

RAJASTHAN ELECTRICITY REGULATORY COMMISSION, JAIPUR

Petition No. RERC/2239/2024

Petition filed under Regulation 93 of RERC (Terms and Conditions for Determination of Tariff) Regulations 2019 read with section 181 of the Electricity Act 2003 for approval of Parallel Operation Charges on captive consumers of Rajasthan for FY 2024-25.

Coram:

Dr. Rajesh Sharma, Chairman

Shri Hemant Kumar Jain, Member

Petitioner : 1. Jaipur Vidyut Vitran Nigam Ltd. (JVVNL)
2. Ajmer Vidyut Vitran Nigam Ltd. (AVVNL)
3. Jodhpur Vidyut Vitran Nigam Ltd. (JdVVNL)

Date of Hearing : 23.07.2024, 17.12.2024 & 27.02.2025

Present : Sh. Bipin Gupta, Advocate for Petitioners.

Order date : 03.10.2025

ORDER

1. Jaipur Vidyut Vitran Nigam Ltd. , on behalf of all three Discoms i.e. Jaipur Vidyut Vitran Nigam Ltd. Ajmer Vidyut Vitran Nigam Ltd. and Jodhpur Vidyut Vitran Nigam Ltd (hereinafter referred as Petitioners or Discoms) has filed this petition on 01.07.2024 under Regulation 93 of RERC (Terms and Conditions for Determination of Tariff) Regulations 2019 read with section 181 of the Electricity Act 2003 for approval of parallel operation charges on captive consumers of Rajasthan for FY 2024-25.
2. Petitioners are the Distribution Licensees in the State of Rajasthan and are undertaking the functions of distribution and retail supply of electricity to the public at large in their respective area of distribution.
3. The matter was initially listed for hearing on 23.07.2024 and Commission directed that the petition may be published and the comments/suggestions may be invited from the stakeholders. As per direction, the public notice duly approved by the Commission under section 64(2) of the Electricity Act was sent to Jaipur Discom vide letter dated 05.08.2024 for publishing in newspaper for inviting Comments/suggestions.

4. Public notice for inviting Comments/Suggestions on petition filed by Discoms for approval of POC was published in following News-papers on dated 14.08.2024 and petition was also uploaded on Discoms website as well as on Commission's website for inviting Comments/Suggestions from the stakeholders. Last date for submitting comments/suggestions was 17.09.2024.

Sr. No.	Name of Newspapers
(i)	Times of India
(ii)	Dainik Bhaskar
(iii)	Dainik Navjyoti

5. As directed by the Commission, JVVNL on behalf of all three Discoms also made Audio-visual presentation at their head office at Jaipur on dated 28.08.2024.
6. Following 6 stakeholders have submitted their comments/suggestions :
- (i) Sh. Anand Prakash Bindal, Ultra Tech Cement Limited
 - (ii) M/S DCM Shriram Limited
 - (iii) Sh. Amarjit Singh, Shree Cement Ltd.
 - (iv) Sh. Nitesh Tyagi, Amplus Dakshin Pvt Ltd
 - (v) Sh. Y. K. Bolia
 - (vi) Sh. Ramesh Chand Menaria, M/S Hindustan Zinc Ltd.
7. Petitioners filed their reply on 14.11.2024 and additional submission on dated 29.11.2024.
8. The Matter was finally heard on 27.02.2025.

Petitioners' submission:

Petitioners in their petition, written submissions and during the course of hearing(s) submitted as under:

9. Petitioners submitted that Regulation 93 of RERC(Terms and Conditions for Determination of Tariff) Regulations, 2019 contains the provision of determination of parallel operation charges by the Commission. The relevant excerpt from the said regulations is provided below for reference.

"93. Parallel Operation Charges

(1) The connectivity of CPP to Grid or State transmission system shall be governed by the connection conditions stipulated under State Grid Code and Connectivity Regulations of Central Electricity Authority notified in accordance with sub-section (b) of Section 73 of the Act.

(2) The Commission may stipulate from time to time the 'parallel operation charges' to be applicable for parallel operation of the CPP with the grid separately."

10. Petitioners further submitted that the Commission, in its order dated 06.02.2020 introduced Parallel Operation Charges (POC) for the first time wherein all CPP consumers in the state were liable to pay POC @ Rs. 20/ kVA/ month.
11. Petitioners also submitted that as per RERC's order dated 06.02.2020, the Discoms of Rajasthan started levying parallel operation charges to the captive consumers in the state. However, in the appeal no. 103 of 2020 & IA Nos 402 & 403 of 2020 in the matter of Shree Cement Ltd. Vs JdVVNL & others, the levy of parallel operation charges on captive consumers as per RERC order dated 06.02.2020 was set aside by Hon'ble APTEL and the matter was remitted to RERC for fresh consideration and determination in accordance with the law. Hon'ble APTEL had further noted that a fresh proposal is to be moved for such purposes by the distribution licensee which shall be considered by the Commission after following the due procedure envisaged under section 64 of the Electricity Act, 2003.
12. Petitioner submitted that in reference to the above mentioned judgement of Hon'ble APTEL and subsequent direction to Discoms by RERC, the petitioners have filed Petition for levying parallel operation charges to the captive consumers of the state.
13. Petitioners further submitted that the circumstances under which a captive power plant seeks to operate in parallel with a large interconnected grid are as follows:
 - (i) CPPs having surplus capacity over and above their own requirement, connected in parallel with the grid in order to sell power to the grid or bank such surplus energy, which is a general phenomenon in seasonal industries.
 - (ii) CPPs having load of such nature that results in large momentary peaks, starting currents and runs the plant in parallel to avail the support of grid beyond the contract demand.
 - (iii) Process industries with CPP's runs in parallel in order to avail continuous power supply, in the event of failure of CPP generating units.
 - (iv) Black start of CPP, where the start-up power is required to restart the units.

14. Petitioners submitted that they appointed M/S ERDA to carry out detailed study and determine the Parallel Operation Charges (POC) charges, as per the directions imparted by the Commission in its tariff order dated 24.11.2021 for FY 2020-21 and FY 2021-22.
15. Based on the study, M/s ERDA has evaluated two methods for implementation of POC charges i.e., Base MVA method for conventional CPPs and Power quality method for renewable CPP. The details of the method are as under-

(1) Base MVA method-

This method measures the Base MVA support given to CPPs by grid and support taken by utility from CPP. This method is most suitable for both utility as well as CPPs. Based on the Base MVA method Charges Calculated for Conventional CPP is Rs.27.237/- per kVA.

(2) Power Quality method-

In this method, charges are calculated on the basis of distortion in current measured at PCC for 132kV level. Other factors required for the calculation of charges are contract demand, installed capacity, average power export to grid and demand charges. Based on the Power Quality method Charges Calculated for Renewable CPP is Rs.11.90/- per kVA.

(3) Calculation of POC charges for Hybrid CPPs-

In hybrid CPPs, where both renewable and non-renewable installed capacity exist, POC charges shall be calculated using Base MVA as well as Power Quality method in the ratio of conventional and renewable plant capacity of the CPP, respectively.

16. Petitioners further submitted that as per the scope of work, M/S ERDA had to conduct a techno-economic study on several measurements/ parameters on selected captive power plants (CPPs) in the Rajasthan state. Accordingly, M/S ERDA physically visited all the shortlisted CPPs, as mentioned below, for fetching live data using Power Quality (PQ) meters at Point of Common Coupling (PCC) points. The list of CPPs are as under-

1. M/s. Hindustan Zinc Limited, Chanderiya
2. M/s. Hindustan Zinc Limited, Agoocha, Rampur mines
3. M/s. Wonder Cement, Nimbåhera, Chittorgarh
4. M/s. Mangalam Cement, Morak, Kota
5. M/s. DCM Shriram Cement/Fertiliser, Kota

6. M/s. Ultratech Cement, Kotputli

7. M/s. J. K. Lakshmi Cement, Jayakpuram

17. M/S ERDA carried out the measurements of Power Quality Parameters at following two locations i.e. Point of common coupling & Generator output terminals and Following data was being collected from the different CPP:

I. Fault MVA at PCC Level (Contributed by GRID CPP)

II. Interconnecting Transformer

III. Generator Details

IV. Contract Demand

V. Installed Capacity

18. Petitioners further submitted that Base MVA method is specifically used for the conventional captive power plant and power quality method is used for the renewable captive power plant because base MVA has been calculated based on the fault level of grid and for this transient reactance of the generator is required. Therefore, due to the absence of generator in renewable CPPs, this method is only applicable on non-renewable (Conventional) CPPs.

19. Based on the study conducted by M/s ERDA, Petitioners proposed POC charges are as under:

"HT consumers having Captive Power Plants, with captive loads, considering Conventional CPP, Renewable and Hybrid CPP, opting for parallel operation with the grid in the state, shall be liable to pay Parallel Operation Charges.

Provided that such charges shall be applicable for consumers having captive generating stations at their premises (on-site captive) and not for those consumers with on off-site captive generating station".

CPP Type	Proposed POC charges
Conventional CPP	Rs. 27.237/kVA/month
Renewable CPP	Rs. 11.90/kVA/month
Hybrid Plants	Both of the above in the ratio of Conventional and Renewable share

20. With the above submissions, the Petitioners in their petition no. 2239/2024 prayed for:

- 1) To admit and approve the Petition allowing levy of parallel operation charges from FY 2024-25.
- 2) To condone any error/omission and to give opportunity to rectify the same.
- 3) To permit the Petitioner to make further submission, additions and alterations to this Petition as may be necessary from time to time.
- 4) To pass any such other order/s and/or direction/s, which the Commission may deem fit and proper in the facts and circumstances of the case.

Stakeholder's Comments/suggestions and Discoms' Response:

The stakeholder's comments/suggestions and Discoms' response in their written submissions and during the course of hearing(s) submitted as under:

21. Merit in the present petition:

Stakeholder's Comments/suggestions:

Stakeholders submitted that there is no merit in the present petition and the same is liable to be dismissed as the imposition of such charges is unfair, arbitrary, and unjustified, and opposes these charges.

Discoms's Response:

Discoms submitted that The Commission introduced Parallel Operation Charges in 2020, but after APTEL set it aside and remitted the issue to RERC, RERC is reassessing the matter based on ERDA study report.

22. Generalized charges on all CPPs:

Stakeholder's Comments/suggestions:

Stakeholders submitted that Generalized charges on all CPPs are unjust as those exceeding contracted demand already incur penalties.

DISCOM's Response:

Discoms submitted that Cement plants, as major electricity consumers, cause voltage dips and imbalances, while their low contracted demand versus high infrastructure needs strains utilities financially. CPPs depend heavily on grid support but contribute less Base MVA than they utilize.

23. Generate harmonics:

Stakeholder's Comments/suggestions:

Stakeholders submitted that CPPs don't generate harmonics. They arise from non-linear loads. Utilities can manage harmonics via filters and penalties.

DISCOM's Response:

Discoms submitted that the cement industry uses non-linear induction motors and inverter-based resources, generating current and voltage harmonics. The petitioner also mentions higher benefits for CPP due to grid support, but they provide lesser Base MVA support.

24. Negative Phase Sequence Current:

Stakeholder's Comments/suggestions:

Stakeholders submitted that Issues stem from consumer loads, not CPPs, and can be managed without charges.

DISCOM's Response:

Discoms submitted that the cement industry produces negative phase sequence current due to unbalanced current and voltages. POC charges are over and above charges of contract demand. Base MVA method takes care of contract demand charges which consumer gives. Benefits of higher fault level are much more than contract demand charges, which are not accounted anywhere.

25. Impact of Increased Plant Load Factor on Captive Power Plants (CPPs):

Stakeholder's Comments/suggestions:

Stakeholders submitted that CPPs ease the power supply by supplying surplus power to the grid and already pay transmission and wheeling charges. Charging additional POC would contradict the Electricity Act, 2003, and the Tariff Policy, so CPPs should not be penalized for optimally utilizing their capacity.

DISCOM's Response:

Discoms submitted that CPPs depend on grid support to manage fluctuating loads and improve plant load factors. Operating in parallel with the grid offers benefits like higher fault levels, reduced voltage dips, fewer harmonics, and lower revenue loss.

26. Existing Charges and Double Billing:

Stakeholder Comments/suggestions:

Stakeholders submitted that imposing POC charges is unfair as they already pay transmission charges under agreements with distribution

licensees. They emphasize using protective systems to manage power draw and prevent double billing.

DISCOM's Response:

Discoms submitted that POC charges are separate from contract demand payments and address unaccounted grid benefits like higher fault levels, improved plant load factors, and unmetered usage during CPP shutdowns, which impact utilities financially.

27. Reactive Power Generation:

Stakeholder Comments/suggestions:

Stakeholders submitted that Generating units argue that they independently manage their reactive power in compliance with existing regulations.

DISCOM's Response:

Discoms submitted that data collected by M/s ERDA from CPPs in Rajasthan shows that CPPs draw both active and reactive power from the grid, based on measurements taken at the Point of Common Coupling and generator output terminals.

28. Power Availability in Case of CPP Failure:

Stakeholder Comments/suggestions:

Stakeholders submitted that CPP consumers argue that existing charges already cover the grid support services they receive, and imposing additional POC charges would lead to double billing.

DISCOM's Response:

Discoms submitted that CPPs rely on grid support for critical operations, such as running large motors, yet pay minimal charges despite benefiting significantly from these services.

29. Grid Stability for Starting Heavy Loads:

Stakeholder Comments/suggestions:

Stakeholders submitted that Modern CPPs use advanced technologies to reduce grid dependency, and the stability benefits they receive are already accounted for in existing charges.

DISCOM's Response:

Discoms submitted that CPPs benefit from higher plant load factors (PLF) due to grid support, enhancing their operational efficiency.

However, the charges paid by CPPs are not proportional to their level of grid utilization.

30. Minimization of Voltage and Frequency Variations:

Stakeholder Comments/suggestions:

Stakeholders submitted that CPPs have their own systems to manage power factor and reactive power, minimizing grid burden, and the grid is already equipped to handle fluctuations.

DISCOM's Response:

Discoms submitted that if the grid were unavailable, CPPs would incur higher costs to manage voltage harmonics and fluctuations, which are currently handled by the grid infrastructure

31. Absorption of Transient Surges:

Stakeholder Comments/suggestions:

Stakeholders submitted that transient surges are typically caused by internal operations, and CPPs have their own protective mechanisms to handle them.

DISCOM's Response:

Discoms submitted that the grid's capacity to absorb transient surges benefits CPPs but assert that POC charges are unrelated to this advantage, making the objection irrelevant.

32. Regulatory and Economic Considerations:

Stakeholder Comments/suggestions:

Stakeholders submitted that imposing POC charges would create unnecessary financial burdens, undermine energy independence, and contradict national policies that promote self-generation.

DISCOM's Response:

Discoms submitted that CPPs benefit from grid support for critical operations, such as starting motors, which are essential for their functioning. Despite these benefits, CPPs pay minimal charges to the DISCOM.

33. Grid Support Benefits Are Mutual:

Stakeholder Comments/suggestions:

Stakeholders submitted that CPPs contribute significantly to grid stability, especially during peak loads, by providing voltage stability

and reactive power support. This mutual benefit should be considered when deciding on Parallel Operation Charges (POC).

DISCOM's Response:

Discoms submitted that CPPs benefit from the grid's higher fault level, which helps reduce voltage fluctuations and harmonics. Without grid support, CPPs would face increased infrastructure costs. However, they provide much less Base MVA support in return, despite benefiting greatly from the grid.

34. Base MVA Method Fails to Address Unique Position of Conventional CPPs:

Stakeholder Comments/suggestions:

Stakeholders submitted that The Base MVA method for calculating POC charges is flawed, unfair, and based on generalized assumptions. It lacks transparency, and the charges are excessive, not reflecting the actual support the grid provides to CPPs.

DISCOM's Response:

Discoms submitted that POC charges are based on a scientific study conducted by M/s ERDA, supported by both the Government of India and the Gujarat Government.

35. Unreasonable Financial Burden on Industry:

Stakeholder Comments/suggestions:

Stakeholders submitted that the imposition of POC charges places an unreasonable financial burden on industries relying on CPPs, particularly in a competitive global market. This could discourage investment in captive power generation, negatively impacting economic growth.

DISCOM's Response:

Discoms submitted that CPPs heavily depend on the grid for both active and reactive power, demonstrating their inability to operate independently. The grid provides critical support, including voltage stability, reduced harmonics, and fault level assistance, which significantly benefits CPP operations.

36. Inequitable Treatment of Conventional CPPs vs. Renewable CPPs

Stakeholder Comments/suggestions:

Stakeholders submitted that Conventional CPPs do not cause grid distortions like renewable CPPs (e.g., harmonic distortions), making it unfair to impose the same charges on both types of CPPs.

DISCOM's Response:

Discoms submitted that a study by M/s ERDA, supported by the Government of India and Gujarat, assessed fault levels, harmonics, and power quality at the Point of Common Coupling (PCC). POC rates for conventional CPPs are determined using the Base MVA method, while renewable CPPs are assessed using the Power Quality method, reflecting their distinct technical characteristics.

37. Proposed POC Across Voltage Levels:**Stakeholder Comments/suggestions:**

Stakeholders submitted that POC charges are mainly relevant for connections at or below 33 kV, as higher voltage connections do not draw from DISCOMs. The existing infrastructure already covers necessary costs, making POC charges for higher voltage connections questionable.

DISCOM's Response:

Discoms submitted that DISCOMs argue that open access consumers, including those at higher voltages (e.g., 132 kV), already pay wheeling charges. These payments indicate that open access consumers are using DISCOM infrastructure and compensating for it accordingly.

38. No Power Injection into the Grid:**Stakeholder Comments/suggestions:**

Stakeholders submitted that Solar CPPs are equipped with Reverse Power Relays that prevent power from being injected into the grid. The ERDA report confirms that Hindustan Zinc's Solar CPP has not injected power into the grid. In Ultratech Cement's hybrid project, any grid injection is attributed only to the thermal power component.

DISCOM's Response:

Discoms submitted that Hindustan Zinc Limited uses both active and reactive power from the grid, despite intermittent renewable energy causing voltage fluctuations. The inverter-based plant's non-linear devices generate power quality issues, but they still rely on grid support for stable plant operation.

39. No Reduction in Contract Demand:**Stakeholder Comments/suggestions:**

Stakeholders submitted that Consumers with Solar CPPs do not reduce their Contract Demand, as these plants can only generate electricity

during daylight hours, which strengthens the case against imposing POC charges.

DISCOM's Response:

Discoms submitted that although solar-based CPPs do not reduce their contract demand, they still benefit from the grid's high fault level, which helps mitigate voltage fluctuations caused by intermittent renewable energy. Additionally, CPPs provide less Base MVA support compared to the grid, which acts as an infinite bus with stable voltages and frequencies.

40. Current Total Demand Distortion (TDD) Limits:

Stakeholder Comments/suggestions:

Stakeholders submitted that POC charges are based on Current Total Demand Distortion (TDD), which should stay below 5%. Hindustan Zinc's Solar CPP has a TDD of 2.2%, and Ultratech's hybrid plant has 5.05%, mostly due to thermal generation. Thus, the POC calculation for Solar CPPs is deemed incorrect.

DISCOM's Response:

Discoms submitted that voltage fluctuations from renewable sources and inverter harmonics are not factored in, and the TDD is calculated according to IEEE 519-2022 standards to ensure that charges reflect the technical support CPPs receive from the grid.

41. Petition in Hindi:

Stakeholder Comments/suggestions:

Stakeholders submitted that the petition has a significant impact on electricity consumers in Rajasthan, and stakeholders request that the petition and its attachments be made available in Hindi, as required by law. A detailed discussion will take place within 21 days, allowing stakeholders to present their views.

DISCOM's Response:

Discoms have provided the translated Hindi version of the petition.

42. Without Authorization and No Locus Standi:

Stakeholder Comments/suggestions:

Stakeholders submitted that the validity of the petition is questioned, with stakeholders arguing that it was filed by unauthorized individuals who lack standing. They contend that any claims for compensation should be initiated by RVPN, not the distribution utilities.

DISCOM's Response:

Discoms submitted that the Chairman of DISCOMs, who oversees all three DISCOMs, authorized the officer to file the petition, with an affidavit submitted to confirm this. DISCOMs are responsible for consumer connections and infrastructure development, justifying their entitlement to compensation. They clarify that RVPN handles only power transmission and not consumer connections. Furthermore, DISCOMs levy wheeling charges on open access consumers, reinforcing their role in infrastructure management and entitlement to compensation. As distribution licensees, DISCOMs are directly affected by the parallel operation of Captive Power Plants (CPPs) and are thus the aggrieved parties in such matters.

43. Tariff Revision Limitations:**Stakeholder Comments/suggestions:**

Stakeholders submitted that the Electricity Act prohibits tariff revisions more than once a year, deeming the current petition for a second revision legally unsound.

DISCOM's Response:

Discoms submitted that POC charges were initially introduced by the Commission but challenged in court. Following APTEL's judgment, a fresh proposal for POC was made, supported by a scientific study by ERDA. POC charges aim to compensate DISCOMs for the benefits CPPs receive from the grid, including infrastructure support. DISCOMs emphasize that the POC is a levy, not a tariff, designed to ensure fair compensation for infrastructure and grid services.

44. Impact on Renewable Energy:**Stakeholder Comments/suggestions:**

Stakeholders submitted that the proposed charges should not apply to renewable plants and should be based on actual power usage rather than installed capacity. They express concern that this could negatively impact the financial viability of solar projects.

DISCOM's Response:

Discoms submitted that renewable resources like solar and wind are intermittent and can cause voltage fluctuations. However, these fluctuations are mitigated by the grid's high fault level. They highlight that inverter-based plants and motors in renewable energy systems generate power quality issues, such as voltage and current harmonics.

When a CPP operates in parallel with the grid, both the CPP and the grid provide mutual support. This is reflected in the calculation of Parallel Operation Charges (POC), which uses actual Total Demand Distortion (TDD). The approach ensures fair compensation for the technical support provided by the grid, enabling renewable plants to operate at higher plant load factors and more efficiently.

Commission's views:

45. The Commission has considered the Petition, written submission and oral arguments made on behalf of the Petitioners & stakeholders.
46. The Commission observes that the petitioners have filed this petition for approval of applicability and rate of parallel operation charges on captive consumers of Rajasthan for FY 2024-25.
47. The Commission initially heard the matter on 23.07.2024 and directed the publication of the petition to invite comments/suggestions from stakeholders. Accordingly, a public notice approved under Section 64(2) of the Electricity Act, 2003 was issued to Jaipur Discom on 05.08.2024 and subsequently published in newspapers and the petition also made available on the websites of the Discoms and the Commission. The last date for submitting comments was 17.09.2024. Six stakeholders were submitted their comments. The matter was finally heard on 27.02.2025 and order was reserved.
48. Meanwhile, the Discoms have filed their ARR & Tariff Petition for FY 2025–26, which also includes a proposal for levying POC charges on captive consumers in Rajasthan as per Regulation 92 of RERC (Terms and Conditions for Determination of Tariff) Regulations 2025. Accordingly, public notices approved under Section 64(2) of the Electricity Act, 2003 have issued to Discom for inviting comments/suggestions of stakeholders and some stakeholders have also submitted their comments/suggestions on the proposal for levying POC charges on captive consumers in Rajasthan.
49. The Commission has also considered the comments/suggestions received from stakeholders in this petition as well as ARR and Tariff Petition for FY 2025–26 on the proposal for levying POC charges on captive consumers in Rajasthan.
50. The Commission observes that Regulation 93 of RERC (Terms and Conditions for Determination of Tariff) Regulations 2019 contains the provision of determination of parallel operation charges by the

Hon'ble Commission. The relevant excerpt from the said regulations is provided below for reference.

"93. Parallel Operation Charges

- (1) The connectivity of CPP to Grid or State transmission system shall be governed by the connection conditions stipulated under State Grid Code and Connectivity Regulations of Central Electricity Authority notified in accordance with sub-section (b) of Section 73 of the Act.*
- (2) The Commission may stipulate from time to time the 'parallel operation charges' to be applicable for parallel operation of the CPP with the grid separately."*

51. The Commission further observes that vide its order dated 06.02.2020 the Commission introduced Parallel Operation Charges (POC) for the first time wherein all CPP consumers in the state were liable to pay POC @ Rs. 20/kVA/ month. However, the levy of Parallel Operation charges was challenged before Hon'ble APTEL in the appeal no. 103 of 2020 & IA Nos 402 & 403 of 2020 in the matter of Shree Cement Ltd. Vs JdVVNL and others. The levy of parallel operation charges on captive consumers as per RERC order dated 06.02.2020 was set aside by Hon'ble APTEL and the matter was remitted to RERC for fresh consideration and determination in accordance with the law. Hon'ble APTEL had further noted that a fresh proposal is to be moved for such purposes by the distribution licensee which shall be considered by the Commission after duly following the procedure envisaged under section 64 of the Electricity Act, 2003.

52. The Commission also observes that now the Discoms have filed a fresh Petition Stating that the circumstances under which a captive power plant seeks to operate in parallel with a large interconnected grid are as follows:

- (i) CPPs having surplus capacity over and above their own requirement, connected in parallel with the grid in order to sell power to the grid or bank such surplus energy, which is a general phenomenon in seasonal industries.
- (ii) CPPs having load of such nature that results in large momentary peaks, starting currents and runs the plant in parallel to avail the support of grid beyond the contract demand.
- (iii) Process industries with CPP's runs in parallel in order to avail continuous power supply, in the event of failure of CPP generating units.
- (iv) Black start of CPP, where the start-up power is required to restart the units.

53. The Commission further observes that in order to calculate the POC, M/s ERDA was deployed by the Discoms to conduct the study. The Discoms, with their Petition, have also annexed a report on analysis of parallel operation charges in the Rajasthan. The Petition as well as report of ERDA was placed in the public domain and also uploaded on website of the Commission and Discoms. Based on the study, M/s ERDA has evaluated various methods for implementation of POC charges i.e., Base MVA method for conventional CPPs and Power quality method for renewable CPP. The Discoms submitted that Base MVA method is specifically used for the conventional captive power plant and power quality method is used for the Renewable captive power plant because base MVA has been calculated based on the fault level of grid and for this transient reactance of the generator is required. Therefore, due to the absence of generator in renewable CPPs, this method is only applicable on non-renewable (Conventional) CPPs. The details of the method are as under-

(i) Base MVA method-

This method measures the Base MVA support given to CPPs by grid and support taken by utility from CPP. This method is most suitable for both utility as well as CPPs. Based on the Base MVA method Charges Calculated for Conventional CPP is Rs.27.237/- per kVA.

(ii) Power Quality method-

In this method, charges are calculated on the basis of distortion in current measured at PCC for 132kV level. Other factors required for the calculation of charges are contract demand, installed capacity, average power export to grid and demand charges. Based on the Power Quality method Charges Calculated for Renewable CPP is Rs.11.90/- per kVA.

(iii) Calculation of POC charges for Hybrid CPPs-

In hybrid CPPs, where both renewable and non-renewable installed capacity exist, POC charges shall be calculated using Base MVA as well as Power Quality method in the ratio of conventional and renewable plant capacity of the CPP, respectively.

54. The Commission observes that Regulation 93 of RERC (Terms and Conditions for Determination of Tariff) Regulations 2019 contains the provision for determination of parallel operation charges by the Commission. Therefore it is undisputed that there is an enabling provision in the Tariff Regulations 2019 for levying parallel operation charges on the CPPs which have parallel operation with the grid.

55. The petitioners mainly submitted that CPPs have load of such nature that results in large momentary peaks, starting currents and runs the plant in parallel to avail the support of grid beyond the contract demand. Process industries with CPPs runs in parallel in order to avail continuous power supply, in the event of failure of CPP generating units. Apart from this for black start of the CPP, start-up power is required from the grid.
56. The petitioners further submitted that they had appointed M/s ERDA for detailed study of the CPPs of the state and propose suitable mechanism and rates of POC charges to be levied on the CPP consumers. After detailed study, M/s ERDA has proposed following charges:

CPP Type	Proposed POC charges
Conventional CPP	Rs 27.237 per KVA per month
Renewable CPP	Rs 11.90 per KVA per month
Hybrid Plants	Both of the above in the ratio of the conventional and renewable share

57. Further M/s ERDA in its detailed study report submitted to the petitioners, has elaborated certain benefits of Parallel Operation to both CPPS and Utilities. These benefits are stated as following:

“Advantage of Parallel Operation to CPPs

- 1) There is a renewed growing interest in the maximum recovery of waste heat energy by bulk consumers because of the increasing cost of fuels. Industries using large quantities of heat energy, usually process steam, sometimes find it economical to generate their own by-product electric power either by steam or gas-turbine generators. These facilities supply process steam and electric power simultaneously and at high plant cycle efficiency. This will result in optimization of the investment made in CPPS.*
- 2) In the absence of utility connection, the CPP's will have to operate their plants at lower plant load factors which are not desirable w.r.t economics point of view of CPP's. The parallel operation improves the efficiency of CPPs by operating at a higher PLF (Plant Load Factor)*
- 3) By parallel operation the bulk consumer can operate their plant at constant power mode irrespective of load cycle.*
- 4) Additional revenues could be generated by the CPPs by sale of surplus power which could attract new investments in CPP*
- 5) The fluctuations in the load will result in high stresses on the equipment and can reduce the life of the equipment.*
- 6) High variation in demand required for induction furnace, rolling mills and arc furnace may not be possible for the CPP to supply in isolated system.*
- 7) Some of the loads like furnace etc. generate harmonics. Those harmonics generated in the system spoil the power quality of the system.*

- 8) If the CPP is connected in parallel with the grid, it will inject the harmonics in to the grid and may be less severe.
- 9) Negative phase sequence current is generated by unbalance loads in the system. This unbalance current is flowing into the grid system and if the CPP's are connected with grid this unbalanced currents are flowing in to the system of utility.
- 10) Captive power plants will have higher fault level when connected parallel with the grid supply. The higher fault level is because of interconnection at higher voltage level. The higher voltage level will have higher fault level. Hence voltage drop will be less in the system.
- 11) In case of fault in CPPs generating units or other equipment, bulk consumers can take required power from the grid supply and bulk consumers can save their production loss.
- 12) The shock and disturbances in the generating units and also of industries gets absorbed by the system of licensee as the system of the licensee is very large.
- 13) The grid provides stability to the plant to start heavy loads.
- 14) The variation in the voltage and frequency at the time of starting large motors and heavy loads is minimized as the grid supply acts as an infinite bus.
- 15) In some cases, the slow responses of the CPPs governors and excitation system will make the plant sluggish without the support of the grid.
- 16) The shocks created by sudden load throw off's and consequent tripping of CPPs generator on over speeding is avoided with the grid taking care of the shocks.
- 17) The connection with the grid helps CPP's connected to steel mills and are furnaces Le, the system with fluctuating loads in stabilizing their units.

Advantage of Parallel Operation to Utility

- 1) Power generated by captive power plants (bulk consumers) partially bridges the gap between demand & supply because there is usually a large gap between generation and demand in India.
- 2) Fault level of both the grid and CPP improves due to Parallel Operation of captive power plant connected with the grid. However the fault level contribution by CPP units is less compared to the contribution of grid.
- 3) During the peak hours, utility can reduce the shortage of power because of availability of electric power generated and available for sale by CPP at lower cost. Without captive power plants, the utilities will have to draw more power from the central grid. The peak power sharing provides utilities with cost effective solution to find new sources of electricity without making huge financially capital investments in additional power plants etc.
- 4) CPP takes power from the grid at very less load factor with respect to their Contract demand. Hence there will be high diversity. The advantage of high diversity is that lower maximum demand. The demand cost has been applied on consumers irrespective of diversity. Investment cost per MVA will be less for the utility. Also stand by power available with utility in addition to recovery of full demand charges from CPPs due higher diversity.

- 5) *Addition of generation capacity at centralized station may not be the most economical solution to the power sector utilities, but to manage generation capacities belonging to other generators like CPPs at different location would be optimum solution (lesser T & D loss).*
 - 6) *The service lines are lightly loaded due to less power flow into the CPPs. The capacity of service line is very much higher than the contract demand. Hence it reduces the line losses. Utility gets over compensated by such light loads lines.*
 - 7) *In India, utilities are having insufficient generating capacities and an overloaded distribution system. The distributed generation is one of the solutions for the utilities to reduce the gap between generation and demand.*
 - 8) *Captive power plants in which process heat and electricity required are suited for cogeneration of electricity. Cogeneration system also needs to be encouraged in overall interest of energy efficiency and grid stability."*
58. Per contra, the stakeholders, mainly cement and mining industries, submitted that the Discoms owns and operates the distribution system, which is only up to 33 KV level. All electric lines above 33 KV are owned and operated by the transmission licensee. Thus the question of the Discoms providing any grid services to any person connected at the voltage level above 33 KV does not arise. Further, fixed charges are being paid in terms of section 45 of the Act in consideration of Discom's universal obligation to supply, irrespective of the quantum of the actual supply, fixed cost will never be lower for any particular year. Discom's obligation towards any consumer is limited towards contract demand and any overdrawal above contract demand will attract penalty charges. Hence the POC charges should not be levied.
59. Per Contra, Discoms submitted that as they manage the connections provided to consumers, consequently, it is legitimate for Discoms to receive compensation for developing the necessary infrastructure. On the other hand, RVPN, a transmission company, is solely responsible for transmitting power from the generator to the Discom periphery and is not involved in consumer connections. These payments indicate that open access consumers are using Discoms' infrastructure and compensating for it.
60. In Commission's view the submissions of the Discoms deems appropriate and acceptable as the entities are consumers of the Discoms. Further, the revenue earned by Discom through POC charges will obviously be reflected in ARR & true-up and benefits of the same will percolate to the end consumers including those having CPP.
61. The stakeholders further submitted that the ERDA study report on the basis on which the instant petition has been filed and POC sought to be levied,

is only a draft report and not the final report and thus cannot be relied for the purpose of approving POC. Further, being the apex technical body under the Act, the draft report should be shared with CEA for their suggestions.

62. As regards the report, Discoms during the hearing submitted that this is the final and only report submitted by the M/s ERDA.
63. Stakeholders also submitted that petition for Parallel Operation Charges cannot be filed separately. Since tariff can be revised only once in a year.
64. Per contra, Discoms submitted that POC charges were initially introduced by the Commission but challenged in Hon'ble APTEL. Following APTEL's judgment, a fresh proposal for POC was made, supported by a scientific study by ERDA. POC charges aim to compensate Discoms for the benefits CPPs receive from the grid, including infrastructure support. Discoms emphasize that the POC is a levy, not a tariff, designed to ensure fair compensation for infrastructure and grid services.
65. Commission observes that Regulation 93 of RERC (Terms and Conditions for Determination of Tariff) Regulations, 2019 provides for levying Parallel Operation Charges separately and Discoms have filed this petition following Hon'ble APTEL judgement and duly conducted a scientific study.
66. Petitioners have also submitted the POC rates of various other States and below is a summary of the POC rates applicable in these States:

State	POC rate
Maharashtra	Rs. 20 per KVA of the CMD per month
Tamil Nadu	Rs. 30 per KW per month on the installed capacity of CPP/Co-generating plants (less the OA quantum) agreed upon with distribution licensee as per the EWA.
Chhattisgarh	Paise 13 per KWh
Gujarat	Rs. 26.5 per KVA per month
Madhya Pradesh	Rs. 20 per KVA per month of the installed capacity of CPP
Andhra Pradesh	Rs. 50 per KW per month for conventional generators Rs. 25 per KW per month for renewable plants Rs. 15 per KW per month for roof top solar plants

67. The Commission has also considered various APTEL judgements referred by the stakeholders.

68. The Commission observes that the judgement dated 14.12.2023 in Appeal No. 228 of 2022 & 391 of 2023 in the matter of Rain CII Carbon (Vizag) Ltd. V/s APERC & others is useful for this order. The relevant extract of the above judgment is as under:

65. This Tribunal in the case of Chhattisgarh State Power Distribution Co. Ltd. v. Godawari Power & Ispat Ltd., 2011 SCC Online APTEL 20, has categorized various support that a power plant receives from parallel operation with the grid and that can be the basis for imposition of Grid Support Charges, it was held as under:

“17. The parallel operation is a facility in the nature of a Grid support to the Captive Power Plant. The Captive Power Plant gets the following advantages owing to the parallel operation with the Grid:

(66) The fluctuations in the load of CPP are absorbed by the utility grid in the parallel operation mode. This will reduce the stresses on the captive generator and equipments. The CPP can operate his generating units at constant power generation mode irrespective of his load cycle.

(ii) Absorption of harmonics.

(iii) Negative phase sequence current is generated by unbalance loads. The magnitude of negative phase sequence current is much higher at the point of common coupling than at generator output terminal. This unbalance current normally creates problem of overheating of the generators and other equipments of CPP, if not running in parallel with grid. When they are connected to the grid, the negative phase sequence current flows into the grid and reduces stress on the captive generator.

(iv) Captive Power Plants have higher fault level support when they are running in parallel with the grid supply. Because of the higher fault level, the voltage drop at load terminal is less when connected with the grid.

(v) The grid provides stability to the load of Captive Power Plant to start heavy loads like HT motors.

(vi) The variation in the voltage and frequency at the time of starting large motors and heavy loads, is minimized in the industry, as the grid supply acts as an infinite bus. The active and reactive power demand due to sudden and fluctuating load is not recorded in the meter.

(vii) The impact created by sudden load throw off and consequent tripping of CPP generator on over speeding is avoided with the grid taking care of the impact.

(viii) The transient surges reduce the life of equipment of the CPP. In some cases, the equipment fails if transient is beyond a limit. If the system is connected to the grid, it absorbs the transient surges. Hence, grid enhances the life of CPP equipments.

18. In short, the gain to the Captive Power Plant is quite substantial in case there is grid support. Owing to the above said substantial gains to the Captive Power

Plant by operating in parallel with the grid, the parallel operation charges are levied from the Captive Power Plant.

19. Therefore, the State Commission is empowered to deal with the question as to whether the levy of parallel operation charges is permissible or not. This aspect has been dealt with by this Tribunal in judgment dated 12.9.2006 in Appeal No. 99 of 2006. In the said judgment, this Tribunal upheld the levy of parallel operation charges by the State Commission. The relevant observations of the Tribunal are as follows:

"11. Next we shall take up points C & D together, as the discussions overlap each other. The parallel operation is definitely a service that the second respondent renders to all the CPPs like the appellant. It is the contention of the appellant that no charges could be levied or collected for the said service. As rightly pointed out by the Expert who appeared for the second Respondent, the parallel operation is a service which extend support to the system and at the same it causes voltage dip in the system, harmonies, injection, additional reactive power requirement etc. By parallel operation the CPP gains more and hence it is liable to pay the charges for the service.

12. The contention that no charges at all is payable for parallel operation or transmission system cannot be sustained and such a claim is contrary to factual position. There is no escape for CPP to pay charges for parallel operation by which parallel operation the CPP gains while the transmission system of the second respondent is affected apart from the admitted fact the transmission grid is strengthened by the power injected by CPP. Hence the contention that no charges at all is payable by CPP to the second respondent for parallel operation is not acceptable nor such a claim could be sustained.

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67. This Tribunal vide judgment in HEG Ltd. v. MPERC, Apl no. 167 of 2014 dated 08.10.2015, has held that the concerned plant is not liable to pay GSC/Parallel Operation Charges as it is not located at the site of Captive user and hence does not and cannot be connected in parallel grid and thus there is no possibility of injecting the harmonics into the grid and therefore is not liable to pay GSC, the relevant extract of the judgment is reproduced as under:

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13.16 Considering the aforementioned reasons and further considering the reasoning recorded by the Gujarat Commission in its order, dated 1.6.2011, and also considering the facts that pre-condition for levy of POC is the co-location of the CPP and load and if the CPP and load are at different places, there is no grid support and hence, there is no question of levy of POC on such kind of CPP like Tawa Plant of the Appellant. The Appellant's Tawa Plant is a CPP which is not co-located with the consuming facilities/load. Further, the Tawa Power Plant is injecting its total power generated to the grid system and the open access consumer situated 100 Kms distance from the generating plant is drawing the power from the same grid system, like any other consumer and hence, creation of harmonics by Tawa Plant to disturb the grid does not arise. Hence, levying parallel operation charges is not justifiable. In fact, even auxiliary power for start-up of the Tawa plant is obtained from a separate connection from the

distribution system of the licensee for which charges are paid separately by the Appellant. We find that in these circumstances, levying parallel operation charges to the Appellant/petitioner is not justifiable."

68. Additionally, in the case of Shree Renuka Sugars Ltd. v. Gujarat Energy Transmission Corporation Ltd., 2015 SCC Online APTEL 11, this tribunal has held that GSC/POC can be charged from co-generation plants, relevant extract is quoted as under:

"15 (a)Parallel Operation Charges (POC) for Cogeneration plant

viii) It is also an established fact that the Cogeneration plant though different from CPP so far as the operation is concerned but not different on the aspect of operation in parallel with the Grid.

The impugned order dated 08.08.2013 rejecting the claim of the Appellant and holding that the facilities of the Appellant of Cogeneration plant are operating in parallel and hence liable to pay the charges is correct and is being upheld by this Tribunal."

69. In Consideration of the above, the Commission is of the view that co-located captive generating plants are required to pay POC to the licensee in view of the benefits derived by the captive users for their parallel operation from the grid. Whereas, captive users using the grid (distantly located) are similar to the retail consumer drawing power from the licensee and does not require any support or derive any advantages from grid.
70. Further, if the CPPs are situated at different places and part load of the consumer is connected at the place of CPP and part load receiving power through open access from a plant situated at a different place, the part load which is situated at the CPP premises is only liable for levy of parallel operation charges as they receive services from the grid. While the load/consuming unit situated at another place and getting power generated from CPP by wheeling/transmission through open access is equated with a consumer without CPP. Hence, for such quantity of power wheeled from CPP, no POC is leviable.
71. The Commission also notes that Parallel Operation Charges (POC) are specifically applicable to consumers operating captive generating plants in parallel with the grid. The revenue earned by the Discoms through such charges is accounted for in the Annual Revenue Requirement (ARR) and true-up processes, thereby ultimately benefiting all consumers, including those with Captive Power Plants (CPPs).
72. Accordingly, The Commission approves the POC charges as under:

- (i) POC charges to be levied on the HT CPP (co-located) consumers are as under:

CPP Type	Approved POC charges
Conventional CPP	Rs 27.237 per KVA per month of the installed capacity of CPP
Renewable CPP	Rs 11.90 per KVA per month of the installed capacity of CPP
Hybrid Plants	Both of the above in the ratio of the conventional and renewable share

- (ii) Rooftop Solar Plants under net metering and gross metering shall be excluded from the levy of Parallel Operation Charges (POC).
- (iii) Levy of Parallel Operation Charges shall be limited to only the power consumed by the on-site/co-located load and not on offsite CPP and it shall apply to the net capacity (Total capacity –Open access capacity) of the generators.
- (iv) The POC charges shall be leviable on co-located plants irrespective of its captive status to the extent capacity utilised for co-located load.
- (v) No POC charges shall apply to Power Purchase Agreements (PPAs) capacity entered into by Discoms with CPP.
73. The Commission directs that the Discom should bring revenue generated from POC in the future ARR/true-up petition for consideration of the Commission.
74. Further, since FY 24-25 has already been over and same proposal for Parallel Operation Charges has been approved in ARR and tariff order for FY 25-26, the POC charges shall be applicable prospectively as approved in ARR & Tariff order for FY 25-26.
75. Accordingly, the present petition is disposed of in the above terms.

(Hemant Kumar Jain)
Member

(Dr. Rajesh Sharma)
Chairman