
EESL Business Model to Scale up Energy Efficiency Implementation in India

Presentation

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Energy Efficiency Services Limited

(A JV company of PSUs of Ministry of Power, Govt of India)

Who we are..

- Created by Ministry of Power (MoP), Government of India
- Implementation arm of MoP and Bureau of Energy Efficiency
- Leading the market related activities under one of the 8 national mission under Prime Minister's National Action Plan on Climate Change

EESL's Portfolio

- Implementation of BEE-Demand Side Management programme for 30 DISCOMs
- Completed EE projects in 11 states - 15 ongoing
- Completed 22 consultancy projects
- 2013-14 resulted in energy savings of 4.5 MW and GHG emission reductions of 3.3 m tCO₂ - 2014-15 - estimated savings to reach 100 m KWh

EESL business model

- Strong PPP model
- Enable financing for PPP projects at reasonable rates
- Investment de-risking
 - Mitigates political, regulatory, and payment risks
- Upfront investments (equity and debt) for project implementation

Snapshot of Projects



S No:	Sector	Project	Annual Energy Savings	Estimated Investments
1	Home efficient lighting (DELP)	<ul style="list-style-type: none"> • Replacement of 7.3 Lakh inefficient domestic lights in Puducherry • State-wide distribution of LEDs to 2.45 lakh households • Total estimated savings of € 12 mln to domestic consumers due to reduction in demand 	47.96 million kWh	€ 2.7 million
2	Agriculture Demand Side Management	<ul style="list-style-type: none"> • Replacement of 600 inefficient agriculture pumps in Hubli, Karnataka • 37% of energy savings achieved • Scale-up to replacement of 10,000 pumps in FY 14-15 	2.92 million kWh	€ 500K
3	Urban EE – Street lighting in ULBs	<ul style="list-style-type: none"> • Replacement of 1.02 mn inefficient street lights across the states of Kolkata, Punjab, Puducherry, Kerala, and Nashik 	466.75 million kWh	€ 133 million



Project Pipeline

S No:	Sector	Number of Projects	Estimated Investments	Estimated Annual Savings (mKwH)	Annual GHG Emission Reduction (tCO2)
1	Home efficient lighting (DELP)	6	€ 225 million	46,845	39 million
2	Municipality Demand Side Management	15	€ 400 million	5,520	5.9 million
3	Agriculture Demand Side Management	8	€ 75 million	5,784	4.8 million
4	Others (Distribution EE, Industry, Solar, Geo Thermal)	6	€ 38 million	1,873	1.5 million
		Total	€738 million	60,022	51.2 million

This pipeline to be implemented in the next 4-5 years

- **Standards Offer Programme for equipments**
- **Annuity based models for Street Lights/ Ag DSM projects**
- **Deferred capital cost recovery – variant of guaranteed savings model for buildings**
- **SPV for large investments**
- **Shared savings models for Industries**
- **EMI based models for MSME sector**

DSM – Standards Offer Programme (SOP) – Instrument to Overcome barriers



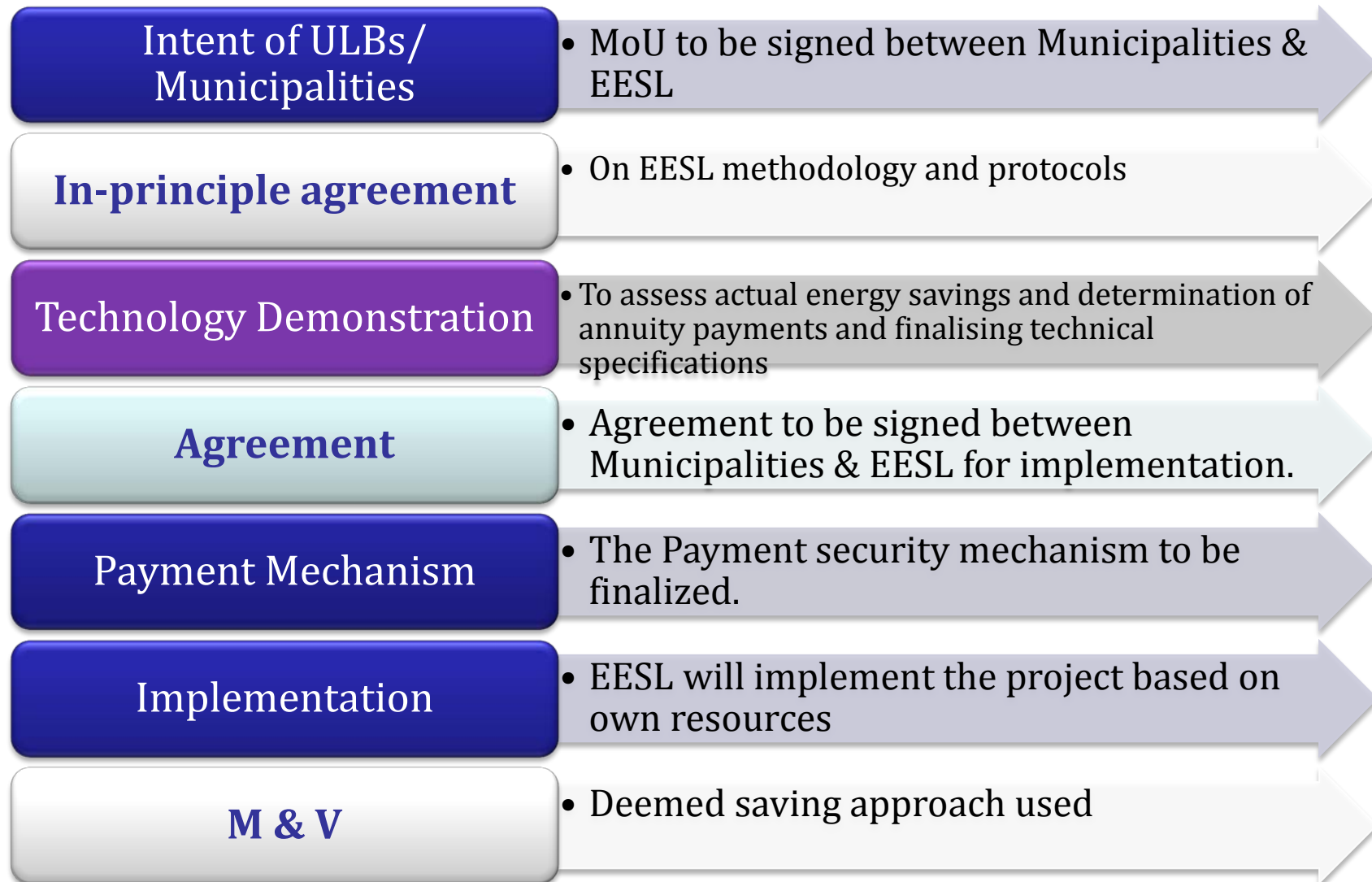
- Treats EE as a resource – enhances the value for policy makers/ stakeholders
- Long term contract with Regulatory approvals – reduces investment risks
- Contracts akin to PPAs – easy to understand for Utilities/ regulators
- Payment security in-built – use of revolving LCs
- Obviates the need for Regulators to levy DSM charge which may result in higher tariffs – acceptability of the approach increases
- First Project under DELP-SOP in India approved by Joint Electricity Regulatory Commission on – May, 2014 – under implementation - **750,000 incandescent bulbs being replaced by LEDs – LEDs being given at a cost of 16 US cents**



DSM based Efficient Lighting Programme (DELP)



Annuity based Street Light / Ag DSM



Overall cost (energy and O&M) savings to Municipalities

Street Light Projects



**Post Retrofit: Lux level 35
120 W LED; PF- 0.997**



**Existing: Lux level 22
250 W HPSV; PF- 0.39**

Deferred Cost Recovery - Implementation At Planning Commission Building, New Delhi

Yojana Bhawan Snapshot

- Total energy consumption before retrofit 2.9 m KWh
- Total energy bill before retrofit Rs. 16.7 m
- Main equipment replaced
 - 591 nos. of old fans with BEE 5 star fans
 - 2176 lighting points with LED retrofits
 - 22 ACs retrofits (all 1.5 TR) — 15 window and 7 split
 - 15 window AC 1.5 TR BEE 5 star for 1st floor to replace ductable units usages
 - 328 nos. of micro processor AC energy savers
 - 1 no. of 15 HP water pump replaced with energy efficient 12.5 HP pump
 - Energy Management System (EMS) to optimize operational controls and enhance savings
- Total capital cost Rs. 8.5 m (EMS cost excluded about Rs. 10 lakhs)
- Energy consumption after retrofit 21.5 KWh
- Electricity bill after retrofit Rs. 11.2 m
- Energy Savings – 7.7 KWh



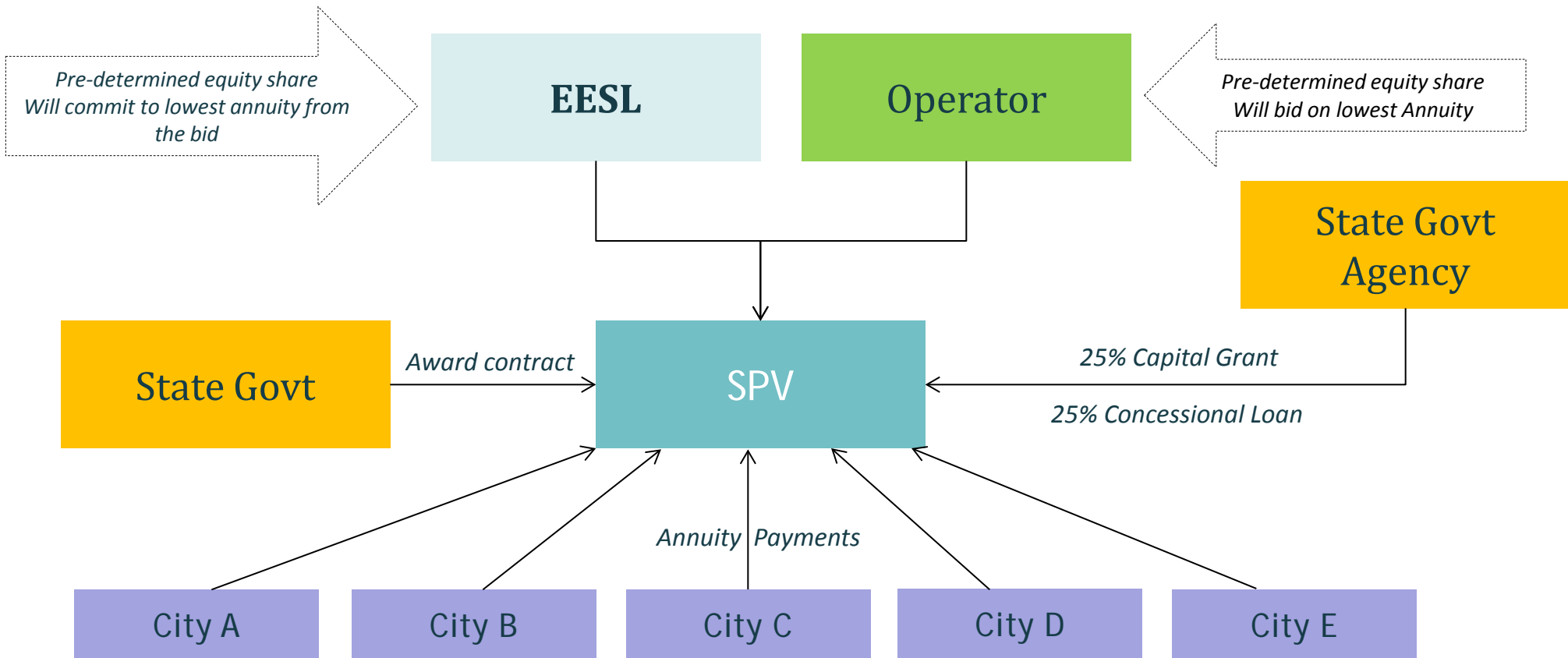
Deferred Cost Recovery

- Capital investment done by EESL upfront based on energy audit and energy savings that are determined
- Investment recovered in fixed installment over 2-3 years
- Additional service charge of EESL added as part of payback – based on the cost of energy audit, weighted average cost of capital deployed and management cost
- Payments based on monitored energy savings
- Operations and maintenance of equipments during the project life time
- Independent M&V

SPV for Bundled Street Light Projects

- Bundling of cities for EE upgrade
- Increases the investment size and brings economies to scale
- EESL to catalyse investments
- Adequate risk mitigation measures in built
- Deemed savings approach
- Independent M&V

SPV for Bundled Street Light Projects



EESL involvement to increase bankability from private sector perspective

Proposed structure to have no financial impact to State Government

Thank You

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