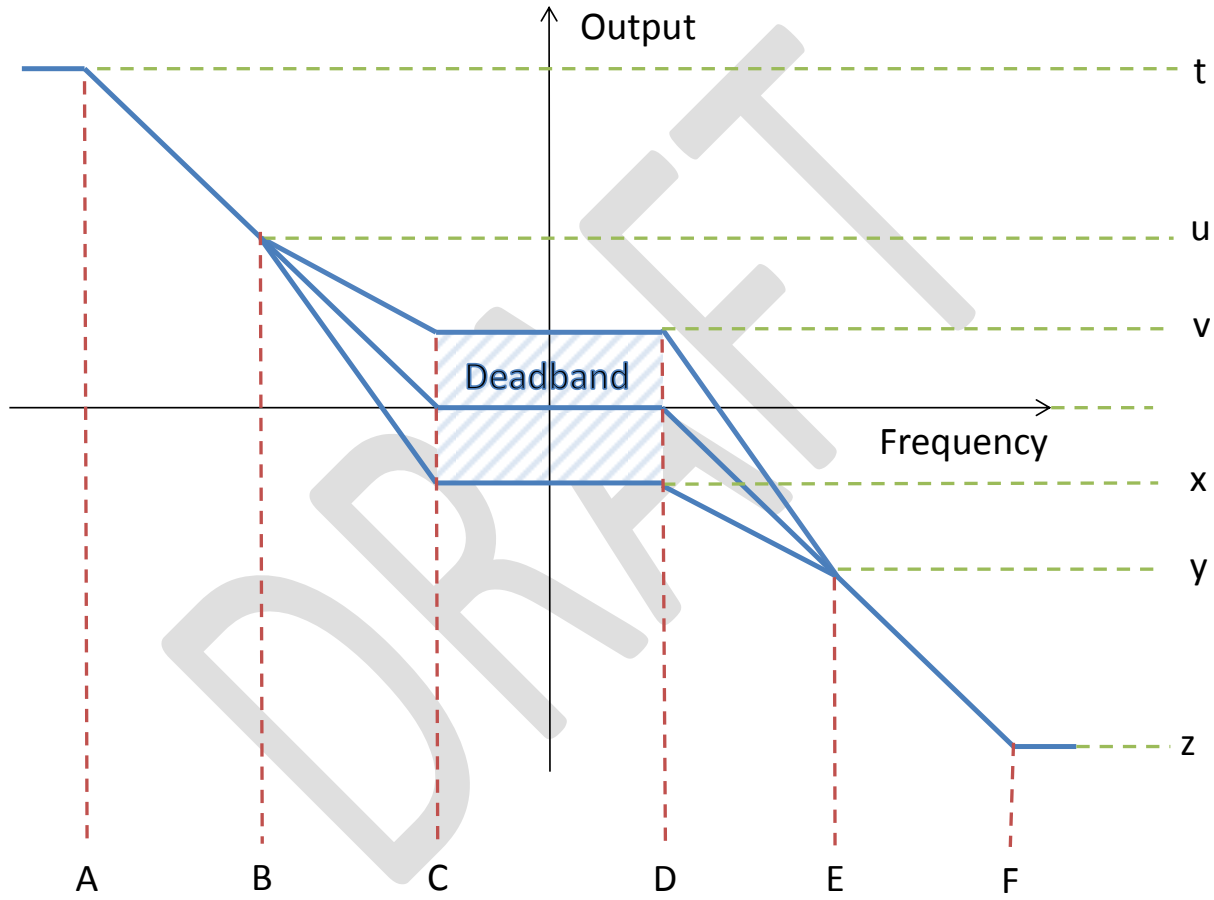
1. The **Frequency Response Service** shall be provided by reference to the **Service Envelope** set out as Figure 1 and Table 1 in Part 1, the response tables set out in Part 2 and the ramp rates set out in Part 3 of this Appendix 8.
2. In relation to a **Storage Facility**, the energy capacity of the **EFR System(s)** must be capable of operating at maximum charge or discharge for a continuous period of 30 minutes.

PART 1 – SERVICE ENVELOPE

Figure 1

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The envelope above, is determined in accordance with Table 1 below, represents the normalised level of response to be delivered by the **EFR BM Unit** or **EFR System** within 1 second of a local measured frequency deviation in accordance with this **Agreement**.

Table 1

At each value of **System Frequency**, the **Envelope Upper** and **Envelope Lower** are described as a percentage of capacity. All intermediate values should be linearly interpolated from these points.

Reference Point	[Service 1] (Hz)	[Service 2] (Hz)
A	49.5	49.5
B	49.75	49.75
C	49.95	49.985
D	50.05	50.015
E	50.25	50.25
F	50.5	50.5

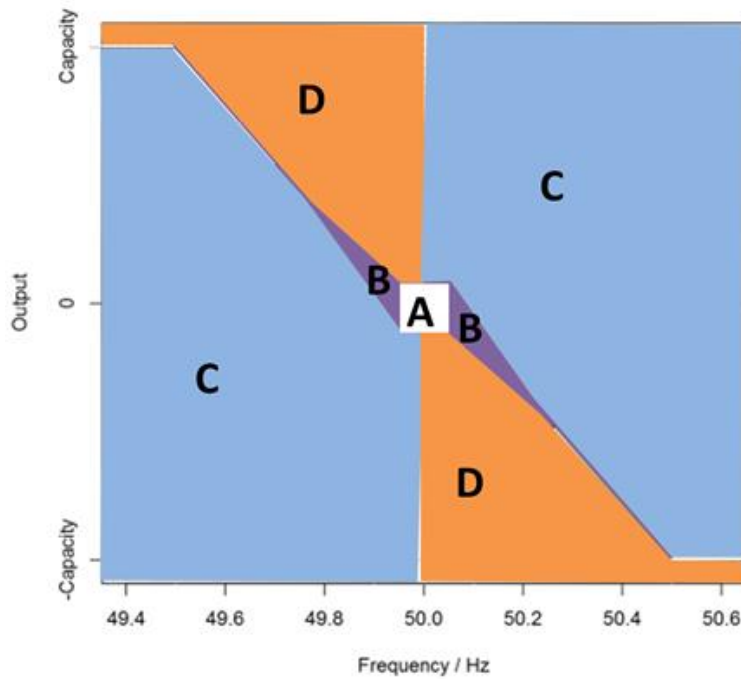
Reference Point	Service 1 (% Operational Capacity)	Service 2 (% Operational Capacity)
t	100%	100%
u	44.44444%	48.45361%
v	9%	9%
w	0%	0%
x	-9%	-9%
y	-44.44444%	-48.45361%
z	-100%	-100%

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PART 2 – RAMP RATES

Figure 2



1.1 For the shaded areas A, B, C and D, the ramp rate must comply with the following values, unless such compliance would result in a breach of the **Service Envelope**: (and the Company may undertake a Proving Test(s) to verify the ramp rate):

Table 3

Area	Maximum Ramp Rate as a percentage of Operational Capacity (MW/s)	Minimum Ramp Rate as a percentage of Operational Capacity (MW/s)
A	1%	0%
B	$\left[\begin{array}{l} \text{[Service 1} \\ \left(-\frac{1}{0.45} \frac{df}{dt} + 0.01\right) * 100 \end{array} \right]$ $\left[\begin{array}{l} \text{[Service 2} \\ \left(-\frac{1}{0.485} \frac{df}{dt} + 0.01\right) * 100 \end{array} \right]$	$\left[\begin{array}{l} \text{[Service 1} \\ \left(-\frac{1}{0.45} \frac{df}{dt} - 0.01\right) * 100 \end{array} \right]$ $\left[\begin{array}{l} \text{[Service 2} \\ \left(-\frac{1}{0.485} \frac{df}{dt} - 0.01\right) * 100 \end{array} \right]$
C	200%	0%
D	10%	0%

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- 1.2 For the avoidance of doubt, the inclusion of ramp rates C and D does not legitimise the operation of a **Facility** outside of the **Service Envelope**. Operation in these areas will result in adjustments to the **Availability Payment** through the **Service Performance Measure**. However, in such cases it is important to allow providers to return to the **Service Envelope** as fast as the system can allow, but no faster.
- 1.3 For clarity, ramp rate zone B is defined as being the area between the **Envelope Upper** and **Envelope Lower** described in Part 1 of this Appendix 10, excluding the **Deadband**, and therefore continues out to $\pm 100\%$ capacity.

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INDICATIVE DRAFT – SUBJECT TO CONTRACT

APPENDIX 9
AVAILABILITY RATE

Availability Rate, £/MW/h	
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APPENDIX 10

BANK DETAILS

The Company

Bank: Barclays Bank plc
Branch: 1 Churchill Place, London, E14 5HP
Account: National Grid Electricity Transmission plc
Sort Code: 20-00-00
Account Number: 10264113

The Provider

Bank:
Branch:
Account:
Sort Code:
Account Number: