ESCOs in India

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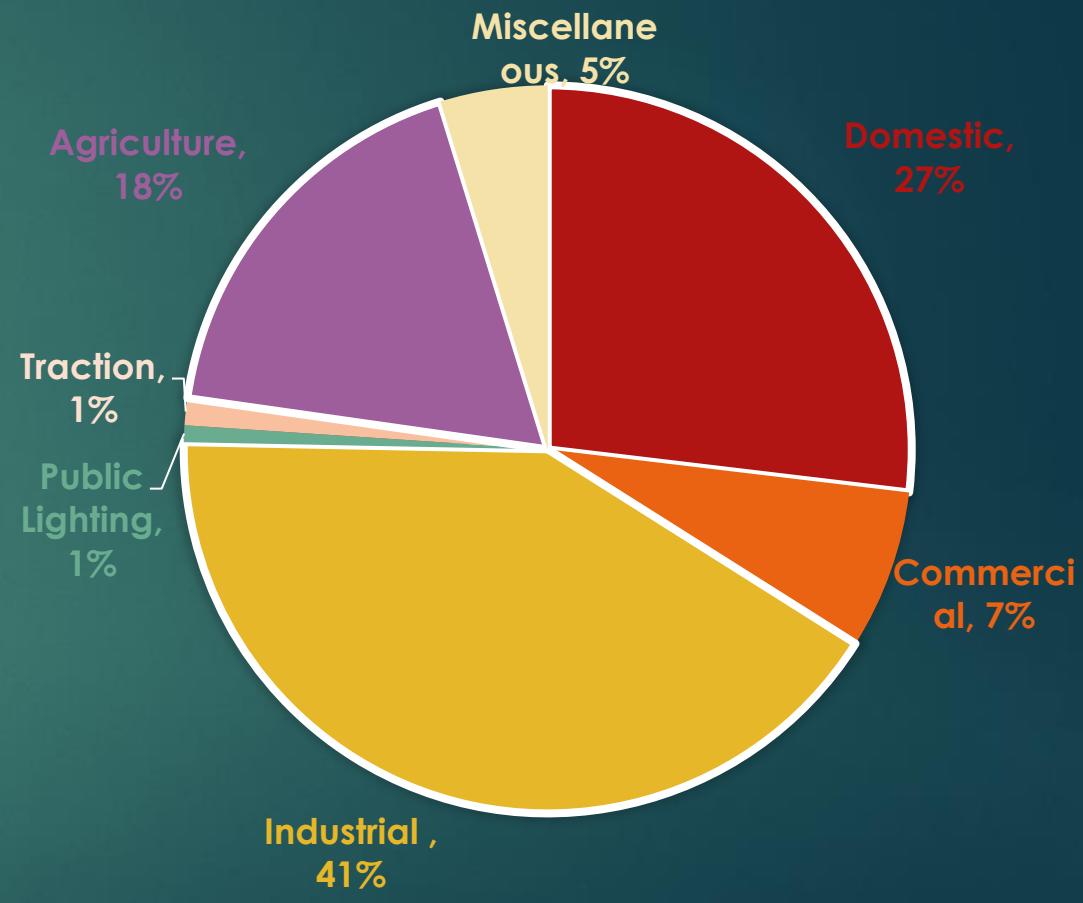
Image Source: Partha Chowdhury

Outline

- Legal Frameworks for ESCOs
- ESCO Licensing
- Drivers
- ESCO Markets: Trends and Challenges

Energy Efficiency in India

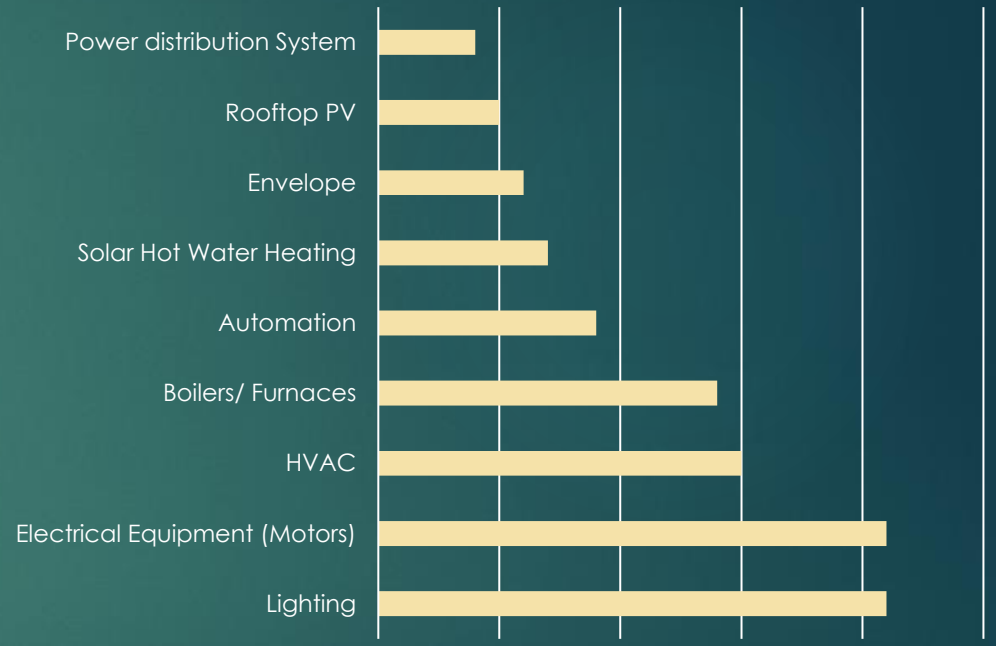
- **~ 150 billion USD** market opportunity
- **~184 billion kWh per year** energy savings potential
- **Energy consumers:** buildings (residential), transport, industry and agriculture
- Legal Framework: **Energy Conservation Act 2001** (amended in 2022)



Electricity Consumption Distribution

ESCOs in India

- **~ 150 ESCOs** in India
- Mostly vendor ESCOs; owned by manufacturers
- National and multi-national entities
- Maxes at USD 300,000 ticket size
- Mostly smaller ESCOs (< 25 employees)
- Most avoid financing projects
- Client base: industries, buildings, IT, municipalities



Source: AEEE

What is an ESCO?

Energy Service Companies design and implement energy saving solutions, after identifying measures through *energy audits*.

ESCOs *may finance* the upfront cost of implementing energy efficiency measures, and recover the same from client through accrued energy savings.

Energy Conservation Act

- Introduced in 2001 (amended in 2022)
- Primary legal framework
  - mandates energy audits for "**designated consumers**" only by **"accredited energy auditors"**
  - Mandatory, for energy intensive users ~**"Designated Consumers"**
    - Energy audits and baseline
    - Energy use targets

Petrochemicals Refineries

Cement

Aluminum

Iron & Steel

Chemicals

Pulp & Paper

Textile

Thermal Power Plant

DISCOMs

Transport: Railways

Commercial: Hotels

ESCO Accreditation

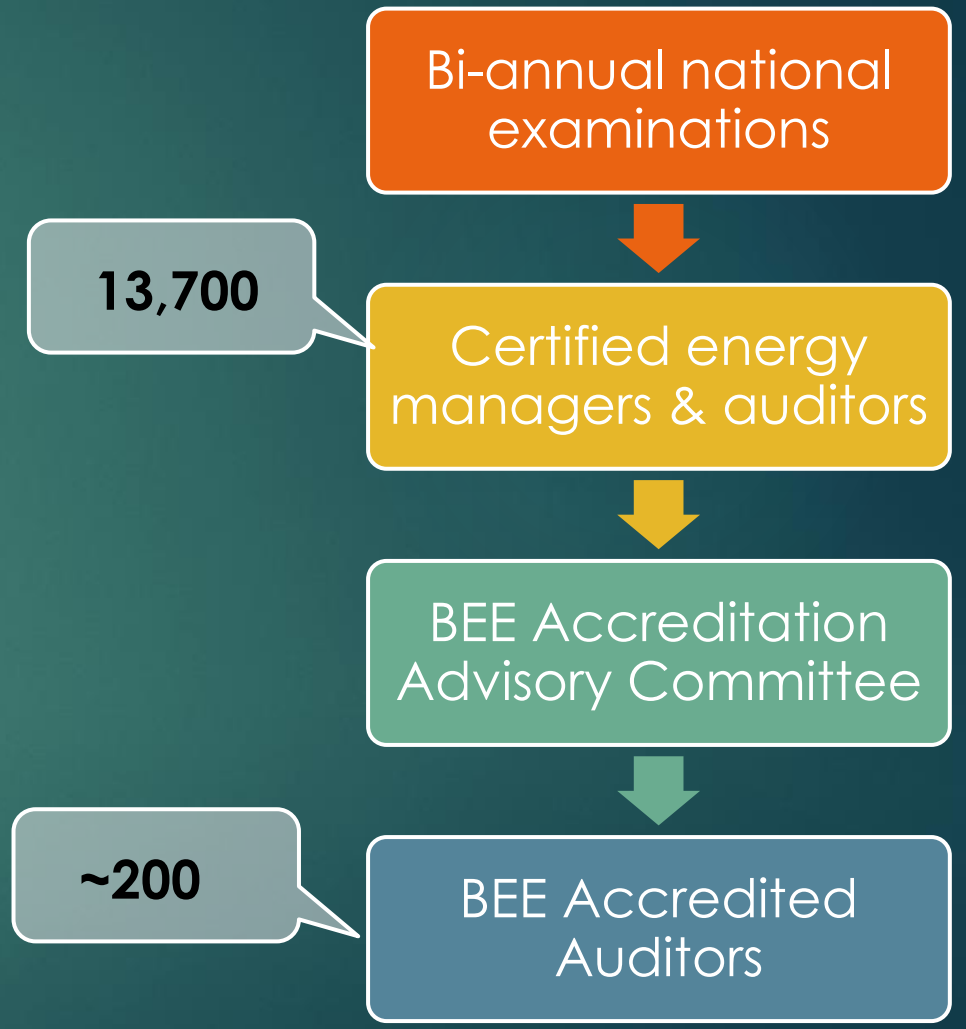
- Launched in 2008 by Bureau of Energy Efficiency (BEE)
- EAC provision for BEE to
  - specify certification procedures
  - maintain registry of accredited auditors
- BEE accreditation and grading mandatory for ESCOs
- Managed by SEBI certified risk rating agencies (CRISIL, ICRA, CARE etc.)
- 5 scale grading system

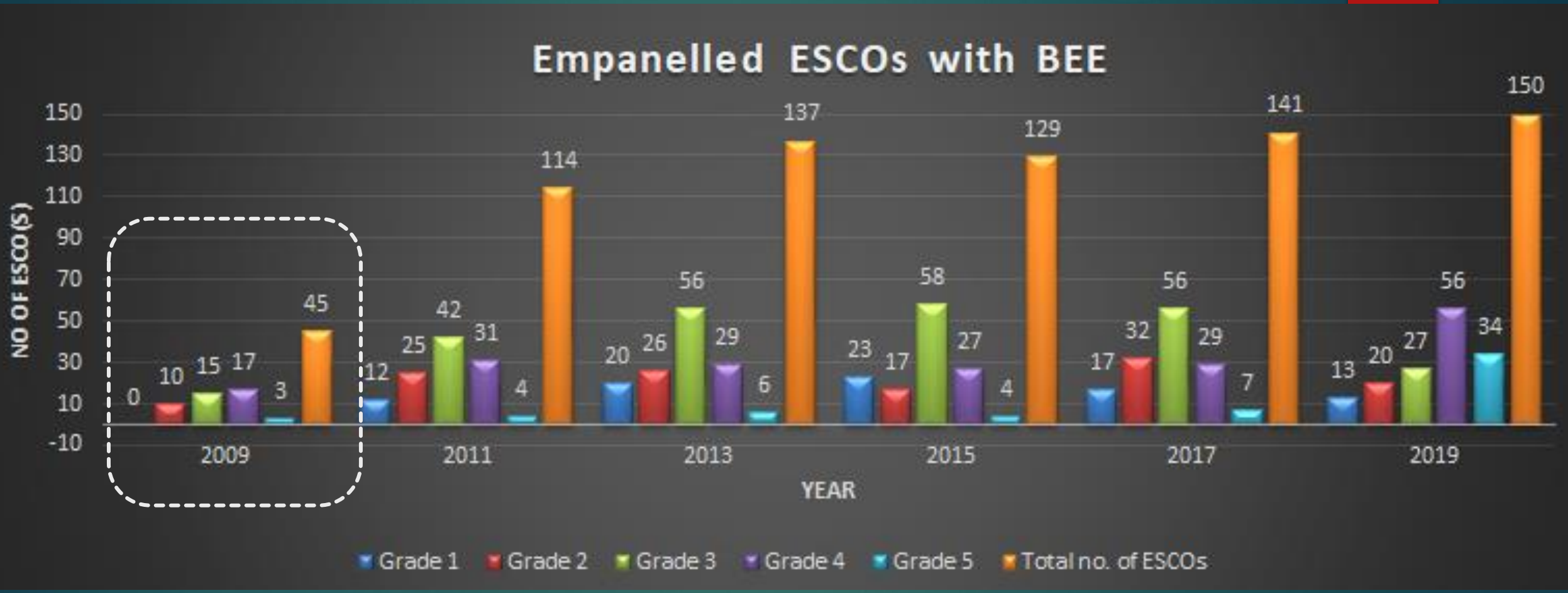
Grading	Definition	Score
Grade 1	Very High	85 and above
Grade 2	High	70-84
Grade 3	Good	55-69
Grade 4	Average	40-54
Grade 5	Poor	0-39

Source: Bureau of Energy Efficiency

ESCO Accreditation

- Grading criteria
  - **Business risk: track record | 40%**
    - Number of projects and industries served
    - Savings achieved
    - Project pipeline
  - **Financial solvency and flexibility | 35%**
    - Profits, cashflows and turnovers
    - Debt, accruals and receivables management
  - **Organizational stability | 25%**
    - BEE Accredited & Certified auditors
    - Ownership and management
    - Quality assurance systems





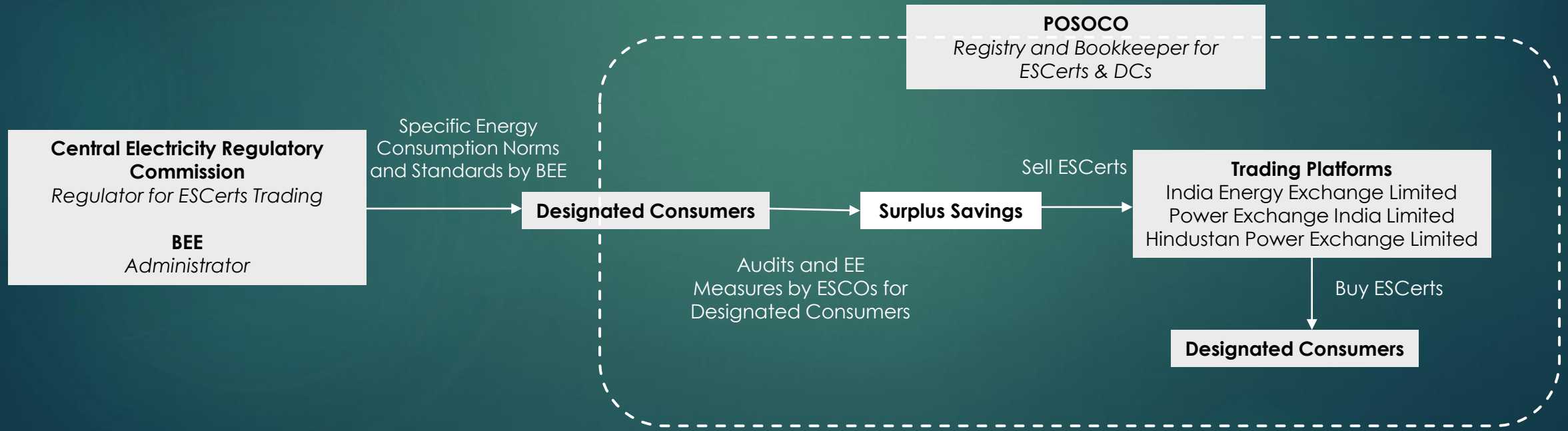
Source: Bureau of Energy Efficiency

ESCO Drivers in India

- **2 big ESCO drivers**
  - **Perform, Achieve and Trade (PAT) Scheme** — **Industrial**
  - **EESL Super-ESCO** — **Public/ Industrial**
  - Building Energy Star Rating Program — **Commercial/ Residential**

Perform, Achieve and Trade Scheme

- PAT~ Market oriented regulation
- **Mandatory EE regulation**
- BEE sets mandatory energy saving targets for DCs
- Tradeable Energy Saving Certificates (ESCerts)



- **7 PAT cycles** since 2012
- **~1,200 Designated Consumers**
- **10 billion USD** investment mobilization
- **24 Mtoe** annual energy savings

CYCLE I

- 2012-2015
- ~475 DCs
- 8 sectors
- 8.7 Mtoe energy saved
- 3.8 million ESCerts

CYCLE II

- 2016-2019
- ~670 DCs
- 14 Mtoe energy savings
- 5.7 million ESCerts issued

CYCLE III - VI

- 2019- present
- 11 sectors
- New Sectors: DISCOMs, Indian Railways, Commercial Buildings

Petrochemicals Refineries
Cement
Aluminum
Iron & Steel
Chemicals
Pulp & Paper
Textile
Thermal Power Plant
DISCOMs
Transport: Railways
Commercial: Hotels

ESCerts Trading 2023

Source: Bureau of Energy Efficiency

Super ESCO: Energy Efficiency Services Limited

- Public sector company to develop ESCO markets
- Established by Ministry of Power
- Combines **bulk procurement** + **ESCO** models
- Investment from WB, ADB, GEF and other multilateral agencies
- Standardized EPCs

Public buildings retrofit

Super-efficient cooling appliances

MSME efficiency

Agricultural pumpsets

Municipal streetlighting

Lighting

Resilient buildings

Super ESCO: EESL

1 Building Energy Efficiency Program

- Retrofit/ appliance replacement of nearly 10,000 public buildings
- LEDs, 5 star ceiling fans, ACs
- 3 or 5 year standard payback term
- 42 million USD investment

2 EESL's Super-efficient Airconditioning Program

- Split and window inverter AC
- New and replacement
- Green ACs ~ low GWP refrigerant (<700)
- Target: public buildings and banking sector
- 22% price drop through demand aggregation
- Created market entry for ~ 5.4 & 5.2 ISEER

Challenges

- **Investment Recovery**
  - Acceptable savings: accurate M&V
  - Complex contracts
- **Inadequate financing for smaller ESCOs**
  - Low confidence in cash flow based financing
  - Small project size
  - Inadequate risk guarantees
- **Inadequate demand:**
  - Mostly voluntary policies for commercial and residential
  - EE low priority
  - High payback expectation

Financing ESCOs

- **Partial Risk Sharing Facility (PRSF) for ESCOs**
  - World Bank, GEF
  - Managed by SIDBI, with a cohort of 10-12 commercial banks
  - Risk guarantees to banks ~ 75% of principal investment
  - Target ~ 100 million USD

Demand Drivers

- **Everything-as-a-service**
  - Cooling-as-a-service
  - Energy-as-a-service
- New technologies
  - Pilot **net zero energy buildings on ESCO models**
  - **Heat pump deployment in colder regions (public buildings)**
- **Star Labelling Program scale-up**
- **Growing adherence to ESG**
- **Green Credit Programme** (sustainable buildings)