



**TRANSMISSION CORPORATION OF TELANGANA LIMITED
VIDYUT SOUDHA::HYDERABAD - 82**

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From
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To
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Lr.No.Dir(GO)/CESLDC/SESLDC/DEPP2/ADE-1/F.GCC/D.No.72/23,Dt:07.10.2023

Sir,

Sub: TSTRANSCO – SLDC - GCC – Direction by Hon'ble TSERC – Levy of Grid Support Charges for FY 2023-24 - Detailed analysis - Final Report - Submitted - reg.

- 1) Lr.No.Dir(GO)/CESLDC/SESLDC/DEPP2/ADE-1/F.GCC/D.No. 76/22,
Dt:27.12.2022
2) Lr. No. Secy/TSERC/JD (TE)/F.No.E-565019/D.No.321/23, Dt:10.05.2023.
3) Lr.No.Dir(GO)/CESLDC/SESLDC/DEPP2/ADE-1/F.GCC/D.No. 34/23,
Dt:20.06.2023
4) Lr. No. Secy/TSERC/JD (TE)/F.No.E-565019/D.No.449/23, Dt:04.07.2023.

In the reference (1) cited, Grid Coordination Committee (GCC) submitted final report after detailed analysis, on Levy of Grid Support Charges (GSC) for FY 2022-23. Subsequently, Hon'ble TSERC vide references (2) & (4) cited, directed GCC for a detailed analysis on the issue Levy of Grid Support Charges (GSC) for FY 2023-24 and to submit a final report.

In compliance to the above, GCC conducted 2No. Coordination meetings for deliberating the issue elaborately by the forum. The summary of deliberations and recommendations are as follows:

- After going through the Technical Analysis and Study, all the members present are accepted for Technical Support of Grid for Parallel Operation keeping in view of Stability, Reactive Power Management, Fault level support for Conventional, Renewable Energy, Rooftop Solar Generators.
- In respect of Charges, majority members are accepted for levy of Grid Support Charges.
- It was agreed by majority members that, GCC may initially support the Discoms Proposal and based on the experience, we may request for any changes in future.

P.T.O.

TSERC HYDERABAD
INWARD
- 9 OCT 2023
No. 104

In this Connection, GCC is here with submitting the final report with the following specific recommendation.

Methodology for Calculation of GSC:

Grid Support Charges (GSC)	Total Installed Capacity X Rate of Grid Support Charges (Rs./kW/month)
Rate of Grid Support Charges	<ul style="list-style-type: none">i. The parallel operation/grid support charges are to be applied to the total installed capacity of the generators connected to the Grid.ii. Conventional generators shall pay Rs.50 per kW per month.iii. Renewable energy plants including waste heat recovery plants, the plants based on municipal solid waste, and the co-gen plants shall pay Rs.25 per kW per month.iv. Rooftop solar plants under net metering/gross metering policy shall pay Rs.15 per kW per month.v. Co-gen sugar mills shall pay charges of Rs.25 per kW per month, for a period of 4 months or actual operation period, whichever is higher.vi. These charges shall not be applicable when the plants are under shutdown for any reason and when such shutdown period exceeds two monthsvii. To the extent of PPA capacities of the generators with TSDISCOMs shall be exempted from payment of these charges.

The final report is herewith submitted.

Encl: Final Report.
(Book Containing 100 Pages)

Yours faithfully,


**Chair Person/GCC &
Director/Grid Operations
TSTransco**



TRANSMISSION CORPORATION OF TELANGANA LIMITED
STATE LOAD DESPATCH CENTRE

FINAL REPORT
ON
LEVY OF
GRID SUPPORT CHARGES FOR
FY 2023-24

Submitted By

TELANGANA STATE GRID
COORDINATION COMMITTEE

OCTOBER-2023

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1. INTRODUCTION

Hon'ble TSERC vide letter dated 10.05.2023 directed Grid Coordination Committee(GCC) for a detailed analysis on the issue of Levy of Grid Support Charges(GSC) for FY 2023-24 and to submit a detailed report on or before 15.06.2023.

Further as per the request of Chair Person GCC for extension of time, Hon'ble TSERC vide letter dated 04.07.2023 granted extension of time to GCC and directed to submit detailed report on or before 16.08.2023. Copies enclosed as **Annexure -A**.

The background of the subject is as follows.

TSDISCOMs requested commission to allow levy of Grid Support Charges(GSC) for FY2023-24 on all the generators (Captive Generating Plants, Cogeneration Plants, Third party Generation units, Merchant Power Generation units, Rooftop Power Plants etc.) who are not having PPA/having PPA for partial capacity with the licensees as follows.

**Grid Support Charges = Total Installed Capacity X Rate of GSC
(Rs./kW/month)**

Rate of GSC:

- i. The parallel operation/grid support charges are to be applied to the total installed capacity of the generators connected to the Grid.
- ii. Conventional generators shall pay Rs.50 per kW per month.

- iii. Renewable energy plants including waste heat recovery plants, the plants based on municipal solid waste, and the co-gen plants shall pay Rs.25 kW per month.
- iv. Rooftop solar plants under net metering/gross metering policy shall pay Rs.15 per kW per month.
- v. Co-gen sugar mills shall pay charges of Rs.25 per kW per month, for a period of 4 months or actual operation period, whichever is higher.
- vi. These charges shall not be applicable when the plants are under shutdown for any reason and when such shutdown period exceeds two months.
- vii. To the extent of PPA capacities of the generators with TSDISCOMs shall be exempted from payment of these charges.

The commission has taken note of above submissions made by TSDISCOMs along with other Retail Supply Tariff (RST) proposals and invited comments/suggestions/objections from stake holders, after considering the stake holder submissions, Commission has decided to refer the matter to Grid Coordination Committee for undertaking detailed analysis as the licensees proposed a different methodology and applicability.

Considering the above, GCC was directed for a detailed analysis on the issue and to submit a detailed report. The directions of Hon'ble TSERC were complied by the GCC. Accordingly a Technical Analysis, Study carried out and conclusions are explained under various chapters of this report.

2. STAKE HOLDERS VIEWS

To understand the issue GCC convened the 4th GCC meeting at Vidyut Soudha on 12.06.2023 for taking the views of all the members.

Brief summary of 4th GCC Meeting:

Initially TSDISCOMs presented their proposal to the forum and explained the circumstances under which the proposals were submitted to Hon'ble TSERC. It was mentioned that this time the levy is on Installed Capacity of the Generators. Further it was mentioned that the proposal is based on R&M Cost including Artisan Employee Cost.

In this regard, GCC sought the views of the members of the committee on the proposals of TSDISCOMs. During the deliberations certain members sought for a study from stability point of view for Renewable Energy Plants. Accordingly GCC noted the issue. The views of the members were recorded in the minutes. Certain members not represented in the fourth GCC meeting.

Further GCC also requested members to submit their written views on the deliberations. Accordingly, TSDISCOMs and Representative of Generating Companies – Thermal (other than state generating companies) submitted their written views.

It was understood from the deliberations that additionally TSDISCOMs brought all non conventional generators (Cogeneration Plants, Renewable Energy Plants, Rooftop Power Plants etc.) under this ambit. It was identified that **Necessity of Grid Support (Technical Analysis)** for Renewable Energy Plants is to be studied by GCC.

It was decided to conduct next meeting, to further deliberate the subject on the above dimension. It is also conveyed that, in next meeting Member Convener, GCC will putforth the technical analysis for Renewable Energy Plants to Committee Members.

With the above observations the fourth GCC meeting was concluded and the minutes was communicated to GCC members on 12.07.2023. Copy of 4th GCC minutes of meeting is enclosed as **Annexure - B**.

3. GCC TECHNICAL ANALYSIS AND STUDY

The committee analysed the views of members and based on the request of certain members of the GCC a technical Study was conducted using PSS/E Software for Solar Power Plants.

Technical study (Steady State & Transient Behaviour) conducted by SLDC using Power System Simulator for Engineering (PSS/E) Software is presented. This study consists Steady State Behaviour and Transient Behaviour of Grid connected Solar plants.

3.1 STEADY STATE BEHAVIOUR OF SOLAR PLANTS

A. REAL TIME BEHAVIOUR OF SOLAR PLANT AT VARIOUS GRID VOLTAGES

It is assumed that Solar Power Plants are operating at Unity Power Factor.

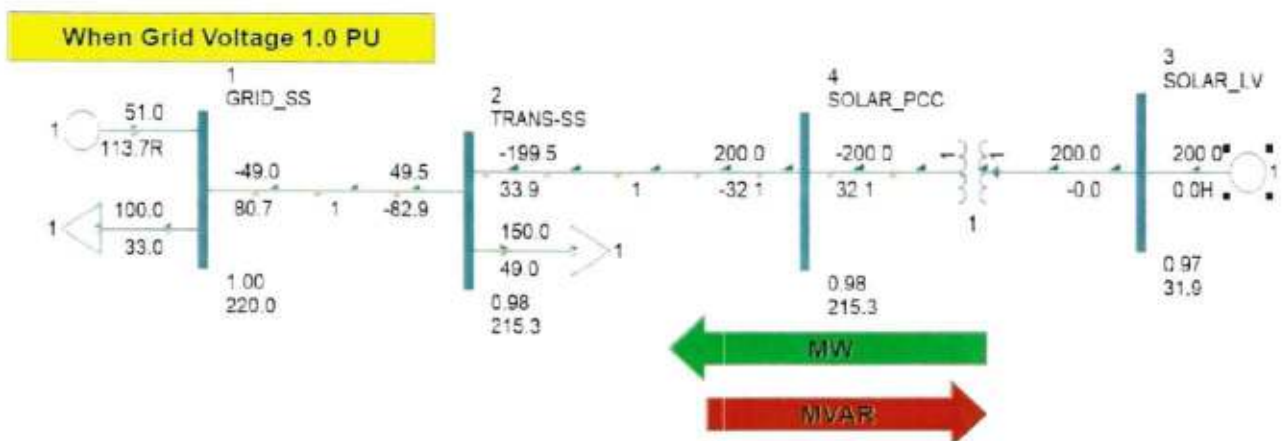


Fig.1

Grid Voltage 1.05 PU

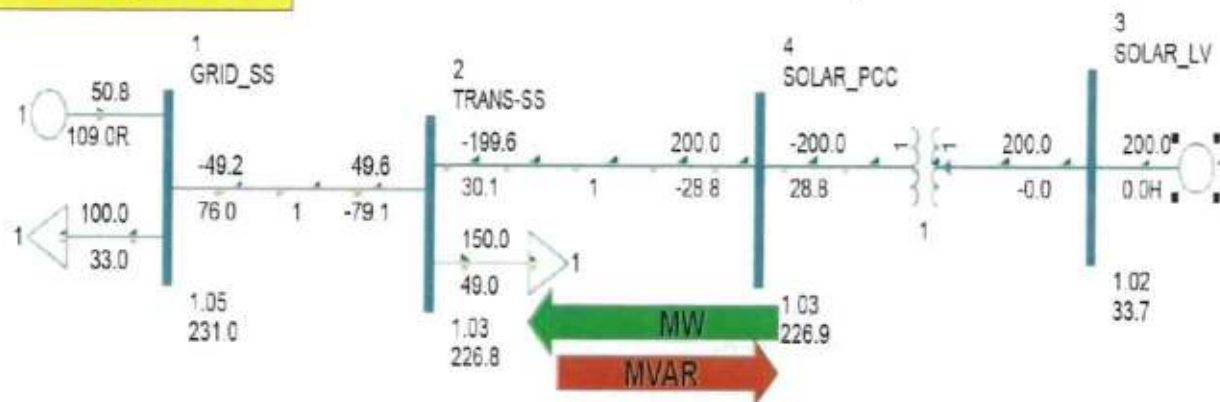


Fig.2

Grid Voltage 0.95 PU

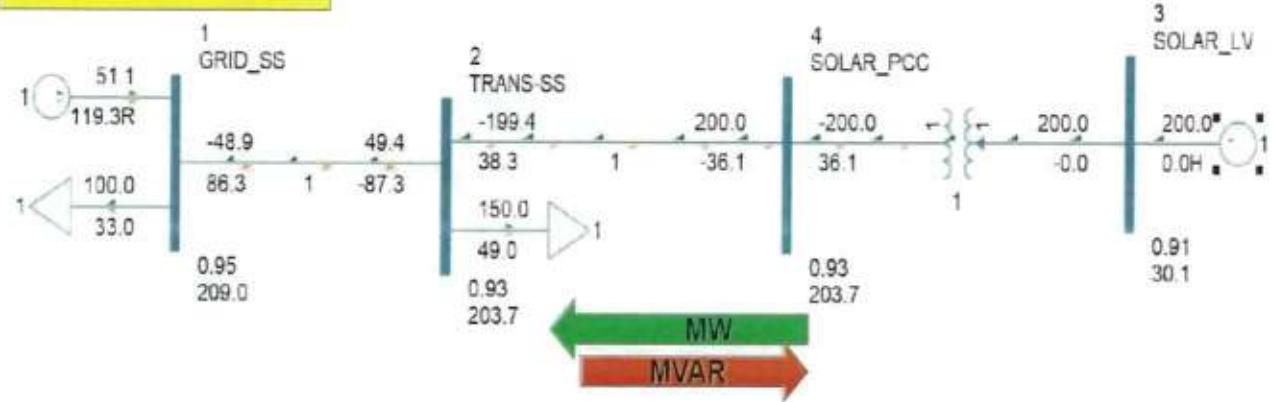


Fig.3

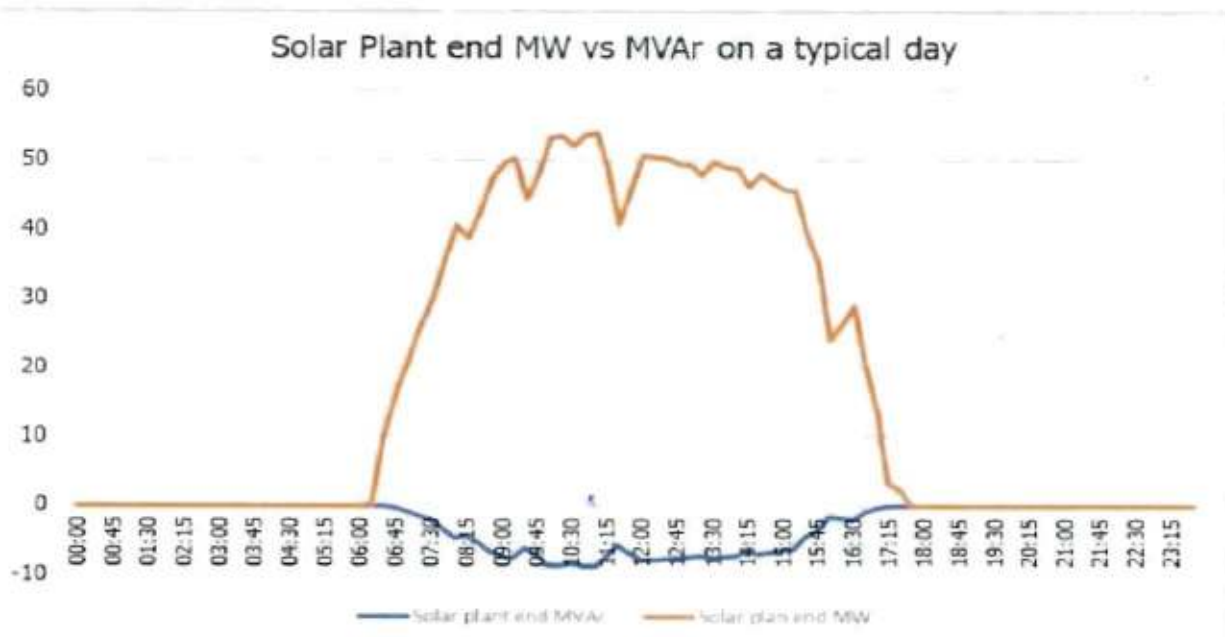


Fig.4

From the above figures it is observed that, all the time the Solar Power Plant is drawing reactive from Grid irrespective of voltage at the Grid sub station.

B. EXPECTED BEHAVIOR OF SOLAR PLANT AT VARIOUS GRID VOLTAGES

When Grid Voltage 1.0 PU

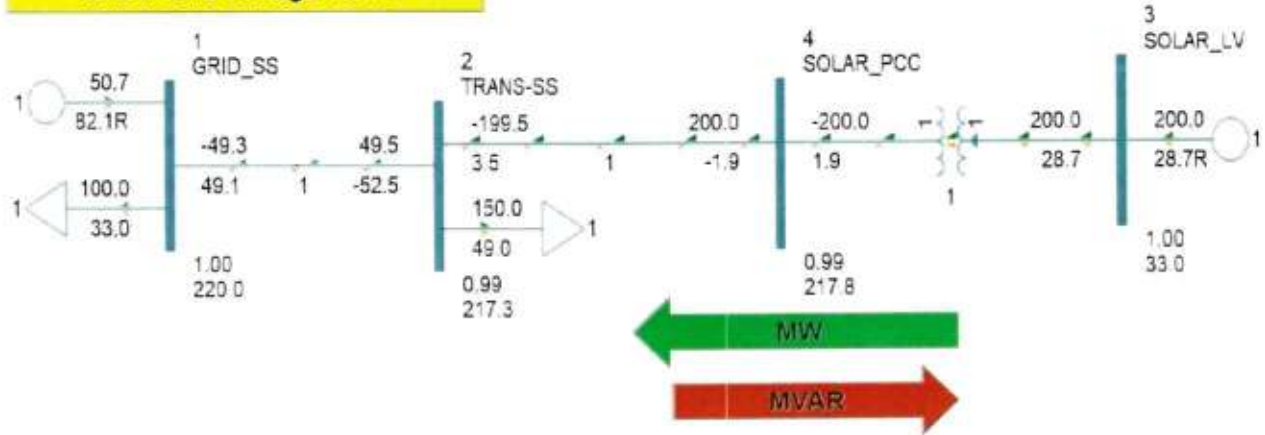


Fig.5

When Grid Voltage 1.05 PU

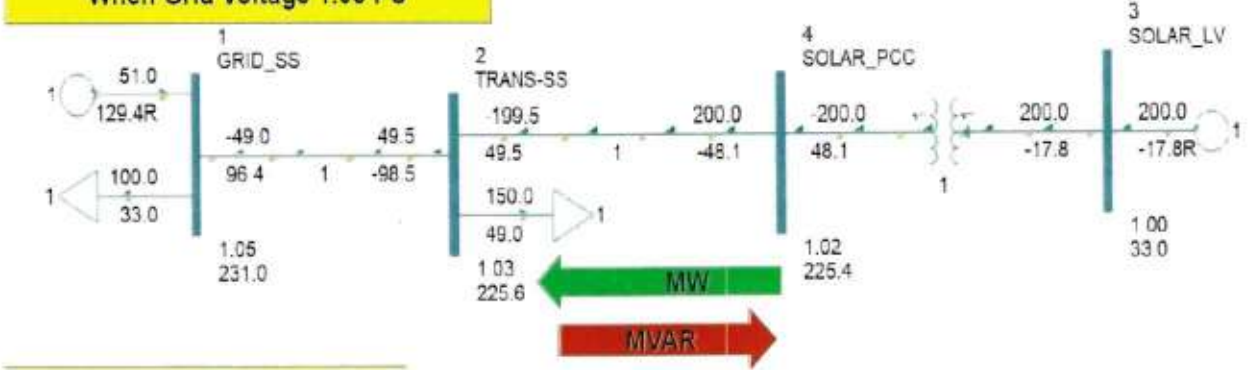


Fig.6

When Grid Voltage 0.95 PU

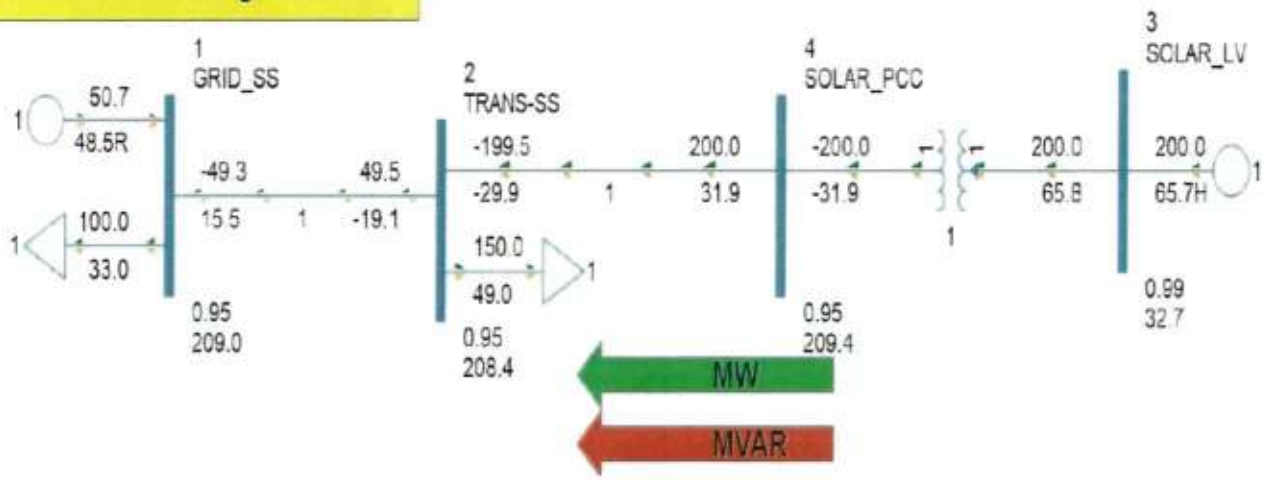


Fig.7

From the above figures it is observed that, the Solar Power Plant is injecting Reactive Power when the grid voltage is Lower than nominal voltage and drawing Reactive Power when the grid voltage is equal to or Higher than nominal voltage.

3.2 TRANSIENT BEHAVIOUR OF SOLAR PLANTS

With the outage of Grid Connection/Source failure to the Solar power plant it is seen from simulation studies that the Power Angle of bus is getting diverged and also Voltage instability is observed.

**ANGLE DYNAMICS PLOT
DURING TRIPPING OF RADIAL LINE FROM GRID CAUSING SEVERE
INSTABILITY AND SOLAR PLANT ISOLATION FROM GRID**

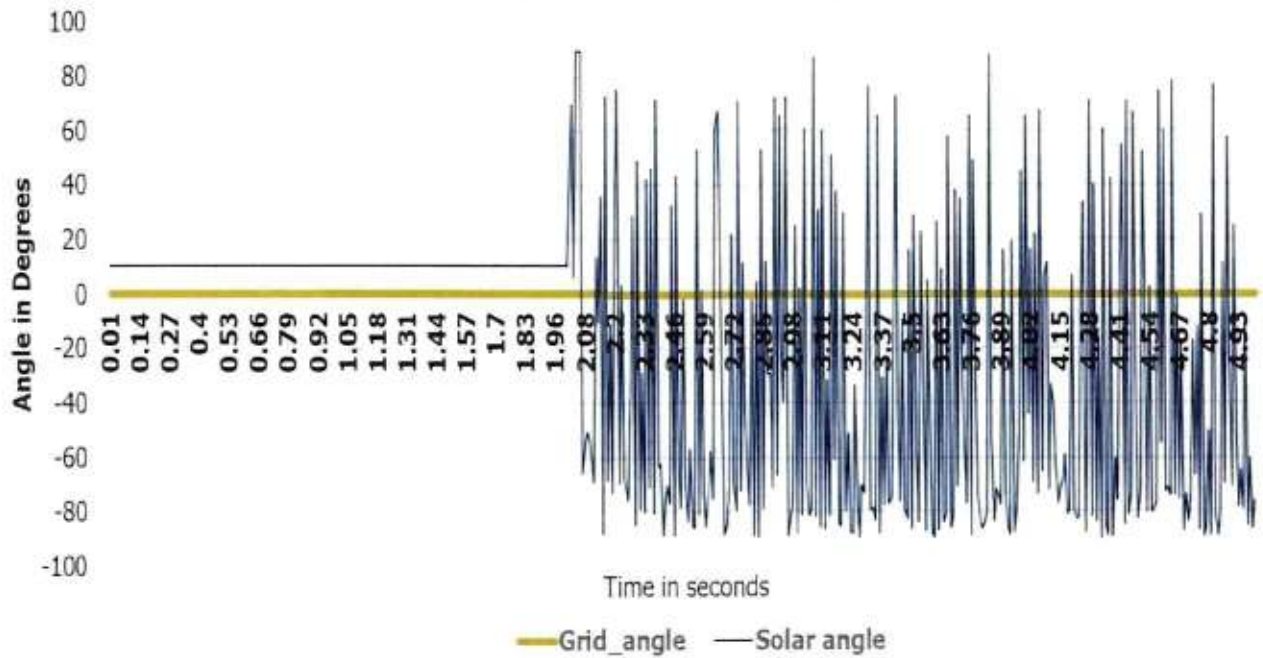


Fig.8

**DURING TRIPPING OF RADIAL LINE FROM GRID CAUSING SEVERE VOLTAGE
INSTABILITY AND ISOLATION OF SOLAR PLANT**

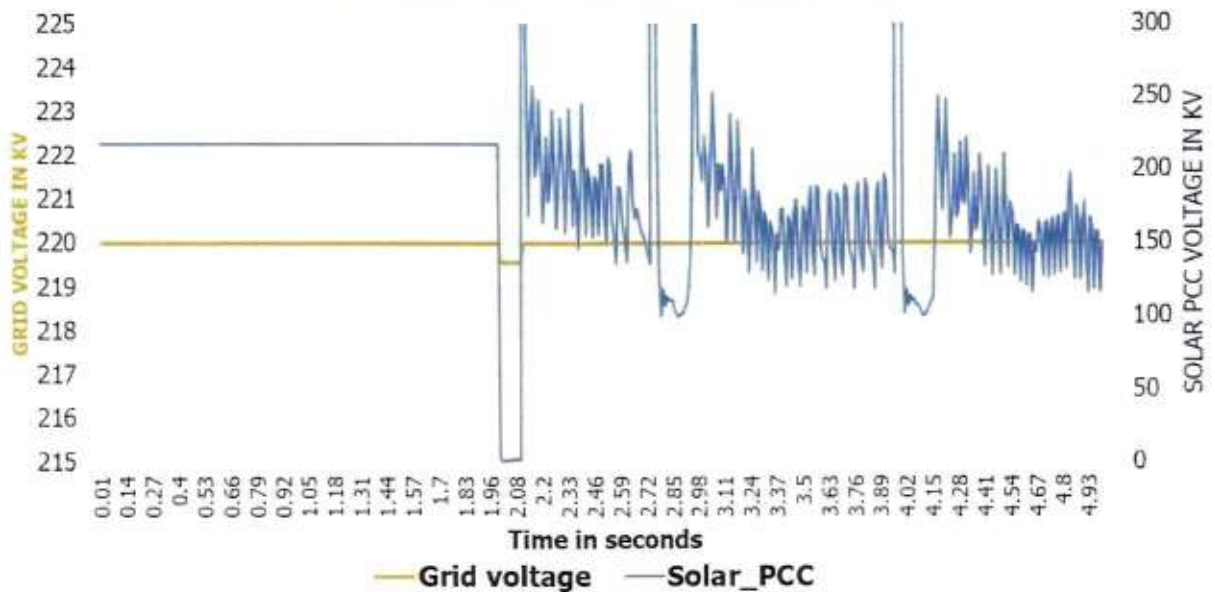


Fig.9

It can be observed from the above that Present Solar plants in Telangana are Grid tied Inverters and always need a Grid support (Voltage reference) for injection of Active Power.

3.3. RELEVANT REGULATORY PROVISIONS

1) Extract of Central Electricity Authority (Technical Standards for Connectivity to the Grid) Amendment Regulations, 2013 [Part-II B2(i)]

“The generating station shall be capable of supplying dynamically varying reactive power support so as to maintain power factor within the limits of 0.95 lagging to 0.95 leading.”

2) Extract of Telangana Electricity Regulatory Commission (State Electricity Grid Code) Regulation, 2018

“ Regulation 9.3. (a) All the generating units may operate within their reactive capability curves and the network voltage profile shall be maintained within voltage limits specified.

Regulation 17.4.1. The reactive power compensation and / or other facilities shall be provided by users, as far as possible, in the areas prone to low or high voltages systems thereby avoiding the need for exchange of reactive power to / from the In-STS and to maintain the In-STS voltage within the specified range at all times.

Regulation 17.4.4. The users shall endeavour to minimize the reactive power drawl at an interchange point when the voltage at that point is below 97% of rated voltage and shall not inject reactive power when the voltage is above 103% of rated voltage.

Regulation 49.5. The generating stations shall generate / absorb reactive power as per instructions of SLDC, within the capability limits of the respective generating units. ”

3.4 GCC ANALYSIS AND STUDY - Final Report Dt: 27.12.2022

It is to state that the committee in the earlier report Dt:27.12.2022 submitted the analysis with respect to two aspects that are

A. Necessity of Grid Support.

B. Reasonability of Charges for Grid Support.

And also analysed procedures being followed by various states and various topics dealt in the earlier report are listed below for reday reference.

- a.** Proposals of TSDISCOMs regarding Grid Support Charges
- b.** Views of the Members
- c.** Levy of Parallel Operation Charges/ Grid Support Charges by various states across the Nation and their Methodology.
- d.** Analysed the M/s Electrical Research & Development Association (ERDA) study report on evaluation of Parallel Operation Charges in respect of Chattisgarh State during the year 2008.
- e.** Technical Study of Impact of CPP connectivity to the Grid.

4. PRESENTATION OF GCC ANALYSIS AND STUDY TO MEMBERS

GCC organized a 5th meeting on 05.08.2023 at 15:00Hrs at Vidyut Soudha, to present technical analysis to members and further deliberate the issue of Levy of Grid Support Charges(GSC) for FY 2023-24.

During the meeting Member Convener, GCC explained the brief back ground of the subject, the views expressed by members in the 4th GCC meeting, Technical Analysis and Study carried out by SLDC for Renewable Energy Plants. The subject is putforth in the meeting for deliberation by members.

The following are the views/opinions expressed by GCC Members.

A) TSDISCOMs

TSSPDCL

Divisional Engineer/RAC/TSSPDCL informed that the generation is not constant from a solar power plant, because of which there is disturbance in the grid and utilities are absorbing these variations in generation.

During the variation/dip in the generation at solar power plants at certain points of time, the concerned captive user or third party user is drawing the power from Grid at that time. So the user is taking the power from Grid even though there is no generation during particular spells.

As the utilities are absorbing the variations in the solar generation, it is to request the Committee for considering levy of Grid Support Charges on solar power plants including Roof Top Solar Power Plants to Hon'ble TSERC.

TSNPDCL

It was informed that the deliberations of the 4th GCC holds good and agree with the TSSPDCL comments/views.

Earlier, TSDISCOMs vide letter dated 23.06.2023 communicated their written submissions with regard to the proposal of Levy of Grid Support Charges for FY 2023-24. Further, Vide e-mail dated 18.08.2023 submitted additional comments (Copy enclosed as Annexure – C).

B) Representative of Generating Companies – Thermal (other than state generating companies):

General Manager/Commercial/ Nava Bharat Energy India Limited, Representative of Thermal Generating Companies, presented the following views:

It was informed that the written views were already submitted. Further, it is to inform that Grid support is required for injection/drawl and this we are not objecting. The objection is only on charges.

Earlier, Representative of Thermal Generating Companies vide letter dated 23.06.2023 submitted their written submissions. Further, Vide letter dated 16.08.2023 reiterated the written submissions.

C) CESS, Siricilla – CESS informed that the proposals of DISCOMs are agreed.

D) Representative of Generating Companies – Solar:

Renew Power Ltd. representatives informed that, we will submit the written views if any.

E) Representative of State Generating Companies - TSGenco:

TSGenco informed forum that, they agree with the TSDISCOMs proposals, as there is need to compensate for the services.

F) Representative of STU & Person Nominated by Hon'ble TSERC under clause 5.3(n) – Chief Engineer/Transmission:

It was informed that, Grid Support Charges are to be collected.

G) Southern Regional Load Despatch Centre – Representative of SRLDC informed the forum that, injection of reactive power during night hours and absorption of reactive power during peak generation hours is clear with respect to solar generators.

It is to mention that, Discoms trying to charge the power plants for the services they given to the power plants. But, levying of charges may not give right direction to RE Developer. That may compensate the Discoms for the reactive energy charges being paid by Discoms.

From the Grid perspective, if the same behaviour continues the system is going to face low voltage in the peak generation hours and high voltage during night hours. At the ISTS level if the power plant is not going to establish dynamically varying reactive power (0.95lag to 0.95lead), they are not allowed for connectivity.

Further neutralising the reactive power by the solar power plants at the Point of Common Coupling (PCC) by adopting suitable reactive power compensation mechanisms must be looked into.

In addition to the above, it was informed that appropriate mechanism of billing of reactive energy exchanges with Grid (like 5paise/KVArh) may also be looked into, inline with the Indian Electricity Grid Code -2023.

H) Mytrah Vayu (Godavari) Ltd., Representative of Wind Generating Companies - The representative informed that, we will submit the written views if any.

I) NSL Krishnaveni Sugars Ltd., Representative of Bagasse Generating Companies

Representative of Bagasse Generating Companies informed that, we will submit the written views if any.

J) There is no representation from the following members of GCC:

- a) Singareni Thermal Power Plant
- b) Gowthami Bio Energies Pvt. Ltd., Representative of Biomass Generating Companies
- c) SLS Power Corporation Ltd., Representative of Mini Hydel Generating Companies
- d) M/s PTC India Ltd. – Trader Member
- e) MRF Ltd., Representative of Open Access Consumers
- f) Southern Regional Power Committee

Copy of 5th GCC minutes of meeting enclosed as Annexure - D.

5. CONCLUSION

GCC being a forum consisting members representing various entities connected to the Grid and analysed the subject in a thorough manner in accordance with directions of Hon'ble TSERC.

GCC organized two coordination meetings and the members were actively involved in the deliberations of the subject and expressed their opinions/submitted their written views.

GCC organized the first meeting on Dt:12.06.2023 on the subject to understand the issue and for taking the views of members. GCC analysed the views expressed/submitted by members, TSDISCOMs Proposals on the issue and Data from various Sources. A detailed presentation was presented by Member Convener, GCC during the second meeting held on Dt:05.08.2023. The issue was discussed elaborately.

The summary of deliberations and recommendations are as follows:

- a) After going through the Technical Analysis and Study, all the members present are accepted for Technical Support of Grid for Parallel Operation keeping in view of Stability, Reactive Power Management, Fault level support for Coventional, Renewable Energy, Rooftop Solar Generators.**
- b) In respect of Charges, majority members are accepted for levy of Grid Support Charges.**
- c) It was agreed by majority members that, GCC may initially support the Discoms Proposal and based on the experience, we may request for any changes in future.**

6. SPECIFIC RECOMMENDATION

Further to the detailed Report and Final Reports submitted by Grid Coordination Committee(GCC) vide letters Dt:05.08.2022 & Dt:27.12.2022 on the issue of Parallel Operation of CPPs and consequent levy of Grid Support Charges(GSC), Hon'ble TSERC vide letter dated 10.05.2023 directed Grid Coordination Committee(GCC) for a detailed analysis on the issue of Levy of Grid Support Charges(GSC) for FY 2023-24 and to submit a detailed report on or before 15.06.2023.

Further as per the request of Chair Person GCC for extension of time, Hon'ble TSERC vide letter dated 04.07.2023 granted extension of time to GCC and directed to submit detailed report on or before 16.08.2023.

In this Connection GCC submits the following:

Keeping in view of conclusions mentioned in the earlier report dated 27.12.2022 and also based on the conclusions of the GCC meeting held on Dt:05.08.2023, the specific methodology proposed by GCC is as follows.

Methodology for Calculation of GSC:

Grid Support Charges (GSC)	Total Installed Capacity X Rate of Grid Support Charges (Rs./kW/month)
Rate of Grid Support Charges	i. The parallel operation/grid support charges are to be applied to the total installed capacity of the generators connected to the Grid. ii. Conventional generators shall pay Rs.50 per kW per month. iii. Renewable energy plants including waste heat recovery plants, the plants based on municipal solid waste, and the co-gen plants shall pay Rs.25 kW per month.

	<p>iv. Rooftop solar plants under net metering/gross metering policy shall pay Rs.15 per kW per month.</p> <p>v. Co-gen sugar mills shall pay charges of Rs.25 per kW per month, for a period of 4 months or actual operation period, whichever is higher.</p> <p>vi. These charges shall not be applicable when the plants are under shutdown for any reason and when such shutdown period exceeds two months.</p> <p>vii. To the extent of PPA capacities of the generators with TSDISCOMs shall be exempted from payment of these charges.</p>
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Justification for levying of Grid Support Charges:

- Earlier the proposal by TSDISCOMs is on differential capacity i.e., Installed Capacity minus Contracted Demand with Discom for FY 2022-23. Certain times the running capacity is lower than Installed Capacity. Further the Contracted Demand with Discoms may also vary for different generators, which created an ambiguity in considering the differential capacity.

In this regard, various states methodology (Madhya Pradesh, Gujarat Andhra Pradesh) was referred, where in it is known that GSC is levied on Installed Capacity of the generators. In line with the other states and to avoid the uncertainties, installed capacity was considered for levying GSC.

- In the ARR & Tariff filings for FY 2023-24 by TSDISCOMs, the GSC was also proposed on Renewable power plants (Solar, Wind, Hydel & Rooftop Solar) due to the following reasons:

- The on Grid Solar/Wind inverter takes energy, reference voltage & frequency from the grid for the process of conversion of the DC power generated from solar panels/wind turbines to AC power. Further, the energy generated from the Solar panels/Wind turbines is uncertain and depends on the environmental conditions hence there is always uncertainty in energy output from the Solar plants/Wind plants. In case of sudden drop in generation from the Solar plant/Wind plant, the load will have to be supported by the grid instantaneously and in case of excess generation the Grid acts as a cushion in consuming the same instantaneously.
- Moreover the AC power from the output of the inverter is prone to be having a larger number of harmonics resulting in the distorted sinusoidal waveform. The Grid absorbs such harmonics thus aiding the Solar PV plants/Wind plants.
- The consumers having installed Solar panels may cause unbalance in the system as per their nature of consumption and likely possibility of exporting/importing energy in one or 2 phases but not all phases.
- Thus in all the above instances, the Solar power plants/Rooftop PV Systems/Wind plant take the support of the Grid and hence the levy of Grid Support Charges is justified.

Justification for Rate of Grid Support Charges:

- As many stakeholders during public hearing on ARR & Tariff proposals offered their Comments that the rate of GSC proposed is exorbitantly high though the said proposal was on the differential of Power Plant Installed Capacity and the Contracted Maximum Demand with the

DISCOM and such methodology is not in vogue in any other State. The TSDISCOMs have studied the methodologies for levy of GSC in various states.

- The TSDISCOMs adopted the methodology existing in Andhra Pradesh State which is based on the R&M cost including Artisans' salary of DISCOMs & STU approved by the Hon'ble APERC. Based on the above methodology, the calculation of GSC for Telangana state is detailed below.

Particular	Units	Telangana Contracted Capacity (FY 2022-23 Tariff Order)
TSGENCO Thermal	MW	4043
TSGENCO Hydel	MW	2325
CGS	MW	3112
Other LT	MW	3039
NCES	MW	3837
Total (A)	MW	16355

TABLE-1: Details of Approved Contracted Capacity of TSDISCOMs for FY 2022-23

Particular	Units	R&M+ Artisans Employee Cost
Approved (TS DISCOMs)	INR Cr.	788
Approved (TSTRANSCO)	INR Cr.	204
Total (B)	INR Cr.	991
Per month Cost C=B/12	INR Cr.	82.58
Proposed GSC (on Contracted Capacity) (D=C/A)	Rs./kW/ Month	50

TABLE-2: Details of Approved R&M and Artisan Employee Costs for FY 2022-23

- The proposal by TSDISCOMs for conventional generators for FY 2023-24 is Rs.50/kW/Month on Installed Capacity, is lower than the earlier recommendation of the GCC, which is 25% of the prevailing demand charge for respective HT consumers (Approx. Rs.119/kW/Month), on Differential Capacity for FY 2022-23.
- Further, various exemptions are also been proposed by the TSDISCOMs, as sought by certain members in the GCC meetings.
- Even though the proposal is on Installed Capacity, it is advantageous to the Conventional Generators as various exemptions are brought in to the proposal duly considering the requests made by the Conventional Generators as well as Co-generation and Seasonal Generators.
- The GSC proposed for Renewable Plants are as follows:
 - 1.Solar, Wind, Hydel - 50% of proposed GSC of Conventional sources.
 - 2.Rooftop Solar Plants - 30% of proposed GSC of Conventional sources.
- The proposed GSC for Renewable Plants are less than the Conventional sources as the solar renewable plants are operating during day time only and the Wind & Hydel power plants are seasonal in nature and takes grid support accordingly.

* * * * *



TELANGANA STATE ELECTRICITY REGULATORY COMMISSION
D.No.11-4-660, 5th Floor, Singareni Bhavan, Red Hills, Hyderabad - 500 004

From Commission Secretary (FAC),
O/o:TSERC, 5th Floor,
Singareni Bhavan, Red Hills,
Hyderabad - 500 004 (TS)

To
The Chairperson Grid Coordination
Committee & Director (Grid operations)
TSTRANSCO, Vidyut Soudha,
Khairathabad, Hyderabad - 500 082 (TS).

Lr.No.Secy/TSERC/JD(TE)/F.No.E-565019/D.No. ³⁶¹ /23, Dt. ¹⁰ 09-05-2023

Sir,

Sub:-TSERC-TSDISCOMs filed for determination of Grid Support Charges for FY 2023-24. Undertaking detailed analysis on the issue of parallel operation of CPPs and consequent levy of GSC-Reg.

CE/SLDC TSTRANSCO	Inward No. 1071
11 MAY 2023	
SE/SLDC SE/EBC PESHI	CE/SLDC

Ref:- 1) TSERC Common Order in O.P. No's. 80 of 2022 and 81 of 2022 and batch dated 24.03.2023 in the matter of RST & CSS for FY 2023-24 and True up petitions.

@@@

It is to inform that TSDISCOMs requested the Commission to allow levy of Grid Support Charges (GSC) and Parallel operation charges for FY 2023-24 on all the generators (captive generating plants, cogeneration plants, 3rd party generation units, merchant power generation units, rooftop power plants etc.) who are not having PPA/having PPA for partial capacity with TSDISCOMs as follows

Grid Support Charges = Total Installed Capacity x Rate of GSC Rate of GSC (Rs./kW/month):

- | | | |
|-----------|------|---|
| DE/PPLNG | i) | The parallel operation/grid support charges are to be applied to the total installed capacity of the generators connected to the Grid. |
| DE/SCADA | ii) | Conventional generators shall pay Rs.50/kW/month. |
| DE/SHIFT | iii) | Renewable Energy plants including Waste Heat Recovery (WHR) plants, the plants based on municipal solid waste and the co-gen plants shall pay Rs.25/kW/month. |
| DE/MOPP-2 | iv) | Rooftop solar plants under net metering/gross metering policy shall pay Rs.15/kW/month. |
| DE/RE-II | | |
| DE/DSGS | | |
- SE/SLDC

- v) Co-gen sugar mills shall pay charges of Rs.25/kW/month, for a period of four (4) months or actual operation period whichever is higher.
- vi) These charges shall not be applicable when the plants are under shutdown for any reason and when such shutdown period exceeds two (2) months.
- vii) To the extent of PPA capacities of the generators with TSDISCOMs shall be exempted from payment of these charges.

2. The Commission has taken note of above submissions made by TSDISCOMs along with other RST proposals and invited comments/suggestions/objections from stake holders, after considering the stakeholder submissions, Commission has decided to refer the matter to Grid Coordination Committee for undertaking detailed analysis as the licensees proposed a different methodology and applicability, as that proposed earlier in RST for FY 2022-23 for which Grid Coordination Committee has already submitted its final report

3. In view of the above, I am directed by the Commission to communicate the above decision to Grid Coordination Committee with a direction for a detailed analysis on the issue and to submit a detailed report to this office on or before **15.06.2023**.

Yours faithfully,

Encl: TSDISCOMs proposals,
Comments & suggestions received
from stakeholders
and replies of TSDISCOMs.


COMMISSION SECRETARY (FAC)

Copy to the:

- P.O O/o Chairman
- P.S. to Member (Technical)
- P.S. to Member (Finance)
- Chairman & Managing Director/TSTRANSCO/Hyderabad
- Chairman & Managing Director/TSSPDCL/Hyderabad
- Chairman & Managing Director/TSNPDC/ Warangal
- ✓ Chief Engineer TSSLDC, Vidyut Soudha



TELANGANA STATE ELECTRICITY REGULATORY COMMISSION

D.No.11-4-660, 5th Floor, Singareni Bhavan, Red Hills, Hyderabad - 500 004

From
Commission Secretary (FAC),
O/o:TSERC, 5th Floor,
Singareni Bhavan, Red Hills,
Hyderabad - 500 004 (TS)

To
The Chairperson Grid Coordination
Committee & Director (Grid operations)
TSTRANSCO, Vidyut Soudha,
Khairathabad, Hyderabad - 500 082 (TS).

Lr.No.Secy/TSERC/JD(TE)/F.No.E-565019/D.No. 449 /23, Dt. 04-07-2023
Sir,

Sub:-TSERC-TSDISCOMs filed for determination of Grid Support Charges for FY 2023-24- Undertaking detailed analysis on the issue of parallel operation of CPPs and consequent levy of GSC- Extension of 2 months' time i.e., up to 16.08.2023 for submission of final report- Accorded-Reg.

Ref:- 1) TSERC Common Order in O.P. No's. 80 of 2022 and 81 of 2022 and batch dated 24.03.2023 in the matter of RST & CSS for FY 2023-24 and True up petitions.

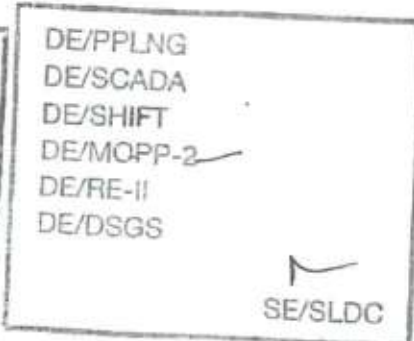
2). Lr.No.Secy/TSERC/JD(TE)/F.No. E-565019/ D.No. 321/23, Dt 10.05.2023

3). Lr.No. Dir(GO)/CESLDC/SESLDC/DEPP2/ADE-1/ D.No. 34 / 23, Dt 20.06.2023

4). NBV/FIN/150/2023-24, Dt 23.06.2023 of Nava Limited

@@@

With reference to the above cited, I am directed by the Commission to inform that the request made by Grid-Coordination Committee has been considered and 2 months' time extension from 15.06.2023 i.e., up to 16.08.2023 is granted to GCC for submission of final report.



(P.T.O)

2. Further a copy of written submissions made by M/s Nava Limited (Formerly Nava Bharat Ventures Limited) received under reference 4th cited is herewith transmitted for taking necessary action at your end.

3. Therefore, the Committee is requested to submit its final report to this office on or before 16.08.2023.

Yours faithfully,

Encl: As above


COMMISSION SECRETARY (FAC)

Copy to the:

P.O O/o Chairman

P.S. to Member (Technical)

P.S. to Member (Finance)

Chairman & Managing Director/TSTRANSCO/Hyderabad

Chairman & Managing Director/TSSPDCL/Hyderabad

Chairman & Managing Director/TSNPDCL/Warangal

Chief Engineer TSSLDC, Vidyut Soudha

Minutes of the Fourth Grid Coordination Committee (GCC) Meeting held on 12.06.2023 at Vidyut Soudha:

Introduction:

The Fourth Meeting of Grid Coordination Committee (GCC) was held on 12th June'2023 at Vidyut Soudha. The list of participants is at **Annexure-I**.

Superintending Engineer/SLDC welcomed Sri. B.Narsinga Rao, Director(Grid Operations) & Chair Person, GCC, Sri. S.V. Kumar Raju, Chief Engineer/SLDC & Member Convener, GCC and all the members of GCC to the 4th GCC Meeting. Further, requested all the members to introduce them selves to the forum. Accordingly, members introduced their details to the forum.

1. Grid Support Charges for FY 2023-24

The TSDISCOMs have proposed to levy Grid Support Charges for FY 2023-24 on all the generators (Captive Generating Plants, Cogeneration Plants, Third party Generation units, Merchant Power Generation units, Rooftop Power Plants etc.) who are not having PPA/having PPA for partial capacity with the licensees as follows:

Grid Support Charges = Total Installed Capacity X Rate of GSC (Rs./kW/month)

Rate of GSC:

- i. The parallel operation/grid support charges are to be applied to the total installed capacity of the generators connected to the Grid.
- ii. Conventional generators shall pay Rs.50 per kW per month.
- iii. Renewable energy plants including waste heat recovery plants, the plants based on municipal solid waste, and the co-gen plants shall pay Rs.25 per kW per month.
- iv. Rooftop solar plants under net metering/gross metering policy shall pay Rs.15 per kW per month.
- v. Co-gen sugar mills shall pay charges of Rs.25 per kW per month, for a period of 4 months or actual operation period, whichever is higher.
- vi. These charges shall not be applicable when the plants are under shutdown for any reason and when such shutdown period exceeds two months.
- vii. To the extent of PPA capacities of the generators with TSDISCOMs shall be exempted from payment of these charges.

Hon'ble TSERC vide letter Dt:10.05.2023 directed GCC for detailed analysis on the issue of levy of Grid Support Charges for FY 2023-24 and to submit a detailed report.

The issue is putup for deliberations of the members.

Deliberation:

Superintending Engineer/SLDC informed forum that last GCC meeting was held on 16.07.2022 and based on the conclusions a report was submitted by GCC to Hon'ble Telangana State Electricity Regulatory Commission(TSERC). Earlier the decision of levy of Grid Support Charges (GSC) was on Captive Power Plants only. Before taking the decision by Hon'ble TSERC, TSDISCOMs resubmitted their proposal in the ARR filing of Retail Supply Business for FY 2023-24 including all the generators under this ambit with different Rate of GSC for different generators (including Renewable Generators and Roof Top Solar).

Now, Hon'ble TSERC issued a direction to GCC for a detailed analysis on the issue and to submit a detailed report about levy of Grid Support Charges for FY 2023-24 on all the generators (Captive Generating Plants, Cogeneration Plants, Third party Generation units, Merchant Power Generation units, Rooftop Power Plants etc.) who are not having PPA/having PPA for partial capacity with the licensees.

In this regard, TSDISCOMs are requested to present their Grid Support Charges Proposal for FY 2023-24 to the forum initially. After the explanation of TSDISCOMs, individual member will be requested for presenting their views before GCC.

A) TSSPDCL:

TSSPDCL explained that, earlier proposal to Hon'ble TSERC is on differential capacity i.e., Installed Capacity minus Contracted Demand with Discom for FY 2022-23. There was an ambiguity in considering the differential capacity because the running capacity is lower sometimes compared to installed capacity. Further the contracted demand with Discoms also different for different generators. In this regard to avoid these sort of uncertainties and after referring the various states methodology (like Andhra Pradesh, Gujarat, Madhya Pradesh) it is understood that GSC is levied on Installed Capacity of the generators. Hence it was considered GSC based on installed capacity.

Further the methodologies of various states were also studied.

In Madhya Pradesh, Fault MVA Calculation methodology was considered. In Gujarat Fixed Charges were considered and in Andhra Pradesh R&M cost (including artisan cost) was considered. Based on this TSDISCOMs arrived certain charges.

Mean while TSDISCOMs was thought that not only conventional plants but also non-conventional plants are also taking Grid Support. Hence non conventional generators are also brought under this ambit and very nominal charges were proposed.

Like wise, there is no round the clock generation from RE plants (if you take Solar generation it is taking grid support during day time only as night time there will be no generation).

So it was considered to levy Rs.25 per kW per month (i.e., 50% that of conventional plants). On Rooftop solar plants it was considered to levy Rs.15 per kW per month.

TSDISCOMs arrived the charges based on R&M cost including Artisan Employee cost approved by Hon'ble TSERC, which comes around Rs.50/KW/Month which is also matching with the determined tariff by other state ERCs (like AP).

In view of the foregoing analysis, TSDISCOMs submitted the proposal to Hon'ble TSERC for levying Grid Support Charges for FY2023-24 as follows.

Conventional generators shall pay Rs.50 per kW per month, Renewable energy plants shall pay Rs.25 per kW per month and Rooftop solar plants under net metering/gross metering policy shall pay Rs.15 per kW per month.

In this regard, it is to mention that GCC Committee also come to a conclusion that conventional generators are taking the support of grid and SLDC technical officials through their technical study also confirmed that every generator requires grid support to run the plant in synchronism with the grid. So it is inevitable to levy GSC on all the power plants. Further Hon'ble Supreme Court also vide their judgement dated 29.11.2019 passed order that, levy of grid support charges is inevitable on all the power plants connected to the grid.

TSDISCOMs request GCC to consider our proposal and putforth the submission of TSDISCOMs before Hon'ble TSERC for levy of GSC for FY 2023-24.

B) TSNPDCL:

TSNPDCL endorsed the views submitted by TSSPDCL and requested GCC to putforth the submission of TSDISCOMs before Hon'ble TSERC.

Further, TSDISCOMs submitted their written views vide letter dated 23.06.2023. Copy enclosed as **Annexure-II**.

Superintending Engineer/SLDC sought the views of the members of the committee on the issue. The following are the views expressed by the members.

The deliberations of the members and subsequent written submissions by members is placed below with respect to the opinions of members of GCC.

C) Representative of Generating Companies – Thermal(other than state generating companies):

General Manager/Commercial/ Nava Bharat Energy India Limited, Representative of Thermal Generating Companies, presented the following views:

The proposal of TSDISCOMs is being different than that of earlier one which is 50% of Demand charges and limited to captive power plants only and also the present proposal of Rs.50 did not find any base. This proposal is on all generating plants including IPPs. We request to Appoint a independent third party and study whether grid support is required or not, in detail and conclude the decision. Hon'ble Commission may take a final decision based on the report of independent third party.

However these charges are already factored in tariffs, hence these additional charges are not required. Also CPPs may take Grid support while taking some load (drawing power) in terms of earlier deliberations.

In addition to the above, present proposal is on all the power plants including IPPs and Merchant Power Plants. IPPs are always exporting, what type of support they are getting from Grid. Hence it is not proper to levy charges on IPPs where as CPPs are supported for their load, in the terms which was deliberated earlier. Without grid support any generating plant cannot export their power. IPPs and Merchant Power Plants are to be separated from this purview.

In some states, the proposals of DISCOMs were not considered by Commission. Grid Support is required for import and export of power and at the same time it is statutory right to all the power plants to get connected to Grid.

Further we request to set aside these proposals of levy of Grid Support Charges as already power plants are suffering with DSM charges, Demand Charges and other levies. We request not to levy any charges interms of Grid Support.

Regarding charges member expressed the following views.

In the states like Kamataka, Kerala, Odisha, West Bengal the Discoms are not collecting Grid Support Charges. In some states the petition itself is rejected by ERCs. Andhra Pradesh state ERC order on Grid Support Charges is also stayed by APTEL.

It is requested that if Discoms propose to levy GSC, appoint a independent third party for complete study on the issue and based on the conclusions of independent third party study, to arrive whether Grid Support Charges is required in Telangana or not. Finally it is to mention that the expenditure is already factored in the Tariff Order, these additional charges are not required.

It was clarified by Superintending Engineer/SLDC, that we all accepted in the previous deliberations that technically grid support is required and there is no going back. Further it was mentioned that all generators(not only merchant power plants, Singareni and Genco) are getting support. Here the issue is change in Discoms proposal, that is inclusion of Renewable Power Plants.

Further, Representative of Thermal Generating Companies vide letter dated 23.06.2023 submitted their written submissions. Copy enclosed as **Annexure-III**.

D) CESS, Siricilla – CESS agrees and support the proposals of DISCOMs for levy of GSC for FY 2023-24.

E) Representative of Generating Companies – Solar:

Renew Power Ltd. representatives informed that, earlier the proposal was for CPPs as they are dynamic in operation(rotating machines) and they are getting support. As the solar plants are static in nature, what is the reason for inclusion of RE plants in the present proposal by Discoms. In my opinion Grid Support charges are not required for RE Plants as the solar plants are static in nature.

Further to mention that Grid Support Charges are not required for RE Plants as the expenditure is already considered in the ARR proposals of utilities. Even if any power is drawn(auxiliary supply) from the grid by RE Plants, they are paying as per the tariffs. Further Deviation Settlement Mechanism for RE Plants (Solar, Wind) is also came in to force. Considering all these Grid Support Charges are not required for RE Plants.

On a query by Superintending Engineer/SLDC regarding whether grid support is required or not, it was replied that technically Grid Support is required in both the ways (import & export). Further, from stability point of view a study is required for RE plants.

The RE plants shall be exempted from these charges, for promoting/encouraging RE Plants.

F) Representative of State Generating Companies - TSGenco:

TSGenco informed forum that, Grid Support is required and accept the proposal of DISCOMs.

G) Representative of STU & Person Nominated by Hon'ble TSERC under clause 5.3(n) – Chief Engineer/Transmission:

Divisional Engineer/Transmission informed forum that, Grid Support is required & agree with DISCOMs Proposal.

H) Southern Regional Load Despatch Centre – Representative of SRLDC informed the forum that, we are not able to comment on the subject (charges) but beyond doubt Grid Support is required.

I) Southern Regional Power Committee - Representative of SRPC informed the forum that, views if any will be communicated in writing afterwards.

J) Singareni Thermal Power Plant – Representative of STPP informed that Grid Support is required. Further with respect to levy of charges it was stated that,

a) RE generators are not to be levied these charges (implementation of GSC for RE plants does not seems to be convinced).

b) With respect to conventional generators, the running capacity some times may be lower than installed capacity. Hence it may be looked in to changing the levy on to the running capacity instead of installed capacity.

K) M/s PTC India Ltd. – Trader Member

It was informed that, no views on the subject.

L) MRF Ltd., Representative of Open Access Consumers

It was informed that, they agree for the Grid support charges.

M) Mytrah Vayu (Godavari) Ltd., Representative of Wind Generating Companies

The representative informed that, the views expressed by M/s Renew Power Ltd. will be considered and no more views to add on it.

N) SLS Power Corporation Ltd., Representative of Mini Hydel Generating Companies

It was informed that, SLS is having 6units each of 4MW and units may run some months during water availability period and stopped for some months. Particularly during December & January to July months very less no.of days the units will run.

In this regard, it is to state that running capacity is less compared to installed capacity. The levy of charges on installed capacity may lead to paying huge amounts.

It was clarified by TSSPDCL that, if the non operation period is more than two moths the grid support charges are not applicable.

Further, SLS Power Corporation Ltd. vide letter dated 29.06.2023 submitted feedback and requested to reconsider the imposition of Grid Support Charges by taking into account the unique circumstances of M/s SLS. Copy enclosed as **Annexure-IV**.

O) There is no representation from the following members of GCC:

a) NSL Krishnaveni Sugars Ltd., Representative of Bagasse Generating Companies

b) Gowthami Bio Energies Pvt. Ltd., Representative of Biomass Generating Companies

Finally, Superintending Engineer/SLDC requested the participants, who have expressed their views to submit their written views to this committee. Once again GCC will meet on this subject for further deliberation.

Further to the above deliberations, with the permission of Chairperson GCC, the following points informed to the members of GCC for compliance as well as information dissemination.

2. Renewable Energy Deviation Settlement Mechanism (RE DSM)

- SLDC informed the representative of RE generators and Discoms, the following in respect of Deviation Settlement Mechanism for Solar and Wind power generation.
- a) To ensure to send Energy Meter Readings (MRI dumps) to Energy Billing Centre/SLDC before 5th of every month by all the RE Generators.
- b) To Ensure the internal clock of Energy Meters of RE generators to have Real time/ Automatic GPS time synchronization facility.
- c) To get register through their QCA, with SLDC duly submitting all documents such as Bank Guarantees, KYC details, Registration fees and other related documents at the earliest.

3. CEA (Technical Standards for Connectivity to the Grid) Regulations - Compliance by Solar & Wind Generators

- SLDC requested all Solar & Wind generators to submit the supporting documents along with check list, for verifying the status of Compliance of various provisions of CEA Technical Standards for Connectivity to the Grid.

SLDC Once again requested the representative of Solar generators, to submit the reports with in 30 days and the representative agreed to inform to all Solar generators regarding submission of CEA Compliance report.

4. RGMO Response Analysis:

- RGMO Performance Analysis of Previous 9 RGMO incidents during the period from September'2022 to March'2023 of TSGENCO generating stations and Singareni Thermal Power Project (STPP) were reviewed.

Deliberation:

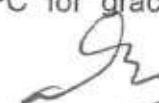
Superintending Engineer/SLDC reviewed the RGMO performance analysis of State embedded generators (Genco & STPP power plants).

Further it was informed to generators that the response of certain units was not in line with relevant regulatory standards. In this regard, the necessity of RGMO response was explained and also requested all the generators to take appropriate actions for improving the response.

The Response and its analysis in tabular format is enclosed as **Annexure-V**.

5. Conclusion:

Superintending Engineer/SLDC thanked Chair Person GCC and all the members for their participation with a special thanks to SRLDC and SRPC for gracing the meeting.


12/11
Chief Engineer/SLDC

ANNEXURE-I

4th Grid Coordination Committee (GCC) Meeting regarding Levy of Grid Support Charges for FY 2023-24 - Direction by Hon'ble TSERC, on 12.06.2023 at 15:00Hrs at Main Meeting Hall, 6 th floor, Viduyt Soudha, TSTransco						
Sl.No	NAME	DESIGNATION	ORGANIZATION	E-MAIL ID	MOBILE NUMBER	SIGNATURE
1	VENKATESHMM	DGM	SLDC GRID-India	VENKATESHMM@GRID-INDIA	9449549160	
2	N.S.MALINI	EE	SRPC	srpc.operation@gmail.com	9845545123	
3	S.Ramakrishna	TD/CESS	CESS/Sircilla		9440814058	
4	S.Sudhakar	DE/RAC	TSSPDCL	ractsspdcl@gmail.com	9440816245	
5	G.Lam Mohan	Asst/Gen	SLSPCL	slspcl24@gmail.com	9603010003	
6	P.Venka Brahma	DESM	SECL	venkappa@gmail.com	9182013919	
7	Ch Bhaskar	DE	RAC TSNDCL	de_rac@tsndcl.in	9440511239	
8	V. Ruchika	AAO/IR	TSNPDCL	raa@tsndcl.in	8232953519	
9	P.SRINIVAS	GM-Genl	NAVA SANGH	psrinivasa@gmail.com	9844693925	
10	Sandeep Votra	AVP	PTC India Ltd	Sandeep@ptc.india.com	9871546492	
11	P.Srinivas	AAO/RAC	TSNPDCL	de_rac@tsndcl.in	9990610685	
12	B. Sivaram	AE/IPC	TSSPDCL	seip@tsndcl@gmail.com	9440622266	
13	S.Nagajun Reddy	DJ. Manj	TSW-Mylach	nagajun.reddy@tsw.in	9885104519	
14	Pavan Bhargava	DM	Renew	pavan.bhargava@renew.co		
15	Col Vikram Singh	NVP	Renew	vikram.hanpal@renew.com	957677027	
16	Pavithra Srinivas	AM	Renew	pavithra.p@renew.co		

4th Grid Coordination Committee (GCC) Meeting regarding Levy of Grid Support Charges for FY 2023-24 - Direction by Hon'ble TSERC, on 12.06.2023 at 15:00Hrs at Main Meeting Hall, 6th floor, Vidyut Soudha, TSTransco

Sl.No	NAME	DESIGNATION	ORGANIZATION	E-MAIL ID	MOBILE NUMBER	SIGNATURE
16	B. Bala Raju	Division Engineer	TSGENCO	gei.se@tsgenco.co.in	9981695275	
17	D. Krishna Lakshmi	DE/HR	TSTransco	dkskrishnamul@gmail.com	9490826702	
18	S. Narasinga Rao	DE/REGD	TSTransco	de.re.2@tstransco.in	9948274027	
19	T. DURGA PRASAD	DE/REGD	TSTransco	cdtrana@tstransco.in	9990153177	
20	K. Yagna Prasad	DE/PP-1	TSTransco	de.pp.1@tstransco.in	9440677442	
21	B. Narsinga Reddy	Asst. Commr	MRE/UG	narsingareddy@entiret.com	9849325462	
22	J. Chandrashekar	SE/REG	TSTransco	regul@tstransco.in	9928191264	
23	V.V. Subramangam	SE/EE	TSTransco	de.ck.1@tstransco.in	9991058622	
24	K. Murali Krishna	DE/REG	- do -	de.no.1@tstransco.in	9292868523	
25	B. Ravikiran	DE/DS&S	TSTransco	adv.ck.1@gmail	9440679445	
26	C. Mallikarjunachand	ADE/REG	TSTransco	de.re.2@tstransco.in	7382634561	
27	G. Anitha	ADE/PP-2	TSTransco	cesldc.telangana@gmail.com	8985967543	
28	M. Chandrababu	Asst/DE	TSTransco	tsldesgl@gmail.com	7382296091	
29	G. Lakshmi Prasad	ADE/REGD	TSGENCO	gei.se@tsgenco.co.in	9993122182	
30	Ch. Kiran	ADE/PP-3	TSTransco	kirannurisu@gmail.com	9550840855	

4th Grid Coordination Committee (GCC) Meeting regarding Levy of Grid Support Charges for FY 2023-24 - Direction by Hon'ble TSERC, on 12.06.2023 at 15:00Hrs at Main Meeting Hall, 6th floor, Vidyut Soudha, TSTransco

Sl.No	NAME	DESIGNATION	ORGANIZATION	E-MAIL ID	MOBILE NUMBER	SIGNATURE
31	T. Jyothirani	ADC-1/RE-1	TSTRANSCO	t.jyotheti@gmail.com	7330861185	
32	B. Raja Thimappa	DE/Inopp.	TSTRANSCO	bandaru71970@gmail.com	9440487105	
33	N. Raja Shekar	AE/AS SLOC	TSTRANSCO	nyjshk5.234@gmail.com	8179976722	
34	L. Sarveshwar	ACE/In/SLOC	TSTRANSCO	Sarvesh.kulkarni@gmail.com	9640777328	
35	Dr. B. Narasinga Rao	Director (Grid Ops)	TSTRANSCO	dr.gridoperation@tstran.in		
36	Dr. S.V. Kumar Raju	Chief Eng/SLOC	TSTRANSCO	ce.sloc@tstran.co.in	9848782047	
37	Dr. P. Suresh Babu	SE/SLOC	TSTRANSCO	ce.sloc@tstran.co.in	9440679482	
38	Dr. P. Praveen Kumar	AGC-1/In/SLOC	TSTRANSCO	ce.sloc@tstran.co.in	9491066576	
39						
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42						
43						
44						
45						

Director/Grid Operation
TSTRANSCO, V.S. Hyd.
Inward No. 61
23 JUN 2023
CE/SLDC
CE/PS
CE.Telecom
Peshi

**SOUTHERN POWER DISTRIBUTION COMPANY
OF TELANGANA LIMITED**

From
Chief General Manager (RAC)
TSSPDCL, Corporate Office,
6-1-50, Mint Compound,
Hyderabad - 500 063.

DE/PPLNG
DE/SCADA
DE/SHIFT
DE/MCPP-2
DE/RE-II
DE/DSGS

To
The Chairperson,
Grid Coordination Committee,
TSTRANSCO, Vidyuth Soudha
Khairathabad, Hyderabad-82.

Lr. No.CGM(RAC)/SE(RAC)/DE(RAC)/F.No.GSC/D.No.199/23, Dt:23-06-2023.

SE/SLDC

Sir,

CE/SLDC
TSTRANSCO
Inward No. 93
23 JUN 2023
SE/SLDC
SE/ESC
PESH

Sub: TSSPDCL - RAC - 4th Grid Coordination Committee (GCC) meeting held on 12.06.2023 - Detailed analysis on the issue of levy of Grid Support Charges for FY 2023-24 -Information Submitted - Reg.
Ref: 4th Grid Coordination Committee (GCC) meeting held on 12.06.2023.

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It is to submit that, the 4th Grid Coordination Committee (GCC) meeting was conducted on 12.06.2023 with all the stake holders on the detailed analysis on the issue of levy of Grid Support Charges for the FY 2023-24 proposed by TSDISCOMs in the ARR filing for Retail Supply Business for the FY2023-24.

Further, during the meeting, it was requested to submit the justifications for levying Grid Support Charges for the FY 2023-24.

In this regard, the justifications on levying the Grid Support Charges for the FY 2023-24 as proposed by TSDISCOMs in the ARR filing for Retail Supply Business for the FY2023-24 are herewith submitted for favour of information and taking further necessary action please.

1. The DISCOMs proposed to levy GSC for captive Power plants (CPPs) & Co-generation plants operating in parallel with the grid in the ARR filings for FY2022-23 @ 50% of the applicable demand charges on the differential of power plant installed capacity and the contracted demand with the DISCOM in line with the same methodology approved by the erstwhile APERC in its order dated 08.02.2002 which was upheld by the Hon'ble Supreme court in its judgment dated 29.11.2019 in C.A.No.8969 of 2003 & batch.
2. As many stake holders during public hearing on ARR & Tariff proposals offered their Comments that the rate of GSC proposed in exorbitantly high though the said proposal was on the differential of Power plant installed cap & the

contracted max demand with the DISOCM and such methodology is not in vogue in any other State. The TSDISCOMs have studied the methodologies for levy of GSC in various states.

3. The TSDISCOMs adopted the methodology existing in A.P.State which is based on the R&M cost including Artisans' salary of DISCOMs & STU approved by the APERC. Based on the above methodology, the calculation of GSC for Telangana state in detailed below.

Particular	Units	Telangana Contracted Demand (FY 23 Tariff Order)
TSGENCO Thermal	MW	4043
TSGENCO Hydel	MW	2325
CGS	MW	3112
Other LT	MW	3039
NCES	MW	3837
Total	MW	16355

Particular	Units	R&M + Artisans EC	R&M + EC (Net)	Net O&M	Net O&M (less consumer)	Fixed Cost
Approved(TS DISCOMs)	INR Cr.	788	5569	5900	4788	
Approved (ISTRANSCO)	INR Cr.	204	1075	1130	1130	
Total	INR Cr.	991	6644	7030	5918	13286
Proposed GSC (on Contracted demand)	INR/kW/month	50	339	358	302	677

4. In the ARR & Tariff filings for FY 2023-24 by TSDISCOMs, the GSC was also proposed on Renewable power plants (Solar, Wind, Hydel & RTS) due to the following reasons:

- The on grid solar/wind inverter takes energy, reference voltage & frequency from the grid for the process of conversion of the DC power generated from solar panels/wind turbines to AC power. Further, the energy generated from the solar panels/wind turbines is uncertain and depends on the environmental conditions hence there is always and uncertainty in energy output from the solar plants/wind plants. In case of sudden drop in generation from the solar plant/wind plant, the load will

have to be supported by the grid instantaneously and in case of excess generation the grid acts as a cushion in consuming the same instantaneously.

- Moreover the AC power from the output of the inverter is prone to be having a larger number of harmonics resulting in the distorted sinusoidal waveform. The grid absorbs such harmonics thus aiding the solar PV plants/wind plants.
 - The consumers having installed Solar panels may cause unbalance in the system as per their nature of consumption and likely possibility of exporting/importing energy in one or 2 phases but not all phases.
 - Thus in all the above instances, the solar power plants/Rooftop PV Systems/wind plant take the support of the grid and hence the levy of grid support charges is justified.
5. The GSC proposed for renewable plants are as follows
 1. Solar, Wind, Hydel - 50% of proposed GSC of Conventional sources.
 2. RTS plants - 30% of proposed GSC of Conventional sources.
 6. The proposed GSC for Renewable Plants are less than the Conventional sources as the solar renewable plants are operating during day time only and the Wind & Hydel power plants are seasonal in nature and takes grid support accordingly.
 7. The above proposals were already approved by the neighboring A.P. state Regulatory commission and being implemented since FY 2022-23. Hence, the TSDISCOMs proposed the GSC for parallel operation of plants with the same Methodology for approval by Hon'ble TSERC.

Yours faithfully



CHIEF GENERAL MANAGER (RAC)

**NAVA LIMITED**

(Formerly Nava Bharat Ventures Ltd)

Corp. Office: Silicon House, No. 8-3-318/1, Plot 78,
Road No. 14, Banjara Hills, Hyderabad - 500 034, Telangana, India.NBV/FIN/ 150/2023-24
June 23, 2023**The Chairperson, Grid Coordination Committee,
Transmission Corporation of Telangana Limited,
Vidyut Soudha, Khairtabad,
Hyderabad- 500 082**

Dear Sir,

Sub: Written submissions against the discussions held on 12.06.2023 during 4th Grid Coordination Committee (GCC) meeting on detailed study in the matter of parallel operation of CPPs, IPPs and Merchant power plants and consequent levy of grid support charges (GSC) -Reg..

Ref 1:3rd GCC meeting held on 21.07.2022 and our written submissions submitted vide letter No.NBV/FIN/171/2022-23 dated 21.07.2022

Ref:2: Discussion held during 4th Grid Coordination Committee Meeting at 15:00 Hrs on 12th June 2023

With reference to the above-mentioned subject, as a Member of Grid Coordination Committee, we are herewith submitting our detailed analysis and findings on the proposal of TSNPDCL and TSSPDCL for determination of Grid Support charges for parallel operation of Captive power generating plants and Merchant power plants, in Telangana.

According to the attached findings, we are of the opinion that Grid support charges are not at all required to collect from the CPPs, IPPs and Merchant power generating plants in the State of Telangana and accordingly submitting the findings to the Hon'ble Chairperson of GCC for onward submission of the same to the Hon'ble State Commission.

Thanking you,

Yours faithfully,

For NAVA LIMITED*(Formerly Nava Bharat Ventures Limited)***Srinivas P****Member-Grid Coordination Committee**

Encl: As above.

Copy to: The Secretary, Telangana State Electricity Regulatory Commission.

Submitted to: The Chairperson, Grid Coordination Committee,

Sub: 4th Grid Coordination Committee (GCC) meeting held on 12.06.2023 on study on the issue of parallel operation of CPPs and consequent levy of Grid Support Charges(GSC), Findings and written submission of the member represented from Nava Limited (Formerly Nava Bharat Ventures Limited) on behalf of Captive Power Plants, IPPs and Merchant power generating plants in Telangana -Reg...

By the following findings and advantages, the member is of the opinion that grid support charges are not at all required to collect from the CPPs and IPPs/Merchant power plants in the state of Telangana and requested the DISCOMS to withdraw the proposal.

- 1. While filing the ARR, the Applicant Licensees propose to levy Grid Support Charges for FY 2023-24 on all the generators (Captive Generating Plants, Cogeneration Plants, Third party Generation units, Merchant Power Generation units, Rooftop Power Plants etc.) who are not having PPA/having PPA for partial capacity with the licensees as follows:**

*Grid Support Charges = Total Installed Capacity X Rate of GSC
(Rs./kW/month) Rate of GSC:*

- i. The parallel operation/grid support charges are to be applied to the total installed capacity of the generators connected to the Grid.*
- ii. Conventional generators shall pay Rs. 50 per kW per month.*
- iii. Renewable energy plants including waste heat recovery plants, the plants based on municipal solid waste, and the co-gen plants shall pay Rs.25 kW per month.*
- iv. Rooftop solar plants under net metering/gross metering policy shall pay Rs.15 per kW per month.*
- v. Co-gen sugar mills shall pay charges of Rs. 25 per kW per month, for a period of 4 months or actual operation period, whichever is higher.*
- vi. These charges shall not be applicable when the plants are under shutdown for any reason and when such shutdown period exceeds two months.*



vii. To the extent of PPA capacities of the generators with the DISCOMs shall be exempted from payment of these charges.

2. In the above matter, this Hon'ble Telangana Commission has invited the stakeholders to file their comments/suggestions/objection, if any, on or before 31.01.2023 and accordingly we submitted the objections and the Hon'ble Commission has deferred the GSC matter and again referred it to Grid Coordination Committee

During the 4th GCC meeting we submitted the objections on levy of Grid Support Charges which are set out below for this Hon'ble Commission's kind consideration and disposal:

I. HISTORY OF GRID SUPPORT CHARGES (GSC):

1. Grid Support Charges (GSC) were initially levied by the erstwhile Hon'ble APERC vide Order in O.P.No. 1 of 1999 dated 08.02.2002 in the context of the AP Electricity Reform Act, 1998. The GSC order was implemented vide Tariff Order FY 2002-03 from 01.04.2002. The same was challenged before the Hon'ble High Court for the erstwhile State of A.P which was decided in favour of the generators/Captive Power Producers (CPPs) and the levy of grid support charges was set aside. An Appeal was filed by APTransco (Civil Appeal No. 4569 of 2003) in the Hon'ble Supreme Court. The Hon'ble Supreme Court, vide its judgement dated 29.11.2019 affirmed the orders of the erstwhile Commission.
2. It is pertinent to note that the prevailing conditions during 2002 and the present are totally different. When the Act is not in existence, there was no concept of Open Access, Transmission and Wheeling. The same were allowed by means of mutually agreed agreements at that time.
3. It is also pertinent to note that the erstwhile APERC was constituted under the AP Electricity Reform Act, 1998, and passed the order in O.P.No.1 of 1999 in exercise of its powers under the said Act.
4. **Earlier TS DISCOMS proposed to levy the grid support charges on captive generating plants considering captive load burden on Grid . But surprisingly that now the DISCOMS proposed to levy such charges on all generating plants including Independent power generating plants and Merchant power generating plants without explaining any reason/basis for levy of such charges.**



5. The IPPs and Merchant power generating plants are meant for generate and export entire power to grid and accordingly always supportive to grid but never opt grid support to run the plant.

II. THE IMPACT OF THE ELECTRICITY ACT, 2003:

1. In 2003, the Electricity Act, 2003 ("Act") came into force. The Act brought in substantial changes to the previous regime, including the establishment of State Commissions, delicensing of Generation, unbundling of transmission and distribution, specification of tariffs and charges, crystallized the scheme of Open Access, brought in procedures and standards to enforce discipline, etc. However, it left the Commissions established by States under earlier State enactments (such as the AP Electricity Reform Act, 1998) untouched and treated them to be Commissions established under the Act, essentially conferring them with powers under both Acts, in as much as the State enactments were not in derogation to the Act.
2. Open Access was introduced under Section 42 of the Act, in pursuance to which APERC Regulation Nos.2 of 2005 and 2 of 2006 were also promulgated by the erstwhile Commission.

No jurisdiction to Propose or Levy GSC:

3. Under the provisions of the Act, separate entities, being the SLDC/RLDC/NLDC were created to take care of the Grid. SLDC/RLDC is responsible for maintaining grid security, Load forecasting, scheduling and dispatching and balancing of generation and demand (load). The ARR of SLDC was already approved in the MYT Tariff 2021-23. The DISCOMs have no role in maintaining Grid security and have to comply with the directions issued by SLDC/RLDC. Hence, in the present scenario, there is no need to propose GSC by DISCOMs and the DISCOMs have no role in seeking GSC at all.
4. The Applicant DISCOMs are responsible for their distribution business only and can at most levy wheeling charges, and nothing more. Any GSC as sought to be levied would have to be proposed and substantiated by TSSLDC, being the entity tasked with grid security under the Act. Therefore, DISCOMs have nothing to do with GSC. The ARR of the Applicant DISCOMs Distribution Business is recovered through wheeling charges as approved in the relevant MYT orders. As the present the ARR and the FPT is to recover the costs of the Applicants' Retail Supply Business, and the Applicant DISCOMs have no role in proposing GSC, and certainly not at 132 KV voltage.



5. It is also pertinent to note that this Hon'ble Commission is constituted under the Act, and thus the earlier AP Electricity Reform Act, 1998 under which GSC were earlier determined is neither applicable nor relevant in the present day. The Act, 2003 specifically lays down the charges and tariffs to be collected, and no charges beyond what is prescribed can be levied. Admittedly, there is no charge such as GSC mentioned in the Act or the regulations, let alone under S.62 under which the present petitions are filed, and as such, any such proposal to levy GSC is without jurisdiction.
6. It is thus submitted that the scope of present ARR for Retail Supply Business for FY 2023-24 should be strictly confined in terms of Section 62 of the Act r/w Regulation 4 of 2005 as adopted under Regulation 1 of 2014, and Section 42 of the Act for the purpose of determination of CSS and any proposal of the Applicant DISCOMs to levy GSC is **itself misconceived and patently without jurisdiction.**

Without Prejudice to above submissions of the very authority and jurisdiction to levy GSC, the following further submissions are made.

In relation to the Proposal made by the Applicant Discoms:

7. The Applicant Discoms have proposed Grid Support Charges for all generators, including captive, cogeneration, merchant power plants/IPPs, rooftop power plants etc., which is completely against the reasoning of GSC in the first place.
8. The Applicant Discoms have arbitrarily and without any substantiation proposed different rates of GSC for different types of generators. There is no reason stated as to why or on what basis such differentiation is made.
9. There is no justification at all for how rates of GSC have been arrived at. The proposed levy has no basis and is grossly excessive, arbitrary, and so requires to be rejected.
10. There is no mention of basis and methodology by DISCOMS for the proposed GSC of Rs.50 KW per Month. The proposed levy of GSC at such a high rate will be a death knell for large process industries which depend upon captive power at reasonable cost. The proposed GSC will hit at the core viability of the principal industry resulting in closure of operations and in loss of direct and indirect employment aside from loss of revenue to the exchequer.



11. The proposed levy of GSC appears to be lifted from the Hon'ble APERC's RSTO for FY 2022-23, which levy itself has been stayed by the Hon'ble APTEL vide order dated 20.05.2022 in DFR No.186/2022, and orders dated 01.07.2022 in DFR Nos.240/2022, 241/2022 and 271/2022.
12. There is no revenue or costs that are shown to be associated corresponding to the levy of GSC. As such, once the entire costs are recovered by the proposed RST alone, any further levy of GSC amounts to illegal and unjust enrichment of the Applicant Discoms at the cost of generating companies.

In relation to Captive Power Plants:

13. Captive Power Generation is delicensed under the Electricity Act so as to lessen the burden on the Grid in meeting the distributed loads. The provision in Para 5.2.26 of National Electricity Policy, 2005 notified by Govt of India laid emphasis on grid connectivity of captive generators even under open access regime which is reproduced below:"

"Under the Act, captive generators have access to licensees and would get access to consumers who are allowed open access. Grid inter-connection for captive generators shall be facilitated as per Section 30 of the Act. This should be done on priority basis to enable captive generation to become available as distributed generation along with the grid."

In the spirit of this legislation and rules framed thereunder, determination of Grid Support or Parallel Operation Charge should follow the principles of transparency, actual forbearance and fair computation based on time tested methodology. The proposed levy does not meet any of these criteria and is arbitrary.

14. In the case of CPPs availing Open Access for transmission and wheeling of power from the generation point to the consumption point, charges are levied as determined by the regulator from time to time. Even in these cases there is an established mechanism of UI charges which essentially address the so-called grid support or parallel operation. The proposed levy by the TSDISCOMs is therefore quite arbitrary, excessive and is not supported by quantifiable data.
15. The Transmission system of the Transco/Discom should be so designed that it should take care of fluctuating load of the consumer as it is the duty of the transmission licensee under Section 40 of Electricity Act, 2003. In relation to CPPs it is also submitted as follows:



- a) CPPs absorb some amount of harmonics whereas a consumer without CPP inject full quantum of harmonics generated to the grid.
- b) The unbalanced voltage of the grid is a source of negative phase sequence current which is absorbed by the generators of CPP.
- c) Fault level depends upon the generation capacity connected to the grid. The parallel operation of CPPs with the grid is infact beneficial with some degree of voltage support that the CPPs extend to the Grid
- d) As per Regulations of Supply Code, Industries having CPPs can draw emergency power up to the capacity of largest generating unit by paying required tariff. CPP's drawl of power is limited to "start-up power" that too when there is total loss of generation of the CPP. The drawl of power for production purposes, is limited to the CMD as per the Power Supply Agreement with the DISCOM. Otherwise, penalty is attracted. Overdrawl is prevented by proper setting of the relays at the Grid Sub-station.
- e) It is wrong to state that active and reactive power demand due to sudden and fluctuating load are not recorded in the meter. Billing is done for all consumers by integration over 15 minutes period and this is also applicable for CPPs and so it does not result in any undue advantage.
- f) Due to injection of power by CPPs the load on the transformers in the grid reduces resulting in less transformer loss.
- g) The CPP are acting as distributed generator at the load center for which the transmission and distribution loss has been reduced to great extent.
- h) As per Section 7 of the Electricity Act, 2003 any generating company may establish operate and maintain a generating station if it complies with State Grid Code and standards of grid connectivity as referred in Section 73 (b) of the Act. Both Tariff Policy and National Electricity Policy emphasizes the need for unhindered connectivity of CPPs to the grid. The proposed and arbitrary quantum of Grid Support Charge makes the captive power generation unviable and the spirit of the act and the rules framed thereunder are thus vitiated.
- i) There is no provision in the statute that empowers the DISCOMS to levy Grid Support Charges on the CPPs. They, on the other hand are benefited as CPPs absorbed some amount of harmonics. On the



contrary consumer without CPPs transmit full quantum of harmonics to the grid. The DISCOMs/TRANSCO is not taking any step to install suitable equipment to filter the harmonics and injecting those pollutants to the grid for which the CPPs are forced to suffer. The grid voltage is always unbalanced due to various categories of consumers and hence is a source of negative phase sequence current which cause stress on the generators of CPPs.

j) It is relevant to mention the observation and comments of The Hon'ble Orissa Electricity Regulatory Commission in a similar matter, in its Order dated 31.03.2014 in Case No. 46/2012, the excerpt of which is as follows:

i) Para- 15 of Order:

"We heard the parties at length and also perused the technical report submitted by OPTCL. The present installed capacity of the CGPs in the State as submitted by OPTCL is 5173 MW which is more than or equal to capacity of other generators connected to Odisha Grid including Odisha share of power from Central Generation Stations. We agree with the contention of CCPPO that the pollutants of the Grid like fluctuations in frequency and voltage, negative phase sequence, distortion due to harmonics etc. are the resultant effect of all synchronous machines like generators and motors of the Grid system. These pollutants are injected in to the grid not only by CGPs but also by other independent generators and machines like motors and arc furnaces of the consumers. Holding industry having CGPs only responsible for this is not correct".

ii) Para-16 of Order:

"After going through the submission of various stake holders of the grid system we conclude that the behaviour of industries having CGPs and also without CGPs varies case to case basis. There are ample provisions in the Odisha Grid Code to regulate the behaviour of entities connected to the OPTCL system. Hence, a generic method of calculation of Grid Support Charges for all industries may not be proper. The Petitioner has failed to submit a State-wide study before us on which a decision could have been taken. One solution fits all can't be applicable here. So implementation of a model of another State in our State will not be proper."



iii) Para- 17 of Order:

“There are enough provisions in Odisha Grid Code, 2006 to maintain quality supply in the grid system. Regulation 4.7 of Odisha Grid Code discuss elaborately the ideal behaviour of constituents of the Grid. OPTCL should play the role of watchdog and analyze the pollutant injected by various constituents of the grid system. CGPs and industries injecting pollution should be directed to take up remedial measures like installation of capacitors, filters for harmonics, etc. so that grid pollution will be minimized. The non-compliance by any industry or industry having CGP of the Grid Code should be dealt as per Regulation 1.18 of OGC, 2006. Therefore, the prayer of OPTCL for levy of Grid Support Charges is not acceptable.”

Further, when GSC was proposed by APERC during the year 1999 and 2002, the Electricity Act was not in force. The Act is in force from 2003 and Section 9 of Electricity Act does not differentiate between CPP and IPP as far as grid connectivity is concerned and hence both should be treated equitably from the viewpoint of grid connectivity and support.

- k) The proposed levy of GSC aims to stifle the consuming industries by this arbitrary levy, which in turn erodes the viability of the principal industry to a point that it must perforce cease operations.
- l) CPPs have repeatedly expressed their willingness to provide additional protections in their facilities as desired by the grid to see that no untoward load throwbacks or fault currents or reactive power surges happen.
- m) The levy of GSC in 1999 was proposed when the generation shortfall was prevailing, and the TSDISCOMS were going through occasional R&C periods and frequency fluctuations, etc. when the Regulator considered that the proposed levy had merits. However, the TS Grid has since improved / made many strides in Grid size, availability of power and attained stability and is one of the few Grids in the country being engaged in export of power on a steady basis. Aggregate capacity of the CPPs now is relatively marginal compared to the Grid Size and no real forbearance could be possible warranting such huge and arbitrary levy.



- n) In our case, the CPPs installed capacities are much higher when compared to our captive load to ensure higher availability for captive use. Since our installed and operating capacity of captive load is much lower than installed Capacity of Captive Power plant, it is required to connected with grid for export of surplus power through open access.
- o) Grid Support Charges cannot be a substitute for Demand or Capacity Charges which are determined on a wider basis by the regulator. So the proposed levy of Grid Support Charges based on applicable demand charge is arbitrary, excessive and results in undue enrichment of the TSDISCOMs at the expense of CPPs.
- p) It may be noted that, before determination of GSC/POC, The Hon'ble Chhattisgarh State Electricity Regulatory Commission (CSERC) has assigned this responsibility to an independent third party M/s.Electrical Research & Development Association (ERDA) to study various system data and system parameters of representative selected CPPs. Accordingly ERDA has measured various system parameters like harmonics, unbalance current, plant load factor, load cycle, fault level calculations etc. by measurement on selected CPPs and relevant substation and finally ERDA has suggested working out the parallel operation charges on sound technical basis taking into consideration advantages and disadvantages to both CPPs & CSEB and submitted its recommendation to CSERC. Similarly The Hon'ble OERC has also appointed an independent third party for system study before determination of GSC.
- q) For the various reasons cited above, the Grid situation requires to be thoroughly reviewed with reference to the fact whether the Grid suffers any forbearance in providing parallel operations of CPPs.

Suggestion/recommendation of the Member -Grid Coordination Committee

That, in view of the above findings, the member is of the opinion that;

- i. Grid support charges are not at all required to collect from the CPPs, IPPs/Merchant power plants in Telangana and submits the recommendation to the Hon'ble Commission through the Chairperson of Grid Coordination Committee to reject the proposal levy of Grid Support Charges as there is no such provision in the Statute/Electricity Act, whereas the STU /Transmission and Distribution Licensees are duty bound under Section 39 and 40 of the Electricity Act, 2003 and the National Electricity Policy, 2005 to provide connectivity to the CPPs like any generating station



- ii. In the event the Hon'ble Commission holds the proposal of GSC is valid, within the powers and jurisdiction and are leviable, it is requested that an independent reputed third party should be engaged to conduct a thorough system study and technical issues concerning power load throwbacks by CPPS/consuming industries, power harmonics in parallel operation of CPPs, size of the CPPs and judiciously arrive at a reasonable decision as has been done by other state Commissions/governments

For Nava Limited
(Formerly Nava Bharat Ventures Ltd)


Srinivas P
General Manager-Commercial

Place: Hyderabad:
Date: 23.06.2023





SLS Power Corporation Limited

121/1, 1st Main Road, 2nd Stage West of Chord Road, Mahalakshmiapuram
Near G.D.Naidu Hall, Bangalore - 560 086 Ph. +91 08 23195162, 23195163
Fax : +91 08 23195164 E-mail: slspowercorporation@gmail.com

ANNEXURE-IV

CIN: U40109AP2005PLC047008

SLSPCI/2023-24/028

Dt. 29.06.2023

The Chief Engineer, TSTRANSCO,
State Load Dispatch Centre,
Vidyuth Soudha, Khairatabad,
Hyderabad, - 500 082.

Respected Sir,

**Subject: Feedback and Request for Reconsideration of Proposed Grid Support
Charges for FY 2023-24**

I am writing to provide feedback on the proposed grid support charges discussed during the Fourth Grid Coordination Committee (GCC) Meeting, which took place on 12.06.2023 at Vidyut Soudha.

Firstly, the TSDISCOMs have proposed levying grid support charges for the FY 2023-24, applicable to all generators. According to the proposal, renewable power plants will be required to pay Rs. 25 per kW per month.

As representatives of SLS Power Corporation Ltd, we would like to bring our situation to your attention. Our installed capacity stands at 24 MW (6 x 4MW), with a current running capacity of 13 MW. Our plant load factor (PLF) is at a maximum of 22%.

It is important to note that our plant operates at its maximum load (variable ranging from 10-13 MW) for only four months, specifically from August to November. During the remaining months (December to July), based on water inflow, the load is limited to 10-15% of the installed capacity, thereby running a single unit only.

We would like to highlight that we primarily require grid support during the start-up phase, specifically for a power requirement of 150 KVA. Currently, we are already paying demand charges for this start-up power, as well as STU and CTU charges for the generation unit, along with DSM charges for under-injection.

Implementing the proposed grid support charges would significantly impact us. Therefore, we are unable to accept this proposal and cannot bear the additional financial burden it would impose on us. We are already facing financial crises due to the non-feasibility of the plant, which is running at 50% PLF compared to the design PLF.

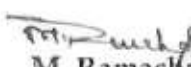


We kindly request that you reconsider the imposition of the grid support charges and take into account the unique circumstances of our power plant. We believe that a fair evaluation of our situation would support our request to be exempted from these charges.

Thank you for your attention to this matter. We look forward to your favorable response.

Sincerely,

For SLS Power Corporation Ltd.


M. Ramachandra
Director



ANNEXURE-V

**ABSTRACT OF LAST 9 RGMO INCIDENT DETAILS OF TSGENCO STATIONS IN THE MONTHS of
SEPT 2022, JAN 2023, FEB 2023 and MARCH 2023.**

GENERATING STATION NAME	INSUFFICIENT RESPONSES	PARTIAL RESPONSES	GOOD RESPONSES	OUTAGES	AVERAGE RESPONSE for 8 INCIDENTS	AVERAGE PERCENTAGE (%)	REASONS
KTPP-U1	6	2	0	1 incident	insufficiently responded	21%	Mills changeover, poor quality of Coal(JAN, FEB 2023). Hunting of HP Turbine control valves(MAR 23)
KTPP-U2	6	3	0		insufficiently responded	24%	
KTS-U9	3	4	2		Partially responded	53%	
KTS-U10	3	0	6		Good responded	81%	
KTPS Stage VI	1	3	2	3 incidents	Partially responded	37%	
KTPS Stage VII	1	3	4	1 incident	Partially responded	60%	Due to ESP Ash Evacuation problem unit coal bflow was restricted(JAN 23)
BTPS STATION I&II	Data entered in SRLDC Google spreadsheets however not communicated by TSGENCO Head office/Generating Stations.						

ABSTRACT OF LAST 9 RGMO INCIDENT DETAILS OF SINGARENI THERMAL POWER PLANT IN THE MONTHS of SEPT 2022, JAN 2023, FEB 2023 and MARCH 2023.

GENERATING STATION NAME	INSUFFICIENT RESPONSES	PARTIAL RESPONSES	GOOD RESPONSES	Negative Response	OUTAGES	AVERAGE RESPONSE for 9 INCIDENTS	AVERAGE PERCENTAGE (%)	REASONS
STPP U1	0	0	0	6	3 incidents	Partially responded	-5%	*
STPP U2	2	3	0	1	3 incidents	Partially responded	12%	Not communicated by STPP

* STPP U1 is being operated at fullload (600MW) due to high turbine vibrations during the incidences to maintain vibrations on lowside unit is being operated at VWQ also.

'External:' 5th Grid Coordination Committee (GCC) meeting held on 05.08.2023 - Submission of written comments/views - regarding

Rac Tsspdcl <ractsspdcl@gmail.com>

Fri 8/18/2023 5:59 PM

To:CHIEF ENGINEER(SLDC) <ce.sldc@tstransco.in>;

⚠ ALERT: Email from outside of TSTRANSCO Organization. Do not click links or open attachments unless you recognize the Sender and know the content is Safe.

Respected Sir,

It is to submit that, in continuation to the 4th Grid Coordination Committee (GCC) meeting held on 12.06.2023, the views of TSSPDCL in levying the Grid support charges for F.Y 2023-24 are submitted vide Letter dated:23.06.2023.

In continuation to the above, the following additional comments are submitted.

A) The generation from Solar Power plants is not constant and varies from 0 to 100% of capacity of solar plants. During the variation/dip in the generation at solar power plants at certain points of time, the concerned captive user or third party user is drawing the power from Grid at that time. So the user is taking the power from Grid even though there is no generation during particular spells.

B) Further, during the generation period, the solar power plant is injecting active power to the grid and drawing reactive power from the grid without any constraints. This results in huge reactive energy charges which are borne by the DISCOMs to pay to the SRLDC. Also due to poor power factor the utility transformers are overloaded even at 70% of loading.

In view of the above, the Grid Coordination Committee (GCC) is requested to consider the levy of Grid Support Charges on Solar power plants including Roof Top Solar power plants as proposed in the ARR filings for F.Y.2023-24 before the Hon'ble TSERC .

Your Faithfully
Chief General Manager(RAC)
TSSPDCL

1000

Minutes of the Fifth Grid Coordination Committee (GCC) Meeting held on 05.08.2023 at Vidyut Soudha:

Introduction:

The Fifth Meeting of Grid Coordination Committee (GCC) was held on 05th August'2023 at Vidyut Soudha. The list of participants is at **Annexure-I**.

Superintending Engineer/SLDC welcomed Sri. S.V.Kumar Raju, Chief Engineer/SLDC & Member Convener, GCC and all the members of GCC to the 5th GCC Meeting. Further, requested all the members to introduce them selves to the forum. Accordingly, members introduced their details to the forum.

1. Confirmation of the Minutes of the Fourth GCC

Fourth GCC meeting was held on 12.06.2023 at Vidyut Soudha and the minutes were issued on 12.07.2023.

The Minutes of the Fourth GCC Meeting were confirmed.

2. Grid Support Charges (GSC) for FY 2023-24 – Further Deliberation

In the Fourth GCC meeting, GCC heard the views of members regarding levy Grid Support Charges for FY 2023-24 on all the generators (Captive Generating Plants, Cogeneration Plants, Third party Generation units, Merchant Power Generation units, Rooftop Power Plants etc.) who are not having PPA/having PPA for partial capacity with the licensees.

Grid Support Charges = Total Installed Capacity X Rate of GSC (Rs./kW/month)

Rate of GSC:

- i. The parallel operation/grid support charges are to be applied to the total installed capacity of the generators connected to the Grid.
- ii. Conventional generators shall pay Rs.50 per kW per month.
- iii. Renewable energy plants including waste heat recovery plants, the plants based on municipal solid waste, and the co-gen plants shall pay Rs.25 per kW per month.
- iv. Rooftop solar plants under net metering/gross metering policy shall pay Rs.15 per kW per month.
- v. Co-gen sugar mills shall pay charges of Rs.25 per kW per month, for a period of 4 months or actual operation period, whichever is higher.

vi. These charges shall not be applicable when the plants are under shutdown for any reason and when such shutdown period exceeds two months.

vii. To the extent of PPA capacities of the generators with TSDISCOMs shall be exempted from payment of these charges.

Hon'ble TSERC vide letter Dt:10.05.2023 directed GCC for detailed analysis on the issue of levy of Grid Support Charges for FY 2023-24 and to submit a detailed report. Further, Hon'ble TSERC vide letter dated 04.07.2023 granted extension of time to GCC and directed to submit detailed report on or before 16.08.2023.

The issue is put up for deliberation.

Deliberation:

SLDC informed forum that 4th GCC meeting was held on 12.06.2023 and based on the deliberations it was concluded that Technical Study is required in respect of Grid Support for RE Generators. We have already discussed about the Grid Support of Conventional Generators. This time Discoms proposed levy of GSC on RE Generators also.

The GCC was explained about the 4th GCC deliberations and the Proposal of Discoms for FY 2023-24, where in all the generators (Captive Generating Plants, Cogeneration Plants, Third party Generation units, Merchant Power Generation units, Rooftop Power Plants etc.) who are not having PPA/having PPA for partial capacity with the licensees, are brought under the ambit of Grid Support Charges.

Based on the request of certain members of the GCC a technical Study was conducted using PSS/E Software for Solar Power Plant. Accordingly a presentation (**Annexure-II**) was prepared for explanation of Study.

The following is the summary of Technical Study. This study consists Steady State Behaviour and Transient Behaviour of Grid connected Solar plants.

- A Single Machine Infinite Bus(SMIB) Example was taken for Studying both Steady State and Transient behaviour.

Steady State Behaviour:

- During generation period, the solar power plant is injecting active power to grid and drawing reactive power from grid. This is causing Utility Transformers to operate at poor power factor and consequently leading to overloading of transformers even at 70% of Loading.
- During non generation period, the solar power plants are drawing active power from grid to meet their auxiliaries and injecting reactive power to grid (because they are unable to control their reactive power). Overall injection by these solar power plants is one of the cause for high voltages and levy of reactive energy charges at ISTS level.
- The Steady State behaviour like MW vs MVAR, Voltage Profile of solar power plant & Utility Substation are presented.

Transient Behaviour:

- The existing solar inverters are Grid-Tied and during source failure these plants are de-energized. It was observed that, Solar plants in Telangana always need a Grid support (Voltage reference) for injection of active Power.
- The transient behaviour of Solar Power Plants in terms Power Angle of bus and Voltage instability were also explained.

In addition to the above, expected behaviour as per Hon'ble TSERC Regulations and CEA (Technical Standards for Connectivity to Grid) Regulations, of solar power plants were also explained.

A) TSSPDCL:

Divisional Engineer/RAC/TSSPDCL informed that the generation is not constant from a solar power plant, because of which there is disturbance in the grid and utilities are absorbing these variations in generation.

During the variation/dip in the generation at solar power plants at certain points of time, the concerned captive user or third party user is drawing the power from Grid at that time. So the user is taking the power from Grid even though there is no generation during particular spells.

As the utilities are absorbing the variations in the solar generation, it is to request the Committee for considering levy of Grid Support Charges on solar power plants including Roof Top Solar Power Plants to Hon'ble TSERC.

B) TSNPDCL:

It was informed that the deliberations of the 4th GCC holds good and agree with the TSSPDCL comments/views.

C) Representative of Generating Companies – Thermal(other than state generating companies):

It was informed that the written views were already submitted. Further, it is to inform that Grid support is required for injection/drawl and this we are not objecting. The objection is only on charges.

Further, Representative of Thermal Generating Companies vide letter dated 16.08.2023 submitted their written submissions. Copy enclosed as **Annexure-III**.

D) CESS, Siricilla

Agrees with Discoms Proposals.

E) Representative of Generating Companies – Solar:

Renew Power Ltd. representatives informed that, we will submit the written views if any after wards.

F) Representative of State Generating Companies - TSGenco:

TSGenco informed forum that, they agree with the TSDISCOMs proposals, as there is need to compensate for the services.

G) NSL Krishnaveni Sugars Ltd., Representative of Bagasse Generating Companies informed that, we will submit the written views if any.

H) Representative of STU & Person Nominated by Hon'ble TSERC under clause 5.3(n) – Chief Engineer/Transmission:

It was informed that, Grid Support Charges are to be collected.

I) Mytrah Vayu (Godavari) Ltd., Representative of Wind Generating Companies

The representative informed that, we will submit the written views if any.

J) Southern Regional Load Despatch Centre – Representative of SRLDC informed the forum that, injection of reactive power during night hours and absorption of reactive power during peak generation hours is clear with respect to solar generators.

It is to mention that, Discoms trying to charge the power plants for the services they given to the power plants. But, levying of charges may not give right direction to RE Developer. That may compensate the Discoms for the reactive energy charges being paid by Discoms.

From the Grid perspective, if the same behaviour continues the system is going to face low voltage in the peak generation hours and high voltage during night hours. At the ISTS level if the power plant is not going to establish dynamically varying reactive power (0.95lag to 0.95lead), they are not allowed for connectivity.

Further neutralising the reactive power by the solar power plants at the Point of Common Coupling (PCC) by adopting suitable reactive power compensation mechanisms must be looked into.

In addition to the above, it was informed that appropriate mechanism of billing of reactive energy exchanges with Grid (like 5paise/KVArh) may also be looked into, inline with the Indian Electricity Grid Code -2023.

SLDC informed forum that, the written views if any may be submitted to GCC on or before by 9th of this month, so as to consolidate and for submission of report to Hon'ble TSERC by GCC.

It was concluded that from studies, that like conventional generators Grid Support is essential for renewable generators also. Now, the proposal of Discoms is that, when support is being given to the generators they are claiming for the charges.

Of course when the services are provided the Discoms need to be compensated through charges. The charges proposed by Discoms were also based on the existing tariffs determined by other Regulatory Commissions.

In view of the above, GCC may initially support the Discoms Proposal and based on the experience, we may request for any changes in future.


K) There is no representation from the following members of GCC:

- a) Singareni Thermal Power Plant
- b) Gowthami Bio Energies Pvt. Ltd., Representative of Biomass Generating Companies
- c) SLS Power Corporation Ltd., Representative of Mini Hydel Generating Companies
- d) M/s PTC India Ltd. – Trader Member
- e) MRF Ltd., Representative of Open Access Consumers
- f) Southern Regional Power Committee
















3. Conclusion:

Earlier GCC recommended for conventional plants that, grid support is required and some charges are also recommended for levy of GSC. Now, Renewable Energy Plants are introduced in the proposal. RE generators also requires grid support and it is observed that there is a deviation from CEA Regulations. Some amount of compensation is to be levied.


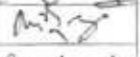
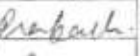



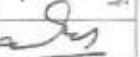
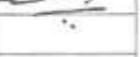
Member Convener, GCC based on these views and majority opinion will be recommending about the technical support and charges to Hon'ble TSERC.


17/8/23
Chief Engineer/SLDC

ANNEXURE-I

5th Grid Coordination Committee (GCC) Meeting regarding Levy of Grid Support Charges for FY 2023-24 - Direction by Hon'ble TSERC, on 05.08.2023 at 15:00Hrs at Main Meeting Hall, 6 th floor, Vidyt Soudha, TSTransco						
Sl.No	NAME	DESIGNATION	ORGANIZATION	E-MAIL ID	MOBILE NUMBER	SIGNATURE
1	T. MADHUSUDHAN.	CGM/IPC	TSPDCL	cgmir@tspndcl.in	9491044275	
2	S. Rama Krishna	MD/CESS	CESS/SMDCL		9440814058	
3	VENKATESH M	DGM	SR-DC GRD-TRAN	venkatesh.m@grid-2023.in	9449599160	
4	CH. CHAKRAPANI	CGM/RAC	TSSPDCL	chactsspdcl@gmail.com	8985322897	
5	S. SUMI KUMAR	DE/RAC	TSSPDCL	sactsspdcl@gmail.com	91440816245	
6	SRINIVAS P	GM/AMR	NAVAR CHART	psrinivas@navar.in	9848699935	
7	RAJURAMAN B	HEAD - POWER TECHNICAL	MEL SUPPLYS	rajuraman.b@mel-supply.com	9674444541	
8	Sahasra R	DM	RENW	sahasra@renw.com	8584748551	
9	B. Bala Raju	DE	TSGENCO	ge1-se@tsgenco.co.in	7981695275	
10	V. Bachi Reddy	AAO/IPC	TSPDCL	achreddy@tspndcl.in	8332958339	
11	C. Madhujana Chander	AO/SLD	TSTRANSCO	cmr2@tstransco.in	7382634584	
12	B. Ravi Kumar	DE/SDS	TSTRANSCO	adckr@gmail.com	9440679448	
13	L. SARVESHWAR	AO/MD	TSTRANSCO	sarvesh.lakota@gmail.com	9640777527	
14	K. Venkatesh	AO/SLD	TSTRANSCO	venkatesh.k@tstransco.in	7382997039	
15	M. Chandan Babu	AO/DS	TSTRANSCO	maraganu@gmail.com	7382296996	

5th Grid Coordination Committee (GCC) Meeting regarding Levy of Grid Support Charges for FY 2023-24 - Direction by Hon'ble TSERC, on 05.08.2023 at 15:00Hrs at Main Meeting Hall, 6th floor, Vidyut Soudha, TSTRansco

Sl.No	NAME	DESIGNATION	ORGANIZATION	E-MAIL ID	MOBILE NUMBER	SIGNATURE
16	P. Praveen Kumar	AE/SLDC	TSTRANSCO	ce.slidc@tstransco.in	9491066576	
17	N. Raja Shekar	AE/SLDC	TSTRANSCO	nsjskfr.239@tstransco.in	8179976722	
18	S. Prakash	Asst. Manager	JRCL	prakash.sanka@jrc.in	9553841733	
19	T. DURGA PRASAD	DE/SSJUS	TSTRANSCO	ce.trans@tstransco.in	9490153127	
20	N.V. Subramanyam	DE-3/EE/SLDC	TSTRANSCO	de.elec@tstransco.in	9491058620	
21	P. Chandrasekhar	SE/SLDC	TSTRANSCO	ce.elec@tstransco.in	858591684	
22	P. Suresh Babu	SE/SLDC	TSTRANSCO	ce.slidc@tstransco.in	960699237	
23	S.V. KUMAR RAJ	CE/SLDC	TSTRANSCO	kumarraj1205@gmail.com	7898782047	
24						
25						
26						
27						
28						
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30						



ANNEXURE-II

5th GCC Meeting on 05.08.2023

**Levy of Grid Support Charges for FY 2023-24
– Direction by Hon'ble TSERC**

GRID COORDINATION COMMITTEE

INTRODUCTION:

- Hon'ble TSERC directed Grid Coordination Committee(GCC) for a detailed analysis on the issue of levy of Grid Support Charges for FY 2023-24 proposed by Discoms in the ARR filing of Retail Supply Business for FY 2023-24 and to submit a detailed report.
- Accordingly, Grid Coordination Committee(GCC) Convened 4th GCC meeting on 12.06.2023 regarding the Grid Support Charges for FY 2023-24 and heard the views of members.
- During the meeting it was informed that, earlier Discoms proposed the levy of GSC on Captive Power Plants only. Now, the Discoms proposed levy of GSC on all the generators (Captive Generating Plants, Cogeneration Plants, Third party Generation units, Merchant Power Generation units, Rooftop Power Plants etc.) who are not having PPA/having PPA for partial capacity with TSDISCOMs.

Grid Support Charges = Total Installed Capacity X Rate of GSC (Rs./kW/month)

- i. The parallel operation/grid support charges are to be applied to the total installed capacity of the generators connected to the Grid.
- ii. Conventional generators shall pay Rs.50 per kW per month.
- iii. Renewable energy plants including waste heat recovery plants, the plants based on municipal solid waste, and the co-gen plants shall pay Rs.25 per kW per month.
- iv. Rooftop solar plants under net metering/gross metering policy shall pay Rs.15 per kW per month.
- v. Co-gen sugar mills shall pay charges of Rs.25 per kW per month, for a period of 4 months or actual operation period, whichever is higher.
- vi. These charges shall not be applicable when the plants are under shutdown for any reason and when such shutdown period exceeds two months.
- vii. To the extent of PPA capacities of the generators with TSDISCOMs shall be exempted from payment of these charges.

➤ The Levy of GSC on other than conventional like solar, bagasse etc. is the present issue.

➤ During the deliberations of 4th GCC meeting some of the stake holders requested for technical study of solar plants. In this regard, the technical study (Steady State & Transient Behaviour) conducted using PSS/E Software is presented.

**STEADY STATE AND TRANSIENT BEHAVIOR
OF
GRID TIED SOLAR POWER PLANT**

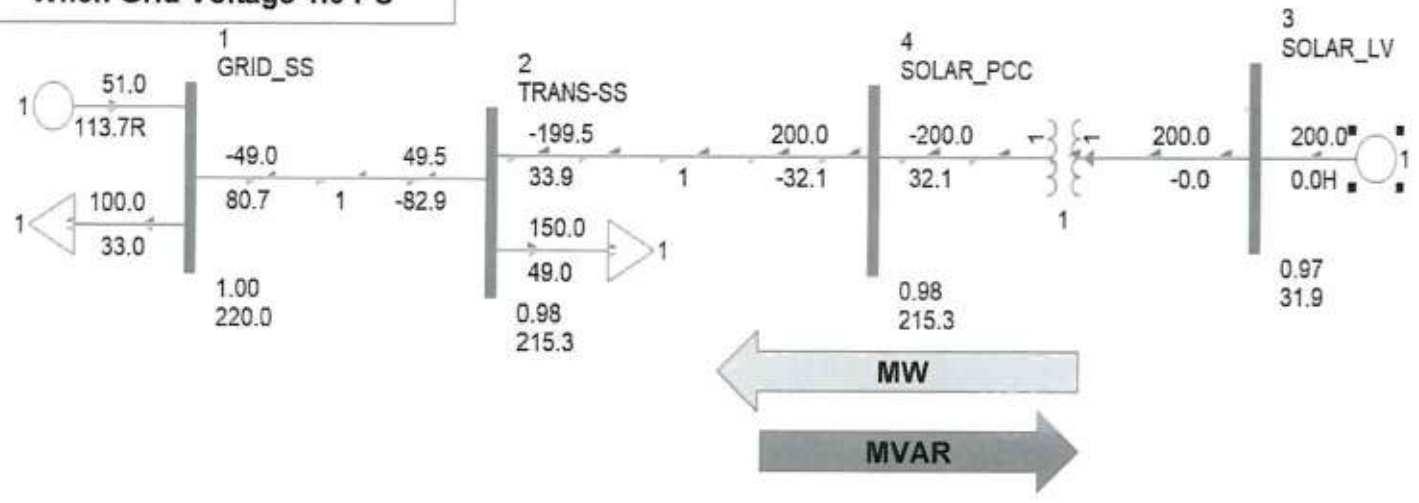
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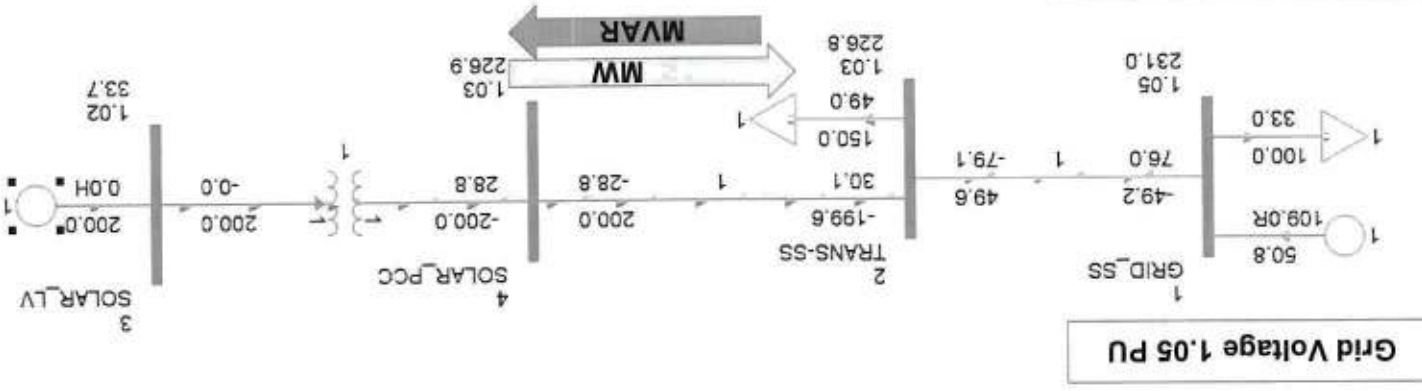
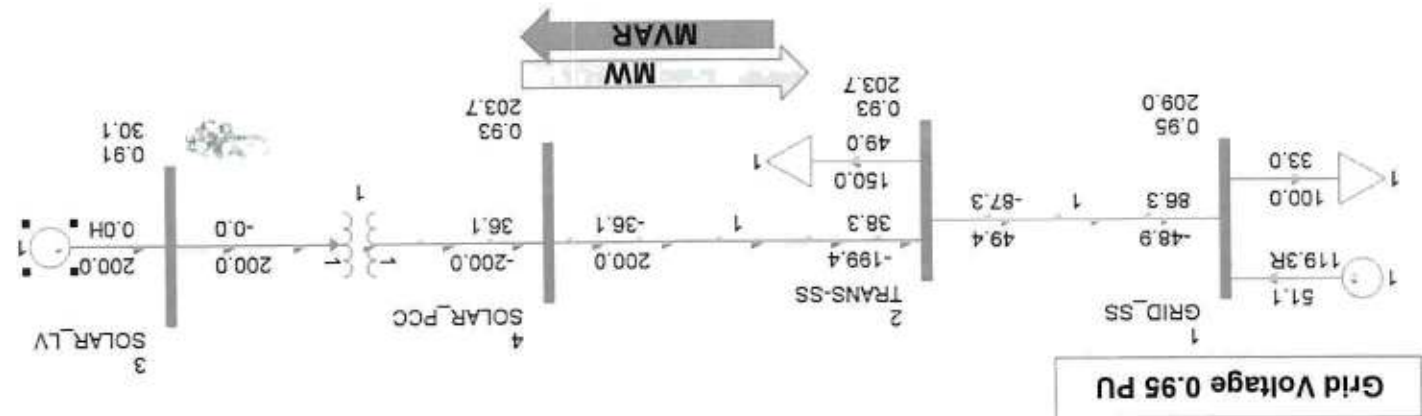
- 1) Solar Plant behavior during Steady State
- 2) Solar Plant behavior during Transient State
- 3) Conclusion

STEADY STATE BEHAVIOUR
OF
SOLAR PLANTS IN TELANGANA GRID
DURING SOLAR GENERATION PERIOD

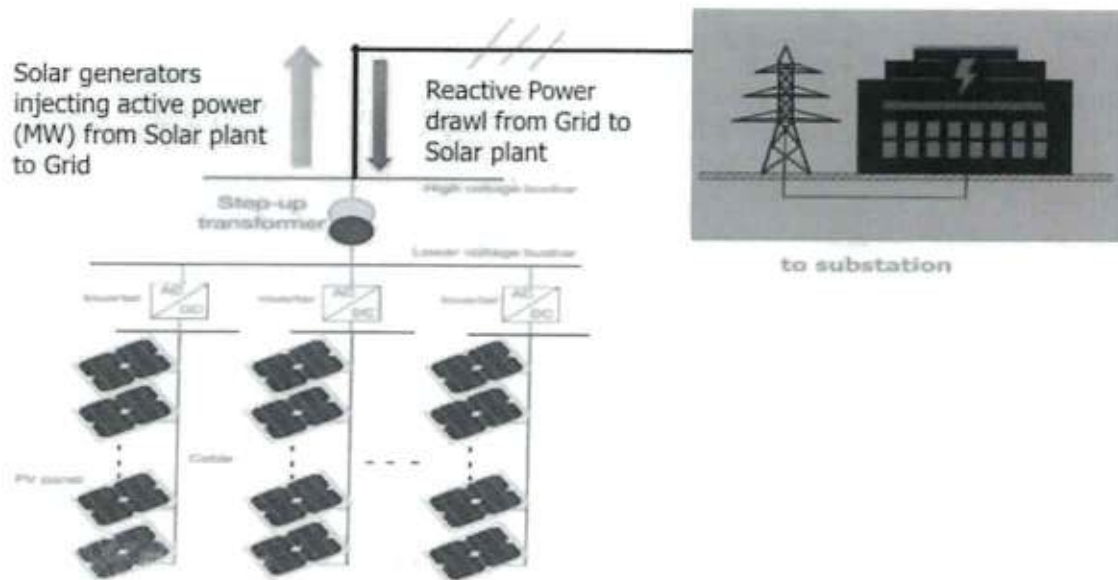
REAL TIME BEHAVIOUR OF SOLAR PLANT AT VARIOUS GRID VOLTAGES

When Grid Voltage 1.0 PU

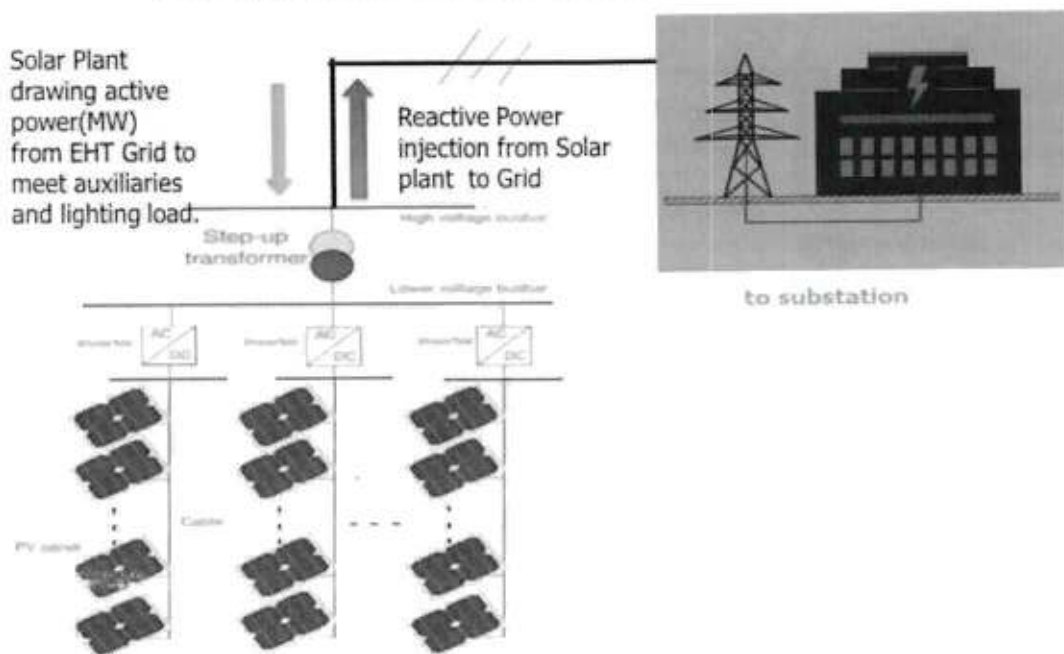


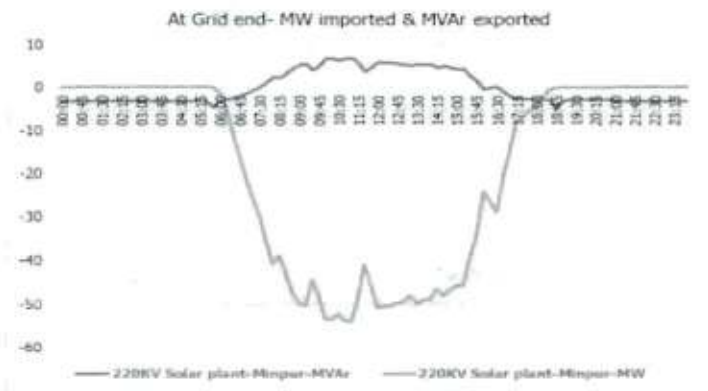
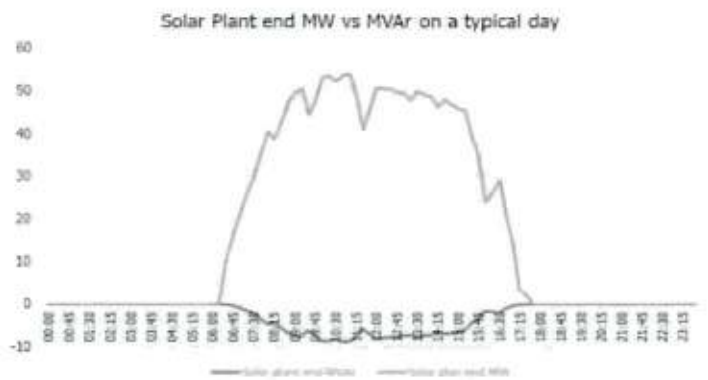
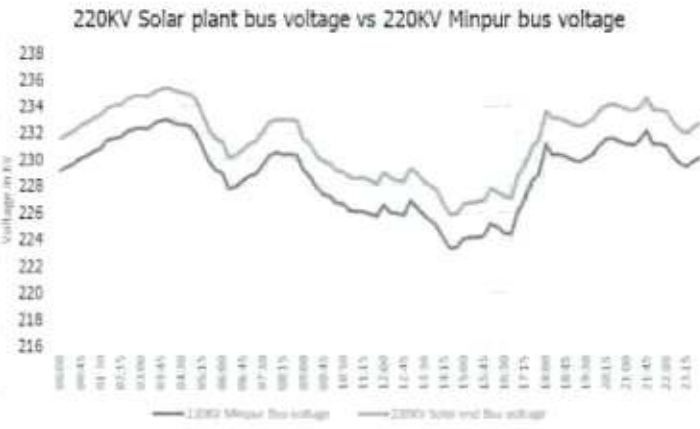


DURING PEAK SOLAR GENERATION PERIOD

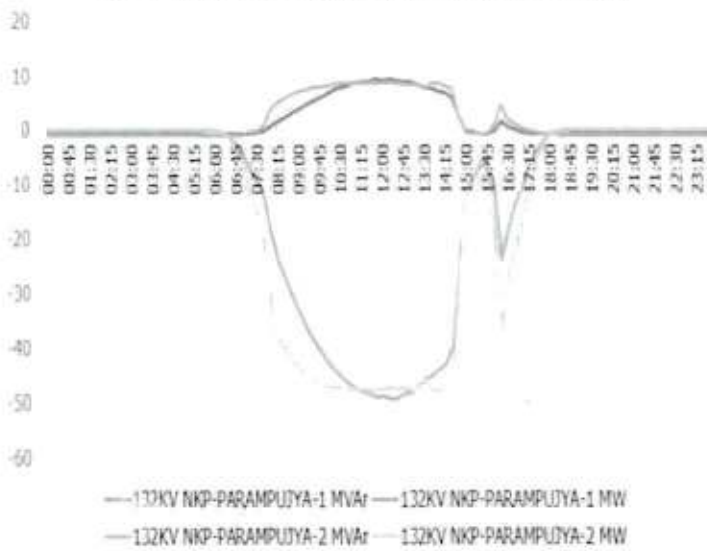


DURING NON- SOLAR GENERATION PERIOD

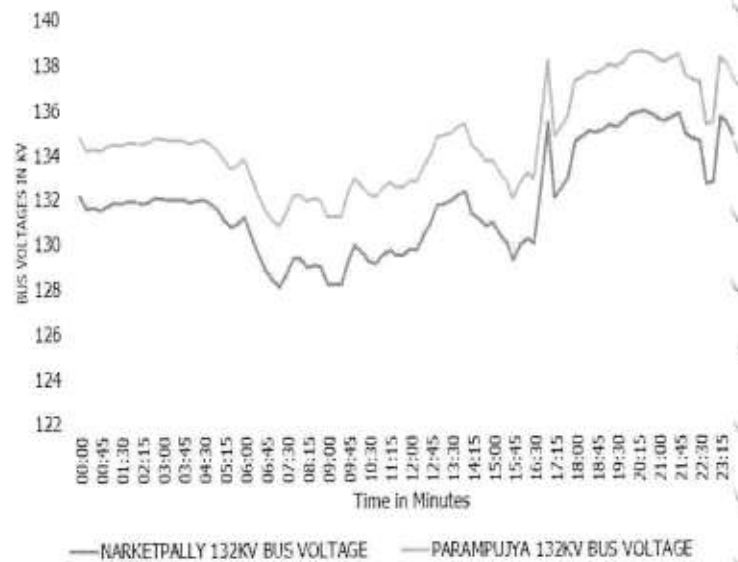




132KV PARAMPUJYA-NARAKETPALLY-D/C AS ON A TYPICAL DAY

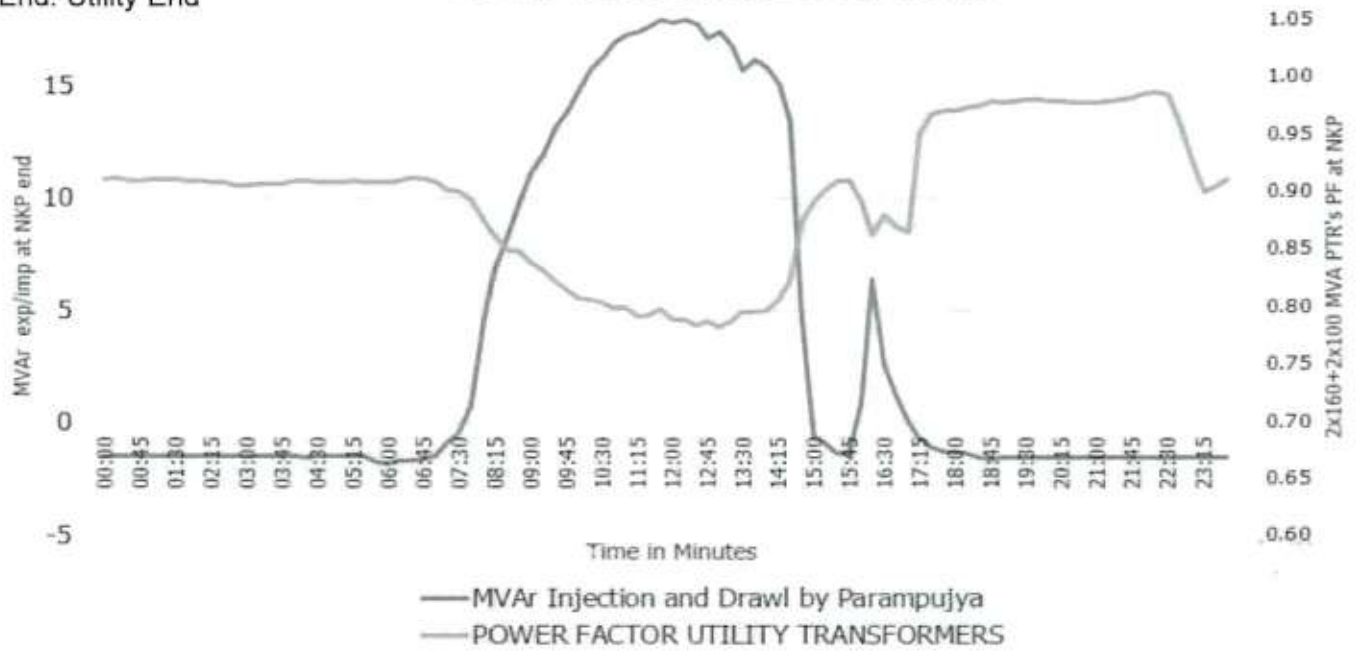


132KV BUS VOLTAGE AS ON A TYPICAL DAY



+ve MVAR -Export
 -ve MVAR-Import
 End: Utility End

MVAR Injection and Drawl by Parampujya vs Utility Transformers Power Factor



EXPECTED BEHAVIOR AS PER CEA & TSERC REGULATIONS

46 9/100 P.13

46 9/100 P.13

STANDANRDS:

TSERC GRID CODE Regulation:

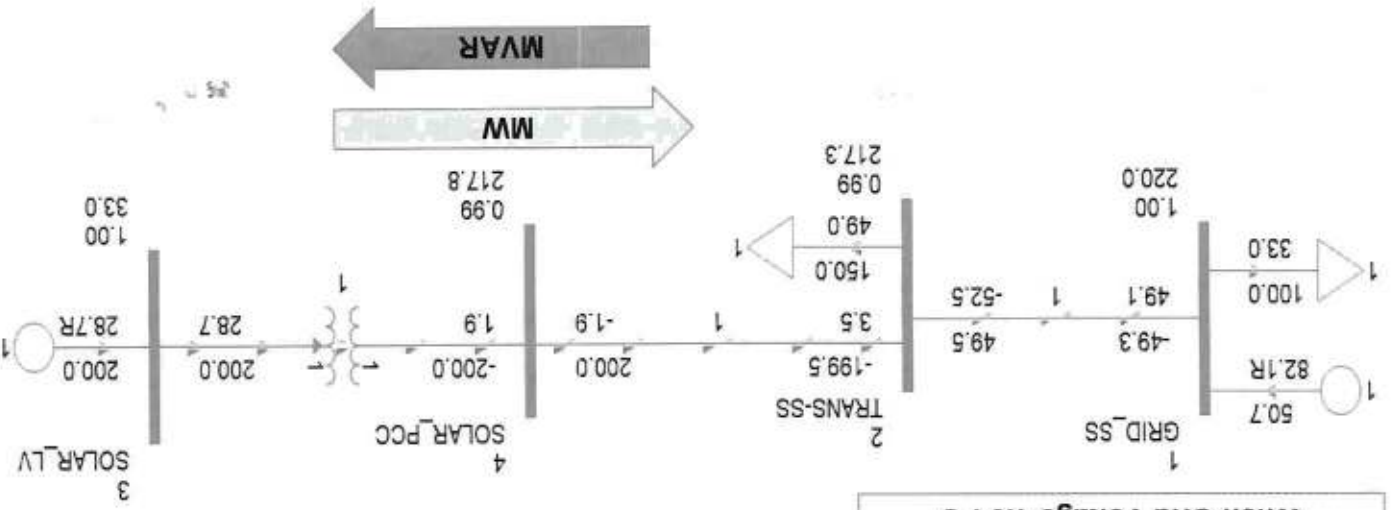
- Clause 9.3: All the generating units may operate within their reactive capability curves and the network voltage profile shall be maintained within voltage limits specified.
- Clause 49.5: The generating stations shall generate / absorb reactive power as per instructions of SLDC, within the capability limits of the respective generating units.
- Clause 17.4 : The reactive power compensation shall be provided by generators in low or high voltages systems to maintain the Grid voltage within the specified range at all times.
- Clause 17.4.4 : The Generators shall minimize the reactive power drawl from the Grid, when the voltage at the interconnection point is below 97% of rated voltage and shall not inject reactive power when the voltage is above 103% of rated voltage.

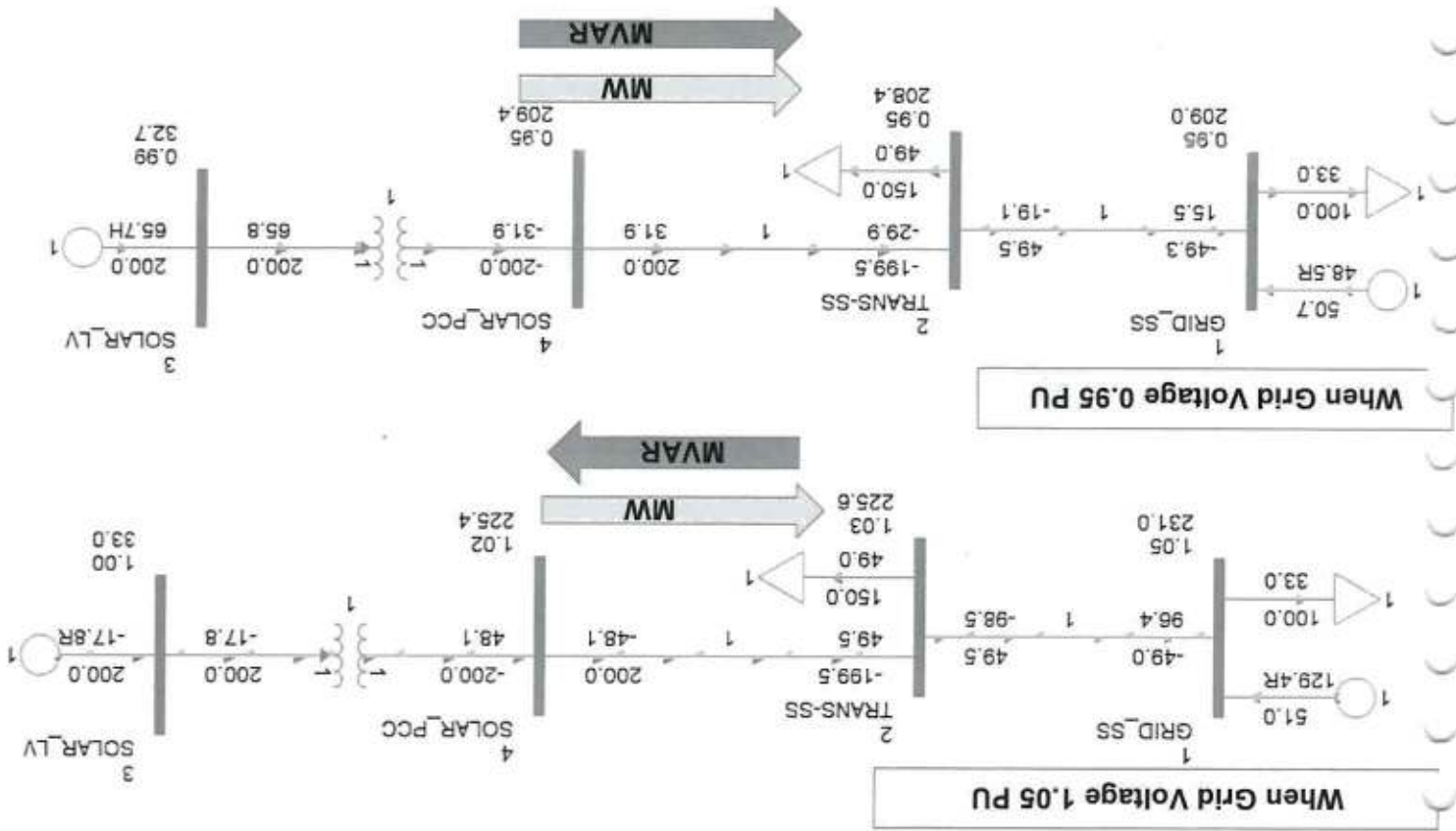
➤ **CEA Grid Connectivity Standards Regulations-2007 & Amendments:**

As per section B.2(i) of Part-II , Wind and Solar Generators shall be capable of supplying **dynamically varying** reactive power support so as to maintain power factor within limits of 0.95 Lagging to 0.95 Leading.

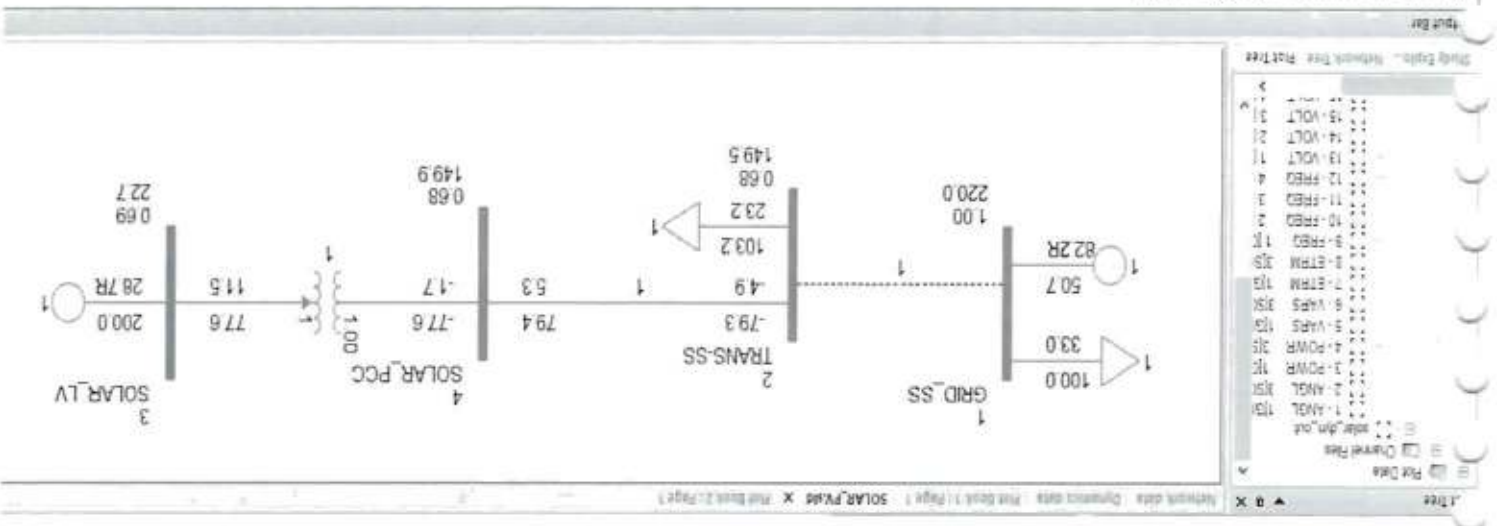
EXPECTED BEHAVIOR OF SOLAR PLANT AT VARIOUS GRID VOLTAGES

When Grid Voltage 1.0 PU





TRANSIENT BEHAVIOR
OF
SOLAR PLANTS IN TELANGANA DURING
SOLAR INJECTION PERIOD



Network not converged at TIME = 4.99

Network not converged at TIME = 5.0

*** Circuit "1" from 2 [TRANS-SS 220.00] to 1 [GRID_SS 220.00]: "from" end line shunt set to (0.0000, -0.20000E+08) ***

Channel output file is "C:\Users\admin\Desktop\GCC_RE_DYNAMICS\GCC_RE_DYNAMICS\solar_dyn_out.outx"

4 diagonal and 3 off-diagonal elements

Network not converged at TIME = 2.0

OUT OF STEP CONDITION AT TIME = 2.0000:

X----- F R O M -----X				X----- T O -----X							
BUS#-SCT	X--	NAME	--X BASKV	BUS#-SCT	X--	NAME	--X BASKV	CKT	MW	MVAR	VOLTAGE
2		TRANS-SS	220.00	4		SOLAR_PCC	220.00	1	0.0	0.0	0.0000

*** Circuit "1" from 2 [TRANS-SS 220.00] to 1 [GRID_SS 220.00]: "from" end line shunt set to (0.0000, 0.0000) ***

*** Status of circuit "1" from 2 [TRANS-SS 220.00] to 1 [GRID_SS 220.00] is set to out-of-service ***

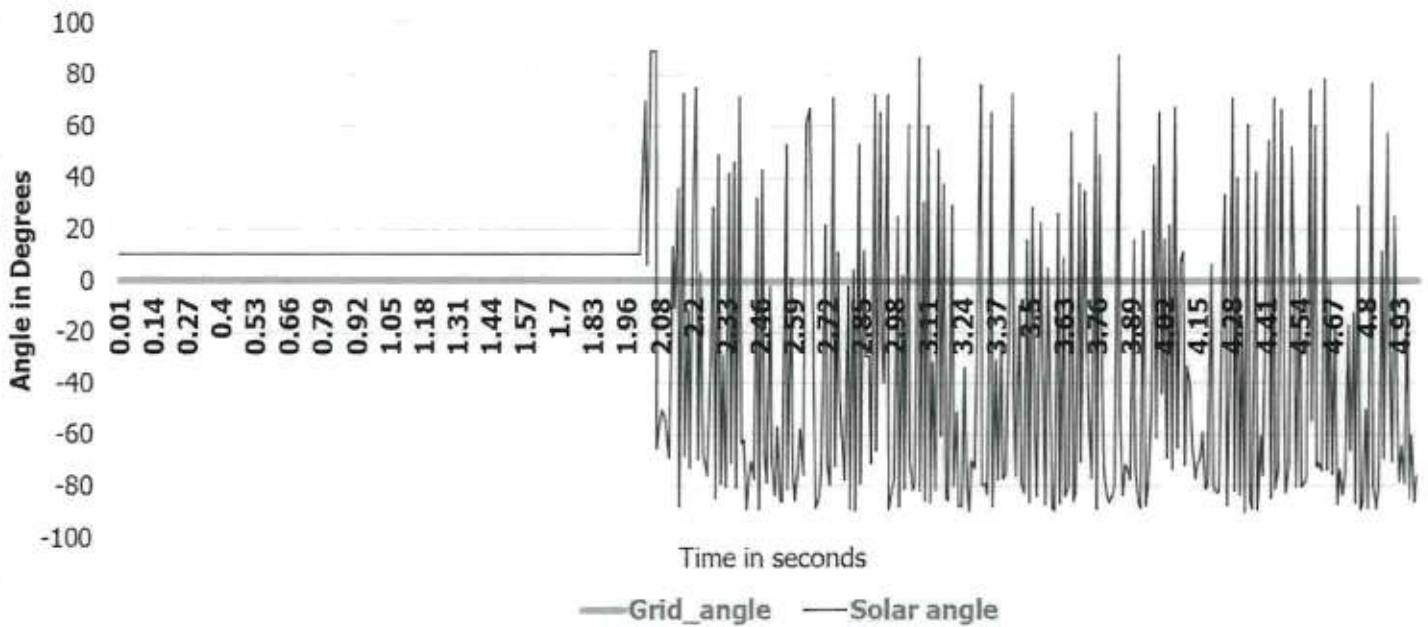
Channel output file is "C:\Users\admin\Desktop\GCC_RE_DYNAMICS\GCC_RE_DYNAMICS\solar_dyn_out.outx"

Bus 1 [GRID_SS 220.00] is isolated

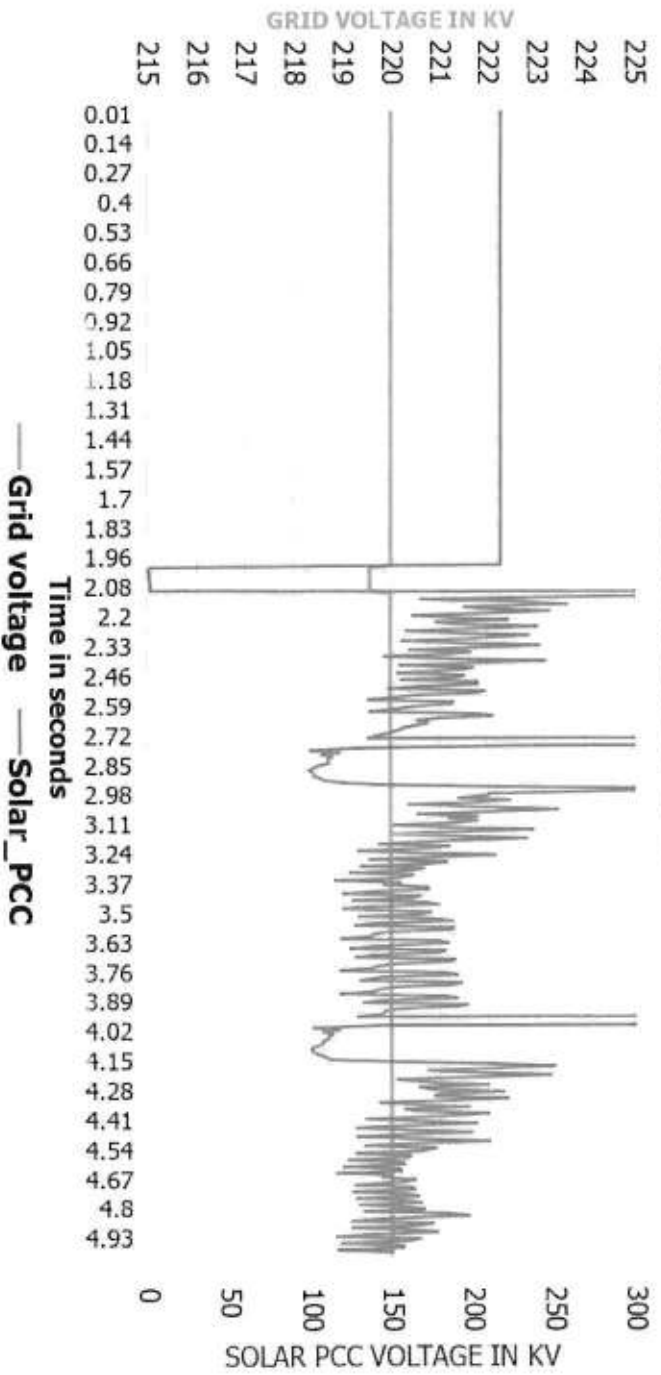
4 diagonal and 2 off-diagonal elements

Network not converged at TIME = 2.1

**ANGLE DYNAMICS PLOT
DURING TRIPPING OF RADIAL LINE FROM GRID CAUSING SEVERE
INSTABILITY AND SOLAR PLANT ISOLATION FROM GRID**



**DURING TRIPPING OF RADIAL LINE FROM GRID CAUSING SEVERE VOLTAGE
INSTABILITY AND ISOLATION OF SOLAR PLANT**



Observations:

Present Solar plants in Telangana are Grid tied Inverters and always need a Grid support(Voltage reference) for injection of active Power.

Conclusions:

- 1) During generation period, Solar plants are only injecting active power into Grid and drawing reactive power from Grid. This is causing Grid Transformers to operate at poor power factor.
- 2) During non-generation period, Solar plants are absorbing active power (for auxiliary supply) from Grid and injecting reactive power into Grid. This excess reactive power reserves in EHT Grid is causing high voltage and penalization of reactive energy charges with ISTS.
- 3) No reactive power support/exchange with Grid during high voltage and low voltage scenario.
- 4) At present during light load conditions and in case of tripping of larger Units, inertia support is not extracted from these solar plants. This will lead fall of frequency at higher rate.

THANK YOU



NAVA LIMITED

(Formerly Nava Bharat Ventures Ltd.)

Corp. Office: Silicon House, No. B-3-318/1, Plot 78,
Road No. 14, Banjara Hills, Hyderabad - 500 034, Telangana, India.

NAVA/FIN/ 253 /2023-24
August 16, 2023

**The Chairperson, Grid Coordination Committee,
Transmission Corporation of Telangana Limited,
Vidyut Soudha, Khairtabad,
Hyderabad- 500 082**

Dear Sir,

Sub: Written submissions against the discussions held on 12.06.2023 and 05.08.2023 during 4th and 5th Grid Coordination Committee (GCC) meetings on detailed study in the matter of parallel operation of CPPs, IPPs and Merchant power plants and consequent levy of grid support charges (GSC) -Reg..

Ref 1:3rd GCC meeting held on 21.07.2022 and our written submissions submitted vide letter No.NBV/FIN/171/2022-23 dated 21.07.2022

Ref:2 Our Letter No.NBV/FIN/150/2023-24 dated 23.06.2023

Ref:3 Discussion held during 5th Grid Coordination Committee Meeting at 15:00 Hrs on 5th August 2023

With reference to the above-mentioned subject, as a Member of Grid Coordination Committee, we are herewith submitting our detailed analysis and findings on the proposal of TSNPDCL and TSSPDCL for determination of Grid Support charges for parallel operation of Captive power generating plants and Merchant power plants, in Telangana.

According to the attached findings, we are of the opinion that Grid support charges are not at all required to collect from the CPPs, IPPs and Merchant power generating plants in the State of Telangana and accordingly submitting the findings to the Hon'ble Chairperson of GCC for onward submission of the same to the Hon'ble State Commission.

Thanking you,

Yours faithfully,

For NAVA LIMITED

(Formerly Nava Bharat Ventures Limited)


Srinivas P

Member-Grid Coordination Committee

Encl: As above.

Copy to: The Secretary, Telangana State Electricity Regulatory Commission.

Regd. Off: Nava Bharat Chambers, B-3-1109/1, 3rd Floor, Raj Bhavan Road, Somajiguda, Hyderabad - 500 082, Telangana, India. CIN: L27101TG1972PLC001549
T +91 40 40345999, +91 40 23403501

E nava@navalimited.com; investorservices@navalimited.com

W www.navalimited.com

ISO 9001 | ISO 14001 | ISO 45001 | ISO 50001

Submitted to: The Chairperson, Grid Coordination Committee,

Sub: 4th and 5th Grid Coordination Committee (GCC) meeting held on 12.06.2023 and 05.08.2023 respectively on study on the issue of parallel operation of CPPs and consequent levy of Grid Support Charges(GSC), Findings and written submission of the member represented from Nava Limited (Formerly Nava Bharat Ventures Limited) on behalf of Captive Power Plants, IPPs and Merchant power generating plants in Telangana -Reg...

By the following findings and advantages, the member is of the opinion that grid support charges are not at all required to collect from the CPPs and IPPs/Merchant power plants in the state of Telangana and requested the DISCOMS to withdraw the proposal.

- 1. While filing the ARR, the Applicant Licensees propose to levy Grid Support Charges for FY 2023-24 on all the generators (Captive Generating Plants, Cogeneration Plants, Third party Generation units, Merchant Power Generation units, Rooftop Power Plants etc.) who are not having PPA/having PPA for partial capacity with the licensees as follows:**

*Grid Support Charges = Total Installed Capacity X Rate of GSC
(Rs./kW/month) Rate of GSC:*

- i. The parallel operation/grid support charges are to be applied to the total installed capacity of the generators connected to the Grid.*
- ii. Conventional generators shall pay Rs. 50 per kW per month.*
- iii. Renewable energy plants including waste heat recovery plants, the plants based on municipal solid waste, and the co-gen plants shall pay Rs.25 kW per month.*
- iv. Rooftop solar plants under net metering/gross metering policy shall pay Rs.15 per kW per month.*
- v. Co-gen sugar mills shall pay charges of Rs. 25 per kW per month, for a period of 4 months or actual operation period, whichever is higher.*
- vi. These charges shall not be applicable when the plants are under shutdown for any reason and when such shutdown period exceeds two months.*



vii. To the extent of PPA capacities of the generators with the DISCOMs shall be exempted from payment of these charges.

2. In the above matter, this Hon'ble Telangana Commission has invited the stakeholders to file their comments/suggestions/objection, if any, on or before 31.01.2023 and accordingly we submitted the objections and the Hon'ble Commission has differed the GSC matter and again referred it to Grid Coordination Committee

During the 4th and 5th GCC meeting we submitted the objections on levy of Grid Support Charges which are set out below for this Hon'ble Commission's kind consideration and disposal:

I. HISTORY OF GRID SUPPORT CHARGES (GSC):

1. Grid Support Charges (GSC) were initially levied by the erstwhile Hon'ble APERC vide Order in O.P.No. 1 of 1999 dated 08.02.2002 in the context of the AP Electricity Reform Act, 1998. The GSC order was implemented vide Tariff Order FY 2002-03 from 01.04.2002. The same was challenged before the Hon'ble High Court for the erstwhile State of A.P which was decided in favour of the generators/Captive Power Producers (CPPs) and the levy of grid support charges was set aside. An Appeal was filed by APTransco (Civil Appeal No. 4569 of 2003) in the Hon'ble Supreme Court. The Hon'ble Supreme Court, vide its judgement dated 29.11.2019 affirmed the orders of the erstwhile Commission.
2. It is pertinent to note that the prevailing conditions during 2002 and the present are totally different. When the Act is not in existence, there was no concept of Open Access, Transmission and Wheeling. The same were allowed by means of mutually agreed agreements at that time.
3. It is also pertinent to note that the erstwhile APERC was constituted under the AP Electricity Reform Act, 1998, and passed the order in O.P.No.1 of 1999 in exercise of its powers under the said Act.
4. **Earlier TS DISCOMS proposed to levy the grid support charges on captive generating plants considering captive load burden on Grid . But surprisingly that now the DISCOMS proposed to levy such charges on all generating plants including Independent power generating plants and Merchant power generating plants without explaining any reason/basis for levy of such charges.**



5. **The IPPs and Merchant power generating plants are meant for generation and export entire power to grid and accordingly always supportive to grid but never opt grid support to run the plant.**
6. **DISCOM's proposal of grid support charges on Merchant power plants are meaningless and no basis.**

II. THE IMPACT OF THE ELECTRICITY ACT, 2003:

1. In 2003, the Electricity Act, 2003 ("Act") came into force. The Act brought in substantial changes to the previous regime, including the establishment of State Commissions, delicensing of Generation, unbundling of transmission and distribution, specification of tariffs and charges, crystallized the scheme of Open Access, brought in procedures and standards to enforce discipline, etc. However, it left the Commissions established by States under earlier State enactments (such as the AP Electricity Reform Act, 1998) untouched and treated them to be Commissions established under the Act, essentially conferring them with powers under both Acts, in as much as the State enactments were not in derogation to the Act.
2. Open Access was introduced under Section 42 of the Act, in pursuance to which APERC Regulation Nos.2 of 2005 and 2 of 2006 were also promulgated by the erstwhile Commission.

No jurisdiction to Propose or Levy GSC:

3. Under the provisions of the Act, separate entities, being the SLDC/RLDC/NLDC were created to take care of the Grid. SLDC/RLDC is responsible for maintaining grid security, Load forecasting, scheduling and dispatching and balancing of generation and demand (load). The ARR of SLDC was already approved in the MYT Tariff 2021-23. The DISCOMs have no role in maintaining Grid security and have to comply with the directions issued by SLDC/RLDC. Hence, in the present scenario, there is no need to propose GSC by DISCOMs and the DISCOMs have no role in seeking GSC at all.
4. The Applicant DISCOMs are responsible for their distribution business only and can at most levy wheeling charges, and nothing more. Any GSC as sought to be levied would have to be proposed and substantiated by TSSLDC, being the entity tasked with grid security under the Act. Therefore, DISCOMs have nothing to do with GSC. The ARR of the Applicant DISCOMs Distribution Business is recovered through wheeling charges as approved in the relevant MYT orders. As the present the ARR and the FPT is to recover



the costs of the Applicants' Retail Supply Business, and the Applicant DISCOMs have no role in proposing GSC, and certainly not at 132 KV voltage.

5. It is also pertinent to note that this Hon'ble Commission is constituted under the Act, and thus the earlier AP Electricity Reform Act, 1998 under which GSC were earlier determined is neither applicable nor relevant in the present day. The Act, 2003 specifically lays down the charges and tariffs to be collected, and no charges beyond what is prescribed can be levied. Admittedly, there is no charge such as GSC mentioned in the Act or the regulations, let alone under S.62 under which the present petitions are filed, and as such, any such proposal to levy GSC is without jurisdiction.
6. It is thus submitted that the scope of present ARR for Retail Supply Business for FY 2023-24 should be strictly confined in terms of Section 62 of the Act r/w Regulation 4 of 2005 as adopted under Regulation 1 of 2014, and Section 42 of the Act for the purpose of determination of CSS and any proposal of the Applicant DISCOMs to levy GSC is **itself misconceived and patently without jurisdiction.**

Without Prejudice to above submissions of the very authority and jurisdiction to levy GSC, the following further submissions are made.

In relation to the Proposal made by the Applicant Discoms:

7. The Applicant Discoms have proposed Grid Support Charges for all generators, including captive, cogeneration, merchant power plants/IPP, rooftop power plants etc., which is completely against the reasoning of GSC in the first place.
8. The Applicant Discoms have arbitrarily and without any substantiation proposed different rates of GSC for different types of generators. There is no reason stated as to why or on what basis such differentiation is made.
9. There is no justification at all for how rates of GSC have been arrived at. The proposed levy has no basis and is grossly excessive, arbitrary, and so requires to be rejected.
10. There is no mention of basis and methodology by DISCOMS for the proposed GSC of Rs.50 KW per Month. The proposed levy of GSC at such a high rate will be a death knell for large process industries which depend upon captive power at reasonable cost. The proposed GSC will hit at the core viability of the principal industry resulting in closure of operations and in loss



of direct and indirect employment aside from loss of revenue to the exchequer.

11. The proposed levy of GSC appears to be lifted from the Hon'ble APERC's RSTO for FY 2022-23, which levy itself has been stayed by the Hon'ble APTEL vide order dated 20.05.2022 in DFR No.186/2022, and orders dated 01.07.2022 in DFR Nos.240/2022, 241/2022 and 271/2022.
12. There is no revenue or costs that are shown to be associated corresponding to the levy of GSC. As such, once the entire costs are recovered by the proposed RST alone, any further levy of GSC amounts to illegal and unjust enrichment of the Applicant Discoms at the cost of generating companies.

In relation to Captive Power Plants:

13. Captive Power Generation is delicensed under the Electricity Act so as to lessen the burden on the Grid in meeting the distributed loads. The provision in Para 5.2.26 of National Electricity Policy, 2005 notified by Govt of India laid emphasis on grid connectivity of captive generators even under open access regime which is reproduced below:"

"Under the Act, captive generators have access to licensees and would get access to consumers who are allowed open access. Grid inter-connection for captive generators shall be facilitated as per Section 30 of the Act. This should be done on priority basis to enable captive generation to become available as distributed generation along with the grid."

In the spirit of this legislation and rules framed thereunder, determination of Grid Support or Parallel Operation Charge should follow the principles of transparency, actual forbearance and fair computation based on time tested methodology. The proposed levy does not meet any of these criteria and is arbitrary.

14. In the case of CPPs availing Open Access for transmission and wheeling of power from the generation point to the consumption point, charges are levied as determined by the regulator from time to time. Even in these cases there is an established mechanism of UI charges which essentially address the so-called grid support or parallel operation. The proposed levy by the TSDISCOMs is therefore quite arbitrary, excessive and is not supported by quantifiable data.
15. The Transmission system of the Transco/Discom should be so designed that it should take care of fluctuating load of the consumer as it is the duty



of the transmission licensee under Section 40 of Electricity Act, 2003. In relation to CPPs it is also submitted as follows:

- a) CPPs absorb some amount of harmonics whereas a consumer without CPP inject full quantum of harmonics generated to the grid.
- b) The unbalanced voltage of the grid is a source of negative phase sequence current which is absorbed by the generators of CPP.
- c) Fault level depends upon the generation capacity connected to the grid. The parallel operation of CPPs with the grid is infact beneficial with some degree of voltage support that the CPPs extend to the Grid
- d) As per Regulations of Supply Code, Industries having CPPs can draw emergency power up to the capacity of largest generating unit by paying required tariff. CPP's drawl of power is limited to "start-up power" that too when there is total loss of generation of the CPP. The drawl of power for production purposes, is limited to the CMD as per the Power Supply Agreement with the DISCOM. Otherwise, penalty is attracted. Overdrawl is prevented by proper setting of the relays at the Grid Sub-station.
- e) It is wrong to state that active and reactive power demand due to sudden and fluctuating load are not recorded in the meter. Billing is done for all consumers by integration over 15 minutes period and this is also applicable for CPPs and so it does not result in any undue advantage.
- f) Due to injection of power by CPPs the load on the transformers in the grid reduces resulting in less transformer loss.
- g) The CPP are acting as distributed generator at the load center for which the transmission and distribution loss has been reduced to great extent.
- h) As per Section 7 of the Electricity Act, 2003 any generating company may establish operate and maintain a generating station if it complies with State Grid Code and standards of grid connectivity as referred in Section 73 (b) of the Act. Both Tariff Policy and National Electricity Policy emphasizes the need for unhindered connectivity of CPPs to the grid. The proposed and arbitrary quantum of Grid Support Charge makes the captive power generation unviable and the spirit of the act and the rules framed thereunder are thus vitiated.



- i) There is no provision in the statute that empowers the DISCOMS to levy Grid Support Charges on the CPPs. They, on the other hand are benefited as CPPs absorbed some amount of harmonics. On the contrary consumer without CPPs transmit full quantum of harmonics to the grid. The DISCOMS/TRANSCO is not taking any step to install suitable equipment to filter the harmonics and injecting those pollutants to the grid for which the CPPs are forced to suffer. The grid voltage is always unbalanced due to various categories of consumers and hence is a source of negative phase sequence current which cause stress on the generators of CPPs.
- j) It is relevant to mention the observation and comments of The Hon'ble Orissa Electricity Regulatory Commission in a similar matter, in its Order dated 31.03.2014 in Case No. 46/2012, the excerpt of which is as follows:

i) Para- 15 of Order:

"We heard the parties at length and also perused the technical report submitted by OPTCL. The present installed capacity of the CGPs in the State as submitted by OPTCL is 5173 MW which is more than or equal to capacity of other generators connected to Odisha Grid including Odisha share of power from Central Generation Stations. We agree with the contention of CCPPO that the pollutants of the Grid like fluctuations in frequency and voltage, negative phase sequence, distortion due to harmonics etc. are the resultant effect of all synchronous machines like generators and motors of the Grid system. These pollutants are injected in to the grid not only by CGPs but also by other independent generators and machines like motors and arc furnaces of the consumers. Holding industry having CGPs only responsible for this is not correct".

ii) Para-16 of Order:

"After going through the submission of various stake holders of the grid system we conclude that the behaviour of industries having CGPs and also without CGPs varies case to case basis. There are ample provisions in the Odisha Grid Code to regulate the behaviour of entities connected to the OPTCL system. Hence, a generic method of calculation of Grid Support Charges for all industries may not be proper. The Petitioner has failed to submit a State-wide study before us on which a decision could have been taken. One solution fits all can't be applicable here. So



implementation of a model of another State in our State will not be proper."

iii) Para- 17 of Order:

"There are enough provisions in Odisha Grid Code, 2006 to maintain quality supply in the grid system. Regulation 4.7 of Odisha Grid Code discuss elaborately the ideal behaviour of constituents of the Grid. OPTCL should play the role of watchdog and analyze the pollutant injected by various constituents of the grid system. CGPs and industries injecting pollution should be directed to take up remedial measures like installation of capacitors, filters for harmonics, etc. so that grid pollution will be minimized. The non-compliance by any industry or industry having CGP of the Grid Code should be dealt as per Regulation 1.18 of OGC, 2006. Therefore, the prayer of OPTCL for levy of Grid Support Charges is not acceptable."

Further, when GSC was proposed by APERC during the year 1999 and 2002, the Electricity Act was not in force. The Act is in force from 2003 and Section 9 of Electricity Act does not differentiate between CPP and IPP as far as grid connectivity is concerned and hence both should be treated equitably from the viewpoint of grid connectivity and support.

- k) The proposed levy of GSC aims to stifle the consuming industries by this arbitrary levy, which in turn erodes the viability of the principal industry to a point that it must perforce cease operations.
- l) CPPs have repeatedly expressed their willingness to provide additional protections in their facilities as desired by the grid to see that no untoward load throwbacks or fault currents or reactive power surges happen.
- m) The levy of GSC in 1999 was proposed when the generation shortfall was prevailing, and the TSDISCOMS were going through occasional R&C periods and frequency fluctuations, etc. when the Regulator considered that the proposed levy had merits. However, the TS Grid has since improved / made many strides in Grid size, availability of power and attained stability and is one of the few Grids in the country being engaged in export of power on a steady basis. Aggregate capacity of the



CPPs now is relatively marginal compared to the Grid Size and no real forbearance could be possible warranting such huge and arbitrary levy.

- n) In our case, the CPPs installed capacities are much higher when compared to our captive load to ensure higher availability for captive use. Since our installed and operating capacity of captive load is much lower than installed Capacity of Captive Power plant, it is required to connected with grid for export of surplus power through open access.
- o) Grid Support Charges cannot be a substitute for Demand or Capacity Charges which are determined on a wider basis by the regulator. So the proposed levy of Grid Support Charges based on applicable demand charge is arbitrary, excessive and results in undue enrichment of the TSDISCOMs at the expense of CPPs.
- p) It may be noted that, before determination of GSC/POC, The Hon'ble Chhattisgarh State Electricity Regulatory Commission (CSERC) has assigned this responsibility to an independent third party M/s.Electrical Research & Development Association (ERDA) to study various system data and system parameters of representative selected CPPs. Accordingly ERDA has measured various system parameters like harmonics, unbalance current, plant load factor, load cycle, fault level calculations etc. by measurement on selected CPPs and relevant substation and finally ERDA has suggested working out the parallel operation charges on sound technical basis taking into consideration advantages and disadvantages to both CPPs & CSEB and submitted its recommendation to CSERC. Similarly The Hon'ble OERC has also appointed an independent third party for system study before determination of GSC.
- q) For the various reasons cited above, the Grid situation requires to be thoroughly reviewed with reference to the fact whether the Grid suffers any forbearance in providing parallel operations of CPPs.

Suggestion/recommendation of the Member -Grid Coordination Committee

That, in view of the above findings, the member is of the opinion that;

- i. Grid support charges are not at all required to collect from the CPPs, IPPs/Merchant power plants in Telangana and submits the recommendation to the Hon'ble Commission through the Chairperson of Grid Coordination Committee to reject the proposal levy of Grid Support Charges as there is no such provision in the Statute/Electricity Act, whereas the STU /Transmission and Distribution Licensees are duty



bound under Section 39 and 40 of the Electricity Act, 2003 and the National Electricity Policy, 2005 to provide connectivity to the CPPs like any generating station

- ii. In the event the Hon'ble Commission holds the proposal of GSC is valid, within the powers and jurisdiction and are leviabale, it is requested that an independent reputed third party should be engaged to conduct a thorough system study and technical issues concerning power load throwbacks by CPPS/consuming industries, power harmonics in parallel operation of CPPs, size of the CPPs and judiciously arrive at a reasonable decision as has been done by other state Commissions/governments

For Nava Limited
(Formerly Nava Bharat Ventures Ltd)


Srinivas P
Member -GCC

Place: Hyderabad:
Date: 16.08.2023

