

Annexure - I(E)(b)

Renewable Plant Details	
RE plant substation	
RE developer	
ISTS Pooling station	

Document classification		
Document Number	NLDC/FTE&I/Renewables/Annex-I E(b)	
Document description	IBR unit controller & PPC protection & control settings	
Document classification	Public	
Document revision history		
Date	Rev. No.	Description
11.05.2023	1.0	Initial release for protection & controller settings.

Note- Check for updated format in Grid-India website

IBR Controller and Protection Settings (Downloaded)					
Date of setting extraction from IBR unit :					
S. No.	Feature	Enabled/Disabled	Setting/Detail	Time Delay (seconds)	Controller Snapshot
1	General				
	IBR unit OEM				
	IBR unit model				
2	Software/Firmware details				
	Converter Firmware Version				
	Controller Software Version				
3	IBR Voltage Range				
	Operating Voltage- Max				
	Operating Voltage- Nominal				
	Operating Voltage- Min				
4	Withstand Voltage - Max				
	HVRT related-				
	HVRT enabled or disabled ?	Not Available			
	Alarm				
	Level-1				
	Level-2				
	Level-3				
	Level-4				
	Level-5				
	HVRT Activation level (voltage)				
	HVRT activation type (select from drop down)				
	HVRT Reset level (voltage)				
	HVRT grid support mode (symetric fault)	No support (reactive current is set to zero)			
	HVRT grid support mode (asymetric fault)	No support (reactive current is set to zero)			
	Maximum reactive current support during HVRT (in pu)				
	HVRT Response Time (ms)				
	HVRT dead time (minimum time required b/w two consecutive fault for successful ride through)				
	How many number of consecutive faults IBR unit can sustain ?				
5	LVRT related				
	LVRT enabled or disabled ?	Not Available			
	Alarm				
	Level-1				
	Level-2				
	Level-3				
	Level-4				
	Level-5				
	LVRT Activation level (voltage)				
	LVRT activation type (select from drop down)				
	LVRT Reset level (voltage)				
	LVRT grid support mode (symetric fault)	Disabled			
	LVRT grid support mode (asymetric fault)	Disabled			
	Maximum reactive current support during LVRT (in pu)				
	LVRT Response Time (ms)				
	LVRT dead time (minimum time required b/w two consecutive fault for successful ride through)				
	How many number of consecutive faults IBR unit can sustain ?				
	Voltage Threshold to block IBR current injection (for momentary cessation if any)		To be filled.		
6	Frequency Settings				
	Under Frequency				
	Alarm				
	Level-1				
	Level-2				
	Level-3				
	Level-4				
	Over Frequency				
	Alarm				
	Level-1				
	Level-2				
	Level-3				
	Level-4				
	Reactive power control (RPC)-				
	Reactive Power Control Method	Not Available			
	Reactive power control mode	Local constant power factor (pf) control			

7	Reactive Power at Rated Power-Max (injection)				
	Reactive Power at Rated Power-Min (Absorption)				
	Reactive power ramp rate (In steady state condition for all available RPC modes)				
	Extra Q mode	Not Available			
	If communication between IBR unit & PPC failed, then what would be the reactive control mode of operation of IBR unit.				
8	IBR unit input command polling rate (minimum time required between two consecutive input commands)				
	Active power control-				
	Active Power Control Method	Not Available			
	If communication between IBR unit & PPC failed, then what would be the active power set point in IBR unit.				
	IBR unit input command polling rate (minimum time required between two consecutive input commands)				
	IBR unit active power ramp rate (In steady state condition)				
9	Enhanced or extra active power mode	Not Available			
	LVRT to HVRT (and vice-versa) Transition Time				
10	IBR unit night mode/ Standstill reactive mode				
	Qmax (injection KVAR)				
	Qmin (absorption KVAR)				
11	Post Fault characteristics of IBR unit				
	Active Power recovery rate				
	Reactive Power recovery rate				
	Recovery time delay/ Hold time, if any ?				
12	Active & reactive current freeze state during hold time. If any ?				
	Any other Protection Setting				

Power Plant Controller & PQM Setting details				
	Date of setting extraction from PPC			
S. No.	Particulars	Enabled/Disabled	Setting	Snapshot
1	General			
	OEM			
	Model			
	Hardware version			
	Software version			
	Configured as Master or Slave	Select		
	Actual input to PPC provided from	33kV feeder level		
	Number of IBRs handling capability			
2	PQ meter related			
	OEM			
	Model			
	Output update rate (time between two successive outputs)			
3	Communcation & processing related			
	PPC input refresh rate (time between two successive inputs)			
	Processing time taken by PPC controller			
	PPC output P & Q command update rate (time between two successive outputs)			
4	Active Power Control Mode			
	Active Power Control Mode Status	Not Available		
	Active Power Ramp rate (MW/second)			
	Active Power gain parameters (Kp, Ki, Kd parameters)			
	Active power set maximum limit (Pmax)			
	Active power set minimum limit (Pmin)			
5	Reactive power control (RPC)-			
	Reactive Power Control Mode Status	Not Available		
	Type of Reactive Power Control Enabled	Voltage		
	Reactive power gain parameters (Kp, Ki, Kd, Hysterisis parameters)			
	Reactive power ramp rate (In steady state condition for all available RPC modes)			
	Reactive power injection limit (Qmax)			
	Reactive power absorption limit (Qmin)			
	FACTS/Capacitor/Reactor control	Not Available		
6	Frequency Control			
	Frequency control mode	Not Available		
	Ripple factor			
	Droop			
	Deadband			