ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION

Vidyut Niyantrana Bhavan,

Adjacent to 220/132/33/11 KV AP Carbides Sub-Station,

Dinnedevarapadu Road, Kurnool-518002, Andhra Pradesh

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FRIDAY, THE 2nd DAY OF MAY

TWO THOUSAND AND TWENTY FIVE

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Present

Sri P.V.R.Reddy, Member & Chairman(i/c)

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O.P.No.91 of 2024

In the matter of granting consent under Section 861(b) of the Electricity Act, 2003 read with Section 21 of the Andhra Pradesh Electricity Reform Act, 1998 to the amended Power Purchase Agreements (4 Nos) dated 12.03.2025 entered into by Southern Power Distribution Company of Andhra Pradesh Limited (APSPDCL) with the following entities: 1. Axis Renewable Energy Park (Penna) Private Limited, 2. Axis Renewable Energy Park (Krishna) Private Limited, 3. Axis Renewable Energy Park (Andhra Pradesh) Private Limited, and 4. Axis Renewable Energy Park (Tungabadhra) Private Limited, for procuring 100 MW of power each from their Wind-Solar Hybrid Pilot Projects.

Between:

Southern Power Distribution Company of Andhra Pradesh Limited,

Srinivasapuram, Tiruchanoor Road, Tirupati-517503, Andhra Pradesh.

...Petitioner

And

1. Axis Energy Ventures India Private Limited.
2. Axis Renewable Energy Park (Penna) Private Limited.
3. Axis Renewable Energy Park (Krishna) Private Limited.
4. Axis Renewable Energy Park (Andhra Pradesh) Private Limited.
5. Axis Renewable Energy Park (Tungabhadra) Private Limited.

...Respondents

This Petition was taken up for final hearing on 04.04.2025 in the presence of Sri K. Ramakrishna, AP State Secretary, CPI; Sri Ch. Babu Rao, State Secretariat Member, CPI (M); Sri M. Venugopala Rao, Senior Journalist & Convener, Centre for Power Studies; Sri Kandharapu Murali, Secretariat Member, CPI (M), Tirupati District Committee; Sri M.V. Anjaneyulu, Convener, Vidyut Viniyogadarula Ikya Vedika; Sri Ajay Devaraj, Secretary General, Indian Wind Power Association; Sri B.Dasarath Ram, Secretary, New Directions Educational Society; Sri Subrahmanyam Pulipaka, Chief Executive Officer, National Solar Energy Federation of India; Sri Suman Kumar, Chief Executive Officer, Evren (Brookfield Renewable); Sri P.Shiva Rao, learned Standing Counsel for APSPDCL; Sri K.Santhosha Rao, Chairman and Managing Director, APSPDCL; Sri P.H.Janaki Ram, Chief General Manager/P&MM, APSPDCL; Sri Murali Surapaneni, CEO, Axis Energy Ventures India Private Limited; and Sri Deepak Chowdhury, learned Counsel for the respondent- Axis Energy Ventures India Private Limited. After hearing all the parties and after carefully considering the material available on record, the Commission passes the following:

ORDER

1. Vide letter dated 24.09.2024, the GoAP issued a directive to the Andhra Pradesh Electricity Regulatory Commission (APERC) under Section 108 of the Electricity Act, 2003, to give consent to the four 100 MW Power Purchase Agreements (PPAs) signed by the Southern Power Distribution Company of Andhra Pradesh Limited (APSPDCL) with the Special Purpose Vehicles (SPVs) of Axis Energy Ventures India Private Limited (AEVIPL)

for the 400 MW wind-solar hybrid pilot project under the Bundling, Balancing, and Banking (BBB) scheme, aligning with the state's commitment to generate 72.30 GW of renewable energy by 2030, as part of India's 500 GW target. The PPAs execution is in pursuance of the 2018 MoU and a 2019 Scheme Implementation Agreement(SIA), and offer a high Capacity Utilisation Factor(CUF) (over 60%), stable APPC tariffs, 50:50 REC benefit sharing, and local economic benefits. The directive reinforces the commitments made by the GoAP in an affidavit before the High Court of AP to honour agreements and also to attract investments, while utilising state infrastructure and meeting Renewable Purchase Obligations (RPO).

2. Subsequently, APSPDCL, the petitioner in this case, has entered into the PPAs with the respondents Nos. 2 to 5 on 24.11.2022 for the procurement of 100 MW of power each from their respective Wind-Solar Hybrid Pilot Projects. The respondents Nos. 2 to 5 are the SPVs of AEVIPL, the first respondent in this Petition.

3. Subsequently, the petitioner filed a Petition before the Commission on 22.11.2024 under Section 86(1)(b) of the Electricity Act, 2003 (referred to as "the Act") read with Section 21 of the Andhra Pradesh Electricity Reform Act, 1998 seeking consent for the above PPAs (which includes tariff) and submitted the the following as justification.

- The Government of Andhra Pradesh (GoAP), in order to promote wind-solar hybrid projects, has issued the Andhra Pradesh Wind-Solar Hybrid Power Policy, 2018 ("the Policy, 2018") vide: G.O.MS. No. 3 dated 03.01.2019, which provides a framework for promoting large grid-connected wind-solar PV systems to efficiently utilise state transmission infrastructure and land, reduce variability in renewable power generation and to achieve better grid stability. Under "the Policy, 2018", various incentives/benefits were provided for the development of Wind Solar Hybrid Plants in the State, and the projects with a

minimum stipulated CUF of 40% were to be given preference. The said Policy also provides for the sale of the power from the Wind Solar Hybrid Projects to the Distribution Companies (DISCOMs) in the State at the APPC tariff under the REC mechanism.

- Accordingly, the GoAP has taken an initiative and proposed to the Government of India for the implementation of 5,000 MW of Green Power round the clock consisting of 5,000 MW Solar, 5,000 MW of Wind coupled with 5000 MW of Gas Power with an objective of integrating various Renewable Energy generations along with clean energy sources into a single system.
- On 01.01.2018, AEVIPL proposed to the GoAP for the development of 10,000 MW of renewable energy projects (5,000 MW wind and 5,000 MW solar) within the state. Following this, AEVIPL, APTRANSCO, and NREDCAP signed a Memorandum of Understanding (MOU) on 26.02.2018, at the Partnership Summit in Visakhapatnam, formalising their intent to develop these projects.
- In line with the MOU, AEVIPL later proposed a Scheme Implementation Agreement (SIA) for the 5,000 MW renewable energy projects and requested approval for a 400 MW pilot project. The GoAP subsequently referred both proposals to the Finance (FMU, Energy, I&I) Department.
- Based on the advice of the Finance Department, the Energy, I&II (Power.II) Department constituted a Technical Committee on 05.10.2018, vide G.O.Rt.No. 134, to assess the draft SIA between AEVIPL and relevant government stakeholders. Considering the Technical Committee's recommendations, the GoAP, through the letter dated 23.01.2019, instructed APPCC, APTRANSCO, APGENCO, APDISCOMs, and NREDCAP to execute the SIA with AEVIPL. Additionally, the APDISCOMs were permitted to procure power from the pilot project under a "first right of refusal" and to execute PPAs at a tariff not exceeding the "Power Purchase Pooled Cost" (PPPC) under the

REC mechanism, as outlined in Clause-5.4 of the SIA and Clause-5.2(i) of "the Policy, 2018." This approach was adopted due to the absence of standard bidding guidelines for wind-solar hybrid and Firm and Dispatchable Renewable Energy (FDRE) projects. Consequently, the SIA was executed on 23.01.2018.

- As per the SIA guidelines, APPCC approved AEVIPL's 400 MW pilot project to demonstrate the Bundling, Balancing, and Banking (BBB) Scheme. The SIA stipulated that the entire 5,000 MW renewable energy project (5000 MW wind and 5000 MW solar) would be developed progressively in three phases, as detailed in Clauses 4.1.1 to 4.1.3 of the SIA, with Clause 5 outlining the obligations of AEVIPL and the APDISCOMs.
- Subsequently, AEVIPL submitted a Detailed Project Report (DPR) to APPCC/APTRANSCO, outlining the pilot project's development, and submitted draft PPAs for the 400 MW projects on 22.03.2019, for APTRANSCO's review. On 01.04.2019, the Chief Engineer/IPC&PS/VS/Vijayawada referred the DPR and draft PPAs to KPMG Consultancy Service, Vijayawada, for evaluation in consultation with the SLDC Wing, requesting their recommendations for further action.
- Following this evaluation, the Chairman of APPCC/APTRANSCO, in consultation with the Department of Energy, GoAP, and KPMG Consultancy Services, approved the 400 MW pilot project under the BBB Scheme and the draft PPAs with KPMG's proposed changes. The APDISCOMs were then directed to sign the PPAs. Furthermore, NREDCAP issued the necessary approvals to AEVIPL for setting up the 400 MW wind-solar hybrid power project, with the registration initially valid until 16.04.2021, and later extended to 21.09.2025.
- Subsequent to the SIA, policy changes introduced by the GoAP through G.O.MS No. 35 dated 18.11.2019, and G.O.Ms. No.1 dated 01.03.2021,

impacted the committed projects. In response, AEVIPL filed Writ Petition No. 9680 of 2021, challenging the government's actions, and other developers also initiated similar legal proceedings.

- The GoAP later filed a Common Additional Affidavit in the High Court of Andhra Pradesh, affirming its decision to honour the existing agreements, including Project Implementation Agreements, Project Agreements, and Scheme Implementation Agreements made by the Government, NREDCAP, and Power Utilities. The government also committed to upholding the incentives provided to developers under the Wind, Solar, and Wind Solar Hybrid Policies of 2015 and 2018, which predated G.O.Ms.No.35. The government further assured the court that it would issue necessary directives to the APDISCOMS, APTRANSCO, NREDCAP, and AP Power Utilities to implement these commitments.
- Acknowledging the undertaking presented in the Common Additional Affidavit, the High Court of Andhra Pradesh disposed of Writ Petition No. 9680 of 2021, along with W.P. No. 13374 of 2020 and other related petitions, on 16.08.2022. Following this court order, the Special Chief Secretary to the Government of Andhra Pradesh, Energy Department, instructed the Chairman and Managing Director of APSPDCL on 11.11.2022, to act upon AEVIPL's request for the execution of four PPAs (each for 100 MW with its Special Purpose Vehicles - SPVs) in accordance with government directives and the High Court's orders.
- Consequently, APSPDCL executed the four PPAs with AEVIPL's SPVs on 24.11.2022, for a total capacity of 400 MW (100 MW each). NREDCAP had already sanctioned project capacities of 640.5 MW for wind and 400 MW for solar for this 400 MW project. APTRANSCO also granted grid connectivity approvals for evacuating 1040.5 MW (640.5 MW wind + 400 MW solar) on 24.03.2023, and subsequently submitted the PPAs to the Commission for approval on 30.05.2023.
- However, APERC returned the four draft PPAs to APSPDCL on

11.07.2023, seeking clarifications on: (a) the justification for procuring wind-solar hybrid capacity, (b) the rationale for the fixed pooled cost of power purchase, (c) the rationale for a 25-year PPA duration in light of APERC's advice dated 16.09.2023, and (d) the reasons for not including the MoU, DPR, KPMG report, and IPC/APTRANSCO analysis.

- APSPDCL then prepared a detailed justification report and submitted it to the APPCC on 25.06.2024. Subsequently, the Special Chief Secretary to the Government, Energy Department, communicated the minutes of a review meeting held by the Honourable Chief Minister on 14.08.2024, regarding the Power Sector, granting permission to APSPDCL to file responses to the Commission's queries on the 400 MW wind-solar hybrid PPAs, via a letter dated 01.10.2024.
- Following these directives, APSPDCL furnished its replies to the Commission's remarks on 13.11.2024 and requested approval for the aforementioned four PPAs.
- The PPAs were necessitated to be executed with the respondents Nos. 2 to 5 to comply with a High Court Order dated 16.08.2022 in WP 9680 of 2021. The High Court's Order followed the government's affidavit stating its intent to withdraw the case and honour commitments made in various agreements, Orders, letters, and MOUs related to AEVIPL's projects.
- The energy generated from these Projects was included in the State Electricity Plan (FY 2023-24 to FY 2033-34). This inclusion was based on a short-term load forecast (FY 2023-24 to FY 2028-29), which projects an increase in peak demand from 12.26 GW in 2023 to 19.70 GW in 2029.
- These 400 MW pilot projects were envisioned to supply round-the-clock (RTC) power, aligning with the GoAP's RTC green power scheme under the Bundling, Balancing, and Banking (BBB) Scheme. Implementing these projects will assist DISCOMs in meeting their Renewable Power

Purchase Obligation (RPO) targets set by APERC Regulation 5 of 2022, which mandates an increase from 18% in 2022-23 to 24% by 2026-27. Additional renewable energy projects are needed to reach this 2027 goal.

- Beyond the APERC's RPO targets, the Ministry of Power (GoI) issued an Order on 20.10.2023, outlining Renewable Purchase Obligation and Energy Storage Obligation targets until 2029-30. This Order emphasises the national commitment to achieving Net-zero emissions by 2070, requiring states to align with the MoP's RPPO trajectory, which mandates a 43.33% RPPO by 2030.
- The Ministry of Power (Government of India) utilises Renewable Purchase Obligations (RPOs) to achieve the Intended Nationally Determined Contributions (INDCs) and encourage the deployment of renewable energy. The goal is to meet at least 43.3% of the country's power demand from renewable sources by 2030.
- A NITI Aayog report from February 2024, titled "Renewable energy resource adequacy planning to meet RPO by the states in India," outlines the state-wise electricity demand that needs to be met by renewable energy. The report indicates that Andhra Pradesh needs to add 2.66 GW of wind capacity, 11.46 GW of solar capacity, and 1.47 GW of hydro capacity.
- The proposed Wind-Solar Hybrid projects are expected to achieve a high annual Capacity Utilisation Factor (CUF) of over 60%, which is beneficial as it ensures continuous power availability. This helps DISCOMs to reduce the burden of balancing loads and improve grid stability.
- The signed Power Purchase Agreements (PPAs) incorporate the APPC mechanism, a well-established power procurement practice in the state. Additionally, the PPAs include strict penalties for any shortfall in the agreed-upon CUF, which benefits the State and compels the

developer for better and assured performance. To protect the interests of DISCOMs and end consumers, the developer was subjected to very strict terms and penalties compared to standard PPAs under the APPC mechanism.

- Despite the Andhra Pradesh Wind Solar Hybrid Power Policy 2018 requiring only a 40% minimum CUF, these PPAs mandate a 60% minimum. Furthermore, the project tariffs will remain fixed for 25 years, providing DISCOMs with stable power procurement costs.
- Renewable Energy Implementing Agencies (REIAs) projects are currently exempt from Inter-State Transmission System (ISTS) charges, a cost that is socialised and partially borne by states, including AP. This means tariffs for non-ISTS-waiver eligible bids will be effectively higher by Rs 0.95 - Rs 1.28 per kWh. This ISTS waiver ends for projects commissioned after June 30, 2025, after which developers will bear the full charges, further increasing tariffs from REIA bids by the same range.
- The power generated from this project will be entirely evacuated through the State Transmission Utility (STU) network. This ensures that there will be no direct or indirect additional financial burden on the DISCOMs. Utilising the existing State evacuation infrastructure for these projects also ensures the efficient and optimal use of the State Grid.
- During the recently concluded RE Invest 2024, a major event organised by the Ministry of New and Renewable Energy (MNRE), the Government of Andhra Pradesh committed to developing 72.60 GW of Renewable Energy projects by 2030. This 400 MW BBB project, with an installed capacity of 1040.5 MW, will significantly contribute to the State achieving this ambitious renewable energy target. Further, under Section 86(1)(e) of the Electricity Act, 2003, the Commission is mandated to promote Renewable Energy sources.

4. The Commission has taken the Petition on record, numbered it as O.P.No.91 of 2024, issued notice to the parties and posted the matter for hearing on 22.01.2025. During the subsequent hearing on 29.01.2025, the Commission felt that since this OP relates to approval of the PPAs and determination of tariff, the same must be placed in the public domain. Therefore, the Commission directed the office to place a notice along with the material available on record on the Commission's website calling for objections from all stakeholders. Further, the Commission directed the petitioner to carry out publication of the Petition in two widely circulated newspapers, one in Telugu and the other in English, of the Andhra Pradesh Editions and directed APTRANSCO to file its response on Banking and Balancing issues involved in the OP.

5. The Commission's office posted a copy of the petition on the Commission's website on 29.01.2025, inviting comments, views, and objections from interested persons and stakeholders, to be submitted by 18.02.2025. The Petitioner published a notice of the petition in newspapers on 02.02.2025, seeking comments and objections from interested parties, to be submitted to the Commission Secretary by 16.02.2025. Subsequently, APTRANSCO submitted its response to the Commission Secretary on 17.02.2025, stating that they are not in a position to balance the renewable energy intermittency or provide banking services. During the hearing on 07.03.2025, the Commission permitted APSPDCL to file amended Power Purchase Agreements (PPAs) in light of APTRANSCO's response. APSPDCL filed the revised PPAs before the Commission on 13.03.2025, which were then posted on the Commission's website, inviting comments/views/objections from interested persons and stakeholders, to be submitted by 18.03.2025. At the request of some objectors, the deadline for submissions was later extended to 25.03.2025.

Objections/suggestions/views(including APTRANSCO's) received, replies of APSPDCL and Axis Energy Ventures India Private Limited (AEVIPL).

(A list of objectors is shown vide Annexure)

By the deadline of 25.03.2025, the following comments/views/objections were received from various stakeholders/interested persons on the original and amended PPAs.

6. APTRANSCO

- The BBB scheme in the state is meant to bundle renewable energy projects with conventional power plants (originally gas-based) to manage the intermittent nature of renewable energy, following the Ministry of Power's Flexibility scheme guidelines from 2018.
- However, the state currently has no operational gas power plants. Consequently, APTRANSCO is not in a position to balance the renewable energy intermittency or provide banking services.

Reply of APSPDCL:

- The responsibility of delivering the stipulated generation lies with the developer, who should set up Energy Storage Technologies. The Commission is requested to mandate the developer to ensure peak hour supply for 2 hours each in the morning and evening (7:00-11:00 and 18:00-22:00 Hours) by installing appropriate Energy Storage Technology, similar to FDRE projects, and ensure 90% availability of the contracted 400 MW during these peak hours.
- Regarding tariff, it is submitted that the APPC tariff applicable 24 months from the original approval date of the draft PPAs by the APPCC (15.05.2019), which falls in FY 2021-22, be considered. This would be Rs 4.60 per kWh as per APERC's Order in OP Nos. 14, 15, and 16 of 2022 dated 27.05.2022, instead of the current APPC tariff for FY 2023-24 (Rs 5.12 per kWh) or the expected higher tariff in 24 months

from the current date of approval. This will be in the best interest of consumers and is comparable to the tariff of similar FDRE projects (Rs 4.64 to Rs 4.73 per kWh).

Reply of AEVIPL:

Given APTRANSCO's inability to provide balancing or banking due to the lack of operational gas power plants, AEVIPL proposes using Energy Storage Technologies to meet PPA conditions. To accommodate this change, AEVIPL requests the following modifications to the PPAs.

- Provision for firm power for 2 hours during morning and evening peak hours by installing an appropriate Energy Storage System, aligning with Firm and Dispatchable Renewable Energy (FDRE) guidelines. AEVIPL will ensure 90% availability of contracted capacity during these hours.
- Maintaining the 500 MW power evacuation capacity, with Delivered Energy calculated for the 400 MW contracted capacity.
- Above 500 MW, prioritising supply to APDISCOMs with Right of First Refusal, then selling to third parties or power exchanges.
- Use of existing infrastructure for charging and delivering power from storage systems without additional charges.
- Allowing a one-time change in the RE configuration until the Commercial Operation Date (CoD) without altering PPA responsibilities.
- Proposal for a more granular penalty structure for not meeting the 60% CUF or penalties similar to FDRE guidelines for non-delivery of power during peak hours.
- Applying the Electricity (Late Payment Surcharge and Related Matters) Rules, 2022.
- Clarification on how Delivered Energy is calculated.
- Maintaining the validity of PPAs under APPC mechanism as per existing regulations.
- Acceptance of the APPC tariff determined for FY 2021-22 (Rs 4.60/

kWh) for the entire 25-year project life.

- Note that the proposed APPC tariff is on par with FDRE bid tariffs.

The project offers high CUF availability, no financial burden for ISTS transmission charges, tax revenues to the state, local employment generation, and strengthening of the state evacuation facility. The power from this project was considered in DISCOMs' supply forecast but not in the Commission's forecast, which APSPDCL has requested to include. AEVIPL requests the Commission to consider these points and approve the PPAs.

7. **Sri M. Venugopala Rao/Centre for Power Studies and 3 others**

- The 2018 MoU, 2019 SIA, and 2019 AP Wind Solar Hybrid Policy are outdated and can't be applied retroactively. The 2024 AP Integrated Clean Energy Policy superseded them, explicitly stating that previous policies, including the 2019 Wind Solar Hybrid Policy, are no longer valid.
- APSPDCL's reliance on the Commission's 2017 Regulations is misplaced, as there were no GoI bidding terms or draft PPAs specifically for wind-solar hybrid projects at that time. These outdated regulations are also irrelevant for drafting the current PPAs and determining APPC tariffs.
- Competitive bidding is a viable alternative to MoU-based PPAs, which historically caused consumer burden and legal battles. The prolonged seven-year delay also indicates the DISCOMs haven't needed the power in question. DISCOMs have the option of competitive bidding for any new RE capacity addition, which would ensure the lowest possible tariffs. Earlier, DISCOMs have sought and obtained APERC's approval to select wind power projects through competitive bidding, instead of relying on generic tariffs set by the Commission. No law prevents DISCOMs and the GoAP from choosing competitive bidding, provided they obtain APERC's approval for the terms and conditions. They can

also seek the Commission's approval to modify the terms of competitive bidding issued by the Government of India. Even without central government bidding documents, the state could have invited and negotiated with multiple developers for hybrid projects.

- The GoAP's direction is an overreach of governmental authority and an intrusion into the Commission's regulatory domain. The tariff determination and PPA approval, based on relevant factors and regulations, fall under the Commission's purview. The commission is not obligated to approve the PPAs unless there is a demonstrated need for this power. Judgments from the Karnataka High Court and the Supreme Court emphasise regulatory independence from government directions.
- In earlier Orders, the Commission directed DISCOMs that they must comply with the higher of the Renewable Purchase Obligation (RPO) trajectory set by APERC and the Renewable Energy Consumption (REC) specified by the Ministry of Power (MoP). The above directions represent a surrender of the Commission's quasi-judicial regulatory powers to the central government. The RPO targets specified by the MoP are merely guidelines and not binding on the Commission.
- RE availability is projected to exceed targets. Integrating RE requires grid upgrades and managing real-time supply-demand balance, impacting thermal plants. Consumers face higher costs due to underutilised thermal power and expensive short-term power purchases.
- APSPDCL has not clarified how APDISCOMs will meet their RPPO, considering the RE available and to be available from existing long-term PPAs. APDISCOMs are ignoring the earlier APERC's directive that future power requirements, except for existing project expansions, should be procured competitively.
- The need for incremental capacity could decrease or become

unnecessary if the actual power requirement is lower than projected in the long-term load forecast and power procurement plan approved by APERC for the 5th control period

- Whether the project would "bank" the excess generation beyond the contracted capacity with the APSPDCL, assuming the DISCOM doesn't need it during peak hours? If SPDCL allows AEVIPL to bank excess generation, SPDCL may have to back down thermal power, incurring fixed charges and increasing the burden on consumers. The decision to store excess power is left to AEVIPL, who may prefer banking with SPDCL (at SPDCL's cost) over incurring storage expenses.
- The proposed graded tariffs, with a high price of Rs. 3.82 per unit for power generated below 40% CUF, make the 60% CUF target seem unrealistic. The "must-run" status of the plants could force the DISCOM to purchase unneeded power. The graded tariff structure, where lower CUF levels receive higher prices, is contrary to standard practice. The tariff adjustments based on CUF are a "pampering" mechanism for the developer rather than a "penalty."
- APPC is primarily used by the Commission to determine payments to RE developers for power banked with DISCOMs but not reclaimed within the year. APPC is an average of tariffs from various PPAs, while competitive bidding yields prices discovered through actual market competition. Project-specific factors like capital costs, execution timelines, technology, fuel, and transportation costs should determine tariffs, not APPC. Tariff comparisons should only be made between similar projects executed under similar conditions.
- What is the rationale behind needing four units of the same capacity for a pilot? Surely, a single, smaller unit would be sufficient for initial testing and learning.
- While late payment surcharges exist, no rebates are offered for early payment. There is a lack of a storage facility proposal in the PPA.

- The proposed tariff for the projects is significantly higher than the latest and lowest tariffs discovered through competitive bidding for standalone wind and solar projects. Given that ISTS charges are not applicable to these in-state projects, their tariffs should logically be significantly lower than those discovered in FDRE bids. The same high tariff is applied to power supplied during both peak and off-peak hours by the projects. Storage systems could be implemented for individual solar and wind power units, allowing the purchase of cheaper power generated during non-peak hours based on competitive bidding tariffs. The cost of storage could be calculated separately.
- Approving the petition would set a bad precedent, potentially leading to a flood of similar long-term PPAs based on the 2018 MoU, including the remaining proposed 10,000 MW. The Commission is urged to reject the current petition and instead direct the DISCOM to conduct genuine competitive bidding for any required wind-solar hybrid projects, even for pilot projects with the smallest possible capacity. This bidding process should ensure broad participation of developers, including APGENCO, and provide a level playing field.
- The Rs.3.45/unit payment for infirm power is excessive and unjustified, favouring AEVIPL at consumer expense. A nominal Rs.0.25/unit is sufficient to protect consumers.
- The 50% REC value sharing with AEVIPL is unfair and anti-consumer, favouring developers who face no RPPO burdens and the DISCOMs should receive 100% REC value to protect consumer interests.
- The revised "Project" definition grants excessive flexibility to AEVIPL, allowing changes to wind-solar configurations and locations until COD.
- The reliance on APPC for tariffs is irrational, leading to excessive costs, consumer burdens, and undue developer benefits. APSPDCL failed to justify the revised Rs. 4.60/unit.
- The PPAs' Rs.4.60/unit tariff, uniform for peak and non-peak power,

imposes a potential Rs. 9,198 crore burden over 25 years, far exceeding market rates (Rs.2.50–Rs.3.00/unit).

Reply of APSPDCL:

- APSPDCL followed all legally available processes to execute the contracts. The projects underwent several rounds of evaluation. The objectors have failed to demonstrate how the process was legally incorrect or how the projects would harm consumer interests.
- While the Wind Solar Hybrid Policy 2019 expired after the AP Integrated Clean Energy Policy 2024, agreements signed under the former remain valid. The 2024 policy offers an option for projects allocated/sanctioned under the previous policy to migrate to the new policy, if they choose.
- According to the Electricity Act 2003, only the Central Government can issue guidelines for competitive bidding, not the State Government. In the absence of Central Government guidelines, Section 62 was the only legal route available to the State Government, consistent with the REC Regulations of 2017. Therefore, the draft PPA approved by the Commission for APPC tariff projects under APERC RPPO Regulations 2017 was used.
- The developer faced hardships due to policy changes over the past seven years, even though the project was conceived in 2019 and the PPA signed in 2022, and should not suffer further due to State Government delays.
- Competitive bidding doesn't always result in lower tariffs. The current PPAs executed under the APPC tariff are comparable to the tariffs discovered in the FDRE bids.
- The State Government's policy directive under Section 108 does not interfere with the Commission's regulatory role. The State Government is entitled to issue such directives to guide the Commission, and the directive in question doesn't favour the developer but reflects the State Government's intent. The State is within its rights to issue policy

directions under this Section. The directions under Section 108, as in this case promoting renewable energy generation, are in furtherance of the State's policy and should not be considered as interfering with the Commission's functions. The Government has the responsibility to address climate change and harness renewable energy sources, given Andhra Pradesh's significant potential. Furthermore, Section 86 (1) (e) of the Electricity Act, 2003 requires the State Commissions to promote cogeneration from renewable sources.

- The projects in the PPAs are meant to deliver power in two years, and the RPO Obligation would have increased by then. Therefore, it is not correct to state that RPPO has already exceeded as of the date.
- The RPP obligations fixed by the Commission in the Orders have achieved finality, and the objectors cannot challenge the same in the current proceedings. The RPP Obligations fixed by the Commission are the minimum obligations for distribution companies. The MoP has clarified that there is no bar on procuring more renewable power.
- The judgment of the Karnataka High Court and the consent of the existing PPAs are not related.
- Approved capacities under the State Electricity Plan should not influence the decision on these PPAs.
- The response from APTRANSCO states that the facility for banking excess power will not be available to the developer. Consequently, the issue of banking excess generation and the associated costs of backing down thermal power do not arise. Since banking of excess power is no longer available for these projects, storing excess generation is not necessary. Therefore, the developer would be responsible for any additional expenses for storing excess energy.
- The projects under consideration are wind-solar hybrid projects that will incorporate suitable energy storage technologies. Therefore, they are different from standard wind-solar hybrid projects. As a result, the

proposed APPC tariff for these pilot projects should be compared to tariffs from FDRE bids conducted by central government agencies. These projects, combined with appropriate energy storage technologies, will be capable of addressing concerns related to the balancing and intermittency of the plants.

- These projects, in their current configuration, will achieve a higher CUF of 60%, aligning them with FDRE bids. The FDRE projects would have an additional impact of Rs. 0.95 - Rs. 1.28 per kWh due to ISTS charges, which need to be added to their discovered tariff. REIA-led bids allow for a trading margin of Rs. 0.07 per kWh. When these charges are added, the tariff discovered in the FDRE bids becomes equal to or higher than the APPC tariff. In contrast, the proposed projects will connect to the state grid, which is an advantage for the State and consumers. Moreover, the penalty for CUF shortfall in the pilot projects is very strict.
- The Supreme Court directed APDISCOMs to honour the MOU route in the HNPCL matter. Therefore, the objectors' views on the MOU route are unfounded.
- The PPAs between Developers and DISCOMs are regulated by the Commission. The present proceeding is for the consent of the PPA. The objectors' claim that the only valid means of power procurement is through competitive bidding is untrue, according to the Electricity Act 2003 and the law. The objectors need to understand that the state's power demand is not tied to the government's plans for developing renewable power projects. There is no law that forces APDISCOMs or the GoAP to procure renewable power only through competitive bidding.
- There is no restriction on what kind of renewable projects can use the APPC tariff. The projects' tariff is equivalent to competitive bids for FDRE projects, and this tariff will remain fixed. Clause 10.2 of the RPPO Regulation,2022 allows the Commission to adopt a procedure at

variance with the regulations under special circumstances.

- The proposed projects aim to demonstrate the technology and assess the advantages and disadvantages of its daily operation over time. The findings of these pilot projects are expected to guide the future establishment of Wind Solar Hybrid projects, with or without storage, in the state. These pilot projects constitute 1.6% of the state's total installed capacity of 24,373 MW. Reducing the pilot project capacity could compromise the effectiveness of the study. Therefore, it is not advisable to reduce the pilot project's capacity.
- APDISCOMs' load is expected to increase to 19.70 GW by FY 2028-29. Peak demand is expected to increase to 18957 MW by FY 2028-29. The current installed generation capacity is 24373 MW. RPPO obligations will be 24% by FY 2026-27 (APERC) and 29.91% (FY 2024-25) to 43.33% (FY 2029-30) (MoP, GOI). To meet the MOP RPPO, APDISCOMs need to add 2.66 GW of Wind, 11.46 GW of Solar, and 1.47 GW of Hydel power by FY 2029-30. These projects will meet 1.5% of RPPO.
- Wind and Solar power have "must-run" status but are infirm due to variations in generation based on climatic conditions. This causes frequent switching of conventional generators, reducing their lifespan and incurring fixed charges due to backdown. This issue is a major concern for grid stability. To address these issues, Wind Solar hybridisation has evolved to reduce variations and bring the infirm nature of renewables to a firmer state. Hybrid projects with storage systems can further reduce variations.
- The CUF assured for the proposed projects is 60% compared to 40% for FDRE projects. AEVIPL will install battery storage at their own cost to supply firm power for two hours during morning and evening peak hours. 90% of contracted capacity supply is guaranteed for 2 peak hours (morning and evening) with a 1.5 times tariff rate penalty for shortfall.

- AEVIPL accepted the APPC rate of FY 2021-22 (Rs. 4.60 per unit) fixed for 25 years for the RTC supply. APDISCOMs are at present purchasing peak-hour energy at much higher rates than Rs. 4.60 per unit to meet the shortfall. AEVIPL agreed to share 50% RE certificates with APSPDCL, even though not required under RPPO Regulation No. 5 of 2022.
- The PPAs were amended to adopt the new 2022 Regulations, making the objectors' submissions regarding the 2017 Regulations irrelevant.
- The State will benefit by way of Capital expenditure, employment, and tax revenues.
- APSPDCL requests the Commission to allow the petition and grant consent for the PPAs, considering the larger benefits of the projects and the concern for climate change challenges.

Reply of AEVIPL:

- The objections against the PPAs are unsubstantiated allegations, lacking factual or record-based evidence. The Objectors haven't provided any valid reasons to reject the PPAs. The PPAs followed due process, underwent scrutiny, and were supported by a prior government commitment to the High Court of Andhra Pradesh. The PPAs were executed on 24.11.2022, following government directives under Section 108 of the Electricity Act, 2003.
- The GoAP directed the filing of the PPAs under Section 108 of the Electricity Act, 2003 for the approval of the Commission. The GoAP issued the directions in the interest of the State's requirements and investment. Legal litigations related to other power projects are irrelevant to the current context. The rationale for issuing directions under Section 108 of the Electricity Act, 2003, has been clearly explained by the GoAP in its communication dated 24.09.2024. These directions do not seek to interfere with or challenge the Commission's authority to determine the tariff. The GoAP has not prescribed or

mandated any specific tariff for this project, as has been erroneously contended by the objectors.

- Although conceptualised in 2018, the 400 MW BBB project has technical requirements identical to the latest trend in RE projects, FDRE projects. This project is more advanced than a plain wind-solar hybrid project. Unlike the 400 MW BBB project, plain wind-solar hybrid projects don't have to meet specific requirements like balancing loads with BESS and are only required to deliver a specific CUF as per bid conditions.
- As per APERC Regulation 5 of 2022, there's an obligation on the DISCOMs to achieve 18% RPOO in FY 2022-23. This target increases to 24% by FY 2026-27. To meet the 24% target by 2027, additional renewable energy projects are necessary.
- The proposed projects will contribute 1.5% towards achieving the state's RPO targets. The MoP Order dated 20.10.2023 has set significantly higher RPO targets till FY 2029-30, effective from 01.04.2024, compared to APERC Regulation 5 of 2022. States are expected to align with these higher targets to support India's net-zero commitment by 2070.
- The MoP has revised the RPO framework, moving from a Solar/Non-Solar categorisation to promoting Wind and Hydro development, alongside other renewable sources. This aims to boost technologies with high CUFs and grid flexibility. The new trajectory mandates states to meet a minimum of 43.3% of their power demand from renewables by 2030, with specific targets for each source. A NITI Aayog report from February 2024 estimates that Andhra Pradesh needs to add 2.66 GW of wind, 11.46 GW of solar, and 1.47 GW of hydro capacity to meet its RPO targets, calculated using the 20th Electric Power Survey of India Report of CEA.
- Unlike wind and solar projects, hydro projects have longer

commissioning timelines due to environmental and engineering challenges. Hybrid projects, especially those with energy storage and higher CUFs, are crucial for ensuring continuous power availability and reducing the burden of balancing loads on DISCOMs. Andhra Pradesh currently lacks wind-solar hybrid projects that meet DISCOMs' CUF criteria, making the proposed project essential.

- While the Objectors suggest competitive bidding should be adopted, they also claim the system suffers from defects and inherent flaws based on unsubstantiated apprehensions.
- As for the 25-year PPA tenure, guidelines on 'Tariff Based Competitive Bidding Process for Procurement of RTC power from the Grid Connected RE Projects' allow PPA tenure up to 35 years, as longer tenures result in lower tariffs.
- AEVIPL has taken the responsibility of balancing the energy with BESS, given APTRANSCO's inability, though the original PPA did not provide for the same.
- The objectors' comparison of the proposed projects with energy storage to standalone solar and wind projects is flawed, as their technical specifications align with FDRE projects. FDRE projects have higher tariffs (Rs. 4.64–4.89 per kWh), excluding additional costs like ISTS charges and REIA trading margins, making the proposed project's tariff more cost-effective for DISCOMs compared to FDRE tariffs set under Section 63 of the Electricity Act. Since FDRE projects are new and none are operational, the objectors' suggestion to study them is impractical.
- The project is connected to the State Transmission network, saving DISCOMs ISTS charges compared to procuring power from REIAs' FDRE projects, which would incur ISTS charges and a Rs.0.07 per unit trading margin.
- The project offers a CUF of over 60%, higher than the 40% minimum for typical FDRE projects, apart from 2 hours of peak hour supply

during morning and evening peaks, utilising Wind, Solar, and Energy Storage.

- The penalty mechanism for not meeting CUF requirements is more stringent. A minimum of 90% supply during peak hours is guaranteed, with a penalty of 1.5 times the PPA tariff for failure.
- The project was originally eligible for the APPC tariff at the time of commissioning (expected in 18-24 months), which is higher than the tariff of Rs 4.60 per unit agreed to by AEVIPL in the interest of all stakeholders.
- AEVIPL is developing the transmission infrastructure and switching station at its own cost, benefiting APTRANSCO.
- The project offers socio-economic benefits, including employment and State GST revenues.
- The project can revitalise the state's renewable energy sector and help in bringing significant Foreign Direct Investment, given the State's huge RE potential.
- AEVIPL has already invested significantly in the project, and pre-implementation activities are underway.
- APERC is requested to allow the petition and grant consent for the PPAs.

8. **Sri M. Thimma Reddy/People's Monitoring Group on Electricity Regulation**

- The MOU route used for procurement violates the National Tariff Policy of 2006, its 2010 amendment, the APERC's 2006 Guidelines, and Regulation 10 of 2013, which mandate competitive bidding. While GoAP's Wind Solar Hybrid Policy of 2018 also provided for competitive bidding, it was not chosen.
- APSPDCL justified the MOU route as a "new" and "innovative concept", citing no established competitive bidding guidelines. The petition acknowledges that power from similar FDRE projects was procured

through competitive bidding, indicating that precedents exist. APSPDCL could have requested APERC to frame specific guidelines.

- While GoAP permitted APDISCOMs to procure power at a tariff not exceeding APPC under the REC mechanism, this was when RE procurement prices were high. Now, with lower solar and wind power prices, using APPC (which is currently higher than competitive bidding prices) would burden consumers with high costs for 25 years. The developer will avail Renewable Energy Certificates (REC) and Clean Development Mechanism (CDM) benefits, further disadvantageing consumers.
- Mandating APPC takes away APERC's power to fix tariffs. Though the GoAP issued a policy direction under Section 108 (1) of the Electricity Act, 2003, to approve the PPA with APPC, the Supreme Court has ruled that such directions are guiding, not mandatory, for the State Electricity Regulatory Commission.
- Section 108 uses the term “guided,” indicating advisory rather than mandatory compliance, unlike Section 11, which imposes mandatory directions in extraordinary circumstances. Thus, APERC is not obligated to follow GoAP’s direction.
- APPC tariff is meant for existing RE which is banked with DISCOMs, making it inapplicable to total RE generation. AEVIPL proposes adopting the APPC tariff of FY 2021-22 (Rs. 4.60/kWh), claiming it is lower than the current FDRE project tariffs. However, this comparison is incorrect, as the APPC tariff should be compared with tariffs of FDRE projects expected to achieve COD in the next two years, not current FDRE projects. Recent FDRE projects show bidding yields lower tariffs, undermining the justification for APPC.
- FDRE guidelines stipulate a minimum CUF of 40%, while AEVIPL proposes 60%. Given the state’s power surplus and the need to reduce power purchase costs for DISCOMs and consumers, a minimum CUF of

40% is suggested, in line with the FDRE guidelines. Article 2.2 should be amended to fix the tariff at Rs. 3.68/kWh for the PPA's 25-year duration from COD.

- The Commission is requested to set aside the petition and the PPAs in the interest of power consumers and DISCOMs, as power is not being procured in an efficient and economic manner.

Reply of APSPDCL:

- The 400 MW wind-solar hybrid pilot project with energy storage, initiated in FY 2018-2019, predates the 2023 FDRE guidelines, refuting the objector's claim of guideline violations.
- As high CUF projects resembling FDRE, their tariffs should be compared to FDRE projects (Rs.4.25–4.98/kWh plus Rs. 0.95-1.28/kWh ISTS charges), not standalone solar/wind projects.
- The fixed APPC tariff of Rs. 4.60/kWh (FY 2020-21) is lower than FDRE tariffs and the current APPC of Rs. 5.12/kWh, protecting APDISCOM from future tariff hikes and benefiting consumers, contrary to the objector's claims.
- Implemented under the APPC mechanism as per REC Regulations 2017, the project aligns with policy and meets RPPO obligations, not statewide power needs, making the objector's comparisons irrelevant.
- The PPAs include equitable CDM benefit-sharing and a stricter penalty system for FDRE bids, ensuring no financial loss to the State. For 400 MW at 60% CUF, the four projects require 1040 MW evacuation capacity (100 MW solar + 159.6 MW wind per SPV), consistent with CTUIL's FDRE standards, with delivered energy capped at 400 MW.
- The objector's claim that the GoAP's Section 108 directive undermines the Commission's authority is baseless. The directive, a policy initiative, supports renewable energy and socio-economic benefits without interfering with the Commission's tariff-setting role.
- The Supreme Court's Kerala case, cited by the objector, is inapplicable,

as the PPAs adopt the Commission-set APPC tariff and seek its approval, distinct from the GoAP's directive.

- The project optimises regional capacity, ensures long-term consumer benefits, and follows established processes, refuting claims of inefficient or uneconomic procurement.

Reply of AEVIPL:

- The objector's claim that power from the project is procured via the MoU route is factually incorrect. The PPAs were executed under the APPC mechanism in strict adherence to the APERC Regulation 1 of 2017, and APERC Regulation No. 5 of 2022. The PPA amendments comply fully with existing regulations and standard power evacuation practices for high-CUF projects.
- This 400 MW wind-solar hybrid project, integrated with energy storage, aims for a high CUF similar to FDRE projects. The project's main goal is to achieve a high CUF of at least 60%, surpassing typical wind, solar, or hybrid projects, benefiting the State. The proposed Rs. 4.60 per kWh tariff is Rs 0.52 lower than the current APPC tariff of Rs 5.12 per kWh, offering cost savings. FDRE bids, with comparable technical requirements, have higher tariffs (Rs 4.64–4.89 per kWh) and exclude additional costs like ISTS charges and REIA trading margins (Rs 0.07 per unit), making this project's tariff more economical.
- The objector's claim of declining wind and solar tariffs ignores the expiration of the ISTS charges waiver on 30.06.2025, which will raise procurement costs for projects commissioned thereafter. Thus, the objector's assertion of falling tariffs is misleading, fails to reflect market realities, and should be disregarded.
- The APPC-based tariff and REC, and CDM carbon credit benefits were designed to benefit DISCOMs and consumers.
- The State Government's directive under Section 108 of the Electricity Act, 2003, was issued in the public interest, considering the project's

technical and socio-economic benefits and to honour commitments made in an affidavit for Writ Petition No. 9680 of 2021 before the Andhra Pradesh High Court. The directive does not interfere with the Commission's tariff-setting authority, and the objector's claim that the State mandated a specific tariff is incorrect.

- The objector's reliance on the Supreme Court judgment is misplaced, as its context differs from the present case. In the Kerala case, the Supreme Court ruled that a Section 108 directive by the State Government could not override the Kerala State Electricity Regulatory Commission's (KSERC) prior decision to reject the tariff, as this would unduly interfere with the Commission's statutory authority to determine tariffs.

9. <u>Sri M.V. Anjaneyulu</u>

- The Petitioner claimed that at the time of approval, there were no established competitive bidding guidelines for Wind Solar Hybrid projects and that this was a new concept. However, APERC in an Order dated 19.04.2004 also questioned the lack of competitive bidding and the unit pricing. If the GOAP or AP DISCOMs had called for tenders, they would have known if competitive bidders existed. Is there any rule preventing the calling of tenders even without established guidelines for Wind Solar Hybrid projects? Competitive bidding is designed to select the most advantageous proposal from all submissions, so how can the petitioner say that AEVIPL's proposal is superior without comparing it to others? Without inviting tenders from interested parties, how can the petitioner reasonably conclude that no other competitors exist?
- Locking in tariffs for 25 years is highly questionable when unit prices are decreasing due to technological progress. Therefore, both the tariff and the duration of PPAs are opposed. For solar and wind power projects, the fuel—sunlight or wind—is freely available in nature, so electricity from these sources should be cheaper.

Reply of APSPDCL:

- The projects under this PPA, characterised by high CUF and integrated with appropriate energy storage technologies, resemble FDRE projects, meaning their tariffs should be benchmarked against FDRE projects rather than standalone wind or solar projects or their competitive tariffs.
- The initial understanding with the Government was signed on 26.02.2018, and the Scheme Implementation Agreement (SIA) for the 400 MW pilot project was executed on 23.01.2019. The guidelines for FDRE projects were issued much later in 2023. Therefore, it's incorrect to claim that the guidelines existed when the pilot projects were conceptualised.
- The tariff discovered through bids for FDRE projects by REIAs is comparable to the APPC tariff. While the projects under this PPA will connect to the state grid, FDRE projects will link to the ISTS network, where a waiver on ISTS charges is not available for upcoming renewable energy projects. This absence of a waiver adds an extra cost to the tariff, estimated at Rs.0.95 to Rs.1.28 per kWh, which, when included, significantly increases the FDRE bid tariff beyond the APPC tariff.
- Trends from recent years show that solar tariffs have not consistently stayed low; there have been instances where bids resulted in per-unit prices exceeding Rs. 3. Even with competitive bidding for FDRE projects, PPAs are being signed for 25-year terms, so there is no reason for not executing PPAs for a similar 25-year duration for the projects under the present PPA.
- RPPO obligations will increase significantly by FY 2029-30, requiring the promotion of projects with higher CUF. As per the 2024 NITI Aayog report, Andhra Pradesh needs to add substantial wind (2.66 GW) and

solar (11.46 GW) capacities.

Reply of AEVIPL:

- Although technological advancements have lowered the costs of solar and wind power, it is unrealistic to assume that this decline will persist indefinitely, given rising land costs, infrastructure needs, and external factors like increasing expenses and regulatory shifts.
- Long-term fixed tariffs are essential to ensure financing for large-scale renewable energy projects, which demand substantial initial investments in land, equipment, and infrastructure.
- The objector fails to recognise that the projects under this PPA are not typical solar, wind, or standard wind-solar hybrid projects, but a wind hybrid initiative with energy storage, akin to FDRE projects, which have higher technical demands. FDRE project tariffs, discovered through bids by REIAs, range from Rs. 4.64 to Rs. 4.89 per kWh, excluding additional costs like ISTS charges and a Rs. 0.07 per unit REIA commission, making them significantly higher than the proposed tariff for these projects.
- While the objector questions the 25-year PPA tenure, he ignores how fuel indexation will likely increase future APPC tariffs due to rising fuel costs and market volatility. Fixing the APPC tariff for 25 years ensures price stability, protects against cost escalations, and benefits both the state and consumers by securing predictable, controlled power procurement costs.

10. Sri Ajay Devaraj/Indian Wind Power Association

- Andhra Pradesh, with its vast renewable energy potential and strategic advantages like wind-solar co-location, should lead in renewable energy development.
- The proposed 400 MW wind-solar hybrid project, including 600 MW of wind power, offers a chance to boost the state's renewable sector. It aligns with market needs, featuring State Transmission Utility

connectivity, energy storage, and guaranteed peak power supply.

- Approving this pioneering project will drive socio-economic benefits like increased GST revenue and local jobs, set a national precedent, and reinforce Andhra Pradesh's leadership in energy innovation while supporting India's energy goals.

11. <u>Sri B. Dasarath Ram/New Directions Educational Society</u>

- The proposed 400 MW wind-solar hybrid project in Andhra Pradesh's Rayalaseema region offers significant socio-economic benefits beyond the energy sector. It creates jobs in transportation, logistics, and food production, fostering regional economic growth and diversification. The project also spurs research and development through academic-industry collaborations, driving innovation in renewable technologies.
- In Rayalaseema, where geographical and climatic challenges hinder agriculture, renewable energy projects provide sustainable livelihoods by generating multi-sectoral employment and economic activity. Supporting such initiatives will enhance local well-being, improve the region's economic landscape, and align with Andhra Pradesh's broader development goals.

12. <u>Subrahmanyam Pulipaka/National Solar Energy Federation of India</u>

- The impending expiration of the 100% ISTS charge waiver on 30.06.2025 will raise tariffs for ISTS-connected renewable energy projects, making STU-connected projects critical for Andhra Pradesh to maintain cost-competitive renewable energy growth.
- Plain solar projects are losing viability due to their inability to supply peak-hour power, with procurers now favouring firm, dispatchable renewable energy. The proposed 400 MW wind-solar hybrid project, integrating wind, solar, and energy storage, meets these demands by ensuring a stable, peak-hour power supply.
- Supporting this project aligns with the state's climate and energy

security goals, revitalises the renewable energy sector, and sets a national benchmark for future developments.

Commission's Analysis and Decision

13. Having meticulously considered the submissions of the Petitioner, Respondents, and other stakeholders, the following key points warrant determination in this Petition:

A. Point No. 1: Is the direction issued by the GoAP binding on the Commission? Are the old GoAP policy, MoU and SIA relevant? Is the quantum of power specified in the PPAs required? Is the route chosen for the procurement of power appropriate? And should the Commission grant its approval to the proposed PPAs?

B. Point No. 2: If the answer to Point No.1 is affirmative, then do the PPAs require any amendments?

C. Point No. 3: In the event that the PPAs are found to be in order, what constitutes a just and appropriate tariff for the power procurement under these PPAs?

The Commission will discuss each of these points in the following paragraphs.

Point No.1

14. Direction by the GoAP under Section 108 of the EA, 2003 and Policies of the GoAP

The objectors contended that the direction issued by the GoAP pursuant to Section 108 of the Electricity Act, 2003, constitutes an encroachment upon the regulatory domain of APERC concerning tariff determination and PPA approvals. The objectors are concerned that the GoAP's intervention undermines the statutory independence of APERC, contravening established legal precedents that underscore the necessity of maintaining a clear demarcation between governmental authority and regulatory autonomy. They are of the view that the directive in question is not a general policy guidance but a specific instruction pertaining to

the approval of the subject PPAs, thereby exceeding the scope of Section 108. The objectors expressed grave concern that compliance with such a directive risks establishing a precedent for further governmental interventions, potentially compelling APERC to approve PPAs without due regulatory scrutiny, thus eroding its statutory mandate. Therefore, they urged the Commission to uphold its regulatory independence and evaluate the PPAs in accordance with established regulatory principles based on merits.

APSPDCL and AEVIPL defended the GoAP's policy directive under Section 108 of the Electricity Act, 2003, arguing that it provides guidance, not interference, with the State Commission's regulatory role. APSPDCL emphasised the State's right to issue such directives to promote renewable energy and address climate change, citing Andhra Pradesh's potential and the mandate under Section 86 (1) (e) to encourage cogeneration from renewable sources. AEVIPL supported the directive by stating it was issued in the public interest to meet state requirements, honour legal commitments, and facilitate investments without dictating specific tariffs, as clarified in the GoAP's communication dated 24.09.2024, while preserving the Commission's authority to determine tariffs.

Commission's view

The Commission acknowledges the objectors' apprehension that the GoAP's directive constitutes an overreach into its regulatory domain. While the Commission values the GoAP's perspective, it assures stakeholders that the approval of the PPAs will be based on a rigorous evaluation of their merits, compliance with regulatory principles, and alignment with the interests of all stakeholders, particularly consumers. The Commission will consider the GoAP's input as valuable guidance, but reaffirms that its statutory duty to independently determine tariffs and approve PPAs, based on its regulatory expertise, remains paramount

and will guide its final decision.

The Commission understands the objectors' concern that approving the PPAs under the GoAP's directive could set a precedent for future governmental interventions. The Commission unequivocally holds that its decision will be confined to the unique circumstances of this case alone and will not obligate the Commission in any way to approve future PPAs solely based on government directives. Each future PPA will undergo a thorough, independent and meticulous assessment and safeguarding the Commission's regulatory integrity and independence and in the best interests of all stakeholders.

15. <u>Superseding of the old policies, MOU and SIA by ICE Policy, 2024</u>

Some of the objectors contended that the 2018 MoU with the developer, the 2019 SIA, and the 2019 AP Wind Solar Hybrid Policy are outdated and cannot be applied retroactively. They pointed out that the more recent 2024 Andhra Pradesh Integrated Clean Energy Policy explicitly supersedes prior policies, including the 2019 Wind Solar Hybrid Policy, rendering them invalid.

APSPDCL and AEVIPL argued that the 2018 MOU, 2019 SIA, and 2019 AP Wind Solar Hybrid Policy were valid at the time the agreements were made. They contended that the 2024 ICE Policy does not invalidate these agreements but provides an option for migration. They defended the process followed, stating it adhered to existing regulations and legal provisions. They also emphasised that the technical requirements of the project are aligned with modern FDRE projects, despite being conceived earlier. Both parties believed that the project should not be penalised for policy changes and delays that occurred after the initial agreements were made.

<u>Commission's view</u>

As an independent statutory and quasi-judicial body established under the Electricity Act, 2003, APERC operates autonomously from direct

governmental influence in its decision-making. It is a fact to be noted that the commitments given by the GoAP to honour all the agreements entered into, MOUs and PPAs before the Hon'ble High Court of AP in WP No. 9680 of 2021 can't be ignored. Failure to meet the commitments may also lead to contempt of the court. The Commission will independently assess the present PPAs solely on merits, while keeping in view the directives of the Hon'ble High Court of AP in the above mentioned writ petition, the prevailing regulatory framework, the Electricity Act, 2003, and other pertinent legislations. Prior policies and MoUs by the GoAP, regardless of their current validity or expiration, will not influence APERC's independent judgment.

16. <u>Need for the power from these projects</u>

The central objections regarding the need for power from the the proposed projects revolve around the following: a significant seven-year delay raising doubts about the actual necessity of the power; concerns about excess renewable energy availability potentially leading to grid management issues and higher consumer costs; a lack of clarity in APDISCOMs' RPO strategy and disregard for competitive procurement directives; the potential for backing down thermal power and increasing costs; the possibility of a decreasing need for this capacity due to lower long-term load forecasts; and the rationale behind needing four units of the same capacity for a pilot as, a single, smaller unit would be sufficient for initial testing and learning.

APSPDCL and AEVIPL justified the power requirement by citing a High Court Order to honour prior commitments related to AEVIPL's projects, their inclusion in the State Electricity Plan to meet a projected peak demand increase to 19.70 GW by 2029, and the projects' role in supplying RTC power under the state's BBB scheme. They are also emphasizing the projects' crucial contribution to meeting both APERC's RPO targets (reaching 24% by 2026-27) and the MOP's even higher

national RPO targets (43.33% by 2030) aimed at achieving net-zero emissions, aligning with NITI Aayog's recommendations for AP's renewable energy capacity additions, and highlighting the high CUF and the storage to provide firm power during peak hours, while also contributing to the state's ambitious 72.60 GW renewable energy target by 2030.

Commission's view

The Commission has examined the objectors' concerns in light of its Order dated 27.06.2024 on Load Forecasts and Resource Plans for FY 2024-29, its Order dated 12.04.2024 in O.P.No. 3 of 2024, and the notification dated 20.10.2023 issued by the MoP on the RPO Trajectory under the Energy Conservation Act, 2001.

Based on the Order dated 27.06.2024 on Load Forecasts and Resource Plans, the current control period is projected to experience energy shortages during morning and evening peak hours. Furthermore, the MoP Notification 20.10.2023 mandates RPPO targets for the DISCOMs, ranging from 29.91% to 43.33% between FY 2024-25 and FY 2029-30. The Commission's Order in O.P. No. 3 of 2024, dated 12.04.2024 indicates that the anticipated RE available to DISCOMs, even after incorporating 7,000 MW of solar power from the Solar Energy Corporation of India (SECI), will be insufficient to meet the stipulated RPPO targets starting from FY 2027-28. This shortfall is projected to escalate to 12,619 MU by FY 2029-30. The Order dated 27.06.2024 on Load Forecasts and Resource Plans also reiterates the shortfalls starting from FY 2027-28. These demonstrate a clear need for the power from the proposed projects.

Some of the objectors contended that RPPO targets specified by the MoP are merely guidelines and not binding. However, it is crucial to note that the minimum RPPO/Renewable Consumption Obligation (RCO) targets outlined in the MoP notification were issued under the Energy

Conservation Act, 2001. This Act empowers the Central Government to prescribe the minimum share of non-fossil fuel consumption for designated consumers. Consequently, the minimum RPPO/RCO targets specified in the aforementioned notification are legally binding on the DISCOMs.

Further, Section 86(1) (e) of the Electricity Act, 2003 mandates the State Commissions to promote cogeneration and generation of electricity from renewable sources of energy. Moreover, Renewable Energy with storage significantly differs from standalone solar and wind systems by addressing intermittency through storing excess energy for use during low generation periods, ensuring a reliable and dispatchable power supply. Unlike standalone systems, which produce power only when conditions allow and may waste surplus energy, RE with storage enhances grid stability, maximises energy utilisation, and reduces reliance on fossil fuel backups, leading to greater carbon emission reductions. While standalone solar and wind have lower initial costs, they can incur higher operational inefficiencies and environmental trade-offs due to grid dependency, whereas storage systems, despite higher upfront costs, offer long-term efficiency and flexibility for a sustainable energy ecosystem.

17. <u>PPA vs Bid based route</u>

The key objections to the PPAs of these projects, which are based on MOU route, centre on the argument that they violate the National Tariff Policy, APERC Guidelines, and the Regulation requiring competitive bidding for power procurement. Objectors contend that this non-competitive approach leads to significantly higher tariffs compared to what would be achieved through a transparent and fair bidding process. Furthermore, they highlight the existence of precedents for competitive bidding of similar projects and assert the state's capacity to initiate such a process independently, emphasising that MOU-based

PPAs have historically burdened consumers and resulted in legal challenges. Some objectors contended that APPC applies only to payments for unused banked energy and while other objectors argued that Regulation 1 of 2017 is irrelevant for drafting the present PPAs. Some of the objectors questioned the wisdom of signing the PPAs for a long duration of 25 years.

APSPDCL and AEVIPL defended the use of the APPC mechanism for the PPAs, arguing it's an established practice and results in tariffs comparable to FDRE bids, provides long-term price stability for DISCOMs with a proposed compromise tariff of Rs 4.60/kWh (lower than the current APPC), and includes stiff CUF penalties; they also asserted the legal justification for not using competitive bidding due to the absence of Central Government guidelines, with AEVIPL highlighting the tariff's economic advantage, the potential for future APPC increases due to fuel indexation making their fixed tariff beneficial, the technical similarity of their project to FDRE, and disputing the objectors' concerns about competitive bidding while emphasizing adherence to relevant APERC regulations. APSPDCL countered that the PPAs were amended to adopt the new 2022 Regulations, therefore, the objectors' submissions regarding the 2017 Regulations are irrelevant. AEVIPL argued that a 25-year PPA tenure aligns with guidelines for grid-connected RE projects, which even allow up to 35 years, as longer durations lead to lower tariffs. They emphasised that fixing the APPC tariff for 25 years provides price stability and protects against future cost increases, benefiting both the state and consumers. APSPDCL echoed this, stating that 25-year PPAs are standard for competitively bid FDRE projects, justifying the same duration for the PPAs.

Commission's view

The Commission has examined the objections and arguments from both the objectors and the parties to the PPAs. Regulation 1 of 2008, issued

by the Commission, restricts the bid-based route only to the conventional private generators. Note 2 at Clause 6(b) of Regulation 1 of 2012 permits the DISCOMs to enter into PPAs with RE generators for the purchase of power at the APPC rate under the 'Pooled Cost Power Purchase' scheme. Clause 6.2.2 of Regulation 1 of 2017 and Regulation 5 of 2022, save the above Clause by stating that the standard PPA approved in terms of Note(2) at Clause 6(b) of Regulation 1 of 2012 shall continue to be applicable. Consequently, the arguments of some objectors who claim that APPC is solely for compensating unused banked energy and that the 2017 regulation is not applicable to the drafting of the current PPAs, are not correct. One of the objectors cited Regulation 10 of 2013 (Distribution License Regulation) and the National Tariff Policy to argue that competitive bidding is mandatory for power procurement. However, Clause 36(iii) of Regulation 10 of 2013 mandates competitive bidding for DISCOMs, only when procuring additional power beyond that covered by PPAs approved by the Commission. Since APSPDCL intends to procure power from these projects through a Commission-consented PPA, reliance on this Regulation is not maintainable. Additionally, Clause 5.2 of the National Tariff Policy permits State Governments to promote investment by allowing up to 35% of the installed capacity from generating plants, including renewable energy sources, to be procured by State Distribution Licensees, with tariffs determined under Section 62 of the Electricity Act, 2003. Thus, the objector's argument on mandatory competitive bidding based on the above grounds is also not maintainable.

Furthermore, the Supreme Court's ruling in CA No. 1933 of 2022, dated 23.11.2022, clarifies that Sections 62 and 63 (bid based procurement) of the Electricity Act, 2003, offer alternative methods for tariff determination. The Hon'ble Apex Court held that Section 63 does not take precedence over Section 62, emphasising that Section 62 grants the

Commission broad discretion to determine tariffs, while Section 63 limits this discretion only when a competitive bidding process has already been conducted, which is not the case here. Thus, the Commission is fully empowered to determine the tariff through the PPA route under the relevant RPPO Regulations.

Regarding the questions raised on the long duration of these PPAs, the objectors may note that Long-term PPAs offer significant benefits for both utilities and power generators. For utilities, they provide price stability by shielding against volatile fuel prices, enhance energy security through reliable RE supply, and facilitate meeting environmental goals by supporting renewable project viability. They also hedge against future price increases, attract investments in generation, and yield long-term cost savings. For developers, long-term PPAs ensure revenue certainty, reduce market risks, enable confident project planning, and lower financing costs by making projects more bankable, which leads to more investment in sustainable energy development.

The PPAs of the proposed projects have two main deviations compared to the PPAs under Regulation 5 of 2022, namely :

A. The first year tariff for these projects shall be the Pooled Cost of Power Purchase to be determined for the year during which these projects get commissioned. But the PPAs have been executed at Rs. 4.60/kWh which is the Pooled Cost of Power Purchase that had been determined for FY 2020-21, and

B. In terms of Clause 6.2 (1) of the said Regulation, the Pooled Cost of Power Purchase is to be determined every year, but the PPAs have been executed on a fixed tariff, keeping it constant for the entire PPAs' tenure of 25 years.

However, the proposed projects offer a significantly lower tariff of Rs. 4.60/kWh compared to Rs. 5.12/kWh originally proposed, and this rate will remain fixed for 25 years, providing economic benefits to APSPDCL

as the APPC rate is bound to increase on account of indexation and inflation. These projects also promise a higher CUF than standalone renewable energy sources without storage and can supply 90% of contracted capacity during peak hours, backed by penal provisions for under-supply during peak hours and failure to meet a 60% annual CUF. Therefore, the deviations are in no way detrimental to the interests of the consumers and APSPDCL.

Clause 10.2 of Regulation 5 of 2022 provides the power to APERC to adopt a procedure which is at variance with any provisions of the said Regulation, if the Commission, under special circumstances, deems it necessary or expedient. The Commission is of the view that the proposed projects are a fit case to exercise the above power in view of the benefits stated *supra*. Therefore, the Commission approves the PPAs for these projects in terms of Clause 10.2 of Regulation 5 of 2022, which is reproduced below:

"Nothing in these Regulations shall bar the Commission from adopting a procedure that is at variance with any of the provisions of these Regulations, if the Commission, in view of the special circumstances of a matter or class of matters and for reasons to be recorded in writing, deems it necessary or expedient for doing so while dealing with such a matter or class of matters."

18. <u>Support for these projects</u>

Apart from the APSPDCL and AEVIPL, four persons/organisations who are closely associated with the RE industry supported power procurement from these projects. Overall, the support for these projects from these persons centres around job creation, increased revenue, regional development, firm, dispatchable power to meet peak demand and enhance grid stability, positioning of Andhra Pradesh as a leader in renewable energy development and innovation, utilisation of STU connectivity to avoid ISTS charges and maintain cost-competitiveness

and supporting of India's energy and climate goals.

Commission's view

The Commission concurs with these views and recognises the critical role of RE integrated with storage technology. This combination not only reduces greenhouse gas emissions and mitigates climate change impacts, such as extreme weather events that endanger human existence, but also promotes environmental sustainability for future generations by employing clean energy sources like solar and wind. Furthermore, it enhances grid reliability through advanced storage, facilitating broader adoption of renewable energy.

Point No.2

19. Objectors raised concerns about the lack of early payment rebates despite late payment surcharges, the absence of a storage facility proposal, and the potential disadvantage to consumers due to the developer benefiting from RECs and CDM benefits. In response, AEVIPL stated that the APPC-based tariff, along with the REC and CDM benefits outlined in the PPA, were intended to benefit DISCOMs and consumers, while APSPDCL highlighted that the PPAs include provisions for equitable sharing of CDM benefits.

Commission’s view

The objectors' claims regarding the absence of early payment rebates and the storage facility proposal are inaccurate. Article 5.2 of the PPAs explicitly outlines a 2% rebate for payments made through a Letter of Credit and a 1% rebate for other payment methods made within one month of bill submission. Furthermore, Article 2.2 of the amended PPAs includes AEVIPL's commitment to install Energy Storage Technology(ies) of suitable capacity.

As regards the RECs, Clause 6.1 of Regulation 5 of 2022 specifies that the eligibility and registration of the same are governed by the CERC (Terms and Conditions for Renewable Energy Certificate for Renewable

Energy Generation) Regulations, 2022, as amended from time to time. Clause 4(2) of the said CERC Regulation is reproduced below:

"*4. Eligibility for Issuance of Certificates:*

A renewable energy generating station shall be eligible for issuance of Certificates, if it meets the following conditions:

(a) the tariff of such renewable energy generating station, for part or full capacity, has not been either determined or adopted under Section 62 or Section 63 of the Act respectively, or the electricity generated is not sold directly or through an electricity trader or in the Power Exchange, for RPO compliance by an obligated entity:

(b) such renewable energy generating station has not availed any (i) waiver of or concessional transmission charges or (ii) waiver of or concessional wheeling charges."

Since the PPAs have been executed under Regulation 5 of 2022 which was notified under Sections 61(h) (the promotion of co-generation and generation of electricity from renewable sources of energy) and 86(1)(e) (promote co-generation and generation of electricity from renewable sources of energy….) of the Electricity Act, 2003 among others, they meet the qualifying criteria under the said Clause 4(2). Hence, the proposed projects would be eligible for the issuance of RECs.

Article 2.1 of the PPAs defines peak hours as 06:00 - 10:00 Hours and 18:00 - 22:00 Hours, aligning with the APERC Retail Supply Tariff Order for FY 2024-25. Recognising the potential for future shifts in peak demand due to factors like increased solar integration, changing consumer behavior, time-of-use tariffs, economic fluctuations, and electric vehicle adoption, fixing these hours within the PPAs without an option for modification is not advisable. Therefore, APSPDCL is directed to amend Article 2.1 concerning peak hours as follows:

"Peak Hours: 5 AM - 9 AM & 7 PM - 11 PM. These hours shall be determined by APSLDC from time to time, subject to APERC approval, with DISCOMs proposing these timings in their Retail Supply Tariff filings."

Point No.3

20. Objectors are concerned that the proposed power procurement tariffs, based on the APPC mechanism, are higher than competitive bidding rates, arguing that APPC is inappropriate for total RE generation, locks in high costs for 25 years, and that graded tariffs unfairly favour developers. They also find comparisons to current FDRE tariffs flawed, highlighting the inapplicability of ISTS charges and requesting a lower tariff. Some of the objects pointed out that a uniform high tariff is proposed for the power supplied during both peak and off-peak hours, which could be addressed by implementing storage systems for individual solar and wind units to store cheaper power generated during non-peak hours based on competitive bidding tariffs, with the cost of storage calculated separately to optimize overall tariff.

In contrast, APSPDCL and AEVIPL defended the APPC as established practice and argued that the tariff is comparable to FDRE rates, provides long-term cost stability, and that AEVIPL's proposed tariff for 25 years is even lower than the current APPC, with AEVIPL emphasising the necessity of fixed tariffs for financing and the potential for future APPC increases due to fuel indexation.

Commission's view

Note 2 at Clause 6(b) of Regulation 1 of 2012 permits the DISCOMs to enter into PPAs with RE generators for the purchase of power at the APPC rate under the 'Pooled Cost Power Purchase' scheme. This rate will vary from year to year based on the APPC rate approved by the Commission every year. Clause 6.2.2 of the latest RPPO Regulation, i.e., Regulation 5 of 2022, saves the above Clause by stating that the standard PPA approved in terms of Note(2) at Clause 6(b) of Regulation 1 of 2012 shall continue to be applicable. The APPC rates are applicable for all RE projects, including the standalone solar and wind projects

without storage facilities that enter into PPAs with the DISCOMs under the 'Pooled Cost Power Purchase' mechanism.

Compared to the standalone RE solar or wind projects (without storage facilities) that have PPAs under the above scheme, the proposed projects offer the following benefits:

A. The proposed tariff of Rs. 4.60/kWh for these projects is lower than the rate of Rs. 5.12/kWh originally proposed. It is also anticipated to be considerably lower than the APPC rate that will be in effect when these projects are commissioned.

B. While the APPC rate under the 'Pooled Cost Power Purchase' mechanism will continue to increase every year due to the rising cost of power purchases, particularly from thermal stations, the rate proposed for these projects will be frozen for the next 25 years. Freezing the rate for 25 years, i.e. the duration of PPAs is economically beneficial to the DISCOMs due to the falling value of the Rupee.

C. The proposed projects achieve significantly higher CUF compared to the standalone RE solar or wind projects without storage facilities.

D. Unlike the standalone RE solar or wind projects without storage facilities, the proposed projects assure to supply 90% of contracted capacity for 2 hours each during morning and evening peak hours.

E. The proposed power projects have very stiff penal provisions if they fail to supply at least 90% of their contracted capacity during peak hours and fail to achieve an annual CUF of 60%.

F. AEVIPL has come forward to share the benefits of RECs with APSPDCL on a 50:50 basis, though it is entitled to retain the entire benefits.

The details of the power offered by SECI to various states from the projects (selected through bids) under the ISTS Hybrid Tranche - VI scheme that are similarly placed to the proposed projects are tabulated

below.

Power offered by SECI

Developer Name	Capacity offered (MW)	Discovered Price (Rs./kWh)	CUF(%)	Remarks
AMP Energy Green Private Limited	50	4.64	52.06	2 Hours Power supply each in the morning and evening SECI trading margin at Rs.0.07/kWh extra.
ReNew VIkram Shakti Private Limited	300	4.69	72.00	
Hero Solar Energy Private Limited	60	4.72	60.66	
ACME Clean Tech Solutions Private Limited	190	4.72	60.00	

From the above table, it can be seen that the proposed tariff for the projects in the PPAs is lower than the tariffs discovered through competitive bidding at comparable CUFs.

21. Therefore, the Commission approves the tariff of Rs.4.60/kWh subject to the following conditions:

The energy injected into the grid from these projects from the date of synchronisation to COD shall be treated as deemed banked energy in line with Clause 2 under Appendix-3 of Regulation 2 of 2006 (Interim Balancing & Settlement Code for Open Access Transactions). APSPDCL may opt to purchase this energy at 50% of the Pooled Cost of Power Purchase determined by the Commission for the respective year, in line with Clause (f) under Appendix-3 of the above Regulation. If APSPDCL does not opt to purchase this energy, AEVIPL is at liberty to sell the same to third parties or in the Exchanges of their choice under open

access by paying the necessary charges, without the necessity of obtaining the prior approval from APSPDCL for this sale.

22. Based on the foregoing discussion, the Commission approves the PPAs, subject to the amendments specified in Paras 19 and 21. APSPDCL is directed to incorporate these amendments and submit the amended PPAs duly signed by all parties within 30 days from the date of this Order for the Commission's final approval.

The OP is accordingly disposed of.

Sd/-
P.V.R.Reddy/Member & Chairman(i/c)

ANNEXURE (List of objectors)

S.No.	Name of the objector
1	Chief General Manager, Commercial & Co-ordination, APTRANSCO, Vidyut Soudha, Hyderabad.
2	Sri M. Venugopala Rao, Senior Journalist & Convener, Centre for Power Studies, H.No.1-100/MP/101, Monarch Prestige, Journalists' Colony, Serilingampally Mandal, Hyderabad - 500 032.
3	Sri CH. Baburao, State Secretariat Member, 27-30-9, Akulavari Street, Governorpeta, Vijayawada – 2.
4	Sri K. Ramakrishna, CPI AP State Secretary, Dasari Nagabhushana Rao Bhavan, Hanumanpet, Vijayawada-520 003.
5	Sri Kandharapu Murali, Secretariat Member CPI(M), Tirupati District Committee, Tirupati.
6	Sri M. Thimma Reddy, Convenor, People's Monitoring Group on Electricity Regulation, H. No. 3-4-107/1, (Plot No. 39), Radha Krishna Nagar, Attapur, Hyderabad – 500 048.
7	Sri M.V. Anjaneyulu, Convener, MIG-85, UDA Colony, Vijayawada-520 015.
8	Sri Ajay Devaraj, Secretary General, Indian Wind Power Association, Door No. E, 6th Floor, Tower-1, Shakti Towers, Anna Salai, Chennai-600 002.
9	Sri B. Dasarath Ram, Secretary, New Directions Educational Society, #59, Brundhavan Colony, Dr. A.S. Rao Nagar, ECIL, Hyderabad-500 062.
10	Sri Subrahmanyam Pulipaka, Chief Executive Officer, National Solar Energy Federation of India, 135-137, 1st Floor, Rectangle-1, D-4, Saket District Center New Delhi-110017.
11	Sri Suman Kumar, Chief Executive Officer, Evren (Brookfield Renewable).