

**GUJARAT ELECTRICITY REGULATORY COMMISSION
BEFORE THE ELECTRICITY OMBUDSMAN, GUJARAT STATE
Polytechnic Compound, Barrack No.3, Ambawadi,
Ahmedabad-380015**

CASE NO. 79/2018

Appellant : M/s. Monarch Ceramics
C/o. Sahjanand Power Management Pvt. Ltd.,
B-105,Dev Aditya Arcade, Bagban Cross Road
B/h.HDFC Bank, Thaltej, Ahmedabad-380059

Represented by: Shri D.S.Doshi, Authorized representative

V/s.

Respondent: Executive Engineer
Paschim Gujarat Vij Company Ltd.,
Division Office, Morbi-363642

Represented by: Shri N.D.Panara, EE, PGVCL, Morbi.

:::PROCEEDINGS:::

- 1.0.** The Appellant had submitted representation aggrieving with the order No.7083(4) dated 24.07.2018 passed by the Consumer Grievances Redressal Forum, Paschim Gujarat Vij Company Limited, Rajkot, in case No. 27/Q.01/2018-19. The representation was registered at this office as Case No.79/2018. The hearing of this case was kept on 27.09.2018.
- 2.0.** Appellant has represented the case as under.
- 2.1. Appellant is a HT consumer of Respondent, having connection No. 26518, with contracted demand of 1800 KVA, under Morbi Division. Appellant has installed ABT meter in series with PGVCL's TVM meter. PGVCL has billed for August,2017 for actual MD of 3709 KVA. As per Respondent, excess MD was recorded at 17:30 hours on 29.08.2017. The details from Respondent are as under:

Date	Time	Import KWh fund	Import KVAh	Import KVArh lag	Import KWh total
29.08.17	17:30	0.15402	0.464	0.01185	0.15387

Appellant had filed grievance before CGRF. Aggrieved by the Order of CGRF, Appellant has filed present representation.

- 2.2. (1) It is submitted that fundamentally as per the electrical engineering the meter can measure only Active and Re-active parts of the energy. Whereas apparent energy (KVAH) is a derived quantity. TVM displays KVAH after deriving it mathematically through microprocessor as per theorem of Pythagoras. If there is a fault in microprocessor, TVM would display wrong KVAH. Therefore, if derive KVAH from KWH and KVARH by applying formula, $\text{import KVAH} = \sqrt{(\text{import KWH}^2 + \text{import KVARH}_{\text{lag}}^2)}$, for 15 minutes block KVAH shall be 0.154 (instead of 0.464) and KVA demand shall be 0.616 (instead of 1.856).
- (2) As per MRI data, import KWH for subsequent two time blocks was zero, whereas for third time block it was meagre.
- (3) The matter was strongly protested and referred to the manufacturer, M/s. EDM India Private Limited. The manufacturer after careful investigating the meter data had confirmed that the defect had crept in calculation of KVAh energy because of some fault in the microprocessor of the meter.
- (4) Appellant has requested Respondent to provide data of PGVCL's TVM, installed as check meter.
- (5) As per GERC Supply Code, Clause No. "6.58 in case of defective/stuck/stopped/burnt meter, the consumer shall be billed on the basis of average consumption of the past three billing cycles immediately preceding the date of the meter being found/reported defective."
- (6) It is submitted that the actual demand in previous three months was as under:

Month	Actual MD
May,2017	1726
June,2017	1705
July,2017	1831
Average	1754

Therefore, Respondent can derive real actual MD for particular time block under question by applying formula stated above.

- (7) It is submitted that Appellant had requested Chief Engineer(Tech & R&C), PGVCL, Rajkot (i) either to derive actual MD as per above formula and (ii) to bill the Appellant for demand charges, based on average actual demand of Appellant's past three billing cycles immediately preceding the month August,2017.

2.3. Appellant has submitted conclusion of CGRF order along with his comments thereof as under:

- (1) By CGRF it is relied that 11KV Raghuvir Industrial feeder catering power to Appellant was tripped due to heavy wind during 17:25 to 18:15 hours. Therefore, zero KWh registered in ABT meter in subsequent two time blocks is in order.

It is submitted by Appellant that ABT meter manufacturer, EDMI, in its letter dated 01.11.2017 mentioned as under:

“In any TVM parameters measured are active (KWH) and reactive (KVARH) energies. Apparent energy (KVAH) is a derived value. Abnormal MD recording is observed, due to momentarily malfunctioning of microprocessor may be due to abnormal surges in the electrical distribution system.”

It is submitted that feeder was tripped due to heavy wind at 17:25 hours and therefore, as it is known, there are all chances of abnormal surge in electrical distribution system. Often it is seen that during such time of heavy wind/rain, gadgets of households like TV, Refrigerator etc., are failed due to abnormal surges in the electrical distribution system. Here also there are all chances that microprocessor of ABT meter temporarily failed at the time of tripping of feeder due to heavy wind.

- (2) It is submitted that in order to encourage and motivate bulk consumers to draw their load current from the grid at higher/better power factor, i.e. near to unity P.F., there is a provision of incentive against higher P.F. in the HT tariff as approved by Hon'ble GERC. Therefore, across all DISCOMs the HT TVMs being procured are so programmed that KVAh is not directly measured by TVM but derived mathematically with the help of Microprocessor of the meter, from the

Square Root of the sum of square of KWH (active energy) and the square of KVARH lag only (reactive lag energy only). Thus apparent energy (KVAH) is a derived quantity. TVM displays KVAH after deriving it mathematically through a microprocessor as per theorem of Pythagoras. If there is fault in microprocessor, TVM would display wrong KVAH. Import KVAH are always derived by applying Pythagoras theorem i.e. $\text{import KVAH} = \sqrt{(\text{import KWH}^2 + \text{import KVARH}_{\text{lag}}^2)}$. Pythagoras theorem says that sum of the squares of two sides of right angle triangle = Square of hypotenuse (side opposite to right angle) i.e. say $3^2 + 4^2 = 5^2$. In no circumstances there are any chances of change in this formula.

In this case ABT meter has recorded KWh and KVARh as 0.15402 and 0.01185 respectively (two sides of right angle triangle), therefore KVAH shall be 0.15448 only (and in no case 0.464 is possible) and accordingly KVA demand shall be $0.15448 \times 4 \times 2000 = 1236$ KVA only.

It is submitted that if 3709 KVA recorded at 17:30 hours in ABT meter is correct, it means that KWh and KVARh recorded during same time are wrong. And if KWh and KVARh recorded are right, then KVA recorded is wrong. Therefore, in any case it proves that ABT meter was defective.

- (3) It is submitted that CGRF has mentioned that during time blocks under question power factor is recorded 0.33 only. Therefore, by applying formula, $\text{KVA} = \text{KW} / \text{PF} = 0.616 / 0.33 = 1.86$ KVA i.e. 3709 KVA (by applying PF of 2000 KVA) is as per rule.

Appellant in his comment on above point of CGRF has submitted that if contention of CGRF is accepted for PF then KVARH should be 0.43769. Whereas it has been recorded as 0.01185 only. As such CGRF's contention is wrong. In fact, due to momentary malfunctioning of microprocessor (meter), abnormally high KVA calculated and therefore PF (KW/KVA), which also is a derived figure, is shown drastically low.

- (4) It submitted that as per testing in the Laboratory of Respondent dated 24.10.17, meter's RTC clock is lagging 28:00 minutes in reference to IST.
- (5) Appellant has submitted relevant data dated 29.08.2017 as under:

Time	ABT meter		PGVCL meter	
	KWh	KVA	KW	KVA
17:00	361.38	1448	746	1496
17:15	378.04	1520	0	0
17:30	307.74	3708.8		
17:45	0	0	36.328	74.124
18:00	0	0		
18:15	0.26	0	364.57	729.388
18:30	63.82	256		

- (6) It is submitted that Respondent's meter is lagging IST by 28:00 minutes. In ABT meter at 17:45 hours and 18:00 hours zero KWH is recorded, while in Respondent's meter for the period 17:00 to 17:30 hours zero KWh is recorded. Therefore, comparing data of Respondent's meter, parameters recorded in ABT meter are in order. Therefore, there was a fault in microprocessor of ABT meter, which can be accepted.

CGRF has compared data of KWh of ABT meter from 17:30 to 18:30 hours with that of Respondent's meter during 17:00 to 17:30 hours and concluded that KVA recorded in ABT meter are in order.

It is stated that KVA of two relevant time blocks of ABT meter need to be compared with that of Respondent's meter by considering 28:00 minutes i.e. 30:00 minutes time lag than IST.

Therefore, KVA registered in ABT meter during 17:00 to 17:30 hours needs to be compared with KVA recorded in Respondent's meter at 17:00 hours, which are as under:

Time	ABT meter	Time	PGVCL meter
17:15	1520.0	17:00	1496
17:30	3708.8		
Average	2614.4		

From the above, it proves that actual demand during 17:00 to 17:30 hours was 1500 KVA. Respondent's meter clearly indicates KVA demand of 1496 KVA at 17:00 hours which should be equivalent to KVA demand recorded in ABT meter for the period 17:00 to 17:30 hours, in view of findings of CGRF.

- 2.4. It is submitted that during hearing before CGRF there was no submission made by Respondent about the MRI data of Respondent's meter. Respondent has submitted the said data thereafter before CGRF, but copy was not handed over to Appellant. Forum has also not given a chance to offer any comments.
- 2.5. It is submitted that to install and maintain the meter is the responsibility of Respondent. Appellant has referred Para No.4.1 of Ombudsman order in case No.160/2014 regarding CEA Regulations (Installation and Operation of meters).
- 2.6. It is submitted that grievance was filed before CGRF on 02.05.2018 and as per Clause No. 2.44 of Notification No.2 of 2011 Forum has to decide the grievance within a period of 45 days, but in this case Forum has taken almost double time to decide the present grievance.
- 2.7. Appellant has submitted as under:
 - (1) There was momentary defect in ABT meter and therefore wrong KVA is recorded at 17:30 hours on 29.08.2017.
 - (2) Respondent's check meter was lagging IST by 28:00 minutes therefore KVA recorded in check meter at 17:00 hours displays actual demand of Appellant from 17:00 to 17:30 hours, which is 1500 KVA only.
 - (3) Considering the basic technical aspects that meter measures KWH and KVARh only. Actual demand for time block under question is to be derived by applying formula as mentioned above, in para No. 2.2(1).
 - (4) For time block under question if KW and KVAR, which are actually measured quantity, are right then KVA is wrong. And if KVA which is displayed by ABT meter is right, then either KW or KVAR or both are wrong. If Power Factor is right then KVAR is wrong. Thus in any case meter is defective and therefore Clause No. 6.58 of Supply Code,2015 is applicable and it is necessary to bill for demand charges based on

average actual demand of previous three billing cycles immediately preceding the month August,2017.

2.8. Appellant has submitted rejoinder vide letter dated 28.09.18 and reiterated certain above points. Further he has stated as under:

- (1) Meter measures only KWH and KVARH, KVAH must be as per standard formula if microprocessor is in order. Otherwise it needs to be derived as per standard formula. These three readings i.e KWH, KVARH and KVAH always fulfil theorem of Pythagoras. The three readings given by Respondent do not fulfil the theorem of Pythagoras. Hence meter was defective for above time blocks.
- (2) As per the submission made if Power Factor is accepted by Respondent then KVARH should be 0.43769, whereas it has been recorded as 0.01185 only. Due to momentary malfunctioning of microprocessor of meter, abnormally high KVA is calculated by microprocessor and therefore derived Power Factor is shown drastically low.
- (3) It is stated that demand of 3709 KVA or nearby it for one time block under question was only recorded since August,2015.
- (4) In comparison with data of KVA of ABT meter with PGVCL meter for any time block, actual demand in question was well within 85% of contract demand.
- (5) Respondent has not denied for (1) calculation of KVA with standard formula as mentioned above (2) KVA comparison during the matching time block of ABT meter and PGVCL meter, (3) there is no competency of Respondent's meter testing laboratory to test the microprocessor or other electronic parts of the meter.

2.9. Appellant has prayed as under:

- (i) to derive actual MD as per formula mentioned above in Para No. 2.2(1) for time block under dispute OR
- (ii) to bill for demand charges based on average actual demand of previous three billing cycles immediately preceding the month August,2017.

3.0. Respondent has represented the case as under.

3.1. Appellant is having 1800KVA HT connection, bearing consumer No.26518 at village Ghutu, Taluka Morbi. Appellant has also installed ABT meter at his installation. The maximum demand recorded for the month of August,2017, MRI of said meter was taken through AMR. As per the study of MRI report, there was no any abnormality found. The reading parameters of ABT meter on 29.08.17 are as under:

Date	Time	Import KWh-funda	Import-KVAh	Import KVArh-lag	Import KWh-Total
29.08.17	17:30	0.15402	0.464	0.01185	0.15387

3.2. Vide application dated 16.09.17, Appellant had requested to remove ABT meter from site and to test the meter in PGVCL Hi-Tech Laboratory. On 29.09.17, ABT meter was removed after taking accuracy of meter with Accucheck meter at site and there was no any problem found in the meter. On 07.10.2017, ABT meter was test at NABL Hi-Tech Laboratory, PGVCL, Rajkot in presence of Appellant and representative of EDMI i.e. meter manufacturer. Test on Limits of error due to variation of the current, variation of Maximum Demand was carried out and tests were confirmed and no any defect was observed in the meter.

3.3. It is submitted that power supply fed to the Appellant from 11KV Raghuvir industrial feeder. At time 17:25 to 18:15 the 11KV feeder was off. Details are as under:

Date	TT				SF				Line clear permit			
	From	To	Total time	Re-remarks	From	To	Total time	Re-remarks	From	To	Total time	Re-remarks
29.08.17	NA				01:50	07:00	5:10	Feeder off due to heavy wind	NA			
29.08.17	NA				17:25	18:15	0:50	Feeder off due to heavy wind	NA			

3.4. As per installation checking of meter and MRI report and Tests carried out at Hi-Tech Laboratory, Rajkot, there was no any abnormality found and hence bill was not revised. Meanwhile Appellant had asked for MRI report of ABT meter and PGVCL meter, which was provided to Appellant.

- (a) The units and MD recorded on ABT meter in 15 minutes time block and PGVCL meter in 30 minutes time block are as under:

(Table-A) ABT meter(15 minute time integration)						PGVCL (30 minute time integration)			
Date & time	Import (PF) (recorded)	Billing KWH (Recorded)	Demand MD KVA*MF (2000) (Recorded)	Billing KVARH LAG (Recorded)	KVA Derived from KWH & KVARH Lag.	Date & time	Import PF (Not recorded by meter in 30 minute block)	Billing KWH with MF 20	Billing KVA with MF 20
29.08.17/16:45	1	367.78	1473.12	23.68	1474.17				
29.08.17/17:00	1	361.66	1448.24	21.52	1449.20	29.08.17/17:00	NA	746	1496
		729.44						746	
29.08.17/17:15	1	378.44	1516.48	28.26	1517.97				
29.08.17/17:30	0.33	308.04	3708.80	23.7	1235.80	29.08.17/17:30	NA	0	0
		686.48						0	
29.08.17/17:45	*****	0	0	0	0				
29.08.17/18:00	*****	0	0	0	0	29.08.17/18:00	NA	36.328	74.124
		0						36.328	
29.08.17/18:15	0.94	0.24	1.02	0	0.96				
29.08.17/18:30	1	63.96	256.84	4.02	256.34	29.08.17/18:30	NA	364.57	729.388
		64.2						364.57	

- (b) It is submitted that ABT meter as well as PGVCL meter was tested at site before removing the ABT meter and accuracy of both the meters were found OK. RTC of PGVCL meter was found lagging 28 minutes in reference to IST. Details are as under:

Particular	PGVCL meter	IST	Note
RTC Time	10:25	10:53	PGVCL meter RTC clock is behind approx. 28 minutes with reference to IST.

- 3.5. It is submitted that as per the available documents and parameters available of ABT meter it is very clear that Maximum Demand was recorded on 29.08.2017 but Appellant was not satisfied and approached before CGRF. Forum has given decision that Maximum Demand recorded on ABT meter is correct and there is no any question to revise the bill and Forum had dismissed the grievance.
- 3.6. It is submitted that as per the table shown in Para No. 3.4(a), it is very clear that maximum demand recorded on ABT meter on 29.08.2017 between 17:15 to 17:30 hours was 1.8544 (3708.80KVA) and Power Factor was 0.33,

while as per PGVCL meter RTC clock is behind 28 minutes in reference to IST, the maximum demand recorded on PGVCL meter on 29.08.2017 between 16:30 to 17:00 hours was 1496 KVA.

The tampered parameters of PGVCL meter are as under:

Disputed event on 29.08.17, 19:30 hours:

Time	Tamper count	Tamper type	Time	Tamper count	Tamper type	Voltage R	Volt. Y	Volt. B	Curr -ent- R	Curr . Y	Curr . B	Imp-ort KWH	RPF/ YPF/ BPF
1:31	Occur	Power fail											
2:52	Recov	Power fail											
3:02	Occur	Power fail											
6:34	Recov	Power fail											
16:59	Occur	Power fail	17:46	occur	Low PF Y-Ph.	67.1	67.1	67.1	0.23	-0.29	0.27	2726108	0.010 -0.020 -0.017
17:44	Recov	Power fail		Recov		67.1	67.1	65.9	0.21	0.19	0.26	2726108	0.890 -0.920 -0.960

It is said that RTC clock of PGVCL meter is behind 28 minutes in reference to IST and recorded parameters in 30 minutes time block, while ABT meter recorded parameters in 15 minutes time block. Hence comparison of parameters of both meters is not possible.

- 3.7. Respondent has submitted the details of Accucheck test of ABT meter and PGVCL meter carried out on site on 29.09.2017, which are as under:

Particular	ABT meter	PGVCL meter
Make	EDMI	L&T
Sr.No.	GJ3118B	PH5A0181
Class	0.2S	0.5S
CT Ratio	-/5A	-/5A
PT Ratio	-/110	11KV/110V
CTPT details		
Make	Nikson (0.2 class)	
Sr.No.	47/2016	
CT Ratio	100/5	
PT Ratio	11KV/110V	
MF	2000	20
Parameter	As per site visit – Accuracy Test Result	
Accucheck Result- 29.09.17	-0.246%	+0.640%

It is said that as per the representation of Appellant during disputed time due to fault in microprocessor in ABT meter demand recorded during 17:15 to 17:30 hours on 29.08.17 is 1.8544 (3708.80KVA), but in the said case during disputed period power factor recorded is very low i.e. 0.33 and as per

the formula $KVA = KW/PF$, Demand = $0.616/0.33 = 1.866$ KVA, which is correct, and there is no any question to revise the bill.

- 3.8. From the above it is concluded that due to low Power Factor at location of Appellant on 29.08.17 at 17:30 hours, maximum demand recorded was 1.8544 (3708.80 KVA).

: ORDER :::

- 4.0.** I have considered the contentions of the Appellant and the contentions of Respondent and the facts, statistics and relevant papers, which are on record, and considering them in detail, my findings are as under.
- 4.1. The bill for the month of August,2017 was served under HTP-I tariff for recorded drawl of 3709 KVA in Intrastate ABT meter between 17:15 to 17:30 hours on 29.08.17. Maximum Demand Integration Period (DIP) is 15 minutes. Appellant is Open Access consumer of Respondent.
- 4.2. As per Para 3.7, accuracy of both the meters was recorded as per test conducted on 29.09.17 which was found within limit. The subject issue herein is higher maximum demand recorded in ABT meter during time period 17:15 to 17:30 hours on 29.08.17, and to decide the grievance of Appellant CGRF has observed and compared the data of PGVCL meter i.e. check meter installed at the location of Appellant. MRI data of both meters i.e. ABT meter and PGVCL check meter, was retrieved and analyzed by Respondent. CGRF has also observed the analyzed data in its order. The ABT compliance meter make EDMI, Sr.No. GJ-3118-B, Type-Mk6E was tested at Hi-Tech Laboratory, Rajkot on 07.10.17 as per request of Appellant. Test details are mentioned in Test Report No.PMHL/T/239/2467 dated 07.10.17.
- 4.3. Respondent has submitted data PRT-145 before CGRF as per Para No.3.2 of CGRF order. As per the records of PRT-145 of Appellant, maximum demand recorded nearer to the contract demand of Appellant during the period June,2016 to April,2018, except for the month of August,2017, wherein 3709 KVA maximum demand recorded which is a subject issue of representation.

4.4. As per GERC Grid Code Notification dated 17.07.2013, Clause 2(5) “Apparent Power” refer to the product of voltage and alternating current measured in units of volt-ampere and standard multiples thereof i.e. 1000VA = 1 KVA.

Clause No. 2(113) “Power Factor” refers to the ratio of Active Power (KW) to Apparent Power (KVA) i.e. KW/KVA.

Looking to the MRI data available under load survey report apparent energy is calculated and accordingly calculation of average power factor worked out is as under:

$$(1) \text{ Calculated KVAH} = \sqrt{(\text{KWH})^2 + (\text{KVARH}_{\text{lag}})^2}$$

$$(2) \text{ Average Power Factor: KWH/calculated KVAH.}$$

For disputed time block 17:15 to 17:30 hours as per above formula No.1, KVAH would be 0.154, while ABT meter has calculated it 0.464 and KVA demand would be 0.617 instead of 1.856.

MRI data report generated on 01.09.2017 for ABT meter Sr.No.GJ-3118B.

As per MRI data record No.69850 to record No.69874, KVAH calculated by ABT meter and KVAH calculated theoretically with above formula(1) are found as under:

Table-A.

Record No.	KWh recorded	KVAH	KVArh Lag recorded	KVArh Lead recorded	Calculated KVAH theoretically	Calculated KVA theoretically
69850	0.19367	0.194	0.01708	0	0.194	1555.373556
69851	0.18989	0.19	0.01657	0	0.191	1524.892694
69852	0.19146	0.192	0.01573	0	0.192	1536.840697
69853	0.18705	0.187	0.01268	0	0.187	1499.834335
69854	0.18645	0.187	0.01357	0	0.187	1495.54533
69855	0.18395	0.184	0.01344	0	0.184	1475.522657
69856	0.20239	0.203	0.01801	0	0.203	1625.517955
69857	0.2057	0.206	0.01783	0	0.206	1651.770423
69858	0.20959	0.21	0.01884	0	0.210	1683.480465
69859	0.18389	0.184	0.01184	0	0.184	1474.166182
69860	0.18083	0.181	0.01076	0	0.181	1449.198763
69861	0.18922	0.19	0.01413	0	0.190	1517.974762
69862	0.15402	0.464	0.01185	0	0.154	1235.801483
69863	0.0	0.0	0.0	0	0.0	0
69864	0.0	0.0	0.0	0	0.0	0
69865	0.00012	0.0	0.0	0.002	0.0	0.96
69866	0.03198	0.032	0.00201	0.0062	0.032	256.3448303
69867	0.09206	0.092	0.00148	0.0042	0.092	736.5751666
69868	0.0935	0.093	0.0	0.0078	0.094	748
69869	0.09217	0.092	0.00001	0.0095	0.092	737.3600043
69870	0.09377	0.093	0.0	0.0102	0.094	750.16
69871	0.09341	0.093	0.0	0.0108	0.093	747.28
69872	0.10819	0.108	0.0	0.0071	0.108	865.52
69873	0.10896	0.108	0.0	0.0077	0.109	871.68
69874	0.10826	0.108	0.0	0.0078	0.108	866.08

As per above parameters of MRI data, only KVAH recorded by ABT meter during time block 17:15 to 17:30 is not matched with calculated KVAH.

Table-B.

Record No.	Date & time	Import KWh fund	Export KWh fund	Import KVAh	Export KVAh	Import KVArh Lag.	Export KVARh Lead	Export KVArh Lag	Import KVArh Lead	Import KWH Total	Export KWH Total	Import KVA	Import PF	Import KW
69862	8/29/2017 17:30	0.15402	0	0.464	0	0.01185	0	0	0	0.15387	0	1.8544	0.33	0.616
Multiply with MF @2000		308.04	0	928	0	23.7	0	0	0	307.74	0	3708.8		1232

Where	Recorded	Meter MF	Reading
PF	0.33	*****	0.33
KVAh	0.464	2000	928
KVA	1.8544	2000	3709
KVArh	0.01185	2000	24
KVArh- from above	0.0474	2000	95
KW	0.616	2000	1232
7KWH	0.15387	2000	308

From above table, it is seen that only at time block 17:15 to 17:30 hours i.e. record 69862, meter has recorded KVAH 0.464 instead of 0.154, while other time block, recorded KVAH is matched with calculated KVAH.

- 4.5. The definition of check meter as per CEA Notification,2006 is “check meter” means a meter, which shall be connected to the same core of the Current Transformer (CT) and Voltage Transformer (VT) to which main meter is connected, and shall be used for accounting and billing of electricity in case of failure of main meter.

Here, PGVCL meter i.e. L&T meter data can be compared with the data retrieved from ABT meter to ascertain the issue pertaining to higher maximum demand recorded in time slot of 17:15 to 17:30 hours in ABT meter.

In load survey of ABT meter, various segments of electrical system recorded by meter, but as per MRI data record No.69862, record of KVAH 0.464, which is a calculative part are not correctly recorded by meter. However, the above parameters are already recorded by PGVCL, L&T meters, i.e. check meter, but at integration period of 30 minutes.

Except the records of MRI data of ABT meter for time block 17:15 to 17:30, ABT meter has recorded correct data and for that meter manufacturer has analyzed it mentioning reason to momentary malfunctioning of microprocessor of ABT meter.

- 4.6. The parameters recorded during the period 17:00 to 17:30 hours is as under:

Energy recorded by ABT meter: 686.48
 Energy recorded by Check meter: 746.0
 KVA MD recorded by ABT meter: 3709
 KVA MD calculated with available parameters of time block: 2614.4
 KVA MD recorded by check meter: 1496
 In ABT meter KVA MD calculated during the period 17:15 to 17:30 is 1235KVA.
 The difference of energy records is 7.90%.

- 4.7. The MRI data retrieved as per L&T meter, i.e. check meter is as under:

L&T meter Date & time	As per MRI meter Sr.No.PH5A0181				With MF(20)		
	Import KVAh	Import KWh_total	KVA	KW	KVA	KW	KWH
8/29/2017 16:00	41.5663	41.4286	83.1306	82.8572	1662.612	1657.144	828.57
8/29/2017 16:30	36.9204	36.8571	73.8408	73.7172	1476.816	1474.344	737.14
8/29/2017 17:00	37.4	37.3	74.8	74.6	1496	1492	746
8/29/2017 17:30	0	0	0	0	0	0	0
8/29/2017 18:00	1.8531	1.8164	3.7062	3.6328	74.124	72.656	36.328
8/29/2017 18:30	18.2347	18.2285	36.4694	36.457	729.388	729.14	364.57

As per Para 3.4(b), L&T meter is lagging by 28.00 minutes by IST and looking to the said period records of L&T meter on 29.08.17 at 17:00 hours data maximum demand recorded is 1496 KVA.

If on consideration of PGVCL meter lagging by 28 minutes with IST, then on available records as per Para 3.4(a) records of energy consumption (KWH) between time period 17:00 to 17:30 by PGVCL meter and time period 17:30 to 18:00 of AB meter have recorded nearby values.

- 4.8. Vide letter No. EDM/MTG/PGVCL/G.45/2017-18 dated 02.11.17, meter manufacturer has given clarification regarding abnormal MD recording in EDM ABT meter GJ-3118-B of Appellant after verification of data of ABT meter.

It is seen that abnormal MD recording on 29.08.17 at 17:30 hours is observed and calculated import KWH units in load survey using following formula:

$$\text{Import KVAH} = \sqrt{(\text{KWH})^2 + (\text{KVARH}_{\text{lag}})^2}$$

Meter manufacturer has compared KVAH in load survey with KVAH calculated with above formula and found that abnormal KVAH is found in load survey data in 15 minutes block only on 29.08.2017 @ 17:30 hours and did not match with calculated KVAH with above formula. For particular 15 minutes time block KVAH shall be 0.154 (instead of 0.464) and KVA demand shall be 0.616 (instead of 1.856).

In any TVM parameters measured are active (KWH) and reactive (KVARH) energies. Apparent energy (KVAH) is a derived value. Abnormal M.D. recording is due to momentarily malfunctioning of microprocessor may be due to abnormal surges in the electrical distribution system. If we multiply KVAH calculated by 4, it will show actual M.D. in KVA for particular block of 15 minutes.

If ABT meter will be tested for M.D. or accuracy tests same will show normal results.

If average data of 2 No. of 15 minutes blocks includes 15 minutes block where abnormal KVA MD is recorded with data of check meter having 30 minutes integration/block load survey data and 0.5s accuracy installed in series with ABT meter average P.F. (KWH/KVAH) will be found same as per calculated KVAH.

- 4.9. In above circumstances when parameters recorded are available in L&T meter, i.e. check meter, the Respondent cannot simply refuse to accept that in deciding the meter related dispute for billing purpose.

In this case, accuracy of both meters is well within limit as stated by Respondent.

On the basis of records of L&T meter, allowing percentage error of accuracy due to difference in integration period and due to accuracy class of meter, As per observations made in Para 4.6, Respondent is directed to revise the bill based on the parameters recorded by L&T meter i.e. check meter on part of demand recorded. The directives are to be implemented within 30 days of receipt of this order.

- 4.10. I order accordingly.

- 4.11. No order as to costs.

- 4.12. With this order, representation/Application stands disposed of.

(Dilip Raval)
Electricity Ombudsman
Gujarat State

Ahmedabad.

Date: 29.10.2018.