

**BEFORE THE FORUM  
FOR REDRESSAL OF CONSUMER GRIEVANCES  
IN SOUTHERN POWER DISTRIBUTION COMPANY OF A.P LIMITED TIRUPATI**  
**On this the 28<sup>th</sup> day of December' 2022**  
**C.G.No.40/2022-23/Tirupati Circle**

*Present*

*Sri. K. Ramamohan Rao*

*Chairperson (I/c) &*

*Member (Finance)*

*Sri. S.L. Anjani Kumar*

*Member (Technical)*

*Smt. G. Eswaramma*

*Independent Member*

*Between*

Smt.M.Snehalatha,  
C/o. M/s. Srihari Cement Bricks,  
1-33/1,  
Pantrampalli,  
Chittoor Dt.

Complainant

**AND**

1. Asst. Accounts Officer/ERO/Chittoor Town
2. Deputy Executive Engineer/Rurals-3/Chittoor
3. Executive Engineer/O/Chittoor.

Respondents

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**ORDER**

1. The case of the Complainant is that she is having Industrial service vide ISC No.5113213002436. She is running the service for the past five years for cement bricks manufacturing and she received bills in between Rs.2,500/-to Rs.3,000/-. But she received huge amount of CC bill in the month of July'2022 for an amount of Rs.58,422/-without intimating the facts to her. Hence requested the forum to resolve her grievance. The case was registered as C.G.No.40/2022-23/Tirupati Circle and sent to respondents for written submission.
2. The complainant also filed an application on 20.8.2022 for issue of interim directions not to disconnect the said service for non-payment of disputed amount of CC bill for the month of July'2022 during pendency of the case before this forum
3. Interim orders were passed vide IA No.07/2022-23/Tirupati Circle which is as follows:

***'Complainant is directed to pay an amount of Rs.10,000/-(Rupees ten thousand only) out of disputed bill amount of Rs.58,422/- within one week from the date of***

**DESPATCHED**  
DATE 29/12

receipt of this order. On payment of the above said amount, Respondents are directed not to disconnect the service connection SC No. 5113213002436 during the pendency of the complaint before this forum for non-payment of the balance disputed CC bill amount issued for the month of July'2022. The Complainant is advised to pay regular CC bills."

4. Joint written submission submitted by the respondents stating that, Smt.M. Snehalatha, C/o. M/s. Sri Hari Cement Bricks, 1-33/1,Pantrampalli, Chittoor is utilizing service connection from 09.05.2018 bearing service No.5113213002436 to her industry, M/s. Sri Hari Cement Bricks with a contracted load of 20HP at Pantrampalli pertaining to Chittoor Rurals section in R-3 sub division of Operation Division, Chittoor. The said service is provided with a CT operated tri vector meter for recording consumption.

The consumer raised a grievance in the forum against the category III (A) Wrong billing, in which she stated that she is receiving bill in between Rs.2,500/- toRs.2,700/- for the past five years. But the department issued huge amount of CC bill for the month of July'2022 for an amount of Rs.58,422/- and submitted that based on the account copy of billing information, the consumer has utilized maximum KVAh units of 343 units in the month of Aug'2020 and minimum KVAH units of 123 units in the month of Nov'2021.

The meter readings and the consumption recorded during the month of June-2022 are as follows:-

Date	KWh			KVAh		
	FR	IR	Consumption	FR	IR	Consumption
04.07.22	4600	4300	300	11744	4311	7433

As per the Hon'ble APERC orders in Retail Tariff order for the financial year 2019-20 regarding Unblocking of leading KVArh (Para:398,Page:247, Ch-IX Directives in Retail Tariff Order for F.Y.2019-20): For the purpose of billing, leading KVArh is blocked hitherto for all categories of consumers in LT except Domestic and Agriculture and for all categories of consumers in HT. As KVAh billing is taking care of the reactive power management by the consumers, the Commission has decided that the blocked leading KVArh recording in the meters provided for applicable consumers be unblocked. In this connection, respected Chief General Manager/P&MM issued

instructions vide Memo No. CGM/P&MM/DEE.P1/D.No.506/22, dt.13.04.2022 for implementation of lead unblock with immediate effect.

The respondents further stated that, the lead block was removed for the said service in the month of June-22. During the inspection of the said service by the respondents, it is observed that the high reactive power consumption (KVArh) recorded was due to over compensation of reactive power by installing more capacitors to the load than required resulting in high KVAh consumption.

They further stated that on request of the consumer, the healthiness of the meter was tested by the concerned CT meters wing on 26-08-22 in the presence of Assistant Engineer/Rurals/Chittoor and the consumer. The meter test results were found satisfactory and error was within the permissible limits as certified by the Assistant Engineer/CT Meters-III/Chittoor. Enclosed the test report copy, consumer representative viz. consumer's brother C.Ramesh Babu signed in the inspection notes. In addition, the readings recorded on 06-08-2022 after maintenance of capacitors by the consumer is furnished as follows:

Date	KWh			KVAh		
	FR	IR	Consumption	FR	IR	Consumption
06.08.22	4716	4600	116	13699	11744	1955

Hence concluded that the high KVAh consumption during 06/22 is merely due to over compensation and not due to the defect of the meter. During inspection of the said service, it is observed that the high reactive power consumption (KVArh) is due to over compensation of reactive power by installing more capacitors to the load than required resulting in high KVAh consumption. Hence requested to close the case.

5. Personal hearing through video conferencing was conducted on 11.10.2022 consumer's brother Mr.C.Ramesh Babu present and respondents Dy. EE/CTM/CTR and AE/R/Chittoor present. Heard both sides.

The complainant representative represented that, regularly they are receiving bills in between Rs.2,500/-toRs.3,000/- but the department issued huge amount of CC bill for the month of July'2022 for an amount of Rs.58,422/-without intimating the facts to them. Hence requested to revise the bill.

As per the AEE/R/Chittoor the said service was shifted from existing location opposite to the Bans Hotel Pantrampalli to new location Opposite to Preethi function hall, Kanipakam Road, Pantrampalli on 1.5.2022 and meter also installed on 1.5.2022. Hence consumption recorded is 'O' during 5/2022. During 5/2022 the monthly reading was taken on 4.5.2022.

The Dy.EE/CTM/Chittoor has stated that on 30.6.2022 the said meter Kvarh lead was unblocked and guided the consumer representative to provide adequate capacitors only.

He further stated that the huge amount of CC bill issued for the said service is only due to over compensation of kvarh as high rated capacitors are connected to the load side and they are in 'ON' mode during no load condition also. Hence KVAh consumption increased due to over reactive power (kvarh) and also stated that the complainant did not follow the guidelines regarding providing of capacitors to his unit to maintain PF to unity.

The Dy.EE/CTM/Chittoor has stated that the M&P wing tested the meter on 26.8.2022 on request of consumer and concluded the meter is working satisfactorily. In the test report also complainant's brother signed.

The demand and consumption statement of SCNo.5113213002436 from Jan'2021 to December'2022 is as follows:-

Bill - Date	Opening Date	Open Reading Kwh	Close Reading Kwh	Bill Units Kwh	Open Reading Kvah	Close Reading Kvah	Bill Units Kvah	Amt	EC	CC	Sur Charge	Fixed Charges	TRUE UP CHARGES	IED	ED	RM D	PO WER FAC TOR
03-Dec-22	05-Nov-22	5579	5726	147	14753	14925	172	3478	1152.4	63	939.33	1125	20.57	5.69	172	6.3	0.85
05-Nov-22	10-Oct-22	5404	5579	175	14544	14753	209	3779	1400.3	63	955.45	1125	20.57	5.98	209	6.3	0.84
10-Oct-22	06-Sep-22	5080	5404	324	14146	14544	398	5239	2666.6	63	938.93	1125	20.57	27.07	398	6.9	0.81
06-Sep-22	06-Aug-22	4716	5080	364	13699	14146	447	5642	2994.9	63	853.48	1125	20.57	138.37	447	10.1	0.81
06-Aug-22	05-Jul-22	4600	4716	116	11744	13699	1955	16596	13098.5	63	280.44	1125	20.57	53.76	1955	5	0.06
05-Jul-22	03-Jun-22	4300	4600	300	4311	11744	7433	58422	49801.1	63	0	1125	0	0	7433	10.05	0.04
03-Jun-22	04-May-22	4279	4300	21	4289	4311	22	1357	147.4	63	0	1125	0	0	22	0.2	0.95
04-May-22	02-Apr-22	4279	4279	0	4290	4290	0	1188	0	63	0	1125	0	0	0	0	0
02-Apr-22	02-Mar-22	4203	4279	76	4213	4290	77	1709	515.9	63	0	1125	0	0	4.62	4.6	0.99
02-Mar-22	02-Feb-22	4011	4203	192	4020	4213	193	2493	1293.1	63	0	1125	0	0	11.58	5.7	0.99
02-Feb-22	03-Jan-22	3844	4011	167	3854	4020	166	2310	1112.2	63	0	1125	0	0	9.96	4.9	1
03-Jan-22	02-Dec-21	3642	3844	202	3651	3854	203	2560	1360.1	63	0	1125	0	0	12.18	3.4	1
02-Dec-21	02-Nov-21	3520	3642	122	3528	3651	123	2019	824.1	63	0	1125	0	0	7.38	3.5	0.99

02-Nov-21	02-Oct-21	3290	3520	230	3298	3528	230	2743	1541	63	0	1125	0	0	13.8	4.1	1
02-Oct-21	02-Sep-21	3080	3290	210	3087	3298	211	2614	1413.7	63	0	1125	0	0	12.66	3.4	1
02-Sep-21	02-Aug-21	2821	3080	259	2827	3087	260	3265	1742	63	0	1125	319.8	0	15.6	3.7	1
02-Aug-21	02-Jul-21	2580	2821	241	2586	2827	241	2817	1614.7	63	0	1125	0	0	14.46	4	1
02-Jul-21	02-Jun-21	2315	2580	265	2320	2586	266	2986	1782.2	63	0	1125	0	0	15.96	4.5	1
02-Jun-21	02-May-21	2095	2315	220	2100	2320	220	2675	1474	63	0	1125	0	0	13.2	4	1
02-May-21	03-Apr-21	1831	2095	264	1836	2100	264	2973	1768.8	63	0	1125	0	0	15.84	4.4	1
03-Apr-21	02-Mar-21	1638	1831	193	1643	1836	193	2493	1293.1	63	0	1125	0	0	11.58	4.3	1
02-Mar-21	02-Feb-21	1391	1638	247	1395	1643	248	2864	1661.6	63	0	1125	0	0	14.88	4.9	1
02-Feb-21	04-Jan-21	1187	1391	204	1190	1395	205	2574	1373.5	63	0	1125	0	0	12.3	3.7	1
04-Jan-21	02-Dec-20	1001	1187	186	1003	1190	187	2452	1252.9	63	0	1125	0	0	11.22	4.6	0.99

As per the consumption particulars, it is observed that after shifting of the service from existing location to new location it is noticed that the consumption during month of 5/2022 is zero, as the complainant not utilized the supply due to shifting of the said service. Hence the PF recorded is also 'zero'. It is also observed that the complainant not maintained PF from 5/2022 itself.

As per the bill statement the PF recorded very low during July'2022 and August'2022 months and gradually improved to 0.85.

*As per Chapter- IX Para 398 in Tariff for Retail sale of Electricity during F.Y. 2019-20 at page No.247 of 375*

***“Unblocking of leading kVArh : For the purpose of billing, leading KVArh is blocked hitherto for all categories of consumers in LT except Domestic and Agriculture and for all categories of consumers in HT. As kVAh billing is taking care of the reactive power management by the consumers, the Commission has decided that the blocked leading kVArh recording in the meters provided for applicable consumers be unblocked. Therefore, the licensees are hereby directed to take note of this change and action shall be taken accordingly”.***

The department un-blocked leading kVArh and updated new software in the new meter provided, as per directions of Hon'ble APERC in *Chapter- IX Para 398 in Tariff for Retail sale of Electricity during F.Y. 2019-20.*

The respondents mentioned that the huge amount of CC bill received was only due to over compensation of capacitors i.e., high rated capacitors connected to the load side. On

oral advice of the department only the complainant minimized the capacitors rating and provided adequate rated capacitors to the said unit. High KVAH consumption recorded in the meter was only due to over rated capacitors connected by the complainant to the load side.

As per the Hon'ble APERC order on tariff for retail supply, the HT consumers who are provided with metering capable of measuring active and reactive power, shall maintain their power factor preferably in between 0.95 lag and 0.95 lead in the interest of the system security. The present complainant not maintained the power factor leading side less than 0.95 lead. If any consumer maintains the power factor less than 0.95 lead for a period of 2 consecutive months, it must be brought back in the range of (+) or (-) 0.95 within a period of 3 months failing which without prejudice to such other rights as having accrued to the licensee or any other right of the licensees the supply to the consumer may be discontinued.

As per para. 6.9 Chapter -X in Tariff for retail supply of Electricity during F.Y. 2022-23 issued by Hon'ble APERC, the consumer has to maintain power factor at their end preferably in between 0.95 lag and 0.95 lead in the interest of the system security. The consumers should not maintain the power factor leading side less than 0.95 lead.

Para 6.9 Chapter -X in Tariff for retail supply of Electricity for the F.Y. 2022-23 in page No.211 of 534 issued by Hon'ble APERC is as follows:-

**6.9 :- "Maintenance of power factor at consumer end**

***HT consumers, who are provided with metering capable of measuring active and reactive power under the orders of the Commission, shall maintain their power factor preferably in between 0.95 Lag and 0.95 Lead in the interest of the system security. The consumers should not maintain the power factor leading side less than 0.95 Lead. If any consumer maintains the power factor less than 0.95 Lead for a period of 2 consecutive months, it must be brought back in the range of  $\pm 0.95$  within a period of 3 months failing which without prejudice to such other rights as having accrued to the licensees or any other right of the licensees the supply to the consumer maybe discontinued. "***

6. The point for determination is whether there are any grounds to revise the CC bills for the month of July'2022 for the ISC.No.5113213002436?

As seen from the above table, it is observed that the power factor is maintained at Unity (1) except for the months from July'2022 to December'2022 and the low PF recorded between 0.04 to 0.85 which is very low in those months thus causing recording of more KVAH units.

*As per Chapter- IX Para 398 in Tariff for Retail Sale of Electricity during F.Y. 2019-20*

***“Unblocking of leading kVArh : For the purpose of billing, leading kVArh is blocked hitherto for all categories of consumers in LT except Domestic and Agriculture and for all categories of consumers in HT. As kVAh billing is taking care of the reactive power management by the consumers, the Commission has decided that the blocked leading kVArh recording in the meters provided for applicable consumers be unblocked. Therefore, the licensees are hereby directed to take note of this change and action shall be taken accordingly”.***

But, it is observed that, after two years of the time period, the department programmed for updating of the meter software as per instructions of higher authorities vide Memo. No. CGM/P&MM/DEE-P1/D.No.506/2022, dated:13.04.2022, that all the existing meters other than domestic and agriculture and all HT service meters, the KVArh (lead) parameters blocked to be unblocked.

It is the responsibility of the consumer as per Clause 12.2 of GTCS to connect rated capacitors for different load conditions which is as follows:

**12.2 Maintenance of Power factor at consumer end:**

***“HT consumers, who are provided with metering capable of measuring active and reactive power under the orders of the Commission, shall maintain their power factor preferably in between 0.95 lag and 0.95 lead in the interest of the system security and shall comply with conditions stipulated in the relevant orders issued from time to time”.***

**19.3 of GTCS :- Knowledge of Facts and Rules:-**

***The consumer shall be deemed to have full knowledge of the provisions of the Electricity Act, 2003 the A.P. Electricity Reform Act, 1998, and all regulations and notifications made there under, as also all laws relating to the supply of electricity.***

As per the above clause the consumer shall be deemed to have full knowledge of

the provisions of Acts relating to the supply of electricity.

As per Clause 5.7.1.1 of GTCS *“for inspections and testing of consumer installation the duty of the LT consumer clearly stated that the consumer shall arrange for a representative of the licensed electrical contractor technically qualified and employed by him”*.

[https://www.mahadiscom.in/wp-content/uploads/2020/01/002\\_ANNEXURE-6\\_FAQs-REGARDING-kVAh-BILLING.pdf](https://www.mahadiscom.in/wp-content/uploads/2020/01/002_ANNEXURE-6_FAQs-REGARDING-kVAh-BILLING.pdf)

**Why is kVAh billing necessary?** Both Active (kWh) and Reactive (kVArh) energies are consumed simultaneously. Reactive Energy (kVArh) occupies the capacity of electricity network and reduces the useful capacity of system for generation and distribution & hence its consumption also needs to be billed. kWh based billing is associated with PF incentive /penalty mechanism. Considering that the kVAh based billing has an inbuilt incentive /penalty mechanism and separate mechanism for the same is no more required; instead of billing two energies separately, billing of kVAh energy is preferred as a commercial inducement.

**When will kVAh billing be implemented?** As per MERC Order in Case No. 195 of 2017 dated September 12, 2018, The Commission intends to implement kVAh billing to all HT consumers and LT consumers having load above 20 kW from 1st April, 2020.

**How kVAh billing is different from existing billing & what are its benefits?** kVAh billing has an inherent mechanism to incentivize or penalize consumers according to their power factor. The Prime Objective of the kVAh based billing is to encourage the consumers to maintain near unity Power factor to achieve loss reduction, improve system stability, power quality and improve voltage profile. At the national level, emphasis is being given to Energy Conservation, Energy Efficiency and Demand Side Management (DSM) to optimize the energy usage. Through kVAh billing, the consumers will be encouraged to adopt energy efficiency programs and will be benefited by reduced electricity bills.

**Explain more about reactive Power & its effects on system?**

In case of inductive loads like motors, electrical energy can't directly be converted into useful work (rotation of motor shaft in this particular case). This is because, to convert electrical energy into rotational energy, magnetic field has to be created in between the gaps of stator and rotor of Motor. Hence, some amount of energy has to be used in



creating magnetic field. The portion of power that contributes in creating magnetic field is known as Reactive Power. Though reactive power is needed to run many electrical devices, it can cause harmful effects on your appliances and other motorized loads, as well as electrical infrastructure. Since the current flowing through your electrical system is higher than that necessary to do the required work, excess power dissipates in the form of heat as the reactive current flows through resistive components like wires, switches and transformers. How can reactive power be reduced or compensated? Improving Power Factor by installing capacitors of appropriate ratings [or Automatic Power Factor Corrector (APFC) Panels] you can locally compensate reactive power requirement, thereby reducing reactive power drawl from grid.

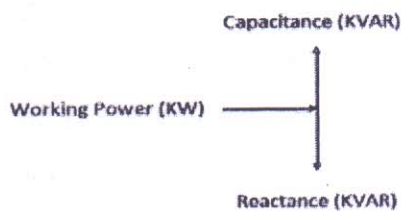
**Explain more about Power Factor (PF)?** Desired Power Factor is unity i.e. 1, and its range is Zero Lag – unity - Zero Lead. For purely capacitive loads PF is Zero Lead and for purely inductive loads PF is zero Lag. Unity Power Factor signifies that there is no reactive power exchange between consumer and grid. Power Factor is an indicator for efficiency of Energy Conversion. If PF is 0.85 it means that 15% of power is not resulting in actual work. If PF is 0.85 lagging it means that 15 % of power is used by inductive elements and If PF is 0.85 leading it means that 15 % excess reactive power is supplied by capacitive elements. In both the aforementioned cases 15 % of power is not resulting in to actual work. Both Leading and lagging power factor are equally harmful to the power system.

**How do I know my Power Factor?** For consumers having installed TOD, Tri-vector Meters, Meters, depending upon the nature of instantaneous load, instantaneous power factor is displayed on consumer's meter. Consumers can also opt to install PF meters at their LT panel to measure the PF. It is advisable to monitor PF of each individual circuit / machine / plant, as may be possible, in their internal distribution network so that the "low PF section" can be easily identified and attended.

**What is Power Factor improvement?** Power factor improvement means minimizing drawl of reactive power from power system so as to make power factor unity. It is nothing but providing adequate compensation so that the reactive power requirement of the load is locally fulfilled instead of drawing it from the power system. This means determination of adequate size / rating of capacitors to be installed at each major inductive load is necessary.

**How can I improve my Power Factor?** If power factor is on the lagging side it can be improved by installing capacitors of appropriate ratings and if the power factor is on leading side it can be improved by installing reactors/ removing excess capacitors of appropriate ratings.

Forum of Regulators (FOR), has recommended kVAh billing. FOR in its report on "Metering Issues" published in August 2009 has stated that kVAh billing is the new trend in electricity billing, which is adopted worldwide.



### **NEED OF IMPROVING POWER FACTOR:**

- a) To avoid the penalty imposed by distribution utilities for poor power factors.
- b) Now utilities have been started the billing in KVAH instead of KWH, so improved power factor helps in reducing our electricity charges.
- c) Reducing demand
- d) Increased voltage level in electrical system due to which efficiency level of motor gets better as well as life span also gets increased.

When the system is loaded lightly, the voltage increases, increasing the magnetization current demand of the machine.

<https://www.electrical-technology.com/2019/05/Causes-and-Disadvantages-of-Low-Power-Factor.html>

### **Disadvantages of Low Power Factor**

These are the main **disadvantages of Low Power Factor** in our electrical system.

- Large kVA rating and size of Electrical equipment
- Large conductor size and so higher cost of transmission line
- High Transmission loss hence poor efficiency
- Poor Voltage regulation
- Penalties imposed by power utility companies (DISCOM)

- The improved power factor will further reduce spending on power purchase, creating the opportunity to lower tariffs. Penalties imposed by power utility companies (DISCOM)

If power factor not maintained by the consumer the DISCOMS will be penalized and it is burden on the department also. At the same time DISCOMS will also levy capacitor surcharge to the consumer to overcome the problem. Hence it is the duty of the consumer to maintain the power factor to unity.

Consumers are aware of the said programming as Hon'ble APERC issued guidelines in **Chapter IX Para 398 in page No. 247 of 375 in Tariff for Retail sale of Electricity during F.Y. 2019-20.**

This forum is of the opinion that the department followed the guidelines issued by Hon'ble APERC after completion of about 2 years' time period. The respondents also advised orally to the complainant's representative for providing of adequate capacitors to their unit who was present at the time of inspection during 8/2022. Even after completion of about 4 months also the complainant not maintained PF to unity, the PF is still low i.e., 0.85 for the month of 12/2022.

On perusal of Ledger, it is noticed that there is an outstanding balance amount of Rs.68,155.20 payable by the complainant as on 12/2022.

The complainant is advised to pay outstanding arrears amount of CC bill against the said service SC No.5113213002436.

There are no merits in this case to resolve the grievance. The respondents are directed to collect the arrears CC bill amount against the service SC No.5113213002436, after deducting the amount already paid by the complainant as per the interim orders passed by this forum.

There are no grounds to interfere with the revision of bill for the month of July'2022 for the said service ISC No.5113213002436. Hence complaint is liable to be dismissed.

Accordingly, the C.G.No.40/2022-23/Tirupati Circle is disposed off. The point answered accordingly.

The respondents are advised to issue notice in advance at least 7 days before updating the meter software if any to avoid such inconvenience to the consumers in future.

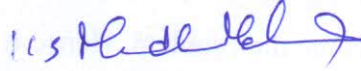
7. In the result the complaint is dismissed.

**Sd/-  
Member (Technical)**

**Sd/-  
Independent Member**

**Sd/-  
Chairperson (I/c)**

**Forwarded By Order**



**Secretary to the Forum**

**This order is passed on this, the day of 28<sup>th</sup> December'2022 \**

If aggrieved by this order, the Complainant may represent to the Vidyut Ombudsman, Andhra Pradesh, 3<sup>rd</sup> Floor, Sri Manjunatha Technical Services, Plot No:38, Adjacent to Kesineni Admin Office, Sri Ramachandra Nagar, Mahanadu Road, Vijayawada-520008, within 30 days from the date of receipt of this order.

To

The Complainant

The Respondents

Copy to the Nodal Officer (Chief General Manager (O&M)/Operation)/CGRF/ APSPDCL/ Tirupati.

Copy Submitted to the Vidyut Ombudsman, Andhra Pradesh , 3<sup>rd</sup> Floor, Sri Manjunatha Technical Services, Plot No:38, Adjacent to Kesineni Admin Office, Sri Ramachandra Nagar, Mahanadu Road, Vijayawada-520008.

Copy Submitted to the Secretary, APERC,11-4-660, 4<sup>th</sup> Floor, SingareniBhavan, Red Hills, Lakdikapool, Hyderabad- 500 004.