



## Major Achievements of the Centre

### EMC RECEIVED NATIONAL ENERGY CONSERVATION AWARD 2019



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EMC was selected from among the State Designated Agencies in India which had put up excellent performance in energy conservation and energy efficiency programmes during the year 2018-19.

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Hon'ble Minister for Electricity Shri. M. M. Mani received the award from Lok Sabha Speaker Smt. Sumitra Mahajan and Hon'ble Union Minister of State for Power, New and Renewable Energy Shri. R K Singh at Vignan Bhavan in New Delhi on the occasion of the National Energy Conservation Day on Friday (14.12.18)



Kerala was the topper with 77 points in Energy Efficiency Preparedness Index published by Niti Ayog and Ministry of Power this year. EMC has implemented several projects with people's participation in association with Panchayats, Public libraries etc. Last year, Pilicode Grama Panchayat in Kasaragode district has been declared as the first filament free panchayat in India.

### **EMC RECEIVED NATIONAL ENERGY CONSERVATION AWARD 2017**

Energy Management Centre (EMC) - Kerala received this years' **First Best Performing State Designated Agency Award** from the Ministry of Power, Government of India.

Shri. K. M. Dharsan Unnithan, Director, Energy Management Centre Kerala received the award from Shri. Ram Nath Kovind, Hon'ble President of India in the ceremony held at New Delhi on 14 December 2017.

EMC was selected from among the State Designated Agencies in India which had put up excellent performance in energy conservation and energy efficiency programmes during the year 2016-17



The President of India, Shri Ram Nath Kovind presenting the National Energy Conservation Award to Shri. K. M. Dharsan Unnithan, Director, Energy Management Centre Kerala.

**Kerala State Energy Conservation Awards 2019** is conferred as an appreciation for noble and concerted effort towards energy conservation in the State of Kerala. The State Level Monitoring Committee for Energy Conservation in Kerala, on evaluating the various entries for State Level awards selected the following organizations / individuals for conferring Awards and Commendation Certificates. All the applicants together saved 337.6MU electricity and 17674.8Ton oil.



EMC received IGBC – LEED Gold rated Green Building Certification for the new green building making it the first IGBC Gold rated Green building in Govt. Sector in Kerala.



- Kerala topped with 77 points in State Energy Efficiency Preparedness index considering all sectors of economy prepared by NITI Aayog
- Saved 33.754 MU of electricity and 88305 kilolitres of Oil.
- Three Civil Station Buildings- Alappuzha, Kollam and Pathanamthitta made energy efficient by replacing inefficient equipment with energy efficient light fittings and fans .
- Three GramaPanchayats viz Aryad Grama Panchayat, Vathikudy Grama Panchayat, Rajakkad Grama Panchayat, made energy efficient.
- 10 Primary Health Centres made energy efficient by replacing inefficient equipment
- Installed 2 kW off grid solar power plant in 9 schools
- Procured energy efficient equipment for 61 flood affected schools (433 LED bulbs, 385 LED tubes, 329 EE ceiling fans)
- Extended Financial and technical support for energy audit in 5 PSU's and walk through energy audit in 40 LT consumers.
- Completed Energy Audit in 102 KSRTC Depots /Offices.
- Energy efficiency study for Units of Kerala Cashew Development Corporation and CAPEX.
- Energy efficiency studies in
  - 25 Distribution Transformers (Estimated Savings 2.94 MU )
  - Agriculture Pump Sets in the State of Kerala (Estimated Savings 68.35 MU )
  - Street Lights in 17 Municipalities/Corporations of the State. (Estimated Savings 34.61 MU )
  - Captive DG sets in the State (Estimated saving : 26.24 MTOE)



- Industrial Boilers in the State (Estimated saving : 5369 MTOE )
- Carbon emission assessment in schools.
- Through Energy Clinic Programme, 372 women across 9 districts were given training. 5000 Energy Clinics were conducted which covered about 1 Lakh consumers.
- As part of Smart Energy Program, 4530 schools were enrolled.
- LED repairing training program in 309 VHSE schools across the State
- Developed and installed smart meter developed by EMC jointly with CDAC.
- Installed 20 kW Vortex Micro hydroelectric Project at Kaduvetti bridge under the premises of Thiruvananthapuram Corporation.
- Initiated implementation of Kakkad Tailrace Micro Hydroelectric project at tailrace of 50MW Kakkad HEP of KSEBL, using Hydrokinetic technology.
- River basin study
  - Thiruvananthapuram District - .67 projects with a total capacity of 8.5 MW
  - Kollam District- .44 projects with a total capacity of 5.15 MW.
  - Pathanamthitta. District. : - 15 projects identified

As a recognition of the excellent performance in the field of energy efficiency and energy conservation, **EMC was honored with 10 National Awards**. In the years 2008, 2010, 2012, 2013, 2014, 2015, 2016, 2017, 2018 and 2019 EMC was adjudged as the **Best State Designated Agency** (Energy Conservation) in India by Ministry of Power, Government of India. EMC also received India Power Award for the best Demand side Management Programmes for the year 2010.





**Energy Management Centre Kerala**  
(Under Dept. of Power, Government of Kerala)  
**State Designated Agency to Enforce Energy Conservation Act 2001**



- Implemented “E-office” paperless office system in EMC. E-Office is a workflow based system that replaces the existing manual handling of files with a more efficient electronic system. This system involves all stages, including the diarisation of inward receipts, creation of files, movement of receipts and files and finally, the archival of records. With this system, the movement of receipts and files becomes seamless and there is more transparency in the system since each and every action taken on a file is recorded electronically. This simplifies decision making, as all the required information is available at a single point. It envisions a paperless office, with increased transparency, efficiency and accountability of the organization.
- EMC implemented 100 LED street lights (45Watts power) each in 60 municipalities and 5 Corporations in Kerala. Presently EMC successfully completed the implementation of this project in 59 Municipalities and 4 Corporations and work is in progress in the remaining two locations.
- From 2003 onwards SHP Cell allotted 29 Small Hydro projects in total. Currently, on the project showcased during 2016-17, 20 projects new projects are waiting for allotment to investors. The following projects implemented through CPP/IPP in BOOT Basis
  - 4.5 MW Iruttukanam SHP (IPP - Viyyat Power Projects) - Idukki District
  - 7MW Ullungal SHP (IPP - Energy Development Company Ltd) - Pathanamthitta District
  - 15MW Karikkayam stage I SHP (IPP - Ayyappa Power Projects Ltd) - Pathanamthitta District
  - 8MW Pathankayam SHP (IPP- Minar Ispat Ltd)- Kozhikode.
- These projects is planned to generate close to 95 Mu of green power annually. Also 10 projects are currently under various stages of implementation for a total of close to 90MW



with an expected annual generation of 225Mu EMC is also instrumental in development of SHP projects through Local Self Governments. 110kW Pampumkayam Micro hydel Project of Mankulam Gram Panchayath and 50kW Kallar Micro Hydel project of Idukki District Panchayath were implemented with EMC's Close association. These projects generate about 0.3 Mu of power. EMC is also promoting watermill (pico hydro electric schemes up to 5kW capacity) programme of MNRE with 1.5lakhs/project Central Financial Assistance. Currently we had handled a total of 100 installations under Watermills scheme from the year - 2013 - 14 to date.

EMC had developed a few pico Hydel projects tribal settlements (eg. Thayannakudi 3 kW) and forest department [Forest Guard Post at Silent Valley- 1kW, Forest Station, Karimutty -1kW]

### 1. **Smart Energy Programme**

Conducted 3 Resource person training programme for 14 Districts  
Sensitisation camp completed in **41** educational districts.  
Exhibition site setup at Vada kara.

Oorjolsavam programme (project competition) completed.

Energy Conservation Award 2014,2015,2016

In 2015-2016 Smart energy Programme **1,453** schools are enrolled (2014-15 we have enrolled 353) – **75.705%** Increment.

In each District, 5 schools are selected for supplying Energy Efficient Equipments.

2. EMC jointly with KSEB distributed 12.7 Million of CFLs as part of the Bachat Lamp Yojana project. Two CFL's were distributed to each domestic consumer against two incandescent lamps of 60 W. Kerala is the first state in India which implemented Bachat Lamp Yojana (BLY). Due to the massive distribution of CFLs in all parts of Kerala State, energy savings of 300 MW was achieved during the peak hours of March and April 2010. This programme is registered in UNFCCC under the Clean Development Mechanism.
3. 217 Million Units of electricity saving through 'SAVE' Programme : EMC in association with Malayala Manorama organized a programme for students and general public on the need of Energy Conservation. Quiz, Essay Competition and other programmes were organized and also the participants were requested to meter their energy consumption for one month. After implementing best practices on energy conservation, the meter reading was taken and it was noticed that 217 Mu were saved by the participants in the programme.
4. Considering the capability of EMC for promoting Small Hydro Power in the State, United Nations Industrial Development Organisation (UNIDO), Vienna has opened its first Regional Centre for Small Hydro Power in EMC. A 110 kW Mankulam Small Hydro Power was commissioned under the aegis of the Centre and prepared 8 Detailed Project Report for Small Hydro Power project in Kerala.
5. Investment Grade Energy Audit of 28 buildings: 28 Government buildings in Kerala were audited for assessing energy conservation potential and also to make these Government buildings as model energy efficient buildings.



6. Government of India has sanctioned an amount of Rs. 2 Crores ACA for setting up Energy Management Institute in EMC. Government of Kerala allotted 5 acres of land in Sreekaryam, Thiruvnanthapuram for constructing own building for Energy Management Institute and Energy Management Centre . Government has accorded Administrative Sanction for the construction of the first phase of the building. The plan for the Green building has been approved by the Executive Committee and the construction of the building will be commenced shortly.
7. Setting up of WISER (Women's Institute for Sustainable Energy Research - a EMC/USAID/SARI/E collaborative project - USAID (United States Agency for International Development)/South Asia Regional Initiative/Energy is providing support to promote energy security through increased trade, investment and access to clean sources of power and fuel. SARI/E is a network of women energy professionals in South Asia. WISER, the centre of excellence for Promoting the active participation and leadership of women in the energy sector is working in EMC.
8. Energy Conservation Fund : The Government of India has launched Energy Conservation Fund, in compliance with Energy Conservation Act 2001, providing State Governments with financial support to promote energy efficiency. Government of Kerala constituted the State Level Steering Committee for Energy Conservation Fund. Government of Kerala has notified the Kerala State Energy Conservation Fund Rules. As part of this, financial support are envisaged to Government agencies, State enterprises, non-government organizations, individuals and businesses that implement provision of Energy Conservation Act and intend to save energy by means new technology adoption and other means.
9. Successfully Implemented the first LED Village : The village' Ayakkurissi' in Palakkad district in Kerala is the first 'LED village' in south India; for which EMC joined hands with BEE to showcase this village as energy efficient model village. 250 household bulbs and 50 streetlights were replaced with LED lights. Studies are envisaged for assessing the savings due to the above change.
10. Distribution Transformer study: To Identify Technical Loss in transformers and distribution system, EMC with the support of BEE conducted a thorough study on transformer stations in Thiruvananthapuram, Kottayam and Palakkad districts. Transformer locations were studied in detail to capture the representative energy use pattern, transformer loading , power flow etc.
11. Transmission Loss Study: EMC conducted a Transmission Loss study in 2001 and found out 32% of Transmission Loss. This was an eye opener to K S EB; before the study the loss reported by K S E B was 17%.
12. Developed the websites [www.keralaenergy.gov.in](http://www.keralaenergy.gov.in) (since 1999) and official website of UNIDO Regional Centre for Small Hydro Power viz. [www.unidorc.org](http://www.unidorc.org) (since 2003). The websites contains the latest information on the Centre's activities and many other resources. The most up-to-date information on EMC projects, training programmes, tenders, right to information,



conservation tips, video clippings, cartoons, student contributions, information on BEE SDA projects, training programmes and workshops are available in the site. The websites are regularly updated and maintained by the IT Systems Division of the Centre.

13. SDA Energy Conservation Web Portal: EMC has successfully developed and deployed a database driven dynamic Web Portal for the BEE-SDA Energy Conservation activities in Kerala State ([www.keralaenergy.gov.in/sda](http://www.keralaenergy.gov.in/sda)). When entrusted with diversifying activities on Energy Conservation Act implementation, EMC is getting information from diverse sources; Designated consumers, Energy Auditors, energy Managers, Energy Clinic Volunteers, Energy Club members. The web portal [www.keralaenergy.gov.in](http://www.keralaenergy.gov.in) enables to unify information from categories; e-filing of energy data by Designated consumers, Report submission of Energy Clinic Volunteers, activities of energy auditors and managers. This single point access is making use of all these categories for effective working.
14. The Kerala State Energy Conservation Award instituted for the recognition of achievements made in Energy conservation field is operated on behalf of Government of Kerala by EMC. At present awards were given in 16 categories. Nearly 100 MW generating capacity was avoided by the industrial units, who participated in the award scheme through better energy efficiency.
15. EMC organizes Energy Efficiency programmes to the Small and Medium enterprises in traditional industries to make viable these industries by reducing their energy consumption.
16. EMC jointly with Bureau of Public Enterprises, conducted Energy Manager Training programme for Engineers in Public Sector Undertakings and 35 PSUs designated Energy Managers in their units.
17. Energy Management Centre conducted energy efficiency study at various Government buildings and Public sector units including Government treasuries. The Scope for energy conservation is to the tune of 15 to 30%.
18. The Small Hydro Power Promotion Cell set up in EMC by Government of Kerala allotted Small Hydel projects to Independent Power Producers /Captive Power Producers (IPP's/CPP's). 13 projects with a total capacity of 63 MW was allotted to IPP's/CPP's. Out of this 2 projects having capacity of 10 MW was commissioned. Another 10.5MW project will be commissioned shortly.
19. As part of Research & Development activities, EMC developed pre-paid energy meter and installed in the KINFRA park in Kakkanad. Developed temperature Monitoring & Alerting System for improving energy efficiency in traditional industries like Brick & Tile and Rice Mill. Automatic streetlight control system developed by EMC are installed at Thalassery Municipality.
20. EMC designed and developed a 10 kW Turbine for the use of Micro Hydel projects.





21. EMC is regularly conducting training, awareness, demonstration programmes to general publics, skilled and unskilled employees of industries, students, and housewives etc. to make aware of the need for energy conservation. Also EMC is conducting Energy Audit/Energy Efficiency studies in different organisation with a view to reduce the energy consumption and to improve energy efficiency, which ultimately leads to enhancement of profitability. Students being the future of Nation, EMC started energy conservation clubs in schools and Energy-Environment Conservation clubs in colleges/polytechnics/it is to inculcate the habit of Energy conservation.
22. Energy Smart School programme have started in schools as an energy education programme in association with General Education Department, Government of Kerala.
23. Recognition from various International organizations like UNIDO, UN-ESCAP, Common Wealth, World Bank, US-AID for organizing and attending various programmes in India and Abroad.
24. EMC developed interactive touch screen energy information kiosks for school students to demonstrate how to save energy. With the support of BEE the systems were distributed to 14 Government High Schools ( one each in each district)
25. Design and Development of energy efficient thermal cooker: With the support from Department of Science & Technology, New Delhi, EMC has developed a thermal cooker named as Urja - 2. It is an augmented product of 'thaapabharani' – the cooking energy saver. With proper material selection, exclusive design to suit the application, qualified for mechanical and thermal tests, and above all simple assembly procedures make Urja – 2 unique. Major advantages of Urja – 2 are: more than 70% energy savings, high thermal efficiency, light weight, better and easier handling, attractive design, best protection from pests, resistant to climatic variations, easy to clean and maintain, employment opportunity for women in fabrication of Urja-2, affordable price, high durability and reduces pollution.
26. Solar Powered UPS systems sharing single battery Bank. EMC IT division conceptualized and implemented with the support of Keltron a new model of solar powered UPS system in EMC. The two 10 KVA UPS systems which shares a single battery bank charged by a 20 KW Solar System.

In short, EMC plays a vital role to make the State of Kerala energy efficient and to build energy conservation habits in all sectors of the economy. It is clear from the questionnaire of the Energy Conservation Award from various Industrial units in Kerala that through energy efficiency programmes in these industries, they have avoided 24.94 MW of generation capacity addition during the last 3 years. There by saving of Rs.300 Crores for capacity addition of energy projects.