Alliance for an™ Energy Efficient Economy

IESC

International ENERGY SERVICES Conclave 2019

Energy Efficiency for Business Competitiveness

6 - 8 March 2019 | New Delhi, India

CONCLAVE PROCEEDINGS

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Energy Efficiency For Business Competitiveness

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Organized by

Alliance for an Energy Efficient Economy (AEEE)

Co- Organised by

Bureau of Energy Efficiency (BEE)

TABLE OF CONTENTS

1. OVERVIEW

Alliance for an Energy Efficient Economy (AEEE) is founded on the bedrock of energy efficiency and clean energy to be integrated in every process and application. This would be the least disruptive path to adapt to climate change. India's economic growth, has been heavily dependent on oil, coal and gas. Though renewable energy has increased its share, the dependence on conventional energy sources continues to be high. The imports of these has risen steeply, and this is unsustainable.

Energy efficiency is called as the first fuel, as it helps to extend the use of conventional as well as renewable energy, by raising the productivity of the end-users. For industry, and transport energy is a significant part of operating costs. Therefore, higher efficiency in systems and processes would directly contribute to higher profitability for manufacturers, businesses and industry.To enable scaling up of business through customer centric energy efficiency services, AEEE and Bureau of Energy Efficiency (BEE) had jointly organised the first "International Energy Services Conclave (IESC) 2019 – Energy Efficiency for Business Competitiveness" on 6-8 March 2019, New Delhi. The Conclave aimed to enable scaling up of business through customer centric energy efficiency services.

The conclave focused on positioning energy efficiency as an integral element to the firm's business strategy and a key differentiator for business competitiveness in the emerging market landscape. It's objective was to bring together decision makers from End Customer segment (Industries- Large, Medium & Small, Buildings - Hotels, Hospitals & Offices, Municipalities & Public Sector), OEMs, Technology & Service Providers, Banks & FIs, and StartUps to innovate on energy efficiency service delivery models and improve competitiveness of end customers to increase the adoption of energy efficiency measures.

The adoption of EE measures in Commercial, Industrial, Municipal and Agriculture sector end uses can result into 25~30% of electrical energy savings. A large portion of this can be captured and delivered through different energy service business models resulting in overall lifestyle upgrade for citizens and the mitigation of climate change impacts.

This 3-day information rich programme was designed around a framework of "creating business competitiveness for consumers, enabling citizen-centric energy services delivery mechanisms and creating an ecosystem of technological certainty and data transparency." It examined the best practices and successes of today, within the context of emerging trends and technologies of tomorrow, to scale up and leverage the energy and non-energy benefits of EE well into the future years.

2. STEERING **COMMITTEE**

1	**Mr. Abhay Bakre** *Director General* Bureau of Energy Efficiency (BEE)
2	**Mr. Rajesh Miglani** *Senior Climate Business Specialist* International Finance Corporation(IFC)
3	**Mr. Arun Bhatia** *Managing Director* United Technologies Corporation (UTC)
4	**Mr. Alexander Ablaza** *Co-Chair* Asia-Pacific ESCO Industry Alliance (APEIA)
5	**Mr. Mark Lister** *Managing Partner* Asia Clean Energy Partners
6	**Dr. Winfried Damm** *Director Indo-German Energy Programme* GiZ
7	**Mr. Mohandas Mekanapurath** *Business Head* Bosch Energy and Building Solutions India
8	**Mr. Upendra Bhatt** *Chairperson* Alliance for an Energy Efficient Economy (AEEE)
9	**Dr. Satish Kumar** *President and Executive Director* Alliance for an Energy Efficient Economy (AEEE)

3. IESC **CORE TEAM**

AEEE

S.No	Name	Designation	Email Id
1	Dr. Satish Kumar	President and Executive Director	satish@aeee.in
2	Dr. Koshy Cherail	Director	koshy@aeee.in
3	Mr. Deepak Tewari	Senior Research Associate	deepak@aeee.in
4	Mr. Akshay Pandey	Research Associate	akshay@aeee.in
5	Ms. Srishti Sharma	Research Assistant	srishti@aeee.in
6	Mr. Bhairav sharma	Executive Officer	bhairav@aeee.in

BEE

S.No	Name	Designation	Email Id
1	Mr. Abhay Bakre	Director General	dg-bee@nic.in
2	Mr. Arijit Sengupta	Director	asengupta@beenet.in
3	Mr. Amresh Ray	Project Engineer	amresh.ray@beenet.in

4. PROGRAMME **AGENDA**

International Energy Services Conclave 2019
Energy Efficiency For Business Competitiveness
Hotel Le Meridien, Windsor Place, New Delhi
6Th, 7Th And 8Th Of March 2019

March 6th, Day 1- Conclave Curtain Raiser, CEO Panel Discussion Followed by AEEE 10th Anniversary Dinner

02:00 PM – 03:00 PM	**Registration and Welcome Tea and Coffee**
03:00 PM – 04:30 PM	**Curtain Raiser** 1. Welcome Address by Mr. Upendra Bhatt, Chairman, AEEE 2. Thematic Address- "Energy Efficiency as the First Fuel- A Potent Profit Accelerator for Businesses" by Mr. Ravichandran Purushothaman, President - India Region, Danfoss Industries 3. Special Address by Mr. Abhay Bakre, DG, BEE 4. Keynote Address by Mr. Anil Jain, Addl. Secretary, MoEFCC 5. Launch of AEEE Report and Presentation titled "Energy Efficiency- A Compelling Value Proposition and Enabling Resource for Smart Cities" by Dr. Satish Kumar, President and Executive Director, AEEE 6. Vote of Thanks by Dr. Koshy Cherail, Director, AEEE
04:30 PM – 05:00 PM	**Tea and Networking Break**
05:00 PM – 07:00 PM	**CEO Panel Discussion: *Enhancing Business Competitiveness through Customer-Centric Energy Efficient Products and Services*** Description: *The CEO Roundtable brings into focus the critical positioning of energy efficiency measures as integral to an enterprise's business strategy by either enabling a sustainable differentiation or reducing cost or both for its products. In this endeavour, Energy Efficiencies capabilities seek to challenge the business leadership to take a customer-centric view (i.e. view of its own customers) of their internal value chain and leverage to the fullest potential of the emerging EE and digital technologies to realize the organisational goals, with energy efficiency as an enabling tool at Industrial plants, buildings, infrastructure or residences.* This strategically transformative role of energy services sector to realize business competitiveness can play a crucial role in the decarbonization of economy and integrating energy efficient systems and processes as the bedrock of new, expanding urban complexes, smart cities and industrial infrastructure. This is the key if India is to meet and exceed its NDC targets and achieve an all-round sustainable growth. **Chair:** Mr. Anirban Ghosh, CSO, Mahindra Group **Panelists:** • Mr. Saurabh Kumar, MD, Energy Efficiency Services Limited • Mr. Stephane Le Gentil, Head of EE, Engie, CEO & Founder at Wattaqa • Mr. Anil Chaudhry, Zone President, Greater India and MD, Schneider Electric • Mr. Ranganath Krishna, MD, Grundfoss • Mr. Mohandas Mekanapurath, Business Head, Bosch Energy and Building Solutions India
07:00 PM – 09:30 PM	**AEEE 10th Anniversary Cocktail and Dinner - Hosted by AEEE**

END OF DAY 1

International Energy Services Conclave 2019

Energy Efficiency For Business Competitiveness

March 7th, Day 2- Inaugural Session and TechnoBuzz Inauguration followed by Executive Panel Discussions and Conference Dinner

08:15 AM – 09:00 AM	**Registration, Tea and Networking**
09:00 AM – 10:15 AM	**Inaugural Session** • Welcome Address- Mr. Upendra Bhatt, Chairman, AEEE • Special Address- Ms. Vida Rozite, Energy Policy Analyst, International Energy Agency • Theme Address- *Enabling Market Competitiveness Through Visionary Policies to Turbo Charge the Energy Services Sector- DG, BEE* • Launch of Whitepaper on: "Behavioral Energy Efficiency Potential for India", *Prepared by AEEE and Oracle Utilities* • Vote of Thanks- Dr. Satish Kumar, President and Executive Director, AEEE • Exhibition and TechnoBuzz Inauguration
10:15 AM – 11:30 AM	**Executive Panel Discussion #1: *Operationalizing the Performance-based EE aligned business strategy with Disruptive Technologies and Innovative Business* Models** Description: *This Executive Panel highlights the critical role of (a) digitalisation, (b) the emergence of advanced energy efficiency technologies, energy efficiency delivery models and innovative business models, and (c) the challenges in operationalising the company's business strategies. It takes a consumer's point of view and looks at what drives the demand for energy services and what innovative implementation models from around the world, especially in the advanced economies, that have overcome the challenges (e.g. public policy, financing, contract design, collaborative platforms, trust deficit among stakeholders, etc.) and delivered the targeted unique value propositions for Industries, SMEs, Buildings and Public Infrastructure. Success stories from across the globe will highlight the critical role of a) the business leadership in incorporating EE goals into their firms' operations; b) policy makers in helping create or expand the energy services ecosystem.* **Chair-** Mr. Padu S Padmanabhan, Executive Council Member, AEEE **Panelists-** • Mr. Clay G Nesler, VP- Global Sustainability and Energy, Johnson Controls • Mr. K Narayan Rao, Director, ACC Cements • Mr. Sudheer Perla, VP- Business Development, Tabreed • Mr. Vincent Minier, VP- Global Energy Public Policy, Schneider Electric • Mr. Guruprakash Sastry, Regional Head- Infrastructure, Infosys
11:30 AM – 12:00 PM	**Tea and Networking Break**
12:00 PM – 01:15 PM	**Executive Panel Discussion #2: *Role of Financing Models in Scaling Energy Efficiency Implementation*** Description: *Small ticket size of typical energy efficiency services projects leading to high transactions costs has been one of the chief barriers to EE financing. Why has the concept of cash-flow based noncollateral funding of such projects and businesses stumbled in India, despite several risk-mitigation strategies and option? How can existing financing options and related issues (internal accruals, hurdle rate, capital lease vs. operating lease, insurance for performance contracts, green tech/spec procurement, etc.) be applied by the firms and/or their energy services providers to realize EE targets? What are the new financing options? What has been the experience of the large Banks and FIs with available financing options and have the non-banking financial companies (NBFCs) be able to make viable investments in EE services sector? The session involves financing experts from a cross-section of CFOs, Procurement Heads, Banks and (NB)FIs.* **Chair-** Mr. Upendra Bhatt, Chairperson, AEEE; MD, cKinetics

	Panelists- • Mr. Alexander Ablaza, CEO, Blue Sky Energy • Mr. Manish Chourasia, Managing Director, Tata CleanTech Capital • Dr. Peter Du Pont, Managing Partner, Asia Clean Energy Partners • Mr. Sanjiv Aggarwal, Partner, ACTIS	
01:15 PM – 02:15 PM	**LUNCH**	
02:15 PM – 03:30 PM **(Parallel Sessions)**	**Executive Discussion #1:** ***Role of energy services in delivering savings for Industries and their Supply chain*** **Description**: Industries are coping with growing power demand, rising tariffs, power quality & competition, challenges of clean production and trying to adopt to circular economy. In the times of advanced automation and control and data analytics, is there a win-win model for delivering energy services that will enable business competitiveness for energy-intensive industrial customers? **Chair-** Dr. N. P. Singh, Senior Technical Advisor, UNIDO **Panelists-** • Mr. Sandeep Shrivastava, Head-Sustainability, Ambuja Cements • Dr. Ashok Kumar, Director, BEE • Mr. Sanjeev Ranjan, MD, International • Copper Association • Ms. Zhao Ming, Secretary General, EMCA, China • Mr. Rajat Batra, CEO, STENUM Asia	**Executive Discussion #2:** ***Role of energy services in delivering efficiency through IT Enabled Solutions in the Buildings Sector*** **Description**: Public sector buildings, private hospitals and hotels and other commercial building infrastructure have been emerging as major target segments in the buildings sector for energy services projects in India. BEE's PAT program has targeted several energy-intensive buildings as well. How has this market evolved, who are the players and what makes this potential growth sectors for energy services? **Chair-** Ms. Vida Rozite, Energy policy Analyst, International Energy Agency **Panelists-** • Mr. Arjun Gupta, CEO, Smart Joules • Pvt. Ltd • Mr. Nilesh Sawant, Vertical Head- EE, • Bosch • Mr. Peerasut Thirakomen, General Manager, Goldmark Tech Supply Co • Mr. Vijay Ganesh Viswanathan, Client Engagement Manager, UTC ECO Energy
03:30 PM – 04:00 PM	**Tea and Networking Break**	
04:00 PM – 05:15 PM **(Parallel Sessions)**	**Executive Discussion #3:** ***Utilities and End Use Energy Efficiency: New Role of DSM programme for Utilities*** **Description**: In the rapidly changing business environment, Utilities need to reconsider their strategies to increase its level of engagement with their customers. How can the Utilities widen their portfolios and provide a mix of programs which include renewable energy services, digitalised and advanced demand response, behavioural energy efficiency and incentive/rebate-based programs for different segments of customers? **Chair-** Mr. Mahesh Patankar, MD, MP Ensystem **Panelists-** • Ms. Marisa Uchin, Vice President, Oracle Utilities • Mr. Abhishek Ranjan, Head - Renewables & DSM, Power Planning & Scheduling, Energy Analytics, BRPL • Mr. Arun Kumar, CEO, KREATE • Mr. Ranjit Bharvirkar, Principal and India Program Director, RAP • Mr. Devanshu Sharma, Manager, BYPL	**Executive Discussion #4:** ***Energy Efficiency Services as a driver for improving Municipal and Public Infrastructure sector*** **Description**: Super-ESCOs such as EESL have been enormously successful in implementing large scale programs in the municipal and public infrastructure segment. How can the smaller businesses participate and offer their services to transform the public services and infrastructure in a reliable and cost- effective fashion, with tools like smart sensing and metering, and help in creating the next generation low-carbon infrastructure in Indian cities? **Chair-** Mr. Venkatesh Dwivedi, Chief Operating Officer, EESL **Panelists-** • Ms. Afra Al Owais, Chief Efficienology Officer, Sharjah Electricity and Water Authority • Mr. Sivaram Krishnamoorthy, Operations Officer- Energy and Resource Efficiency, IFC • Mr. Arijit Sengupta, Director, BEE • Mr. Santosh Misra, Director, CITELUM INDIA Private Limited
07:00 PM – 09:30 PM	**Conference Dinner**	

END OF DAY 2

International Energy Services Conclave 2019

Energy Efficiency For Business Competitiveness

March 8th, Day 3- Executive Presentations & Panel Discussion followed by BIZ-Talk Sessions and Close of Conclave

08:30 AM – 09:30 AM	**Registration**	
09:30 AM – 11:30 AM	**Executive Presentations:** ***Role of Non-Profit Organisations and Multilateral-Bilateral Organisations (MBOs) in Realising National Energy Efficiency Goals under NDCs*** **Description**: Non-profit Organisations such as Policy Think Tanks, Industry Associations, Grassroot Awareness Building and Activist Organisations, etc. and MBOs have played key roles in advancing the case of energy efficiency by identifying and creating opportunities; influencing policies; facilitating finance; training and capacity building of service providers and creating awareness among end-customers. Successful case studies and examples showcasing best practices in the field of policies, implementation, financing, training, etc. will be featured. **Chair-** Mr. Krishan Dhawan, CEO, Shakti Sustainable Energy Foundation **Panelists-** • Ms. Vida Rozite, Energy Policy Analyst, International Energy Agency • Ms. Lily Zhao Ming, Vice Director, China Energy Conservation Association • Mr. Alexander Ablaza, President, Philippine Energy Efficiency Alliance (PE2), and Co-Chair, Asia-Pacific ESCO Industry Alliance • Dr. Daniel Bradley, First Secretary & Team Leader, British High Commission • Mr. Mark Lister, Managing Partner, Asia Clean Energy Partners • Ms. Apurva Chaturvedi, Program Management Specialist, USAID	
11:30 AM – 12:00 PM	**Tea and Networking Break**	
12:00 PM – 01:30 PM	**Executive Panel Discussion #3:** ***Measurement & Verification 2.0: Transforming the M&V Practices for Energy Efficiency Services Market through disruptive technologies like Digital Sensing, Metering and Advanced Data-Analytics*** **Description**: The session will discuss the needs of consumers in requesting quicker and reliable feedback loop on effectiveness of energy services solutions on one hand and the advancement in sensor, metering IoT and cloud technology coupled with evolution and maturity of sophisticated data analytics, machine learning and artificial intelligence on the other that should lead to M&V 2.0 with an overhaul of decades old legacy protocols. The focus needs to be squarely on helping energy consumers and facility-managers to track specific and measurable targets and validate attainable and realistic energy savings in a technically rigorous and objective fashion. **Chair-** Mr. Aalok Deshmukh, General Manager, Schneider Electric **Panelists-** • Mr. Peerasut Thirakomen, General Manager, Goldmark Tech Supply Co • Mr. Mahesh Kulkarni, AGM-Maintenance- Shirwal Manufacturing Units, Godrej Interiors • Mr. Amarjeet Singh, CTO, Zenatix • Mr. Arjun Gupta, CEO, Smart Joules Pvt. Ltd • Mr. Deepak Gokhale, General Manager, Aditya Birla Group • Mr. Shailendra K. Varma, Property Asset Management, JLL	
01:30 PM – 02:30 PM	**LUNCH**	
02:30 PM – 03:45 PM **Presentations (Parallel Session)**	**Biz-Talk #1:** ***Commercial Buildings: EE Solutions to achieve scale*** **Description**: India's steeply rising building footprint will likely pose serious challenges to energy security. Can better Design and O&M practices, emerging innovative technologies and advanced energy management techniques help raise the level of efficiency and scale the EE interventions?	**Biz-Talk #2:** ***Industries and Supply Chain: EE Solutions to achieve scale*** **Description**: Industrial efficiency markets word- wide have seen the most advanced technology intervention and O&M practices and yet there is vast potential still untapped. India has several global and indigenous industrial market players and diverse businesses that can benefit from EE technologies, especially the SMEs. Learn about the policies and the business models that can fast track the adoption of EE in this ever-advancing sector.

	(Shading Controls, HVAC Optimisation, Intelligent Pumping Systems, IoT Solutions, BMS/EMS, Geothermal Cooling Systems) **Chair-** Mr. Tanmay Tathagat, Executive Director, Environmental Design Solutions **Panelists-** • Mr. Ayaz Kamil, Head- Buildings Division, Siemens • Mr. Pierre Jaboyedoff, Head of BEEP PMTU Switzerland; Associate, Effin'Art Sarl • Mr. Srinivasa Rajkumar, Senior Manager- Commercial Building Services, Grundfos • Mr. Madhusudan Rao, Managing Director, Oorja • Mr. Sumit Nawathe, Business Consultant, EnergyTech Ventures	*(WHR, Steam Optimisation, MV Drives for Pumps and Fans, Cogeneration/ Trigeneration, Power Optimisation, Industries 4.1)* **Chair-** Dr. G. C. Dutta Roy, Founder and Ex-CEO, DESL **Panelists-** • Mr. Syed Nazeer, Director Strategic Business Development - Asia Pacific and India, Danfoss • Mr. Ashish Vaishnav, Global Corporate Head, Thermax • Mr. Halingali Vidyasagar, Senior Techno-Commercial Expert, Bosch Energy & Building Solutions • Mr. Aditya Girotra, Head of Sales, Ecolibrium Energy
03:45 PM – 04:15 PM	**Tea and Networking Break**	
04:15 PM – 05:30 PM **Presentations** **(Parallel Session)**	**Biz-Talk #3:** ***Municipal & Public Services: EE solutions to achieve scale*** **Description**: This session will deliberate on use of smart and efficient technologies and its application through energy services business in multiple public sector, highlighting the high potential resulting from largely inefficient infrastructure and the need for dedicated public investment and reliable energy services providers with focused business strategy *(Street Lighting & Controls Systems, Pumping System, Smart Metering, District Cooling, Power Distribution)* **Chair-** Mr. S.P. Garnaik, CGM- Technical, EESL **Panelists-** • Mr. Benjamin Hickman, Regional Technical Advisor, District Energy in Cities Initiative, UN Environment • Mr. Arindam Paul, Founding Member, Atomberg Technologies Pvt Ltd. • Vivek Jain, General Manager, Signify Innovations India Limited • Mr. Sachin Kumar, Manager, Shakti Pumps	**BIZ-Talk #4:** ***Cold Chain & Refrigeration: Solutions to achieve scale*** **Description**: India has been facing a challenge for efficient cold chain infrastructure, which has been leading to food loss and impacting farmer's income. This session aims to highlight proven technology solutions, business models, government subsidy schemes, and best practice models to ensure efficiency, minimal food losses and environmental impact. **Chair-** Mr. Shubhashis Dey, Program Manager, Shakti Sustainable Energy Foundation **Panelists-** • Mr. Neeraj Narula, Manager- Cold Chain, Danfoss • Mr. J.M. Gupta, Managing Partner, Control Environment Creator • Mr. Mukesh Agarwal, Vice President and Coordinator- Govt Affairs, Federation of Cold Storage Association of India • Mr. Sandeep Kachhawa, Sr. Research Associate, AEEE
5:30 PM – 6.00 PM	**Highlights, Way Forward and Closing Remarks** • Ms. Sudha Setty, Director, AEEE • Mr. Pankaj Kumar, Secretary, Bureau of Energy Efficiency	

CLOSE OF CONFERENCE

5. SPEAKER'S PROFILE

Aalok Deshmukh

General Manager

Schneider Electric India

Aalok Deshmukh has over 17 years of experience spanning contributions to more than 125 projects in 11 countries, including energy efficiency implementation, consulting and research in the corporate, government and non-profit sectors. In 2016, he was recognized as a Leadership in Energy and Environmental Design Fellow (LEED Fellow), the highest professional credential awarded by Green Business Certification, Inc., USA. He has experience in sustainability strategy, green buildings, building energy benchmarking and energy code implementation assistance, building simulation, energy auditing, building commissioning and retro-commissioning, as well as measurement and verification.

Abhay Bakre

Director General

Bureau of Energy Efficiency

Shri Abhay Bakre is a Post Graduate (M. Tech.) in Elect. Engineering from IIT, Kharagpur. He has worked in several Railway projects including Delhi Metro & Kolkata Metro extension projects. He has also worked as Joint Development Commissioner in the Ministry of Micro, Small and Medium Enterprises and was Nodal officer for National Manufacturing Competitiveness Programme. As Executive Director PCRA, Ministry of Petroleum & Natural Gas, he has been instrumental in development and implementation of various programs aimed at petroleum & energy conservation in industry, transport, as well as domestic sector etc. Before joining BEE, he has worked as Executive Director in the newly created Environment Directorate of Ministry of Railways. He was the nodal officer for developing a roadmap for Green House Gas reduction in Indian Railways. After joining Bureau of Energy Efficiency (BEE) as DG in March 2017, his immediate focus was to carry on flagship programmes such as PAT scheme for industry sector and adoption of ECBC 2017 at State level.

Abhishek Ranjan

Head- RE, DSM and Special Initiatives

BSES Rajdhani Power Limited

Abhishek has about two decades of experience in Power and Information Technology sectors in India. He started his career with Infosys Technologies Limited, an IT company based in India, where he worked on development of enterprise applications for a major US utility and a technology MNC. He is currently leading a team in the areas of Energy Efficiency & Demand Side Management, Renewable Integration and Rooftop Solar, grid level Energy Storage solutions, EV charging infrastructure, Power scheduling & demand forecasting and Energy Analytics at BSES Rajdhani Power Limited (BRPL), New Delhi.

Aditya Girotra

Head – BusinessDevelopment

Ecolibrium Energy

Aditya is the Head – Business Development of Ecolibrium Energy– a Smart Energy Management company focusing on empowering industrial and commercial enterprises to improve their asset efficiency with IoT powered predictive maintenance. He leads the company's India sales and is responsible for driving the direct sales, strategic partnerships & key accounts. He has been associated with Ecolibrium since its inception and has been instrumental in achieving a 10X sales growth in the last 2years.Aditya has played a crucial role in managing Ecolibrium's customer base- which stands at 300 customers across the country today.

Afra Al Owais

Chief Efficienology Officer

SEWA

Afra Al Owais leads the Energy Management & Audit Department of Sharjah Electricity & Water Authority (SEWA). She joined SEWA in 2016 after qualifying with a degree in Sustainable & Renewable Energy Engineering from University of Sharjah. Afra was specially selected for her current role after distinguishing herself with strategic projects. She is passionate about environmental stewardship and promoting green growth which is one of the key goals of SEWA. Performing as a Sustainable & Renewable Energy Engineer, Afra contributes to policy and research in energy efficiency. Her vision is to bring about a sustained change in consumer behavior and energy efficiency practices. The title of Chief Efficienology Officer was recently bestowed in recognition of her determination and commitment to develop Green Growth.

Alexander Ablaza

President

Philippine Energy Efficiency Alliance (PE2)

Alex Ablaza's 35-year professional career has been dedicated to accelerating energy efficiency (EE) markets across developing Asia. He led the identification, structuring and due diligence in support of financial close of over $3 billion in EE investments and EE policy and market interventions in a growing list of countries which includes Bangladesh, China, India, Indonesia, Lao PDR, Malaysia, Nepal, Pakistan, Philippines, Singapore, Thailand and Vietnam. Alex currently serves as President of the Philippine Energy Efficiency Alliance (PE2) and as Co-Chairman of the Asia-Pacific ESCO Industry Alliance

Amarjeet Singh

CTO

Zenatix Solutions

Amarjeet Singh is co-founder and CTO of Zenatix Solutions and Asst Professor (CSE & ECE depts) at IIIT-Delhi. He has published in the domains of sensor networks, robotics, data analytics, artificial intelligence and environmental science. He co-founded Zenatix in January 2014 that is engaged in providing IoT based Automation for Retail Chains and BFSI segment helping them with energy efficiency, improved compliance and better asset management supported by predictive and preventive maintenance for their geographically distributed 100s of outlets. He has recievedaj MS and Ph.D. in Electrical Engineering at University of California, Los Angeles (UCLA) and BTech from IIT Delhi.

Anil Chaudhry

Zone President, Greater India and MD

Schneider Electric

Anil Chaudhry is a power sector veteran with over three decades of experience in energy and infrastructure segment. A strong votary of the usage of technology and smart grid initiatives, Anil brings with him extensive learning of digitisation of the power sector. Anil was appointed as the Managing Director and Country President of Schneider Electric India in the year 2013. Prior to this, he was the Senior Vice President, Global Sales Organisation, Infrastructure and a member of the Leadership Team in Paris. In July 2015, Anil was conferred the highest French civilian distinction – Chevalier de la Légion d'Honneur (Knight of the Legion of Honour) by President of Republic of France recognizing his significant contributions towards strengthening Indo-French economic relations.

Anil Jain

Additional Secretary

Ministry of Environment, Forests & Climate Change

Shri Anil Kumar Jain is a member of the Indian Administrative Service of the Government of India (IAS/ Madhya Pradesh/1986). Shri Anil Kumar Jain holds a BA (Honours) in Economics, an MBA, and a Diploma from the Indian Institute of Foreign Trade. Shri Jain has over three decades of administrative experience at the field and policy formulation levels in various Ministries/ Departments in the state and central governments. Shri Jain is presently Additional Secretary, Ministry of Environment, Forests & Climate Change, Government of India where he led the team towards preparation of the long-term energy demand and supply projection tool – IESS, 2047 (www.indiaenergy.gov.in). Shri Jain is also leading the effort towards framing the new National Energy Policy of the country.

Anirban Ghosh

Chief Sustainability Officer
Mahindra Group

Anirban Ghosh leads Sustainability at the USD 20.7 billion Mahindra Group. Under his leadership Mahindra has developed an award-winning Sustainability framework, become a founding member of the Carbon Pricing Leadership Coalition and the first to commit to doubling energy productivity. He has, in partnership with the World Bank, facilitated the creation of the Sustainable Housing Leadership Consortium to accelerate the spread of green buildings in India. Anirban has been an invited speaker at Global Climate Action Summit, COP21, The Climate Week, World Circular Economy Forum, GRI Global, EE Global, etc. featured in The Climate Reality Project and acknowledged as a Distinguished Sustainability Officer.

Apurva Chaturvedi

Senior Clean Energy Specialist,
USAID India

Apurva Chaturvedi is a clean energy professional currently working as Senior Clean Energy Specialist in the Clean Energy and Environment Office in USAID/India. She has over 12 years of experience in clean energy and power sector. She has the experience of designing and managing several clean energy programs at USAID. Her area of expertise is strategy formulation and program design & management. She is currently leading the smart grids, distribution reforms and energy efficiency portfolio of USAID's clean energy program in India. Prior to USAID she worked for British Council, British High Commission, as Project Manager-Climate Change for four years.

Arijit Sengupta

Director
Bureau of Energy Efficiency

Arijit Sengupta is a Director with the Bureau of Energy Efficiency, Ministry of Power, Government of India. In the present role, he is responsible for International Cooperation, Demand Side Management Matters, New Initiatives and Planning & Statistics. Apart from this, he is also responsible for coordinating with other Ministries and NITI Aayog on technical matters. In his earlier capacity, he was responsible for implementing energy efficiency schemes related to States in the country.

By training he is a MBA from Delhi University, Certified Energy Auditor and Chemical Engineer having around sixteen years of overall experience. Out of which around eleven years has been on Energy Efficiency.

Arindam Paul

Founding Member & head of marketing and strategy

Atomberg Technologies

Arindam is the founding member of Atomberg Technologies, a rapidly growing consumer durables start-up. Scaled up operations from 0 to INR 40 million/month within 3 years, and currently head sales, marketing and business strategy.

Arjun Gupta

Chief Executive Officer

Smart Joules

Arjun P. Gupta is on a mission to eliminate India's need for fossil fuels. He started Smart Joules in 2014 to drive energy efficiency improvements across India's businesses and factories. Arjun was recognized in 2014 as the Economic Times Young Leader by India's top CEOs, in 2015 as an Echoing Green Climate Fellow, in 2016 as Young Entrepreneur of the Year by Business Standard and as a Climate Strategies Accelerator Fellow by Packard Foundation, and in 2017 as a Young Disrupter by UNYCC. Arjun got his Master's degree from the Massachusetts Institute of Technology, and graduated from the University of California – Berkeley with Bachelor's degrees in Civil & Environmental Engineering and Economics.

Arun Kumar,

CEO

KREATE

Arun Kumar is the CEO of KREATE Group and holds the degrees in MBA, MA (Eco), Delhi School of Economics with 24+ years of experience in investment banking and consulting in the power sector.

Ashish Vaishnav

Corporate Marketing Head

Thermax Ltd.

Ashish Vaishnav has more than 30 years of experience in the field of Business development and Marketing. He holds the Bachelor's Degree in Mechanical Engineering, Malchand College of Engineering, Sangli. He has been closely associated with with vapour absorption chiller business at Thermax and has handled various responsibilities namely production, supply chain, Domestic & International sales & marketing.

Ashok Kumar

Director

Bureau of Energy Efficiency

Dr. Ashok Kumar is presently working as an Energy Economist at Bureau of Energy Efficiency (BEE), Ministry of Power, and Government of India. He is presently involved in the implementation of National Mission on Enhanced Energy Efficiency (NMEEE), a component of National Action Plan for Climate Change (NAPCC) of India in addition to other responsibilities. Under the mission, he is involved in the coordination of the Perform, Achieve and Trade (PAT), the flagship program under the mission which involves development of energy consumption norms and standards for energy intensive industrial sectors. Dr. Ashok Kumar holds a PhD degree from Center for Energy and Environmental Policy, University of Delaware, USA, in Energy and Environmental Policy with specialization in Energy Economics, Energy and Sustainability, Sustainable Development.

Ayaz Kamil

Head - Building Performance & Sustainability Division

Siemens

Ayaz Kamil Siemens is based in Mumbai, Maharashtra, India and has more than 10 years if experience. Currently he is the Head Building Performance & Sustainability Division at Siemens Building Technologies. He holds a degree in Masters in Marketing Management, General, Jamnalal Bajaj Institute of Management Studies.

Benjamin Hickman

Regional Advisor

UN Environment-led District Energy

Benjamin is regional advisor for Asia and Europe at the UN Environment-led District Energy in Cities Initiative and directly advising Indian cities and government on best practice technology, policy and business models to scale-up district cooling. Benjamin joined UN Environment in 2014 from an energy consulting background and was initially based in the Initiative's secretariat in Paris helping the Initiative grow to support 14 countries worldwide today. Benjamin has a background in renewable energy policy, financing and market modelling and a BA in Physics from the University of Oxford and an MSc in Environmental Technology and Energy Policy from Imperial College London.

Clay G Nesler

Vice President

Global Sustainability and Energy, Johnson Controls

Clay Nesler is the Vice President, Global Sustainability and Regulatory Affairs for Johnson Controls. Since joining Johnson Controls in 1983, Clay has held a variety of leadership positions in research, product development, marketing, strategy and corporate sustainability in the United States and Europe. Clay serves on the board of ACEEE, the GSA green buildings advisory group, the executive group of the US DOE/EPA SEE Action network and the IEA Energy Efficiency Industry Advisory Board. He helped establish the UN SEforALL Building Efficiency Accelerator and served as industry co-chair of the US-China EPC working group and CERC-BEE consortium.

Daniel Bradley

First Secretary & Team Leader

Energy and Low Carbon Growth, British High Commission

Dr Daniel Bradley has acted as First Secretary and Team Leader for Energy and Low Carbon Growth in the British High Commission New Delhi since 2016. This includes responsibility for UK strategy and delivery of a portfolio spanning oil and gas, renewable energy, energy efficiency, green finance and climate change. He is also responsible for establishing and coordinating the bilateral India-UK Energy for Growth Dialogue, held annually since 2017. A member of the High Commission in Delhi since 2013, he previously coordinated the UK's Global Partnership work to share Indian innovation and build trilateral research partnerships with African and South Asian countries.

Deepak Gokhale

General Manager
Aditya Birla Group

Deepak Gokhale is the Senior Executive having more than 24 years of experience across diverse industries including leading India conglomerate, automotive & auto ancillary. Mr. Gokhale has garnered extensive exposure across a gamut of areasincluding Project Management, Operations Management, Energy Conservation, Quality Assurance & Value Engineering and his proven competence lies in identifying areas of improvement and deploying strategies & tools including Kaizen & Six Sigma, leading to operational improvement, productivity enhancement, efficiency increase and cost reduction. Mr. Gokhale has successfully demonstrated excellence in managing diverse range of plant activities such as evaluation of strategic plans, process & equipment selection, capacity planning, process control, cost management & quality assurance to ensure top & bottom-line profitability. His role has been pivotal in setting up & scaling Greenfield projects while ensuring the systems, processes & procedures are robust & scalable to support business growth.

Devanshu Sharma

DSM
BSES Yamuna Power Ltd.

Devanshu Sharma has wide experience in power distribution sector spanning 16 years. He holds bachelor's degree in Electrical Engineering. He has held several key roles in BSES Delhi distribution. He has experience in the field of Operations & Maintenance, Commerical operations, Project Planning, Loss reduction initiatives, customer services. He was part of the Quick Response Team responsible for uninterrupted power supply to Common Wealth Games' venue in Delhi in 2010. Currently he heads DSM activities & new technology initiatives in BYPL.

G C Datta Roy

CEO & Founder
DESL

Dr. G C Datta Roy is the CEO of DESL and helped it to become one of the most respected energy consulting firms in the country, with project executions in over 25 countries. He has been awarded as the ‹Energy Professional Developer of the year› by India chapter of AEE, USA in 2010 and as the ‹Sustainability leader of the year› by Parivartan Sustainability Outlook in 2012 for his immense contribution in promoting energy efficiency business in the country. He is a member of several international and national committees (including government and key trade/industry associations). He obtained PhD from BITS, Pilani in 1995. He had attended "The Executive Programme" at Darden Business School, University of Virginia, USA in 1990.

Guruprakash Sastry

Regional Head- Infrastructure

Infosys

Guruprakash Sastry is the Regional Head, Infrastructure at Infosys. At Infosys, he is responsible for ensuring energy efficiency in the new buildings/ campuses of Infosys, green building certifications, research projects on building efficiency, building envelope optimization, etc. His previous experience has been with companies such as Johnson Controls and The Energy and Resources Institute (TERI).

Halingali Vidyasagar

Senior Techno-commercial Expert

Bosch Energy and Building Solutions

Vidyasagar Halingali has been associated with Bosch India since 2011. He has 20 years of rich experience in domestic and international markets in the industrial heating, cooling and power domain. Mr. Halingali drives market penetration of Energy Efficiency Solutions in target commercial and industrial sectors. He has been responsible for developing and leading market penetration strategies for Energy Efficiency Solutions for Bosch Energy and Building Solutions. Before taking over this role, he has been instrumental in leading the thermal products (heating, cooling and power) business of Bosch in India and the SAARC region. He holds an MBA degree in Marketing and a Bachelors degree in Mechanical Engineering.

J M Gupta

Managing Partner

Controlled Environment Creators

Mr. Gupta has more than 30 years experience in manufacturing project management and execution related to mass production, industrial projects, construction chemicals and its application such as insulation, waterproofing, rehabilitation of buildings, specialized cold chain facility creations, involved in more than 50 cold storages. He is a member of ASHRAE, ISHRAE, AIACRA, Global Cold Chain Alliance (GGCA), Polyurethane Association of India, Green Building Council, All India Plastic Association Core Member, Expert Committee, National Horticulture Board, BIS sub-committee for insulation. He has published papers in International conference on insulation in green building and cold storages. Faculty member for SUPCO (skill upgradation program for cold storage operators) Sponsored by NHB, GCCA.

K Narayan Rao

Director

ACC Cements

K.N. Rao is a post graduate Chemical Engineer from IIT Madras having more than 34 years of rich experience in the fields of Energy, Environment and Sustainability. His current assignment includes Energy conservation projects implementation, Environment compliance and Environment projects implementation, Sustainable Development strategy implementation, CDM projects and renewable energy projects implementation. Prior to this assignment, he was heading the Air pollution control systems business of ACC. He has represented ACC as Co-chair for the WBCSD – CSI India for Low Carbon Technology Roadmap 2050 for Indian cement industry.

Koshy Cherail

Director

Alliance for an Energy Efficient Economy (AEEE)

Dr Koshy Cherail worked with the Core Team of CEOs and partner organisations to incorporate AEEE. He headed AEEE Secretariat from 2008-2015, and was also the Secretary to the AEEE Executive Council. He is currently, Director at AEEE. Koshy has over 28 years of experience in program implementation, policy analysis and consulting with various bilateral and multi-lateral agencies, including World Bank, USAID and GTZ. Koshy has a PhD in Economics from University of Madras.

Krishan Dhawan

Chief Executive Officer

Shakti Sustainable Energy Foundation

Mr Krishan Dhawan brings extensive experience from the corporate sector. Most recently he was Managing Director of Oracle India. This followed an extended career at Bank of America in the US, India and East Asia. He left as Managing Director of the Corporate Banking Group in Los Angeles. Mr Dhawan is the founding trustee of IIMPACT, an organisation focused on literacy amongst rural girls in India. He has a BA (Honours) in Economics from St. Stephen's College, Delhi, an MBA from the Indian Institute of Management, Ahmedabad and is also a certified Executive Coach.

Madhusudan Rao

Managing Director

Oorja Energy Engineering

Madhusoodhan Rao has the expertise in Radiant/Structure Cooling and Heating, Solar Heating for Industrial Processes, Solar Desalination, Waste Heat Recovery.

He holds a Bachelor degree in Mechanical engineering, Masters in Intl Business, Adv PG Dip in Renewable Energy from TERI University. Had been part of R&D efforts in the area of renewables and energy efficiency

Mahesh V. Kulkarni

AGM-Maintenance

Shirwal Manufacturing Units, Godrej Interiors

Played a key role in setting up a new furniture manufacturing facility at Shirwal .

Spearheaded all the Green activities of Interio Shirwal plants. Steered efforts in installing 315 Kw Solar Power Plant and implementing IMS and ISO 50001. Acknowledged as 'Green Champion' for Energy & Water Conservation and renewable energy. Has played key role in various awards on state and national level. Platinum Rating for Greenco by Confederation of Indian Industries (CII) 2016;

Excellent Energy Efficiency Award (national energy leader) by CII (Confederation of Indian Industries) in 2016, 2017 & 2018. Awarded with Most Useful Presentation Award in energy management by CII 2016 (National Level Award) State Level first and Energy Conservation at Maharashtra Energy Development Agency (MEDA) Best Kaizen Award for Environment at state level.

Mahesh Patankar

Managing Director

MP ENsystems Advisory Pvt. Ltd.

Mahesh has over 20 years extensive experience in the energy and environmental fields and is the Founder and Managing Director at MP Ensystems Advisory Private Limited. He is a Member of Energy Committee of Indian Merchant Chambers and participating member of the DSM Consultation Committee of MERC. He is an international energy policy expert with direct experience with several donor and financing entities. Mahesh holds a PhD degree from IIT Bombay, Master's in Financial Management from Mumbai University and a Bachelor's Degree in Chemical Engineering from Shivaji University. He is also a Certified Measurement and Verification Professional (CMVP).

Manish Chourasia

Managing Director

Tata CleanTech Capital

Mr. Manish Chaurasia has over 20 year experience in origination, credit risk assessment and syndication in Asia-Pacific Region. He has handled various products covering project finance, mezzanine finance, acquisition finance, credit derivatives etc. He is currently associated with Tata Cleantech Capital Limited as the Managing Director. Prior to joining TCCL, he lead the initiative of launching first Infrastructure Debt Fund (IDF) in India, from April 2013 to June 2015, as Chief Executive Officer of IL&FS Infra Asset Management Ltd., a JV company between IL&FS and LIC.

Marisa Uchin

Global Vice President – Regulatory Affairs

Oracle Utilities

Marisa Uchin is Global Vice President - Regulatory Affairs for Oracle Utilities where she leads a global team that is responsible for expanding markets for Oracle's utility solutions and shaping regulatory and legislative policy that advances utility investment in technology innovation. She has engaged as a utility and policy expert in multiple regulatory proceedings related to grid modernization, incentive based ratemaking, utility business model transformation, and demand side resource planning. Marisa joined Oracle through its acquisition of Opower, the leading customer engagement technology solution provider to the utility industry.

Mark Lister

Managing Partner

Asia Clean Energy Partners

Mark Lister is based in Australia and has a diverse background in sustainability, finance and energy policy. Mark is specialised in clean energy and energy efficiency issues and became a leading Australian energy efficiency advocate, working for both public and private sector entities. He is currently associated with Asia Clean Energy Partners for joining forces with some of the most respected clean energy people in the region to establish Asia Clean Energy Partners, an international consultancy that supports the design and scale-up of effective clean energy initiatives, with a focus in three areas: policy and program design, project preparation, and mobilization of financial resources.

Mohandas Mekanapurath

Business Head

Bosch Energy and Building Solutions, India

Currently, Mr. Mekanapurath heads the Bosch Energy and Building Solutions (BEBS) division of Bosch India and has been associated with Bosch India since 2009. He has held various managerial positions in corporate and technical areas of Bosch in India. Before heading the BEBS business, Mr. Mekanapurath was responsible for the Communications product portfolio of Bosch Safety and Security Systems division of Bosch India. He started his career with the Indian Air Force. Mr. Mekanapurath holds a Masters degree in Communication Engineering from the reputed Indian Institute of Technology Bombay and a Master's degree in Business Administration from the Faculty of Management Studies, Delhi. His business skills range from business development and strategy to product and project management.

Mukesh Aggarwal

Vice President

All India Cold Storage Association

Mr. Mukesh Aggarwal is a Serial Entrepreneur with degree in Economics and having 28 years of experience in setting up, managing multiple business verticals. Have been involved in revival of few sagging business and scaling them to a profit status.

Mr. Mukesh is currently Co-ordinator Gov Affairs, Federation of Cold Storage Associations Of India, and Vice President, All India Cold Storage Association, Delhi

N P Singh

Senior Technical Advisor

United Nation Industrial Development Organisation (UNIDO)

Dr.N.P.Singh is Senior Technical Advisor at United Nation Industrial Development Organisation (UNIDO), Regional Office, New Delhi. Dr. Singh also working as Senior Advisor (Part-time) in Indian Renewable Energy Development Agency (IREDA). He retired as Adviser from Ministry of New and Renewable Energy (MNRE), Government of India in July, 2015 after serving for 33 years in various capacities. Dr. Singh has represented India in a number of international conferences / workshops and Bilateral meetings on renewable energy. Dr. Singh has co-authored 3 books on Solar Cells, Biomass and Wood Energy. At UNIDO, Dr. Singh is handling Solar Energy, Waste to Energy, Sustainable Cities and Renewable Energy and Energy Efficiency Projects.

Neeraj Narula

Manager
Cold Chain, Danfoss

Mr. Neeraj has 11 years of experience in the Cold Chain Segment and and has an expertise in Sales, International Marketing, Channel Management & Business development.

Nilesh Sawant

Vertical Head- EE
Bosch Energy and Buildings Solution

Nilesh is the EE Vertical Head at Bosch Energy and Building Solutions India. He is experienced Consultant with a demonstrated history of working in the environmental services industry, highly skilled in Energy Management, Smart Metering, Sustainability, CDM, and Renewable Energy. Prior to joining Bosch, Mr. Sawant worked with Enzen Global Solutions under multiple portfolios of Business Development, technical and strategic advisory and handled varied sectors such as DISCOMs, EE, DSM, Energy Benchmarking for Building Sector, etc. Mr. Sawant has a Strong consulting professional with a Master of Technology (M.Tech.) focused in Energy Systems Engineering from IIT Bombay.

Padu S Padmanaban

Executive Council Member
AEEE

Padu S. Padmanaban is the former Program Director of the South Asia Regional Initiative for Energy Integration (SARI/EI) and Senior Energy Advisor for USAID/India's bilateral program. He served with the World Bank as an Energy Specialist in advancing alternative energy programs in Asia. He is a visiting researcher with KAPSARC, Saudi Arabia working on energy productivity issues in the GCC countries. He has significant experience in clean energy and energy access projects. He is the recipient of the Hall of Fame Award by the Indian Green Building Council, the All India Power award and the Energy Professional Development award.

Peerasut Thirakomen

Vice President

Goldmarktech Company Limited

Peerasut is the Vice President of Goldmarktech Company Limited in, Bangkok Thailand and General Manager, ASIA of SMAC Technology Pty Ltd, SA, Australia, Peerasut oversees the company energy efficiency business strategy, developing the solution and framework for the technology and business development in the build environment energy efficiency, Mission Critical HVAC, Measurement and Verification, building technology BIG-DATA and Internet of Things (IoT) for build environment. Peerasut is the expert in the energy efficiency in buildings, smart city development, district cooling, cold chain energy efficiency, green building technology, mission critical HVAC, Facility automation, Measurement and Verification and Green Tech Financing.

Peter du Pont

Managing Partner

Asia Clean Energy Partners

Peter du Pont has more than 30 years' experience developing sustainable energy and climate programs in the U.S. and Asia. He has carried out assignments related to the design, implementation, and evaluation of clean energy policy and plans, energy and climate finance, and climate change programs. He has worked in a variety of roles consulting and managing for non-profit and private consultancies and development agencies, with a focus on energy efficiency, renewable energy, finance and market incentives, and climate change. Among other roles, he currently serves as the Co-Chair of the Asia Clean Energy Forum and Asia Regional Coordinator for the Private Financing Advisory Network (PFAN).

Pierre Jaboyedoff

Head of BEEP PMTU Switzerland

Effin'Art

Pierre Jaboyedoff, Associate at Effinart, an consulting company active in efficiency and renewable is energy in building and industry. He has master degree of mechanical engineering from EPFL with special focus on energy and thermal engineering. His experience ranges from passive simple housing up to large hospitals and watch industries. He has been a consultant for the Swiss Agency for Development and Cooperation organisation like TERI since 1992 in the small scale industry sector and since 2011 as the leader of the Swiss Project Management Technical Unit of the Project BEEP (Building Energy Efficiency Project). His main field of expertise is in simulation assisted integrated design of buildings (passive design strategies, HVAC and renewable technologies).

Rajat Batra

CEO
STENUM Asia

Rajat Batra is passionate about empowering enterprises to improve profitability and to achieve sustainable growth through the Resource Efficient Cleaner Production (RECP) approach. He leads the team at STENUM Asia Sustainable Development Society (an organisation he co-founded in 2007) in training, consultancy and implementation support efforts for enterprises. He has been actively practicing RECP at various levels for over a decade and is a certified M & V Professional. He has undergone extensive training on sustainable development in Europe. He has more than 20 years of experience managing manufacturing operations and handling international collaborations for SMEs, also as an entrepreneur. He is a strong technical background (B. Tech from IIT-BHU and M.S. from The Ohio State University, USA) he is able to analyse and add value for process optimisation in various enterprises across sectors.

Ranganath Krishna

MD
Grundfos

Mr. Ranganath N K is the Managing Director of Grundfos Pumps India Pvt. Ltd. from its inception in 1998.A Mechanical Engineer, from the College of Engineering, Guindy with Management from XLRI Jamshedpur, he has 37 years of experience in Marketing, Sales, Design, Project Management, Finance, HR and General Management. He has been the past President of the Madras Management Association (MMA) and past Chairman of the Tamil Nadu Council of CII. He, currently, is a part of CII National Committees on Manufacturing, Water, CSR and Skill Development. He is also on the Board of Indian Terrain Fashions Ltd., Celebrity Fashions, LnT Valves and the Advisory Board of 'The Banyan' – an NGO. He is the Executive Council Member of MCCI (The Madras Chamber of Commerce & Industry).

Ranjit Bharvirkar

Principal
RAP's India program

Ranjit Bharvirkar is a Principal at the Regulatory Assistance Project where he directs RAP's India program. He has more than 17 years of experience in electricity policy analysis and technical advice and assistance to state- and national-level policymakers in the U.S. and India on various topics including but not limited to renewable energy, wholesale energy markets, distributed generation, energy efficiency, demand response, dynamic pricing, program evaluation, and others. In September 2018, the Oxford University Press published a volume titled "*Mapping Power: The Political Economy of Electricity in India's States*" that was co-edited by Mr. Bharvirkar.

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Ravichandran Purushothaman

President - India Region

Danfoss Industries

Ravichandran Purushothaman has been closely involved with the industry and active in developing technology roadmaps, building network for cold chain alliances and driving skill development in HVAC & R industry. A strong believer in Industry-University interaction, he has crafted several successful university interaction programs pan India. He is a thought leader in promoting Energy Efficiency, Sustainable technologies and Green buildings to Engineer Tomorrow's India. He has more than three decades experience in building businesses in India, Asia Pacific and Europe, with more than half of it in Danfoss and prior to that, in Siemens, in various leadership capacities.

Sachin Kumar

Manager - Strategy and Corporate Performance

Shakti Pumps India Limited

Sachin Kumar is Manager - Strategy and Corporate Performance at Shakti Pumps India Limited. Mr. Kumar comes with the wide experience in various industry such as Information Technology, Consulting, Manufacturing and Ecommerce. Mr. Kumar has worked in projects of State and National importance like GSTN, Karnataka RAPDRP, EBiz etc. He has plethora of experience working with firms like Accenture, Infosys, KPMG and Ernst & Young and wide experience working with various state governments and private firms.

Sandeep Kachhawa

Senior Research Associate

AEEE

Sandeep's research targets energy efficiency in residential and commercial buildings, appliance standards & labelling, smart cities & municipalities. He has previously worked at The Energy and Resources Institute (TERI), where he was an integral part of the buildings group research and led many important projects such as formation of ECBC cells in the states of Punjab and Haryana. Sandeep was also a key member of the team that conducted extensive energy audits across India to assess the status and impact of ECBC implementation on actual energy performance of buildings. He is a Mechanical Engineer with Master's Degree in Energy Engineering from MNIT Jaipur.

Sandeep Shrivastava

Sr Vice President- Corp Sustainability & Environment

Ambuja Cements Ltd.

Mr. Sandeep Srivastava has about 27 years of rich experience working with government & industry on several subject areas on Environment, health & safety, climate change & Corporate Sustainability. He is currently associated with Ambuja Cements Limited as "Sr Vice President- Corp Sustainability & Environment. Looking after 'Environment', 'Climate Change' & 'Corporate Sustainability' functions. He is a recipient of 'Fulbright Fellowship' under Indo-American Environment Leadership Award for study in US and was associated with LBNL, CA and US EPA.

Sanjeev Ranjan

Managing Director (MD)

International Copper Association India (ICAI)

Sanjeev Ranjan is the Managing Director (MD) of International Copper Association India (ICAI) since April 2011. In addition, he is also fulfilling the role of Sub-Regional Director of West Asia. ICAI is part of the worldwide network of copper promotion centres of the International Copper Association (ICA). Sanjeev has over 27 years of experience in manufacturing and consulting in the areas of mining, metal, oil & gas, utilities and infrastructure. He is a 1986 mechanical engineer graduate from IIT, Roorkee. He also holds a Post Graduate Diploma in Business Management, PGDBM from XLRI, Jamshedpur.

Sanjiv Aggarwal

Partner

ACTIS

Sanjiv has built a career spanning two decades, riding the ups and downs of the Indian economy and understanding the workings of the country's infrastructure sector. Sanjiv joined Actis in 2008 and is responsible for Actis' energy industry activities in Asia. Prior to Actis he spent seven years at Citigroup, where he worked extensively in the Indian energy sector, culminating in his role as Head of Power, Energy, Chemicals, Mining & Transportation for India. He previously worked at ANZ Investment Bank for nine years, heading the project financing team for urban infrastructure and oil & gas. He has a BTech (Hons) Mining Engineering from the Indian School of Mines and an MBA degree from XLRI, Jamshedpur.

Santosh Misra

Director

Citelum India Pvt. Ltd.

Santosh Misra has 35 years of experience working with several Fortune 500 companies. He is presently a Director of CITELUM INDIA Private Limited, a wholly owned subsidiary of EDF (Electriciti'e de France) the French National power utility. has done his Masters in Economics from The Delhi School of Economics.

Satish Kumar

President and Executive Director

Alliance for an Energy Efficient Economy (AEEE)

Dr. Satish Kumar is an international energy efficiency expert and serves as the President and Executive Director of the Alliance for an Energy Efficient Economy (AEEE). In his current role, he has led AEEE's transformation into a leading energy efficiency policy think tank and business enabling entity through a combination of thought and programmatic leadership, collaboration and partnership with Indian and global public, private and peer organizations, and fund raising. He has served as a senior energy efficiency advisor or technical expert in energy efficiency to the Ministry of Environment, Forest and Climate Change, NITI Aayog, Energy Efficiency Services Limited, Bureau of Energy Efficiency, Bureau of Indian Standards and Department of Science and Technology (DST), Confederation of Energy Efficiency.

Saurabh Kumar

MD

Energy Efficiency Services Limited

Mr. Saurabh Kumar is currently Managing Director at Energy Efficiency Services Ltd (EESL). Mr. Kumar is an Indian Revenue Service officer of 1992 batch. He holds a degree in electrical engineering from Indian Institute of Technology (IIT) Kanpur and a Masters in Public Policy from National Graduate Institute of Policy Studies, Tokyo, Japan. An environmentalist, he has served the UN on deputation handling environmental issues in the Asia-pacific region. He has been with the Union Ministry of Power for close to 15 years, and has been leading EESL in successfully implementing energy efficiency projects such as UJALA, SNLP, MEEP, and AgDSM.

Shailendra K Varma

Property Asset Management

JLL

Mr. Shailendra is heading the EOS vertical for PAN India operations. In his present role he provides guidance on issues and policies pertaining to Engineering, EHS, Energy, incidents, Operational risks, Sustainability, Technology and Audits. Leads centre of excellence for Property Asset Management (PAM) in the PAN India region. He is a hands-on professional with an experience of over 31 years cutting across various industries like marine, hospitality, facility management and building services. He has been working with multi-cultural, multi-lingual teams, providing Engineering, HSE, Technology and operational leadership. His key areas of expertise are management of engineering operations, Incidents, Safety, Critical environment, Energy, Sustainability, Training, System audits and Process, along with excellent communication and leadership skills.

Shubhashis Dey

Program Manager (Energy Efficiency)

Shakti Sustainable Energy Foundation

Shubhashis Dey has over 15 years of rich experience in project management, policy analysis, energy audit, and energy accounting. He provides strategic planning, leadership, and guidance to Shakti's Energy Efficiency program. He has carried out more than 80 energy cost reduction studies in Industrial houses and Commercial Establishments covering sectors such as cement, iron & steel, chemicals, automobiles, paper, fertilizers, power, and commercial buildings. Prior to joining Shakti he has worked with Ernst & Young, Sodexo, Eaga Energy, McKinnon & Clarke, and Global Energy.

Sivaram Krishnamoorthy

Operations Officer- Energy and Resource Efficiency

IFC

Sivaram Krishnamoorthy holds the degree in B Tech (electrical & electronics), University of Calicut, India and MBA , Madras university, India. He holds the expertise in Renewable energy, Energy efficiency, Manufacturing – Resource efficiency with construction value chains, Manufacturing – Energy efficiency and Co generation with Sugar, Pulp and Paper, engineering, fertilizer, chemicals & Industrial utilities (10 years). Also, in donor relations management and Programmatic approaches in resource efficiency renewable energy, clean tech venture scale up and other low carbon technologies (15 years). A member of the team which established CII – Green business centre, Hyderabad India and Indian Green Building Council (IGBC), which pioneered LEED rating for green buildings in India.

Soumya Prasad Garnaik

Chief General Manager (Technical)

Energy Efficiency Services Ltd. - EESL

Mr. Garnaik is Presently serving as Chief General Manager (Technical) in Energy Efficiency Services Ltd. (EESL), Ministry of Power, Govt. of India. During his 25+ years of professional career, he has served in Government, Private and International consulting organizations at various capacities in the field of energy policy, energy management, resource conservation etc. Prior to this he was the Director in Bureau of Energy Efficiency (BEE), Ministry of Power, Govt. of India during 2010-13, he managed Perform, Achieve and Trade (PAT) scheme and Standard & Labelling (S&L) program of India. During his tenure as Deputy Director in National Productivity Council (NPC), India; Joint Director in Federation of Indian Chambers of Commerce & Industry (FICCI) and Principal in ICF International. At present, he is leading consulting division of EESL handling project worth of Rs. 800 Crores apart from many other responsibilities.

Srinivasa Rajkumar

Senior Manager

Grundfos Pumps

An electrical & electronics engineer by profession, passed out of PSG College of technology in the year 1995. Joined M/s Voltas Limited, Textile Machinery Division as commissioning supervisor in 1995 and has worked in various Industrial automation systems in spinning machineries for 9+ years, before joining Grundfos Pumps Pvt Ltd, as Senior Engineer – Customer Service in 2004. He has worked in various capacities from Customer Service, Technical support, All India sales for HVAC systems and Business Development Manager for Building Services. At present, working as Senior Manager – Key Accounts, for Commercial Building Services responsible for Southern region. He is a member of ISHRAE, IPA & FSAI.

Stephane Le Gentil

Head of EE, Engie, CEO & Founder at Wattaqa

Stephane Le Gentil is heading the development of the Energy Efficiency activities of ENGIE in the Middle East, South & Central Asia, and Turkey since January 2018. Prior to that, Stephane was CEO at Wattaqa that he founded in November 2016 to provide strategic consultancy & advisory in energy efficiency and energy services (ESCO) in the Middle East region. In parallel to these activities, Stephane has been the CEO of the Clean Energy Business Council during the second half of 2017 promoting the development of clean energy in the MENA region. In 2013 Stephane came to the UAE to create Etihad ESCO, the Dubai Government Super ESCO, in charge of retrofitting 30,000 buildings in Dubai, that he headed for 3 years.

Sudheer Perla

Vice President

Business Development, Tabreed

Sudheer manages development and M&A activities for Tabreed, the world's largest listed district cooling utility based out of UAE and is currently leading the company's market entry efforts into India. Having been recently awarded their first PPP concession to build own and operate a district cooling scheme for the Amaravati Government Complex buildings in Amaravati, Andhra Pradesh, Tabreed is now pursuing several other district energy investment opportunities across the country. An Oxford management graduate and a chartered accountant by profession, Sudheer has led and successfully executed several greenfield, brownfield and acquisition opportunities to implement sustainable and cost-effective long-term cooling solutions for urban developments across the GCC.

Sumit Nawathe

Business Consultant

EnergyTech Ventures

Sumit works at EnergyTech Ventures as a Business Consultant for Enterprise Solutions. Prior to this, he worked under the business development wing of E-Cube Energy Trading Pvt. Ltd and Solarika India. Sumit drives the efforts od delivering Insights as a Service across India, UK and Southeast Asia and works with facility and real estate management to take timely business decisions on improving energy productivity.

Syed Nazeer

Director Strategic Business Development

Danfoss

Mr. NazeerSyed currently working as Director – Strategic Business Development - Asia Pacific and India Region at Danfoss. He has 29 years of experience in AC Drives and Power Conversion, Storage and Hybrid Technology and has a prior experience with companies like VACON, TB Woods, Honeywell, and Toshiba.

Tanmay Tathagat,

Executive Director,
Environmental Design Solutions

Tanmay Tathagat is the Executive Director of the Environmental Design Solutions [EDS], a multidisciplinary consulting firm focused on addressing the issues of sustainable development in the built environment. Tanmay uses his diverse experience to lead the process of integrated design and to find unique opportunities for cross pollination of ideas across disciplines. Tanmay is an acknowledged expert in building energy simulation, and apart from working on design projects, has provided training and assistance to architects, engineers, and facility managers all over the world. Tanmay studied architecture at School of Planning and Architecture at New Delhi and later specialized in building sciences, climate responsive design, and energy simulation during his studies for MS at the Arizona State University.

Upendra Bhatt

Managing Director
cKinetics

Upendra Bhatt leads cKinetics, a leading Sustainability Insight, Innovation & Capital Advisory Firm. He is the Chairperson of the AEEE Executive Council, and he is also a member of several task forces constituted by industry bodies. In addition, he chairs the Sustainable Business Leadership Forum, an Industry practitioners group focused on resource sustainability and ESG issues through multi-stakeholder working groups. He holds a Master's in International Relations from Thunderbird – The American Graduate School of International Management, a Master of Business Administration from NMIMS-Mumbai, (India) and an engineering degree from Delhi College of Engineering (India).

Venkatesh Dwivedi

Chief Operating Officer
Energy Efficiency Services Limited

Venkatesh Dwivedi is the Chief Operating Officer of Energy Efficiency Services Limited, India. He has been the first project manager of EESL's flagship scheme UJALA as well as the SLNP Program. He has been the National Program Manager for the Street Lighting National Program of India. With more than 25 years of executive experience, he has been earlier in the Oil and Energy Sector in India in various roles in Operations, Technical Services, Project Management and Business Development. Venkatesh Dwivedi is an Electrical Engineer from Faculty of Engineering and Technology, Jamia Millia Islamia, New Delhi and MBA from PGPEX Program of IIM Calcutta. He is a BEE certified Energy Auditor.

Vida Rozite

Energy Policy Analyst, Energy Efficiency Division

International Energy Agency (IEA)

Vida Rozite has worked in energy efficiency for many years and has recently returned to the International Energy Agency to work on the Energy Efficiency in Emerging Economies Programme. Prior to this, Ms. Rozite worked as an independent consultant in Vienna focusing on energy efficiency and digital technologies. She led the IEA's work on industrial energy efficiency from 2011 – 2016. She has also been a senior advisor for Nordic Energy Research, Secretary of the Nordic Working Group on Renewable Energy, and the deputy director of the Nordic Council of Ministers' Office in Latvia. She holds a MSc. Degree from the International Institute for Industrial Environmental Economics.

Vijay Ganesh Viswanathan

Client Engagement Manager

UTC- Eco Energy insights

Vijay Ganesh Viswanathan is a Client Engagement Manager for the Hospitality and Commercial Building sectors of EcoEnergy Insights – A business unit of UTC Climate, Controls& Security Vijay carries 12+ years of extensive experience in architecting IoT; Big Data Analytics enabled efficiency programs tailored to the business dynamics of these sectors. Prior to this, Vijay worked with the US Department of Energy on various sectoral programs in the municipal, commercial, industrial and residential sectors.

Vincent Minier

VP

Global Energy Public Policy, Schneider Electric

Vincent Minier oversees leading Energy Public Policy practice at global level for Schneider Electric for all Energy transition related scope. As part of Global Strategy, he is developing Public Affairs strategies with all Schneider Electric Global Businesses and Operations (China, US, EU and beyond). Vincent is also engaged in several associations and thinktanks eg IEA. Prior to this role, Vincent was head of Strategy & Business development for Schneider Electric France. Before that, he held several positions at Corporate Innovation & Corporate Strategy at Schneider Electric. Vincent holds a PhD in Physics (Optoelectronics).

Vivek Jain

General Manager Marketing- Public Urban & Smart Cities,

Signify Innovations India Limited

Vivek Jain is end user marketeer for Public Urban & Smart Cities segment for Signify Innovations India Ltd. (formerly known as Philips Lighting India Ltd.). He has been with Signify (Philips Lighting) since 2006, having lead Lighting Application Specialists teams for North and West Regions previously. He has been involved in illumination planning & design, Lighting Automation at various projects like – Infosys Hyderabad Campus Illumination, Citibank HQ BKC, SUN TV HQ Chennai etc. In current role Vivek promotes the connected Lighting portfolio of Systems and Services & IoT platform "Interact".

Zhao, Ming

Deputy Director

ESCO Committee of China Energy Conservation Association (EMCA)

Zhao, Ming has been working as the deputy director & secretary general of EMCA from 2005 until early 2018. She is responsible for daily operation of this national organization for more than 10 year. Her works cover EE consulting, training, marketing, membership management, information dissemination and international cooperation. She has been working closely with government agencies on the ESCO promotion policies and national five-year plan. She also set up contacts with ESCO companies in China by working with them on marketing, training and financing. International cooperation is her current focus, sharing China experience on ESCO development and exploring cooperation with countries and organizations in promoting ESCO business in different regions and countries.

6. PROCEEDINGS

International Energy Services Conclave

Energy Efficiency for Business Competitiveness

The "International Energy Services Conclave- Energy Efficiency for Business Competitiveness" was held in New Delhi on March 6-8, 2019, jointly organised by Alliance for an Energy Efficient Economy and the Bureau of Energy Efficiency. The conclave initiated with the Curtain Raiser event on 6th of March, inaugurated by Mr. Anil Jain, Additional Secretary, Ministry of Environment Forest and Climate Change, Mr. Abhay Bakre, Director General, Bureau of Energy Efficiency, Mr. Ravi Chandran Purushothaman, President, Danfoss India, Mr. Upendra Bhatt, Chairman, AEEE and Dr. Satish Kumar, Executive Director and President, AEEE. This was followed by a high-level CEO Panel where CEOs and MDs from the industry participated and enlightened the participants of the visionary works and strategies identified for their respective organisations. This was followed by AEEE 10th Anniversary celebrations.

The second day of the conclave was inaugurated by BEE, IEA and AEEE, which kick-started the deliberations on different aspects of the EE services industry, covering topics like operationalising EE aligned business strategy, financing for EE services sector, EE in Industries, Buildings, Utilities and Municipalities, and was concluded with the Conference Dinner for the participants. The TechnoBuzz was also inaugurated on this day which gave the market players an opportunity to showcase their business models and discuss their practices directly with participants, which was very well received by both the participants and the exhibitors.

The third day of the conclave started-off with deliberation on the role of MBOs and Non-profits in developing the EE services sector followed by a very interesting session on the paradigm change in the M&V area in the industry. Following this there were Biz-talks, featuring presentations from different organisations showcasing their products, business methodologies and areas of intervention. The presentations were made on topics such as EE solutions to achieve scale in Commercial Buildings, Industries and Municipalities and a special session on Cold Chain and Refrigeration. This was followed by highlights of the event from Ms. Sudha Setty of AEEE and closing remarks from Mr. Pankaj Kumar, Secretary, Bureau of Energy Efficiency.

The conclave marked participation of more than 350 delegates during all three days. With 80+ nationally and internationally distinguished speakers from the EE services industry, the conclave was a first-of-its-kind event for the EE services business stakeholders, providing rich experience to the participants and speakers in terms of quality of discussions, information exchanged and networking opportunities. AEEE aims to make it a bi-annual flagship event catering to the Energy Services Industry and supplementing the market growth.

March 6th, Day 1- Conclave Curtain Raiser, Press Release, CEO Panel Discussion Followed by AEEE 10th Anniversary Dinner

03:00 PM – 04:30 PM	Curtain Raiser Session
	1. Welcome Address by ***Mr. Upendra Bhatt, Chairman, AEEE*** 2. Thematic Address- *"Energy Efficiency as the First Fuel- A Potent Profit Accelerator for Businesses"* by ***Mr. Ravichandran Purushothaman, President - India Region, Danfoss Industries*** 3. Special Address by ***Mr. Abhay Bakre, Director General, BEE*** 4. Keynote Address by ***Mr. Anil Jain, Addl. Secretary, MoEFCC*** 5. Launch of AEEE Report and Presentation titled *"Energy Efficiency- A Compelling Value Proposition and Enabling Resource for Smart Cities"* by ***Dr. Satish Kumar, President and Executive Director, AEEE*** 6. Vote of Thanks by ***Dr. Koshy Cherail, Director, AEEE*** The Chair of the Executive Council of Alliance for an Energy Efficient Economy, Mr. Upendra Bhatt opened the conclave and welcomed speakers and delegates. He gave a brief introduction focused on centralizing the idea on efficiency.

Followed by Thematic Address "Energy Efficiency as the First Fuel – A Potent Profit Accelerator for Businesses" by Mr. Ravi Chandran Purushothaman, President – India Region, Danfoss Industries. He emphasized the need of innovations in energy efficiency, integrating efficiency at the core of policy making and for such policies to be introduced at university level. He also stated that companies need to decouple sales growth and energy consumption, adopt technologies to cut energy intensity and increase production and simultaneously work on changing behaviour and mindset in board rooms and employees on energy efficiency. He highlighted energy efficiency as a key success factor to decarbonize business, enhancing profits, in which strong board room support is necessary to ensure that business adopt and deliver at higher speed and scale.

In his Special Address, Mr. Abhay Bakre, DG, BEE, highlighted importance of embracing more aspects like creating jobs and raising economy while adopting new technologies and implementation of ESCO projects to enhance energy efficiency implementation.

Keynote Address was delivered by Mr. Anil Jain, Addl. Secretary, MoEFCC in which he talked about bottom up analysis of the EE market situation and highlighted that energy efficiency have multiple positive aspects and only flipside of CAPEX, which can be resolved through savings on longer term basis.

Dr. Satish Kumar, President and Executive Director, AEEE Launched and Presented AEEE Report titled "Energy Efficiency- A Compelling Value Proposition and Enabling Resource for Smart Cities". He discussed on the concept of Smart Cities, Case of Energy and Resource Efficiency, Current Smart Cities Landscape in India, Supporting India's smart cities through "Energy Efficiency value creation framework", and on the role of the private sector in helping create India's Smart Cities.

Dr. Koshy Cherail, Director, AEEE concluded the session with the Vote of thanks.

05:00 PM – 07:00 PM **CEO Panel Session**

Theme: Enhancing Business Competitiveness through Customer-Centric Energy Efficient Products and Services

CHAIRPERSON: Mr. Anirban Ghosh, Chief Sustainability Officer, Mahindra Group

PANELLISTS:

- Mr. Saurabh Kumar, MD, Energy Efficiency Services Limited
- Mr. Stephane Le Gentil, Head of EE, Engie, CEO & Founder at Wattaqa
- Mr. Anil Chaudhry, Zone President, Greater India and MD, Schneider Electric
- Mr. Ranganath Krishna, MD, Grundfoss
- Mr. Mohandas Mekanapurath, Business Head- Bosch Energy and Building Solutions India

Mr. Anirban Gosh, CSO, Mahindra Group started the session by setting up the brief context on positioning of energy efficiency as integral to enterprise's business strategy by enabling a sustainable differentiation thereby reducing cost for its product. He highlighted that energy efficiency capabilities seek to challenge the business leadership to take a customer- centric view of their internal value chain and leverage to the fullest potential of the emerging EE and digital technologies to realize the organizational goals, with energy efficiency as an enabling tool. He asked to Panelist to share the success stories on energy efficiency enabled business competitiveness.

Mr. Saurabh Kumar, Managing Director, Energy Efficiency Services Limited talked about the journey of EESL over the last six years, sharing the experiences of Domestic lighting (UJALA) and Street lighting program which is based on the Pay-As-You Save model. He highlighted the fact that the business model was unique and addressed the key barriers being faced by the end consumers i.e. initial capital investment and the guarantee on the performance of the product. EESL's first LED bulb distribution project of 600,000 LED bulbs, increased to 6 million order and scaled up to 90 million per year. As on date, EESL has done 335 million LED Bulbs distribution in the country and this program has become the largest non-subsidy-based intervention is the world. Similar model was adopted in the street lighting and has achieved replacement of 8 million fixtures in the country. He also talked about the EE targets and agreed that such targets are necessary for making deeper engagement. Mr. Kumar emphasized that Energy Efficiency was no more a philanthropic work now and is a serious and scalable business. Highlighting EESL is an example in this, being a dividend paying company for the last 5 years he informed that EESL has grown to a $400 million company and planning an IPO in next year.

Mr. Stephane Le Gentil, Head of EE, Engie, CEO & Founder at Wattaqa talked about the Energy Efficiency initiatives undertaken by Dubai which is one of the emirates under the UAE. He mentioned Dubai has no fossil fuel resources and therefore was the first country in Middle East to seriously address the energy consumption issues. He shared his experiences as the first CEO of Etihad ESCO, a super ESCO which was established to make Dubai built environment a leading example of energy efficiency for the region and the world. The Super ESCO undertook vertical approach taking clusters of buildings and took up as many products to improve energy efficiency parameters. The major focus was on the retrofit of HVAC, as significant consumption in the region was from the cooling equipment. He informed the participants of the business model as of how the Super ESCO was given the mandate to stimulate the market and work with companies from the private sector to implement the program. Etihad ESCO created a structured framework for accreditation scheme, standardized contract, M&V scheme, and other procedures to create a uniform platform for the market players. Highlighting the key role played by the government in creating the market and starting the EE retrofit program from its 5000 public buildings, he outlined the facts which supported the private sector to build expertise and created a whole new economy of energy efficiency service business. He marked out the hospitality sector in UAE as another huge opportunity for EE as most of the facilities there are interested in energy cost reductions.

Mr. Anil Chaudhary, Country President and MD, Schneider Electric stated that access to energy is the fundamental human right and as more and more digitalization is happening the need for energy is increasing significantly. He talked about future of energy efficiency which will no more be a choice but will certainly become a must for survival aspect. He pressed on the fact that it was needed to make energy consumption visible to make room for the energy efficiency and that there should be balance between choice and regulation for energy efficiency as the choices can be influenced by creating awareness and regulations can help achieve the target. He shared the story of retrofit at Schneider Electric Headquarter wherein the energy consumption was reduced from 400 KWh/sq.m./year to 50 KWh/sqm/year.

Mr. Ranganath Krishna, Managing Director, Grundfos talked about the energy consumption in pumps which is approximately 10% of the global energy consumption and just by choosing the right sizing 40% of this electricity can be saved. He talked about different factors or issues which are holding back the adoption of energy efficiency like behaviour or mindset, business models, policy interventions, purchasing decisions and technology. He also talked about the water-energy nexus in the agriculture sector, as this sector is the most prolific waster of energy and water and that approximately 80% of India's total water consumption is in the agriculture sector, and for pumping this water free power is provided to the farmers. Stating the critical fact that the pumps currently installed have poor efficiency levels as the purchasing decisions are based on the CAPEX which results into huge consumption of electricity, he necessitated the need of policy interventions in terms in minimum energy efficiency norms for motors, required to drive energy efficiency.

Mr. Mohandas Mekananpurath, Business Head- Bosch Energy and Building Solutions India, talked about the energy consumption in India which is around 1,400 TWh/year and is increasing at an alarming rate of 1200% and expected to reach to 18,125 TWh/Year by 2047. He clearly highlighted that urbanization is creating a huge pressure on the energy demand and how Bosch Energy & Building Solutions helps customers in reducing the cost of energy consumption and providing renewable energy solutions, offsetting the energy demand.

The session ended with the vote of thanks by the Chairperson.

KEY TAKEAWAYS

- Policy & regulations, Innovative business models, Consumer awareness and mindset is required to create the market and stimulate the energy efficiency service business.
- Energy Efficiency makes the business sense and is a scalable business model, the future of energy lies in efficiency and not in the generation.

END OF DAY 1

March 7th, Day 2- Inaugural Session and TechnoBuzz Inauguration followed by Executive Panel Discussions and Conference Dinner

9:00 AM – 10:15 AM	**Inaugural Session**

1. Welcome Address by ***Mr. Upendra Bhatt, Chairman AEE***
2. Theme Address: *"Enabling Market Competitiveness Through Visionary Policies to Turbo Charge the Energy Services Sector"*- ***Mr. Abhay Bakre, Director General, BEE***
3. Special Address by ***Ms. Vida Rozite, Energy Policy Analyst, IEA***
4. Launch of Whitepaper on: *"Behavioural Energy Efficiency Potential for India"*, P***repared by AEEE and Oracle Utilities***
5. Vote of Thanks by ***Dr. Satish Kumar, President and Executive Director, AEEE***
6. **Exhibition and TechnoBuzz Inauguration**

The day started with the auspicious lighting of the lamp by Upendra Bhatt, Abhay Bakre, Vida Rozite and Satish Kumar.

Chairman of Alliance for an Energy Efficient Economy Mr. Bhatt started the inaugural session by welcoming all the dignitaries and addressing the importance of this conclave by stating that the efficiency is a key and integral tool to energy planning in this country and through this conclave huge set of issues i.e., policy and regulatory dimensions, businesses and markets, and public consumption that would not historically seem to be the part of the energy efficiency conversation will be touched upon.

Mr. Bakre, DG, BEE addressed the theme of the first international energy services conclave. He said that energy efficiency must not only be defined as the cost saving measures but also promoted with other co-benefits such as job creation, comfortability, desirability, energy security, skill upgradation, etc. He linked Energy service conclave with the concept of "Negawatt" and stated that energy efficiency is primarily a service sector opportunity which is good for consumer, producer and sector as a whole.

Special Address was given by Ms. Rozite, Energy Policy Analyst, International Energy Agency, who stated that energy efficiency plays a key role in promoting secure, sustainable and affordable energy systems and that the energy services markets have not evolved that much as it was supposed to and there is great potential that needs to be captured. She touched upon the need to work in collaborative fashion, and how governments, development agencies, private sector and financial institutions can create an ecosystem for the same.

White Paper on 'Behavioural Energy Efficiency Potential for India' was launched by all the dignitaries. This paper was prepared by AEEE and Oracle Utilities. Ms. Marisa Uchin, Vice President of Global Regulatory Affairs, Oracle Utilities, gave the overview of the study and presented proven cases on Consumer's Behaviour through dissemination of properly analysed and synthesised data and represented in an easy-to-understand format for consumers.

Vote of Thanks was given by Dr. Satish Kumar, President and Executive Director, AEEE. He thanked all the dignitaries, delegates, sponsors, partners, and colleagues for their presence and providing leadership and encouragement to the conclave.

10:15 AM – 11:30	**Executive Panel Discussion 1**

Theme: Operationalizing the Performance-based EE aligned business strategy with disruptive technologies and innovative business models

CHAIRPERSON: *Mr. Padu S Padmanabhan, Executive Council Member, AEEE*

PANELLISTS:

1. Mr. Clay G Nesler, VP- Global Sustainability and Energy, Johnson Controls
2. Mr. K Narayan Rao, Director, ACC Cements
3. Mr. Sudheer Perla, VP- Business Development, Tabreed
4. Mr. Vincent Minier, VP- Global Energy Public Policy, Schneider Electric
5. Mr. Guruprakash Sastry, Regional Head- Infrastructure, Infosys

Chairperson of the session Mr. Padu S Padmanabhan, Executive Council Member, AEEE, started the session by appreciating the conclave as it promoted two-way dialogues between panellist and audience through the Conclave APP 'Whova'. He focused on four strategic dimensions in order to explore full potential of energy efficiency which are: a) Integrated design/approaches b) New financing strategies C) New market transformation/ diversification and competitive strategies d) Information technology. He asked panellists to give their views on the reconfiguration of energy service sector with reference to these four strategic dimensions.

Mr. Clay, VP- Global Sustainability and Energy, Johnson Controls, stated three things that are being focused by ESCO companies which are a) scope of the projects and b) scaling up the projects and c) keeping the scores. He focused on each area individually where he said scope of the projects have been expanded as it included all the areas of energy services and there is great increase in scaling up the projects and lastly keeping the score as they guarantee performance-based services being provided. Further, he pointed out the key barriers in energy solutions in India are the lack of technical expertise, guarantee based work and lack of funding. He also provided the solution that efficiency cannot be done in isolation but in collaborative fashion between civil society, government and private institutions and key factors that drive investment like setting public goals, using other people's capital with a strong model and increasing government role & technology.

Mr. K.N. Rao, Director, ACC Cements, said that cement industries are energy intensive and that the industry itself has economic, social and environmental impacts and that the need to be energy and resource efficient is vital, which starts by conceptualizing a product and designing the processes which have least amount of environmental and social impact. He highlighted that large number of innovations happening in the cement sector and there is huge amount of opportunities for the ESCO companies in India to do the hand holding with cement industries.

Mr. Perla, VP- Business Development, Tabreed, talked about the National Central Cooling Company which provide efficient and environmentally friendly district cooling solutions and currently delivers over 1 million refrigeration tons of cooling, across 74 plants incorporating all types of end users. He also highlighted that they have a built a pretty impressive design team internally which is utility driven dependent and that the designs are based on the consumers' needs.

Mr. Vincent Minier, VP- Global Energy Public Policy, Schneider Electric, emphasized on the importance of digitalization in ensuring energy efficiency. He highlighted the fact that Schneider is moving from the historical energy services to Energy Sustainability services through the digitalisation in all sectors, revolving around procurement, demand-side energy services and sustainability services. He informed the participants that Schneider is partnering globally with heavy industries and are doing predictive maintenance and providing added value services as per customer's needs.

Mr. Sastry, Regional Head- Infrastructure, Infosys, said that Infosys has always adopted a sustainable approach to business and worked in a collaborative manner with several state governments to promote renewable energy and energy efficiency. He stated that as the IT sector is driven largely by clients in the Western parts of the world and in Europe, so keeping all the systems intact all the time, no expected downtime and no intention to fiddle with anything which is running and providing the desired outcome are key to keep up the pace of the business, and this also hinders the inclusion of EE in IT buildings. He highlighted the fact that Infosys is a goal-driven organisation and that the internal mandate to reduce energy consumption by 50% has been achieved by a year in advance. He stated the critical need for specific regulations in place for the IT buildings, driving the attention of the IT sector towards being energy efficient.

KEY TAKEAWAYS

1. In order to achieve efficiency in energy sector, emphasis should be laid upon collaboration between civil society, government & private institutions and raising funds & scalability with high credibility of the energy efficient projects.
2. Current approaches to ES market development and its trajectory is narrowly focused on conventional technological, financial and business arrangements that are inadequate to scale up EE market growth and delivery.

3. There is a growing recognition that the Energy Efficiency Services sector must broaden its approach to include innovative and disruptive strategic dimensions to design, develop and market its services to its customers.

In this context, the panel discussed the following four strategic dimensions to ES Business delivery:

a. Provision of integrated EE design solutions (e.g. Circular economy, tri-generation, process energy pinch, etc);
b. New market driven transformational (modernization), diversification & competitive strategies where ES business emphasize energy productivity "top line" approaches over "bottom line" EE measures;
c. Increasing focus on information technology or the digitalization technology that permits two-way communication and uses big data creatively including the installation of Energy Information Management & Accounting Systems (EIMAS) in customer facilities;
d. Establishing institutional alliances and partnerships between multiple stakeholders such as policy/regulatory authorities, governments, end-use customers, financial institutions, vendors and ES providers.

12:00 AM – 01:15 PM **Executive Panel Discussion 2**

Theme: Role of Financing Models in Scaling Energy Efficiency Implementation

CHAIRPERSON: *Mr. Upendra Bhatt, Chairman AEEE; MD, cKinetics*

PANELLISTS:

1. Mr. Alexander Albaza, CEO, Blue Sky Energy
2. Mr. Manish Chourasia, Managing Director, Tata CleanTech Capital
3. Dr. Peter Du Pont, Managing Partner, Asian Clean Energy Partners
4. Mr. Sanjiv Aggarwal, Partner, ACTIS

Mr. Upendra Bhatt, Chairman AEEE; MD, cKinetics, stated that India has the drive, capability, innovation and market to surpass all energy efficiency goals that we set for ourselves. Further, he asked the panellists to give their views on categorization of the markets in terms of kind of scale do the companies envisage regarding E-finance & measurements.

Mr. Ablaza, CEO, BlueSkyEnergy, emphasized that 98% of 6000+ ESCOs in developing Asia do not have adequate access to bank-based debt financing to pursue their pipelines of performance contracts. Asia lacks upfront resources for project development to generate energy efficiency portfolios. Further, he said Asia needs non-bank specialist investors who understand ESCO contracting risks and and how to mobilize off-balance sheet equity capital for ESCO project portfolios. He also pointed out the key drivers for financing the projects which are building capacities, generating pipelines and offering guarantees.

Mr. Aggarwal, Partner, ACTIS, pointed out the key challenge in Indian ESCOs is on the equity side and for this we need to find risk capital which are of various kinds. Further, he advocated that infusion of equity to undercapitalized ESCOs in India through risk capital being provided by National Infrastructure Investment Fund to attract private equity funds is a must proposition to drive EE financing.

Dr. Peter Du Pont, Managing Partner, Asian Clean Energy Partners pointed out that default rate on energy efficiency is much lower than renewable energy projects as energy efficiency projects are risky. So, setting goals for energy efficiency is needed as we have for renewable energy. He highlighted the fact that through PFAN (Private Financing Advisory Network), they have been able to reach out to the SME sector, generating almost $100 Million funding for 15-20 clean energy projects in a year.

Mr. Chourasia, Managing Director, Tata CleanTech Capital, said that ticket size is $0.5-1.5 million in commercial building and SME segments and ESCO contracts are not strong, making it difficult to scale from the financier's perspective. He also said that small projects are being funded in their industry. He emphasized that lenders go for the more structured projects which are scalable. So, key challenges that they faced are that there not many ESCOs companies in India. So, projects have to be strong in order to gain funds and that there has to be integrator or aggregator between the financing and project infrastructure. He stressed on the fact that the contracts have to be strengthened for more financial cash flows to ESCO projects.

KEY TAKEAWAYS

- Inclusion of energy efficiency in project development, building capacities, offering guarantees, viability and risk assessment of the project are the key drivers of energy efficiency;
- At a sector level, the project pipeline for stand-alone efficiency-oriented projects needs significant enhancement; market needs Technically strong and economically viable project proposals to be able to invest in;
- Platform level equity is needed to ensure a critical mass of projects to be developed which would also lead to sectoral benchmarks; and only thereafter, debt financing could play a meaningful role; Private equity funders looking to team up with professionals is a must for bridging the trust deficit of lenders in a debt-financing scenario;
- Financiers prefer end-user lease structures and /or Deemed Savings oriented implementations; M&V dimensions will increasingly become critical once the project complexity goes beyond 'Deemed Savings' projects;
- Transaction /procurement structures need to evolve as well to ensure broadening of the market;
- First loss structures may help some of the NBFCs /Banks to be more ambitious; vs. the limited uptake generated through partial risk guarantees established by BEE and at SIDBI. This could lead banks to avail risk guarantee mechanisms and increase EE project financing.

2:15 PM- 3:30 PM — **Executive Discussion 1**

Theme: Role of Energy Services in delivering savings for industries and their supply chain

CHAIRPERSON:*Dr. N.P Singh, Senior Technical Advisor, UNIDO*

PANELLIST:

a. Mr. Sandeep Shrivastava, Head- Sustainability, Ambuja Cements
b. Dr. Ashok Kumar, Director, BEE
c. Mr. Sanjeev Ranjan, MD, International Copper Association
d. Ms. Zhao Ming, Secretary General, EMCA, China
e. Mr. Rajat Batra, CEO, STENIUM Asia

Chairperson, Dr. N.P Singh, Senior Technical Advisor, UNIDO, started the session by sincerely focusing upon India's increasing population and its resulting high Energy demand and carbon emissions. He further highlighted that energy solutions companies, with the better technologies, possess a great potential in reducing carbon emissions.

Mr. Sandeep Shrivastava, Head- Sustainability, Ambuja Cements, emphasized on environmental and social benefits of energy efficiency. Focusing on the burning of agriculture waste, leading to degradation of air quality and also Urban Heat Island Effect, he added, ESCOs have a substantial role to play in the resource efficiency side other than energy efficiency, where they can convert this waste into a substantial input for Cement Industries say by converting the waste into fly ash. He emphasised on the fact as to how the cement industry plays a crucial role in circular economy, taking in all forms of waste and fly ash, and replacing the raw material, and preserving the natural resources for the future.

Dr. Ashok Kumar, Director, BEE, highlighted the proven fact that resources on earth are already being consumed way faster than it was supposed to be. He emphasized upon making protocols easier and simpler with high credibility for fruitful outcomes in the field of energy efficiency. He mentioned that energy efficiency not only comes with the energy cost savings but also other co-benefits i.e., energy security and other environmental benefits. He stressed on the fact that EE is the immediate solution, having the shortest gestation period to develop sustainably. There is a significant need for a system in place to speed up the process of documentation and prove credibility for easier contracting and access to financing, leading to projects being implemented providing the desired multiple benefits.

Mr. Sanjeev Ranjan, MD, International Copper Association, enumerated the key challenges being faced in energy efficiency are access to manpower, funds, technology support from end consumers etc. He further added on emphasizing SMEs sector that adoption of policies among SMEs are lower and payback period is also a major challenge. He advocated that setting higher standards and making mandatory policies in terms of energy efficiency will really help in driving energy efficiency in the industry sector. The pace in formation of policy and its implementation by the government has not matched the pace of acceptance of the concept in the market, creating a challenge for market to pick up.

Ms. Zhao Ming, Secretary General, EMCA, China, highlighted that ESCO success in china is happened due to the Government policies, which supported ESCO initiatives. She added that India is big potential market for energy efficiency and emphasis should be laid upon the ways of financing and by providing training to banks & investors. She highlighted the fact that China has over 5000 ESCOs working on the EE front, which provide comprehensive energy solutions to the customers, and on successful delivery of the EE projects they are incentivised in tax returns, which has been a very successful support from the Government. Capacity building and training programs are must for expansion of EE industry, and is a must for the end-users to appreciate multiple benefits of EE.

Mr. Rajat Batra, CEO, STENIUM Asia, talked about his organization that has helped 10,000 enterprises to be more energy efficient. Giving real time examples from his experience, he highlighted that good technologies that have been deployed in SMEs are not being utilized as workers don't know how best it can be operated. So, capacity building as well as some handholding of the employees will go a long way in improving energy efficiency and resource efficiency as whole of the businesses. Business models have to evolve according to the consumer's needs and challenges like poor baseline data, measurement and verification and process-based solutions have to be overcome.

KEY TAKEAWAYS:

- Blending of waste into energy is very important aspect of energy efficiency and it is very important avenue for ESCO companies.
- Availability of capital and capacity building of employees in SMEs sector with respect to energy efficiency, making protocols easier and simpler with high credibility and setting-up higher standards will help in driving energy efficiency in industry sector.
- Policy incentives to ESCO initiatives and training to banks and investors will help financing easier.

02:15 PM – 03:30 PM	**Executive Discussion 2**

Theme: Role of Energy Services in delivering efficiency through IT Enabled Solutions in the Building Sector.

CHAIRPERSON: *Ms. Vida Rozite, Energy Policy Analyst, International Energy Agency*

PANELLISTS:

6. Mr. Arjun Gupta, Chief Executive Officer, Smart Joules Private Limited
7. Mr. Nilesh Sawant, Vertical Head- Energy Efficiency, Bosch
8. Mr. PeerasutThirakomen, General Manager, Goldmark Tech Supply Co.
9. Mr. Vijay Ganesh Viswanathan, Client Engagement Manager, UTC- Eco Energy Insights

The Executive discussion focused on Public sector buildings, private hospitals, hotels and other commercial building infrastructure commenced with the address by the chair Ms. Vida Rozite, Energy Policy Analyst, International Energy Agency. She put up the question- How Business models and Integrated approaches are working towards the goal, and asked the panellists to introduce them and why are they here and what are they excited for, what all barriers and challenges they have faced and how can the incoming new technologies be best utilised, guaranteeing customised project deliverables and customer satisfaction? She also highlighted engagement level of policy-makers, financial institution, private sector, R&D and civil societies for scaling the energy efficiency service industry and how the technological innovations have paved the path to greater market penetration for the Service providers.

Mr. Arjun Gupta, CEO of Smart Joules Pvt. Ltd. is an innovative entrepreneur who works mainly focussing on hospital Sector. He believes it is a wonderful business, with no marketing issue, as the concept sells itself. But finance, project management and design capabilities and market size has been a challenge. Smart joules managed these issues by focusing on in a particular market to quickly scale up within the sector, training and capacity building, raising capital in proper manner.

Mr. Nilesh Sawant, Vertical Head-EE, Bosch Energy and Building Solutions India highlighted the need of focusing on carbon neutralization, identifying opportunity, implementing business models with industrial and commercial customers, with proper communication of how the project will be implemented. He mentioned by creating awareness, keeping all stakeholders engaged and holding relationships with installation partners would help to scale up. He also emphasised on the ease of operation for users. He stressed on the fact that creating references of projects escalates the chances of identifying and catering to new opportunities.

Mr. PeerasutThirakomen, General Manager, Goldmark Tech Supply Co informed the panel and the audience that they are working on most efficient technologies in Thailand across different sectors, emphasised on the importance of Energy efficiency in lifetime, integrating different elements, implementing retrofitting project and scalable models on energy platforms. According to him products are easy to scale up while ESCO as service providers have to package services and create a product to scale its adoption. Stressing upon identifying right sectors, involving multiple stakeholders in achieving near term goals and creating demands, following bottom up approach, enabling access to high quality demand, looking at other countries progress and implementation will help in achieving long term goals for the EE services market in India. He suggested using Network Operators, having huge cash flows and network bandwidth and large number of sales professionals, to deal directly with the clients, while ESCOs can provide the services and solutions, while putting in the IT services, combining both services and sell to the clients, taking their own share of revenue.

Mr. Vijay Ganesh Viswanathan, Client Engagement Manager, UTC ECO Energy Working on digitalization and providing optimism of functioning. Denial of people in shifting to energy efficiency mode from the ongoing projects, consulting and convincing customer for non-asset-based deal. Dealing with technologies, policies helped changing mindsets. They are saving 8-15% from 20,000 buildings. He believes green buildings are a good start. We need to spread awareness for reducing energy consumption.

Common understanding to the customer- centric ecosystem for energy- efficiency services was created. Ideas for innovating energy efficiency services business model were shared. Smart delivery mechanisms to improve overall competitiveness of end-customer were enabled. How establishing data transparency and verifiable technology infrastructure as a building block of energy efficiency services businesses is playing a vital role was discussed.

KEY TAKEAWAYS

1. IT enabled solutions have the potential to boost energy service market development and accelerate energy efficiency implementation by enabling the development of new data-driven services that enable optimisation of energy use, continuous improvements, and new business models.
2. Scaling up requires further solutions to enable long-term customer relationships, improved access to finance, case studies and success stories to raise awareness and demonstrate results, and skilled professionals.
3. Opportunities include successive scaling up by building expertise in a particular sector and using this experience as a basis for expansion, creation of new products such as packaged solutions for leasing, establishing and fostering strong partnerships, and development of new delivery systems using existing customer relationships, for example, between network operators and end-users.
4. Policy options to accelerate progress include making IT-enabled metering and monitoring systems mandatory (at least for main loads), building scale through public building programmes, new financing mechanisms, and incentives for companies and end-users.

4:00pm – 5:15pm	Executive Discussion 3

Theme: Utilities and End use Energy Efficiency: New role of DSM (Demand Side Management) programme for utilities

CHAIRPERSON: *Mr. Mahesh Patankar, MD, MP Ensystem*

PANELLIST:

a. Ms. Marisa Uchin, Vice President, Oracle Utilities
b. Mr. Abhishek Ranjan, Head- Renewables & DSM, Power Planning & scheduling, Energy Analysts, BRPL
c. Mr. Arjun Kumar, CEO, KREATE
d. Mr. Ranjit Bharvirkar, Principal and India Program Director, RAP
e. Mr. Devanshu Sharma, DSM, BSES Yamuna Power Ltd.

Chairperson, Mr. Mahesh Patankar, MD, MP Ensystem, focused on the importance of integrating this theme in the conclave, where he said that after energy act 2001 and 2003, many regulations were made to promote DSM program for utilities. He pointed out towards two developments in the energy sector that has taken place; which were increase in the renewable energy projects, behavioral change and energy consumption patterns. He added that, Behavioral changes and energy efficiency gains are made possible in the world of social media with connected devices.

Ms. Marisa Uchin, Vice President, Oracle Utilities, emphasized on the importance of digitalization where data can be presented and makes sense to the customer. She highlighted that providing just the data is not enough to make consumer change the behavior. However, when data is formatted and presented in a way that it is useful to the consumer, we see change in consumer behavior.

Mr. Devanshu Sharma, DSM, BSES Yamuna Power Ltd. highlighted that DISCOMs have a big opportunity to capture energy efficiency gains as they have a direct connect with residential customers. For this, the company has launched several customer-centric demand focused programs. These programs have helped in capacity avoidance of 32MW this year vs 17MW last year.

Mr. Arjun Kumar, CEO, KREATE, highlighted that India has evolved from power deficit to power surplus country. Further, he pointed out that mainstreaming and digitalization of the data into the utility management itself is very important.

Mr. Ranjit Bharvirkar, Principal and India Program Director, RAP, focused on relevant market reforms in the Indian utilities space where he said how energy generation is visible across the country and this energy can be traded across the country at different time scales. He highlighted the to see the national market and thatprice is an important factor for DSM.

Mr. Ranjan, Head- Renewables & DSM, Power Planning & scheduling, Energy Analysts, BRPL, pointed out that DSM should be seen as a resource for utilities to meet the demand. Solar is the distributed energy resource and that the company focused on solar rooftop as one of the strategies in Delhi.

KEY TAKEAWAYS

- Mainstreaming digitalization is important for energy efficiency wherein data can be presented in such a manner that it makes sense and influence change in the behavior pattern of consumers.
- DISCOMs have a big opportunity to capture energy efficiency gains as they have a direct connect with residential customers

04:00 PM – 05:15 PM	EXECUTIVE DISCUSSION 4

Theme: Energy Efficiency Services as a driver for improving Municipal and Public Infrastructure sector.

CHAIRPERSON: *Mr. Venkatesh Dwivedi, Chief Operating Officer, Energy Efficiency Services Limited*

PANELLISTS:

1. Ms. Afra Al Owais, Chief Efficienology Officer, Sharjah Electricity and Water Authority
2. Mr. Arijit Sengupta, Director, Bureau of Energy Efficiency

3. Mr. Sivaram Krishnamoorthy, Operations Offiver- Energy and Resource Efficiency, International Finance Corporation
4. Mr. Santosh Misra, Director, Citelum India Pvt. Ltd.

The executive discussion focused on implementation of large-scale programs in the municipal and public infrastructure segment, participation of smaller businesses and helping in creating the next generation low-carbon infrastructure in Indian cities was commenced by the Chair **Mr. Venkatesh Dwivedi,** Chief Operating Officer, EESL. He put up the questions to panellist on what role they played in the energy efficiency ecosystem, why was addressing need for Energy efficiency important to them and why were they excited to be on the panel and addressing the topic "Energy Efficiency Services as a driver for improving Municipal and Public Infrastructure sector", their perspective on challenges faced in this sector, baseline data concerns, security of payment, upfront investment of ESCOs and how can these challenges be overcome?

Mr. Sivaram Krishnamoorthy, Operations Officer- Energy and Resource Efficiency, IFC presented a video on their EE interventions with Municipalities. He quoted that Municipal sector has a key role to play for the EE, however they are surrounded with several issues such as – financial capability, political influence, and securing returns, therefore apart from EESL none of the ESCOs has been successful. The expectations of multilateral are on big ticket size projects on EE interventions, customer demand and secured returns for the private sector.

Ms. Afra Al Owais, Chief Efficienology Officer, Sharjah Electricity and Water Authority gave an overview on SEWA's retrofit program focused on capacity management via energy efficiency (helping in renewable). She highlighted the key challenges being faced by SEWA towards convincing the customer on the benefits of energy efficiency as there is a mindset among customers that RE is the only solution available. The activities undertaken by SEWA for their customers is – retrofit their network with EE equipment, free energy audit and free consultation on solutions.

Mr. Arijit Sengupta, Director, BEE mentioned about the activities Bureau has been undertaking to address the challenges of energy service market. He highlighted some of the interventions by BEE like empanelment of energy service companies, initialisation of financing instruments such as PRGFEE and VCFE, and development of model guidelines for ESPC to enable projects in government institutions through private ESCOs.

Mr. Santosh Misra, Director Citelum India Private Limited emphasised on top-down approach while setting up Energy Efficiency projects. He outlined the fact that private or public companies are not getting paid regularly or otherwise, and that the payments must be ensured via innovative mechanisms and regulations. He emphasised on addressing the key challenges of ESCO-based projects with Municipalities like– the projects are not financially sound, have political involvement, tenure of the project is longer which is not feasible for FIs and issues related to baseline estimation and theft.

KEY TAKEAWAYS

1. The Municipal EE programs need to ensure that payment of the service provider is secured. The Municipal bodies have grants from government and a portion of which can be used to ensure payment security to the service providers.
2. A mechanism should be developed to redirect flow of funds directly from the finance ministry to the service providers for EE projects in Public Sector Buildings and Municipalities
3. Indian companies and service providers are learning from the experiences of the international community and limited success have been achieved in emulating programs from countries like Germany, US, etc.
4. The municipal EE programs have lot of social benefits, apart from the direct energy savings which needs to be estimated to make such programs more appealing (visible and tangible) for the decision makers.

END OF DAY 2

March 8th, Day 3- Executive Presentations/Panel Discussion followed by BIZ Talk

9:30am- 11:30am	EXECUTIVE PRESENTATIONS

Theme: Role of Non-Profit Organizations and Multilateral-Bilateral Organizations (MBOs) in realizing National Energy Efficiency Goals under NDCs

CHAIRPERSON: *Dr. Krishan Dhawan, CEO, Shakti Sustainable Energy Foundation*

PANELLISTS:

1. Ms. Vida Rozite, Energy Policy Analyst, International Energy Agency
2. Ms. Lily Zhao Ming, Vice Director, China Energy Conservation Association
3. Mr. Alexander Ablaza, President, Philippine Energy Efficiency Alliance (PE2) and Co-chair, Asia-Pacific ESCO Industry Alliance
4. Dr. Daniel Bradley, First Secretary & Team Leader, British High Commission
5. Mr. Mark Lister, Managing Partner, Asia Clean Energy Partners
6. Ms. Apurva Chaturvedi, Program Management Specialist, USAID

Chairperson Mr. Krishan Dhawan, CEO, Shakti Sustainable Energy Foundation, started the session by emphasizing efficiency as the important source of energy conservation and that it plays an important role in mitigating climate change and sustaining the GDP growth of India.

Ms. Vida Rozite, Energy Policy Analyst, IEA emphasized that energy service companies need to focus on the multiple benefits of energy efficiency for the businesses. She highlighted that ESCOs need not only focus on the monetary value of energy savings, but on the multiple benefits in terms of increase in productivity, product quality, reduced operation & maintenance, lesser breakdown and other factors which are additional to the energy savings alone and that these multiple benefits when considered together in a bundle, completely transforms the business proposition and makes the payback attractive. She also pointed out that digital technologies have the potential to reshape, modernise and transform the demand-side sectors and the whole energy system and that the policies and regulations are essential to maximise the benefits and reap energy saving opportunities.

Ms. Zhao Ming, Vice Director, China Energy Conservation Association, talked about the role of EMCA and its contributions in the China's ESCO market. She informed the participants that EMCA acts as a bridge between industry & government, as a platform to bring all stakeholders together, and as a window for international cooperation. She highlighted the key factors which made the ESCO business flourish in China and pointed out at the critical role the government policy has played as a leading role in scaling up the ESCO market, and in creation of demand for EE services, and that the ESCOs opportunity is driving the economy which is making the ESCO business prosperous. She mentioned that the government has national EC targets which lead into capping the energy consumption for enterprises and thus created a market for EE services. She also stated that the ESCO market has transformed significantly and has MSC rule, wherein M is Mayor to Market, S stands for Simple to Solutions and C stands for Commercial banks to Comprehensive financing solutions.

Mr. Alexander Ablaza, President, Philippine Energy Efficiency Alliance (PE2) and Co-chair, Asia-Pacific ESCO Industry Alliance (APEIA) highlighted the EE&C Roadmap Targets set up by the Philippines, which states to achieve 10,000 ktoe of annual energy savings by 2040, and that the entire economy needs to reduce the final energy demand by 182 Mtoe (aggregate) and mobilize USD 243 billion in energy efficiency capital between 2017 and 2040. He recommended that governments cannot transform the EE market by themselves, and therefore collaboration between government, civil society and business is needed to cause and sustain the EE market reforms. He also highlighted the role of non-profit organizations, which can play the role of a resource vehicle that could mobilize knowledge, technologies and capital for the higher objectives.

Dr. Daniel Bradley, First Secretary, Energy & Low Carbon Growth, British High Commission, talked on India-UK Cooperation and partnership between India and UK on Energy efficiency. He emphasized on the key opportunities for India-UK partnership to facilitate sharing of international EE technologies, best practices and investments particularly for new DCs, deepening the ESCO market along withcapacity building of non-PAT industries and supply chains of big industries, support to DISCOMS in achieving PAT targets, implementation of DSM plans, smart metering, smart grids and development of digitization roadmaps for DISCOMs.

Mr. Mark Lister, Managing Partner, Asia Clean Energy Partners, highlighted the challenges for EE projects and identified three broad aspects for achieving EE implementation at Scale i.e. Advocacy, Aggregation and Market Building. He emphasized on the role of third-party energy services organisations in raising awareness on EE opportunities and creating streamlined, structured and aggregated expertise on technical, financial and legal aspects of energy efficiency investment and project development.

Ms. Apurva Chaturvedi, Program Management Specialist, USAID, focused on USAID approach for realizing energy efficiency goals under India's NDCs through strategic technical assistance to the Government and Private sector. She highlighted the USAID's support to energy efficiency programs over the last two decades, especially in formulating policy & regulations, strengthening existing institutional network, undertaking pilot programs and case studies, capacity building and market transformation.

KEY TAKEAWAYS:

- The non-profit organizations need to play an important role in collaborating with the key stakeholders to mobilize knowledge, technologies and capital to cause and sustain the EE market reforms.
- Energy efficiency should not only be considered as just the means for energy cost reductions but also provide other co-benefits such as productivity enhancement, quality improvement, poverty alleviation, employment, and many more.
- The key opportunities in India lies in facilitating sharing of knowledge, best practices and investments particularly for Industries, deepening the ESCO market, Capacity building of non-PAT industries, supply chains of big industries, support to DISCOMS and development & implementation of digitization roadmaps for DISCOMs

12:00pm - 1:30pm	**EXECUTIVE PANEL DISCUSSION 3**

Theme: Measurement & Verification 2.0: Transforming the M&V Practices for Energy Efficiency Services Market through disruptive technologies like Digital Sensing, Metering and Advanced Data-Analytics

CHAIRPERSON- *Mr. Aalok Deshmukh, General Manager, Schneider Electric*

PANELLISTS-

1. Mr. PeerasutThirakomen, General Manager, Goldmark Tech Supply Co
2. Mr. Mahesh Kulkarni, AGM-Maintenance- Shirwal Manufacturing Units, Godrej Interiors
3. Mr. Amarjeet Singh, CTO, Zenatix
4. Mr. Arjun Gupta, CEO, Smart Joules Pvt. Ltd
5. Mr. Deepak Gokhale, General Manager, Aditya Birla Group
6. Mr. Shailendra K. Verma, Property Asset Management, JLL

The aim of the session was to discuss the needs of consumers in requesting quicker and reliable feedback loop on effectiveness of energy services solutions on one hand and the advancement in sensor, metering, IoT and cloud technology coupled with evolution and maturity of sophisticated data analytics, machine learning and artificial intelligence on the other; that should lead to M&V 2.0 with an overhaul of decades old legacy protocols. The focus needs to be squarely on helping energy consumers and facility-managers to track specific and measurable targets and validate attainable and realistic energy savings in a technically rigorous and objective fashion. With this note, the session was commenced with a brief context by the chair.

Mr. Aalok Deshmukh, General Manager, Schneider Electric posed several questions to the Panellist on - Experiences in their domains, challenges faced by end users and customers in managing energy management programs, demonstration on the success of energy management program, their experiences with IPMVP, and their experiences with various elements of M&V 2.0.

Mr. PeerasutThirakomen, General Manager, Goldmark Tech Supply Co started his talk with the basic understanding of M&V. He elaborated that meters only provide the raw data from the process which needs to be fed into IPMVP protocols to calculate the energy savings and therefore M&V is for undertaking for the energy savings. He highlighted that the understanding of the M&V concepts and IPMV protocol is the necessity for each of the industry professionals to undertake the implementation of EE projects and that M&V 2.0 is a new paradigm having tools which simplifies data and thus options, making them more accessible and helpful for non CMVP professionals.

Mr. Mahesh Kulkarni, AGM-Maintenance- Shirwal Manufacturing Units, Godrej Interiors talked about the manual method of data collection and the problems associated, however, he highlighted that the new tools / systems which they have adopted now, have significantly improved the process in terms of real time data availability with accuracy. He emphasised that they believe on "the more you can measure, the more you can save" and "green makes lot of sense". He also stated that they have integrated M&V 2.0 into their processes, and it has helped in achieving operational excellence.

Mr. Amarjeet Singh, CTO, Zenatix talked about his experience on working with the retail stores. He highlighted several issues which are generally faced by the retail chains such as –lack of facility management team, equipment scheduling, temperature setpoints, maintenance schedule etc., and thus, they are interested in detailed monitoring and control their system to provide energy savings. He suggested that M&V should also integrate Controls, as automatic controls helps in realising the low hanging fruits of operational energy savings, and later deciding on the equipment retrofit. He also emphasised on data driven ESCO approach for the future.

Mr. Arjun Gupta, CEO, Smart Joules Pvt. Ltd shared his story with the Hospital projects, wherein the measurement & verification of the energy savings becomes a tricky part and therefore the protocol developed should be prepared based on the understanding of Client. He further stated that as part of their ESCO strategy they tried to keep the M&V process simple so that client can understand. He also acknowledged however that M&V 2.0 can help in deeper understanding of the building energy systems and reduce complications as complex equations would not be required.

Mr. Deepak Gokhale, General Manager, Aditya Birla Group shared his experience on M&V 2.0 and mentioned that besides energy efficiency, it has helped in monitoring process parameters and getting insights on process settings /set-points which are generally run at sufficiently high safety margins. He outlined that this approach is simplified in analysis and has improved productivity, safety, and equipment health factors associated to it. He also pointed out that the success of M&V2.0 is undeniable due to its simplified approach and benefits available which are beyond energy savings.

Mr. Shailendra K. Verma, Property Asset Management, JLL informed that they are managing approx. 260 million sq.ft. of properties and people are not aware about the energy consumption, whether it is on the developer side or facility management side. He highlighted the fact that due to the pressure from regulatory bodies, the facilities have taken a serious note and started monitoring the energy consumptions and taking necessary actions and also stated that at facilities the energy consumption and estimation of savings were earlier based on excel sheet and later moved to energy management system which still has several gaps, however acknowledged that the present tools such as M&V 2.0 are helpful in estimating the energy savings and has a great future for the facilities business.

KEY TAKEAWAYS

- The energy efficiency must be taken beyond its current scope of work, to the top-line by considering employee productivity, equipment health, operability, surveillance and security perspectives

	• There is big disorder in terms of use of standards and protocols for communication at the facility level. The owners, developers, solution providers and contractors need to develop a single standard for equipment communication or adhere to the global standard.
2:30 PM- 3:45 PM	**BIZ-TALKS**
	Theme I: Commercial Buildings: EE solutions to achieve scale
	Chairperson: *Mr. Tanmay Tathagat, Executive Director, Environmental Design Solutions* **Panelist:** 1. Mr. Ayaz Kamil, Head- Buildings Division, Siemens 2. Mr. Pierre Jaboyedoff, Head of BEEP PMTU Switzerland; Associate, Effin'ArtSarl 3. Mr. Srinivasa Rajkumar, Senior Manager- Commercial Building Services, Grundfos 4. Mr. Madhusudan Rao, Managing Director, Oorja 5. Mr. SumitNawathe, Business Consultant, EnergyTech Ventures **Chairperson, Mr. Tanmay Tathagat, Executive Director, Environmental Design Solutions,** emphasized on the integrated design approach for EE in the building sector. He added, that the kind of changes required in the way of doing business is not to just look at all products/ services as additional features but look at them as a bundle/package of solutions. **Mr. Pierre Jaboyedoff, Head of BEEP PMTU Switzerland; Associate, Effin'ArtSarl,** focused on external shading technology and market perspective in India. He focused upon appliances which will aid in reducing the cooling loads during building design. He said that in modern buildings the envelope is often the main source of heat andwindow is a major factor when we look at heating or cooling. Talking about the importance of external shading, he said it reduces the solar heat gain and ultimately reduce the cooling demand. He also gave examples of ancient Indian architecture wherein external shading was an integral part of the design philosophy. **Mr. Ayaz Kamil, Head- Buildings Division, Siemens,** focused on energy efficiency through digitalization & smart technologies. He highlighted two unique technologies which truly represent digitization wherein machine learning and IoT is leveraged to meet the energy efficiency goals in any organization. The technologies discussed were – "Demand Flow & Enlighted". The "Demand Flow" is the unique machine learning based solution for the HVAC water cooled systems and its algorithm controls each component of the HVAC plant room to operate at the optimum condition in such a way that the entire HVAC high side operates at the maximum efficiency. The other technology he described was "Enlighted" which is an IoT based solution which has a single sensor and can monitor multiple parameters such as - motion, temperature, lighting, power and can control lighting and HVAC system, as well as can measure space heat map and help in space optimization. **Mr. Srinivasa Rajkumar, Senior Manager- Commercial Building Services, Grundfos**, focused on intelligent pumping system which is distributed pumping system. The distributed pumping system is a simple and most effective pumping arrangement which can be implemented in large multiple zone buildings and multiple building systems with central energy plants. It eliminates the overpressure which is caused by the differences in pump head pressure requirements between zones & buildings. In a conventional system the chilled water supply and return line are pressurized to a large extent even when the cooling load requirement is small, whereas in the distributed pumping system it is pressurized only to the extent that is required, depending upon the load requirement. He also shared some of the case studies wherein this technology was implemented and energy savings in the tune of 30 ~ 50% of the pumping energy. **Mr. Madhusudan Rao, Managing Director, Oorja**started his presentation by highlighting the requirement for space cooling in India which is huge as compared to the other tropical countries. He discussed about structural cooling which is one of the sustainable cooling options for the buildings wherein the pipes are embedded inside the structure and water is circulated through it to flush the heat out. He stated that the structural cooling system can significantly reduce the chiller plant sizing for a building and that simulation and thermography have shown that in summer the thermal mass retains the heat during the day and internal operative temperatures are far higher than the outdoor temperatures. He talked about the different implementation options based on the requirement of indoor temperatures in the building.

Mr. SumitNawathe, Business Consultant EnergyTech Ventures, emphasized on the emerging innovative technologies helping to scale EE interventions. He highlighted the Global Commercial real estate (CRE) investment: USD 341 Billion growing at the 13% and stated that resiliency, sustainability and flexibility are transforming the way buildings are being designed and operated. He enumerated what can be done to make commercial building more energy efficient which are - open the data vault; recognize human element; change business models.

KEY TAKEAWAYS:

- Integrated approach is the key to scale up adoption of energy efficiency
- Passive building design is an important factor for the energy performance of buildings and India must look back at its ancient architectural design for the same
- Innovative technologies equipped with machine learning and IoT can enable organizations to meet their energy efficiency goals.

2:30 PM- 3:45 PM — ***Theme 2: Industries and Supply Chain: EE Solutions to achieve scale***

Chair- *Dr. G. C. Dutta Roy, Founder and Ex-CEO, DESL*

Panellists-

1. Mr. Syed Nazeer, Director Strategic Business Development - Asia Pacific and India, Danfoss
2. Mr. Ashish Vaishnav, Global Corporate Head, Thermax
3. Mr. Halingali Vidyasagar, Business Head- SAARC, Bocsh
4. Mr. Aditya Girotra, Head of Sales, Ecolibrium Energy

The session aimed to discuss technologies that can fast track the adoption of EE in Industrial sector and focused on AC drives, Waste heat recovery, Cogeneration/ Trigeneration, Industrial IoT.

Mr. Syed Nazeer, Director Strategic Business Development - Asia Pacific and India, talked on the AC drives solutions for Industrial and Manufacturing facilities. He shared some of the facts that 20% of the world's energy consumption is electrical energy and out of which 50% of electrical energy is used by electrical motors and mentioned that 75% of AC drives are used on pumps, fans and compressors. He indicated that AC drives have potential to save 8% of global electricity consumption by 2040. He shared some of the case studies on energy saving potential by using AC drives in manufacturing facility and heavy industries.

Mr. Ashish Vaishnav, Global Corporate Head, Thermax talked on the Co-Generation and Tri-Generation technology, issues associated with its adoption, and the innovative business models. He also talked on the innovative solutions such as integration of thermally activated cooling, conversion to bio fuels, gas based cogeneration & trigeneration, and also on the innovative business models for this technology, which could be leasing of equipment to avoid CAPEX, working with ESCO on the "Pay As You Save Model" and outsourcing of O&M to avoid creation of new skilled manpower. He also shared the case studies of some successfully completed projects in Buildings, Industries etc.

Mr. Halingali Vidyasagar, Business Head- SAARC, Bosch gave a presentation focused on Customized thermal energy efficiency solutions which accounts for 5-30% of the total energy cost in industries depending on sectors. He highlighted that Steam generation, Heat treatment processes, and Cooling processes are some of the areas which are the highest consumers of thermal energy in Industries. Bosch Energy and building solutions being an ESCO are technology neutral and recommends most energy efficient solutions to their industrial and commercial clients through customized EE and RE solutions.

Mr. Aditya Girotra, Head of Sales, Ecolibrium Energy talked about Industrial IoT solutions which enables enterprises to prevent unscheduled downtime and optimise maintenance and energy costs. He focused on Predictive maintenance solutions which is the biggest use case in the creation of Enterprise 4.0 and helps in avoiding unplanned downtime, improves overall equipment effectiveness and avoid line losses.

KEY TAKEAWAYS:

1. There is a need to develop simplified & cost effective IoT platform for MSMEs which could capture production, financials, energy consumption and specific energy data and could facilitate MSMEs to become much more energy efficient.

	2. Policy level support is needed for waste heat recovery solutions in Industries and SME segment as there lies a huge opportunity for energy savings, however due to excessive cost involved, WHR projects are not possible in current scenario.
4:15 PM-5:30 PM	***Theme 3: Municipal & Public Services: EE solutions to achieve Scale***

CHAIRPERSON: *Mr. S.P. Garnaik, CGM- Technical EESL*

PANELLIST:

a. Mr. Benjamin Hickman, Regional Technical Advisor, District Energy in Cities Initiative, UN Environment
b. Mr. Arindam Paul, Founding Member, Atomberg Technologies Pvt. Ltd.
c. Mr. Vivek Jain, Signify Innovations India Limited
d. Mr. Sachin Kumar, Manager, Shakti Pumps

Chairperson, Mr. S.P. Garnaik, CGM- Technical EESL, shared EESL's journey w.r.t. the street lighting program; the largest EE program in the municipality sector, followed by highlighting its outcomes & way forward on implementing energy efficiency interventions such as trigeneration, district energy systems and smart metering in near future. He also raised the issue of lack of efficient business models and finance in EE sector.

Mr. Benjamin Hickman, Regional Technical Advisor, District Energy in Cities Initiative, UN Environment, through his keynote presentation on 'District energy in Indian cities', focused upon cooling demand which will increase in near future. He also focused on the importance of district cooling which will reduce the emissions and urban heat Island effect, specifically by focusing on and tackling the problems faced by cities. He further highlighted the significant barriers to district energy development, which were holistic policy planning, availability of finance, etc. He explained how district cooling plan has been mapped internationally and emphasized on the need for independent assessment of energy planning highlighting the role local government can play in becoming the key partners for coordinating and advocating international organizations, like the UN, he added.

Mr. Arindam Paul, Founding Member, Atomberg Technologies Pvt. Ltd., started with a statement that in Indian households, ceiling fans consume 15% of the total household electricity consumption. He further mentioned that his company designs super-efficient fans using BLDC technology, which makes them India's most energy efficient ceiling fan consuming only 28W. He further emphasized on his organization's product and its value proposition; by stating that these fans give similar output despite receiving different input voltage; with a much faster payback period and hence, these fans are best for rural area with huge voltage fluctuations. This was followed by case studies talking about the early adopter of this technology.

Mr. Vivek Jain, Signify Innovations India Limited, focused on street lighting and its control in cities and towns. He specified that transforming street lighting in cities with no human interventions could be done in two ways i.e. either by installing single & multiple feeder system or by using dimmable(s) along with a facility of fault rectification which would also lead to generating city/state level street light data and possibility of preventive maintenance, etc. He also stated that managing a city level data is difficult, hence dependence on cloud based technologies could result in savings in terms of time, cost and efforts.

Mr. Sachin Kumar, Manager Shakti Pumps, talked about their new hybrid technology which is a combination of Induction Motor and Permanent Magnet Synchronize Motor (PMSM), named as S4RM. He informed about the technology was for surface and submersible motor, and a VFD less solution. The motors when coupled with pumps produces a high discharge even in the scenario of low input voltage. He concluded by stating that S4RM is efficient and a reliable technology as compared to existing technologies.

KEY TAKEAWAYS:

- Innovation plays a key role in energy efficiency sector. However, it has to be affordable in order to implement it on large scale.
- Focus on generating finance from the private sector than municipality should be done in the projects with fast payback periods.
- Cloud based technologies for data management should be adopted.

4:15 PM-5:30 PM	***Theme 4: Cold Chain & Refrigeration: Solutions to achieve scale***

Chairperson: *Mr. Shubhashis Dey, Lead- EE, SSEF*

Panellists-

1. Mr. Neeraj Narula, Manager- Cold Chain, Danfoss
2. Mr. J.M. Gupta, Managing Partner, Control Environment Creator
3. Mr. Mukesh Agarwal, Vice President and Coordinator- Govt Affairs, Federation of Cold Storage Association of India
4. Mr. Sandeep Kachhawa, Sr. Research Associate, AEEE

The aim of this session was to highlight proven technology solutions, business models, government subsidy schemes, and best practice models in cold chain infrastructure; to ensure efficiency, minimal food losses and environmental impact.

Chairperson, *Mr. Shubhashis Dey, Lead- EE, SSEF* stated that India is facing a challenge for lack of efficient cold chain infrastructure which has not only lead to food loss, but has also impacted farmer's income; specifically, due to poor post-harvest infrastructure.

Mr. Neeraj Narula, Manager- Cold Chain, Danfoss highlighted that how his organisation is playing its part in improving climate change and energy efficiency. He also highlighted some crucial facts like 20% of the world's energy consumption is electrical energy, 50% energy usage is solely by motors. He further specified that energy conservation methods like VFDs have the potential to save 8% of global electricity consumption by 2040. In addition to this, he mentioned that in refrigeration system; energy efficiency, system automation and safety are the integral part. Follow up to this, he discussed about the technologies & solutions Danfoss provides for cold chain infrastructure.

Mr. J.M. Gupta, Managing Partner, Control Environment Creator shared a very interesting and efficient alternate that is *ice slurry as a green technology, storing cooling energy in the form of ice slurry which can be stored for long durations depending upon the insulation provided.* He stated thatIce Slurry is a phase changing secondary fluid consisting of both liquid and solid- state fraction; to improve energy efficiency and enable greater use of renewable energy so as to achieve reduction in greenhouse gas emissions via creating "GREEN UMBRELLA", in our eco-system.

Mr. Mukesh Agarwal, Vice President and Coordinator- Govt Affairs, Federation of Cold Storage Association of India presented on how with the advent of technology, industry is moving towards Automated Compressors and mentioned that the relation between cooling is directly proportional to health and well-being of people in a hot climate. He specified India has one of the lowest per capita consumption of 69 kwh and highest per unit energy consumption per tons of refrigeration cooling, which is about400 kwh/m3/ year for frozen cold storage as compared to world average of 272 kwh and 75 kwh/m3/ year respectively. He highlighted upon the values addition made in agricultural sector due to cold chain, in terms of availability of crops all seasons.

Mr. Sandeep Kachhawa, Sr. Research Associate, AEEE gave his presentation on India's direct/ indirect dependence upon agriculture and allied sectors, which contributes 17% to the country's GDP. He specified the role of government and key goals of Indian cooling action plan like reduction of cooling and refrigerant demand and training and certification of 100,000 servicing technicians, etc. In follow up to this, he highlighted the benefits of uninterrupted and integrated food chain, along with the outcomes of absence of cold chain, specifically in terms of food loss & related market condition. He also emphasized on the National Cold Chain Development statistics, showing massive shortage of cold chain infrastructure and an investment opportunity of around 90,000 crore INR. This was followed by the description of the work done by AEEE in Indian Cooling Action Plan, its key findings and related recommendations. He suggested **Lean, Mean and Green strategy** where Lean is to reduce cooling load, Mean is to Achieve cooling efficiency, Green is to reduce carbon footprints.

KEY TAKEAWAYS:

1. Exploring alternative cooling technologies is the need of the hour.
2. The ecosystem has to change the way stakeholders perceive and design cold-chain (a fragmented approach).

	3. Extensive training (un-learning and learning) and skill development is required to bring change in the mindset. 4. New business models like offering cooling as a service, Farm Produce Organization (FPOs) as aggregators, linking incentives to energy efficiency and clean production are required to drive the sector in the right direction.
5:30 PM - 6:00 PM	**HIGHLIGHTS, WAY FORWARD AND CLOSING REMARKS**
	a. Ms. Sudha Setty, Director, AEEE b. Mr. Pankaj Kumar, Secretary, Bureau of Energy Efficiency **Ms. Sudha Setty, Director, AEEE,** highlighted the key discussion points that took place in the conclave which were as follows: • In growing economy like India with high GDP i.e., 6-8% it is critical to be more energy efficient. • The energy efficient discussions need to move from shop floor to the board room • Energy efficiency has multiple co-benefits and not just cost saving benefits. • Examples of energy productivity and circular economy were given • Need for energy efficiency insurance was emphasized • Learning from International colleagues and organizations such as Success stories from Chinese ESCOs • Key role of measurement in energy efficiency was emphasized • Proactive sessions were there as participants were engaged through whoa app On behalf of AEEE, she thanked all the speakers for taking time to enrich the Conclave. She also thanked to BEE and all the Gold (Bosch, Danfoss, Grundfos, Schneider Electric) and silver sponsors (Covestro, EESL, Saint Gobain, Siemens) and supporting organisations - British High Commission, IEA, Shakti, UNIDO, USAID and outreach partners - CAHO, GRIHA, and India Smart Grid Forum. She also thanked to her colleagues at AEEE that have worked hard over the last few months and put this Conclave together. **Mr. Pankaj Kumar,** Secretary, Bureau of Energy Efficiency, presented his closing remarks by thanking all the stakeholders from all sectors and ecosystem of the energy efficiency who come together to promote energy efficiency in such a way that customer is at the centre of attention and rise in business competitiveness is stressed upon through energy efficiency. He informed the audience of addition of two new electrical appliances, microwave ovens and washing machines, to be assigned star rating based on their energy efficiency metrics and that the criteria for washing machine has been revised, with the inclusion of water efficiency in addition to energy performance for grant of star rating. Mr. Kumar concluded the Conclave with the acknowledgement of the organisers and participants and with the urge to continue working to mitigate climate change by being more energy efficient.

END OF CONCLAVE

7. EXHIBITION & **TECHNOBUZZ**

SUMMARY

IESC 2019 had a dedicated ***Exhibition & TechnoBuzz*** setup for the Original Equipment Manufacturers, Technology and Service Providers, Startups and System Integrators to showcase their unique offerings.

The ***TechnoBuzz*** provided an opportunity to the exhibitors with a dedicated time slots to talk about their latest innovative technologies in the exhibition area and network with the End Customers from different segments, who attended the conclave. The use of state-of-art audio-visual equipment acted as an aid in substantial networking and engagement opportunities with potential customers.

The ***Poster Boards and Standees*** were also made available for the energy service providers and system integrators to showcase their services, case studies and expertise in the energy efficiency business. This was an opportunity for companies to market their brand through *Poster Boards or Standees* which were placed in the TechnoBuzz area.

TECHNOBUZZ **AGENDA**

Session Breaks	Organisation's Presenting
7th March 2019	
Tea & Networking break (11:30 am-12:00pm)	Grundfos Pumps India Pvt. Ltd. Smart JoulesPvt. Ltd. Danfoss Industries Pvt. Ltd.
Lunch (1:15 pm-2:15 pm)	Bosch Energy and Building Solutions TORO WATT Corp. Aspiration Energy Pvt. Ltd.
Tea & Networking break (3:30 pm-4:00 pm)	Schneider Electric Cygni Energy Pvt. Ltd. Mahindra Powerol
Time before dinner (5:15 pm-7:00 pm)	Open for all TechnoBuzz Exhibitors
8th March 2019	
Tea & Networking break (11:30 am-12:00pm)	Open for all TechnoBuzz Exhibitors
Lunch (1:30 pm-2:30 pm)	Open for all TechnoBuzz Exhibitors
Tea & Networking break (3:45 pm-4:15 pm)	Open for all TechnoBuzz Exhibitors

EXHIBITOR'S **PROFILES**

ASPIRATION ENERGY PVT. LTD.

Aspiration Energy is an innovative Solar Energy Services company, providing decentralized solar thermal systems and hyper-efficient heat pumps for industrial process heating. For industries that adopt to green energy initiatives, we offer heating solutions that provide long term predictable low-energy costs on a unique monthly performance-based energy payment.

We avoid expensive and dirty fossil fuels by adopting proven technologies to both unutilized space and complex applications in the industry. Our Sustainable Heating Solutions find applications across several manufacturing industries for industrial processes that require a temperature range 40-120°C Our solar thermal and heat pump solutions provide much higher temperatures than solutions from conventional vendors (up to 100 deg C) making them suitable for a wider range of applications.

With top tier clients from diverse industries already relying on Aspiration Energy, you can be assured of world-class, industry strength solutions for your mission critical applications. Our team's ability to manage complex engineering integration projects ensures smooth integration of our sustainable thermal solutions with your existing infrastructure.

Aspiration energy is promoted by the co-founders of Aspire Systems, a profitable, 1700 people, ISO 9001:2008 certified, software services company. We are supported and seed-funded by the Renewable Search program (RE: Search) jointly administered by IIM Ahmedabad's (IIMA) Centre for Innovation Incubation and Entrepreneurship (CIIE) and Ministry of New and Renewable Energy (MNRE).

BOSCH ENERGY AND BUILDING SOLUTION

"Our goal is to be the first choice for technologies and services that make commercial and industrial facilities safer, more comfortable, and efficient."

Bosch Energy and Building Solutions (BEBS) is an award-winning integrator of solar PV power plants and energy efficiency solutions for commercial and industrial facilities in India. With its engineering expertise, BEBS customizes its solutions to meet the diverse energy needs of its customers. As part of its end-to-end responsibility, BEBS takes charge of assessment of the existing facility, solution design & engineering, project implementation, installation, commissioning and measurement & verification of the solution. As on date, BEBS has helped more than 200 enterprises realize substantial energy cost savings across India with these customized solutions.

Key Solution Offerings for Commercial and Industrial Facilities:

Energy Efficiency Solutions

- Integrated Heating and Cooling Solution
- HVAC Efficiency Improvement Solution
- Steam Distribution Optimization Solution

Solar PV Solutions

- Rooftop installations
- Ground-mounted installations
- Carport installations
- Water-lagoon & canal-top installations

BEBS is an accredited Grade 1 ESCO under the Bureau of Energy Efficiency.

In addition to India, Bosch Energy and Building Solutions offers its solutions in Germany, the Netherlands, Italy, Austria, Switzerland, the U.S. and Singapore, partnering with more than 1,00,000 customers worldwide. In addition to Energy Solutions, BEBS also offers integrated solutions for building security and building automation in its markets.

BOSCH GROUP IN INDIA

Bosch is a leading supplier of technology and services in the areas of Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. In India, Bosch set-up its manufacturing operation in 1951, which has grown over the years to include 18 manufacturing sites, and seven development and application centers. Bosch Group in India employs over 31,000 associates, including close to 18,000 research and development associates.

CYGNI ENERGY PVT. LTD.

Cygni Energy Pvt ltd (Cygni) is an IITM incubated startup specializing in solar power backup and DC (Direct-current) Micro-grid solutions. Founded in 2014, the company specializes in Inverterless technology and Rooftop solar solutions.

Cygni's flagship product is Inverterless Systems. This is one of the most efficient photovoltaic power backup system available in the market offering up to 40% lesser power consumption and 50% reduction in electricity bills. The system comes integrated with App, which helps you monitor you energy consumption, which in turn will enable you to control your energy usage. About 30-40% of the energy loses which happen due to conversion are beyond customers' control, which can be reduced by using DC power supply. The solution is not just limited to rural households but is robust enough to handle urban homes and its backup needs.

Solar-DC Inverterless is an innovative technology that provides 48V DC to power appliances. With growing emphasis on energy conservation world over and with more DC appliances now becoming available, most homes in the world will gradually move to DC power. This is India's opportunity to lead this "Go-DC" revolution.

Our products are deployed in over 30,000 homes in 10 states of India. In the FY 2019, we aim to illuminate 50,000 more homes. We also plan to expand our presence to more states and while expanding the DC ecosystem.

At Cygni, we believe in a better way to power homes and businesses at a lower cost while contributing to a cleaner planet. We also believe solar power can actually cost less than we pay now resulting in significant savings!

DANFOSS INDUSTRIES PVT. LTD.

The fuel of tomorrow is everything we can save today. Our new brand promise refl our sharper focus in delivering technologies today that help save energy in farm-to-fork models and smart cities of tomorrow..

We help build the infrastructure for the world's growing cities – and we do it in a sustainable way. We help construct the roads and buildings and optimize the energy and water supplies as well as plants and buildings. Our engineering ensures cleaner air and increased comfort for people as well as higher efficiency and productivity – moving the growing cities in a green direction and raising the standard of living. Our solutions are making a difference for the cities of tomorrow.

We help meet the need for more and better food by improving farming productivity and keeping food fresh all the way to consumers in the most efficient and safe way with minimum waste. In the field, we provide hydraulic products for machinery such as intelligent tractors and harvesters that help optimize the harvest on the farms. When food is harvested or fished from the sea, our innovative technology controls the temperature and monitors the refrigeration in transportation, plants, distribution centres and supermarkets. This saves energy and CO2, keeps costs down, minimizes food waste and improves food quality.

Danfoss Drives: Danfoss is the world leader in dedicated drives. Danfoss drives are independent of motor manufacturers and adapt to any technology. Dedicated, reliable and user-friendly, these drives fit specific application requirements and reduce total cost of ownership. Providing optimum process control and energy efficiency for a wide variety of electric-motor-driven applications in a diverse range of industries, Danfoss drives

play a crucial role in optimising productivity for various industries like Food & Beverage, Chemical, Mining, Marine and HVAC industries.

Danfoss Smart Cities: Energy Efficiency to be considered as the first fuel in running India's smart cities in a sustainable manner. Smart city implies smart consumption of energy. Buildings consume a lot of energy and smart technologies that Danfoss has to offer help in reducing energy consumed in HVAC

Systems. Accelerating energy efficiency while India experiences skyrocketing growth in its buildings market provides a huge opportunity to generate energy savings that can translate directly to financial savings.

Danfoss India believes that technologies are available to improve the Energy to GDP ratio of cities and thereby the country and is focusing on five specific areas within India's 100 Smart Cities dream: Key focus areas for Danfoss include Efficient Buildings (New and Retrofit), District Cooling, Efficient Water and Waste Water management, Efficient Industries, Efficient Food (Cold Chain) Infrastructure including Smart Stores.

GLOBAL COOLING PRIZE

The Global Cooling Prize is rallying a global coalition of leaders to solve the critical climate threat that comes from growing demand for residential air conditioning. By harnessing the power of innovation, we can provide cooling solutions that enhance people's lives without contributing to runaway climate change. This groundbreaking competition is designed to incentivize the development of a residential cooling solution that will have at least five times (5x) less climate impact than today's standard products. This technology could prevent up Breakthrough Cooling Technology for All, Without Warming the Planet to 100 gigatons (GT) of CO2 -equivalent (CO2 e) emissions by 2050,1 and put the world on a pathway to prevent one degree of global warming by 2100, all while enhancing living standards for people in developing countries. The Problem The planet is getting hotter. Affordable cooling is increasingly becoming a global necessity, supporting higher productivity, positive health outcomes, and accelerated economic development.

It is clear that the world needs a breakthrough RAC technology, one that meets the world's booming demand for cooling without contributing to runaway climate change.

Global Cooling Prize has been launched with high level leadership, guidance, and support from the Department of Science & Technology, Ministry of Science & Technology, Government of India and Rocky Mountain Institute, under the Mission Innovation's Affordable Heating and Cooling of Buildings Innovation Challenge. The Prize is also supported by funders and outreach partners. The prize will be administered by Rocky Mountain Institute (RMI), Conservation X Labs, Alliance for an Energy Efficient Economy (AEEE), and CEPT University.

GRUNDFOS PUMPS INDIA PVT. LTD.

Grundfos Pumps India Pvt. Ltd. (Grundfos India) is a 100% subsidiary of Grundfos – Denmark. Grundfos is a global leader in advanced pump solutions and a trendsetter in water technology. The company contributes to global sustainability by pioneering technologies that improve quality of life for people and care for the planet. Grundfos is also one of the world's leading pump manufacturers with an annual production of more than 17 million pump units. The company's main products include circulator pumps for heating and air-conditioning as well as other centrifugal pumps for the industry, water supply, sewage and dosing. Grundfos India started its Indian operations in the year 1998.

Grundfos India's headquarters is located in Chennai and has as 14 branch / home offices. It has an extensive network across the country with more than 200 distributors, Point of Sale outlets and authorized service centres. The company has two production facilities, one adjoined to its corporate office in Chennai and another in the Dantali, Gujarat. Grundfos India is also responsible for the business in Bangladesh, Bhutan Maldives and Nepal.

Grundfos India is working towards helping Indian industries and corporates save both energy and water not only through it's highly energy efficient products but also through the energy and water audits it conducts. The company also contributes towards energy and water conservation by reducing its own impact on the environment. Grundfos India's factory also received the gold certification in 2011 from the Indian Green Building Council (IGBC). In August 2013, the Grundfos office building was elevated to a LEED EB Platinum certification.Grundfos India's CSR initiatives focus on sustainability, energy & water conservation, health & hygiene, education and livelihood.

MAHINDRA POWEROL

Mahindra Powerol entered the field of power generation in 2001-02. Starting from FY 2002, the business has grown exponentially to become a Rs.1400 crore business in FY 2017-18. Today, engines from Mahindra Powerol are powering diesel gensets from 5 kVA to 625 kVA including 25 & 125 kVA Gas Gensets.

Since inception, Mahindra Powerol has made rapid strides in the Indian genset industry within a very short span of time. Mahindra Powerol DG sets are the first choice of Telecom majors across India and overseas.

Mahindra Powerol has relentlessly focused on providing sustainable solutions to the market. True to its commitment the company has launched a 6-cylinder 25 kVA & 125 kVA Gas genset which are India's first CPCB (Central Pollution Control Board Emission Norms) approved gas gensets. Manufactured at the company's plant in Chakan. These Advanced genset emits zero-particulate matter which results in negligible pollution.

MAHINDRA'S UNIQUE GAS POWERED GENSETS – ONE FOR THE FUTURE

Gas gensets will have tremendous advantage over the diesel powered gensets as the operating cost of a gas Genset is 45% lower than diesel powered generators. In addition, the noise level is 4 dbA lower than a conventional genset.

Mahindra Powerol believes in its customer first philosophy and to achieve maximum customer satisfaction, it has one of the widest service networks comprising more than 200 dealers with over 400 touch points nationally.

UNIQUE FEATURES OF MAHINDRA'S GAS POWERED GENSETS

- Low Noise Emission
- Low Exhaust Emissions
- Maximum Fuel Efficiency
- Lowest Operating Cost

SCHNEIDER ELECTRIC

Schneider Electric is one of the world's largest industry companies, a Fortune 300 multinational and a leader in the digital transformation of energy management & automation. It addresses 4 key markets: buildings, industries, data centers and infrastructure.

For more than 175 years now, it has been enabling technology revolutions worldwide. The group invests 5% of its sales in R&D to sustain innovation and differentiation, with a strong commitment to sustainable development. EcoStruxureTM is Schneider Electric's IoT-enabled, plug-and-play, open, interoperable architecture and platform, in Homes, Buildings, Data Centers, Infrastructure and Industries.

EcoStruxure delivers Innovation at Every Level from Connected Products to Edge Control, and Apps, Analytics and Services, on 6 domains of expertise – Power, IT, Building, Machine, Plant and Grid – delivering enhanced value around safety, reliability, operational efficiency, sustainability, and connectivity to our customers.

SCHNEIDER ELECTRIC IN INDIA

India is a key focus country for the Group. In India, it has over **20,000**, employees, including **1500** R&D engineers, **24** manufacturing plants, over **61,000** points of sale and a direct presence in over **130** cities & towns in India. Committed to growth through innovation, it has made significant acquisitions and partnerships in

India over the last 10 years. As one of the leading global players in India today and with a strong manufacturing and R&D base, Schneider Electric is committed to partner with the Government of India in its progressive agenda for the country with programs like 'Make in India', 'Digital India', 'Skill India' and '24X7 power to all'.

SCHNEIDER ELECTRIC'S COMMITMENT TO SUSTAINABILITY

Schneider Electric is on the road to carbon neutrality. On the eve of COP21, it presented 10 commitments for sustainability. The objective is to reduce the Group's emissions and develop new technologies for energy efficiency so that Schneider Electric and its ecosystem demonstrate carbon neutrality by 2030.

Schneider Electric aligns with the United Nation's Sustainable Development Goals (SDGs), a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030. It is committed to accomplish the 17 SDGs through its core business and five sustainability megatrends: Climate, Circular Economy, Ethics, Health & Equity, and Development.

SMART JOULES PVT. LTD.

Smart Joules addresses widespread social, economic and environmental injustice by eliminating energy waste through innovations in continuous energy optimization.

Our technology platform – DeJoule – leverages a combination of IoT and robust optimization algorithms to usher in a paradigm shift from "thumb rule"-based and human centric operational practices to automatic and continuous data-based optimization.

We provide DeJoule under our National Award-winning Pay-As-You-Save business model called JoulePAYS, wherein we take a fixed percentage share of the value of energy savings delivered to businesses over a fixed term of 5-7 years. JoulePAYS clients thus save energy and money from the beginning without making any investment or taking risks.

Our clients have improved their energy productivity by up to 70%, and won national and international awards from the Indian Ministry of Power and the German Energy Agency. Our interdisciplinary team consists of 40 experienced energy project design, implementation and maintenance professionals, 40 young engineers across the fields of software, robotics, electronics, electrical, embedded systems and data engineering, and 38 young Joule Fellows working in our Joule Labs partnerships with two universities.

The team is led by an MIT-UC Berkeley Alum, a Navy veteran and a financial wizard. We have received financial support from Echoing Green, the David & Lucile Packard Foundation, TATA Trusts, TATA Cleantech Capital, Yes Bank, SIDBI and the World Bank and recognition from ADB, IEA, DENA, NITI Aayog, Bureau of Energy Efficiency, CII, Shell, Harvard University, Hello Tomorrow, TERI, GRIHA, The Economic Times, Business World, WIRED, Huffington Post, UNYCC and others.

TORO WATT CORP.

TORO Water Air Thermal Technologies Corp., Canada (TORO WATT) is a clean technology company specializing in energy efficient HVAC systems design and manufacturing that improves a buildings energy performance.

TORO WATT's leading-edge Dual Path Technology based system integration improves the energy and environmental impact with a quick return on investment for the millions of buildings and future green buildings and smart cities we work, shop and play in.

Energy service companies have the opportunity to extend energy efficiency in **Fresh Air** for maintaining Indoor Environment Quality. The solutions in **Heat Recovery** and **Treated Fresh Air** have the possibility of saving 30-50% energy + additional energy savings with process improvements and provide a faster payback compared to smaller interventions being implemented today.

Sectors include Healthcare, Hospitality, Pharmaceuticals, Malls, Commercial Buildings, Electronic manufacturing companies and Industry in general.

CEO Panel Discussion

Curtain Raiser

Launch of AEEE Smart City Initiative- Energy Efficiency - A compelling Value Proposition and Enabling Resource for Smart Cities.

Conclave Inaugural

Executive Discussion 1

Executive Discussion 2

Executive Discussion 3

Executive Discussion 4

Executive Panel Discussion 1

Executive Panel Discussion 2

Launch of White Paper on- Behavioural Energy Efficiency Potential for India prepared by AEEE and Oracle Utilities

TechoBuzz

TechnoBuzz

TechnoBuzz

BizTalk 1

BizTalk 2

BizTalk 3

BizTalk 4

Closing Remarks 1

Closing Remarks 2

Executive Panel Discussion 3

Executive Presentations

Closing Remarks 2

TechnoBuzz 1

TechnoBuzz 2

TechnoBuzz 3


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AEEE Team

8. LIST OF **DELEGATES**

Organization	Attandees First Name	Last Name	Designation
AMT	A	Pandey	CEO
	Aditya	Ponda	CMD
Schneider Electric	Abhishek	Mishra	Manager
	Rohit	Chashta	Senior Engineer
	Pankaj	Goyal	VP
Grundfoss Pumps	Amit	Kumar	Assistant Manager
	Gagan	Sagrwadi	Manager
	Gaurav	Shabharwal	
	Srinivas	Rajkumar	Senior Manager
	Laxesh K.	Sharma	Assistant Manager
Energeia	Sookrit	Malik	CEO
	Amlan	Panda	CTO
BEE	Amresh Kr.	Ray	Project Engineer
	Nitin	Saxena	Energy Auditor
Panitek Power	Anjan Kumar	Merkap	Business Development India
Siddhi Enterprise	Ankit	Chaudhary	Junior Research associate
	Mohd	Asif	Junior Research associate
Center For Policy Research	Anna	Agarwal	
UPES	Anurag	Srivastava	Student
	Manish	Kr.	Scholar
	Tushar	Dauthal	Student UPES
Jubilant FoodWorks	Aparna	Khandelwal	
Atomberg	Arindam	Paul	Founder
Smart Joules Pvt. Ltd.	Anantha	Padmanabhan	Energy Analyst
	Arjun	P. Gupta	Founder & CEO
	Devender		Production
	Ujjal	Majumdar	
	Saksham	Dutta	Data Analyst
Amity University	Arun	Bhandari	Assistant Professor
URS Verfication Pvt. Ltd	Ashok	Kumar	Manager
PC - PL	Ashwin		H-EE
IFA	Astha	Gupta	India Consultant

Organization	Attandees First Name	Last Name	Designation
BHEL	B.	Bhambhani	Director
Ministry Of Health & Family Welfare Gov. Of India	B.B.	Vikram	Ministry Of Health & Family Welfare Gov. Of India
Ministry of Industries	B.S.H	Ranga	Upper D.G.
Idam Infra	Balawant	Joshi	
Aspiration Energy	Harish	V	Dy Manager
	Bharath	M	Manager
	Bhoovarahan	Thirumalai	CEO
ECO Energy Expert Services LLP	Bhartendu	Awasrhi	Managing Partner
CSO, M/O Statists	Bhawna	Singh	Director
BTPL	Brivesh	Kumar	Manager
Tata Power Trading Company Limited	Chandan	Kumar	Lead Engineer - REC
TUV India Private Limited	Chandan	Sudip	
AEEE	Chandana	Sasidharam	Senior Research Assistant
	Sandeep	Kachhawa	Sr. Research Associate
Henbul	Chandreshwar		Manager
Shakti Foundation	Aksa	Antony	Prog. Assistant
	Chetna	Nagpal	Prog. Assistant
Rajiv Gandhi Super Specilist Hospital	Chhabi	Gupta	Deputy Medical Superintendent, RGSSH
TORO Water Air Thermal Technologies Corp.	Darshi	Dhaliwal	CTO
	Tiger	Aster	CEO
World Institute of Sustainable Energy	Debarshi	Gupta	Senior Research Associate
Aditya Birla Management Corporation Pvt. Ltd.	Deepak	Gokhale	General Manager
Indona Innovative Solutions	Devinder	Singh	Manager Operations
Jaypee Hotels	Dharampal	Chadha	Corporate Head
UTC	Dhiraj	Wadhwa	Director
Customized Energy Solutions	Dhruv	Dhiman	General Manager – India Markets
Sona BLW Precision Forgings Limited	Dinesh	Kumar	Engineer
	Mukesh	Kumar	Sr. Engineer
	Sahil	Sharma	Engineer
	Suman	Bahuguna	AGM – Maintenance

Organization	Attandees First Name	Last Name	Designation
SEWA	Fatima	Alsuwaidi	Engineer
	Shima	Alleem	Engineer
Carrier	Yogesh	Ahuja	DGM
	Shumeet	Bawa	DGM
	Feroz	Zaidi	GM
B.P.	G.	Ramanjan	
Daikin Aircondition India Pvt. Ltd.	Gaurav	Mehtani	AGM-PM&TS
75 F	Gaurav	Burman	APAC President
IANSME	Gaurav K.	Rai	Executive Director
Honda Motorcycle	Amit	Kumar	
	Gavendra	Singh	
Delta Energy Nature	Gurinder Jeet	Singh	Amie
Infosys Limited	Guruprakash	Sastry	Regional Manager (Infrastructure)
CSTV Innovation	H.	Kumar	Reporter
Mahindra and Mahindra	Hitesh	Kataria	Manager
IFC	Jay C.	Shiv	Consultant
ESDA, Delhi	Jitendra	Nagan	General Secretary
KBSL	Joyant	Nayak	Director
ACC Ltd.	K.N.	Rao	Director E&E
Wyn Technology P Ltd	K.N.	Goswami	Vice President
Nidex All For Dream	Kamal Raj	M M	Sales Manager
Padmashtdal Energy services P Ltd	Kamalesh	Jha	CEO
NIDEC	Kamalrajmm		Sales Manager
TAIPA	Bhaskar	Banerjee	Asst. General Manager
	Kapil	Bhatege	Sr. G.M
	Tilak Raj	Dua	Director General
Integrative Design Solutions Pvt. Ltd.	Karthick	V	Executive Officer-SCM
Confederation Of Indian Industry	Karthick	V	Executive Officer-SCM
Mundhra Electricals	Karthik	Mundhra	Prod. Manager
Mundhra Electricals Pvt. Ltd.	Kartik	Mundhra	Engg. Production & Q.C.
AFD	Kedas	Sawant	Project Manager
Elektrolites Power Pvt Ltd	Kiran	Negi	
Green News	Kisholoy	Gupta	Some Space Tech EET

Organization	Attandees First Name	Last Name	Designation
Danfoss Industries Pvt. Ltd.	Kuldeep Kumar	Verma	Manager
Oorja energy services Ltd	Madhusoodhan	Rao	Managing Director
Alphasine Electronics	Manu	Agarwal	2
Design2Occupancy Services LLP	Mohit	Tripathi	Regional Manage
All India Cold Storangs Association	Mukesh	Aggarwal	General Secretary
Alternative Energy Promotion Center Ministry of Energy, Water Resources and Irrigation, Government of Nepal	Mukesh	Ghimire	Senior Officer
Medanta Medicity	Mukesh	Gaur	Chief Engineer
Prasu Bharti	Mukul Kr	Sinha	Advocate
Greenserve Energy	N.	Ponraja	Certifiel Energy Auditor(BEE)
	Pon	Raja	Energy auditor
Toro Walt	Amit	Kumar	Design Engineer
	Dharshi	Dhaliwal	CTO
	Nagaharsha		Trainee
Siemens Limited	Nandan	Jha	Manager-Sales
GIZ	Narayan Prasad	Chaulagain	Deputy Chief Technical Advisor
M/O Railway	Naresh	Kr.	Programmer
Electroveen Engineering	Naveen	Mishra	Ceetified Energy Auditor
PWD	Neeraj	Ramchandran	Assistant Manager
Lady Irwin College	Latika	Chawla	Student
	Anugya	Singh	Student
	Mausangeet		Student
	Lianthianching		Student
	Monika	Mishra	Student
	Nitika		Student
	Mausangeet		Student
	Garima	Singh	Student
CII-IGBC	Nitish	Kumar	Associate Con.
Department of Architecture and Planning, IIT Roorkee	P.S.	Chani	Professor and Head of Department
TCU	Pankaj		Business Head

Organization	Attandees First Name	Last Name	Designation
Electrical Research and Development Association (ERDA)	Parag	Baria	Asst. Engineer
	Kuldeep	Ruparelia	Engineer & Energy Auditor
Greenserve energy management solutions	Pon	Raja	Energy auditor
BHC	Poulami	Choudhury	
Biztech India	Prakash	Tiwari	Director
Bhaktivedanta Hospital & Research Institute	Pramod	Sawant	Engineering Department
Mechartes Researchers Pvt Ltd	Prashant Kumar	Ojha	CEO
Hawk Consultancy	Praveen	Singh	Director
TPDDL	Prem Kumar	Rai	DGM
ESPL	Puneet	Chopra	Manager
SGS	Raghuvash		Senior Executive SGS
Integrative Design Solutions	Raj	Kumar	Energy Analyst
	c	V	Executive Officer-SCM
PWC	Rajeev	Yadav	Assistant Manager
Xynteo India Pvt Ltd	Rana	Pujari	Insights Advisor
Ministry of Railways	Narinder	Sood	Programmer
	R.M.	Bhatt	Programmer
	Rangnath	Aggarwal	
	Krishan	Kant	Programmer
	Narinder	Sood	Programmer
BSES Yamuna Power Limited	Resham	Singh	Vice President
JXR Technologies Pvt Ltd	Jatin		CEO
	Rishabh	Kumar	Co - Founder
CSTEP	Riya Rachel	Mohan	Senior Research Engineer
IES India Pvt. Ltd.	Ameya	Chincholikar	Associate Director
	Rohan	Rawte	Managing Director
ACEEE	Rohini	Srivastava	Senior Research Analyst, Buildings Program
QI SQUARE PTE LTD	RUPESH R	UMTOL	Director
Oracle Utilites Global Business Unit	Sabyasachi	Pattanaik	Director
Shakti Pumps	Sachin	Kumar	Manager (CPM and Strategy

Organization	Attandees First Name	Last Name	Designation
Ambuja Overseas	Sahil	Nagpal	
Tata Project Ltd.	Sandeep	Gandhi	General Manager
ProBizz Inc.	Sandeep	Aggarwal	Founder & CEO
Airotech Cooling System pvt. ltd.	Sandeep	Madaan	Director
JCI	Sanjay	Mittal	
	Shashi	Saraswat	
ALIEN Energy	Akash	Jain	Director
STENUM Asia Sustainable Development Society	Sanjeev	Bhatia	President
	Rajat	Batra	CEO
Wyn Technology	Sanjeev	Midha	Director
	K.N.	Goswami	Vice President
MSME:-'Buildgreen' (Vastukrit)	Sanjeev Kumar	verma	
E Conserve Resources	Satyendra	Jain	Energy Engineer
Kavim Energy Solutions Pvt. Ltd.	Saumendra	Aggrawal	Research Analyst
Daikin Airconditioning (I) Pvt. Ltd.	Shobhit	Bisaria	Manager - Applied Business
	Gagan	Malhotra	Asst G.M. - Applied Business
	Saurabh	Kaushik	Dy. Manager - Applied Business
Ministry of Communications	Saurabh	Chaturvedi	Director
Shivai Enterprises Faridabad	Sawan	Kumar	Manager
Siemens Ltd.	Sheeba	Siddiqui	Portfolio Sales Professional Building P&S
Siemen	Sheebe	Siddiquie	Sales Manager
Schneider	Devesh	Singh	AGM
	Nikhil	Chowdheni	Manager
	Sheel	Bansal	AGM Services
IBM India Pvt. Ltd.	Shiv Kumar	Batra	Manager
SEVAT(Specialist in Energy @Value Added Technologies)	Shyam Nandan	Prasad	Partner & Consultant
International Energy Agency	Siddharth	Singh	Lead Country Analyst and Coordinator – India (Consultant)
Energe-se	Smita	Chandiwala	Principal
UNEP DTU	Soren	Lutken	Senior Climate Finance Adviser

Organization	Attandees First Name	Last Name	Designation
Cygni Energy	Karuna	Sharma	AGM – BD
	Sudhir	Padala	Head- Sales & Marketing
	Indrajeet	Sharma	Business Development
TUV India	Sudip	Chandon	Senior Executive
	Chandan	Sudip	
WRI India	SUMEDHA	MALAVIYA	Manager
RGSSH	Suneel	Kumar	Engineer
Arkitekturel Grids	Sunil Kumar	Day	Enterprise Architect
Five-M Energy Pvt. Ltd.	Surinder	Singla	CEO
Grant Thornhan	Tanya	Batre	Assistant Manager
Bosch Ltd.	Mohandas	Mekanapurath	Business Head, Bosch Energy and Building Solutions
	Nilesh	Sawant	Vertical Head – Energy Efficiency
	Rajesh	Sekhar	Lead Solution Architect
	Rohit	Pillai	Marketing Manager
	Tushara	Nair	BD
	Halingali	Senior Technical Expert	Bosch Ltd.
Shree Cement Ltd.	Umang	Gupta	Astt. Mgr.
Depatment Of Telecommunications ministry of Communications & IT Gov. of India	V.K.	Hirna	Deputy Director General (EW)
Stratiger Consulting LLP	Vaibhav	Bansal	Business Manager
Hareda Panchkula	Varender	singh	Project Officer
WWF India	Varun	Aggarwal	Manager-Climate & Business
Eco Energy - UTC	Vijay Ganesh	V	Client Engagement Head
Australian High Commission	Vijay Singh	Shekhawat	Major Infrastructure and Urban Development, PPPs, South Asia
Pragati Power Corporation Ltd.	Singh	Manager(T)	Pragati Power Corporation Ltd.
	R Dangorey	Sr Mgr (T)	Pragati Power Corporation Ltd.
National Productivity Council	VIPIN	ROHILLA	Dy. Director
B. L. KAPUR MEMORIAL HOSPITAL	Vivek	Gupta	CONSULTANT CLINICAL PHARMACOLOGIST
Conserve Resources	Yogesh	Bhardwaj	Director
Quality Council of India	Yuvraj Singh	Banakavat	Junior Analyst

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Indian Energy Exchange Ltd.	Rakesh K.	Mediratta	Director- Business Dep.
Tower And Infrastructure Providers Association	Willson	Norris	Senior Manager Gov. Relations
EESL	Aditya Vikram	Jain	Consutant ADB
BSES Rajdhani Power Limited	Abhishek Ranjan		Head - Renewables & DSM, Power Planning & Scheduling, Energy Analytics
Ecolibrium Energy	Aditya Girotra		Head of Sales
Sharjah Electricity and Water Authority	Afra Al Owais		Chief Efficienology Officer
Blue Sky Energy Asia	Alexander Ablaza		Director
Zenatix	Amarjeet Singh		Chief Technology Officer
Ministry of Environment, Forest and Climate Change	Anil K. Jain		Additional Secretary
Mahindra Group	Anirban Ghosh		Chief Sustainability Officer
Atomberg Technologies Pvt Ltd	Arindam Paul		Founding Member
KREATE Global	Arun Kumar		CEO
Thermax	Ashish Vaishnav		Global Corporate Head
Bureau of Energy Efficiency	Richa	Mishra	Project Economust
UN Environment			
BYPL			
Johnson Controls	Debapriya	Chattopadhyay	Business Development Manager
	Santhosh	Muzumdar	Vice President
British High Commission	Daniel Bradley		First Secretary and Team Leader
DESL	G. C. Datta Roy		Founder CEO
ITC Hotels	H. C. Vinayaka		General Manager
Energy Foundation Beijing, China	HAN Wei		Program Officer, China Industry Program
Apc Polycoat India Pvt. Ltd.	J. M. Gupta		M D
ACC Cements	K. Narayan Rao		Director
Shakti Sustainable Energy Foundation	Krishan Dhawan		Chief Executive Officer
China Energy Management Conservation Association	Lily Zhao Ming		Vice Director and Secretary General
MP Ensystems Advisory	Mahesh Patankar		Managing Director

Organization	Attandees First Name	Last Name	Designation
Tata Cleantech Capital	Manish Chaurasia		Managing Director
Oracle Utilities	Marisa Uchin		Vice President, Global Regulatory Affairs
Vice President & Coordinator - Govt Affairs	Mukesh		Agarwal
UNIDO	Reshmi		Vasudevan
Leader- Danfoss Cold Chain	Neeraj Narula		Danfoss Industries India
Alliance for an Energy Efficient Economy	Satish kumar		President and Executive Director
Goldmark Tech Supply Co	Peerasut Thirakomen		General Manager
Asia Clean Energy Partners	Peter Du	Pont	Managing Partner
	Kavita	Kaur	Communication And Partnership Manager
Effin Art Sarl	Pierre Jaboyedoff		Associate
Asian Development Bank	Pradeep Perera		Principal Energy Specialist
USAID	Apurva Chaturvedi		Clean Energy Specialist
Jones Lang LaSalle (JLL)	Rajat Malhotra		Head- Western Region
Grundfos Pumps India Private Ltd.	Ranganath Krishna		Managing Director
Regulatory Assistance Project (RAP)	Ranjit Bharvirkar		Principal and India Program Director
McD Berl	Rohan Parikh		Director
Ambuja Cements	Sandeep Shrivastava		Head- Sustainability
International Copper Association India	Sanjeev Ranjan		Managing Director
ACTIS	Sanjiv Aggarwal		Partner
Grundfos Pumps			
International Finance Corporation			
Engie	Stephane Le Gentil		Head- Energy Efficiency
Tabreed	Stephane Le Gentil		Head- Energy Efficiency

Organization	Attandees First Name	Last Name	Designation
Danfoss India	Syed Nazeer		Director- Strategic Business Development
Environmental Design Solutions	Tanmay Tathagat		Executive Director
cKinetics			
Energy Efficiency Services Limited	S. P. Garnaik		Chief General Manager- Technical
	Saurabh Kumar		Managing Director
Signify Innovations India Ltd.			
CITELUM	Santosh Mishra		Director
Shakti Pumps	Sachin Kumar		Manager
Godrej			
Energy teen ventures	Sumit V Nawatne		India Sales
Covestro	Ajay Durrani		MD
MoEFCC	Clay G Nesler		Addl. Secretary
Bosch Energy & Building Solutions	Mohandas Mekanapurath		Business Head

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