



## GOVERNMENT OF KERALA

### Abstract

Power Department - Annual Plan 2022-2023 - Plan scheme- "ANERT as Knowledge Hub for Renewable Energy" -Administrative sanction accorded - orders issued - reg

### **POWER (PS) DEPARTMENT**

G.O.(Rt)No.144/2022/POWER Dated,Thiruvananthapuram, 20-08-2022

Read 1 Letter No:ANERT/17/2022-T1 dated 06.05.2022 from the Chief Executive Officer, ANERT

2 Minutes of the Special Working Group Meeting for Plan schemes held on 22.06.2022.

3 e-anumathi AS Number As/PRD/22/20706

### ORDER

As per the letter read as first paper above, the Chief Executive Officer, ANERT has requested Administrative sanction for the Plan proposals of ANERT based on budget allocation and the plan write up of current year's state budget.

2. An amount of Rs.1851 lakh has been earmarked in the budget estimate for the scheme "ANERT as Knowledge Hub for Renewable Energy" under the H/A 2810-00-800-90-08 during the year 2022-23.

3. The Special Working Group met on 22.06.2022 examined the plan proposals of ANERT in detail and approved the same for issuing administrative sanction. The details of the scheme are given below:-

Sl No	Requirements	Estimate Amount
1	New Technology development, demonstration, pilots, studies <ul style="list-style-type: none"> <li>• C1.a. Renewable Energy park, Ramakkalmedu – phase 2 continuation</li> <li>• C.1.b. Evaluation of new technologies in RE</li> </ul>	Rs. 9,39,00,000/-

	<p>and in- house R&amp;D projects</p> <ul style="list-style-type: none"> <li>• C.1.c. New Technology Demonstration Projects as part of Solar City Project in Thiruvananthapuram</li> <li>• C1.d. Resource assessment, micro siting and related activities</li> <li>• C1.e. Supporting R&amp; D and Innovation</li> <li>• C1.f. Remote Monitoring of PV Power Plants</li> </ul>	
2	<p>Laboratory and incubation facilities</p> <ul style="list-style-type: none"> <li>• C2.a. Laboratory for Test and Certification</li> <li>• C2.b. Integrated Renewable Energy Knowledge Hub, Kuzhalmannam-Incubation Hub</li> </ul>	Rs. 6,51,00,000/-
3	<p>Training and Capacity building</p> <ul style="list-style-type: none"> <li>• C3.a. Training Programmes</li> <li>• C3.b. ANERT Research Fellowship Programme &amp; Internship Programme</li> </ul>	Rs. 2,61,00,000/-
<b>Total</b>		<b>Rs.18,51,00,000/-</b>

4. Government have considered the recommendation of the Special Working Group and examined the above plan proposal submitted by CEO ANERT in detail and are pleased to accord administrative sanction for the above scheme "ANERT as Knowledge Hub for Renewable Energy" at a total estimated cost of Rs.18,51,00,000/- (Rupees Eighteen crores fifty one lakh only), as detailed in the table above, subject to the availability of funds and the following general conditions should be followed wherever applicable.

(i). Fund released should not be parked in banks.

(ii). Store Purchase rules shall be strictly adhered to.

(iii). Tender/e-tender and other stipulated formalities shall be followed wherever necessary.

(iv). Post creation and purchase of vehicles are not admissible under the scheme.

(v). For hiring of project staff/man power as part of project implementation, instructions issued in G.O(P). No. 76/2019/Fin. dated 02/07/2019 & G.O(P) No. 81/2019/Fin dated 09/07/2019 shall be strictly

followed.

5. The expenditure for the above scheme will be met from the H/A 2810-00-800-90(08) (Plan).

(By order of the Governor)

**SREELAL T V**  
**JOINT SECRETARY**

To:

The Chief Executive Officer, ANERT  
The Chief I&I Division, State Planning Board, Pattom, Tvpm  
The Accountant General(A&E), Kerala, Tvpm  
The Principal Accountant General (Audit), Kerala,Tvpm  
The Finance Department  
The I&PR(web & new media) Department  
Stock file/Office Copy

Forwarded /By order

Section Officer

### **Appendix**

DETAILS OF PLAN SCHEMES APPROVED AS RECOMMENDED BY THE  
WORKING GROUP

#### **C.ANERT – Knowledge Hub for Renewable Energy**

##### **C1. New technology development, demonstration, pilots, studies**

###### **C1.a. Renewable Energy park, Ramakkalmedu – phase 2 continuation**

As part of the Renewable Energy Park at Ramakkalmedu, a Solar-Wind hybrid power plant with storage was proposed to experiment the effectiveness of integration of different sources of power with massive utility-scale storage to despatch quality power to the grid. The work of establishing one megawatt solar plant as first phase of the park is in final stage. The proposed State share of the programme is ₹ 87 lakh plus project overhead expenses @ 15 % including man power to the tune of ₹ 13 lakh. The total requirement of funds is ₹ 100 lakh.

###### **C.1.b. Evaluation of new technologies in RE and in- house R&D projects**

Pilot/demonstration plants of new/ upcoming renewable energy technology and storage systems in the areas of solar, small wind, bio energy, wave energy,

building and vehicle integrated PV will be set up for study and evaluation. This would facilitate technology adaptation and developing commercial models. The second phase of the Battery- intervention power supply (BIPS) project is also planned.

1. To develop a system to reduce partial shading effect in solar PV arrays. The technology is novel and shall lead to patents and technology transfer - ₹ 12 lakh
2. To develop and evaluate the performance of Solar Roof Top Systems when BESS is integrated with them - ₹ 40 lakh
3. Different types of solar modules shall be studied. BIPV and flexible solar modules shall be put to experimentation. A comparison shall be made with conventional solar PV modules. The performance indices that will be considered are a) energy output b) final yield c) reference yield d) performance ratio e) capacity factor f) system efficiency g) array capture losses - ₹ 20 lakh .
4. Installation of 19 kWp solar wind hybrid system at Ponmudi, Thiruvananthapuram for study and evaluations - ₹ 38 lakh
5. Installation and evaluation of hybrid micro grid systems in various locations – ₹ 130 lakh
6. RE integration for common facility for government constructed housing complexes - ₹ 150 lakh
7. Installation of decentralised renewable energy livelihood applications in various locations for evaluation – ₹ 57 lakh

The proposed State share of the programme is ₹ 447 lakh plus project overhead expenses @ 15 % including man power to the tune of ₹ 67 lakh. The total requirement of funds is ₹ 514 lakh.

#### C.1.c. New Technology Demonstration Projects as part of Solar City Project in Thiruvananthapuram

The state government has selected the capital city of Thiruvananthapuram as a Solar City as per the direction from Union Ministry of State for Power and New and Renewable energy. The aim is to divert the entire power demand of the city of Thiruvananthapuram from Renewable Energy sources. Installation of Solar Trees, Solar street lights, Renewable Energy Park at VISL and other RE initiatives would be tried out as part of the Solar City project in Thiruvananthapuram. The proposed State share of the programme is ₹ 174 lakh plus project overhead expenses @ 15 % including man power to the tune of ₹ 26 lakh. The total requirement of funds is ₹ 200 lakh.

#### C1.d. Resource assessment, micro siting and related activities

ANERT regularly carries out resource assessment of various renewable energy sources within the State. Wind masts were set up at various points across the states to study wind energy potential in collaboration with NIWE

(MNRE). Solar resource assessment stations were also established in 4 locations linked to the national network of NIWE-MNRE. These are essential for accurate generation forecast from renewable energy plants, since their share in power generation is becoming significant. It is proposed to explore possibilities of resource assessment and feasibility of wave energy. The proposed State share of the programme is ₹ 24.50 lakh plus project overhead expenses @ 15 % including man power to the tune of ₹ 3.50 lakh. The total requirement of funds is ₹ 28 lakh.

#### C1.e. Supporting R& D and Innovation

To promote R&D and innovative ideas and to pilot new models in RE sector, ANERT proposes to give financial assistance to technical studies, technology appraisal, prototype development etc., as per the recommendation of expert committees. It is proposed to have arrangements with reputed institutions to conduct research on areas identified by ANERT and to invite a few innovative proposals. Attractive proposals in relevant areas from other institutes/individuals could also be considered on a case to case basis after evaluating and identifying feasibility. The proposed State share of the programme is ₹ 60 lakh plus project overhead expenses @ 15 % including man power to the tune of ₹ 9 lakh. The total requirement of funds is ₹ 69 lakh.

#### C1.f. Remote Monitoring of PV Power Plants

It is proposed to establish a Control Centre for remote monitoring of the SPV power plants installed in various Government buildings. In the first phase, it is intended to test the proposed Artificial Intelligence system with a few number of installations and if found successful, could be expanded to include all SPV installations in Government buildings.

The proposed State share of the programme is ₹ 24.35 lakh plus project overhead expenses @ 15 % including man power to the tune of ₹ 3.65 lakh. The total requirement of funds is ₹ 28 lakh.

### **C 2. Laboratory and incubation facilities**

#### C2.a. Laboratory for Test and Certification

The vision of ANERT is to harness maximum possible Renewable Energy to offset consumption of conventional electricity and fossil fuels. ANERT is the nodal agency for the propagation and implementation of program/projects under renewable and potentially renewable energy sources, rural technologies and promoting the idea of Carbon neutral governance for government institutions with renewable energy and electric-mobility. To facilitate above ANERT should be equipped with more space to laboratory for test and certification and training facility. The proposed State share of the programme is ₹ 326 lakh plus project overhead expenses @ 15 % including man power to the tune of ₹ 49 lakh. The

total requirement of funds is ₹ 375 lakh.

C2.b. Integrated Renewable Energy Knowledge Hub, Kuzhalmannam - Incubation Hub

It is proposed to develop an Integrated Renewable Energy Knowledge Hub in the ANERT's land at Kuzhalmannam, Palakkad. The knowledge hub will include an industrial facilitation centre to promote start-ups in the renewable energy sector, facilities for testing and certification of renewable energy equipment and facilities for product development and training. A building of about one lakh and fifty thousand square feet will be set up for this purpose. The tender process for the design of the green building for setting up the Integrated Energy Technology Hub has been completed. The tender was awarded to M/s. Mayaproxis, a Bangalore-based architects firm. The proposed State share of the programme is ₹ 240 lakh plus project overhead expenses @ 15 % including man power to the tune of ₹ 36 lakh. The total requirement of funds is ₹ 276 lakh.

**C3. Training and Capacity building**

C3.a. Training Programmes

Training is necessary to all stakeholders and ANERT's officers in Renewable Energy sector, to have exposure on new developments in the renewable energy field. Seminars, business meet and training programme can be organised for various target groups like students, local body institutions, educational institutions, residence association, church, builders and architects, electrical and electronics technicians, Urja Mithra Entrepreneurs and Technicians. To ensure quality products and good installation practices, support of technical experts and skilled persons are required. Since the availability of certified inspectors is limited, ANERT will initiate training/capacity building programmes through technical institutes approved by the "Skill Council for Green Jobs" to generate more technical hands in the field. ANERT is planning to organise high end short-term training programmes for academics, senior officials of renewable agencies and other institutions. Training for engineering students with stress on hands-on experience is also planned to be initiated. During the current financial year 2022-23, it is proposed to conduct following training and capacity building programmes.

1. Training Programmes in Renewable Energy for LSGD Institutions - ₹ 28 lakh,
2. Training Programmes in RE for Education Institutions, Builders & Architects - ₹ 10 lakh

3. Skill Upgradation Training Programme for Resource Persons, Faculties of Training Partners and TOT Training - ₹ 5 lakh
4. Training for ANERT Officers and trainees on skill up gradation in design and project preparation of RE Projects - ₹ 10 lakh
5. Training and Capacity Building Programmes for Urjamithra Entrepreneurs and Technicians - ₹ 25.00 lakh.
6. Improvement of library facilities, Purchase of books and subscription of magazines and journals- ₹ 20.00 lakh.
7. Conducting Business meets – ₹ 10 lakh
8. Accreditation of Solar Installers and Inspectors, Skill Upgrading Training for Electricians and ITI electrical qualified Youths - ₹ 50.00 lakh.
9. Infrastructure and tools for Training - ₹ 50 lakh

The proposed State share of the programme is ₹ 208 lakh plus project overhead expenses including man power to the tune of ₹ 31 lakh. The total requirement of funds is ₹ 239 lakh.

#### C3.b. ANERT Research Fellowship Programme & Internship Programme

Research Fellowship programme is envisaged for providing research fellowship for Engineering graduates with GATE qualifications is proposed. The fellowship programme is designed to be in line with the similar programmes offered by CSIR, DST, UGC, KSCSTE, etc. Maximum of three fellowships will be available in a year. Research Internship Programme is for allowing one Research Intern each for the Scientists of ANERT for helping them in their activities. An amount of ₹ 22.00 lakh is provided for the programme in 2022-23.

1. 3 Nos. of fellowship carries a monthly stipend @ ₹ 31,000/- with annual contingency grant of ₹ 20,000/- : ₹ 11.76 lakhs
2. Stipend for 4 Nos. of Research Interns @ ₹ 15,500/- per month for one year : ₹ 7.44 lakh

The proposed State share of the programme is ₹ 19.20 lakh plus project overhead expenses @ 15 % including man power to the tune of ₹ 2.80 lakh. The total requirement of funds is ₹ 22 lakh.