Market Transformation in Energy Efficiency in India
EESL’s Initiatives

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Strategic Areas for Energy Efficiency in India

- Employ mandatory measures for energy efficiency through laws, regulations & standards

- Employ measures which creates widespread effects on awareness, behavioural change of consumers, market transformation, decision-making of entrepreneurs towards efficient use of energy

- Promote decentralized energy efficiency activities in public and private organizations which possess resource, infrastructure and experience readiness like States, Power Utilities and other Government departments

- Promote Public Private Partnership for supporting and implementing energy conservation measures

- Engage energy professionals and Energy Servicing Companies (ESCOs), as vital links, in terms of consultation and implementation of energy efficiency projects and technologies

- Increase indigenous energy efficient technology to cut cost and foster technology accessibility at all levels of energy usage
Impacts Created …..

Vision, Direction

- Regulatory
  - Notifications, Rules, Guidelines, Strategic direction

- Institutional
  - Standards & Norms for Appliances and Products
  - Codes for new and commercial buildings
  - Public Procurement Policy
  - Energy Efficiency norms for large Industries & Passenger Cars
  - Fiscal Measures through innovative funds

Execution

- Statutory bodies (BEE & SDA)
- Implementing body (EESL)
- Energy Cells, EA Agencies, ESCOs
- Test Laboratories
- Centre of Excellence
- International & National Networking

Results

- Market Transformation
  - Penetration of EE house-hold products
  - Transformation of New Technology: Lighting, Tri-Generation, WHR, VFDs, Industrial
  - Skilled Professionals (EA & EMs)
  - Innovative Financing: ESCO, PRGF & VCF, SECF

- EE indicators, EE service providers, Investments mobilized, Technology & Knowledge transfer, Job creation, Public Awareness

- Over 20,000 MW Avoided Capacity
- Over 125 mtoe Energy Saving
- 10,000 Skilled Professionals
Impacts Created …..

**Economy**
- Energy Prices, Economic Growth, Population

**Govt/Society**
- Policies and Technological change
- Policies and Consumer Preferences

**Financing**
- Investment in production and producers of efficient goods and services
- Procurement of Efficient Goods and services

**Market Actors**
- Manufacturers
- ESCOs and Utilities
- R&D Institutions
- Financial Institutions

**Market Assets**

**Demand For Energy Efficiency**
- Industries
- Service Sectors
- Financial Institutions

**Supply of Efficiency Measures**
- Households / Commercial

- Residential: 44%
- Commercial: 4%
- Agri: 4%
- Non_Specified: 1%
- Industry: 36%
- Transport: 11%

**Share of TFEC in Sectors (2015)**
- Residential: 42%
- Commercial: 6%
- Agri: 3%
- Non_Specified: 2%
- Industry: 34%
- Transport: 13%
**EESL Overview**

**EESL: One of the largest SUPER ESCOs in the World - Driving Energy Efficiency Solutions in India and Globally**

### Company overview
- Founded in 2009, under National Mission on Enhanced Efficiency (NMEEE)
- Joint venture of four Public Sector Enterprise of Ministry of Power, GoI
- Equity Paid up capital – INR 983.33 Crore *
- Current employee strength - 955
- Total number of active schemes - 14
- No. of Urban Local Bodies (ULBs) touched across States - 1,500+
- International presence/operations - 8 countries
- Estimated Energy Savings from EESL's interventions – 54 billion kWh per year with Avoided peak demand of 10,740 MW
- Estimated Carbon Foot print reduction - 44 million t of CO₂ per year
- Estimated Monitory Savings of INR 20,000 Crore

### EESL is promoted by 2 Navratana and 2 Maharatna PSEs
- Promoters shareholding in EESL: 47.15%, 24.97%, 24.97%, 5.70%

### Global financial institutions supporting growth
- **Total line of credit sanctioned**~$ 1,062 million
  - Asian Development Bank: ~$ 496m
  - AFD: ~$ 58m
  - kfW: $ 288m
  - THE WORLD BANK: $ 220m

* Till September '19
EESL’s Journey

EESL’s Birth
Established an entity of Ministry of Power, Govt. of India under National Mission on Enhanced Efficiency (NMEEE)

Global Footprint
EESL acquires Edina, the UK Company to spearhead Tri-Generation Business
Launches Annual International event INSPIRE

Aspiring More
Ambitious plan to transform the market in Energy Efficiency and Clean Energy area - $1.5 billion revenue turnover by 2022

First Project
Hon’ble PM of India launches the LED National Program – UJALA and SLNP – 1st Projects start at Puducherry and Vizag

Touching 10 million SL
EESL reaches 10 million LED street lights installed in over 1500 Urban Local Bodies
SPVs in Smart Meter and Tri-Generation Business
PM launches: Scheme for LED bulb distribution under Domestic Efficient Lighting Programme in Delhi
Energy Efficiency Business has resulted Electricity saving of over 45 billion kWh per annum

360 million LED Bulbs UJALA

7.2 million LED Tube Lights UJALA

2.3 million EE Fans UJALA

10.4 million LED Street Lights Street Light National Program

10400+ Buildings Building EE Program

1 million Smart Meters Smart Meter National Program

74700 EE Agri-Pumps Ag-DSM Program
Clean Energy: Business for Sustainability and enhancing Social Value

150,000 Solar LED Street Lights
Atal Jyoti Yojana (AJAY)

6.3 million Solar Study Lamps
SoUL Program

80 MWp Decentralized Solar
Solar Program

1510 E-Cars
National e-mobility Program

470+ AC & DC Captive Chargers
National e-mobility Program

66 Public Charging Stations
National e-mobility Program

1 MW Tri-Generation
40 MW in Pipeline

Enabling More
Value Proposition


01 Problem Statement
Feasibility Studies, Energy Audits, Diagnostic Studies to understand the energy saving potential and the business model

02 Investment
Mobilize investment to implement the project on ESCO model – Pay-as-You-Save (Pays) Model

03 Procurement
EESL follows the Public Procurement Guidelines to procure Goods & Services – Bulk Procurement Approach followed.

04 Implementation
EESL takes full responsibility to design, install and commissioning of the project

05 Project Management
Project Management for complete project period – repair & maintenance

Transparent operations, outcomes in Public Domain

# EESL’s Business Models

## PMC MODEL (Upfront Investment done by Client)

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<tr>
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<th>Details</th>
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**Total Project Cost:** Capital Cost + EESL PMC Fees

## ESCO MODEL (Upfront Investment done by EESL)

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**Total Project Cost:** Capital Cost + EESL PMC Fees + Financing Cost
More than 4 Million Lights have been deployed in Industries and Buildings by EESL worth 85 million USD

EESL provides various ranges of LED lights from 9 Watts to 190 Watts with 3-5 years warranty period. Typical supply period is one month to three months. Deployments of LED lights have been done in 10400 Buildings, 100 PSUs/Industries, 800 Railway Stations, 64 Airports and 1200 Bank ATMs across the country.

50-70 %
Energy Saving
Energy Saving is calculated on “Deemed Saving” approach by considering baseline wattage and hours of operation.

20-25%
Price Reduction
EESL adopts open public bidding process for Bulk Procurement

10-14%
Project Management Cost
EESL Project Management Cost depends upon the Project size, extent of involvement
Super Efficient AC Program

- **ISEER 5.4**
  - 40% more efficient than 3-Star ACs

- **INR 39990**
  - Price equivalent to 4-Star ACs

- **20-25%**
  - Energy Saving

- **2000+ ACs**
  - Deployed

- **3-7 days**
  - Delivery time in Tire-1 and Tire-2 cities

- **About 30% reduction in price as compared to retail price**
- **Consumer could save somewhere INR 2000 to INR 3000 per year** compared to 5-star AC and 3-star AC respectively.
- **Hassle-free** service experience, comprising of complaint redressal support during the life of the programme, **buyback option**.
- **There is no derating** of the cooling capacity even at high ambient temperature i.e. as high as 43 degree Celsius, in contrast, ACs currently available in the market degrade their cooling capacity as room temperature increases.
- **Support in Indian Cooling Action Plan** and NITI Aayog @75 vision on energy savings and CO2 emission reduction
- **Opportunity to scale-up and creating manufacturing base** towards more efficient products.
- **Optimized investment on power infrastructure, Synergy with the ongoing demand side management programme**
Energy-Efficient IE3 Motor
National Motor Replacement Program (NMRP)

Pilot Studies (2018)

4000+
IE3 Motors Deployed

20000+
In Pipe-line

2.2 kW to 75 kW range
2-Pole/4-Pole/6-Pole  Foot/Flange Mounted

15–20% Less Cost with 3 years warranty
Products from Reputed Manufacturers

10-15% Energy Saving
As observed in 36 pilot demonstrations

1.5 to 2 years Payback Period
Considering 5000 hrs/year and Rs.7/kWh tariff

www.motor.eeslindia.org
Sustainable Development Initiative
Buildings | Industry | Corporates

Launched as a National Program in May 2017

10400+ Buildings

870 Railway Stations

64 Airports

$1200 Bank ATMs

Mumbai: Nearly 1,500 state government buildings will now be made ‘energy efficient’ to save 128 million units of power across the state.

The Energy Efficiency Services Ltd (EESL) on Thursday announced that it will embark on this massive project of installing 20,000 energy efficient air-conditioners, 11 lakh LED lights and 6 lakh ceiling fans in state government buildings. The electricity efficient appliances will result in savings of over Rs 100 crore annually to the state exchequer.

“It is the first-of-its-kind venture and the entire project costing Rs 325 crore is funded entirely by EESL. There will be no design change in any building, and we will be retrofitting all existing appliances with energy efficient ones,” EESL chief general manager S P Gangal said.

He added that the ground work for the project has already begun, with the EESL receiving in-principle consent from the public works department of the state government. “We plan to complete the project latest by March 2018,” he said.

It is learnt that the building sector in the country accounts for approximately 33% of total energy consumption and is growing at a rate of 8% annually, which is alarming, another official said. EESL will also organise a day-long workshop in Mumbai on Saturday on ‘Energy Efficiency in Buildings’, which will act as a platform for knowledge sharing with stakeholders. Delegates from Thailand and Vietnam are also expected to participate in this workshop.
GoI mandated EESL to Implement BEEP

LED Lights Installation
2 Million

Investment
INR 350 Crores / $ 50 Million

Estimated Energy Saving
360 Million kWh per annum

Estimated CO2 Reduction
184000 Tons per annum

Payback Period
About 24 months
EESL’s e-Vehicles completed **30 Million** green Kilo-Meter

- **> 140 km** Per Charge
- **6 Years** Leasing Period
- **Rs. 22500** per month Dry Lease
- **Rs. 40000** per month Wet Lease

**2000+ e-vehicles deployed**
EESL’s Work at Mahindra & Mahindra

01 LED Lights
160,000 LED lights installed in 17 plants across India

02 Energy Efficient Motors
1140 Energy Efficient (IE3) motors ranging 5.5 kW to 75 kW installed

03 Super Efficient ACs
1200 Super-Efficient ACs installed in office uses

04 Tri-Generation
Plant with 800 kW and 120 TR cooling capacity installed in Paint Shop

05 ‘UJALA’ for Employees
Distributed LED Bulbs, LED Tube lights, 5-Start rated fans to over 20000 employees

06 Energy Audit & Capacity Building
Energy Audit of Electrical & Thermal Utilities; Technical Training to employees
EESL implemented this project on PMC model where upfront investment was borne by M&M in just 4 months period – Tube lights, High bay lights and Down Lights were installed across the plant locations.

**LED Lights**
17 Locations – 160,000 lights

**Investment**
INR 150 Million

**Estimated Energy Saving**
20 Million kWh per annum

**Estimated CO2 Reduction**
16400 Tons per annum

**Payback Period**
14 months

We Created Professional Partnership with M&M

The journey started in 2017 as a ‘Sustainability’ initiative by Mahindra & Mahindra. EESL provided LED lighting solutions – the flagship program of EESL by leveraging the price advantage through ‘Bulk Procurement’.
Engagement with 20,000 people

30,000 LED bulbs and 5000 EE fans distributed

Estimated Energy Saving: 1.24 Million kWh per annum

Estimated CO2 Emission Reduction: 1024 Tons per annum

On the Occasion of World Environment Day
Thank You

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