

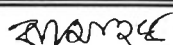
QUALITY MANAGEMENT SYSTEM	POWER GRID COMPANY OF BANGLADESH LTD.					QUALITY PROCEDURES			
	TITLE: PROCEDURE FOR SYSTEM PROTECTION AND METERING								
Document No:	QP-SPM-1	Revision No.:	01	Effective Date:	11/11/12	Page:	1	of	3

1. Scope: Applies to the whole of POWER GRID COMPANY OF BANGLADESH LTD.					
2. Purpose: To identify the needs & provide necessary supports for protection scheme of all the equipment responsible for the activities affecting quality, stability and reliability of power system network.					
SL. No.	Activity (including check points)	Ref. Doc.	Responsibility	Freq. /Time	Output
1.0	Planning				
1.1	<u>Annual maintenance planning:</u>		MSPM	As planned	Planning of testing.
1.1.1	Each SPMD make a testing program for annual test of protective relays and meters.	Test program	MSPM	Annual	QF-SPM-01
1.1.2	To keep the outage of equipment to the minimum level, the testing program is prepared with the consultation of the concerned GMD by adjusting the program to coincide with the annual maintenance program of GMD	Annual maintenance program of GMD	MSPM	Annual	
1.1.3	The prepared annual maintenance plan is then checked for error and/or omission of component (if any) and coordinates with MGMD within SPMD jurisdiction and then submitted to the competent authority for approval.		MSPM & DGMSPM	Annual	
1.1.4	After getting the required approval the plan becomes ready for implementation.		MSPM		Plan is Ready
1.2	<u>Planning for Pre-Commissioning test witness:</u>				
1.2.1	The required test schedule is supplied by the concerned GMD/other implementation office. (Pre-commissioning test witness committee to be formed by appropriate authority)		MSPM	As planned	
1.2.2	Pre-Commissioning test plan for newly constructed sub-station and line, to be witnessed along with other members of pre-commissioning committee, is prepared (committee formed by competent authority).	Supplied by Project office/ Implementing office	DGMSPM	As planned	Pre-commissioning test plan is prepared QF-SPM-15 QF-SPM-16
1.3	<u>Planning for Commissioning test witness:</u>				
1.3.1	The concerned implementation division supplies the required test schedule.		MSPM	As planned	
1.3.2	Commissioning test plan for newly constructed sub-station and line, to witness along with other members of commissioning committee, is prepared.	Supplied by Project office/ Implementing office	MSPM	As planned	Commissioning test plan prepared
2.0	Implementation				
2.1	Subject to the availability of shutdown of line/equipment (if necessary), the relays and meters are tested as described in the annual maintenance program. Required Shutdown is arranged by the concerned GMD, for their own maintenance program.	Relay manuals, Drawings & Test Format	MSPM	As planned	QF-SPM-04 QF-SPM-07 QF-SPM-08
2.2	Post commissioning test of relays & meters for checking connections correctness.		MSPM	As planned	


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3.0	Analysis of fault events				
3.1	Protection engineers supervise/monitor the relays & meters when grid lines or transformers trips by a fault. The SPM engineers will review the recorded events, relay operation, relay target and perform necessary analysis and settings are readjusted (If needed).	Relay manuals, Drawings & Test Format	MSPM DGMSPM	As required	QF-SPM-03
3.2	Review of the new settings is done for the effectiveness of the changes made. If the settings proves to be inadequate and needs to be changed step 3.1 & 3.2 will be repeated until the correct one is set. Line relay setting should be reviewed by DGM, SPMC. Test report submitted by MTH approved by PGCB.		MSPM / Distance relay setting shall be approved by DGM,SPMC	As required	QF-SPM-08 QF-SPM-09 QF-SPM-10
4.0	Monitoring				
4.1	Present status of auto load shedding scheme by under frequency relay for load generation balance large generation short fall/ system disturbance		MSPM	As required	QF-SPM-05
4.2	Present Status Of Auto Load Shedding Scheme By Under Frequency Relay		MSPM/ DGM,SPMC	Monthly	QF-SPM-05
5.0	Reporting				
5.1	Energy Meter Test Report		MSPM/ M Metering	Every two years/ As required	QF-SPM-04
5.2	Monthly Report on Under Frequency Relay Tripping		MSPM	Monthly	QF-SPM-05
5.3	Transmission line protection Test Report - Main Protection(Distance/Line Differential) - Backup (Distance/OC-EF Protection) - Aided protection (carrier/FO) - Auto reclosing Distance feeder protection - O/C, E/F Transformer - Differential (Transformer/overall) - O/C, E/F, neutral O/C - Restricted E/F (REF) - Transformer Own protection (Bucholtz, OLTC, oil Temperature, winding temperature, PRD, Oil level etc.) Bus bar Protection - Bus differential - Breaker fail - Aided protection		MSPM	As required/ Annually	QF-SPM-02 QF-SPM-13 QF-SPM-14 QF-SPM-12 QF-SPM-03
5.4	Under Frequency Summery Report		DGM,SPMC	As required/ Annually	QF-SPM-06
5.5	Over Current Relay test Report		MSPM	As required / Annually	QF-SPM-03
5.6	Distance Relay Test Report		MSPM	As required / Annually	QF-SPM-02
5.7	Indication meter Test Report		MSPM / M metering	Every two year/ as required	QF-SPM-11

Reviewed by (DGM SPMC)



Approved by Director (O&M)



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6.0	Action for improvement				
6.1	After the completion of the test of relays, if any anomaly is found with the protective relays, necessary preventive measures are taken to replace it. Protection engineers will submit the report to the management.	Relay manuals, Drawings & Test Format	MSPM	As required	QF-SPM-17 and other QF As required
6.2	In the case of fault event analysis, protection engineers submit the report to the management with necessary preventive measures & recommendation for remedial action to prevent the recurrence of the same.		MSPM	As required	QF-SPM-07
6.3	Schedule review in every three year		MSPM	As planned	
7.0	The effectiveness of the procedure of relay testing activities followed in PGCB will be evaluated by the management.		Management Review meeting, MR.	During internal audit	
8.0	Actions will be taken on the basis of review and evaluation by the Management.		MD, MR Management Review Committee	When necessary	Improvement