ORISSA ELECTRICITY REGULATORY COMMISSION
BIDYUT NIYAMAK BHAWAN,
UNIT – VIII, BHUBANESWAR – 751 012
*** *** ***

Present : Shri B.K. Das, Chairperson
Shri S.K. Jena, Member
Shri K.C. Badu, Member

Dated the 26th day of December, 2007

CASE NO. 50 OF 2006

In the matter of : Recording/reading of the defective meter for the billing purpose.

M/s. Nava Bharat Ventures Limited,
Kharagprasad, Dist- Dhenkanal – 759121 **…….. Petitioner**

- Vrs. -

M/s. GRIDCO & M/s. OPTCL **……. Respondents**

O R D E R

M/s. NBFAL, the petitioner, raised the issue that the meter installed at the grid s/s Meramundali for recording the energy supplied by M/s. NBFAL to OPTCL is not recording correctly due to low voltage experienced by the meter at the meter terminal. This has been discovered in the meter testing report of the said meter on 8th of March, 2006. The recording of the reading by the meter at Meramundali s/s was erroneous and faulty since its installation. The metering system at NBFAL premises is working correctly. The directions of the Hon'ble Commission dt.19.08.06 to record the reading of the said meter for the purpose of billing for the period from 01.01.06 to 31.03.06 is impossible to implement and can not be carried out by the parties concerned.

2. The petitioner, therefore, requested that the readings of the meter installed at the petitioner's premises for the purpose of billing of the period from 01.01.06 to 31.03.06 be taken as correct in stead of the recording of the meter installed at Meramundali s/s.
3. OPTCL, the Respondent submitted that in view of the complaint of erroneous metering at Meramundali grid s/s made by NBFAL on 28.02.06 a joint test was conducted in presence of both the representative of NBFAL and OPTCL. It was found that the input voltage supplied to the meter sometimes was becoming less than the normative value. On calibrations the meter situated at the control room for energy recording was found to be absolutely correct. The periodical low voltage observed at the meter terminal was due to long lead of the control cable for which NBFAL was advised to provide new sets of CV's to avoid such kind of fluctuation. Any such low voltage fluctuation is very short duration. Therefore, for such fluctuation the recording of energy at Meramundali or Grid s/s can not be said to be incorrect.
4. The Petitioner and the Respondent are relying on the joint report of 8.3.2006 to advance their argument.

   It was also confirmed that the reading recorded at the

   (a) PT terminal of Meramundali Grid s/s,
   (b) Meter terminal of Meramundali Grid s/s
   (c) P.T. terminal of Nava Bharat Ferro Alloy and s/s (NBFAL)
   (d) Meter of NBFAL s/s. have been taken at different times during the day.

An extract of the case result of 8.3.2006 is given below.

ANNEXURE – 15

OBSERVEATIONS MADEAT 400/200/132KV GRID SUBSTATION-MERAMUNDALI AND 132/11 KV SUBSTATION – NBFAL For 132 KV MRDL-NBFAL Feeder

Date 08.03.2006
Time 13.46.

S.No	Parameters	Grid Substation –Meramundali			Grid Substation – NBFAL			Remarks
		PT Console		APEX (Main)	PT Console		APEX (Main)	
		V	KV (Calculated)	KV	V	KV (Calculated)	KV	
1.	V_{RY}	110.7	132.84	125.1	112.2	136.64	134.8	
2.	V_{YB}	110.7	132.84	127.2	112	134.4	134.6	
3.	V_{BR}	110.3	132.36	127.5	111.5	133.8	133.9	
4.	V_{RN}	63.4	76.08	69.4	64.5	77.4	77.7	
5.	V_{YN}	63.6	76.32	75	64.8	77.76	77.9	
6.	V_{BN}	63.3	75.96	75.5	64.2	77.04	77.3	
7.	I_R (Amps)			114.3A			114.3A	
8.	I_Y (Amps)			116.4A			117A	
9.	I_B (Amps)			117.2A			118.03A	
10.	MW			-25.02			-26.85	
11.	MVAR			-4.95			-3.64	
12.	PF			0.981 (lag)			0.99 (lag)	

Note: Secondary Current of 132 kV PT measured at Meramundali Grid S/S:

I_R = 1.12A V_{RN} = 63.4V Burden:

I_Y = 1.46A V_{YN} =63.6V R_{PH} = 71.0VA

I_B = 0.823A V_{BN} = 63.3V Y_{PH} = 92.86VA

I_N = 56mA B_{PH} =52.09 VA

Total VA = 215.90VA

	With Fuse	Without Fuse
PT Voltage	V_{RN} =63.7V	V_{RN} =64.1V
	V_{YN} =64.0V	V_{YN} = 64.4V
	V_{BN}= 63.6V	V_{BN} = 63.9V

Order observation on the test report is that:

(a) There is marginal and no difference in the voltage recording at the secondary side of the PT console between phase to phase (i.e. R-Y, Y-B & BR).

(b) Similar is the observation in case of phase to neutral at PT console of grid s/s.

(c) Actual voltage measurement recording at the meter terminal of the meter APEX METER at MDL grid s/s has not been done.

(d) Such a measurement could have given the exact voltage drop between the PT console upto the metering terminal. It could have established thereafter if there is abnormal drop between the two points.

(e) There is not much inequality in the recorded line voltage at the APEX meter terminal of Meramundali grid s/s. On the other hand phase to neutral recording on the R-Ph shows a lower reading compared to Y & B phases. It indicates that either the reading is wrong or at that point of time the voltage at that instant of recording was low. This is possible in case of unbalanced loading may be due to the presence of fluctuation traction or furnace loads. The readings presented to us are all instant reading. Based on the instant readings it will be inappropriate to come to a judgment that the recording for the entire period was wrong while the readings of the line voltage indicates no suspicion about the accuracy of the reading.

(f) So much has been said about the VA Burden by both the parties. Interestingly Y- phase showing the highest burden shows a much higher voltage reading in the Y-phase at the APEX meter terminal compared to R-Phase. With lower burden in R-phase the voltage recording at R-phase is lower than the Y-phase. This is a fallacious condition. Either VA Burden reading is wrong or the R-phase to neutral voltage reading is wrong. Possibly the instruments utilized

for testing are not properly calibrated as has been suggested during the hearing.

(g) Analysis of the secondary current of 132 KV PT indicates lot of variance between the phases. It is not clearly spelt out in the report about the position of various switches in the voltage circuit. VA burden could be different due to the switch positions.

(h) Primary current recording between NBFAL & Meramundali grid recording is more or less in both the ends indicating no mismatch between the current transformers & their recording. But the MW recording between NBFAL and MDL shows a difference in recording by about 6%. There could be two reasons. (i) drop in voltage due to load flow from NBFAL end & (ii) there could be a lower voltage at the Meramundali end. This could happen due to low system voltage at that instance as the VA recording does not conclusively prove that low voltage could be ascribed only through higher VA burden as has been described in para-6.

(i) Comparison between calculated value in KV at PT console as shown in the table (test report) cannot be compared with the recorded reading of APEX meter. In fact for a like to like comparison as indicated in para-3 the secondary voltage measured at the meter terminal should have been utilised & voltage calculated as has been done for the PT console. That could have been comparable at least. Such a data is not there.

5. For testing the correctness of the metering installation at Meramundali grid the comparison with NBFAL is not a requirement. What is required is that the accuracy of the CT, PT meters etc. should have been separately computed and a long dial test with a standard meter along with a drop in voltage from PT console upto the metering terminal should have been taken into consideration to decide the correctness or otherwise of the metering installation.

6. Therefore relying on the test report alone and without conclusive & convincing proof will not be appropriate to conclude that the metering installation at Meramundali grid s/s is not correct within the meaning of IEA Regulation 1956. Let us have a look at the provisions of the metering as provided in the relevant Grid Code.
7. The provisions of metering and communication and data acquisition have been exclusively dealt in section -14 of the Grid Code Version -12 approved by OERC vide letter No.OERC-Engg-4/97 (Vol-6)/674 dt.03.05.05 issued on May 2005.

    14.1 specify that the minimum operational and commercial metering requirement to be provided by each user at the interconnection point and also at the cross boundary circuit.

    14.2 defines that the minimum acceptable metering requirement to enable the licensee to manage the transmission system in a safe and economic manner consistent with license requirements.

    14.6.5 and 14.7.5 define that all current transformers and voltage transformers used in conjunction with commercial tariff metering shall conform to relevant Indian Standard Specification or relevant IEC. These shall be of an accuracy class point 2 and of suitable rating to cater to the meter burden and lead wire.

    14.7.6 and 14.6.7 specify that voltage supply to the metering shall be assured with necessary voltage selection schemes. Voltage failure relays shall be provided which will initiate alarm on loss of one or more phases of the voltage supply to any meter.

14.6.8 and 14.7.7 define the agreement between the generator and the licensee and the licensee and distribution company to agree about the limits of overall accuracy of metering. Incidentally no agreement regarding the overall accuracy to be attended for any metering has been presented to us. In view of that we are bound by the provisions of section 57 of Indian electricity Rules, 1956 which deals about the accuracy of meters. This law is protected by virtue of section 185(2)(c). According to this I.E. Rules, 1956 made under section 37 of the I.E. Act, 1910 as it stood before such repeal shall continue to be enforced till the release under section 53 of the Act, 2003 are made. Section 55(2) of the Electricity Act 2003 states that for proper accounting and audit in the generation, transmission and distribution or trading of electricity, the authority may direct the installation of meters by a generating company or licensee at such stages of generation, transmission or distribution or trading of electricity and at such locations of generation, transmission or distribution or trading, as it may deem necessary.

The Central Electricity Authority (Installation and Operation of Meters) Regulation, 2006 came into force on the date of their publication in the Gazette of India i.e. 17th March, 2006 and the Orissa Grid Code Regulations were notified on 1st of May, 2006. Obviously, the testing and test results of the installation at Meramundali grid s/s will have to be covered within the provisions of Indian Electricity Rule, 1956. In accordance with section 57 of IE Rule, 1956 a meter shall be deemed to be correct if its limits of error (are within the limits specified in the relevant Indian Standard Specification and where no such specification exists, the limits of error) do not exceed 3% above or below absolute accuracy at all loads in excess of 1/10th of full load and up to full load. Obviously, what is

required is determination of error in comparison to an absolute accurate reading with a standard meter. Hence, the comparison with the meter installed at NBFAL could not be the criteria for rejecting the meter reading at Meramundali grid s/s.

Accordingly the case is disposed off.

Sd/-	Sd/-	Sd/-
(K.C. Badu)	**(S.K. Jena)**	**(B.K. Das)**
Member	**Member**	**Chairperson**