



## COOLING THE FUTURE: A SHOWCASE OF SUSTAINABLE COOLING TECHNOLOGIES FOR KERALA

An exhibition and workshop on sustainable and innovative refrigeration technologies was organized in Kochi on 30th May 2024 at the Crowne Plaza Hotel. The event, jointly organized by the Energy Management Centre-Kerala and the World Resources Institute India (WRI India), in collaboration with the Indian Society of Heating, Refrigerating and Air Conditioning Engineers (ISHRAE) Kochi Chapter, showcased technologies that support sustainable cooling systems in buildings.

The inaugural meeting featured speeches by Dr. R. Harikumar, Director, Energy Management Centre-Kerala; Tirthankar Mandal, Energy Program Head, WRI India; and Rony S. Benjamin, President, ISHRAE Kochi Chapter. The event included a panel discussion and technical presentations by prominent figures such as Atif Saeed, Asia Lead, International Finance Corporation; N S Chandrasekhar, Group

Chair, ISHRAE; Dinesh Kumar A N, Joint Director, EMC-Kerala; Listin Abey Mathew, Smart Joules; M B Satheesh, Chief Engineer, Crowne Plaza; Ashiqua Sulthana, Lead Consultant, Tropical Greenovation Cluster; and Archa Modi, Manager - Strategy and Market Development, Tabreed.

High insulative glass, cool roof coatings, and energy-efficient mechanical cooling systems were among the various sustainable cooling innovations exhibited in the exhibition. Energy experts, architects, and engineers participated in the workshop, which focused on energy-efficient and sustainable cooling systems suitable for buildings in Kerala, discussing various related opportunities and challenges. Major brands such as Berger Paints, Daikin, Johnson Tile, Superfan, Luftek, Kulirma, Toclave, and Chilton collaborated with the event.

## Meeting with Lead Bank for FI Committee formation

PAT Cell team members DSR Krishna, AEA; O. Subramanian, FE; Aswin Mohan, EM and Divine Angel, PA conducted a meeting with Lead Bank (Canara Bank) officials Krishna Kumar J, AGM and Achuth J Sankar, Senior Manager. In the meeting the team explained about the role and significance of formation of Finance Institution (FI) Committee to the officials. The lead bank extended full support for the formation of the FI committee in the state.



Meeting with Lead Bank officials by PAT Cell members



## Workshop for Financial Institutions on Energy Efficiency Financing

The Bureau of Energy Efficiency, in collaboration with the National Power Training Institute (NPTI) Alappuzha, organized two-day capacity-building workshop on “Energy Efficiency Financing” from May 16th to 17th and from June 3rd to 4th, 2024, at NPTI Alappuzha. These workshops were aimed at building greater knowledge and confidence within the financial sector on Energy Efficiency financing.

The workshop from May 16th to 17th was inaugurated virtually by Dr. Tripta Thakur, Director General of NPTI, with Dr. Ashok Kumar, Deputy Director General of the Bureau of Energy Efficiency (BEE), serving as the Chief Guest. Dr. S. Selvam, Principal Director of NPTI Alappuzha, welcomed the participants, and Johnson Daniel, Head of NMEEE & DSM Division at EMC-Kerala, delivered the keynote address. R. Ramar, Deputy Director of NPTI Alappuzha, concluded the inaugural session with a vote of thanks.

The workshop from June 3rd to 4th was inaugurated by Dr. S. Selvam, Principal Director of NPTI Alappuzha. Johnson Daniel, Head of NMEEE & DSM Division at EMC-Kerala, gave the keynote address. R. Ramar, Deputy Director of NPTI Alappuzha, welcomed the participants, and Shashank Shukla, Assistant Director of NPTI Kerala, gave the vote of thanks.

The workshop sessions featured experts such as Sarath Krishnan, Energy Technologist at EMC; Dr.

S. Selvam, Principal Director of NPTI Alappuzha; V. K. Sunil Kumar, retired Deputy Chief Engineer and Energy Auditor at KSEBL; C. P. George, retired Deputy Chief Engineer at KSEBL; Suresh Babu, BEE Accredited Energy Auditor; K. M. Shanavaz, BEE Accredited Energy Auditor; Navaneeth K., Manager at the Large Corporate Branch of Union Bank of India; and Shri Bijuraj R., Executive Engineer/ Energy Manager at KSEBL. On the second day of the program, participants visited energy-efficient projects implemented at M/s Travancore Cochin Chemicals (TCC), Udyog Mandal, Cochin, Kerala, a Designated Consumer under the Chlor-Alkali Sector of the PAT Scheme.

The workshops concluded with a post-assessment quiz and the distribution of certificates to participants. Approximately 50 officials from various banks participated in the two two-day capacity-building programs.



Group photo of workshop happened on 16<sup>th</sup> & 17<sup>th</sup> May 2024

# Session on the Energy Conservation Act and PAT Scheme at Thrissur Corporation

The Energy Management Centre (EMC), in association with the Thrissur Corporation Electricity Department (TCED), organized an informative session on the Energy Conservation (EC) Act and its recent amendments on May 17th, 2024, for TCED officials. The session, led by Aswin Mohan, Energy Manager (PAT Cell) at EMC-Kerala, also covered the Perform, Achieve, and Trade (PAT) Scheme and its non-compliance issues.



Participants in awareness session conducted at Thrissur Corporation

The session provided an in-depth overview of the Energy Conservation Act, focusing on its objectives, key provisions, and the latest amendments aimed at enhancing energy efficiency across various sectors. Participants received comprehensive insights into the PAT Scheme, including its goals, mechanisms, and the role of Energy Saving Certificates (ESCerts) in promoting energy efficiency.

A critical discussion was held on common non-compliance issues within the PAT Scheme, exploring

strategies and solutions to address these challenges effectively. The session facilitated an interactive platform for Thrissur Corporation officials to share experiences, clear doubts, and work towards achieving compliance.

A total of 12 officials from TCED actively participated in the session, gaining valuable knowledge and practical insights into energy conservation and efficiency practices.

## Case Study

# Installing VFD on a Blower at Visakhapatnam Water Treatment Facility

Four number of Blowers are installed in one of the water treatment facilities to provide air at higher pressure to sequence batch reactors. Since the quantity of water in reactors goes on varying the quantity of air need to be varied. On trial basis

Variable Frequency Drive (VFD) was installed in one of the blowers and the energy readings before installation (Baseline) and after installation of the VFD are tabulated as under.

Sl. No.	Particulars	Before installation of VFD	After installation of VFD
1	Average Power drawn by Blower No 4 in kWh	131.5*	
2	Average Power factor of Blower No 4.	0.83	
3	Average Power drawn by Blower No 4 in kVAh.	157.7	58.9**

\*This average value was arrived at after taking continuous readings for a period of 5 days spanning more than 36 Hours.

\*\*This average value was arrived at after taking continuous readings for a period of 1 month spanning more than 500 Hours.

**Benefits:** For a total running time of 508.6 hours in a month, the energy savings amounted to approximately 50,250 kVAh. With the cost of energy being ₹ 7.01 per kVAh, the total monetary savings achieved in a month is ₹ 3,52,252.

# PAT Cycle III ESCerts Trading Overview

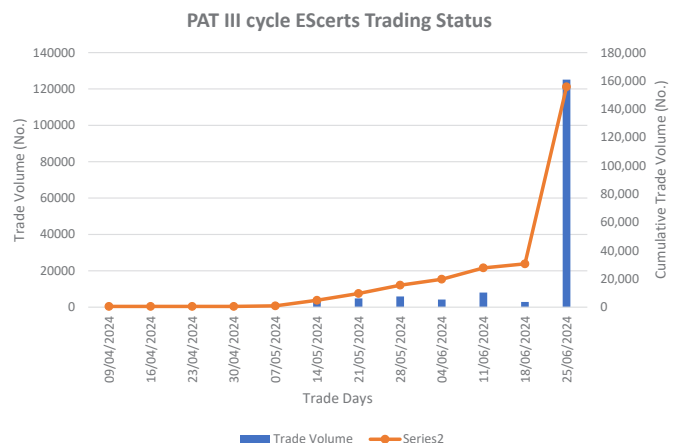
ESCerts are to be issued/entitled to purchased in electronic form and tradable on Power Exchange. BEE developed PATNet portal for all the Designated Consumers (DCs) through which they upload their forms and ESCerts can be electronically issued/entitled to purchase to them. CERC is the market regulator for trading of ESCerts, Grid Controller of India Ltd (formerly POSOCO) is the Registry for ESCerts; and Indian Energy Exchange Limited

(IEX), Power Exchange of India Limited (PXIL) and Hindustan Exchange Limited (HPX) are the Power exchanges. Trading is to take place every Tuesday as per the Regulations.

The following table shows the ESCerts Trading report from 9th April 2024 to 18th June 2024 for PAT Cycle -III, on three energy exchanges.

Date	IEX			PXIL			HPX		
	Sell Bid	Purchase Bid	Trade Volume	Sell Bid	Purchase Bid	Trade Volume	Sell Bid	Purchase Bid	Trade Volume
09-04-24	24629	523	523	0	0	0	0	0	0
16-04-24	36264	0	0	0	0	0	0	0	0
23-04-24	73707	0	0	49016	0	0	0	0	0
30-04-24	1839353	0	0	67772	0	0	25258	0	0
07-05-24	1677703	384	384	50192	0	0	15247	0	0
14-05-24	1999855	3958	3958	125300	0	0	21247	0	0
21-05-24	1863195	1914	1914	189699	1444	1444	66510	1444	1444
28-05-24	1828992	3738	3738	245635	1067	1067	96043	1067	1067
04-06-24	1804888	2273	2273	194930	967	967	77052	967	967
11-06-24	1901771	6267	6267	260136	870	870	126570	870	870
18-06-24	1842383	1302	1302	259196	783	783	131683	783	783
25-06-24	1738237	42914	42914	287628	40656	40656	238185	41570	41570

In this cycle, a total of 10 trading sessions have occurred until 17th August 2023. The ESCerts have been traded at the floor price of ₹21650 so far. The overall trends in the trading platform is shown in the above graph.



## PAT BULLETIN

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