



## **ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION**

Vidyut Niyantana Bhavan, Dinnedevaram Road, Kurnool - 518 002, Andhra Pradesh

**TUESDAY, THE SIXTH DAY OF AUGUST**

**TWO THOUSAND AND TWENTY-FOUR**

**(06.08.2024)**

**Present**

**Justice C.V. Nagarjuna Reddy, Chairman**

**Sri Thakur Rama Singh, Member**

**Sri P.V.R. Reddy, Member**

**O.P. NO. 53 OF 2023**

**Hindustan Petroleum Corporation Limited**

**.... Petitioner**

**and**

**Eastern Power Distribution Company of Andhra Pradesh Limited .... Respondent**

This Petition has come up for final hearing before the Andhra Pradesh Electricity Regulatory Commission (hereinafter called **“the Commission or APERC ”**) on 24.07.2024 in the presence of Sri Challa Gunaranjan, learned Counsel for the Petitioner and Sri P.Shiva Rao, learned Standing Counsel for the Respondent. After hearing the argument of the learned Counsel for both parties and carefully considering the material available on record, the Commission passes the following:

**ORDER**

1. This Petition is filed under Section 86(l)(f) of the Electricity Act, 2003, seeking a declaration from the Commission that the Petitioner is not liable to pay Grid Support Charges (GSC) for the FY 2002-03 to FY 2008-09 as demanded by the Respondent and to consequently set aside the demands raised by the Respondent in this regard.
2. The Petitioner submitted that it is a public-sector undertaking incorporated under the provisions of the Companies Act, 1956, having its registered office in Visakhapatnam, Andhra Pradesh; that the Petitioner had been drawing power from the erstwhile APSEB, and subsequently, APTRANSCO and APEPDCL ( the Respondent), vide an Agreement dated 29.01.1982 with a Contracted Maximum Demand of 5100 KVA at 11 kV with service connection No.VSP-005 that vide Agreement dated 04.06.1986, the CMD was enhanced to 13,000 KVA to be drawn at 132 kV and that the CMD was further enhanced to 24,000 KVA at 132 kV vide Agreement dated 28.04.2017. That the Petitioner also operates a captive power plant with Gas Turbine Generators (GTGs), with a capacity of 86 MW as of the date of filing petition 17.06.2023, within the premises of its refining facility in Visakhapatnam.
3. The Petitioner further submitted that the GTGs were not run in parallel with the Grid for the following reasons;
  - i. Switchgears are not designed to withstand the fault current generated in case of fault during parallel operation of all GTGs and Grid.

- ii. The grid islanding scheme and relays were not available. If GTG (s) run in parallel with the grid, a grid fault would cause them to trip. The grid islanding scheme enables isolating the Grid in case of faults, avoiding the failure of GTGs running in parallel with the Grid.
  - iii. Necessary infrastructure, such as SCADA load-shedding systems, was not available until March 2016.
  - iv. The capacity of the Grid Transformers (Tr-101 and Tr-102) was 16/20 MVA, meaning that the maximum capacity that can be drawn from the Grid is only 20 MVA, beyond which the transformer would trip because of its rating and relay settings.
  - v. Line differential protection is not available even for running both Grid Transformers in parallel, so the GTGs could not be run parallel to the Grid.
4. The Petitioner also submitted that even a single GTG also was never run in parallel with Grid at all, let alone on a continuous basis, and no support from Grid was obtained during regular/day-to-day operations; that at times, assistance was taken from the Grid manually during only two occasions as stated below:
- i. For GTG shutdown purposes: When any GTG has to undergo regular and planned shutdown for maintenance in line with applicable guidelines and regulations, a manual switch is made to draw power from the Grid to compensate for the loss of generation of the said GTG. GTG shutdown is undertaken once annually (approximately 1-week duration), and a major shutdown is undertaken once every six years (approximately one-month duration).
  - ii. When a single GTG is taking over any associated refining units back

from the Grid after planned shutdown or after recovery from any GTG failure.

5. However, the Petitioner stated that it has been availing Grid Support from FY 2016-17 onwards and has also been paying the GSC as determined by the Commission from FY 2022-23 onwards.
6. Be that as it may, the main ground raised by the Petitioner is that it never used its captive power plant (GTGs) in parallel with the Grid; that the APERC in O.P.No.1 of 1999, as well as in the other Retail Supply Tariff Orders (RSTOs) until FY 2008-09, has specifically determined GSC only on Captive Power Plants (CPPs) running in parallel with the Grid; that as such, there is no question of GSC being levied on the Petitioner in terms of the RSTO for FY 2002-03 to FY 2008-09 which never contemplated the levy of GSC on any captive plant which did not avail grid support; that the sine-quo non for levying such a compensatory GSC is the continuous parallel operation of the CPP with the Grid and that in the absence of such continuous parallel operation, the Respondent can not impose GSC.
7. The Petitioner further averred that the GTGs with their respective loads were neither connected to each other nor connected to the Grid by a point of common coupling, and hence, GSC shall not be applicable. It relied on certain orders of the Hon'ble APTEL. The relevant parts of the Orders, as submitted in the petition, are extracted herein.

Hon'ble APTEL order dated 08.10.2015 in Appeal No I67 of 2014

*“13.21 We further hold that the impugned petition, being Petition No. 52/2013, is in reality, and letter and spirit, a clarificatory petition which cannot be said to be time-barred. We further hold that the POCs can be levied*

*on the CPPs, which are interconnected with their load and the utility grid by a point of common coupling. Since the Tawa Plant of the Appellant/petitioner is not inter-connected with its load/consumer and the utility grid by a point of common coupling, and hence, POCs cannot be levied on the Tawa Plant of the Appellant.”*

Hon'ble APTEL Order dated 29.09.2015 in Appeal No.39 of 2014

*15.(d)[...] The Appellant is a commercial entity and is at liberty to run on without any grid support, and in such an event, no POC would be applicable. [...]*

8. The Petitioner also submitted that the calculations provided by the Respondent are incorrect, in that the Respondent has considered the Petitioner's CPP capacity at 100.36 MW. However, from FY 2002-03 to FY 2008-09, there were no GTG-5 and GTG-6, which were commissioned only during FY 2009-10. As such, the Petitioner's CPP capacity during the period in question was only 57.36 MW.
9. In its counter dated 29.08.2023, the Respondent mainly submitted that there was a manual mechanism to extend supply to GTGs in case of this failure, resulting in the parallel operation of GRID. That the consumer upgraded their switchgear from 350MVA to 750MVA fault level rating in 2015. The Supervisory Control and Data Acquisition (SCADA) and Load Shedding System (LSS) were commissioned in 2016 for the automatic parallel operation of GTGs and Grid. Hence, before 2016, the GTGs and Grid ran in parallel manually and after 2016, the GTGs and Grid ran in parallel through SCADA.
10. In its counter, the Respondent further stated that the petitioner clearly

admitted that when any GTG has to undergo regular and planned shutdown for maintenance, then a manual switch is made to draw power from the grid to compensate for the loss of generation of the said GTG; That this clearly shows that, the petitioner was taking grid support during failure of GTG and thus parallel operation took place; If they ran in island mode, the petitioner could have not availed supply to GTGs from the grid in case of shutdown; however, the GTGs 1 to 4 with the capacity of 57.36 MW were installed prior to 2009, and all are in operation; that the petitioner has submitted proof of commissioning of GTG -5&6 during 2009 by third-party Bharat Heavy Electricals Limited and hence reconciliation is required with the Petitioner on arriving at the plant capacity of either 100.36MW or 57.36MW for revision of grid support charges since the GTGs-5&6 each of 21.5MW capacity ( $21.5 \times 2 = 43\text{MW}$ ) were installed in the FY 2009-10 as stated by the petitioner which is the period past levying of grid support charges.

11. In its Rejoinder dated 01.11.2023 to the counter filed by the Respondent, the Petitioner mainly reiterated that it operated GTGs in the islanding mode and not in parallel with the Grid; that during incidents of the failure of any of the GTGs, the Petitioner's plant-associated loads experienced power interruptions; Consequently, upon GTG breakdown during this period, the Petitioner manually disconnected the affected GTG and the connected loads from the bus bar; Then, the standby or Backup Grid supply was extended to the dead bus bar by manual switching arrangement to restore the power to the failed loads; Hence, the Respondent's claim that Petitioner's GTGs were running parallel with the Grid from FY 2002-03 to 2008-09 is erroneous.

12. In light of the parties' above pleadings, the short issue for the Commission to consider is whether the disputed Gas Turbine Generating (GTG) Units 1 to 4 installed by the Petitioner have taken Grid support at the relevant period for which Grid Support Charges are levied by the Respondent and assailed by the Petitioner in this OP?. While the Petitioner asserted that no such Grid support was taken, the Respondent seriously disputed the said plea, which requires adjudication by a person who is a technical expert. Hence, during the hearings on 06.03.2024, this Commission felt that one of the Officers of this Commission, who has experience in this regard, is to be deputed for inspection and submit a report on whether the Gas Turbine Generating Units 1 to 4 installed by the petitioner have taken Grid Support at the relevant period, i.e., till April 2016. Accordingly, Sri D.Ramanaiah Setty, Joint Director (Tariff & Engineering) of this Commission, was nominated as the Inspecting Officer to inspect and submit a report after due notice to both sides. Accordingly, Sri D.Ramanaiah Setty conducted an inspection after due notice to the parties. He submitted the inspection report and the minutes of the inspection signed by both parties present at the inspection. During the hearings on the matter on 08.05.2024, the Commission ordered to furnish copies of the said Inspection report and the Minutes of the Inspection to both parties on their approaching the Commission's office to file objections, if any, on the inspection report. The inspection report, minutes of the inspection, and subsequent email received from the Petitioner regarding the inspection are extracted herein.



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**Inspection of HPCL, Visakhapatnam**  
**by**  
**D.Ramanaiah Setty, Joint Director/Tariff on 23.04.2024**

**Report on contentious Grid Support availed by CPPs of HPCL in OP No 53 of 2023**

**Reference: Proceedings no/APERC/Secy/2024 Dated 19.03.2024**

**&&&**

The Hon'ble Commission vide the reference cited issued orders to me for the inspection of HPCL, Visakhapatnam and to submit a report on whether the Gas Turbine Generating (GTG) Units 1 to 4 installed by the petitioner HPCL in OP NO 53 of 2023 have taken Grid Support at the relevant period ie., till April 2016.

In obedience to the above Orders, I inspected the HPCL on 23.04.2024 to examine the issue referred to me. I also invited the local officers of the APEPDCL and APTRANSCO to be present during my inspection. The following officers were present during the inspection.

Officers present from Utilities and HPCL:

**Utilities:**

1. Sri B.K Naidu, EE /O/ Zone II/ VSP
2. Sri M .Srinivasa Rao , EE/ M &P/VSP
3. Sri B. Srinivas,EE/O&M/Gajuwaka/APTRANSCO/VSP
4. Sri B.S.N.Reddy,EE /MRT &Transformers/ APTRANSCO/VSP
5. Smt A.Srilatha, EE/RA/Corporate office/APEPDCL /VSP

**HPCL:**

1. Prasad V Bole, DGM (I/C)-Operations, P&U.
2. Kranthi Kiran P, Ch.Manager-CPP
3. Govindunath P, Sr.Manager-CPP



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The Petitioner's main contention is that the sine qua non for levying the Grid Support Charges (GSCs) is a continuous parallel operation of the CPP with the Grid. During the visit, the HPCL officers gave a presentation and relied on an electrical system Single-Line Diagram (SLD) showing how the 4 GTGs with the Grid supply were connected and operated 4 GTGs stand-alone during the period FY 2002-03 - FY 2008-09. Because of the expansion of the refining capacity, the then electrical system was suitably modified to meet the changing requirements; hence, the SLD presented is only part of the present system in place. During the interaction, the officers of HPCL stated that the four GTGs were run parallel with the Grid now and then but not continuously. They stated that the GTGs were run parallel with the Grid for only a short time during forced outages/planned shutdowns and the rest of the time they were run standalone. Therefore, the status of Grid Connected Breakers in SLD is crucial to decide the matter. Hence, I requested the records to substantiate HPCL's stand that the grid-connected breakers in the Single Line Diagram (SLD) were consistently in the off position throughout the relevant period for which Grid Support Charges were levied by APEPDCL. In response, HPCL replied through email that the records for the relevant period are unavailable. The minutes of inspection, single-line diagram and the email received from HPCL by me along with the presentation are enclosed herewith. Submitted to the Hon'ble Commission.

With Best Regards,

  
D. Ramanaiah Setty  
Joint Director  
Tariff

Minutes of inspection of HPCL

On the issue of Grid Support/Parallel operation of four Gas Turbine Units ( GTG 1&2 each - 7.18 MW and GTG 3&4 each - 21.5 MW) in OP No 53 of 2023, D Ramanaiah Setty Joint Director/Tariff/APERC came to inspection of the HPCL on 23.04.2024 as per the Orders of the Hon'ble APERC.

D.Ramanaiah Setty explained the issue of parallel operation/Grid support and asked the officers of HPCL to show him how the four GTGs were run stand-alone during the relevant period for which grid support charges were levied by APEPDCL.

HPCL officers made a presentation and showed the single-line diagram of the electrical system of the relevant period ( Now it is modified in line with the expansion of the refinery). During the interaction, the officers of HPCL stated that the four GTGs were run parallel with the Grid now and then but not continuously. They stated that the GTGs were run parallel with the Grid for only a short time during forced outages/planned shutdowns and the rest of the time they were run standalone.

In this regard, D Ramanaiah Setty has requested the HPCL officers to substantiate HPCL's stand that the grid-connected breakers in the Single Line Diagram (SLD) were consistently in the off position throughout the relevant period for which Grid Support Charges were levied by APEPDCL. In response, HPCL officers stated that the same would be furnished through email.

Officers from Utilities:

- Smt A. Srilatha, EE/RALCO VSP* *Adl*
1. Sri B.K Naidu, EE /O/ Zone II/ VSP *Deivee*
  2. Sri M .Srinivasa Rao , EE/ M &P/VSP *Shw*
  3. Sri B. Srinivas,EE/O&M/Gajuwaka/APTRANSCO/VSP *Sri B*
  4. Sri B.S.N.Reddy,EE /MRT &Transformers/ APTRANSCO/VSP *Deivee*

Officers from HPCL:

1. Prasad V Bole, DGM (I/C)-Operations, P&U. *Pr*
2. Kranthi Kiran P, Ch.Manager-CPP *KK*
3. Govindunath P, Sr.Manager-CPP *P.G. Nathy*

D.Ramanaiah Setty/ Joint Director/APERC *12*





Ramanaiah setty <settyramanaiah69@gmail.com>

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## OP No. 53 of 2023 - Grid support charges levied by APEPDCL on HPCL-Visakh Refinery (VSP005)

Tue, Apr 30, 2024 at 3:41 PM

Kranthi Kiran P ( क्रांति किरण पी ) <kpillalarri@hpcl.in>

To: "settyramanaiah69@gmail.com" <settyramanaiah69@gmail.com>

Cc: "Bole Prasad V ( बोले प्रसाद विष्णु )" <pvbole@hpcl.in>, "Borkar Martand Vithai ( बोरकर मार्टंड विठल )" <Mborkar@hpcl.in>, "Lakkoju V S Nageswara Rao ( लक्कोजू वी एस नागेश्वर राव )" <lvsnageswararao@hpcl.in>, "Ramanathan Ramakrishnan ( रामनाथन रामकृष्णन )" <ramakrishnan@hpcl.in>, "K Harikrishnan ( के हरिकृष्णन )" <Harikrishnan.K@hpcl.in>, "Vinod Balooni ( विनोद बलूनी )" <vinodbalooni@hpcl.in>

Dear Sir,

This mail has a reference to OP No. 53 of 2023, in the matter of "Grid Support Charges" levied by M/s APEPDCL on M/s HPCL-Visakh Refinery.

During your recent visit to HPCL Visakh Refinery CPP, we explained the Islanding mode of operation of the GTGs during the period 2002-03 to 2008-09. The procedure we followed to restore power during failure of our GTGs or during annual outages (for inspection) of GTGs was also presented.

We were advised to submit records pertaining to Grid breakers' operation, during which we have taken the assistance of Grid to handle GTG failure/ shutdown scenarios.

However, we regret to inform you that, the records sought are very old and we have data for the past 5 years only.

Thanks & Regards,

Kranthi Kiran P,

Ch. Manager-CPP,

Visakh Refinery-HPCL.

\*\* Please note the change of email id to kpillalarri@hpcl.in \*\*

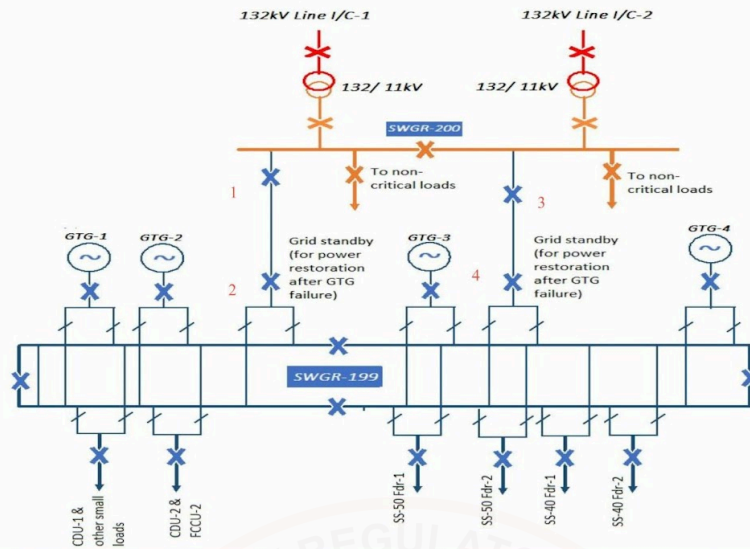
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यह ई-मेल संदेश केवल आशयित प्राप्तकर्ताओं के उपयोग हेतु है तथा अन्य सभी कृपया इसे डिलीट कर सकते हैं और प्रेषक को सूचित कर सकते हैं। जब तक एचपीसीएल द्वारा स्पष्ट रूप से व्यक्त न किया गया हो, व्यक्त की गई राय तथा संदेश प्रेषक के हैं तथा प्राप्तकर्ताओं को सचेत किया जाता है कि वे उपयोग से पहले संदेश / संलग्नकों को वायरस के लिए जांच कर लें। उपयोगकर्ता इस बात को स्वीकार करें कि संदेश में गोपनीय, स्वामित्व या विशेषाधिकार संबंधी सूचना हो सकती है तथा एचपीसीएल संदेशों की अखंडता या सामग्री का



## How CPP was operated...



As can be seen from the inspection report, minutes, and the submissions of the Petitioner and the Respondent, the above single-line diagram (SLD) is the key to deciding whether GTGs 1-4 ran parallel with the Grid. The Breakers numbered 1-4 are coupling breakers between the GTGs 1-4 and the Grid Supply, and they were located on the Petitioner's premises. Nonetheless, all the breakers (1-4) should be in off condition so the GTGs can operate in stand-alone mode or isolated from the grid supply. Hence, the inspecting officer asked the Petitioner to submit the information on the status of these coupling breakers for the relevant period for which the Respondent raised GSCs. In response to this request, the Petitioner, through an email dated 30.04.2024, as extracted supra, submitted that the records sought were very old and it has only records for the past five years. This means that the records for the relevant period regarding the status of the coupling breakers were not made available by the Petitioner. As per the

minutes of the inspection dated 23.04.2024, it is also to be noted that the Petitioner's engineers admitted the GTGs 1-4 were run parallel to the Grid "now and then".

On the inspection report, the Petitioner filed objections dated 22.07.24. In its objections, the Petitioner reiterated his stand mentioned in the Petition and Rejoinder without mentioning anything on their admission of the running of GTGs 1-4 running parallel "now and then". The Petitioner, in his objections, stated that as it is the DISCOM, which is proposing to impose GSCs on the Petitioner's plant HPCL, it is for it to establish that HPCL's GTGs were operated in parallel continuously with the grid. The Petitioner further stated that even the inspection report stands inconclusive as it states that "the status of grid-connected breakers in SLD is crucial to decide the matter". The Petitioner also stated that since these records are very old, were not available with HPCL, and there is no other material in the hands of DISCOM to establish that the above 4 GTGs were operated in parallel with the grid. In its objections, the Petitioner further stated that the best evidence that can be placed for consideration to ascertain whether HPCL operated the 4 GTGs continuously in parallel with the grid or not would be the Meter Reading Instrument (MRI) record of the relevant period, which would, to some extent, help to understand the consumption pattern from the grid. It stated that since the data can be accessed only by the Discom, they must produce the same before the Commission and discharge their burden to establish that the GTGs were run in parallel with the grid.

As per the Hon'ble APTEL's Order in Appeal no 167 of 2014, which was relied on by the Petitioner, there shall be a coupling breaker between the



CPPs and the utility Grid to levy the PoC/GSCs. As can be seen from the Single Line Diagram (SLD) extracted supra, breakers 1-4 are coupling breakers between the CPPs and the utility Grid. As these coupling breakers were in the Petitioner's premises and its control, the responsibility for submission of the off-status data of these breakers is solely on the Petitioner. The said data is not made available. The MRI data only reveals the Petitioner's consumption pattern, which was already submitted by the Respondent and it could not be the basis for deciding the parallel operation of CPPs.

The Petitioner also averred that the continued parallel operation of the GTGs with the Grid as a sine qua non to collect the GSCs. To examine this, the relevant part of the RST Order of the Commission on GSCs is extracted herein.

***"GRID SUPPORT CHARGES***

*Persons operating Captive Power Plants (CPPs) in parallel with AP Grid have to pay -GridSupport Charges on the difference between the capacity of CPP in kVA and the contracted Maximum Demand in kVA with Licensee and all other sources of supply at a rate equal to 50% of the prevailing demand charge for HT Consumers. In case of CPPs exporting firm power to APTRANSCO, the capacity, which is dedicated to such export, will also be additionally subtracted from the CPP capacity. This levy is subject to the orders of the Hon 'hie Supreme Court in the pending appeals before it. "*

As seen from the above, the condition of continuous parallel operation of the CPP with the Grid pleaded as a sine qua non for collection of GSCs is not stipulated for collecting the GSC. Mere parallel running of GTSS is

sufficient to attract GSCs. As noted, in the minutes of the inspection, the representations of the Petitioner clearly admitted “now and then” parallel operations of GTGs with grid. This is enough to levy GSCs.

The Petitioner also relied on the Hon’ble APTEL’s Order in Appeal no. 39 of 2014, which states that any entity is at liberty to run without grid support. In such an event, no POC would be applicable. In the impugned case, no data is available with the Petitioner to prove the same.

In light of the above discussion, we have no hesitation in holding that the levy of GSC on units 1 to 4 up to 2016 is proper and legal. However, the CPP capacity for which the GSC is to be levied shall be reconciled as agreed by the Respondent within one month from the date of this Order, and the Respondent DISCOM shall make a fresh demand based on such reconciliation.

13. Accordingly, the Petition and connected Application are disposed of.

**Sd/-**  
**P.V.R Reddy**  
**Member**

**Sd/-**  
**Justice C.V. Nagarjuna Reddy**  
**Chairman**

**Sd/-**  
**Thakur Rama Singh**  
**Member**