



ENERGY EFFICIENCY SERVICES LIMITED
A JV of PSUs under the Ministry of Power

INNOVATING ENERGY

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**EESL 2020 Recap: Revisiting our achievements,
growth story & new initiatives**

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Venkatesh Dwivedi
Director (Projects & Business Development)
EESL

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We wish all a very
Happy & Prosperous
New Year 2021

Editor's Note



Venkatesh Dwivedi
Director (Projects & Business Development)
EESL

Dear reader,

2020, in more ways than one has been a significant year. It has been a year of considerable peaks and troughs, not just for us or our country, but the world as a whole. The event that perhaps is at the forefront of everyone's collective consciousness is the COVID-19 pandemic, and its unprecedented impact on our lives and livelihood. This year has seen the emergence of a new normal and shown us the resilience of humanity. EESL, too has been a steadfast beacon in these testing times. We kept serving the nation and illuminated the streets through the efforts of our Street Lighting National Programme (SLNP) on ground. On the other hand, our smart meters team enabled DISCOMs in generating around 95% of billing efficiency by using smart meters amid the lockdown and 15-20% average increase in monthly revenue per consumer. The Solar projects team worked diligently throughout the pandemic and continued our relentless endeavor to build an energy secure India. Furthermore, as the virus led to shutdown of offices, our common service teams including IT, Finance, Supply Chain Management (SCM) and HR continued working during the lockdown to resolve operational issues through newer technologies and approaches.

2020 has seen us grow from strength to strength, despite the roadblocks. This year, we channeled our innovation to create impactful new initiatives, strengthened our ongoing endeavours and built partnerships across sectors and geographies. This edition of our newsletter, titled **EESL 2020 Recap: Revisiting our achievements, growth story & new initiatives** is a summation of our achievements this year and a glimpse of what the future holds for EESL, and energy efficiency as a whole. In "Convergence: A new age venture for the new energy system", we take a look at one of our most pivotal new initiatives – Convergence, and explore its remarkable potential to bring in social and ecological transformation, through better illumination, cleaner mobility and affordable energy access in the society. We then expand our purview and trace EESL's international footprint, in terms of new partnerships and ventures, with "Going Global: EESL forges strategic international partnerships." In "EESL's diligent endeavors for employees during the COVID-19 pandemic", we get insights of EESL's efforts towards keeping its workforce healthy, motivated and energized during the COVID-19 pandemic. The article "EESL's 2020 growth journey: Exploring new sectors, geographies and business models" is a summation of EESL's rapid growth in 2020, as the organisation traced new frontiers by venturing into unexplored new areas and sectors. And finally, in "EESL in 2020: Forging a path amidst an unprecedented crisis" we unravel a deeply productive year for EESL's lighting vertical.

This newsletter celebrates EESL's year of excellence, resilience and innovation. It also gives us a glimpse into what 2021 heralds for energy efficiency in India. With the evolution of the energy ecosystem, anchored by EESL, we shall witness the emergence of newer initiatives and fresh ideas, in hitherto untapped sectors, combinations and geographies.

EESL's 2020 growth journey: Exploring new sectors, geographies and business models

2020 was a year of growth, optimism, and exploration of new avenues for EESL. Despite the setback caused by COVID-19 to various sectors, EESL remained confident on its path of transforming India's energy sector. Two key initiatives which stand out in EESL's journey this year are:

- **Propelling Kerala's e-mobility ambitions**

By partnering with ANERT (Agency for Non-conventional Energy and Rural Technology), EESL will be providing 77 Tata Nexon EVs and 4 Hyundai Kona to the Transport Department, Government of Kerala. It has procured 250 High Range EVs for deployment in various state departments of Kerala. The first lot of 45 EVs were flagged off in the state on 9th November 2020. However, what set this initiative apart was the business model used by EESL in the state, which provides tremendous opportunities for scaling-up the transport electrification programme at the state as well as national level. This model of partnering with a state agency can act as a roadmap for other states to propel the nation's e-mobility and clean energy ambitions swiftly.

- **Retrofit of Air-conditioning to improve Indoor air quality for Safety and Efficiency (RAISE)**

Understanding the need for maintaining good indoor air-quality and controlling pathogen spread indoors, especially in hospitals, airports and metro stations, EESL presented a compelling solution to maintain and enhance indoor air quality by retrofitting office air-conditioning and ventilation systems, as a part of its "Retrofit of Air-conditioning to improve Indoor air quality for Safety and Efficiency(RAISE)" initiative. Under this initiative, which EESL is implementing in partnership with USAID's MAITREE programme, the focus is on improving indoor air quality (IAQ) and thermal comfort, along with mitigating the spread of pathogens and enhancing energy efficiency (EE) in the air conditioning systems. The results of the retrofits have been encouraging, as air quality in the offices during its pilot has improved considerably, with 90-95% reduction in pollutants.

In 2021, EESL is all set to bring in even greater impact, especially with rapid innovation in its initiatives, financial instruments, and technological usage.

Convergence: A new age venture for the new energy system

EESL has recently established a dedicated entity- Convergence Energy Services Pvt Ltd which shall focus on delivering clean, affordable and reliable energy through three pillars of finance, technology and regulatory interventions. EESL – through its newly formed 100% owned subsidiary, is offering interventions, which creates balance (Ancillary Services) in the grid to integral growing capacity of RE, surge in cooling demand, potentially large market for EVs and battery storage. This will enable the creation of diverse value streams to rural and urban consumers, along with benefitting the entire ecosystem, including distribution companies, private developers, the state exchequer and the environment.

Convergence utilizes the decentralised solar development experience in under-served rural communities in India and gradually, using battery energy storage, seeks to deliver renewable energy solutions to power agricultural pumps, street lighting, domestic lighting and cooking appliances in villages. It also aims to enable battery powered electric mobility and its infrastructure and design business models to increase the uptake of electric vehicles in India.

The initiative has already commenced in the country, with signing of an MoU with Department of New & Renewable Energy, Government of Goa to implement solar programmes in the state. Through this programme, EESL will install 100 MW of decentralised ground mounted solar power projects on government lands to be used for agricultural pumping, replace existing inefficient pumps with approximately 6,300 BEE star rated agricultural pumps and distribute approximately 16 lakh LED bulbs to rural domestic households.

Under this programme, policy recommendations (in the form of petitions and white papers) and a full-fledged battery storage proposal is also being discussed with MSEDCCL (Maharashtra State Electricity Distribution Company Limited) and a carbon financing mechanism is being explored.

Ms Mahua Acharya, an energy sector veteran with two decades of experience has been chosen to lead this pivotal endeavour. Ms Acharya has considerable experience in green finance, renewables, and carbon markets. Prior to leading the convergence initiative, she was the assistant director-general of Global Green Growth Institute, an intergovernmental organisation headquartered in Seoul with operations in 31 countries and has held roles with Mergers & Acquisitions at ArcelorMittal. Ms Mahua was at the World Bank earlier in her career and has a Masters' degree from Yale University.

Convergence is expansive in its objectives and scope. With the emergence of the new energy system, a one-size-fits-all approach is no longer viable. What we need are compound solutions, which can solve multiple energy sector challenges. Thus, an initiative such as convergence becomes all the more vital. It has the potential to bring in social and ecological transformation, through better illumination, cleaner mobility and affordable energy access in the society.

Going Global: EESL forges strategic international partnerships



Poonam Pande
Deputy Head (International)
EESL

EESL took up the mantle of steering India's energy transition more than a decade ago. Since then it has brought about a transformation in India's energy use patterns, by firmly integrating energy efficiency into the mix. It has brought about significant efficiency improvements in an array of sectors – buildings, cooling, transportation, industry, etc. in India.

Having reached particular scale in India, EESL started gradually extending its international presence also, with new partnerships, financial instruments, and cross-geography dialogue.

One of the tailwinds of EESL's success has been the replicability of its programmes in other markets and their ability to scale rapidly, across geographies. In last one year, a plethora of MoUs and Agreements have been signed by EESL across the globe to usher in energy transformation and propel climate action.

One of the key partnerships has been with GORD (Gulf Organisation for Research and Development) in Qatar. Under this partnership, EESL intends to utilise its ESCO model to carry out interventions such as large-scale streetlight retrofit projects, smart metering, deployment of electric vehicles and other energy efficiency projects in the country. Both the organisations will collaborate to provide bespoke solutions to the stakeholders in Qatar.

EESL further consolidated its activities in Saudi Arabia by renewing the agreement with TARSHID in Saudi Arabia, to replicate India's successful domestic and street lighting programme (EESL is offering consultancy support as a strategic partner to expand the capacity of TARSHID in the field of Energy Efficiency). So far, this partnership has resulted in the replacement of 1.2 million street lamps with LED street lights and is set to cover nearly 2 Million street light poles all over the kingdom.

EESL also looked eastward, to collaborate with Overseas Environmental Cooperation Center, Japan (OECC), Japan, a semi-public organization working with international organizations such as the Asian Development Bank (ADB), Global Environment Fund (GEF), United Nations Framework Convention on Climate Change (UNFCCC), in addition to agencies of the Government of Japan such as the Ministry of the Environment to implement research, studies, and capacity building in the field of environment and development cooperation in developing countries. EESL and OECC seek to identify potential "seed" projects for introduction of low carbon and de-carbonisation technologies in India.

Apart from this, EESL has further built upon its earlier initiatives in Thailand to invest in SWAG EV, a Thailand-based next-generation electric vehicles company, to drive the use of electric motorbikes while contributing to increasing power grid flexibility

EESL has also recently partnered with Électricité de France S.A (EDF) to collaborate globally on deploying large scale projects in the realm of e-mobility, smart meters, streetlights, and renewable energy. EESL and EDF have both achieved considerable success in the energy sector and their collective expertise can potentially lead to considerable impact.

EESL is cognizant of the need for cross-geographical discourses to build a robust energy ecosystem. Diverse markets can offer innovative solutions, which can be replicable and transformative. The energy markets in the UK, Middle East and India vary in their driving forces, barriers, and focus areas. With this in mind, EESL organised a session on the topic "Transition Talk-Innovating for uncertain times." The session was attended by an eminent panel of experts including H.E. Ali Al Jassim, CEO

Etihad Energy Services Company (Etihad ESCO), Andrea Di Gregorio, Executive Director, Energy Efficiency & Renewables Office Ras Al Khaimah Municipality Department, Mr. Hugh Richmond, CEO Edina UK and EESL's Executive Vice Chairperson, Mr. Saurabh Kumar. The discussion intersected across a diverse geographical spectrum, helping the panelists chart a road map to a swift energy transition. By examining and imbibing interventions from across the globe, the discussion delved into potential global collaboration, imminent climate action and a need for knowledge exchange.

The year 2020 saw EESL establishing a joint venture (JV) – in UAE: “EESL Energy Solutions LLC”, in partnership with M/s. Hansa Energy Solutions LLC, UAE, an ESCO approved by all major government bodies in UAE, to implement energy efficiency and renewable energy programmes in the United Arab Emirates, the Middle East and Africa. The core areas of focus for the JV will be LED Streetlights, Building Retrofits (Commercial and Industrial), Trigeneration and Solar Programmes.

Our primary aim in going international has been to facilitate an exchange of ideas, knowledge, and mobilize best practices & solutions, to create a global ecosystem for clean energy and energy efficiency, and we continue to forge ahead in this direction, for a better and greener future for all.

EESL in 2020: Moving forward amidst an unprecedented crisis

2020 marked a productive year for EESL's lighting programmes. It played a key role in enabling large-scale energy transformations nationwide. A few notable initiatives include:

Street Lighting National Programme (SLNP)

Under SLNP, EESL is replacing conventional streetlights with smart, energy efficient LED streetlights. Till date, about 11 million LED streetlights have been installed, enabling an estimated energy savings of 7.44 billion kWh, and an estimated savings of INR 52.1 billion, annually. During the testing times in the Covid-19 pandemic, all the 11 million LED street lights installed across 1500 Urban Local Bodies (ULBs) in the country were maintained.

Under the Rural LED Street Lighting Programme, EESL has retrofitted 2.5 million streetlights in Andhra Pradesh and Jharkhand, enabling estimated energy savings of 277 MUs and an estimated GHG emission reduction of 0.2 million tCO₂, annually.

National Motor Replacement Programme (NMRP)

India's industrial sector consumes about 40% of the total electricity consumption, and electric motor-systems use 28% of total national electricity. National Motor Replacement Programme (NMRP) aims to stimulate supply for high efficiency motors (HEMs). 2020 saw EESL sign agreements with over 30 major industries to replace over 1,200 IE3 motors, enabling energy savings of 48,16,535 kWh and emission reduction of 4,240 tCO₂, annually.

Mahindra & Mahindra Ltd. replaced over 390 old inefficient motors, achieving energy savings of over 8,45,766 kWh, annually, and signed an agreement to replace another 366 motors. 299 IE3 motors at ACC Limited will be replaced, enabling energy savings of over 22,19,580 kWh, and emission reduction of over 1,931 tCO₂, annually. There's also an upcoming order for motor retrofitting across 25 ACC plants.

Inefficient motors for Kribhco Fertilisers Limited (KFL) will also be replaced, reducing their energy consumption by 88,051 kWh, annually. IE3 motors at an Adani Group plant will be replaced, and 500 motors to be replaced groupwide.

Building Energy Efficiency Programme (BEEP)

BEEP retrofits energy efficient appliances and systems in buildings at affordable prices. Till date, EESL has retrofitted 10,411 buildings with energy efficient products, enabling 30 to 50 per cent energy savings. In 2020, the programme was also implemented across 1,100 Axis Bank branches.

Energy efficiency programme for large institutions and public sector undertakings

EESL is offering an integrated service package of Energy Efficiency Solutions to the industries, commercial buildings and facilities. Followings are the major solutions, which are being offered in this package:

- Energy Efficient LED Lighting System
- Energy Efficient Electric Motors (IE-3 Class)
- Super-Efficient Air-Conditioners (SEAC)
- Tri-Generation
- Green Transportation System (E-Vehicles)
- Improved Air-Quality System for Occupational Safety & Energy Efficiency – A COVID-19 mitigation

Implementation of such measures (one or few or all) have shown overwhelming results of energy saving – to the tune of 20-30% with less than 2 years of Payback Period. The saving potential can be evaluated through "Deemed Saving Approach" or "Detailed Energy Audit".

EESL has initiated energy audit services as an initial mobility tool to assess the feasibility for this integrated solution as well as other prospective energy efficient technologies.

Global Environment Facility (GEF)-5

The GEF-5 program in India is supporting a project titled “Promoting Market Transformation for Energy Efficiency in Micro, Small & Medium Enterprises (MSME)”. This project is being implemented by United Nations Industrial Development Organization (UNIDO) in collaboration with EESL. This project aims to deploy 30-35 technologies in selective MSME clusters in the country which have maximum possibility of replication and potential to improve the energy productivity of fellow MSMEs units, hence competitiveness. Till now the project has covered more than 700 units and identified 24 replicable energy efficiency technologies out of which 7 technologies has been successfully demonstrated with substantial saving.

As 2020 ends, EESL is fully charged to accelerate its journey of multi-sectoral transformation, by deploying its mix of technology, financial instruments, and industry-relevant products and services.

EESL's diligent endeavors for employees during COVID-19 pandemic

EESL has been committed to serve India and ensuring that the nation remains on track to achieving energy efficiency all throughout the COVID-19 pandemic. At the same time, it has taken care of its employees and field workers with the HR department undertaking comprehensive preventive measures to continue operations in an unprecedented situation.

With the resumption of office in July, 2020, EESL's HR department deployed measures such as thermos-scanning at the entrance, touchless sanitizer dispensers and touchless water taps in washrooms. Additionally, with implementation of the pilot project for Retrofit of Air-conditioning to improve Indoor Air quality for Safety and Efficiency (RAISE) and the deployment of Air Handling Unit (AHU) based air purifier system to improve the air quality inside the office, both the safety and comfort of employees was ensured. Through RAISE, EESL focuses on improving indoor air quality (IAQ) and thermal comfort, reducing the spread of pathogens and enhancing energy efficiency (EE) in composite complex's air conditioning systems.

Furthermore, given the times that we live in, employees who reported unwell, were encouraged to "Work from Home" until full recovery. Those showing symptoms such as cough, fever, runny nose, sore throat, and difficulty breathing have been advised to report it to their managers and self-isolate immediately.

EESL's diligent endeavors for its employees began right at the onset of the lockdown with the issuance of guidelines for their safety during the pandemic. A weekly duty roster, as per the guidelines of Department of Personal & Training (DoPT) was issued for the non-executive staff and outsourced employees. As per the roster, no more than 50 per cent of non-executive staff attended the office every day and the remaining 50 per cent worked from home. Support function staff from departments such as IT, HR, Finance and Commercial worked with just a few of them attending office. Moreover, those who travelled inter-state to the office had to necessarily work from home.

Keeping with its belief of contributing to the society, EESL has also donated INR 1.01 crores to the PM- CARES fund, with all the employees voluntarily contributing their one day's salary to the cause.



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