

Firm Frequency Response (FFR) Development

Detailed Change Proposals Document (DCP-01)

23rd December 2011

nationalgrid

THE POWER OF ACTION

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Executive Summary

This Detailed Change Proposal (DCP) document is published in line with the Firm Frequency Response (FFR) Tender Rules and Standard Contract Terms (SCTs) Issue #4 published on the 1st April 2009. From time to time National Grid will review the SCTs and where areas for improvement are identified raise an OCP to implement changes to the document.

During recent months National Grid has reviewed the SCTs and identified a number of areas for improvement. These were discussed with the industry at a workshop on the 22nd August 2011. After considering the feedback received at the workshop, National Grid believed that there was value in taking forward a number of these changes through an Outline Change Proposal (OCP).

On the 28th October 2011 National Grid published an OCP which described a number of potential changes to the Firm Frequency Response Tender Rules and Standard Contract Terms (SCTs). Four responses were received to this OCP one marked as confidential.

Most feedback supported the changes although a number of suggestions were made as to how the performance monitoring proposals could be further improved. After consideration of these responses National Grid believe that on balance the proposals are an improvement to the current terms and have decided to implement the proposals.

This document outlines the proposed amendments to the SCTs and summarises and responds to the comments made on the OCP. The new SCTs, which will become effective on 1st May 2012, can be found on the Firm Frequency Response web page along with the OCP and the non confidential responses.

<http://www.nationalgrid.com/uk/Electricity/Balancing/services/frequencyresponse/ffr/>

Section 1

Introduction to the FFR Service

Firm Frequency Response (FFR)

1. National Grid has a licence obligation to control frequency within the limits specified in the 'Electricity Supply Regulations', i.e. $\pm 1\%$ of nominal system frequency (50.00Hz) save in abnormal or exceptional circumstances. National Grid must therefore ensure that sufficient generation and/or demand is held in automatic readiness to manage all credible circumstances that might result in frequency variations.
2. The requirement for Frequency Response varies depending on the time of year, week and day, being a function of the system demand profile at that time. National Grid procures this requirement from the mandatory frequency response market, bilateral agreements and Firm Frequency Response. FFR is procured via a monthly competitive tender process from both those who participate in the Balancing Mechanism (BM) and those who do not.
3. FFR is a contracted Balancing Service whereby the service FFR Provider delivers an automatic change in output as a response to the system frequency. There are two types of Frequency Response: Dynamic and Non Dynamic Response. Dynamic Frequency Response is a continuously provided service used to manage the normal second by second changes on the system. While Non Dynamic Frequency Response is usually a discrete service triggered at a defined frequency deviation.
4. The contractual provisions relating to the FFR service are contained in the Firm Frequency Response Tender Rules and Standard Contract Terms Issue #4 which is available on the National Grid website.¹ Any developments implemented as part of this review will be incorporated into Issue #5.

Outline Change Proposal

5. Paragraph 1.2 of the FFR Standard Contract Terms obliges National Grid to review the SCTs from time to time, and where at any time National Grid wishes to propose one or more amendments, then it may do so by formulating an Outline Change Proposal (OCP), the contents of which shall include without limitation:-
 - i) the rationale for the amendment(s), including whether or not required as a result of a Proposed Legal Requirement or Change in Law;
 - ii) if applicable, details of the Proposed Legal Requirement or Change in Law; and
 - iii) the Proposed Implementation Date.
6. Each OCP shall be notified by National Grid to all signatories of FFR Framework Agreements (FFR Providers) in writing, giving a reasonable opportunity and, in any event, not less than 10 Business Days to review and provide National Grid with written comments. National Grid shall then consider in good faith, any written comments submitted by the Provider and shall, insofar as is reasonably practicable, address such comments in any Detailed Change Proposal (DCP).

¹ http://www.nationalgrid.com/NR/rdonlyres/CD646068-51A3-4C02-84B3-35F45A8B41E4/33114/FFR_Standard_Terms_and_Conditions_v4.pdf

Detailed Change Proposal

7. If National Grid decides to implement an OCP, then it shall formulate a DCP, which shall specify a Final Implementation Date and shall be accompanied by a copy of the SCTs with the amendments specified in the DCP incorporated.
8. National Grid's decision to implement the proposals will be made within 20 Business Days of notification by National Grid of the OCP or the OCP shall be deemed to have been withdrawn. Each DCP shall be notified by National Grid to all FFR Providers in writing as soon as reasonably practicable and in any event within 20 Business Days of notification by National Grid of implementation of the OCP.
9. Amendments to the SCTs set out in a DCP notified by National Grid shall become effective from the Final Implementation Date, whereupon amendments shall be incorporated automatically into each FFR Framework Agreement so as to apply to all subsequent FFR Tenders and to all subsisting FFR Contracts.
10. With respect to a DCP, each and any affected FFR Provider may, no later than 15 Business Days after notification by National Grid of that DCP, elect by notice in writing to National Grid, to either:
 - (a) reject the application of such amendments to each of such Affected FFR Contracts provided that such rejection is accompanied by a statement of the reason why, in the reasonable opinion of the Affected FFR Provider, such rejection is being made; or
 - (b) where the Affected FFR Provider is of the reasonable opinion that the net cost to it of providing Firm Frequency Response and/or complying with such Affected FFR Contract(s) has increased as a result of such amendments, seek an increase to any or all of the Contract Prices in respect of each of such Affected FFR Contracts.

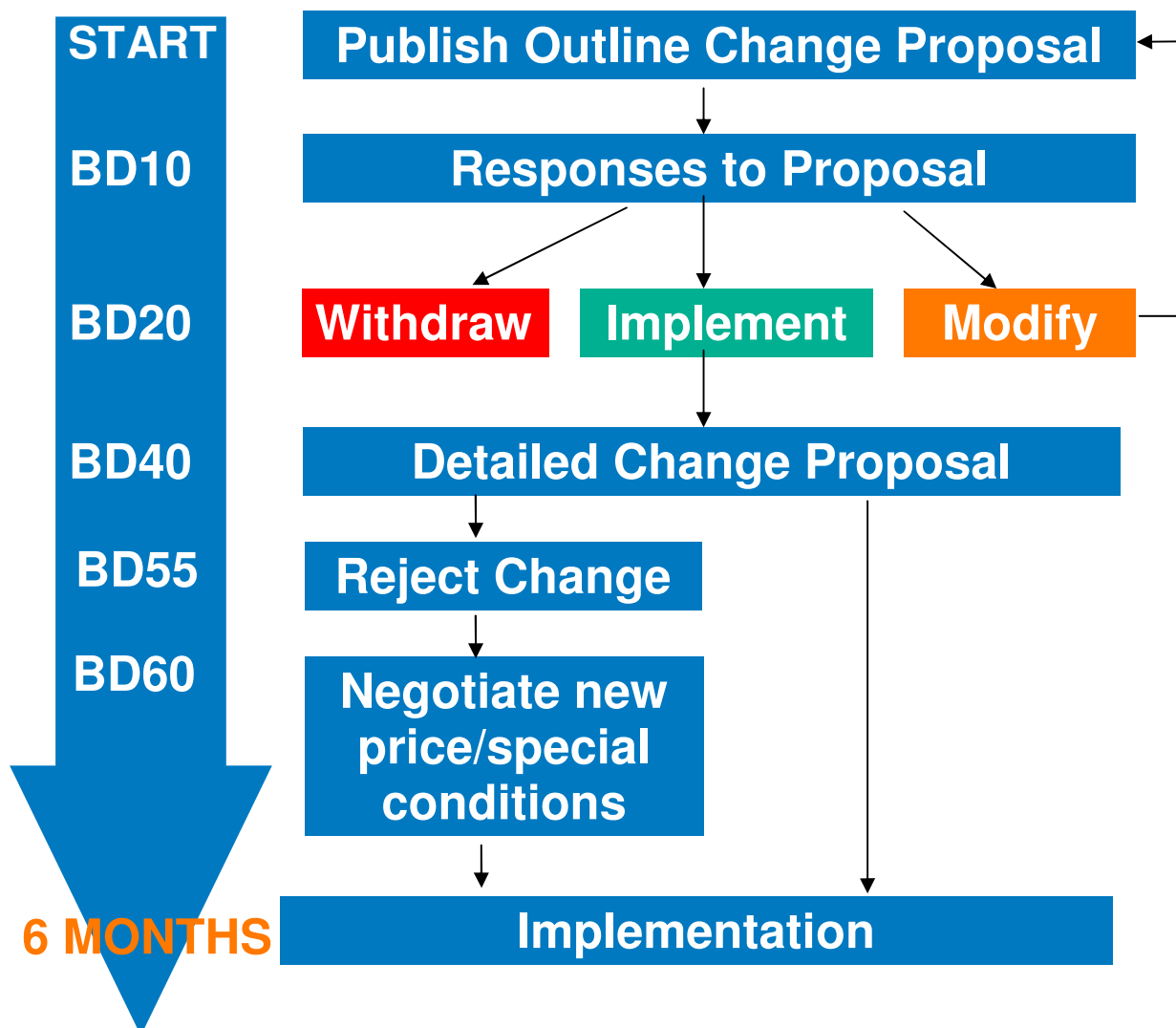
Implementation

11. On 28th October 2011, National Grid published OCP-01. On 25th November 2011, National Grid announced its decision to implement the proposals. This DCP-01 takes into consideration the 4 industry responses received to OCP-01 and details those elements of the OCP that will be taken forward for implementation. The required amendments to the SCTs are published on the Balancing Services website. These changes will be implemented through Issue #5 of the SCTs and will become effective from 1st May 2012. This version of the SCTs will supersede Issue #4.
12. None of the amendments proposed in this DCP are considered by National Grid to be required as a result of any Proposed Legal Requirement or Change in Law.
13. It should be noted by FFR Providers and other interested parties that this DCP, in so far as it summarises the SCTs, is intended for guidance only and should not be relied upon, and FFR Providers and other interested parties are directed to the SCTs available on the Balancing Services website.

Section 2 Amendment Process

14. The current process for amending the SCTs was introduced into paragraph 1.2 of the SCTs following the 2008 FFR Review. Consequently, this review is the first time the process has been used for FFR. A similar process was implemented for both Fast Reserve and STOR. The STOR terms have been updated twice since the new amendment process. During the first use of the process potential areas for improvement were identified, particularly with regards to the timescales associated with some parts of the process. During the second review changes to improve the process were proposed and implemented. A high-level summary of the FFR change process and the key timescales is included in Figure 1 below.

Figure 1 - Summary of process and timescales for amending SCTs



15. Following publication of an OCP, sub-paragraph 1.2.4 of the SCTs obliges National Grid to give all Providers a reasonable opportunity and, in any event, not less than 10 Business Days, to review and provide National Grid with written comments on the content of that OCP.
16. Whilst the drafting indicates that there may be scope for National Grid to provide in excess of 10 Business Days for a Provider to respond with written comments, sub-paragraph 1.2.5 of the SCTs then dictates that where National Grid fails to make a decision as to withdrawal, modification or implementation of that OCP within 20 Business Days of its publication, then the OCP it shall be deemed to have been withdrawn with immediate effect.
17. Very little scope is therefore provided for a period in excess of 10 Business Days to be afforded to Providers, whilst furthermore, it limits National Grid to a maximum of 10 Business Days to give due consideration to all of the points raised in response to the OCP prior to deciding to either withdraw, modify or implement it via the publication of a DCP.
18. In view of this, National Grid proposed that the SCTs should be amended to provide for a minimum of 20 Business Days for a Provider to respond to an OCP. This proposal is consistent with the current 28-day period (including non-Business Days) which industry respondents have to respond to CUSC Amendment Proposals and proposed modifications to the suite of Charging Methodologies. The proposal is also consistent with the changes already made in the STOR SCTs.
19. Following this, National Grid also proposed that a further 20 Business Days should be provided for National Grid to give consideration to all of the issues raised by Providers in their responses, which would therefore extend the overall timescales associated with National Grid's decision to proceed with a DCP to 40 Business Days subsequent to the publication of the OCP.
20. Sub-paragraph 1.2.10(a) of the SCTs sets out the process for the rejection of Detailed Change Proposals to subsisting FFR contracts. This process allows Affected FFR Providers a period of 15 Business Days after publication of a DCP to notify National Grid that it wishes to reject the application of those changes to a subsisting FFR Contract. Sub-paragraph 1.2.13 of the SCTs then allows 5 Business Days for National Grid and an Affected FFR Provider to negotiate in good faith, amendments to the FFR Framework Agreement by way of Special Condition(s) in order to negate the impact of a DCP with respect to the FFR Contract in question such that the FFR Provider is in no better/worse position after the coming into effect of the DCP than it would have been had that DCP not come into effect. In the event that no such agreement is reached within that period of 5 Business Days, then the matter(s) may be referred to Expert Determination.
21. Similarly, sub-paragraphs 1.2.10(b) and 1.2.16 of the SCTs provides the same timescales for an increase in contract prices to be negotiated in limited circumstances to reflect any increase in net costs of the FFR Provider.
22. National Grid considers that a period of 5 Business Days is insufficient time for these issues to be negotiated and resolved consequent upon a DCP. National Grid therefore proposed to increase the timescales to 20 Business Days to facilitate the possibility of a successful resolution.

23. Sub-paragraph 1.2.11 of the SCTs specifies that the FFR Provider may only seek an increase in contract prices consequent upon a DCP in limited circumstances. Where those circumstances do not apply, and the FFR Provider is unable to reject the application of the DCP to a subsisting FFR Contract (because the DCP reflects a change in law), then it is proposed that the FFR Provider should be entitled to terminate the FFR Contract. A new termination right was therefore proposed for the FFR Provider, to be included in the termination provisions of the SCTs.

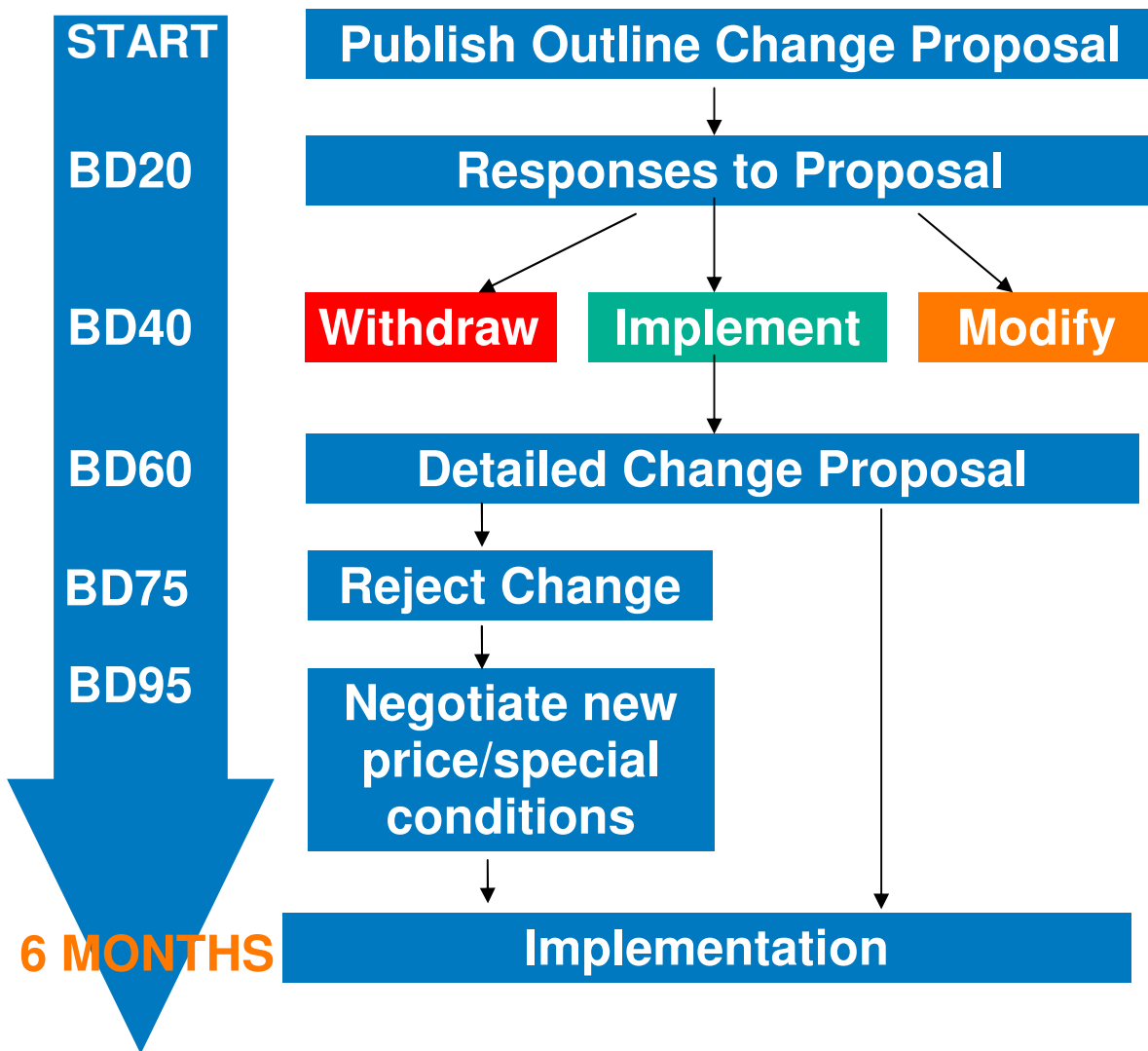
Responses to OCP-01

24. All respondent supported the proposals for changes to the amendment process. Respondents believe the increase in timescales is in line with other industry processes. One respondent noted that in the Code Administrator Code of Practice the standard consultation period should be a minimum of 15 Business Days. They consider that in light of the detailed nature of the issues required of FFR Providers it seems appropriate to extend the period to 20 Business Days. One respondent suggested that where further details may need to be provided (e.g. a detailed procedure to implement a policy) the consultation time limit will need to start from the point at which all relevant information is available i.e. the procedure for a policy will need to be available at the same time as the OCP is published.
25. With regards to the time National Grid have to consider the responses, all respondents believed this to be appropriate. One respondent highlighted that it provides National Grid with a long enough period to properly consider the response, gain clarity on any issues raised and contact the respondents should the need arise.
26. Respondents considered that increasing the time to negotiate special conditions or a change in contract prices from 5 business days to 20 business days would increase the likelihood of a more satisfactory outcome for both parties. One respondent noted that current timescale for arriving at a mutually agreeable position is unrealistic for both sides - and presumably especially for National Grid who, in a 'worst case', may have to negotiate with all the counter parties.

National Grid's Proposals

27. Given the support for these changes National Grid will implement the proposals in full in issue #5 of the SCTs. These will become effective on the 1st May 2012 so any amendments proposed after this date will follow the new process. The new process is detailed in a diagram on the following page.

Figure 2 - Summary of new process/timescales for amending SCTs



Section 3

Tender Dates

28. The current Tender Dates are unnecessarily complex and have the potential to cause confusion. There are two separate Market Days each month depending on the length of the tender, the results of the tender are released separately to the window nominations, and providers tendering long term could receive a window nomination before their tender has been officially accepted or rejected. Table 1 describes the current tender dates.

Table 1 - Current Tender Dates

Business Day	Action
BD1	Market Day for Single Month and Long Term Tenders
BD3	Market Day for Short Term Tenders
BD5	Tender Report
BD10	Results Day
BD14	Window Nomination
BD15	Results Day for Long Term Tenders

29. The tender rules are covered in Section 2 of the SCTs and the nomination process is described in paragraphs 3.2.1, 4.2.1 and 4A.2.1. The tender rules are necessary to ensure there is a clear structure to the tender and that all providers are treated equally. A tender may be considered invalid if the tender rules are not followed.

30. Single Month and Long Term tenders must be received by Business Day (BD) one each month and Short Term tenders must be received by Business Day three each month. This can cause confusion with tenders arriving on the wrong day or the tender envelope not being clearly marked with the length of the tender. Each of these has the risk of a tender being considered invalid.

31. Another complexity is that the results of the tender are released separately to the window nominations. On Business Day ten providers are notified whether their tender has been successful. This notification does not define the windows during which the FFR Provider will be nominated to provide the service. The service windows are nominated on Business Day fourteen. This gap in dates leaves providers in the position where they know they have been accepted for FFR but they have not had confirmation of the time or duration which they will be required to provide the service.

32. The process for Long Term tenders requires tenders to be submitted on the first day of the calendar month. They must be submitted at least three months ahead of the month in which a FFR Provider wishes to start delivery the service. During the process alternative tenders are invited this means that results are not published until Business Day fifteen in the month preceding the service month.

33. Where a FFR Provider has tendered for a Long Term Tender starting in the earliest possible month, they would receive the nominations for their first month ahead of receiving the results of the tender. This is because Window Nominations are made on Business Day fourteen however the Results Day for long term tenders is on Business Day fifteen.

34. With these issues in mind National Grid proposed in OCP-01 to simplify the Tender Dates so that the Market Day for all tenders is the first Business Day of the month and that both the results and window nomination are announced on the twelfth Business Day of the month for all tenders.

35. Under this process all tenders will be received on Business Day one this will allow tenders of different lengths to be sent in a single envelope and avoid confusion between dates. Providers will receive the results and, if they have successful tenders for the subsequent month, their first window nomination on the same day.

Responses to OCP-01

36. All respondents believed that the proposed simplification of the tender dates is appropriate.

National Grid's Proposal

37. Given the support received in the responses National Grid intend to implement this proposal in full. Table 2 describes the new tender dates which will be effective from 1st May 2012.

Table 2 - New Tender Dates

Business Day	Action
BD1	Market Day for all tenders
BD3	Tender Report
BD12	Results Day for all tenders and Window Nomination

Section 4

Tender Sheet Simplification

38. The Tender Sheets for dynamic providers request that providers tender the “Maximum Response Energy Deliverable”. The OCP proposed removing this value from the tender sheets as it is a duplication of information already provided in the Framework Agreement and can in some circumstances be misleading.
39. The contracted level of response is already held in Providers’ Framework Agreements in the capability matrix. Where a BM FFR Provider tenders in a single part load point the maximum response deliverable is simply the response at that part load point. Where a BM FFR Provider tenders a range of part load points the tender is assessed against the minimum response capability so requesting the maximum figures to be included on the tender sheets is misleading.
40. It was proposed that the requirement to provide Maximum Response Energy Deliverable on the tender sheets be removed for BM units and simplified for non BM units. For BM units the tendered Frequency Response will be derived from the tendered part load point(s), MEL and the Frequency Matrix for the unit in the Framework Agreement. For non BM units a FFR Provider will be required to indicate whether they are providing Primary, Secondary and/or High response and the amount tendered at 0.5Hz deviation. These values will be used with reference to the matrix in the Framework Agreement to work out the full scope of the tendered response. This simplification of the tender sheets requires changes to section 2.3 of the SCTs and an update to the proforma pack.
41. To ensure the level of response tendered is transparent to all providers, the Tender Reports will include the level of Frequency Response derived from the matrix in the Framework Agreement. To make sure the Tender Report more accurately reflects the level of response used in the assessment where a range of part load points have been tendered the minimum capability will be included in the report. This requires changes to section 2.6 of the SCTs.
42. The aim of this change is to reduce the potential for providers to submit invalid tenders by avoiding the duplication of information and to remove the confusion caused by requesting the maximum response energy when in some cases this will not be the capability which the tender is assessed against.

Responses to OCP-01

43. All respondents considered the removal of maximum response capability from the tender sheets to be an appropriate simplification. One respondent voiced their reservation that a tender may be assessed using incorrect capabilities as the FFR Provider would not be in control of supplying the relevant response volumes. They suggested it would be worth adding a clause that allowed the FFR Provider to dispute volumes (if necessary) on publication of the tender report and subsequently ahead of the tender being assessed.
44. All respondents considered that publishing the minimum response energy for units which have tendered a range of part load points in the Tender Report is appropriate.

National Grid’s Proposal

45. Given the support from the respondents National Grid intends to implement this proposal in full. To ensure the correct capabilities are used, capabilities will be taken from the Framework Agreement. The FFR Provider will still be in control of supplying the relevant response volumes and ensuring these are up to date in the Framework Agreement.

46. A point where the data is checked will be removed from the process. Rather than National Grid checking what has been tendered against the Framework Agreement we will simply look up the number in the Framework Agreement. There is potential for this to increase the likelihood of typos so National Grid agrees with the respondent that FFR Providers should be allowed to question volumes published in the Tender Report if necessary.
47. Along with changes to the SCTs, a new proforma pack which will be effective from the 1st May 2012 has been published on the FFR website to implement the above change. From May 2012 the response energy in the Tender Reports will reflect the minimum response energy.

Section 5 Performance Monitoring

48. The current terms for performance monitoring could benefit from clarification, development and alignment. There are some aspects of the monitoring which are not clear and so provide neither the FFR Provider nor National Grid certainty on how monitoring should be performed and how this affects payments.
49. National Grid proposed to update the principles for performance monitoring in the FFR Standard Contract Terms and to provide additional clarification in a Performance Monitoring Explanation document. The revised SCTs will reference the Performance Monitoring Explanation document and where it can be found. The document will explain in more detail the process used to calculate performance measures.

Current Methodology in Standard Contract Terms

50. The methodology for performance monitoring is covered in sections 3.14, 4.14 and 4A.14. The methodology currently described in the standard contract terms can be summarised as follows:
- The methodology uses second by second spot data derived from operational metering to assess the amount of response delivered.
 - For dynamic providers, the required response level is calculated from second by second spot values derived by linear interpolation from the response capability matrix. Over a sample period, each second by second spot value is summed up to give a total response delivered and a total response expected. The ratio of these total values is used to calculate a Percentage Performance Measure (PPM).
 - For non dynamic providers the required response level is the contracted value of Automatic Response Energy Deliverable and the delivered response is the minimum difference between the units output before the incident and its output during the period the unit is expected to respond. The ratio of these values is used to calculate a Percentage Performance Measure (PPM).
 - For BM units where the PPM is less than 70%, Nomination, Availability and Window Initiation fees can all be set to zero for the window in question.
 - For non BM units the PPM is converted to a Performance Factor (PF) using the table below. The PF is used to calculate the deduction of the payments for the entire calendar month.

Table 3 - Conversion of Percentage Performance Measure to Performance Factor

Percentage Performance Measure	Performance Factor
<10%	100%
≤10%, <60%	50%
≥60%, <95%	25%
≥95%	0%

Issues with Methodology

51. There are a number of issues which make this methodology difficult to implement fairly:

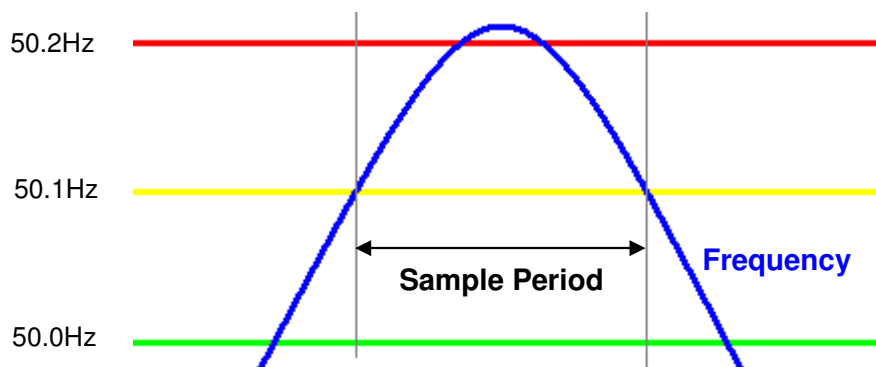
- **The duration over which the performance should be monitored is not defined.** For Dynamic providers, a unit could be assessed over any period and be found to be under performing. The payment would then be removed for the whole window or reduced for the whole month. In order to improve the methodology National Grid should define the period which would be sampled.
- **The methodology for dynamic monitoring is not clear on whether low and high frequency response are treated separately.** As high and low frequency response require the unit to change its output in opposite directions it needs to be clear how response is calculated to ensure that the measured high frequency response does not cancel out the low frequency response. If these are not treated separately over a period where the frequency averages at 50Hz a unit providing no response would be measured the same as one providing full response.
- **There is no escalation if a unit repeatedly under performs.** Each underperformance incident is treated as a separate event and the route to terminate the contract for repeated issues is not clear.
- **The methodology is different for BM and non BM providers.** Unless there is a good reason to treat BM and non BM providers differently, both should be treated similarly to ensure fairness. Currently there is a significant difference in the impact on payment between types of FFR Provider.

Dynamic Response - Proposed Methodology

52. In order to resolve these issues a new methodology was proposed which will require changes to sections 3.14 and 4A.14 in the SCTs:

- Where National Grid has uncertainty over the performance of an FFR unit its performance will be monitored during incidents.
- Each month National Grid will monitor the unit's performance during at least four events where the frequency has exceeded the operational limits.
- The sample period will start when the frequency goes outside of 50.1 or 49.9 and will end when the frequency returns to this level (Up to 30 minutes).

Figure 3 - Proposed Sample Period

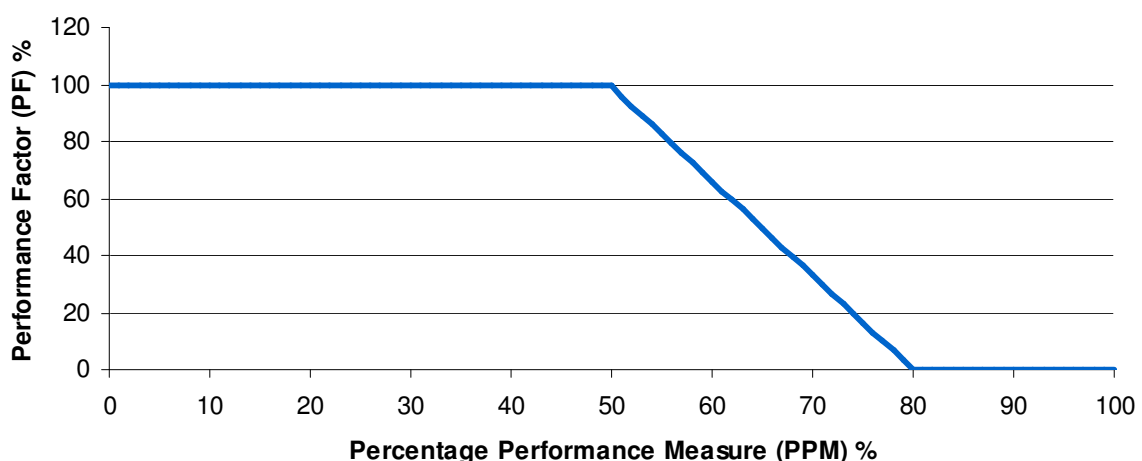


- Second by second spot data will be collected from the operational metering over this sample period.
- The capability matrix and the frequency will be used to calculate second by second spot values which will be added together to give a total value of response expected.
- Each second the response delivered will be compared with the expected delivery if the unit has delivered more response than expected it will be capped. The capped delivery each second will be summated to give a total value of response delivered.
- The ratio of the capped delivered response and the expected response will be used to give a percentage performance measure.
- The deduction to the payment for the window would be based on a performance factor calculated using the bands in Table 4. Any unit where the PPM is less than 50% will have 100% deducted so receive no payment for that window. Any unit where the performance is greater than or equal to 80% will have no deduction so receive the full payment. Between 50% and 80% there will be a linear sliding scale of payment.

Table 4 - Proposed Conversion of Percentage Performance Measure to Performance Factor

Percentage Performance Measure	Performance Factor
<50%	100%
≥ 50%, <80%	$PF = -3.33PPM + 264.4$
≥ 80%	0%

Figure 4 - Proposed Conversion of Percentage Performance Measure to Performance Factor

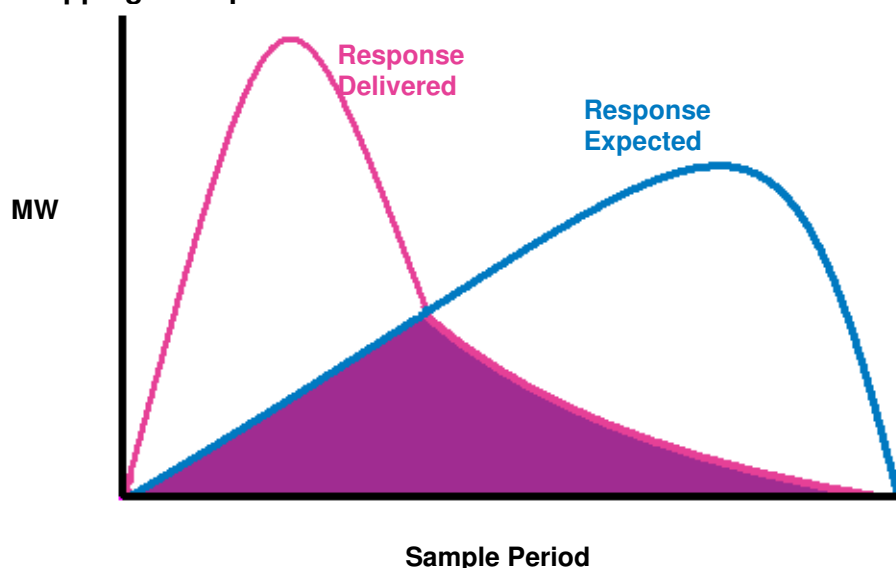


- The deduction would apply to all payments relevant during that nominated window apart from the Response Energy Payment. An example of how this could work in practice is provided in Appendix One.

- If the performance were under 80%, an EoD will be incurred. Each EoD will cause the total monthly payment to be reduced by 5%.
- Where in the previous three months the unit has had more than three events of default National Grid will have the right to terminate the contract.
- This methodology will be applied to both BM and non BM providers.
- The core principle of the methodology will be contained in the SCTs however a separate Performance Monitoring Guidance document will be published to make the methodology more transparent.

53. This methodology is based around the monitoring of performance during frequency incidents. The provision of dynamic response is important both during times when the frequency is deviating within operational limits and during incidents where the frequency has a large deviation. This approach has been chosen because during a period where there is a large deviation National Grid is likely to get a clearer and more accurate view of whether a unit has responded as contracted. This does not mean response to small deviations is of less importance.
54. Four incidents where the frequency deviates outside operational limits are considered to be a representative sample to get an indication of a unit's performance within the limits of the systems which are currently used. This methodology is not perfect as depending on the incidents selected it could show a unit's response in a more or less favourable light than had other incidents been chosen. It should however pick up if a unit has an ongoing issue with response provision and incentivise providers to deliver the contracted response at all times.
56. The methodology uses capping. This is included because in some circumstances a FFR Provider may over deliver in one part of the sample period but under deliver in another. This will generally mean that the unit is not following the frequency as National Grid would expect. To ensure that units with such an issue are flagged by the methodology the output is capped.
57. In the example below if capping did not take place any response delivered under the pink line would be included in the measurement which could lead to the response over the period appearing acceptable. However the response has not followed the frequency. If capping is introduced only the purple area is taken into account. The purple area gives a better indication of whether the unit is providing response as expected.

Figure 5 - Capping Example



58. A full payment is provided for delivery over 80% this is not intended to indicate that only 80% delivery is expected. This value is included to give some level of allowance to take into account the inherent difficulties with completely defining the performance. Given these inaccuracies the 80% threshold should ensure National Grid does not penalise providers unduly.
59. Anything below 50% receives no payment for the window. This level of under performance has the potential to cause significant issues in our ability to restrain a frequency deviation and manage the system.
60. In between these two key thresholds there is a linear scale. This is proposed after feedback at the workshop which suggested the large step changes in the banded approach currently used for non BM providers are unpopular. The advantage of the linear scale is that there are no step changes however it may give a false sense of accuracy to the calculation.
61. The introduction of events of default for specific occurrences of under performance aims to clarify the escalation route should a FFR Provider repeatedly under perform. This will require changes to section 3.7, 4A.7,3.15, 3A.15 and the annexures to sections 3 and 4A.
62. At the FFR Review a number of providers wanted to ensure the methodology was transparent. It is proposed that a more detailed description of the methodology is included separately to the terms. This document could also include figures in the methodology which will need updating as the characteristics of the system change moving forward.

Non-Dynamic Frequency Response

63. The Methodology for monitoring non-dynamic frequency response is proposed to remain the same. Given the more black and white nature of non-dynamic response this methodology is already simpler and clearer. This section may be an area for future reviews once National Grid has more experience of such contracts.

Responses to OCP-01

64. The respondents indicated that parts of the proposed under performance monitoring methodology were an improvement to the current methodology. The respondents also suggested various areas where further clarification and development would be useful.
65. Some respondents suggested that it would be appropriate to apply the same performance monitoring methodology to both FFR and Mandatory Frequency Response.
66. Several respondents considered that National Grid should notify a FFR Provider at its earliest opportunity if it believed a unit was under performing. One respondent considered that dialogue with the FFR Provider should be first stage in the process, then the FFR Provider should be formally notified. It was suggested penalties should be applied after formal notification.
67. One respondent suggested the criteria for starting monitoring should be clear to avoid the potential for discrimination. They also considered that it was important to be clear on how long the monitoring would continue for. They suggested that it should last for either one month or for four events of default where the frequency has exceeded operational limits.
68. There were several comments on the samples used for monitoring. Some providers suggested more than four incidents should be used to gain a more accurate representation of a FFR Provider's performance. One respondent noted the sample period could result in a short period leaving little margin for error and that it should be able to demonstrate correct

calibration of the monitoring equipment. Another FFR Provider suggested the sample period should be a minimum of 120 seconds.

69. There were also a number of comments on the penalties applied. One respondent suggested the payment should be reduced for four hours not the whole window as National Grid choose the length of the window. Some providers suggested a 5% penalty for any event of default was too significant. One respondent cautioned National Grid to consider that if providers of frequency response are not receiving payment for a service they are providing (if only in part) then they will, presumably, seek either (i) to rectify their performance (a very desirable outcome) or (ii) withdraw from this sector of the market (a very undesirable outcome). National Grid should recognise that there maybe a fine line between (i) and (ii).
70. Some respondents suggested that there should be an appeals process to follow if a FFR Provider disagreed with the penalty. Some respondents also noted that termination of the contract should only be considered as a last resort.
71. The majority of providers supported the introduction of a Performance Monitoring Guidance Document. One respondent considered that it will need to be part of the SCTs if there is a link to penalty provisions.

National Grid's Proposals

72. National Grid considers the proposed methodology for performance monitoring an improvement to the current methodology. Given the comments received National Grid considers it is appropriate to implement the proposals but look to address the concerns and suggestions made by the respondents.
73. Performance monitoring takes place for both Mandatory Frequency Response services and FFR. The monitoring which initially picks up poor performance is the same for both types of provider. Any underperformance in the mandatory market is treated as a compliance issue and dealt with appropriately under the Grid Code. This would generally involve further monitoring and where appropriate the use of a Limited Operational Notification.
74. However under FFR a provider has made a firm commitment to provide the service over a certain period and National Grid has made a firm commitment to pay for that service. Any underperformance is a breach of that contract and should be dealt with accordingly. Where the contracted service has not been fully delivered the payment for that service should be reduced.
75. Where, by underperforming under FFR, a provider is also demonstrating a compliance issue the contractual process and the compliance process will work hand in hand.
76. Payment penalties for mandatory performance are considered under the CUSC however an online monitoring system will need to be developed before payment penalties are applied. Given the number of units providing mandatory frequency response it would be unfeasible to apply penalties without an online system. As systems are upgraded it should become feasible to have online monitoring. When this is implemented it will be appropriate to consider reviewing the FFR performance monitoring methodology.
77. Where a provider is underperforming it is custom and practice for National Grid to inform that provider, typically in writing with the accompaniment of evidence, of the underperformance. National Grid agrees it is appropriate to enter into a dialogue with regards to these issues in a timely manner. National Grid also agrees with the respondents that penalties should not start to be applied until after the provider has been notified.

78. The performance of all units providing response is done through spot checks by the control room. The criteria for starting monitoring will be similar to that of the monitoring itself. Performance will be monitored during some frequency excursions and any units found to be under performing will be flagged. The monitoring will continue until the provider has proved its performance by delivering greater than 80% in each on incident monitored in a calendar month.
79. National Grid continues to believe that four incidents is an appropriate minimum number to monitor the performance of providers. A provider should deliver the service in all windows so under delivery in any window is an issue. The specific level of underperformance in each window will only affect the payment for that window. Where the under performance is less than 80% an EOD will be applied to the payment for the whole month. Dialogue between National Grid and the provider should determine whether further monitoring is required to help resolve the underperformance issue.
80. Penalties will only be applied where National Grid believed that the monitoring equipment to be calibrated correctly. To ensure the sample period is not so short that units with an allowable lag in their response are not unduly penalised National Grid agrees that a minimum sample period of 120 seconds is appropriate for the purposes of reducing payment.
81. The percentage of payment which will be deducted for each Event of Default was originally proposed at 5%. A number of respondents considered this value to be too penal. It is difficult to calculate a value which will give the correct incentive to a provider to perform without unduly increasing the potential risk on any provider.
82. National Grid believes there would not be significant risk on any provider who consistently delivers. Even where a provider under delivered once they would not be penalised as this first event would be the trigger for further monitoring. Whilst we believe these risks to be low we do not wish to put providers off tendering for FFR and propose to reduce this figure from 5% to 2%. As it is difficult to determine the appropriate level of incentive this value may need to be reconsidered during the next annual review.
83. There is already an appeals process in place in section 5.2 and 5.9 of the current SCTs to be followed where a provider believes that their payment is incorrect. National Grid believes this would be the appropriate route through which to appeal any penalty applied for underperformance.
84. National Grid agrees that termination of the contract should be as a last resort. The terms regarding termination in relation to this type of event of default should obligate National Grid to use reasonable endeavours to discuss with the FFR Provider the circumstances giving rise to the relevant events of default before deciding whether to exercise its right to terminate the agreement.
85. Some details of the performance monitoring described in this section will be described in a Performance Monitoring Guidance Document which will be published on the National Grid website. Fundamental changes to the penalties and the inclusion of the event of default will be included in Issue #5 of the SCTs.

Section 6 Other Issues

Bribery Act Clause

86. National Grid is committed to the prevention, deterrence and detection of fraud, bribery and all other corrupt business practices. National Grid has zero tolerance toward such behaviour. Losses due to fraud, bribery and all other corrupt business practices can be more than just financial in nature; they can potentially damage the company's reputation as well. The reputation of National Grid for lawful and responsible business behaviour is of paramount importance and is one of its greatest assets³.
87. National Grid has developed a standard Bribery Act Clause to further affirm our commitment to the prevention and detection of fraud. It was proposed that this Bribery Clause be included in the FFR Standard Contract Terms.

Responses to OCP-01

88. All respondents supported the inclusion of a Bribery Clause in the FFR Standard Contract terms. The inclusion is considered reasonable, acceptable and provides clear direction to both parties on what is not tolerated. One respondent noted that the inclusion (or absence) of such a clause would not, of course, absolve them of their legal obligations to comply with the Act. Another respondent noted that they would support the inclusion of this clause in all other balancing services contractual terms.

National Grid Proposals

89. National Grid intends to implement this inclusion fully and the clause will be included in version #5 of the Standard contract terms. National Grid notes that a similar clause is gradually being included in other balancing contract terms.

Formation of FFR Contracts

90. National Grid notifies each provider in writing to communicate whether a tender has been accepted. This is done through a Tender Acceptance and/or Tender Rejection letter. The issuing of a FFR Tender Acceptance letter constitutes a legally binding contract between the FFR Provider and National Grid for provision by the FFR Provider of FFR (the "FFR Contract").
91. A FFR Tender Acceptance may relate to one or more units, depending on the tender submission and subsequent acceptance of the individual FFR Provider. In an effort to provide greater clarity, National Grid proposed to specify in the SCTs that the FFR Tender Acceptance is created in respect of each individual FFR unit.
92. National Grid proposed that section 2.5 of the SCTs should be amended to clearly state that FFR contracts will be formed with respect to individual units listed on a FFR Tender Acceptance letter.

Responses to OCP-01

93. The majority of respondents agreed that National Grid should make it clear that contracts are formed with individual units within a FFR Tender Acceptance letter. One respondent considered that this was already clear.

³National Grid Anti Fraud and Bribery Policy - http://www.nationalgrid.com/NR/rdonlyres/39B443D1-95E5-4000-82F0-88E5F45B78CE/32290/antifraudandbriberypracticespolicy_final.pdf

National Grid Proposals

94. National Grid intends to update issue #5 to clarify that the acceptance of each separate tender will form a separate contract.

Appendix 1

Glossary of Terms

BD	Business Day
BM	Balancing Mechanism
CUSC	Connection and Use of System Code
DCP	Detailed Change Proposals
EoD	Event of Default
FFR	Firm Frequency Response
MW	MegaWatt
OCP	Outline Change Proposals
PF	Performance Factor
PPM	Percentage Performance Measure
SCTs	Standard Contract Terms
STOR	Short Term Operating Reserve