North Eastern Regional Power Committee

MINUTES OF SPECIAL MEETING ON METERING

Date : 22/01/2015 (Thursday)
Time : 10:00 hrs
Venue : "Hotel Nandan", Guwahati.

The List of Participants in the Meeting is attached at **Annexure – I**

Shri B. Lyngkhoi, Director/SE(O) informed that issue of metering has been discussed in various OCC/PCC & CC Meetings, viz. metering error, time drifting, non- receipt of data/negative polarity from various meters & stations, DCDs issues, procurement of DCDs, Energy Meters etc., however, no fruitful outcome has been made so far. Considering the seriousness of the matter as many new stations are coming up and also has commercial implications, it was decided to have a Special meeting to discuss and resolve the matter at the earliest.

Thereafter, he requested Sh. R. Sutradhar, DGM (MO), NERLDC to give the presentation on latest status of meters.

DGM (MO) thanked NERPC for arranging the special meeting on metering to sort out various pending metering issues in NER. One main agenda was to finalise modalities for procurement of 250 SEMs and 40 DCDs to enable POWERGRID NERTS to initiate procurement process immediately. This was crucial as NER has been running short of meters/DCDs and many new elements are expected in near future necessitating quick procurement of meters.

The Sub-committee discussed the issue in detailed and decision is given as below:

1. Distribution of 35 SEMs and 10 DCDs already procured was agreed as per **Annexure-I**. After distribution, balance will be kept as spares.

2. Regarding procurement of 50 SEMs and 10 DCDs urgently, it was agreed not to procure on repeat order basis from ELSTER. Rather, POWERGRID NERTS was advised to obtain these meters/DCDs from other Regions at the earliest preferably by March, 2015. These meters will be used to replace time drifted meters as listed in **Annexure-I** footnote and also to install check meters in ISGS.

3. Technical specification for new procurement of 250 SEMs was finalised (**Annexure-II**). After detailed discussion, M/S Secure Meters, L&T and Wallaby were identified as shortlisted suppliers. POWERGRID NERTS will procure meters at the quickest possible time say within six months.

4. It was agreed to go for procurement of LAPTOPs instead of DCDs. Hence, there will be procurement of 40 LAPTOPs instead of 40 DCDs. Additionally, 20 DCDs will be procured to act as spare of existing DCDs.

5. DCD was not given to NTPC Bongaigaon. It was agreed to provide them DCD latest by 31.01.2015.

6. Time drift in meters was highlighted by NERLDC which was causing unwanted fluctuation in pool loss. It was agreed that all constituents while collecting weekly reading would note time drift position and provide time advance/retard command to avoid drift. Meters with large drift will be replaced as noted in point no. 2.

7. Error in meter reading : It was decided that POWERGRID NERTS will attend following at the earliest :

- 132 KV Balipara-Gohpur line : Meter error in Balipara end
- 132 kV Imphal-Ningthoukong (very low reading at Ningthoukong end)
- 132 kV Nirjuli-Gohpur (Low reading at Nirjuli end)
- *220 kV Kathalguri – Tinsukia II (Tinsukia end reading >50%)*

8. It was agreed that pre-commissioning check of all meters would be done by NERTS, POWERGRID and proper store inventory be maintained by them. Stock position should be submitted to NERLDC/NERPC on regular basis.

9. It was agreed that AMR (Automated meter reading) scheme will be implemented in NER expeditiously and cost of same will be recovered by POWERGRID through tariff. POWERGRID was advised to submit cost estimate in next OCC/CCM.

10. Metering Committee would review status on monthly basis in every OCC meeting (at the beginning of meeting).

The Sub-committee noted that the decision taken during the meeting has to be strictly adhered to and concerned agency has to comply with accordingly.

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Annexure-I

List of Participants in Special Metering Meeting held on 22/01/2015

SN	Name & Designation	Organization	Contact No.
	No Representative	**Ar. Pradesh**	
1.	Sh. Karuna Sarma, AGM (E)	Assam	09435013532
2.	Sh. Ashutosh Bhattacharjee, Dy. Mgr	Assam	09435332928
	No Representative	**Manipur**	
3.	Sh. Somen Saha, AE, Me. PTCL	Meghalaya	09436112798
4.	Sh. A.G. Tham, AE, Me. PTCL	Meghalaya	09774664034
	No Representative	**Mizoram**	
5.	Sh. A. Jakhalu, EE(T), DMR	Nagaland	09436002696
	No Representative	**Tripura**	
6.	Sh. R. Sutradhar, DGM (MO)	NERLDC	09436302714
7.	Sh. Bhaskar Goswami, Sr. Manager (O&M)	NEEPCO	09436163983
8.	Sh. J. Bhattacharyya, AGM (O&M)	NTPC	09435720036
9.	Sh. R.C. Kisku, Dy. Mgr. (E)	NHPC	09436894861
10.	Sh. P. Kanungo, DGM (OS)	NERTS	09436302823
11.	Sh. T.P. Pandey, DGM (O&M)	OTPC	08794718423
12.	Sh. T. Karmakar, AM (E)	OTPC	09435239314
13.	Sh. P.K. Mishra, Member Secretary	NERPC	09968380242
14.	Sh. B. Lyngkhoi, Director/SE (O)	NERPC	09436163419
15.	Sh. S.M. Jha, DD/EE	NERPC	08731845175

ANNEXURE -I

INSTALLATION OF ELSTER METERS

		METER		DCD	
	NAME OF ELEMENT	FINAL	INTERIM	FINAL	INTERIM
1	400KV Silchar - P.K.Bari Line D/C	4	2 (PK BARI END)	1	1 (PK BARI END)
2	400KV SILCHAR - IMPHAL D/C Si lchar-I mphal *DIC* 2. I mphal(state) end of 132KV Imphal-Imphal DIC 3. Karong end of 132 KV Kohi ma-Karong l i ne. 4. Rengpang end of 132 KV Loktak-Rengpang line. 01 No.DCD for Im phal (state)	4	2 (IMPHAL PG END)	1	1 (IMPHAL END)
3	132KV IMPHAL - IMPHAL D/C Si lchar-I mphal *DIC* 2. I mphal(state) end of 132KV Imphal-Imphal DIC 3. Karong end of 132 KV Kohi ma-Karong l i ne. 4. Rengpang end of 132 KV Loktak-Rengpang line. 01 No.DCD for Im phal (state)	4	2 (IMPHAL STATE END)		
4	220KV Mariani- Mokokchung D/C	4	2 (MOKOKCHUNG END)	1	1 (MOKOKCHANG END)
5	132 KV Mokokchung-Mokokchung DC	4	2 (STATE END)	1	1(STATE END)
6	2X 220/132 KV ICT AT MOKOKCHANG	4	2 (LV END)		
7	220KV NTPC-BTPS DC	4	4	2	1
8	400KV Bongaigaon-Byrnihat Line BOTH ENDS	2	2	1	1
9	Balipara end of 400KV Balipara- BNC D/C	2	2		
10	BNC end of 400KV *DIC* Bal i para- BNC Line	METERS MAY BE INSTALLED LATER ON			
11	Both end 132KV *DIC* BNC-BNC Line.	4	4	1	1
12	Gelephu end of 132 KV Salakati-Gelephu Line	1	1	1	1
13	Bongaigaon end of 400KV Bongaigaon- Balipara-3 &4 line	2			
14	For Deomali SIS (State)	1	1	1	1
	TOTAL	**40**	**26**	**10**	**9**

TIME DRIFTED SEMs AT FOLLOWING LOCATIONS TO BE REPLACED IMMEDIATELY
1. LOKTAK 8 SEMS
2. DOYANG 7 SEMS
3. MISA 2 SEMS FOR BYRNIHAT FEEDER
4. SAMAGURI 2 SEMS FOR MISA FEEDER

NB 19 SEMS REQUIRED FOR REPLACING TIME DRIFTED METERS, REPLACEMENTS AT LOKTAK & DOYANG MAY BE DONE NOW AFTER ENSURING / CHECKING CORRECTNESS OF THE NEW METERS.

ANNEXURE-II

SN	Technical Spec by POWERGRID
1.	The energy metering system specified herein shall be used for tariff metering for bulk, inter-utility power flows, in different Regions of India. One static type composite meter shall be installed for each EHV circuit, as a self-contained device for measurement of active energy (MWh) transmittals in each successive 15 minute block and certain other functions, as described in the following paragraphs.
2.	The meters shall be suitable for being connected directly to voltage transformers (VTs) having a rated secondary line-to-line voltage of 110V, and to current transformers (CTs) having a rated secondary current of 1 A (model-A) or 5A (model-B). Any further transformers/transactions/transducers required for their functioning shall be in-built in the meters. Necessary isolation and/or suppression shall also be built-in, for protecting the meters from surges and voltage spikes that occur in the VT and CT circuits of extra high voltage switchyards. The reference frequency shall be 50Hz.
3.	The active energy (Wh) measurement shall be carried out on 3-phase, 4-wire principle, with an accuracy as per class 0.2 S of IEC-62053-22:2003. In model-A (for CT secondary rating 1A), the energy shall be computed directly in CT and VT secondary quantities, and indicated in watt-hours. The meter shall compute and display the net active energy (Wh) sent out from the substation busbars during each successive 15-minutes block, and store it in its memory along with plus sign if net active energy(Wh) is sent and with a minus sign if net active energy is received . It shall also display on demand the net Wh sent out during the previous 15-minute block, with a plus sign if there is net Wh export and viceversa.
4.	Further, the meter shall continuously integrate and display on demand the net cumulative active energy sent out from the substation bus bars up to that time. The cumulative Wh reading at each midnight shall be stored in the meter's memory. The register shall move backwards when active power flows back to substation bus bars.
5.	The meter shall count the number of cycles in VT output during each successive 15-minutes block, and divide the same by 900 to arrive at the average frequency. This shall be stored in the meter's memory as a 2-digit code which shall be arrived at by subtracting 49.5 from the average frequency, multiplying by 100 and neglecting all decimals. For example, 49.89 Hz shall be recorded as 39. In case the average frequency is 49.5 Hz **or below**, it shall be recorded as 00. In case it is 50.49 Hz or higher, it shall be recorded as 99. The conversion of average frequency to 2 digit code shall be performed outside the meter by meter manufacturer supplied software and stored in text output file. The average frequency of the previous 15- minutes block shall also be displayed, on demand in hertz.
6.	The meter shall continuously compute the average of the RMS values of the three line-to-neutral VT secondary voltages as a percentage of 63.51 V, and display the same on demand. The accuracy of the voltage measurement/computation shall be atleast 0.5%, a better accuracy such as 0.2% in the 95-105% range being desirable.
7.	The meter shall also compute the reactive power (VAR) on 3-phase, 4-wire principle, with an accuracy as specified in clause 11.0, and integrate the reactive energy (VARh) algebraically into two separate registers, one for the period for which the average RMS voltage is 103.0% or higher, and the other for the period for which the average RMS voltage is below 97.0%. The current reactive power (VAR), with a minus sign if negative, and cumulative reactive energy (VARh) readings of the two registers shall be displayed on demand. The readings of the two registers at each midnight shall also be stored in the meter's memory. In model-A (for CT secondary rating of 1 A), the reactive power and reactive energy transmittals shall be computed in VAR/VARh directly calculated in CT and VT secondary quantities. When lagging reactive power is being sent out from substation busbars, VAR display shall have a plus sign or no sign and VARh registers shall move forward. When reactive power flow is in the reverse direction, VAR display shall have negative sign and VARh registers shall move backwards.**The SEM shall compute and record the net VARh as well as per phase VARh (for all three phases)**

	of each 15 minute block.Meter shall record net VARh of each 15 minute time block with plus sign for reactive power sent out and minus sign for reactive power received into busbars.
8.	In the model-B (for CT secondary rating of 5A), all computations, displays and memory storage shall be similar except that all figures shall be one fifth of the actual Wh, VAR and VARh worked out from CT and VT secondary quantities.
9.	The meters shall fully comply with all stipulations in IEC standards 62052-11:2003 and 62053-22:2003, except those specifically modified by this specification. The reference ambient temperature shall be 30° C.
10.	Errors shall be reasonable for all power factor angles from 0° to 360°.
11.	For reactive power (VAR) and reactive energy (VARh) measurements, IEC 62053-23:2003 shall be complied with. The accuracy of measurement of reactive energy shall be as per class 2.
12.	Each meter shall have a test output device (visual) for checking the accuracy of active energy (Wh) measurement. The preferred pulsing rate is twenty (20) per Wh for Model-A and four (4) per Wh for model-B. It shall be possible to couple this device to suitable testing equipment also.
13.	No rounding off to the next higher last decimal shall be done for voltage and frequency displays. All 15 minute Wh figures shall however be rounded off to the nearest last decimal.
14.	The three line-to-neutral voltage shall be continuously monitored and in case any of these falls below about 70%, a normally flashing lamp provided on meter's front shall become steady. It shall go off if all three voltages fall below 70%. The time blocks in which such a voltage failure occurs/persists shall also be recorded in the meter's memory. The lamp shall automatically resume flashing when all VT secondary voltages are healthy again. The two VARh registers specified in clause 7.0 shall remain stay-put while VT supply is unhealthy.
15.	The meters shall normally operate with the power drawn from the VT secondary circuits. The total burden imposed by a meter for measurement and operation shall not exceed 10 VA on any of the phases. An automatic backup for continued operation of the meter's calendar-clock, and for retaining all data stored in its memory, shall be provided through a long-life battery, which shall be capable of supplying the required power for at least 2 years. The meters shall be supplied duly fitted with the batteries, which shall not require to be changed for at least 10 years, as long as total VT supply interruption does not exceed two years. The battery mounting shall be designed to facilitate easy battery replacement without affecting PCB of the meter. The meters shall not require any separate auxiliary supply for their operation.In addition , there shall be provision to operate on control power supply to SEM from 110V DC/220 DC. In case of loss of VT supply, meter’s front panel display should not disappear and data/communication features must remain active. **When Bay feeder is out, facility should be provided to download data on backup system (battery) independently & see on display on offline mode.**
16.	Each Each meter shall have a built-in calendar and clock, having an accuracy of 30 seconds per month or better. The calendar and clock shall be correctly set at the manufacturer’s works. The date (year-month-day) and time (hour-min.-sec.) shall be displayed on the meter front (when VT supply has been connected), on demand. Only limited clock adjustment shall be possible at site, using the DCD. When an advance or retard command is given, six subsequent time blocks shall be contracted or elongated by ten seconds each. The meter shall not accept another clock correction command for seven days. All clock corrections shall be registered in the meter’s memory and suitably shown on print out of collected data. **Additionally, this shall have functionality of password protected time correction through remote PC (used for AMR or any local pc/laptop) either taking input from GPS clock or manually.**
17.	Each meter shall have a unique identification code, which shall be marked permanently on its front, as well as in its memory. All meters supplied to POWERGRID as per this specification shall have their identification code starting with "NP", which shall not be used for any other supplies. NP shall be followed by a dash and a **Four digit running serial number to be provided by procurer** further followed by a dash and "A" for Model-A, and "B", for the use

	with CT secondary's of 1 A and 5 A respectively. **Bidder has to ensure the same before manufacturing**.
18.	Each meter shall have at least one seven (7)-character, seven-segment electronic display, for indication of the following (one at a time), on demand:
i)	Processor's identification code and model : nP1234 A
ii)	Date (year month day) : 910329 d
iii)	Time (hour min. sec.) : 195527 t
iv)	Cumulative Wh reading : 12345.6 C
v)	Average frequency of the previous block: 49.89 F
vi)	Net Wh transmittal during the previous block: - 28.75 E
vii)	Average % voltage : 99.2 U
viii)	Reactive power (VAR) : 106.5 r
ix)	Voltage - high VARh register reading: 01234.5 H
x)	Voltage - low VARh register reading : 00123.4 L
xi)	Low battery indication
19.	A gold plated touch key or push button shall be provided on the meter front for switching on the display and for changing from one indication to the next. (The display shall switch off automatically about one minute after the last operation of touch key/push button). When the display is switched on, the parameter last displayed shall be displayed again, duly updated.
20.	Each meter shall have a non-volatile memory in which the following shall be automatically stored:
i)	Average frequency for each successive 15-minute block, as a 2-digit code
ii)	Net Wh transmittal during each successive 15-minute block, up to second decimal, with plus/minus sign
iii)	Cumulative Wh transmittal at each midnight, in six digits including one decimal.
iv)	Cumulative VARh transmittal for voltage high condition, at each midnight in six digits including one decimal
v)	Cumulative VARh transmittal for voltage low condition, at each midnight, in six digits including one decimal
vi)	Date and time blocks of failure of VT supply on any phase, as a star (*) mark.
vii)	**Date and time blocks of limited time correction through DCD, as a (aa), (rr) mark.**
viii)	**Date and time blocks of software based time correction, as a (A), (R) mark.**
21.	The meters shall store all the above listed data in their memories for a period of ten (10) days. The data older than ten (10) days shall get erased automatically on FIFO.
22.	Each meter shall have an optical port on its front for tapping all data stored in its memory. Portable or hand held data collection devices/**Laptop** shall also be separately provided for this purpose, **(along with required Ethernet to serial converter and optical converter)** one for each substation, to serve as the interface between the meters specified above and the local personal computer (PC). In addition to above each meter shall be provided with a RS-485 port (**For RS485 Compatibility (plus, minus, common terminals to be provided for easy termination of daisy chain/similar connection or direct connection to PC by a cable)** as well as **optionally** LAN port for RJ 45 connection on one of its sides, from where all the data stored in the meter's memory can also be tapped. The overall intention is to tap the data stored in the meter's memories once a week from any of the two ports mentioned above and transmit the same to a remote central computer using STD or other communication links, through the local PC. It shall also be possible to obtain a print out (hard copy) of all data collected from the meters, using the local PC. **Data collection from a local laptop/PC should be possible by installing data collection software.**

23.	The whole system shall be such as to provide a print out (both from the local PC and from remote central computer) of the following form: 55 +16.28 56 +15.95 55 +15.32 54 +15.66 23 55 +14.93 55 +14.26 54 +14.85 56 +15.17 NP-1234-A 12345.6 01234.5 00123.4 91-03-29 57 +14.72 56 +13.83 55 +13.57 53 +12.91 01 52 +13.34 51 +12.76 52 +14.11 52 +15.28 The above data shall be available in text file format (file extension as per IEEE standard) exportable to Excel. Also, the system needs to provide additional data in the format mentioned in ANNEXURE-I. This data shall also be available in second text file format similar to first text file format. The user shall have the option to download one or both text files.
24.	The meters shall be supplied housed in compact and sturdy, metallic or moulded cases of non-rusting construction and/or finish. The cases shall be designed for simple mounting on a plane, vertical surface such as a control/relay panel front. All terminals for CT and VT connections shall be arranged in a row along the meter's lowerside. Terminals shall have a suitable construction with barriers and cover, to provide a secure and safe connection of CTs and VTs leads through stranded copper conductors of 2.5 sq. mm. size.
25.	All meters of the same model shall be totally identical in all respects except for their unique identification codes. They shall also be totally sealed and tamper proof, with no possibility of any adjustment at site, except for clock correction.
26.	The meters shall safely withstand the usual fluctuations arising during faults etc. In particular, VT secondary voltages 115% of rated applied continuously and 190% of rated for 3.0 seconds, and CT secondary current 150% of rated applied continuously and 30 times of rated applied for 0.5 seconds shall not cause any damage to or maloperation of the meters.
27.	The meters shall also withstand without any damage or maloperation reasonable mechanical shocks, earthquake forces, ambient temperature variations, relative humidity etc. They shall have an IP-51 category dust-tight construction, and shall be capable of satisfactory operation in an indoor, non-air conditioned installation.
28.	The meters shall continue to function for the remaining healthy phase(s), in case one or two phases of VT supply fails. In case of a complete VT supply failure, the computation of average frequency (as per 5.0) shall be done only for the period during which the VT supply was available in the 15-minute block. Any time block contraction or elongation for clock correction shall also be duly accounted for.
29.	The harmonics shall preferably be filtered out while measuring Wh, VAR and VARh, and only fundamental frequency quantities shall be measured/computed.
30.	Either the meters shall have built-in facility (eg. test links in their terminals) for in-situ testing, or a separate test block shall be provided for each meter.
31.	Portable/hand-held Data Collection Devices (DCD): These shall be tailor-made for tapping all data stored in a meter's memory, a faithfully transferring it to the local PC. **The device shall be having IEC 62056 compatibility for standardized parameters and shall be compatible universally across different make of SEMs.** Each device shall be supplied complete with
i)	a lead with optical head for coupling it to the meter,
ii)	a lead for plugging it to a personal computer;
iii)	an internal battery for powering the devices;
iv)	a case for safely carrying it about
v)	a battery charger
vi)	**Serial to USB converter**
	The total arrangement shall be such that one (1) operation can carry out the whole operation himself, in about five (5) minutes per meter or preferably faster. **The same is applicable while downloading data from meter to PC.**

32.	The DCD shall have a key for starting the data tapping from the coupled meter's memory, a key to start data transfer to the PC, and a lamp, which would light up on completion of data collection, remain `on' while the data is held in the device and would go 'off' when all data has been transferred to the PC. Data tapping operation shall not erase the data from the meter's memory, or effect the meter operation in any way. The memory of the DCD shall get automatically cleared when the data has been transferred to the PC only then the DCD shall accept data from another meter. DCDs shall also have necessary provision for meter clock correction. DCDs shall be compatible with earlier supplied meters of L&T/SML/**ELSTER** make in regard to data downloading etc.
33.	The Contractor shall provide the necessary software which would enable a local IBM-Compatible PC to
i)	accept the data from the DCD and/or from an interface device connected to the optical port/RS-485 port and store it in it's memory in binary read only format in an user defined file name (File name format must be ddmm substation name-utility name),Also the download operation with DCD or directly using optical cable shall create a single file in binary form for all SEMs whose data was collected in that continuous session/operation.
ii)	Polling feature along with a task scheduler to run the data downloading software at a pre-designated date and time repeatedly or by manually selecting a meter. File naming for such downloaded data should also be in user defined format. A detailed activity log shall also be available for each downloading operation,
iii)	upload/import meter data (binary files) in the software for further processing. While uploading, there shall be provision to upload all selected files with single key stroke.
iv)	Convert the binary file(s) to text file(s). There should be provision to select multiple files based on file name, convert all selected files with single key stroke and store the text files in the same location where binary files are stored.
v)	display the collected data on PC's screen in text format, with forward/backward rolling,
vi)	print out in text format the data collected from one or more meters, starting from a certain date and time, as per operator's instructions,
vii)	transmit the collected data, in binary format, through an appropriate communication link to the central computer, starting from a certain date and time, as per operator's instructions, and
viii)	Store the collected data in binary format, on a floppy disc/CD/Pen Device. In addition to above, in general the software should be able to convert DLMS/COSEM compliant SEMs data to existing format as well as in tabular (.csv) format as applicable.
34.	The above software shall further ensure that absolutely no tampering (except total erasures) of the collected metering data is possible during its handling by the PC. The software shall be suitable for the commonly available PCs, and shall be supplied to Owner in a compatible form to enable its easy loading into the PCs available (or to be installed by the Owner/others) at the various substations.
35.	**Quality Assurance** "THE SOFTWARE SHOULD BE USER FRIENDLY AND CERTIFIED BY NERLDC (NORTH EATERN REGION LOAD DESPATCH CENTRE) FOR ENSURING DATA HANDLING CAPABILITIES". **The same should be demonstrated by party during technical evaluation only. During demonstration standard meter to be brought by party** Therefore software shall be offered for technical compatibility at NERLDC, Dongtieh, Lower Nongrah, Lapalang, Shillong, Meghalaya- 793006, which will be evaluated technically, before taking up further necessary action in the procurement process.
36.	The quality control procedure to be adopted during manufacture of the specified equipment shall be mutually discussed and finalized in due course, generally based on the established and proven practices of the manufacturer.
37.	**Testing**
38.	All equipment, after final assembly and before dispatch from manufacturer's works, shall be duly tested to verify that is suitable for supply to the Owner. In particular, each and every meter

	shall be subjected to the following acceptance tests:
i)	Verification of compliance with Table 4 under clause 8.1 of IEC-62053-22:2003, in both directions of power flow, for class 0.2S.
ii)	Test of the register ratio and the impulse value of the transmitting device, for both directions.
iii)	Verification that VARh measurement errors are within values permitted for class 2 in Table 6 of IEC 62053-23 for both directions of power flow.
iv)	Effect of +10% variation in measuring circuit voltage, on accuracy of Wh and VARh measurement
v)	Power loss.
vi)	Dielectric properties.
vii)	Starting and running with no-load for Wh and VARh, in both directions.
viii)	Functional checks for display and memory.
ix)	Accuracy of the calendar and clock.
x)	Accuracy of voltage and frequency measurement.
39.	Any meter which fails to fully comply with the specification requirements shall be liable to be rejected by the Owner. However, the Owner may purchase such meter at a reduced price in case of marginal non-compliance, at his sole discretion.
40.	Acceptance Tests for DCD and PC Software All DCDs, after final assembly and before dispatch from Contractor's/Manufacturer's works shall be duly tested to verify that they are suitable for supply to the Purchaser. In particular, each and every DCD shall be subjected to the following acceptance test:
i)	Functional checks
ii)	Downloading Meter Data from the Meter(s)
iii)	Compatibility with PC Software
iv)	Downloading the meter data on PC
v)	Functioning of advance and retard time commands
vi)	Per meter downloading time verification
vii)	Capacity of DCD for data storage
41.	**Type Tests** One (1) out of every hundred (100) meters shall be subjected to the complete range of type tests as per IEC-62053-22:2003, IEC-62053-23:2003 and IEC 62052, 11:2003, after final assembly. In case of any failure to pass all specified tests, the contractor shall arrange to carry out the requisite modifications/replacements in the entire lot of meters at his own cost. After any such modifications and final assembly, two (2) meters selected out of the lot by the Owner's representative shall be subjected to the full range of type tests. The lot shall be accepted by the Owner only after successful type testing.
42.	The meters used for type testing shall be separately identified, duly marked, and supplied to the Owner in case they are fully functional and as good as other new meters, after necessary touching up/refurbishing. In case this is not possible, the contractor shall provide their replacements at no extra cost to Owner.
43.	The Contractor shall arrange all type testing specified above, and bear all expenses for the same.
44.	Following technical information shall be furnished by the Bidders in their offers: i) Foreseen dimensions of proposed meter. ii) Expected weight of proposed meter. iii) Foreseen dimensions of DCD**& Laptop** iv) Expected weight of DCD **& Laptop** v) Dimensions and weight of the test block, if supplied separately.
45.	**Warranty :** **1. 3 Years for both Meter & Data collecting Device (including Laptop)** **2. The warranty would include repair, replacement , part material replacement cost and one way (return) transportation cost (including insurance of transit)** **3. Meter/DCD/Laptop software, if upgraded by OEM should be supplied free of cost with**

	initiation taken from party. Remote service person name to be indicated during bidding
46.	**Laptop:** **1. Computer Notebook with Intel Core i5 processor or higher** **a. Processor cache : Mobile Intel core i5,3320 M, 2.6 GHZ with 3 MB L3 or Better IVY Bridge Configuration.** **b. Chipset & Motherboard: Intel 7 series or higher chipset on OEM Mother board.** **c. Memory : 4GB 1333 MHZ DDR3 RAM or higher expandable up to 8 GB** **d. HDD : 500 GB, 5400 rpm (min) SATA** **e. Display : 14" (35.6 cm) or above TFT active Matrix wide Screen Display.** **f. Resolution : 1366 x 768 WXGA or higher** **g. Video controller : Integrated Intel HD Graphics** **h. Wireless Connectivity : Integrated wireless b/g/n, Integrated Blue tooth.** **i. DVD Writer : Integrated DVD Writer 8X and Integrated stereo speaker.** **j. Key Board : Key Board with Touch Pad. Portable Key Board & 1no. mouse would be provided separately.** **k. Expansion Port : 3 USB, 10/100/1000 Ethernet card, RGB or S-Video or VGA/ HDMI (Inbuilt or Adaptor), 3 in one card reader, Microphone In, Headphone In & other standard features.** **l. Operating system : Microsoft windows 9 Professional/Linux (as applicable) preinstalled & Norton/McAfee/e-trust & other software, Antivirus Software latest version with 3 years license.** **m. Power Supply : 240V+/- 20%, 50 Hz AC Supply with rechargeable Battery suitable for approx. 5 hrs. operation complete.** **n. Carry case : To be provided of reputed make with cushions of laptop protection.** **o. Weight : Less than 2.8 kg (with DVD Writer)** **2. Any additional cable(with optical adapter or converter) or Software as required for data downloading from special energy meters (to laptop or DCD) are to be supplied with DCDs & Laptops** **3. Should be supplied with latest/compatible software (should be compatible with old & new meters data download handling) for L&T, Vallaby, Elster, Secure. Any new software as required to be installed within warranty period are to be done by party or through remote support to client** 4. **The total arrangement shall be such that one (1) operation (click on "data down load from meter" button on software)can carry out the whole operation himself, in about five (5) minutes per meter or preferably faster.** **5. The layout of software front end/user interface has to be approved by bidder during technical evaluation/demonstration. However a standard template sheet will be provided along with bid for ref.** **5. All facilities as indicated above for DCD should be covered against usage of Laptop** **6. Software for windows/office/antivirus to be supplied. Antivirus SW should not slow down processes and same will be demonstrated during technical demonstration.** **7. Above spec. is minimum only, any higher standard required for the purpose intended (meter data handling) would be assessed by vendor and would be supplied accordingly. The DRS should be approved during drawing approval stage**

Technical specification (TS) for Special Energy Meters and DCDs-Compliance Sheet

47.	**SCC:** **1.** ***Meter should be accomodatable in existing C&R panel of standard size (Alstom/ ER/ABB/Siemence) in kiosk or C&R panel with door closed. If required before bidding, bidder may collect necessary data from POWERGRID or else the scope is deemed to be included.*** **2. Step by Step procedure (on screen shot type or desktop video capture) (SW to be supplied during TOC) for** **a) Installation/Re-installation of software in to DCD** **b) Installation/Re-installation of Database handling software in to PC** **c) Meter maintenance/site-testing procedure as per relevant IS/IEC standard.** **d) Procedure for data downloading from Meter by Laptop/Desktop PC & DCD.** **e) Procedure for data downloading from DCD to PC** **2.** ***The Meters are to be used as Interface meters and check meters in transmission system of NERTS. As on date of delivery, the supplied meters should comply all statutory regulation as required under CERC/CEA/IEGC as applicable and the same should be declared by the supplier during delivery along with warranty certificate. ~~Any non-compliance~~***

(Annexure -1)

Of Technical Specification (TS) for Special Energy Meters and DCDs Compliance Sheet

ANCILIARY SERVICES SHOULD BE RECORDERD IN METER WITH FOLLOWING ANNEXURE SO AS TO RECORD VAR COMPENSATION ETC. IN FORLLOWING FORMAT OUT PUT

ANNEXURE-I

Date / Time	Bloc	Freq. Hz.	I_R	I_Y	I_B	V_R	V_Y	V_B	$VARh_R$	$VARh_Y$	$VARh_B$	
	1											
	2											
	3											
	...											
	...											
	...											
	...											
	93											
	94											
	95											
	96											

Lastly meter should comply all CEA regulations as per Interface meters as mentioned below:

As per powers vested in the Electricity Act, 2003, the Central Electricity Authority(CEA) had notified the Central Electricity Authority (Installation and Operation of Meters) Regulations 2006 followed by Amendment Regulations, dated 04th June, 2010. The CEA has laid down the standards and guidelines to be adopted for Interface Meters with respect to type, ownership, accuracy, Operation & Maintenance, Anti-Tampering, Calibration ,etc. Clause 20.0 of this Regulation provides for adoption of New Technologies with the approval/directions of the Appropriate Commission.