

KERALA STATE ELECTRICITY REGULATORY COMMISSION

Thiruvananthapuram

Minutes of the 41st meeting of the State Advisory Committee

Venue: Conference Hall, Government Guest House,
Thycaud, Thiruvananthapuram

Date: 14th February, 2025

Time: 10:30 AM

List of participants: Attached as Annexure

1. The 41st meeting of the State Advisory Committee (SAC) was held under the Chairmanship of Sri T.K. Jose, Chairman, KSERC. Sri. C.R Satheesh Chandran, Secretary, KSERC welcomed all the participants to the meeting.
2. Sri T.K. Jose, Chairman of KSERC, in his introductory remarks, acknowledged the significant progress India has made in the renewable energy (RE) sector. He highlighted key achievements, including the reduction in the cost of solar plants, the expansion of wind capacity, and the successful implementation of Pumped Storage Plants (PSPs). Furthermore, he noted the growth of startups and entrepreneurship in the renewable energy field, contributing to the sector's development. He also emphasized the urgent need for accelerated research in energy storage technologies, which are crucial for addressing challenges related to intermittent renewable energy sources. He pointed out that research and development in this area are lagging behind and pose a significant barrier to the success of proposed projects. The Central Government's budget allocation for the development of small modular nuclear reactors, is expected to support the nation's energy transition. The Chairman stressed that lack of adequate research remains a major obstacle in realizing the full potential of these proposed projects, underscoring the need for increased investment and focus on innovation.
3. After the introductory speech, Chairman, KSERC, moved on to the first agenda item, which was the confirmation of the minutes from the 40th SAC meeting, held on 23.09.2024. Sri Saji Poullose, Director of Distribution, KSEBL, pointed out a correction in the minutes on page 14, point no. 8, where the Udupi-Wayanad transmission line should be mentioned instead of the Areekode-Cheemeni transmission line. The Chairman acknowledged the correction and confirmed that it would be updated. Following this, the forum approved the minutes of the 40th meeting of the State Advisory Committee held on 23.09.2024.

4. Further, the second agenda item of the meeting was taken, which is regarding the discussion paper titled "Renewable Energy in Kerala to Meet the Targets under the Climate Change Action Plan and Facilitate Energy Transition." This paper was published by the Commission on 13.02.2025, with the aim of gathering further insights to draft new regulations for the upcoming control period. Sri Arakesh Madhu M.L, Junior Consultant (Technical), gave a presentation highlighting the key points outlined in the discussion paper, followed by a discussion and exchange of opinions.
5. Sri B. Pradeep, Member, KSERC, highlighted that, currently, electricity accounts for approximately 40% of the total energy consumption. According to the International Energy Agency (IEA), by 2030, the demand for electricity is expected to grow six times faster than the overall energy demand. He emphasized that the energy transition involves two key components: first, the transformation of end-use energy into electricity, and second, the shift in energy production towards renewable sources. He further stressed the importance of ensuring that the renewable energy (RE) regulations take into account the entire scope of this energy transformation.
6. Sri B. Pradeep, Member (Technical), explained the concept of Virtual Power Plants (VPPs) as outlined in the discussion paper. VPPs allow multiple entrepreneurs to collaborate, establishing several plants and aggregating their capacities to sell energy on the power market. Under the current regulations, open access is available for systems above 1 MW, and for green energy, it is capped at 100 kW. Therefore, he emphasized that regulatory frameworks need to be updated to accommodate such models. Regarding Virtual Net Metering, he proposed that it should be allowed for residential colonies and community projects promoted by the Government, provided they set up Battery Energy Storage Systems (BESS). He clarified the differences between net metering, net billing, and gross metering. In net metering, any surplus energy injected into the grid cannot be freely used by the licensee, as it must be returned during the settlement period, resulting in a lower value for that energy. In net billing, the surplus energy cannot be taken back, and as a result, it can be compensated at a higher rate. In gross metering, the entire energy generated is injected into the grid, and the licensee can use it without any return obligation, leading to higher compensation based on the investment made. Therefore, he concluded that gross metering should provide the highest compensation among the three billing systems.
7. Sri S. N. Raghuchandran, CREDAI, raised concerns regarding the omission of wave energy from the Discussion Paper, pointing out that Kerala, with its extensive coastline, has significant potential for wave energy generation. He also expressed

concern over the exclusion of the potential energy generation from dam desilting, which he discussed during his interaction with the Secretary of the Ministry of Mines. He highlighted that this process could contribute substantially to energy production. Additionally, he mentioned that Adani is planning to establish a battery manufacturing plant in Kerala, which could play a key role in the State's renewable energy infrastructure. He also noted that while the Ministry of Renewable Energy is promoting Virtual Net Metering, Kerala remains the only State not actively supporting it. He further raised concerns about the lack of availability of net meters and the delays in processing related applications. He suggested that higher compensation should be considered for solar prosumers to incentivize greater participation in the renewable energy sector.

8. Sri Rajesh R, ANERT, highlighted the potential of Battery Energy Storage Systems (BESS) in addressing peak hour demand, recognizing that while BESS is a promising technology, its high cost may make it less attractive for some prosumers. He suggested that to encourage adoption, some incentives should be provided to make it more affordable. Additionally, he shared that ANERT has installed a 150 kWh capacity BESS at their office as part of their efforts to promote this technology. He also brought up the issue of vendor grading in the solar sector, a recommendation emphasized by the Prime Minister of India, to ensure higher standards and reliability in the industry.

In response to this, Sri B. Pradeep commented that the Committee had already discussed the need for a system that guides consumers in making informed decisions, particularly in the context of selecting solar panels and related technologies. He suggested that ANERT, EMC, and KSEBL collaborate to establish a Public Information Dissemination System, which could provide clear guidelines on pricing and quality of various types of solar panels, helping the consumers make better choices.

Sri T.K. Jose, added that instead of relying on individual vendors, it would be more effective to involve established companies that can provide consistent monitoring of their monthly installations and return on equity. This would help in assessing the performance level of different companies, and the results could be made public to encourage transparency and accountability in the industry. This approach, would ensure that the performance of companies in the solar sector is effectively tracked and reported for public knowledge.

9. Sri Manu G, Airport Director at CIAL, shared that they are in the process of implementing a 10 MWh Battery Energy Storage System (BESS) to enhance their energy efficiency and manage peak demand. He expressed the need for incentives

to support the adoption of such technologies, as the high initial costs remain a significant barrier for many organizations. Additionally, Sri Manu G informed the committee that CIAL is on track to inaugurate their Green Hydrogen project by March, marking a significant step toward sustainable energy practices. Given the growing importance of Green Hydrogen in the global energy transition, he recommended that Green Hydrogen be included in the discussion paper as a key area for development. He further suggested that specific regulations be introduced to encourage and facilitate the growth of Green Hydrogen projects, ensuring that they receive the necessary support and recognition in the evolving energy landscape.

Sri B. Pradeep, Member (Technical), inquired about the challenges encountered during implementation of the Green Hydrogen project and sought further clarification on the specific regulatory expectations that would facilitate and promote the growth of Green Hydrogen initiatives. He expressed interest in understanding the obstacles CIAL has faced or anticipates in the process, particularly from a technical, operational, and regulatory perspective. He requested insights into how regulatory frameworks could be designed to offer the necessary incentives and support to organizations, like CIAL and other stakeholders, looking to invest in green hydrogen technology.

10. Sri Jose, from TCED, mentioned that they have provided 1,200 solar connections with a total capacity of 8.6 MW. According to the proposed RPO (Renewable Purchase Obligation), they are required to achieve 40 MU of renewable energy generation. However, due to area constraints, they can only meet less than 10 MU of the target. As a small licensee, they have requested a waiver for meeting the full RPO obligation. Additionally, he noted that they are open to investing in hydel projects through joint ventures. He further emphasized several challenges, such as the issue of exceeding the transformer capacity when providing solar connections. In such cases, they proactively enhance the transformer capacity before offering new connections. To address these challenges and ensure more efficient integration of renewable energy, he suggested mandating Battery Energy Storage Systems (BESS) for certain categories of prosumers.

Sri B. Pradeep, advised small licensees not to adopt a negative stance regarding meeting their RPO obligations, as they can purchase renewable energy from national markets. He further mentioned that KSEB Ltd has shown willingness in fulfilling RPO requirements of small licensees. He also highlighted a key concern: the increased solar installations are leading to higher power injection into the grid. To address this, he suggested promoting decentralised storage by introducing

billing systems like net billing method for the new prosumers. However, he pointed out that the Committee has not yet provided a solution for inter-licensee power injection issues. He directed TCED to engage with KSEB Ltd to manage these issues effectively. Additionally, he recommended BESS as a potential solution. He also noted that small bid volumes poses another challenge for small licensees in meeting their RPO obligations through market instruments.

Sri T.K. Jose, Chairman of KSERC, suggested that TCED may explore the possibility of implementing floating solar plants and rooftop small vertical axis wind turbines in Thrissur. He recommended collaborating with entrepreneurs to drive these initiatives forward. Additionally, he advised TCED to approach the Commission, if any regulatory framework or support is needed to facilitate the development and successful implementation of these renewable energy projects. This approach would align with the State's goal of increasing renewable energy generation and providing innovative solutions for energy sustainability.

11. Sri Purushothaman P K, KSSIA, proposed several suggestions aimed at improving the solar energy landscape for upcoming prosumers. He recommended promoting hybrid systems to new prosumers, highlighting the benefits of integrating both solar and other renewable energy sources for more reliable energy production. He also suggested mandating the use of three-phase inverters, which would ensure more efficient and balanced energy distribution, especially in cases of higher energy demand. Furthermore, he advocated for setting clear standards for qualified technicians among solar vendors to guarantee the quality of installations and the overall reliability of solar systems.

In response, Member (Technical) clarified that it is not within the jurisdiction of the Commission to regulate vendors directly. However, acknowledged the importance of quality control in the industry and suggested that other approaches could be explored to ensure the reliability and standardization of installations.

12. Sri R Harikumar, EMC, expressed concerns regarding the issue of solar installations being installed by non-qualified vendors. He pointed out that the MNRE (Ministry of New and Renewable Energy) holds the authority over the decisions related to solar vendors, and since the State government has no role in regulating this, it creates challenges. The lack of oversight is leading to issues in ensuring the quality and reliability of solar installations across the State. Additionally, he noted that the Central Government currently supports only the RESCO (Renewable Energy Service Company) model for the implementation of solar plants, which further complicates the matters for other types of solar projects.

13. Moving on to small hydro projects, he raised a concern about the exclusive reliance on tariff-based bidding for their implementation. He explained that the EMC had previously faced difficulties with tariff-based bidding, resulting in unsuccessful attempts. To address this issue, he suggested that the premium-based bidding model could be considered, but with a priority given to tariff-based bidding. This would provide a balanced approach and increase the chances of successful project implementation. Furthermore, he addressed concerns related to Battery Energy Storage Systems (BESS), specifically regarding the Viability Gap Funding (VGF) mechanism. He further pointed out that VGF does not offer adequate support for smaller capacities, which hinders the potential development of smaller-scale storage solutions. This gap in support needs to be addressed to encourage wider adoption and integration of BESS in renewable energy systems.
14. Sri B. Pradeep, raised concerns regarding the current model of SHPs, noting that it does not seem to be beneficial for the State. He explained that these projects only generate power during the monsoon season, which limits their usefulness. For SHPs to be more beneficial, they need to provide power during the summer months as well. This could be achieved by incorporating a storage system or operating the projects as open-loop pumped storage. However, such projects should be implemented only if they are technically feasible. Another issue he highlighted was the tariff determination process. Developers adopting projects under a premium model face uncertainty regarding whether KSEB Ltd will procure the power generated, or what the applicable tariff will be. Without this critical information, developers are unable to secure financial support, which in turn impedes the implementation of the projects. The solution, he suggested is, for developers to have clarity on; who will procure the power and the applicable tariff, at the stage of allocation of the project itself.
15. To expedite project development, he emphasized that the most feasible mechanism is Tariff-based competitive bidding. In this process, the bidding is conducted on behalf of KSEB Ltd, and the project will only be awarded after receiving consent from KSEB Ltd. This approach ensures a confirmed buyer and a known tariff for the developer from the outset. Regarding the issues faced by EMC in tariff-based bidding, he pointed out that a Pre-feasibility report alone is insufficient for quoting a bid. Tariff-based competitive bidding requires a comprehensive DPR and necessary clearances in place. He requested EMC to provide detailed inputs on the challenges related to Small Hydro Projects for further consideration.

The Committee noted that the BOOT period should be extended to accommodate these requirements.

16. Sri Saji Poullose, KSEB Ltd, emphasized the importance of accounting for additional peak demand when considering pumped storage projects, in order to effectively meet the State's growing peak energy needs. He highlighted that pumped storage could play a crucial role in balancing the supply and demand during high-demand periods, and therefore, this factor must be given due consideration in future planning. Regarding RPO compliance, he assured that there are no major issues for the licensee, except for challenges related to banking of excess power. He explained that while KSEB Ltd is comfortable with meeting its obligations, managing excess energy and the corresponding banking processes can be complicated. This issue needs to be addressed to ensure smoother operations. Additionally, he mentioned that KSEB Ltd is in the process of purchasing wind energy projects that have been set up by other entities. This move aligns with the goal of increasing the proportion of renewable energy in the State's energy mix. Finally, he provided an explanation for the shortage of net meters in the State, attributing it to technical issues.
17. Chairman, KSERC, in his concluding remarks acknowledged the challenges surrounding Viability Gap Funding (VGF), particularly for small-capacity projects. He pointed out that while the Central Government does not permit VGF for smaller capacities, the Civil Aviation Ministry has shown a willingness to support proposals that could enable such funding. Additionally, he clarified that the State government has the authority to provide VGF to any projects it deems necessary, thereby offering more flexibility in supporting renewable energy initiatives. Furthermore, he emphasized the strategic importance of siting BESS in high-priority locations, such as hospitals, where a reliable power supply is crucial for operations. He underlined the need for targeted investments in energy storage to ensure that critical facilities have uninterrupted access to power, especially during peak demand periods or emergencies. By focusing on such strategic locations, the State can enhance both energy reliability and grid stability, which are essential for supporting the broader energy transition goals.
18. The meeting concluded by 02:00 PM with vote of thanks by Sri. Bhuvanendraprasad T. R, Compliance Examiner.

Approved for issue

Sd/-

C R Satheesh Chandran
Secretary

List of the participants attended the meeting

1. Sri. T K Jose, Chairman, KSERC
2. Adv. A J Wilson, Member, KSERC
3. Sri. B Pradeep, Member, KSERC
4. Sri. Saji Paulose, Director (Distribution), KSEB Ltd
5. Sri. R Harikumar, Director, EMC, Sreekariyam
6. Sri. Manu G, Airport Director, CIAL
7. Sri. S. N Raghuchandran Nair, President, Chamber of Commerce & CREDAI
8. Sri. Jose T S, Electrical Engineer, TCED
9. Sri. Purushothaman P K, President, KSSIA
10. Smt. Bindu R R, Joint Secretary, Consumer Affairs Department, Government of Kerala
11. Sri. Rajesh R, Addl. Chief Technical Manager, ANERT