FFR Testing Guidance
Frequently Asked Questions

Version: 1.0

Date: 22/07/2019

Introduction

The table below contains frequently asked questions and the responses regarding the revised Testing Guidance document, supporting analysis tools and user guides

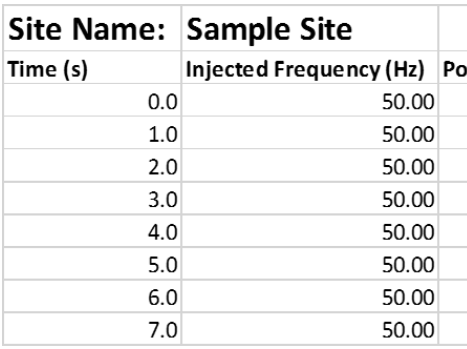
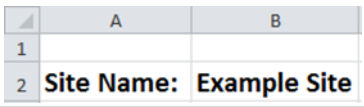
For clarification, or to submit additional questions and feedback, please contact commercial.operation@nationalgrid.com.

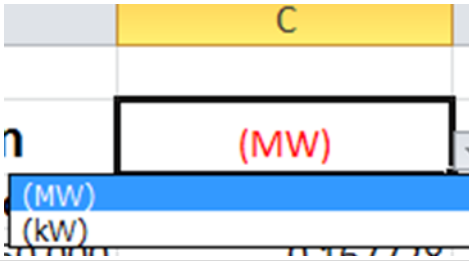
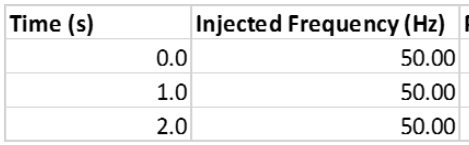
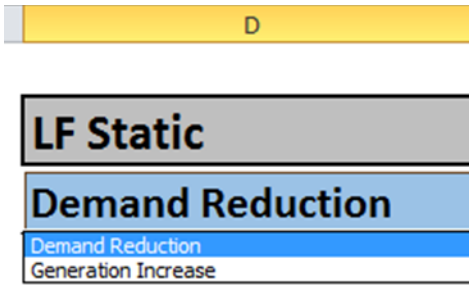
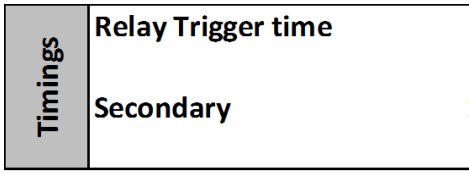
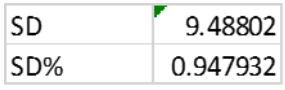
Please read the below Q&A before contacting Account Managers with queries regarding the FFR testing guidance as this may address the questions you have.

Testing Guidance	
Question	Response
Confirmation that any further updates to Testing Guidance will go through a process of detailed consultation with industry, as this update has done	Yes, for further material updates to the testing guidance NGESO will go through a consultation process with industry
While pass/fail criteria have been included for some areas, which is very welcome, others still lack this kind of criteria, such as Test 3 for Live System Frequency Response	The testing analysis tools and user guides that will be published with the revised testing guidance describe/ show how to check that the tested response follows frequency
Clarification on how long an asset's withdrawal from market would be under Scenario 2, Test 2. If a Unit is withdrawn from the market to undertake this test, can it be withdrawn for just that hour? Or does the withdrawal mean the Unit misses out on a month's delivery?	The asset can declare unavailability for the period of testing only. Providers should give the control room 24/48 hours' notice if the asset was contracted to deliver FFR during the period of testing
Greater clarification on the procedural sequencing of testing and contracts. It is assumed that 'testing' for an asset begins when a provider initiates the physical testing and ends when the asset is live within an FFR	We will be adding a check list regarding testing and contracts in to the FFR guidance document published on the website.

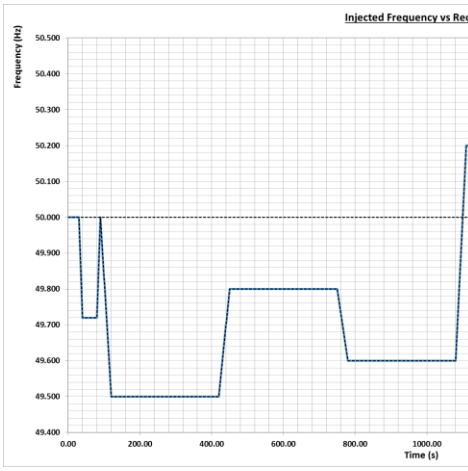
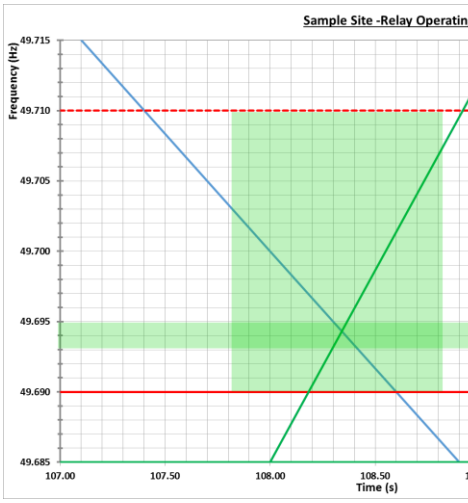
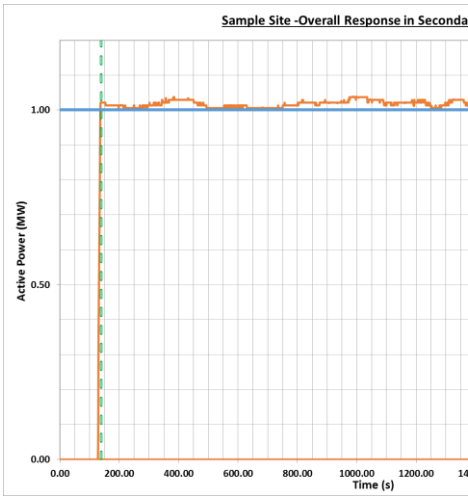
Unit and ready to enter the market. Absent from these testing procedures are the related steps around when an asset should be listed within a Framework Agreement and when testing should be done, as well as firm guidance on timings so that providers can schedule testing more accurately to target particular tender rounds or auction weeks. A step-by-step guide should be issued to clarify this process for providers	
Clarify that, as in the Step Tests, proportionality can be demonstrated at the FFR Unit level in the Response Tests, via aggregation of individual assets' proportionality levels	Proportionality in Test 2 assesses the whole Unit
Clarification on how asset noise or baseline errors will be dealt with during sweep tests; would results that go beyond the set tolerances be able to be submitted to the Independent Technical Expert with an attached explanation of why they should be accepted	It would be for the ITE to decide whether the explanation provided is acceptable for any results that go outside the tolerance levels
Clarification on how the allowed response delay is accounted for in each test – this is particularly relevant to Test 3, where the pass/fail criteria on this point is unclear on how to account for delays	The testing analysis tool and user guide will show how the response delay is accounted for in test 3
Clarification on whether response duration must immediately return to baseline after 30 minutes or if there is some flexibility about exceeding 30 minutes	This is currently not part of assessment but anything random/unexpected may be explained in ITE report.
Confirmation of whether any minimum volume threshold exists for testing	There is currently no minimum threshold for testing, please be reminded that the minimum contracted threshold to tender is 1MW
More guidance on the Independent Technical Expert role – in particular, clarification on what qualifications are considered to demonstrate expertise	Guidance is currently an "experienced technical expert with expertise in the operation of demand side response (DSR) or generating units or electricity Interconnectors (as the case may be)" This Guidance for ITE is already being used for the Phase1 auction trial
There is still considerable grey area in the rules so different ITEs could take different views, for example, less scrutiny being given to the end of the testing period	ITE using published analysis tool and guidance document will provide a consistent approach.
Proportionality seems to have been introduced to stop battery assets gaming their response; however, has had a negative knock on for more variable assets like DSR. We just want to make grid aware that by introducing stringent response proportionality and precision requirements that Grid is effectively designing the market around one asset type	There are tolerances round the proportionality requirements to allow for some variation for all assets being tested

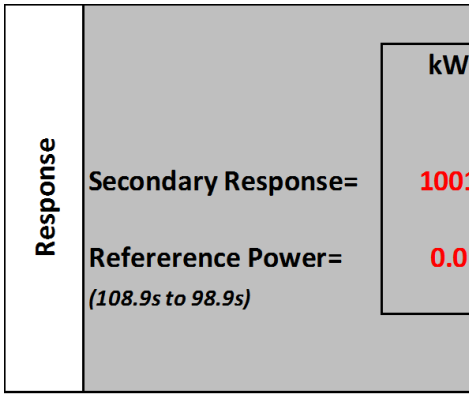
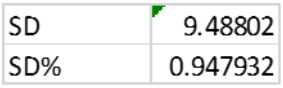
It isn't clear how allowable delays (eg between 2-10 seconds for primary) are applied to continuous performance.	Ideally response should be instantaneous and primary delivered within 10s. Examples of the 0-2 second initial response followed by the delivery of primary response are in the Sample test published with the analysis tool.
It is unclear from the test proposal what specific guidance will be given to the ITE on the pass criteria for Test 3. Could this form part of the reference excel workbook for dynamic testing?	The testing analysis tool and guidance document will provide the ITE and provider greater clarity on the pass criteria for all the tests carried out.

Step	Action	Description	Examples
Prepare Test Data			
1	Format test data to be pasted into Tool.	The data must be in the correct format, or the tool will be unable to capture the required data to perform the analysis. Where applicable test data should be aggregated on a separate sheet to paste the total test volumes into the Tool. The analysis tool will catch 2100s of data (in 1s intervals). If the data submitted is not in the correct format (more than 2100s), it may be appropriate to remove some of the start of the test. In this case, there must be at least 30s of data prior to the operation of the relay. If there is no relay present in the unit, the user can put a logic 1 in the relay column next to the first deviation outside of the trigger/target frequency.	 **Site Name:** **Sample Site** **Time (s)** | **Injected Frequency (Hz)** | **Po** 0.0 | 50.00 1.0 | 50.00 2.0 | 50.00 3.0 | 50.00 4.0 | 50.00 5.0 | 50.00 6.0 | 50.00 7.0 | 50.00
Populate Excel Analysis Tool			
2	'Insert Data Here' tab, enter the Site/Unit name in cell B2.	This should update all graphs and titles throughout the workbook.	 A | B 1 2 **Site Name:** **Example Site**
3	Clear previous test data	In the 'Insert Data Here' tab, delete the previous data from 'Injected Frequency', 'Active Power' and 'Relay' columns.	

Step	Action	Description	Examples
4	Select the units of power, in the ‘Insert Data Here’ tab	Using the drop down box, choose either kW or MW. (Cell C2)	
5	Paste test data into ‘Insert Data Here’ tab		
6	In ‘Response Details’ tab, select response type.	Using the drop down box, choose either Generation Increase/Demand Decrease for Static Low (D4)	
7	In ‘Response Details’ tab, the cell E13 will automatically display the secondary start and end times.	Note these times for standard deviation calculation in next step.	
8	‘Insert Data Here’ tab, edit cell G5 to cover the secondary response time period to calculate Standard Deviation.	=STDEV.P(C143:C1912) SD% will be calculated automatically.	

Analyse Results against pass criteria.

Step	Action	Description	Examples
16	Check an acceptable frequency injection profile is used. See ‘Inj vs Profile’ tab	If the Injected frequency and profile align then this criterion has been satisfied.	
17	Check that the relay (or equivalent) operating point of the plant/unit(s) occurs at the correct contracted trigger frequency and within the permitted tolerance (±0.01Hz).	In the ‘Relay’ tab alter the shaded green area to align with the relay logic step from 0 to 1. This will show the frequency at which the relay operated. This should be ±0.01Hz of the required trigger frequency.	
18	Check the response is sustained for 30 minutes.	Look at the ‘secondary’ tab and check response is maintained until after the ‘secondary response end’ line.	

Step	Action	Description	Examples
19	In the ‘Response’ tab the total secondary response is displayed in kW and MW.	Response volume is assessed as the minimum response observed from 30 seconds to 30 minutes following relay trigger	
20	Check the standard deviation of active power error over a 30 minute period does not exceed 2.5% of the contracted active power change.	See cell G6 in ‘Insert Data Here’ tab.	

Test Report

26	Write report giving feedback on test results.	See report template