

Energy Efficiency Initiatives in Buildings

By



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

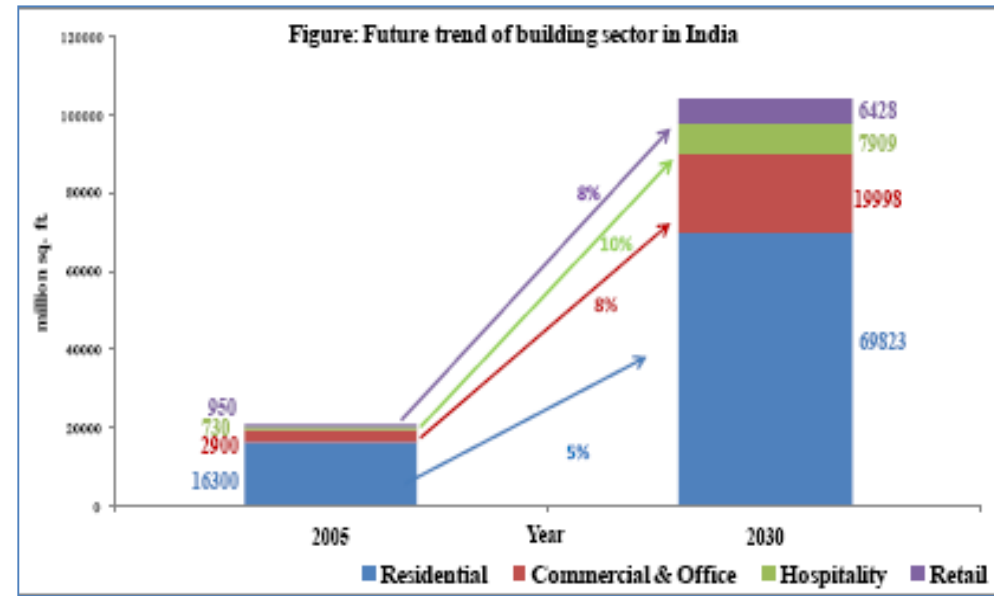
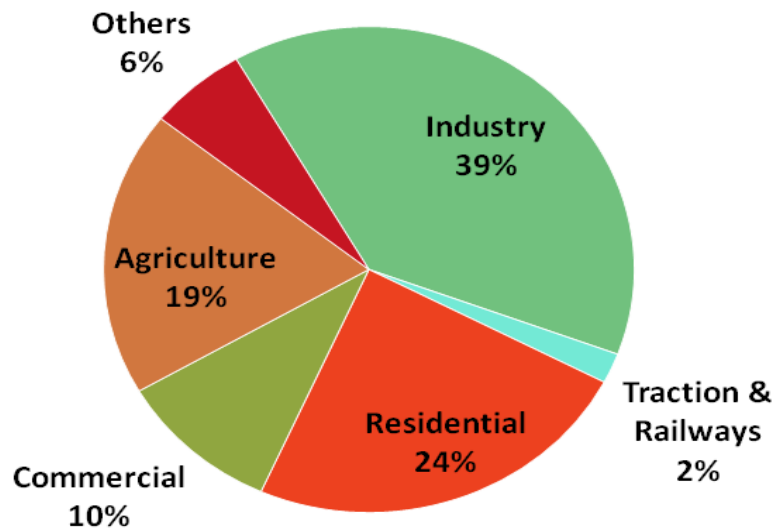


Contents

- [Overview of India's Commercial Building Sector](#)
- [Issues & Opportunities](#)
- [Energy Efficiency Project Implementation Steps](#)
- [Different Models Adopted by EESL](#)
- [Appliances Retrofitted As of Now EESL Buildings department](#)
- [Site Images](#)
- [Projects Successfully Implemented](#)
- [Summary of One Completed Project](#)
- [EESL Approach in other States](#)
- [Savings Achieved by Completed Projects/On going Projects](#)
- [Conclusion](#)



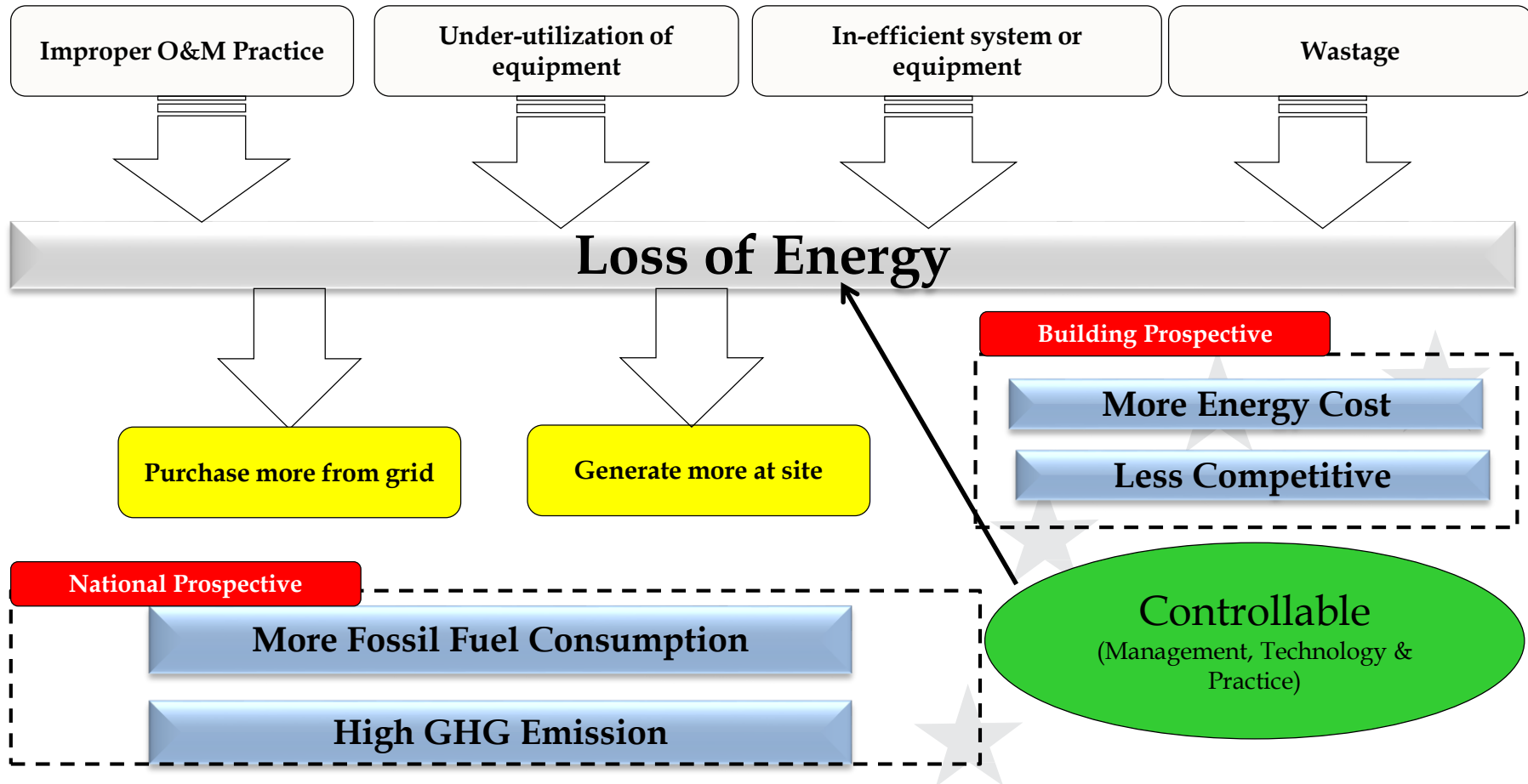
Overview of India's Commercial Building Sector



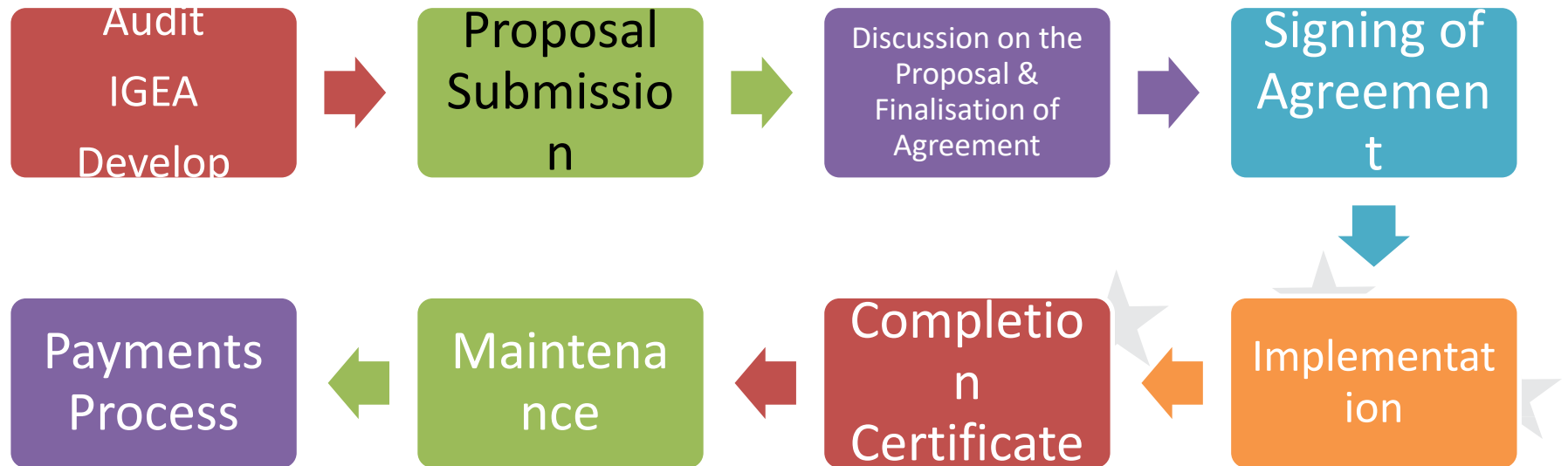
- The overall constructed area to increment by about 5 times from 21 billion square feet (2005) to approximately 104 billion square feet by 2030 at a CAGR between 5% to 10% .
- Building energy consumption accounts for over 30 percent of electrical energy consumption in the country, and is rising annually at 8 % .
- Lack of energy conscious designs lead to rampant inefficiencies in commercial buildings .Energy Audits show energy saving potential of up to 30-50% .Energy performance index (EPI) 200 to 300 kWh/sq m/year .



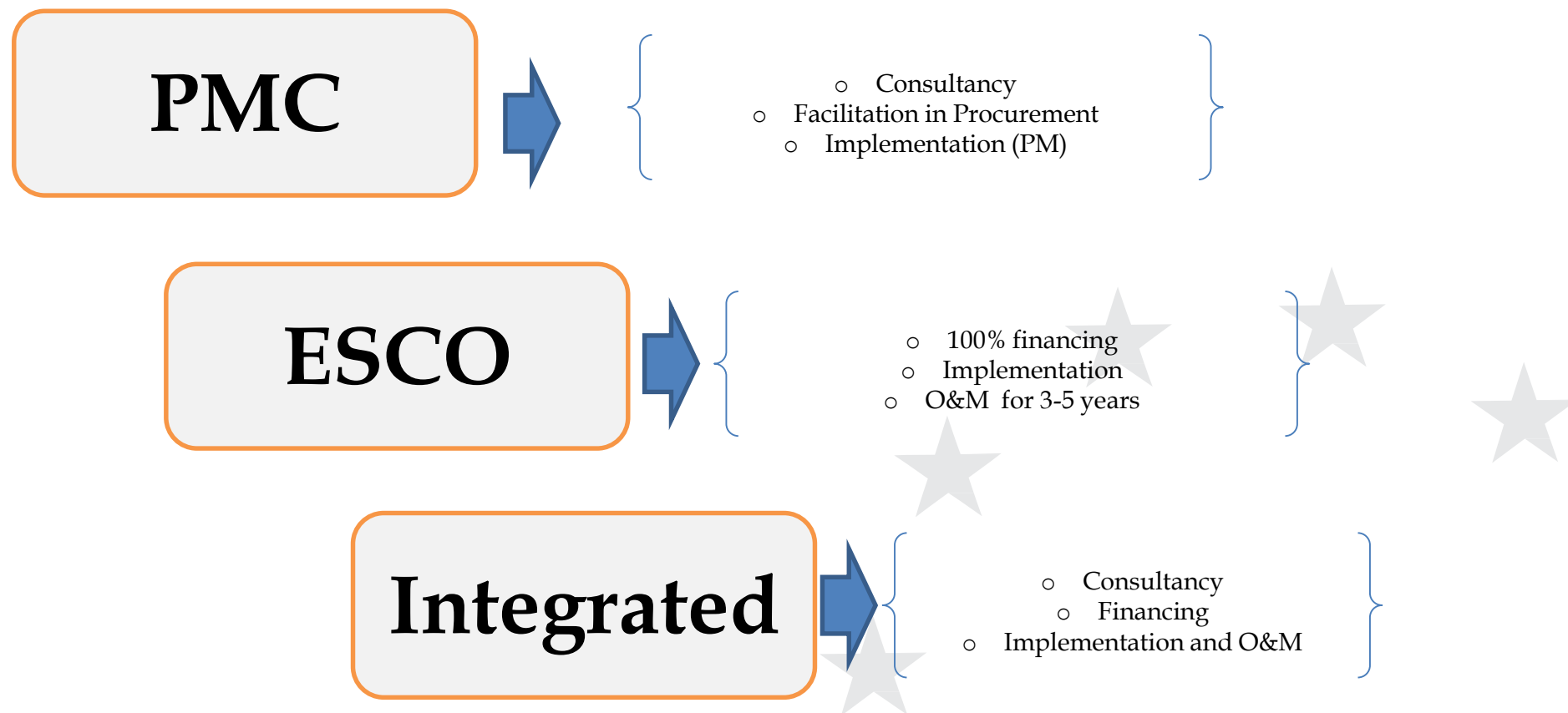
Issues and Opportunities:



EESL's Approach



Different MODELS adopted by EESL



PMC MODEL

Sl. No.	Aspects	Clients Scope	EESL's Scope
1	Inventory Collection	NA	Though Walk Trough Audit, Questionnaires etc.
2	Technology Suggestion	NA	Submit best suitable technology based on Inventory Collected
3	Tender Process	Only LoA to be issued	Tender document preparation, bid management, finalization of Bidder etc.
4	Capital Investment	Entire project investment (including EESL's Fee)	NA
5	Project Monitoring	NA	Taken care by EESL



ESCO MODEL

Sl. No.	Aspects	Clients Scope	EESL's Scope
1	Inventory Collection	NA	Though Walk Trough Audit, Questionnaires etc.
2	Technology Suggestion	NA	Submit best suitable technology based on Inventory Collected
3	Tender Process	NA	Tender document preparation, bid management, finalization of Bidder etc.
4	Capital Investment	NA	Entire project investment
5	Project Monitoring	NA	Taken care by EESL



Appliances Retrofitting as of Now By EESL Buildings Team



Site Images



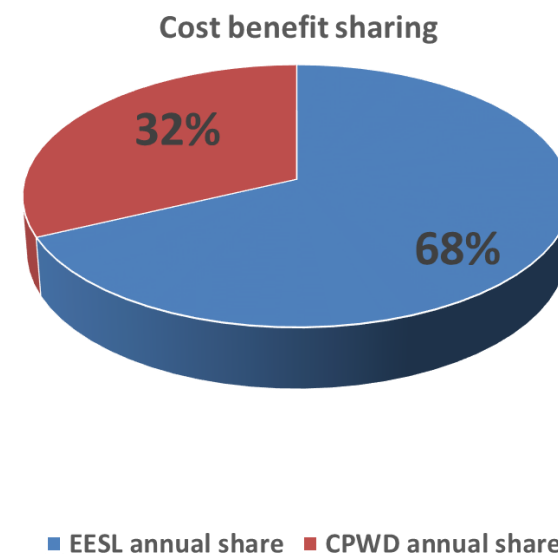


Completed Buildings

S.No.	Building Name	Total Investment- (INR)	Estimated Annual cost of energy savings - (INR)	Estimated Annual Energy Saving (in kWh)
1	Jammu Secretariat	1200000	600000	100000
2	Jammu Assembly			
3	Vidyut Bhawan	954911	477456	79576
4	Lok NAYAK Bhawan	5481205	2740603	456767
5	Transport Bhawan	1360531	680266	113378
6	Sardar Patel Bhawan	1915390	957695	159616
7	Sewa Bhawan	6942213	3471107	578518
8	West Block	2893608	1446804	241134
9	East Block	4930035	2465018	410836
10	Nirman Bhawan	10892000	5446000	907667
11	IP Bhawan	12585000	6292500	1048750
12	Krishi Bhawan	4181309	2090655	348442
13	Vigyan Bhawan Annex.	2032103	1016052	169342
14	Puspha Bhawan	847970	423985	70664
15	Shastri Bhawan	6899434	3449717	574953
16	IAS Association	276000	138000	23000
17	IWAI	3009000	1504500	250750
18	Niti Aayog	21600000	10800000	1800000
19	BCC & I	1400000	700000	116667
20	UPSC	8207000	4103500	683917
21	Coal India Limited	9000000	4500000	750000
22	Rajiv Chowk metro station	3500000	1750000	291667
23	Barakhamba Metro station	3500000	1750000	291667
24	Dena Bank	7800000	3900000	650000
25	MOIL	1387000	693500	115583

Summary of CGO Complex, New Delhi in ESCO Model

Summary of Investment for 12 Buildings Of CGO Complex		
HEAD	UNIT	Values
Estimated Energy Savings	KVAh	2139636
Fixed Tariff, Rs. per kVAh	Rs. Per KVAh	10
Estimated Annual Cost Savings	Rs. Per year	21396357
Investment, Rs.	Rs.	48475430
EESL PMC fee	Rs.	4483977
Estimated Capital Cost of the project	Rs.	52959408
Contract Period	Years	5
Payout to EESL annually	Rs.	14,632,670
EESL Share	%	68%
EESL Quaterly repayment	RS.	3,658,168
No. of repayments	Quarterly	20



EESL's progress in other states

J&K

Energy efficiency measures are being implemented at 10 state govt. buildings in Jammu.

Odisha

1. Meeting held with Principal Secretary, Energy regarding Implementation of energy efficiency programme at various state govt. owned buildings in Odisha. 2. Umbrella agreement/MoU yet to be signed with Energy dept./SDA Odisha (draft MoU submitted).

Andhra Pradesh

1. A Memorandum of understanding has been signed between Andhra Pradesh state energy efficiency development corporation (APSEEDCO) for implementing energy efficiency measures at 500 state owned buildings in Andhra Pradesh.
2. EESL has recently completed implementation of EE measures at corporate office of APEPDCL.

*** Apart from above EESL also Implementing the EE Projects in Maharashtra, Telangana and Gujarat.*

Conclusion

- Energy Efficiency is the most cost-effective option to meet the energy requirements of increased economic growth and minimizing the impact of global climate change
- ESCO is an important mechanism for the energy-efficient investments based on Performance Contracting



Thank you

