BEFORE THE ELECTRICITY OMBUDSMAN
(For the State of Goa and Union Territories)
Under Section 42 (6) of the Electricity Act, 2003
3rd Floor, Plot No. 55-56, Udyog Vihar - Phase IV, Sector 18,
Gurugram (Haryana) 122015,
Phone No.:0124-4684708, Email ID: ombudsman.jercuts@gov.in

Appeal No.191 of 2022

Date of e-hearing: 20.04.2023
Date of Order: 01.05.2023

Shri Valentino Coutinho,
Goa

.... Appellant

Versus

The Chief Electrical Engineer,
Electricity Department,
Goa and others

.... Respondents

Date of Order: 01.05.2023

The Appellant has preferred an Appeal against CGRF-Goa's order in Complaint no-32/2022/193 dated-02.01. 2023.The appeal/representation received in this office on 15.02.2023 by post has been admitted for examination and consideration on 27.02.2023. Copy of the same as received was forwarded to the Respondents with a direction to endeavour to settle the representation through mutual agreement within 10 days. In case no settlement is achieved through mutual agreement, respondents should file the affidavit of counter reply in the required format, to the appeal/representation within 20 days from the date of Admission Notice. The Respondents have filed the counter reply and the Appellant has filed the Rejoinder.

(A) Submissions by the Appellant:

Appellant submitted the brief facts as under: -

(i) We have installed a Solar photovoltaic system with Grid connectivity for our electricity meter with CA No.: 60006256352. It is observed that the voltage for phase-neutral is way less than 220 volts and the voltage for phase is way less than 400 volts.

(ii) Solar plants cannot function at such low voltages. There has been No proper solar power generation right from the date of commissioning which is huge loss to us considering the amount of investment

(iii) I have made a huge investment on the same on the assurance given by the state and the central government of promoting solar in big way. The electricity Department officers have visited my site and the problem has been shown to them .

(iv) Kindly provide us a stable voltage for phase -neutral :220 volts and phase - phase:400 volts.

(v) Also, I requested to not to charge for any of my electricity units consumed considering the capacity of the SPV System and the units that the SPV system would have generated if the system was functioning properly right from the commissioning of the SPV system till the time the required voltages are made available to us. We are not satisfied by the CGRF order.

(vi) The Appellant has filed the Rejoinder refuting the claims of the Respondents

(vii) Nature of relief sought from the Ombudsman:

(a) Provide a stable voltage for phase- neutral: 220 volts and phase-phase:400 volts.

(b) I request you to not to charge for any of my electricity units consumed considering the capacity of the SPV System and the units that the SPV system would have generated if the system was functioning properly right from the commissioning of the SPV system till the time the required voltages are made available to us.

(B) Submissions by the Respondents: -

Shri. Pradip Krishna Narvekar, working as Executive Engineer in the Electricity Department Division VI, Mapusa solemnly affirm and state on oath as under: -

1. That the deponent is working as Executive Engineer and is authorized by Electricity Department, Government of Goa (being Deemed Licensee) vide letter No. 149/03/CEE/TECH/COM/1642 dated 16/01/2023 (Certified copy enclosed at Pg. No. 21/c to 24/c), to file this reply and represent on behalf of Electricity Department, Government of Goa, in this case.

2. That para-wise counter reply is as under:

(a) The Solar Installation of the Appellant was released on 15/03/2022 after completion of all Departmental formalities. The complaint regarding non generation of solar units which was received on 17/03/2022 was examined thereafter and found that the voltage was within limits as per the Agreement (placed at Pg. No. 8/c to 20/c) at point No. 2.7(c) that is within 80% to 110% of the normal connected voltage of 230V for operating range of solar units. However, the following technical action was taken in the matter to ensure continuity of proper voltage.

i) Main Service wire from the pole to the metering point of the installation was replaced.
ii) Re-jumpering at all cut points on the overhead L.T line from the Distribution Transformer Center to the Appellants connection pole.
iii) Replacing of main feeder cables of the Distribution Transformer Center

(b) Further, the voltage thereafter was checked and the Appellant was informed accordingly vide office letter (placed at Pg. No. 7/c) wherein the voltage was within the limits as required for generation of solar units.

(c) Further, it is seen from the consumption pattern (placed at Pg. No. 6/c) before and after installation of solar plant that the Department consumption after post installation of the said unit has reduced apparently due to solar generation which has been self-utilized for his own use. Further as seen from the bills generated for the period from 15/03/2022 to 01/12/2022 (placed at Pg. No. 4/c to 5/c), there is excess generation fed to the grid which clearly indicates that solar plant is functioning.

(d) However the voltage at the Grid is never constant and hence varies depending upon the seasonal load and to maintain voltage as per Appellants request for more than 200 V continuously is infact unpredictable. It is also to mention that a new GIS substation has been commissioned in the area close to Appellants installation where the bifurcation of 11 KV feeders' works are being carried out and hence expecting to improve and stabilize the voltage.

(e) However, the solar plant of the Appellant was inspected and found that the inverter installed is of POLYCAP Make and the Appellant was informed to adjust the setting of Voltage in the inverter to avoid tripping due to less voltage from the grid, but has disagreed to do so.

(f) The Appellant is being billed as per his consumption and units generated and used, hence waving off units consumed by the Appellant is not possible.

(g) The additional data voltage, current and connected load of the Appellant is placed at Pg. No. 3/c.

(h) The Single line diagram showing the Grid Substation, the Distribution Transformer 11KV and L.T line upto the Appellants house is placed at Pg. No.1/c to 2/c.

(i) **Prayers: -**
The Appeal be dismissed considering the above facts as the voltage provided to the installation of the Appellant is as available from the GED Grid.

(C) Ld. CGRF- Goa's Order in Complaint no- no-32/2022/193 dated-02.01.2023, preferred for appeal:

Ld. CGRF-Goa, has passed the following order: -

Order.

"Hence the following order:

1. *The complaint is partly allowed.*
2. *The Department shall revise the bills issued to the complainant for the period/cycle between 15.03.2022 to 16.06.2022 by reducing the energy charges by half (50%) with consequential pro-rata reduction in other charges as applicable, within 15 days from receipt of this order.*
3. *Compliance shall be reported to the registry of this Forum within 30 days.*
4. *Complaint stands disposed accordingly.*
5. *The Complainant, if aggrieved, ... may make an Appeal to the Electricity Ombudsman, within one month from the date of receipt of this order."*

(D) Deliberations during e-hearing on 19.03.2023 :-

1. Appellant's Submission:

(a) Shri Valentino Coutinho -Appellant, reiterated his version as submitted in the Appeal/Rejoinder.

(b) He informed that his main grudge is that Respondents are not supplying the votage of 200 volts all the time, due to which his Solar Plant trips at low voltage.

(c) He further submitted that as per lower setting of his Solar Plant is 195 volts and below 195 volts the Solar Plant tripped. The manufacturer say that they cannot go

beyond 195 volts, otherwise the guarantee of their product will be void, if lower setting is done.

(d) During e-hearing, he takes his mobile to the Solar Panel meter and showed the voltage on video as under: -

Date- 20.04.2023 Time-11.27 am	
Voltage (R-phase)	192 volts
Voltage (Y-phase)	186 volts
Voltage (B-phase)	190volts

(e) He was asked during hearing as well through email dated-20.04.2023 to submit the download data of the Solar meter to prove that supply voltage is low most of the time. He submitted only , two videos on email dated-24.04.2023. In one video the voltage is shown as varying around on each phase as (i) V_A : 167 volts I_A : 00.0 A, (ii) V_B : 167 volts I_A : 00.0 and (iii) V_C : 181 volts I_A . However, there was no date and time on it. In another video, he showed the working of a washing machine and the indicator was showing a voltage of around 173 volts. However, again, there was no date and time on it and cannot be authenticated in the absence of a proper calibrated/tested meter.

(f) He further stated that he is facing losses due to non- generation of Solar Units due to low voltage.

2. Respondent's Submission:

(a) Shri. Pradip Krishna Narvekar -Executive Engineer for the Respondent reiterated his version as submitted in the counter reply to the Appeal.

(b) He clarified that Respondents are maintaining the Supply Voltage within the range, as per Supply Code-2018.

(c) He further submitted that as per Solar Agreement entered, the Appellant is required to maintain the voltage in the voltage band within 80% to 110% of the normal connected voltage of 230V for operating range of solar units and proper synchronization of the Solar Plant with the Respondents Grid Supply, but the Appellant has kept the lower setting at 195 volts instead of 180 volts as per agreement, Otherwise also to feed into the Grid, being a Solar Generator, the Appellant is supposed to adjust the voltage of his plant/Invertor at a higher voltage than the varying Grid voltage at all the times. Due to this reason the Solar Plant failed to synchronize with the Grid supply and trips at the Appellant end.

(d) He further stated that new GIS Grid Substation is under commissioning and voltage profile will further improves.

(e) On being asked, if a Tap Changer Switch on the existing 200 KVA transformer (feeding to the Appellant), to increase/decrease the voltage as per BIS Standards has been provided. He clarified that it is repaired transformer and having no Tap Changer Switch to adjust the voltage.

(E) Findings & Analysis: -

1. I have perused the documents on record and pleadings of the parties.
2. The documents submitted by the parties have been believed to be true and if any party submitted a fake/forged document, then they are liable to be prosecuted under relevant Indian Penal Code/Rules/Regulations.
3. The issues which have arisen for considerations in the present Appeal are as under:-

   i. Whether the Appellant is entitled to relief for not charging any electricity units consumed considering the capacity of the SPV System and the units that the SPV system would have generated if the system was functioning properly right from the commissioning of the SPV system till the time the required voltages are made available to us, as prayed for?
   ii. Whether the Appellant is entitled to have a stable voltage for phase- neutral: 220 volts and phase-phase:400 volts, as prayed for?

4. (a) Regarding issue no 3(i) as to whether, the Appellant is entitled to relief for not charging any electricity units consumed considering the capacity of the SPV System and the units that the SPV system would have generated if the system was functioning properly right from the commissioning of the SPV system till the time the required voltages are made available to us, as prayed for?

(b) Following provisions have been provided in the Solar Agreement entered between the Appellant and the Respondents on 08.03.2022: -

"However, Agreement shall come into operation from the date of commercial operation (COD) of the SPV Plant. Now, therefore, this Agreement witness and the parties hereto hereby mutually agree as under: -

1. *Definitions, Abbreviations, and Interpretations shall be as per JERC Regulation.*
2. *Technical and Interconnection Requirements: - Prosumer shall,*

2.1.1 Comply with the standards and conditions in respect of integrating the SPV system with the grid /distribution system.

2.1.2 Connect the SPV system to the EDG s distribution system and shall be bound by requirements of JERC/ state Grid and distribution code as amended from time to time.

2.1.3 Prior to connection of SPV system to the EDGs distribution system, make provision of an inverter having an automatic inbuilt isolation device which should cut-off the SPV system in the event of grid failure.

2.1.4 Provide external manual isolation mechanism with suitable locking facility so that the SPV system does not back-feed into the EDG's network in case of power outage of the EDG's distribution system and it shall be accessible for the EDG to operate, if required during maintenance / emergency conditions

2.1.5 Install all the equipment of SPV system compliant with relevant International (IEEE/IEC) and Indian standard (BIS)

2.1.6 *Design, engineer and construct and operate the DPV system with reasonable diligence subject to all applicable Indian Laws, rules & regulations as amended from time to time, and regulation having the force of law.*

2.1.7 *Adhere to the following power quality measures as per the international and Indian standards and//or such other measures stipulated by the JERC regulation namely:*

a) *Harmonic current: Harmonic current injections from a generation unit shall not exceed the limits specified in IEEE 519.*

b) *Synchronization: SPV system shall be equipped with grid frequency synchronization device. Every time the generating station shall be synchronized to the electricity system. It shall not cause voltage fluctuation greater than +/- 5% at the point of interconnection.*

c) ***Voltage at the injection point shall be in the operating range of 80% to 110% of the nominal connected voltage. Beyond the clearing time of to 2 seconds, the solar plant shall isolate itself from the grid .***

d) *Flicker: Operation of photovoltaic system shall not cause voltage flicker in excess of the limits stated in the relevant sections of IEC 61000 standards or other equivalent Indian standards, if any.*

e) *Frequency : when the distribution system frequency deviates outside the specified conditions (50.5 HZ on upper side and 47.5 Hz on lower side)*

f) *DC Injection : Photovoltaic system shall not inject Dc power more than 0.5% of full rated output at the interconnection point or 1% of rated inverter output current into distribution system under any operating conditions . Power factor: While the Output of the inverter is greater than 50%, a lagging power factor of greater than 0.9 shall be maintained*

g) *Power factor: While the Output of the inverter is greater than 50%, a lagging power factor of greater than 0.9 shall be maintained*

2.1.8 *The SPV system, in the event of power outage or voltage or frequency variations, shall island/disconnect itself automatically and shall not inject power to the EDG distribution systems as per IEC standards within the stipulated period.*

3. Safety:

3.1 Prosumer shall comply with the Central Electricity Authority (Measure Relating to Safety and Electricity Supply) Regulations, 2010.

3.2 Prosumer agrees that the design, installation, maintenance, and operation of the SPV system are performed in a manner conducive to the safety of the SPV system as well as the EDGs distribution system.

3.3 Solar Power Generator shall install a main switch or isolator with Double pole/Triple pole with neutral isolating disconnect switches with locking arrangement

near the Energy Feed-In Meter, which is accessible to the EDG and with which the Prosumers Solar Power Plant could be disconnected from the EDG's Distribution system

3.4 If the Prosumer's SPV system either cause damage to and/or produces adverse effects affecting other distribution systems, consumer's or EDG assets, the Prosumer shall disconnect SPV system immediately from the distribution system upon direction from the EDG and correct the problem Attis own expense prior to reconnection. The prosumer however, shall continue to get the normal power supply from the EDG's distribution system in the event of isolation of the SPV system from the grid.

3.5 The prosumer shall be solely responsible for any accidents to human beings /animals what so over (Fatal/nonfatal/departmental/non-departmental) that may occur due to back feeding from the SPV Plant when the grid supply is off.

3.6 The EG reserves the right to disconnect the SPV system at any time in the event of SPV power Plant damaging to its grid or meter, etc. or to prevent any accident or damage.

3.7 Rest of the safety measures as per clause 24 of the JERC Regulations."

(c) A perusal of the Solar Agreement indicates that since the Prosumer (solar generator cum user) is required to pump the supply into the Grid, a duty has been cast on him to maintain certain parameters for proper synchronization of solar plant with the Grid supply. The Grid is very volatile on account of variation in voltage, frequency and load profile on it. Therefore, the solar generator needs to takes care of all such parameters as per agreement. As confirmed by the Appellant that lower setting of his Solar Plant is 195 volts and below 195 volts the Solar Plant tripped. This is not in line with the Solar agreement which provides that the voltage at the injection point SHALL be in the operating range of 80% to 110% of the normal connected voltage. Beyond the clearing time of 2 seconds, the solar plant SHALL isolate itself from the Grid. Since the standard voltage as per Tariff Schedule is 230 volts, therefore, the Solar Plant should synchronize with the Grid between 184 Volts (80%) to 253 volts (110%) and in case the Solar plant is not in a position to maintain itself within the required voltage band beside other parameters, it needs to isolate itself by tripping within 2 seconds for the safety of the Grid, to avoid inconvenience to other consumers connected to the Grid.

(d) In my opinion, Ld. CGRF has completely erred in appreciating the technical aspect of the issue, probably due to non- appointment of a 3rd Technical Member in the CGRF and the Appellant has erroneously been allowed the benefits of 50% reduction in energy charges billed during the period from 15.03.2022 to 08.07.2022 and other consequential pro-rata reduction in other charges. Therefore, the order of Ld. CGRF is required to be quashed. Technical point of view will be indispensable in providing fair and incisive decisions. It has been found that no appointment has been made to the post of Technical Member in the CGRF by the Licensee/Electricity Department-Goa, for the last more than 09 years.

(e) In view of the above submission, in my considered opinion, the Appellant is not entitled to relief, for not charging any electricity units consumed considering the capacity of the SPV System and the units that the SPV system would have generated if the system was functioning properly right from the commissioning of the SPV system till the time the required voltages are made available and accordingly his prayer is hereby rejected being devoid of merit.

5. Regarding issue no 3(ii) as to whether the Appellant is entitled to have a stable voltage for phase- neutral: 220 volts and phase-phase:400 volts, as prayed for?

(i) Following provisions have been provided in the Supply Code Regulations, 2018, notified by the Hon'ble Regulatory Commission: -

Section 4.3: -
Standard Voltage of Supply

Sr.No	*Category*	*System Supply*
	Low Tension	
1	*All installations (other than irrigation pumping and agricultural services) with a contract load upto and including 5 KW*	*Single phase at 220V/230V*
2	*Irrigation pumping and agricultural services and all installations with a contracted load exceeding 5KW and including 100 KVA of contracted load*	*3 Phase, 4 wire at 440 V*

(ii) Following provisions have been provided in the Standard of Performance Regulations, 2015, notified by the Hon'ble Regulatory Commission: -

Quality of Power: --

10	*Voltage fluctuation*	*Licensee shall maintain voltage at the commencement of supply to a consumer within the limits stipulated as under, with reference to the declared voltage* *(a) In case of Low voltage : +6% and -6%* *(b) In case of High voltage : +6% and -9%* *(c) In case of Extra High voltage : +10% and -12.5%*

(iii) Following provisions have been provided in the Tariff Schedule, notified by the Hon'ble Regulatory Commission for the Financial Year 2022-2023: -

Section-10.2-Applicability: -

Low Tension Category

Applicable to Power ***Supply of Voltages at 230V and 440V Voltages*** *when the Sanctioned Load is below 100 KVA/90 KW / 120 HP and power is supplied at single/ three phase.*

(iv) Therefore, the Licensee is supposed to maintain a voltage between the range of 216.2 volts to 243.8 volts, considering the nominal voltage of 230 volts (as per Tariff schedule) with variations of (+/-) 6% (as per SoP Regulations).

(v) The Respondents have submitted that on many occasions the voltage was checked and the same is tabulated below for better appreciation: -

Sr. no	Date of checking	Voltage between R-phase and neutral	Voltage between Y-phase and neutral	Voltage between B-phase and neutral
1	08.07.2022	203	207	207
2	09.07.2022	220	211	211
3	21.07.2022	217	223	220
4	06.03.2023 18.45Hrs	215	192	201
5	07.03.2023 11.30Hrs	216	214	218
6	08.03.2023 11.30Hrs	201	198	206

(vi) To ascertain whether there is low voltage problem, the Respondents were asked to supply the data of the tested bidirectional meter installed in the Appellant premises. The Respondents have supplied the download data for 60 days (from 20/2/2023 to 20/4/2023). Each day is divided into 48 slots and each slot is of 30 minutes interval. In each slot/interval there are three readings of voltage of each phase with respect to the neutral, i.e. R-N, Y-N, B-N. The data depicts the following observation w.r.t voltage variations: -

(a) Nos. of time the voltage was below 216.2 volts

Sr. no	Period of data	Nos. of time the R-N voltage was below 216.2 volts in an interval of 30 minutes	Nos. of time the Y-N voltage was below 216.2 volts in an interval of 30 minutes	Nos. of time the B-N voltage was below 216.2 volts in an interval of 30 minutes	Total number of slots/ intervals in 60 days	% of time the voltage was below the minimum prescribed voltage of 216.2 volts in any phase, as per SoP Regulations
1	20/2/2023 to 20/4/2023	1689	1630	2155	8640	63.35 %

(b) Nos. of time the voltage was below 180 volts including no voltage (zero-Voltage) due to breakdown / shutdown

Sr. no	Period of data	Nos. of time the R-N voltage was below 180 volts (including no supply) in an interval of 30 minutes	Nos. of time the Y-N voltage was below 180 volts (including no supply) in an interval of 30 minutes	Nos. of time the B-N voltage was below 180 volts (including no supply) in an interval of 30 minutes	Total number of slots/intervals in 60 days	Percentage of time the voltage was below 180 volts (including no supply) in an interval of 30 minutes
1	20/2/2023 to 20/4/2023	81	65	98	8640	2.82 %

The above analysis clearly reflects that there is low voltage problem and the Respondents are not maintaining the voltage within the permissible limits as per SoP Regulations and therefore, the contention of the Appellant substantiate his claim of low voltage in his premises.

However, the analysis of data of less than 180 volts reveals that for most of the time voltage is about 180 Volts except during break down / shutdown. Even the voltage is less than 180 volts for very few hours, between 10 pm-12pm (night), when the Solar Plant is not functional.

(F) DECISION

(i) For the reasons discussed above, the appeal of the Appellant is partly allowed.

(ii) The orders in Complaint No- 32/2022/193 dated-02.01.2023 passed by the Learned CGRF-Puducherry is set aside.

(iii) The Electricity department/Licensee is directed to take necessary steps within 15 days, to augment the HT/LT distribution system and replace the existing 200 KVA Transformer (feeding the Appellant's premises) by a Transformer having a Tap Changer and adjust the voltage as far as possible to be within the permissible limits. If still the voltage could not be maintained within permissible limits than Tap Changer at the Grid substation/Power Transformer be operated to provide voltage with in the permissible limits.

(iv) The Electricity Department/Licensee is directed to fill up the vacancy of Member (Technical) in the CGRF –Goa within a period of **Two months** from the date of the issue of this order by email.

(v) The Electricity Department/Licensee should submit a compliance report to the office of the Electricity Ombudsman on the action taken in this regard within **20 days** regarding augmentation of HT-LT system / replacement of Transformer and within 70 **days** regarding appointment of Member (Technical) in the CGRF –Goa, from the date of issue of this order by email.

(vi) Non–compliance of the orders of the Electricity Ombudsman by the Electricity Department/Licensee shall be deemed to be a violation of Regulations and shall be liable for appropriate action by the Hon'ble Commission under section 142 and 146 of the Electricity Act- 2003.

(vii) In case, the Appellant or the Respondents are not satisfied with the above decision, they are at liberty to seek appropriate remedy against this order from the appropriate bodies in accordance with Regulation 37(7) of the Joint Electricity Regulatory Commission (Consumer Grievances Redressal Forum and Ombudsman) Regulations, 2019.

(viii) The appeal is disposed of accordingly.

01-05-2023

(M.P. Singh Wasal)
Electricity Ombudsman
For Goa & UTs (except Delhi)

Dated: 01.05.2023