

# ENABLING AN ENERGY EFFICIENT INDIA

**ANNUAL REPORT** 2018 - 19





# Contents

## About Alliance for an Energy Efficient Economy

#### AEEE champions energy efficiency as the first fuel!

Alliance for an Energy Efficient Economy (AEEE) is a policy advocacy and energy efficiency market enabler with a not-for-profit motive. It is the only organization in India that works on creating awareness about energy efficiency as a resource. It advocates data driven and evidence-based energy efficiency policies that will unleash innovation and entrepreneurship within the country to create an energy efficient economy.

AEEE celebrated 10 years of its establishment in 2018, and marked this milestone with a celebration dinner hosted during the International Energy Services Conclave in March 2019. A decade in the energy efficiency sector, the organisation is poised at a juncture of strategic growth through multiple collaborations and partnerships. AEEE is also increasingly becoming a credible and recognised voice among policy makers and businesses, and the preferred choice as a knowledge partner in energy efficiency.

As a **think-tank** and **industry association**, we adopt a 360° approach, collaborating with diverse stakeholders including policymakers, government officials, business and industry, consumers, researchers, and civil society organizations bringing together the best to the Energy Efficiency landscape in the country. The aim is to transform the market for energy-efficient products and services, thereby contributing towards meeting India's commitment to the Nationally Determined Contributions (NDCs) and United Nations Sustainable Development Goals (SDGs).



As part of providing value-added service to our members and partners, our three key focus areas:



**Policy Advocacy:** Advocate for data driven and evidence-based policies to unleash innovation and entrepreneurship to create an energy-efficient Indian economy.



Market Enablement: Help create a market for best available technologies and solutions by collaborating with industry and government to design and implement effective policies.



**Business & Industry Platform:** A convening platform for industry, government & civil society; training & capacity building on EE technologies & solutions; flagship events and conference.

# About Alliance for an Energy Efficient Economy

AEEE works towards establishing symbiosis between the 2 focal areas of **Policy Advocacy & Market Enablement** by:

- Supporting Government of India, as a knowledge partner, in developing policy
- Benefit members and scale the EE market by developing impactful policies

## **Core Verticals**



Energy efficiency policy making through research and analysis



Address India's cooling needs through holistic and responsible cooling strategies and policies



Demonstrate thought leadership in energy efficiency



Catalyse a dynamic ESCO market through partnerships and financing



Contribute to India's climate action commitment through collaborative energy efficiency strategies

#### **Theory of EE Enablement**

#### EE INDUSTRY PLATFORM

Create a credible EE platform to advocate business-enabling policies and develop a collaborative ecosystem

#### POLICY ENABLEMENT

Advocate futuristic, holistic and datadriven EE policy that foster innovation and entrepreneurship



#### THINK TANK

Develop thought leadership position by nurturing innovative technologies and business models

#### MARKET ENABLEMENT

Work with public and private sectors to create and enable widely adopted business value propositions

#### **Thematic Areas**

AEEE is consistently identifying areas of engagement as it provides evidence to build an economic case for energy efficiency. Its work is focussed on areas that would enable energy to be used productively, spur economic growth, and contribute to building a clean environment.

India's energy demand is expected to double by 2030. Becoming more energy efficient is the cheapest and fastest way to reduce energy consumption as well as reduce carbon pollution. AEEE aids the design and implementation of policies that lead to greater energy efficiency in three sectors with enormous potential: 1. Buildings and Appliances, 2. ESCO & Financing 3. Urban Infrastructure & Utilities.



Buildings & Appliances

The buildings sector alone accounts for over 30% of India's total electricity consumption. India is at a strategic juncture where two-thirds of the commercial and high-rise residential structures that will exist in 2030 are yet to be built. Indian cities alone will host 200 million more people by 2030 that will pose a staggering burden on India's energy requirement. In this backdrop, optimising energy efficiency in buildings constructed in the next two decades, and electrical appliances assumes great significance. AEEE is working towards adoption of ECBC, designing of energy efficient affordable and sustainable housing that prioritizes Thermal Comfort for All, Energy Data Management, and Building Stock Modelling. Development and implementation of India Cooling Action Plan, clean Cold-chain, Mainstreaming Super-Efficient Appliances and Cooling appliances are in the spotlight.



ESCO & Financing The energy efficiency market in India is estimated to be worth INR 110,000 crore, out of which only 5% potential has been tapped by the energy service companies (ESCOs). There are 150 empanelled ESCOs but other than Energy Efficiency Services Limited (EESL) none have made substantial impact in the EE sector. Some core challenges faced by ESCOs is compliance to contractual obligations, payment security issues, access to financing, and M&V disputes. AEEE, is playing an active role in aiding ESCO market achieve its full potential. Our vision in the domain is to promote collaboration on knowledge sharing, encourage adoption of best available solutions and technologies, attract EE investments and support policy makers through market intelligence and recommendations to scale this segment. The key activities include facilitating dialogue among the market players and build a data driven and transparent ecosystem for businesses. An international conclave for all the stakeholders of EE service business is part of the team's biennial calendar.



Urban Infrastructure & Utilities Poor urban infrastructure has been a drag in India's growth story. Rapid urbanization and the concentration of economic activities in the cities have put urban infrastructure under stress, and aggravated pollution levels. Juxtapose with that the global, electric sector which is at a crossroads, witnessing some major disruptions. Staying future focussed, AEEE is studying issues related to the adoption of low/ zero emission mobility solutions like EVs and scaling up Demand Side Management interventions beyond vanilla end-use energy efficiency measures. AEEE's current research interests focus on the deployment of charging infrastructure for different vehicle segments, the inter-linkages between the electricity grid and e-mobility, and the sensitisation of consumers about the need to adopt low/ zero emission vehicles.

## **AEEE's Collaboration with Key Govt Bodies**



## **AEEE Members: 2018-2019**

AEEE members represent diverse segments of the energy efficiency (EE) industry - technology, equipment and service providers, consulting companies and varied energy end-users committed to energy efficiency. AEEE members also include reputed research and academic organisations. AEEE has a participatory approach involving members and seeking guidance from its knowledge partners and peer organisations.

AEEE supports its members to increase their credibility in the area of energy efficiency by providing a bouquet of value-added, customised services. AEEE creates opportunities for its members that enable scaling of energy efficiency products and services, and also catalyse EE financing.

AEEE currently has over 50 members from diverse sectors and plans to substantially scale up membership in 2019.



# **AEEE Leadership**

As a membership-based industry body, AEEE is governed by its Executive Council. At the Annual General Meeting held in July 2017, a new Executive Council was elected per AEEE rules for a two-year term (2017-2019). The Council is chaired by Mr. Upendra Bhatt, Co-founder & Managing Director, cKinetics Consulting Services Private Ltd. with Mr. Ajay Durrani, Managing Director, Covestro India Private Ltd. and Mr. Ranganath N. Krishna, CEO and MD, Grundfos Pumps India Private Ltd. elected as Vice Chairperson and Treasurer respectively.

The Council brings vast experience and knowledge, extremely beneficial in guiding AEEE to the next level.

#### **Secretariat Leadership**

Dr. Satish Kumar has been leading AEEE as its President and Executive Director. His leadership, vision and substantial achievements in energy efficiency, sustainable development and climate change contributes significantly to the growth trajectory of AEEE.

# **Executive Council (EC) for the term 2018-2019**

**Mr. Upendra Bhatt,** cKinetics Consulting Services Pvt. Ltd. Chairperson, AEEE EC

**Mr. Ajay Durrani,** Covestro India Pvt. Ltd. Vice Chairperson, AEEE EC

**Mr. Ranganath N Krishna,** Grundfos Pumps India Pvt. Ltd Treasurer, AEEE EC

#### INVITED MEMBERS OF EXECUTIVE COUNCIL

**Dr. Ajay Mathur** Director General, TERI Former DG-BEE Climate Change & EE Expert

#### Mr. S. Padmanabhan

International Consultant, Energy & Water Productivity, Former Energy Efficiency Advisor World Bank, Former Program Director & Senior Energy Advisor USAID

#### **MEMBERS**

Mr. Arun Bhatia United Technologies Corporation India Pvt. Ltd.

**Mr. Venkat Garimella** Schneider Electric India Pvt. Ltd.

Mr. Devidas Kulkarni Siemens Limited

Mr. RavichandranPurushothaman Danfoss IndustriesPvt. Ltd.

**Dr. Satish Kumar** Secretary to Executive Council Mr. Milind Chittawar See-Tech Solutions Pvt. Ltd.

Mr. Arjun Gupta Smart JoulesPvt. Ltd.

Mr Mahesh Patankar MP Ensystems Advisory Pvt. Ltd.

**Prof. Rajan Rawal** CEPT University

Annual Report 2018–19

# Executive Council (EC) for the term 2018-2019

AEEE's President and Executive Director works directly with the Board, i.e., the Executive Council (EC). To enable effective governance and coordination, AEEE's operational matters are overseen by a Management Committee comprising of the Chairperson, Vice Chairperson and a Treasurer.

In addition, to help provide guidance and oversight to the AEEE Secretariat on key policies, the Executive Council has established 3 sub-committees:

- Finance and Audit Committee
- Remunerations and HR Policy Committee
- Programmes and Projects Oversight Committee

The Finance and Audit Committee provides oversight on budgets, spending, approval of budget for capital expenditure, new projects and programmes.

The Remunerations and HR Policy Committee oversees HR policies, conducts senior leadership performance reviews, approves annual increments, approves senior hires.

The Programmes and Projects Oversight Committee ensure AEEE's programmes and engagement with partners and member companies are aligned to AEEE's vision and mission.

Finance and	Remunerations and	Programmes and Projects
Audit Committee	HR Policy Committee	Oversight Committee
<b>Convener:</b>	<b>Convener:</b>	<b>Convener:</b>
Mr. Ranganath N Krishna	Mr. Ajay Durrani	Mr. Mahesh Patankar
Other Members:	Other Members:	Other Members:
Mr. Rajmohan Rangarajan (Past EC Member) Mr. Arjun Premchand Gupta Mr. Upendra Bhatt Mr. Ashish Rakheja (Past Treasurer)	Mr. Arun Bhatia Mr. Venkat Garimella Mr. Ranganath Krishna Mr. Upendra Bhatt	Mr. Ravichandran Purushothaman Mr. Milind Chittawar Prof. Rajan Rawal Dr. Satish Kumar Mr. Upendra Bhatt

#### **Current committee members include**

#### **Activities at AEEE**

AEEE is the only organisation in India which works towards creating awareness about energy efficiency as a resource. It is committed to positioning energy efficiency as the first fuel in India and to ensuring that every organisation in every sector has energy efficiency embedded as a core value and mission.

The year gone by, 2018, has been momentous for AEEE. This year has seen unparalleled growth in diverse directions, meaningful dialogue with a range of partners, implementation of exciting new projects, fruitful culmination of some key projects that have left an indelible mark on India's energy efficiency landscape, and last, but not the least, the mega event, International Energy Services Conclave (IESC) 2019, a flagship energy efficiency conclave, organised by AEEE in partnership with Bureau of Energy Efficiency (BEE) for scaling of business through customer centric energy efficiency services.

AEEE also has a proactive Executive Council that brings its expertise, knowledge and mentoring to help spur greater growth and scaling new pathways for the EE sector in India.

As AEEE concludes its 10<sup>th</sup> year of operations, it has emerged as the partner of choice for the Indian government, multilateral and bilateral organisations, private sector players and research and academic institutions. Increasingly, AEEE's work has been focussed on areas that are in alignment with the government's own focal areas, viz. Space Cooling, ESCO markets, ECBC, E-Mobility and Urban Housing. Here are some of AEEE's leading initiatives from the past year.



### **Leading Initiatives**



#### Launch of Green Vehicle Rating (GVR)

In August 2018, AEEE with support from SHAKTI Sustainable Energy Foundation launched the Green Vehicle Rating (GVR) program. This launch marked India's first vehicle rating system based on environmental performance. The launch event was attended by Mr. Alok Tripathi, Executive Director, Petroleum Conservation Research Association (PCRA). The inaugural address was delivered by Mr. Krishan Dhawan, CEO, SHAKTI Sustainable Energy Foundation. The President and Executive Director, AEEE, Dr. Satish Kumar, offered an overview of the GVR program. It was followed by the launch of the GVR report and the web-portal which serves as a consumer information tool. An informative panel discussion chaired by Ms. Anumita Roychowdhury, Executive Director, Centre for Science and Environment (CSE) and networking high tea followed.



Launch of the Green Vehicle Rating for 2 & 3 wheelers with Team AEEE &SHAKTI Sustainable Energy Foundation representatives

#### Indo-German Energy Forum Launch

The Indo-German Energy Forum (IGEF) Report was released in New Delhi in October 2018. The attendees included AEEE member companies working in the cooling domain, government officials, international participants and industry experts. Mr. Tobias Winter, Director, IGEF Support office gave the welcome address followed by a presentation on the key findings on cooling demand in India in 2027 by Dr. Satish Kumar, Executive Director, Alliance for an Energy Efficient Economy. A special address by Shri Abhay Bakre, DG-BEE and Dr. Sanjay Bajpai, Head of Technology Division, Mission Innovation Projects, DST were some of the highlights of the event.

A significant highlight of the event was Dr. Anil Jain, Additional Secretary, Ministry of Environment, Forest and Climate Change, Government of India flagging the draft India Cooling Action Plan released in September 2018 for the public consultation during the event. The programme ended with a panel discussion on key findings and implications for the cooling market moderated by Mr. Markus Wypior, Principal Advisor Cooling, GIZ India.

# Global Cooling Innovation Summit & Global Cooling Prize Launch

AEEE assisted in both planning the pioneering Global Cooling Innovation Summit and launching of Global Cooling Prize in India on November 12-13, 2018. AEEE developed an amplification database of cooling influencers such as, air-conditioner manufacturers, industry, industry associations, academic and research institutions, government stakeholders and other private sector players for Rocky Mountain Institute (RMI) to invite to the event via email. AEEE followed up on email and via phone calls to optimize participation. Over 200 participants including government officials, delegates, speakers and media personnel were in attendance.

The Global Cooling Innovation Summit prominently featured the launch of the Global Cooling Prize on 12<sup>th</sup> November 2018 and panel discussions on topics of innovations in cooling, investment, and scaling of breakthrough technologies, and policy support for cooling innovations of the future. The Minister of Science and Technology, Environment, Forest, and Climate Change, Government of India, Dr. Harsh Vardhan, launched the prize portal and delivered the inaugural address. The launch of the Global Cooling Prize was livestreamed by the Ministry's Youtube channel.

#### Leading Initiatives



(Left) Global Cooling Innovation Summit & Global Cooling Prize Launch with Government of India Mission Innovation, MoEFCC, and Rocky Mountain Institute (RMI) Representatives; (Right) Team AEEE, CEPT University, RMI, Conservation X Labs

#### IESC: International Energy Services Conclave 2019

Alliance for an Energy Efficient Economy (AEEE) and Bureau of Energy Efficiency (BEE) jointly organised the International Energy Services Conclave 2019: **Energy Efficiency for Business Competitiveness** from 6-8 March 2019. This unique 3-day flagship event a first-of-its-kind event for the EE services business stakeholders aimed to scale business through customer centric energy efficiency services. The conclave brought together decision makers from End Customer segment from Industries (Large, Medium & Small), Buildings (Commercial & Public), and Municipalities, OEMs, Technology Providers, Service Providers, Banks & Financial Institutes, and Start-ups to innovate on energy efficiency service delivery models and improve competitiveness of end customers and to increase the adoption of overall energy efficiency measures.

The Conclave had largely covered emerging topics in five plenary, four executive discussions and four biz tech sessions including energy efficiency aligned business strategy, innovative financing, role of nonprofit, advanced measurement & verification, and innovation in technological solutions & business models for different sectors. IESC examined the best practices and successes of today, within the context of emerging trends and technologies of tomorrow, to scale up and leverage.

At the conclave, TechnoBuzz, which provided an opportunity to OEMs and Service Providers to showcase their unique offerings and solutions to the customers. A report prepared by AEEE titled "Energy Efficiency- A Compelling Value Proposition and Enabling Resource for Smart Cities" and a whitepaper jointly written with Oracle Utilities on "Behavioural Energy Efficiency Potential for India", were launched at the Conclave.





AEEE hosting the IESC Energy Services Conclave

#### **Leading Initiatives**

the energy and non-energy benefits of EE well into the future years.

The conclave hosted more than 350 delegates over three days with 80 plus national and international speakers from the EE services industry. Information about IESC 2020, including the conference proceedings is available on AEEE's website.

#### India Cooling Action Plan (ICAP)

AEEE provided thought and knowledge leadership as part of the Steering Committee for the development of Government of India's bold document India Cooling Action Plan (ICAP), a flagship initiative of the Ministry of Environment, Forest and Climate Change (MoEFCC). Thermal Comfort for All is a national priority and social imperative to address sustainable development, energy security, and climate resilience. India is the first country in the world to develop such a document, which addresses cooling requirement across sectors and lists out actions which can help reduce cooling demand. With this bold initiative a 20-year outlook on the changing face of cooling demand in India across multiple sectors, outlining strategies and actions AEEE started its journey to promote sustainable

and smart cooling access to all. Subsequently, AEEE has been amplifying the India Cooling Action Plan with strategic messaging, thematic working groups and multi-stakeholder events. AEEE will continue to support the overall roadmap for ICAP and is working on subsequent projects in the field of sustainable cooling - **Space Cooling in Buildings** and **Cold-chain & Refrigeration** topics that AEEE has demonstrated leadership in.



India Cooling Action Plan (ICAP) Report Launch by the Ozone Cell Ministry of Environment, Forest & Climate Change on 24<sup>th</sup> March, 2019 World Ozone Day

## **Ongoing Projects at AEEE**

#### Sustainable and Smart Space Cooling Coalition (Phase 2)

In its first year, the Sustainable and Smart Space Cooing Coalition released the Thermal Comfort for All report. In Phase 2, AEEE is exploring the technoeconomic feasibility of alternate low energy cooling technologies. An extensive survey of manufacturers and users are being carried out to assess low energy cooling technologies and mainstream their



An energy efficient window (representative image)

use in suitable application areas and climate zones. AEEE is also carrying out a technical investigation on the criteria and testing protocols for energy ratings to windows.

#### Global Cooling Prize (GCP)

The Global Cooling Prize is rallying global coalition of leaders to solve а the critical climate threat that comes from growing demand for residential air conditioning. By harnessing the power of innovation, cooling solutions can be provided that enhance people's lives without contributing to runaway climate change. A radical room AC solution that will have at least 5X less climate impact. AEEE has partnered with Rocky Mountain Institute (RMI), USA and Department of Science & Technology (DST), under



the Indian Ministry of Science and Technology, Mission Innovation, Conservation X Labs and CEPT University. AEEE worked with RMI to help facilitate the Global Cooling Prize Launch in India as an outreach partner, also organized two awareness meets on Global Cooling Prize in Mumbai and Chennai on 11<sup>th</sup> December and 13<sup>th</sup> December 2018 respectively.

#### Whitepaper on Behavioural Energy Efficiency Potential for India

Residential electricity consumption is outpacing industrial and commercial consumption in India. Under a business as usual scenario, the residential electricity demand in Indian cities will rise eightfold by 2050. It is time to change consumer outlook and behavior towards energy (and resource). Behavioural energy efficiency is the steppingstone to motivate the public to use less energy. It is based on the principles of social science where consumers are provided with relevant, and actionable information about their energy use. The novelty of this programme prompted AEEE and Oracle Utilities to synthesize a whitepaper which illustrates the programme mechanics, presents relevant case studies, highlights the conducive ecosystem needed to enable the scaling of such programmes at a national level and attempts to evaluate the



## **Ongoing Projects at AEEE**

potential aggregate impact (direct energy benefits as well as indirect non-energy benefits) of similar programs if implemented pan-India.

#### Mainstreaming Super-efficient Appliances

AEEE and ACEEE are jointly conducting research on the most energy-efficient product models among ceiling fans, refrigerators and TVs in Indian and global markets. The aim is to identify technologies that differentiate the most energy-efficient models from others, and suggest pathways for mainstreaming super-efficient technologies. AEEE chose these three appliances since they are among the top appliances in residential electricity consumption for the period 2015-2030, the topmost being room air conditioners. The research includes analysis of appliance energy consumption vis-à-vis technology used. AEEE has sought inputs from manufacturers on barriers and recommendations for mainstreaming the most energy-efficient technologies and will develop policy recommendations to mainstream the most energy-efficient technologies and publish these in a report in July 2019.

#### Increasing Energy Access by Using Super-Efficient Appliances in Low income Urban & Rural Homes

AEEE is applying its energy efficiency expertise to evaluate how super-efficient appliances, including off-grid appliances, such as fans, refrigerators and televisions (TVs), and others, such as, radio, mixer grinder, sewing machines, refrigerators, milk chillers etc. are a resource to increase energy access in low income urban and rural households and productive businesses. AEEE will publish a stakeholder mapping report and a detailed market analysis of 3-5 superefficient appliances with high penetration potential, to aid stakeholders to develop the market for superefficient appliances, including off-grid appliances, and improve energy access in low income homes.

## Decision Making Frameworks for EV Charging Infrastructure

Charging infrastructure is deemed the backbone of e-mobility and has been the most contentious issue. Limited understanding about EV chargers pose as a serious hurdle to scale up EV uptake. Against this background, AEEE is carrying out objective research to facilitate the transition of India's urban mobility to a fully electric format. The research intends to:

- Identify the best available charging options for different charging requirements of each possible EV segment in India and subsequent setting-up of public charging facility
- Recommend appropriate tariff framework and regulatory changes to enable establishment and operating charging stations as a commercially viable business venture in India's context
- Explore opportunity to utilize EVs as a demand response resource and virtual power plants using V2G functionality in India



A television viewer (representative image)



Bus charging facility in the UK

## Towards Climate Responsive and Low Carbon Development:

#### Addressing the Critical Urban Issues in Residential and Transport sector in Uttarakhand

AAEEE is supporting National Mission on Himalayan Studies goals by addressing cross-cutting issues in major urban centres of Uttarakhand. This project will foster R&D in areas related to energy and built environment within colder regions and will allow deep-dive into the targeted issues. The project findings will also guide other colder regions in Himalayan ecosystem to strategise sustainable and low carbon development of residential sector. AEEE is supporting MoEFCC and GBPNISHED by creating this science-policy-practice connect through a network of policy makers and practitioners (individual and institutions) engaged in working solutions to problems in the thematic areas.

#### **Urban Transport**

- Support in the decision making of the concerned authority in Uttarakhand regarding deployment of electric buses for public transport on specific intra-city or intercity routes;
- Support in building institutional capacity of relevant state actors in Uttarakhand with regard to implementation of electric mobility in the state.

#### **Urban Residential Sector**

- Development of residential building guideline/ roadmap with focus on occupants' comfort and energy optimisation;
- Support demonstration projects though concurrence with development authorities/ developers by integrating guidelines recommendations;
- Facilitating workshops, campaigns, road shows to sensitize government officials and occupants and support capacity building of relevant stakeholders.

#### ESCO Projects Pipeline Generation for Partial Risk Sharing Facility (PRSF)

AEEE is working with SIDBI to create awareness among the stakeholders on ESCO projects implementation with an objective to promote, facilitate, generate, develop and implement energy efficiency projects pipeline under ESCO model. To support the ESCO market development and facilitate the mobilization of commercial finance the partial risk financing instrument of SIDBI has become a viable solution for the ESCO industry. Through this project, AEEE aims to boost PRSF guarantee coverage by facilitating the implementation of projects under ESCO mode.

#### Niti Aayog's Working Group on Demand Side Energy Data Management

AEEE is working with Niti Aayog on the Energy Data Management for India. Niti Aayog has constituted a Working Group (WG) on building sector which is being chaired by Addl. Secretary of Ministry of Housing & Urban Affairs (MoHUA) . The WG aims to identify the current status of energy data management in India, issues with energy data collection system, and sector wise energy data gaps. The outcome envisaged from this WG is to strengthen the existing energy data collection/dissemination system in India and develop a mechanism for real time energy data update for energy sector planning.

### Emerging Dynamics in Energy Management & Information System

AEEE is researching on IoT technologies and Energy Management System to identify viable commercial solutions for the benefit of facility owners to get deeper insights, strategies to optimize building energy performance and manage energy costs. The outcome of the study will be to create an enabling framework for energy efficiency in the commercial building sector through an innovative & transparent energy data collection and information system, data driven decision making and evidence-based energy management.

#### State Energy Efficiency Index Launch

AEEE under the guidance and leadership of the Bureau of Energy Efficiency (BEE) and NITI Aayog, published India's first ever State Energy Efficiency Index for about 30 Indian states. The Index report and web portal were launched by Shri Ajay Kumar Bhalla, Secretary, Ministry of Power in August 2018. The first

# **Ongoing Projects at AEEE**



#### **Ongoing Projects at AEEE**

Index assessed 30 states across 63 indicators and set a baseline for EE efforts to date. This unique Index enables states to benchmark themselves against high performers, learn from best practices, set EE targets and monitor EE programmes. Work on State EE Index 2019 Phase II was recently kicked-off at the SDA Conclave organised by BEE on 4 April 2019.



Launch of the State Energy Efficiency Index, August 2018, New Delhi

#### **Energy Efficiency Data Collection for** India

AEEE carried out the research for IEA's Energy Efficiency in Emerging Economies Programme (E4 Programme) to map the publicly available information on energy activity and consumption for different economic sectors. The key objectives of the task is to understand the availability of the demand side data (energy consumption), strategic data gaps, mapping of institutions, think tanks, and development agencies on producing the data for commercial, residential and transport sector. In addition to collating information on energy efficiency policies/programmes at the national level and collect data on, policy incentives, spending status and the benefits achieved.

#### **ESCONet Platform**

A unique, peer learning forum to enable the energy efficiency services sector ecosystem. The industry professionals, end consumers and policy makers come together to discuss opportunities and strategies to grow the ESCO market. An online platform for different stakeholders to build business and reach out to a larger set of market players for adoption of EE projects and share learnings from different areas of intervention and experiences.

#### **ESCO Market Catalyser Project**

With the objective of getting ESCO projects implemented, AEEE started a business facilitation initiative conducting multiple focused group discussion and business facilitation seminars and workshops with Utilities (BYPL and TATA Power DDL) and similar associations (ISGF) to make a case for EE retrofit via ESCO contracts and to remove apprehensions on the same among the end-users, along with development of two standardized technological solutions for large-scale replication. The exercise contributed to demand aggregation for EE services through DISCOMs customers and Associations' members and connected the demand to suppliers of technologies and appropriate projects.



## Cold-chain Energy Efficiency in India: Analysis of EE Opportunities in Pack Houses

The objective of this assignment for the World Bank Group is to support the Bureau of Energy Efficiency (BEE) in developing options for enhancing the energy efficiency of pack houses in India. The assignment objective will be achieved through an analysis of current status of the pack houses for horticultural products in India, assessment of recent energy use trends and projections for pack houses, identification of energy efficiency improvement opportunities in pack houses, in turn drawing and recommending options for BEE's consideration. The project will see its fruition in a set of recommendations for BEE action to promote energy efficiency in cold chain and pack houses.

The assignment will comprise:

- Stocktaking and initial assessment, comprising a review of institutional, policy and regulatory framework, initial overview of pack houses in India and review of good international practice.
- Detailed assessment for a sample of pack houses and development of a prioritized set of options with highest potential for energy saving, along with cost-benefit analysis
- Recommended regulatory actions for BEE consideration.

### Thought Leadership - Energy Efficiency, a compelling value proposition and enabling resource for smart cities

AEEE's, Thought Leadership - Energy Efficiency, A Compelling Value Proposition and Enabling Resource for Smart Cities paper was launched at the International Energy services Conclave (IESC) in March 2019. AEEE as the knowledge partner for both government organisations and businesses focused on solutions and services that align with national priorities leading to sustainable development while meeting India's international commitments and giving precedence to energy security considerations. This paper is an effort to position energy efficiency as a significant enabler

- To reduce the GHG emissions footprint of Indian cities
- To act as a glue to integrate traditional, intelligent and digital technologies with the modern fabric of the smart cities.

The paper has an overarching framework that captures how a traditional city can be transformed into a smart city. It also show cases an "energy efficiency value creation framework" that pulls together the types of habitat, expectations, objectives and the ways the three core stakeholders (the government, the private sector, and the civil society) to give impetus to a city transformation initiative. Identifying the four key constituting elements of a smart city



A banana pack-house facility in India (representative image)



Houses in Uttarakhand (representative image)

# **Upcoming Projects**

# Green Vehicle Rating - Phase II

AEEE plans to improve the existing GVR programme by:

- Expanding the scope of GVR to include non-ICE vehicle technology as well as incorporate more ICE-models in two-wheeler and three-wheeler segments
- Modifying existing rating framework to make it sensitive to vehicle engine capacity
- Building awareness about the rating system through concerted outreach effort

This project will be realized over a period of one year.





#### National Energy Saving from the Adoption of Adaptive Thermal Comfort Standards and Energy Efficient Strategies in Building Design

AEEE, in collaboration with LBNL and CEPT University, mapped the impact of adaptive thermal comfort standards on air-conditioning usage patterns and on the resulting nation-wide energy savings, utilizing field-tests and research; and assessing the impact of the use of high performance glazing, well-designed window/fenestration, and shading strategies on cooling demand. AEEE conducted lab tests of room air-conditioners prevalent in India to assess the energy saving impact of indoor set point variation as per adaptive thermal comfort standards. These tests provided evidence-based guidance on possible energy savings through per °Celsius increase in the temperature setpoint. Apart from establishing the energy savings, these tests helped validate the actual energy performance of air conditioners compared with the rated performance on energy label.

#### Demand Analysis of Cooling by Sector in India in 2027

AEEE, with support from Indo-German Energy Forum (IGEF), undertook a first-of-its-kind study in India providing a comprehensive overview of nationwide cooling energy needs covering five sectors: space cooling in buildings, mobile airconditioning, refrigeration, cold-chain and industrial process cooling. This study provides an aggregation of cooling demand and carbon dioxide emission impact by 2027, looking at 'business-as-usual' and 'improved' scenarios; and discussed key energy efficiency opportunities in each sector and the extent to which they can address as well as help



neutralize the impacts of the sector's respective cooling growth.

#### Lab testing of RACs to validate energy saving opportunities under adaptive thermal comfort standard

Building upon our existing body of work in cooling, AEEE is conducting the lab tests of room air conditioners to assess the energy saving impact of indoor set point variation as per adaptive thermal comfort (ATC) standards. These tests shall provide evidence-based guidance on possible energy savings through per °Celsius increase in the temperature set point. The test findings could help the GOI to firm up the policies regarding prescribing temperature set point guidelines for different portfolio of government and private buildings. Apart from establishing the ATC energy savings, these tests shall also help validate the actual energy performance of air conditioners compared with the rated performance on energy label. In the absence of any suitable test protocol, customised tests were designed in consultation with an internationally recognised testing lab (NABL accredited in India) with expertise in performance testing of room air-conditioners. The tests were carried out on a Balanced Ambient Calorimeter air conditioner testing facility with additional monitoring parameters (at specified monitoring frequency) per the customised test procedure.

#### Green Vehicle Rating (GVR) Phase I

As a first-time effort in India, Alliance for an Energy Efficient Economy (AEEE) has pioneered the Green Vehicle Rating (GVR), the country's only vehicle rating system based on the environmental performance. It serves as a consumer information tool that identifies high to low performing vehicle models, in two and three-wheeler categories, in terms of the negative impacts of GHG emissions and criteria pollutants released from tail pipes of top selling models. Along with a comparative analysis of vehicle models, the GVR shows the external costs of pollution from vehicle exhausts - both GHGs and criteria pollutants. AEEE team also developed a dedicated web-portal on GVR. The portal allows consumers and other stakeholders to check the vehicle ratings, the method, data and assumptions used to rate the vehicles.



AEEE advocates Energy Efficiency as a resource and raises its profile as the organisation for Energy Efficiency via outreach to Members and Stakeholders through various awareness, training and capacity building events.

# AEEE's participation at CAHOCON-2018

CAHOCON is an annual flagship event of Accredited Hospitals in India and organized by Consortium of Accredited Healthcare Organization (CAHO). The event was held in Chennai on 6 - 7<sup>th</sup> April 2018 and saw the participation from various hospitals and healthcare facilities across India. AEEE technical staff participated with speaking role in one of the Master Class on "Optimization of Resources" to create awareness on strategies on resource consumption in the healthcare sectors. AEEE also provided the opportunity to three active Energy Service Companies (ESCOs) to present their past project case studies in the healthcare sector. The event helped the participating ESCOs to reach out to the end consumers and create awareness about energy efficiency. The ESCOs who participated in the event were Smart Joules, United Technologies and Bosch Limited. AEEE also established a display area at the forum, setting up an exhibit space at CAHOCON to provide opportunities to ESCOs, a platform to discuss potential business opportunities with the participating hospitals.

# AEEE- BYPL Business facilitation meeting for EE stakeholders

AEEE in partnership with BSES Yamuna Power Limited (BYPL) conducted a one-day business meet for ESCOs, consumers, financing institutions and policy makers in New Delhi in April 2018. The workshop saw the participation from end consumers of Hospitals, Hotels, Retail Businesses, Residential and Industrial Units. This was a first of its kind initiation wherever a Distribution Company (BYPL) aggregated end customers from its service area for implementation of Energy Efficiency measures through the ESCO route. The business meet offered a platform for the ESCOs and end consumers to discuss opportunities for energy savings at their business establishments. The ESCOs presented case studies of actual implementation projects in hotels, hospitals and other sectors covering details on energy conservation measures implemented, business models adopted, measurement & verification approach used and financial investments and savings achieved. The meet also provided opportunities to the Financing Institutions to present on their financial products available for ESCOs and clients. A panel discussion involving stakeholders of the EE community such as - ESCOs, FIs, BEE and



AEEE- BYPL Business facilitation meeting for EE stakeholders

End Consumer Association was also hosted during the meet. The objective of the discussion was to identify the challenges faced by each stakeholder of the ESCO ecosystem and to formulate a way forward to boost the ESCO business opportunities.

# AEEE- TPDDL Business facilitation meeting for EE stakeholders

AEEE, in partnership with Tata Power Delhi Distribution Limited (TPDDL), and with support from SHAKTI Sustainable Energy Foundation (SSEF), organised a workshop in June 2018, bringing together end-users and Energy Services



AEEE- TPDDL Business facilitation meeting for EE stakeholders

Companies to a single platform. Moving forward with the learnings from past ESCO projects, AEEE envisioned implementation of ESCO projects for the consumers of DISCOM, taking support from the utility in aggregating their end-consumers. The workshop was targeted for end consumers from Commercial Buildings and Industrial sector, broadening the scope to Hospitals, Hotels, Retail Businesses, and Industrial Units (including SMEs). Through this initiative, AEEE has started involving Utilities to promote energy efficiency services in their areas of power distribution.

#### AEEE-ISGF Business Facilitation Meeting for EE stakeholders

AEEE in partnership with India Smart Grid Forum (ISGF) organised a half day business meet for ESCOs, End consumers, Financing institutions and Policy makers in Bangalore in July 2018. The business meet provided a platform to energy service providers to showcase their expertise in energy efficiency retrofit projects under ESCO mode through case studies of past projects. The presentations made by ESCOs were aimed to create awareness, trust and confidence among the stakeholders on the success of the ESCO Business model. The energy users who have undertaken ESCO projects within their facilities shared their experiences and best practices from such interventions. The workshop was attended by approximately 80 facility owners from different segments of buildings, industries etc.

#### AEEE Exhibit at India's World Environment Day Global Hosting

India was the global host for the World Environment Day (WED) for year 2018 in partnership with United Nations Environment Program (UNEP). To celebrate World Environment Day 2018, the Ministry of Environment, Forest and Climate Change (MoEFCC), organized workshops and exhibition in June, New Delhi keeping the UN theme "Beat Plastic Pollution" central to the event.

The Ministry invited AEEE to showcase its work and demonstrate the benefits of energy efficiency in the larger context of protecting the environment and its role as an enabler in supporting India's commitments to UN Sustainable Development Goals and the International Climate Change agreement.

At the event AEEE interacted with varied group of stakeholders — policymakers, corporates, the youth, and the civil society at large. We emphasized flagship government initiatives and showcased some key projects in the form of posters, films



AEEE-ISGF Business Facilitation Meeting for EE stakeholders



Team AEEE at the World Environment Day 2018 Exhibit Stall

showcase on the themes of: (1) Green transportation and e-mobility; (2) The future of Cooling in India; The exhibition saw its culmination on 5<sup>th</sup> June. World Environment Day with a visit by Hon'ble Prime Minister, Mr. Narendra Modi and the Prime Minister's closing remarks.

#### ACREX India 2019

ACREX India 2019, South Asia's Largest Exhibition & Conference on Air Conditioning, Heating, Ventilation and Intelligent Buildings was organized by ISHRAE from 28<sup>th</sup> February to 2<sup>nd</sup> March 2019 at Bombay Exhibition Centre, Mumbai. On behalf of the Department of Science and Technology (DST), AEEE exhibited at ACREX and presented on Global Cooling Prize. At this large networking platform, the aim was to encourage the industry to come on board and collaborate with the academia in the mission for catalysing sustainable building innovations. Global Cooling Prize was one of the key highlights in the stall. A film on GCP and other projects were also screened, in the display TV by the stall. The stall attracted participation of more than 500 attendees over the course of three days who were a mix of industry professionals, manufacturers, and students.



Picture caption: Team AEEE networking at ACREX India 2019

#### Global Cooling Prize (GCP) Awareness Events in December 2018

The Global Cooling Prize, supported by Mission Innovation and the Department of Science and Technology, Ministry of Science and Technology, Government of India was launched on 12<sup>th</sup> November, 2018, by Dr Harsh Vardhan, Honourable Minister of Science & Technology, Environment, Forest and Climate Change and Earth Sciences, Government of India at the Global Cooling Innovation Summit, at New Delhi. The Global Cooling Prize Awareness events were hosted to engage with and inform the potential prize participants and other relevant stakeholders, such as state government and real estate developers in the region, about the technical criteria for the prize and the evaluation process. A one-on-one consultation session with GCP experts was also hosted during the event. Additionally, a video clip by Leading IP Lawyer Hari Subramaniam on Intellectual Property Rights and GCP was screened at the events.

#### The Global Cooling Prize Mumbai Awareness Event

It was attended by 50+ participants. Dr. JBV Reddy, DST participated in the event and the Indian Technical Review Committee Member– Prof. Subash Mullick, Mr. Vikram Murthy, President Elect, ISHRAE; Prof. Milind V Rane (IIT Bombay), Mr. Jitendera Bhambure (RAMA) and Ms. Smita Rakesh (Social Alpha) were panellists in the panel discussion on "Need to Provide Thermal Comfort for All Using Affordable and Super-Efficient RACs".

#### The Global Cooling Prize Chennai Awareness Event

Dr. Sukumar Devotta and Prof. S Srinivasa Murthy, Indian Technical Review Committee Members participated in the Chennai event along with Dr. JBV Reddy, DST. A panel on "Need to Provide Thermal Comfort for All Using Affordable and Super-Efficient RACs" was held with experts Prof S. Srinivasa Murthy (GCP Technical Review Committee Member), Dr. Sukumar Devotta (GCP Technical Review Committee Member), Prof. R. Saravanan (ISHRAE) and Mr. Arup Majumdar (Industry Expert) were the panelists in the Chennai event.

#### **AEEE Members and Partners Meet**

AEEE organized a Members Meet in Mumbai in June 2018. The meeting saw robust participation, from AEEE Members companies, represented by their CEOs or top Management. AEEE's President and Executive Director, Dr. Satish Kumar, presented on AEEE projects and program undertakings from the current year, AEEE policy and advocacy programs, and the studies and reports.

#### **AEEE Strategy Meeting**

In July 2018, AEEE hosted its strategy meeting and retreat. The objective of the retreat was to address core organizational challenges and bring about an internal transformation to empower AEEE to its full potential as a dynamic energy efficiency industry association that is future ready. There have been significant changes in the EE sector since AEEE's inception in 2008 - including Government Priorities, Policy Frameworks, Urban Infrastructure and Consumer Awareness is evolving on a positive trajectory. In this context AEEE is rightfully gaining both national and global attention with its deep evidence-based research on the demand side of energy. Now is the time to reflect on our vision and strategy and create an execution model that will make AEEE an exciting organization for the industry and its stakeholders to partner. This retreat was an important opportunity to bring alignment within the governance and the leadership team and drive AEEE through this inflection point.

## AEEE-ISGF Panel Discussion on electric vehicles and its 21<sup>st</sup> CenturyChallenges (26 July 2018 in Bangalore)

AEEE in partnership with the India Smart Grid Forum (ISGF) and India Energy Storage Alliance (IESA) convened a Panel Discussion on Electric Vehicles, Energy Storage and Charging Infrastructure for AEEE Member companies and regional stakeholders in Electric Vehicles (EVs) and charging infrastructure. The purpose of the discussion hosed on 26 July 2018 in Bangalore was for AEEE Members to deliberate on Electric Mobility and relevant technologies and infrastructural issues. The event was a reiteration of AEEE's interest and commitment towards new technologies, smart grid, smart cities and transportation, all of which are anchored in energy efficient systems and processes that contribute to India's economic development. The emergent EV and related energy storage and infrastructure are frontier segments where sweeping changes are anticipated. AEEE aims to be an enabler at the centre of this dynamic scenario by networking with key partners such as ISGF and IESA.

## 16<sup>th</sup> Round of South Asia IPMVP Training and Exam on Certified Measurement and Verification Programme (CMVP)

AEEE conducted three Training and Certification Programs in Delhi, from 26 to 28July 2018. The training program was designed in conjunction with Efficiency Valuation Organization (EVO) and the Association of Energy Engineers (AEE). The participants at the training represented a wide range of large Corporate entities as well as small consulting companies and individual auditors.

With the increasing adoption and mandating of PAT (Perform Achieve and Trade) Scheme to raise the energy efficiency standards in large industry designated consumers, as well as adoption of ECBC standards and codes at the level of states, M&V expertise is in demand, and AEEE is helping to build the expertise across the country and industry.AEEE is the only partner organisation of AEE in India to conduct CMVP training.

#### Sustainable and Smart Space Cooling Coalition Meetings

- Under the Sustainable and Smart Space Cooling Coalition Project, AEEE conducted a Roundtable meeting with key Stakeholders on 20 November 2018 in New Delhi.
- Under the Sustainable and Smart Space Cooling Coalition Project, AEEE conducted a Roundtable meeting of key Stakeholders on 5 December 2018 in New Delhi.

## KASSIA-AEEE Seminar on Energy Efficiency for Business Competitiveness

A seminar was hosted on "Energy Efficiency for Business Competitiveness", organised by Karnataka Small Scale Industries Association **(KASSIA),** in association with AEEE in February 2019, Bangalore. The event was inaugurated by Shri Ravikumar, IAS, Addl. Chief Secretary, Department of Energy, Govt of Karnataka, and presided by Shri Basavaraj S. Javali, President, KASSIA.

#### Webinars

AEEE webinars are a convening platform to engage in dialogue with policy makers, associations, institutions and multilateral/bilateral organisations for wider market transformation centered exclusively on Energy Efficiency in India. Following webinars were held during 2018-19, that saw active participation from EE practitioners.



#### Need Cooling, you get Heat for free: Webinar on the dual benefits of Heat Pumps for Residential, Commercial and Industrial Applications, in June 2018

**Speaker:** Mr. Thomas Nowak, Secretary General, European Heat Pumps Association

Buildings and processes alike are large scale users of heating and cooling services. Far too often, these are still considered separate and consequently provided by two different appliances. In order to greatly improve efficiency, we need a shift in perspective towards a systematic understanding. Whenever cooling is needed, heat is a by-product, whenever heating is required, surplus cooling is generated. Identifying where these energy cycles can be closed and where waste of one service can be the resource of another need to be identified. Large heat pumps can make this vision an efficient reality. Users of heating and cooling in many industrial processes in the food, paper or chemical industries (list not exhaustive) can benefit economically from efficient use of energy while providing a significant benefit towards emission reduction and air quality. The webinar elaborated on best practise examples of successful large heat pump applications.

#### Webinar on Demand Side Management: A Critique of Relevance and Opportunity for DISCOMs held on 13 August 2018

**Speaker:** Dr. Mahesh Patankar, Managing Director, MP Ensystems Advisory Private Limited (Member of AEEE)

The Government of India has launched a number of programs to improve the availability of power and reduce carbon emissions from the power sector in India. Demand Side Management (DSM) at the consumer side of the meter is a key resource for power utilities to meet both these objectives. However, despite 16 states being notified of DSM Regulations, utility-driven DSM has been suboptimal, due to factors such as focus on financial and technical losses and the perceived impact of DSM on revenue.

MP Ensystems, under a contract from SHAKTI Sustainable Energy Foundation, has conducted research on various aspects of Demand Side Management (DSM) and developed a compendium of four papers. This webinar delved into the findings of the papers on the following topics:

- Perform Achieve Trade Scheme and its Alignment with DSM
- Analysis of Financial Health of DISCOMs
- Agriculture DSM- New Delivery Mechanisms
- Retail Competition and Load Management Certificates in India

#### Webinars on Global Cooling Prize

**February 2019:** A webinar where Ankit Kalanki from Rocky Mountain Institute and Yash Shukla from CEPT University presented the Prize Criteria and answered questions from those in attendance.

**March 2019:** Announcement from the Global Cooling Prize team on the Detailed Technical Application for the prize on launching. The application form after assessment by the Technical Review Committee will award up to 10 breakthrough cooling technologies \$200,000 (USD) each to develop their prototypes for the final testing phase of the prize.

# AEEE Events & Training Calendar April to March 2018-19

No	Event Type	Theme	Venue	Date	Participants
1	Exhibition	Business opportunities for our ESCOs Members CAHOCON Exhibition for Hospitals on Energy Efficiency	Chennai	6-8 Apr	40
2	Business Meet	Promoting ESCO based ESPC based projects for end consumers of BYPL and Members	New Delhi	24 Apr	101
3	Exhibition	AEEE Stall at World Environment Day	New Delhi	2-5 June	WED
4	Members Meet	AEEE Members and Partners Meet	Mumbai	15-Jun	29
5	Business Meet	promoting ESCO based ESPC based projects for end consumers of Tata Power DDL and Members	New Delhi	20 June	67
6	Strategy Meeting	AEEE Strategic Retreat	New Delhi	20-Jul	20
7	Panel Discussion on EV	AEEE-ISGF Panel Discussion on Preparing the Grid for the 21 <sup>st</sup> Century Challenges	Bangalore	26-Jul	30
8	Training	16 <sup>th</sup> Round Certified M&V Professional Training & Exam	Bangalore	26-28-Jul	17
9	Roundtable	Workshop on Enabling Energy Services Performance Contracts Catalysing the ESCO Market Through Business Facilitation	Bangalore	27-Jul	78
10	Launch Event	Release of first report on State Energy Efficiency (EE) Preparedness Index	New Delhi	1-Aug	110

# AEEE Convenings

No	Event Type	Theme	Venue	Date	Participants
11	Launch Event	Launch of the Green Vehicle Rating for 2 and 3-wheelers: India's1stvehiclerating system based on environmental performance	New Delhi	28-Aug	33
12	IGF Report Launch	Release of Reports on Cooling Demand and Energy Efficiency Potential in India	New Delhi	4-Oct	Supporting Partner of IGF
13	Launch Event	Launch of Global Cooling Prize (GCP)	New Delhi	12-13-Nov	172
14	Roundtable	Sustainable and Smart Space Cooling Coalition Meeting	New Delhi	20-Nov	23
15	Roundtable	Sustainable and Smart Space Cooling Coalition Meeting	New Delhi	5-Dec	20
16	GCP Regional Meet	Global Cooling Prize(GCP) regional meet	Mumbai	11-Dec	38
17	GCP Regional Meet	Global Cooling Prize(GCP) regional meet	Chennai	13-Dec	35
18	Business Meet	KASSIA-AEEE Seminaron Energy Efficiency for Business Competitiveness	Bangalore	12-Feb	60
19	Webinar	Webinar on Global Cooling Prize	Online	20-Feb	Supporting Partner of RMI
20	Webinar	Webinar on Global Cooling Prize	Online	22-Feb	Supporting Partner of RMI
21	International Conclave	International Energy Services Conclave 2019	New Delhi	6-8-Mar	242
		Competitiveness			

AEEE has on board domain experts and dedicated professionals who are actively engaged in taking AEEE to the nextlevel.

Dr Satish Kumar, President and Executive Director
Dr Koshy Cherail, Director
Sudha Setty, Director
Sneha Sachar, Senior Programme Lead
Sangeeta Mathew, Programme Lead
Shyamasis Das, Principal Research Associate
Sandeep Kachhawa, Senior Research Associate
Deepak Tewari, Senior Research Associate
Chandana Sasidharan: Senior Research Associate
Mohini Singh, Senior Research Associate
Akash Goenka, Research Associate
Bhawna Tyagi: Research Associate
Neha Yadav, Research Associate
Akshay Pandey, Research Associate
Gerry George, Research Associate
SaikiranKasamsetty, Research Associate
Swati Lal, Office Manager
Debashis Chakraborty: Manager - Finance & Compliance
Sumit Sharma, Assistant Manager Accounts
Bhairav Sharma, Executive Officer

#### ALLIANCE FOR AN ENERGY EFFICIENT ECONOMY

#### BALANCE SHEET AS AT 31ST MARCH 2019

LIABILITIES	Note	AMO	UNT (RS.)	ASSETS	Note	AMOUNT (RS.)
Capital Account			10 - 10	Fixed Assets	11	35,27,751
Corpus Fund	1		77,05,517	Investments		
Capital Grant Reserve	2		21,80,013	Fixed Deposits (Corpus Fund)	6	62,79,258
Current Liabilities				Current Assets		
Sundry Creditors & Other Payables	3		82,38,224	Interest accrued on FDR		66,058
Duties & Taxes	4		14,82,466	Security Deposits		3,55,000
Grant Balances	5		5,87,96,062			
Membership Fees in Advance			20,70,134	Cash &Bank Balances	7	7,16,24,824
				Other Current Assets		
				TDS Receivable	8	10,98,390
				Other Advances	9	3,53,772
Income & Expenditure				Income Receivables	10	56,15,515
Opening Balance		73,68,231				
Add: Excess of Income over						
Expenditure for Current Year		27,30,922				
Less: Appropriation towards						
Corpus Fund	24	16,51,000	84,48,153			
Total			8,89,20,569	Total		8,89,20,569

As per our report of even date

For Singh K V Gupta & Co Chartered Accountants (FRN 000133N)

Aatish Aumar.

Chairman

Chairperson Executive Council Alliance For an Energy Efficient Economy

For Alliance for An Energy Efficient Economy

Satish Kumar Secretary Alliance For an Energy Efficient Economy

Place: New Delhi

Partner

M.No. 085908

CA Rakesh K Agarwa

1 8 JUL 2019

UDIN: 19085908AAAAAX8859

## Financials 2018-19

#### ALLIANCE FOR AN ENERGY EFFICIENT ECONOMY

INCOME ANI	D EXPENDITU	RE ACCOUNT FOR	THE YEAR ENDED 31ST MARCH 2019	
EXPENDITURE	Note	AMOUNT (RS.)	INCOME Note	AMOUNT (RS.)
NON PCRA Project Related Differt	xpenditure	2 29 971	Non recka ribjetis keteipis & Grants	( 00 000
Professional Services Contract:Oracle	12	1.69.06.110	Oracle India Pvt. Ltd	6,00,000
DMI	13	9 92 039	Professional Services Contract: ACEEE	1,52,30,987
NIPPO	14	12 58 887	RMI NBDC	18,63,571
ICEE	15	3.04.516	NRDC	13,80,278
ICA .	16	8 69 838	IGBF	1,90,233
IEA	17	(96.411)	IEA	20,33,932
LBNL	18	39 20 412	LBNL	
SSEF- Core	19	35,20,412	Core(Unrestricted) Grant from SSEF	50,00,000
ESCO Conclave IESC2019	20	25,64,555	Sponsrship & Other Income EE conclave	25,83,482
Global Cooling Prize- DST	21	33,82,080	Grant Received (DST-GCP)	35,82,080
Smart Cities Initiative	22	7,942	Sponsrship-Smart Cities Initiative	5,00,000
PCKA Project Related Expenditure		02 50 710	FCRA Projects Receipts & Grants	
ESCO Market II	23	82,58,710	Grant Received (ESCO Market )	82,58,710
Space Cooling 2	24	60,35,792	Grant Received (Space Cooling 2)	60,35,792
DEM Neurolation	25	18,86,665	Grant Received (Vehicle Rating Program)	18,86,666
DSM Newsletter	26	11,04,746	Grant Received (DSM NewsLetter )	11,04,746
Altordable Housing	27	25,86,046	Grant Received (Attordable Housing)	25,86,046
Oak Core Grant	28	19,91,477	Grant Received (Oak Core Grant)	19,91,477
SSEF- Electrical Vehicle	29	8,29,577	Grant Received (Elecrical Vehicle)	8,29,577
SSEF- NCAP	30	44,87,341	Grant Received (NCAP)	44,87,341
Good Energies	31	15,62,192	Grant Received (Good Energies Foundation)	15,62,192
MacArthur	32	7,51,780	Grant Received (Macarthur Foundation)	7,51,780
Administrative Expenditure				
Salary		3,44,525	Membership Fees Received	11,05,234
Professional Services		1,47,099		
Travel Expenses		1,06,059	Other Income	
Difference in Foreign Exchange		22,830	Interest Received on FD	3,21,182
Communication Expenses		1,488	Interest on IT Refund	4,128
Conveyance		43,795	Bank Interest	3,49,083
Depreciation	11	7,41,088	CMVP Training & Certification	8,61,200
Rates and taxes		5,440	CMVP Renewal Certificate	85,067
Meeting and Conference		1,81,204	Transfer from Capital Grant Reserve	4,77,388
Staff Capacity Building Exps		26,555		
Mise, Exp.		5,001		
Office Expenses		2,419		
Office Rent		22,222		
Office & IT Maintenance		46,080		
Legal & Accounting		8,260		
Reports/Books Exps		8,779		
Postage & Courier Expenses		3,177		
Bank Charges		4,483		
Interest on TDS		600		
Committee & Members Meeting Expens	es	75,519		
Accounts Written Off		10,597		
Printing and Stationery		2,29,975		
Staff Welfare Expenses		2,64,184		
CMVP Training & Certification		5,75,828		
Excess of Income over Expenditure		27,30,922		
Total		6,56,62,173	Total	6,56,62,173

#### As per our report of even date

For Singh K V Gupta & Co Chartered Accountants ... GUPTA (FRN 000133N)

FW DELHI

UDIN: 19085908AAAAABX8855

atish Aumap Secretary

6 CA Rakesh K Ag wal Partner M.No. 085908 Place: New Delhi Dated:

18 JUL 2019

Satish Kumar Secretary Alliance For an Energy Efficient Economy

Chairperson **Executive Council** Alliance For an Energy Efficient Economy

For Alliance for An Energy Efficient Economy

#### ALLIANCE FOR AN ENERGY EFFICIENT ECONOMY

#### RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH 2019

RECEIPTS Opening Cash & Bank Balances	AMOUNT (RS.) 2,16,61,232	PAYMENTS		AMOUNT (RS.)
Project Related Income/ Grants Non FCRA Projects		Project Related Direct Expenditure Non FCRA Projects		
		Professional Services Contract:Oracle	1	2,29,971
Professional Services Contract:ACEEE	1,54,03,913	Professional Services Contract:ACEEE	2	1,74,27,935
RMI	9,47,207	RMI	3	9,92,039
NRDC	22,25,850	NRDC	4	12,74,883
IGEF	13,30,411	IGEF	5	3,04,516
IEA	20,33,932	IEA	6	8,69,838
LBNL	35,19,467	LBNL	7	20,37,133
Core(Unrestricted) Grant from SSEF	50,00,000	SSEF- Core	8	38,59,384
Sponsrship & Other Income EE conclave	7,05,347	ESCO Conclave IESC2019	9	25,83,337
Grant Received (DST-GCP)	1,02,45,054	Global Cooling Prize- DST	10	34,09,287
		Smart Cities Initiative	11	7,942
ECRA Projects Grant Received (ESCO Market )	88,78,667	FCRA Projects ESCO Market II	12	80,82,554
Grant Received (Space Cooling 2)	42,49,868	Space Cooling 2	13	60,22,018
Grant Received (Vehicle Rating Program)	52,54,357	Vehicle Rating Program	14	29,11,675
Grant Received (Oak Core Grant)	70,90,000	Oak Core Grant	15	27,96,855
Grant Received (NCAP)	44,38,693	SSEF- NCAP	16	41,52,774
Grant Received (Good Energies Foundation)	1,56,43,000	Good Energies	17	11,93,548
Grant Received (Macarthur Foundation)	3,46,26,250	MacArthur	18	6,94,049
		SSEF- Electrical Vehicle	19	7,82,782
		DSM Newsletter	20	11,99,138
		Affordable Housing	21	74,22,801
Membership Fees Received	12,65,000	Administrative Expenditure		
Other Income		Salary		3,44,525
Interest Received on FD	3,13,674	Professional Services		1,47,099
Interest on IT Refund	4,128	Travel Expenses		1,06,059
Bank Interest	12,66,886	Difference in Foreign Exchange		22,830
CMVP Training & Certification	8,61,200	Communication Expenses		1,488
CMVP Renewal Certificate	85,067	Conveyance		43,635
Corpus Donation Received	5,00,000	Rates and taxes		5,440
		Meeting and Conference		1,90,784
GST Received	4,01,672	Interest on TDS		600
TDS Recovered	75,80,390	Staff Capacity Building Exps		26,555
Refund of rent security	64,390	Misc. Exp.		5,001
Income Tax Refund	75,062	Office Expenses		2,419
		Office & IT Maintenance		46,080
		Legal & Accounting		8,260
		Reports/Books Exps		8,779
		Postage & Courier Expenses		3,177
		Bank Charges		4,483
		Committee & Members Meeting Expenses		85,549
		Accounts Written Off		10,597
		Printing and Stationery		2,29,975
		Staff Welfare Expenses		2,64,184
		CMVP Training & Certification		8,88,040
		Audit Fees		37,800
		Advance Recoverable		64,636
		GST Paid		6,19,418
		TDS Paid		72,84,684
		Fixed Assets Purchased		25,62,291
		investment in Bank FDR		24,86,320
		Cash & Bank Balance		2,90,725
		Same of Barris Burrisy.		7,10,24,624

Total

15,56,70,717 Total

15,56,70,717

As per our report of even date

(FRN 000133N)

C 060 CA Rakesh K Agar Partner

M.No. 085908

For Alliance for An Energy Efficient Economy

L.N. GUPT For Singh K V Gupta Chartered Accountan

Satish Kumar

Secretary

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Chairperson **Executive Council** Alliance For an Energy Efficient Economy

Place: New Delhi Dated: UDIN:

Secretary Alliance For an Energy Efficient Economy 1 8 JUL 2019

UDIN. 1908590SAAAAALX8859

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