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Balancing and Settlement Code

BSC PROCEDURE

BSCP537

QUALIFICATION PROCESS FOR SVA PARTIES, SVA PARTY AGENTS AND CVA MOAs

APPENDIX 2

TESTING REQUIREMENTS

Version 4.0

Date: 23 February 2012

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BSC PROCEDURE 537 Appendix 2

relating to

Testing Requirements

1. Reference is made to the Balancing and Settlement Code for the Electricity Industry in Great Britain and in particular, to the definition of "BSC Procedure".

2. This is BSC Procedure 537 Appendix 2 Version 4.0 relating to the Testing Requirements

3. This BSC Procedure Appendix is effective from 23 February 2012.

4. This BSC Procedure Appendix has been approved by the Panel.

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AMENDMENT RECORD

Version	Date	Description of Changes	Changes Includes	Panel/ Mods/ Committee Refs
1.0	23/07/07	P197 Release	P197	P115/04
2.0	10/09/07	P207 Release	P207	P127/04
3.0	03/11/11	November 2011 Release	CP1335	ISG114/01 SVG114/02
4.0	23/02/12	February 2012 Release	CP1355	ISG130/03 SVG130/03 PAB131/04

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BSCP537 Appendix 2 - Testing Requirements

CONTENTS

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1. Overview to Testing

System testing is not limited to the functionality and ability of the system software and hardware, but also extends to the supporting business and operational processes. System testing should also include existing systems within your organisation (e.g. customer information systems) that will operate with the systems developed. This may merely cover interfaces, if that is the only relationship between systems, but should not be restricted to this if more complex relationships exist, e.g. the same database table(s) are used by more than one system.

The Applicant will also be expected to test its systems within the environmental constraints defined in the BSC and Code Subsidiary Documents. These will include tests for performance, volume transaction handling, stress, recovery, security and data conversion. Tested components should also include those system components built to support the development and implementation process but which may not be delivered as part of the final operational system, for example data conversion programs or test harnesses.

Test plans should be designed and executed to demonstrate the Applicant's systems and processes can operate in the live environment and interface and communicate with other participants. The Applicant will need to demonstrate that its systems and processes are sufficiently robust not to adversely affect Settlement and that the service complies fully with the SVA Trading Arrangements.

Where individual parts of the system fail their test requirements it is important that the link between those systems and the rest of the system are re-tested through regression testing. If you are applying for re-Qualification and have modified your system you should re-test the links between the elements of the system that have been modified and the rest of the system. This regression testing should also include integration testing with other systems. For defects that require a workaround, evidence should be provided detailing any temporary mitigating action and the planned final resolution of the defect.

If you are applying for re-Qualification and you intend to utilise a different method of communication to that approved on previous applications then interface testing must be undertaken for those interfaces using the proposed method of communication to demonstrate that end to end testing has been performed and has been tested in both directions. (The purpose of interface testing is to prove the routing and format of communications).

Testing evidence should demonstrate that any files that are in a holding area are in the process of being sent and that flows are validated, sent and received and an audit trail is maintained detailing the file transfer status; that the sending participant can create a valid header record with values to identify the correct recipient for the data flow being sent; populate the data flow with a range of valid values in the correct format; identify the data flow as test data; and send the data flow to the receiving participant using correct interface method. The receiving participant must receive the data flow; interpret the header record of each/all files received routing them to their intended destination; and confirm the validity of the data.

New Data Aggregators and Data Collectors will be required to perform arithmetic tests at the start and end of their testing of business processes.

When testing business processes the Applicant should demonstrate that it is able to perform all applicable business processes in multiple GSP Groups.

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2. Capacity Planning and Testing

Background:

Your service needs to be available when required to process data and to ensure that your service meets the processing schedules. Failure to process data on time will have a subsequent impact on other Parties and Party Agents to whom you supply data. Similarly, your processing schedules will be dependent on you receiving information on time from other Parties and Party Agents who pass data to you. This high level of inter-dependence requires that all participants in the electricity market have sufficient capacity to process the volumes of data they propose to deal with initially, and can demonstrate that they are able to manage changes, particularly increases, in volume effectively. Failure to manage capacity adequately and in a timely manner may impact on the overall performance of your service, in addition to having a potential impact on Settlement and on those other Parties and Party Agents with whom you interact.

Applicants wishing to become Qualified Persons **must** be able to demonstrate that they are able to meet the current processing volumes and timetables and, either have the capability now (at initial start up) to meet their intended scale of operation (anticipated number of MSIDs for which you will be responsible) or have realistic plans (and documented supporting evidence) to achieve their intended maximum scale of operation at a future date, as required as your business grows.

In the context of Qualification or re-Qualification, the terms "capacity planning" and "capacity testing" are all encompassing. The terms not only refer to whether there is enough disk space on the system, but incorporate other aspects linked to capacity planning and performance such as IT infrastructure, IT systems, staff at all levels/functions, office space and other resources.

Note: For the purposes of measuring data volumes, MSID data records will be used (and for Central Volume Allocation Meter Operator Agents reference should also be made to the number of Metering Sub System Ids).

Throughout this section and the SAD the term 'scale of operation' refers to the Applicant's intended scale of operations, that is, how many MSIDs (or MSIDs in the case of CVA MOAs) that the Applicant intends to be responsible for both at initial start up following Qualification but also as the business grows.

The following information provides a cross reference between the capacity planning and testing questions covered in the SAD, in addition to providing further guidance as to what information should be covered in each response. In summary:

- Details of your intended scale of operation at initial start up and in the future are covered in **Section 1 Introduction**, question 1.1.10.
- Capacity testing is covered in **Section 3 Testing**, question 3.1.4.
- Capacity planning and ongoing monitoring is covered in **Section 6 Management, Resource Planning and Local Working Procedures**, question 6.1.4.

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Question Number	Question	Further Guidance
1.1.10	What is your intended scale of operation?	You should state the volume you anticipate that you will start trading at. For the purposes of measuring data volumes, MSID data records will be used (or Metering Sub System Ids for CVA MOA services). State for each service you intend to operate, the number of MSID data records (and MSSID data records where appropriate) you intend to have the capacity to process, initially. In the event that you are undergoing Qualification, it is likely that you do not yet know what your definitive start up volume will be; however, for other Qualified Persons it is likely that you will have an idea of the type of volume planned following on from initial discussions with Suppliers about winning contracts for services. Suppliers should have some idea of their intended scale of operation based on the business plans that they have developed. This estimated volume should be defined as accurately as possible here. In the event that you are undergoing re-Qualification, your start-up volume should be easily ascertained dependent on the reasons for re-Qualification. For example, if you are re-Qualifying in order to migrate all existing MSIDs from one system onto another, then the volume is likely to be that of the old system. If, however, you are migrating data for other reasons, for example, there has been a merger or take-over and you are migrating a number of MSIDs from one service to another, then your calculations would need to take into account the sum of the number of MSIDs on both systems.
3.1.4	What types of **testing** have you performed to ensure that all aspects of your service have been tested appropriately?	The guidance provided in the SAD includes reference **to performance, resilience and capacity testing** (including a description as to how testing has demonstrated that the service will be able to perform at the level of activity predicted by your intended scale of operation (in terms of MSIDs) as detailed in Section 1. For Qualification and re-Qualification purposes, you need to demonstrate that your organisation has ensured sufficient resources are available (including IT and/or manual systems and staffing) to meet processing timetables and your commitments. To ensure you can ramp-up your service to your intended maximum data volume it is essential that you can **demonstrate** how your application's software is capable of processing at this level. This would be expected to be performed as part of systems testing. The best proof of performance and capacity capabilities is testing to full capacity. Where you do intend to operate below your intended maximum scale of operation at start up, it is not expected that you will have

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Question Number	Question	Further Guidance
		invested in computer hardware, additional staff and other necessary resources before they are actually required. It would be expected that where you plan to operate below this volume at start up, formal plans and procedures would be in place including: ➢ Detailed plans and strategies to ensure all required resources (computer hardware, communications equipment and staffing levels) will be available as required. This should take account of: o How you have determined the level of resources required to operate at the intended level. o Lead times in recruiting and training additional staff. o Formal processes to ensure any necessary amendments to your Local Working Procedures are actioned. o Lead times for the procurement of additional hardware and/or software. o Test plans for the additional software and/or hardware that would be invoked. As a minimum for Qualification purposes the following evidence would be expected: (1) Test results demonstrating capability to process the maximum capacity requested in the following areas: o Computer software. o Hardware. o Manual procedures. (2) The testing performed should include: o Testing at the maximum capacity to include the anticipated number of exceptions that would be produced through the course of normal day to day operations. o Testing of all significant business processes, including those processes that relate to exception handling. o Testing in respect of a five calendar day period, handled over three consecutive processing days simulating a normal day, followed by a busy day, followed by another normal day (e.g. a Friday, Monday and Tuesday where no processing occurs over the weekend) – only Applicants seeking

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Question Number	Question	Further Guidance
		Qualification as either a Data Collector or Data Aggregator are required to perform this testing. (3) Test documentation for testing the capacity of computer software, hardware and manual procedures as detailed in points (1) and (2) above. (4) Outstanding issues from testing. (5) Issue resolution plans and evidence of re-testing where applicable. (6) Additional evidence – Volume increase extrapolation analysis. Where you do not plan to test to your full requested volume (e.g. where you are seeking re-Qualification of your service to an planned step change in your intended scale of operation), you would be expected to provide evidence of some level of testing of increased capacity, in addition to supporting documentation detailing the results of any extrapolation analysis performed. The way this analysis is presented can vary, but key items to include in the extrapolation analysis would be: ○ current capacity on database and server for current volume of MSIDs on the system; ○ analysis of key processing times; and ○ testing to an increased volume to ascertain the impact this has on storage (available space), processing times, staff etc.
6.1.4	What planning have you undertaken and/or what ongoing monitoring processes do you have in place to ensure that you have sufficient resources to operate your service, particularly as you move from your initial start up volume to your intended scale of operation?	This question is aimed at the ongoing operation of your service. As part of your answer it is important that you are able to demonstrate control over the operation of the system(s) in terms of monitoring performance against timetables and the requirements of the BSCPs and PSL100 to ensure processing occurs as scheduled. You should also explain how you monitor capacity to take preventative action before resource capacity becomes an issue. You may employ different assessment approaches depending upon the resource. Your response to this question should address all resource elements of your service and all the activities you employ in relation to each element including: ➢ IT infrastructure. ➢ IT systems. ➢ Staff at all levels and functions. ➢ Office space, etc. The type of controls you have in place to monitor your performance and system capacity will depend on the nature of your system and

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Question Number	Question	Further Guidance
		the IT infrastructure set up. An example of the types of monitoring you may have in place is given below. **Example:** IT infrastructure: you may operate a combination of formal future capacity planning - documenting the technical specifications of the elements of your IT infrastructure, what configurations you would use as volumes increased and perhaps where those components can be sourced – together with ongoing monitoring of network downtime/usage/response times to identify stress points and act as the trigger to assess the need to upgrade the infrastructure. Operational staff – you may operate a number of processes to assess whether the levels of operational staff are sufficient to meet the day to day workloads of the service. Such processes may be monitoring the levels of manual processing/exception backlogs, staff appraisal/development reviews and independent reviews by your internal audit function. Examples of the types of monitoring controls and supporting evidence expected to be in place to illustrate your ongoing monitoring controls and processes would be: ➢ Performance monitoring local working procedures covering: o Overall **service performance monitoring** (e.g. continual review that key timetable requirements and performance targets are being met (e.g. submission of Supplier Purchase Matrices (SPMs) to SVAA, percentage of actual data at RF). Where problems are identified an analysis should be undertaken to identify the root cause. o **System hardware** (including server capabilities and partition monitoring and alert procedures, where the systems have any alert software installed to automatically notify the operations staff of forthcoming problems to enable pre-emptive action to be taken this should be detailed here) to ensure that appropriate action can be taken on a timely basis – e.g. adding additional disks to the servers, reallocation of server partitions etc. o **System software** (including ability to process volumes at your maximum intended scale of operation). o **Staff performance and assessment.** It would be expected that these procedures cover the following key

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Question Number	Question	Further Guidance
		areas as a minimum: ➢ Ongoing capacity and performance monitoring. ➢ Issue identification – pre-emptive identification to mitigate the risk of serious impacts on processing and performance. ➢ Issue resolution action plans.

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3. NHHDC Testing Requirements

Testing requirement NHHDC	Description	Additional comments
Arithmetic accuracy testing		
Metering Management	D0001 D0002 D0170 D0005 D0149 D0150 D0313	
Readings management	D0010 D0004 D0012 D0019 D0052 D0071 D0086 D0152 D0290	UMS EAC Where Data Retrieval is provided separately
Exception Management	D0023	
Data reports	D0029 D0039 D0227 D0269 D0270	
Energisation Status	D0139	
Hub management	D0148 D0151 D0155	

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4. HHDC Testing Requirements

Testing requirement HHDC	Description	Additional comments
Arithmetic accuracy testing		
Metering management	D0001 D0002 D0005 D0170 D0214 D0268	
Readings management	D0004 D0008 D0010 D0012 D0022 D0036 D0289 DXXXX DYYYY	
Exception Management	D0235	
Data reports	D0269 D0270	
Energisation Status	D0139	
Hub management	D0148 D0151 D0155	

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5. NHHDA Testing Requirements

Testing requirement NHHDA	Description	Additional comments
Arithmetic accuracy testing		
Readings management	D0019 D0041	
Exception Management	D0023 D0095	
Data reports	D0227 D0269 D0270	
Hub management	D0151 D0209	

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6. HHDA Testing Requirements

Testing requirement HHDA	Description	Additional comments
Arithmetic accuracy testing		
Readings management	D0036 D0040 D0298 DXXXX~~D0298~~	
Exception Management	D0023 D0235	
Data reports	D0269 D0270	
Hub management	D0151 D0209	

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7. SMRA Testing Requirements

Testing requirement SMRA	Description	Additional comments
Metering management	P0171	
Exception Management	D0023	
Data reports	D0269 D0270 P0035	
Hub management	D0055 D0057 D0058 D0089 D0171 D0172 D0203 D0204 D0205 D0209 D0213 D0217 D0259 D0260	

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8. SVA HHMOA Testing Requirements

Testing requirement SVA HHMOA	Description	Additional comments
Metering management	D0001 D0002 D0005 D0142 D0168 D0169 D0170 D0214 D0215 D0268 D0010	
Readings management	D0289	
Data reports	D0269 D0270	
Energisation Status	D0134 D0139 D0221	
Hub management	D0011 D0148 D0151 D0155 D0261	

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9. SVA NHHMOA Testing Requirements

Testing requirement SVA NHHMOA	Description	Additional comments
Metering management	D0001 D0002 D0005 D0142 D0215 D0168 D0149 D0150 D0169 D0170 D0313	
Readings management	D0010	
Data reports	D0269 D0270	
Energisation Status	D0134 D0139 D0221	
Hub management	D0011 D0148 D0151 D0155 D0261	

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10. CVA MOA Testing Requirements

Testing requirement CVA MOA	Description	Additional comments
Metering management	CDCA - I003	MTDs
	CDCA - I006	Meter data for proving test
	CDCA - I007	Proving test and reports
	CDCA – I010	Exception Report for missing and invalid period data
	CDCA – I014	Estimated Data Report
	CDCA – I054	Meter Status Report

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11. Meter Administrator Testing Requirements

Testing requirement Meter Administrator	Description	Additional comments
Metering management	P0068 P0064 P0176 Meter faults	
Readings management	P0064 D0003 P0173 P0174	
Data reports	D0269 D0270	
Energisation Status	D0139	
Hub management	D0148 D0151	

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12. Unmetered Supplies Operator Testing Requirements

Testing requirement Unmetered Supplies System Operator	Description	Additional comments
Metering management	P0171 P0176 P0068 D0132 P0175 D0125	
Readings management	P0064 D0052 D0310 P0218	
Data reports	D0269 D0270 P0024 P0035	
Energisation Status	D0134 D0139	
Hub management	D0170 P0068 D0055 D0148 D0155 P0207	

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13. Supplier Testing Requirements

Testing requirement Supplier	Description	Additional comments
Metering management	D0001	
	D0002	
	D0005	
	D0089	
	D0125	
	D0132	
	D0142	
	D0150	Non Half Hourly
	D0168	
	D0169	
	D0170	
	D0214	Half Hourly
	D0215	
	D0268	Half Hourly
	D0313	Non Half Hourly
Readings management	D0003	Half Hourly
	D0008	Half Hourly
	D0010	
	D0012	
	D0019	Non Half Hourly
	D0022	Half Hourly
	D0030	Non Half Hourly
	D0036	Half Hourly
	D0040	Half Hourly
	D0041	Non Half Hourly
	D0043	
	D0052	Non Half Hourly
	D0071	Non Half Hourly
	D0072	Non Half Hourly
	D0079	
	D0081	
	D0082	
	D0086	Non Half Hourly
	D0289	Half Hourly
	D0298	Half Hourly
Exception Management	D0095	Non Half Hourly
	D0235	Half Hourly
Data reports	D0018	
	D0029	Non Half Hourly
	D0269	
	D0270	

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Testing requirement Supplier	Description	Additional comments
Energisation Status	D0134	
	D0139	
	D0179	Non Half Hourly
	D0180	Non Half Hourly
Hub management	D0011	
	D0055	
	D0057	
	D0058	
	D0148	
	D0149	Non Half Hourly
	D0151	
	D0153	
	D0155	
	D0164	Half Hourly
	D0203	
	D0205	
	D0213	
	D0217	
	D0259	
	D0260	
	D0261	
	D0266	
	P0068	UMS
	P0170	UMS
	P0207	UMS

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