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# NATIONAL CONFERENCE

# INCLUSIVE CLEAN ENERGY SOLUTIONS IN ADB OPERATIONS

10-11 December 2024 • Chennai

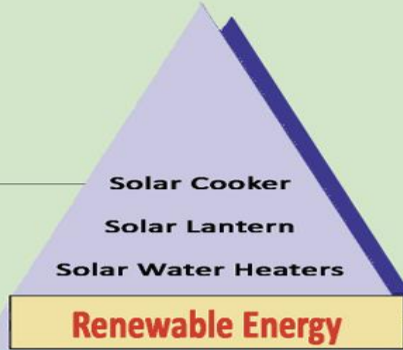
**Demand Response, Energy Storage, Energy Efficiency**

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Chief General Manager



Residents may require external help to implement these measures in their homes/ work places. IAEMP will train the implementing agencies and identify suppliers /manufactures of these items.

It is a 'Do-It-Yourself' Action  
IAEMP volunteers will create awareness about these measures and provide guidance



The application of concepts of energy ' Conservation, Energy Efficiency and appropriate applications of Renewable Energy technologies can be better understood by this energy pyramid

- 1.Appropriate lighting with T5/T8 TFL with electronic chokes,CFL and LED Lamps/Tube
- 2.Energy efficient fans with electronic step regulators/Super energy efficient fan.
- 3.Star rated ACs,Pumps,TVs,Direct cool refrigerators\*,etc.
- 4.water level controller,auto setup tap.
- 5.High efficiency Motors
- 6.High efficiency vehicles

\*Frost free refrigerator is not considered energy efficient



- 1.Taking care of Ghost(stand by)consumers- Not using remote to switch off electronic gadgets like TV,DVD,Set-top box,not leaving the appliances plugged in.
  - 2.Smart use- lower thermostat setting for Refrigerators and higher for ACs, fans on lower speeds,combining tasks to be done etc.
  3. Correct sizing and positioning of appliances and gadgets like task lighting.
  - 4.Remembering to switch off the fans,lights,mosquitoes mats,etc when not in use.
  - 5.House keeping measures-cleaning off lights,fans,filters,and coils of ACs.
  - 6.Provide low level of illumination for staircases,puja room,area lighting
  - 7.Use of hand operated devices instead of mixer grinder,vaccum cleaner
  - 8.Water conservation techniques/water reuse/rain water harvesting.
  - 9.LPG/ Petrol/ Diesel/ conservation measures.
- and so on.....



- **DR:** Beyond DSM
- **Mechanisms:**
  - Time-based pricing  
(e.g., TOU, Critical Peak Pricing)
  - Direct load control
- **Key Benefits:**
  - Peak load reduction
  - Improved grid stability
  - Cost savings for consumers and utilities



# Energy Storage: Technologies to store excess energy and deploy when needed

- **Key Technologies:**

- **Lithium-ion batteries**
- **Pumped hydro storage**
- **Flow batteries**
- **Thermal storage**

- **Benefits:**

- **Energy supply smoothing**
- **Integration of renewable energy**
- **Backup power during outages**



- **Complementary Roles:**
  - **DR reduces peak demand; ES stores excess energy.**
  - **Both enhance grid flexibility.**
- **Applications:**
  - **Integration with renewable energy.**
  - **Managing demand in urban centers.**

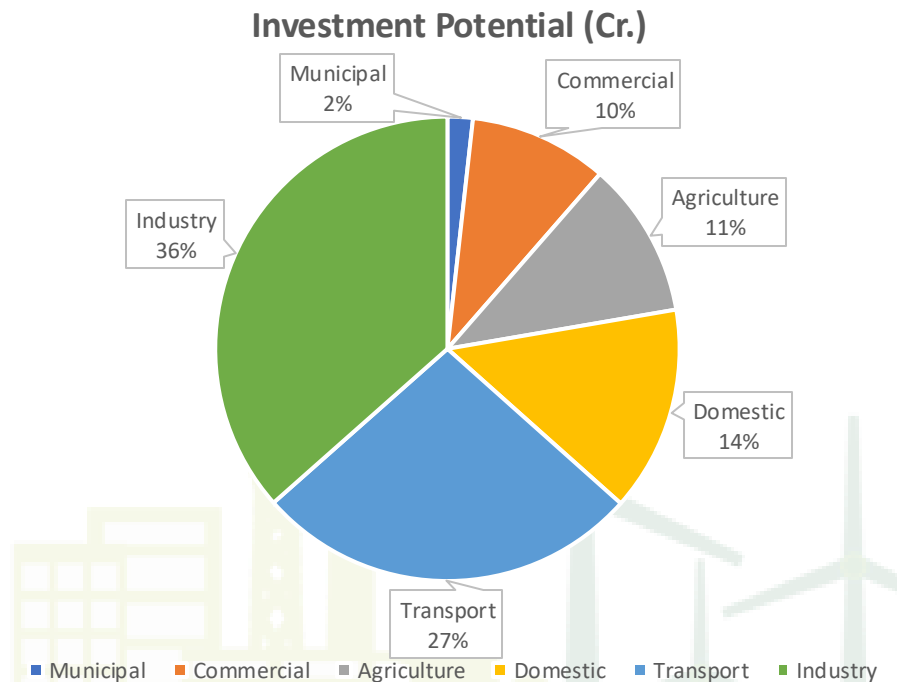
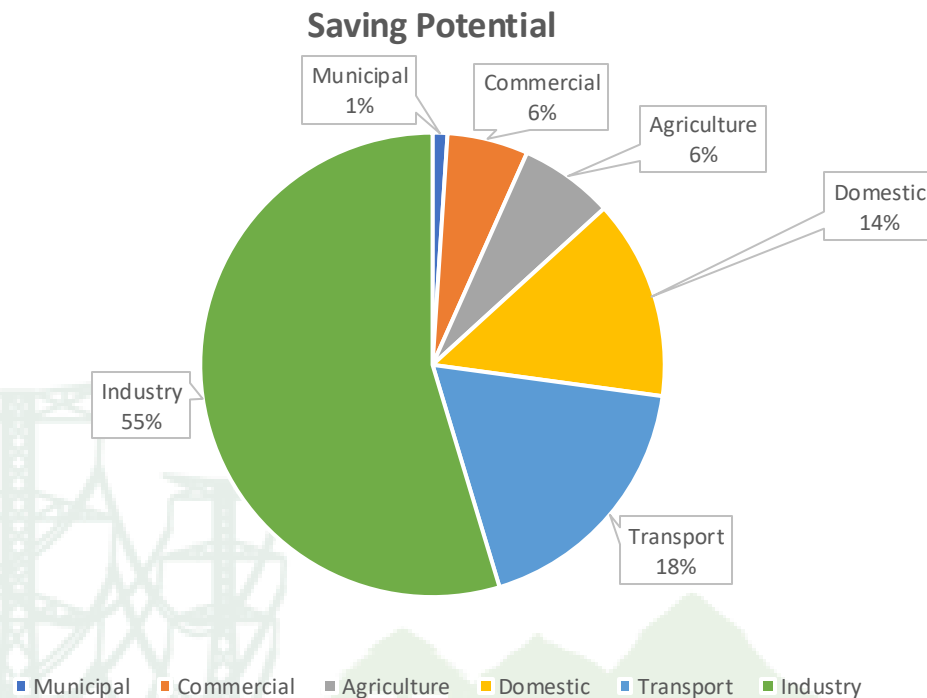




- **1/3 per capita of world's average**
- **1/13 per capita of USA**
- **India's Energy consumption in 2021-2022: Around 1375 BU;**
- **India's Energy consumption in 2021-2022: Around 1503 BU;**
- **Expected Energy Consumption by 2030-2031: 2455 BU**

# India's Energy Efficiency potential

- Energy Saving potential: 87 Mtoe + 285 TWh (285 BU) by 2031 ;
- **Monetary Saving** : 6070860 Cr (87X10exp6X 11630X 6) + 17100 Cr = 624816 Cr (**Around 79K MUSD**)
- Energy Efficiency Investment potential: Rs. 10 lakh crore by 2031(**Around 125K MUSD**)
- **Pay back: 1.6 years**

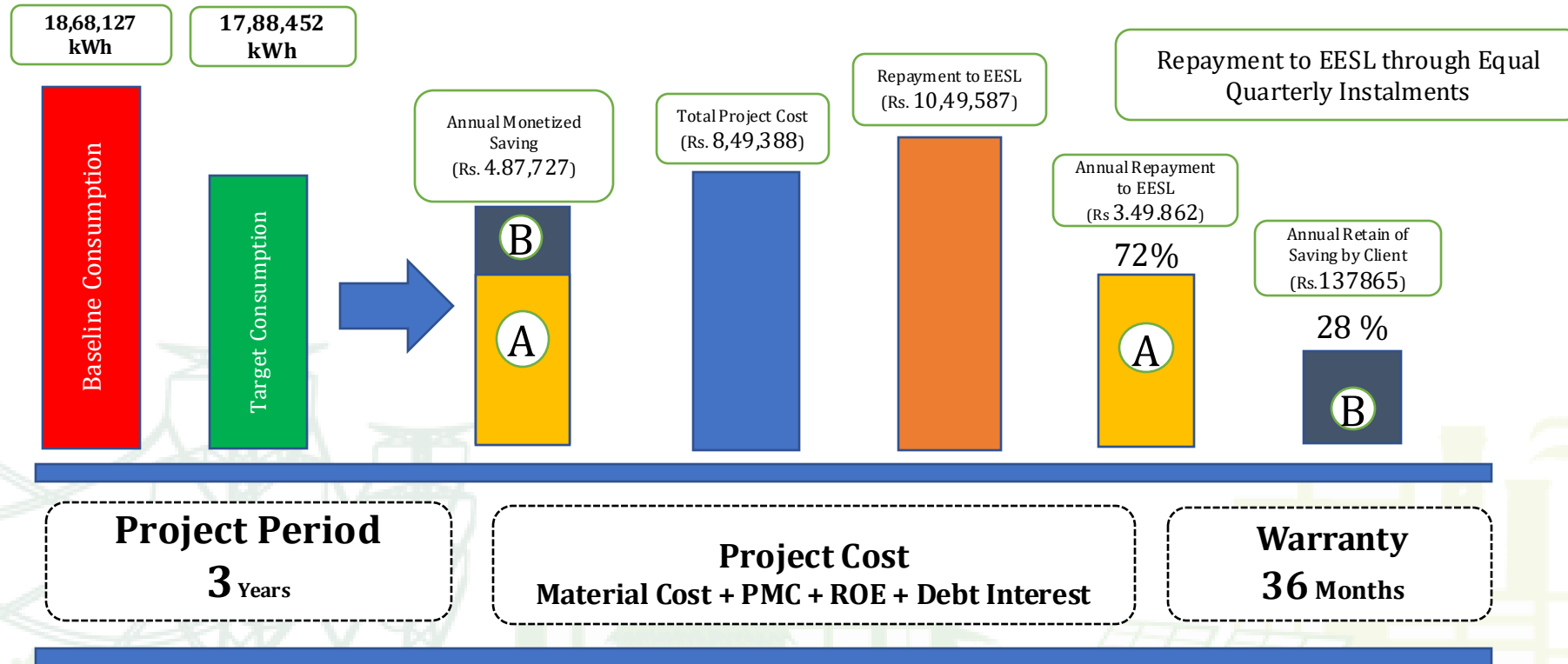


Programs	Milestones	Programmes	Milestones
<b>Energy Efficiency Business</b>		<b>Clean Energy Business</b>	
<p><b>Residential</b></p>	<p>1 <b>36.73 crore</b> LED bulbs, <b>72.14 lakh</b> LED Tube lights and <b>23.44 lakh</b> Energy efficient fans distributed</p>	<p><b>Public Infrastructure</b></p>	<p>7 <b>1.5 lakh Solar LED</b> Street Lights Installed</p>
<p><b>Public Infrastructure</b></p>	<p>2 <b>1.17 crore</b> LED street lights installed with CCMS</p>	<p>Decentralized Solar</p>	<p>8 <b>131 MWp of solar power</b> Projects Installed/ Commissioned</p>
<p><b>Buildings</b></p>	<p>3 Retrofitting work in <b>10,000+ Government Buildings</b> has been completed</p>	<p>Solar Study Lamps</p>	<p>9 <b>61+ lakh solar study lamps</b> distributed</p>
<p><b>Buildings</b></p>	<p>4 <b>16.52 lakh smart meters</b> installed</p>	<p>Trigeneration</p>	<p>10 Project under Implementation with M&amp;M, Ready pipeline of more <b>than 40 MW</b>.</p>
<p><b>Agricultural</b></p>	<p>5 <b>73,700 Agriculture pumps</b> replaced with efficient BEE star rated Pumps.</p>	<b>Green Transportation</b>	
<p><b>Agricultural</b></p>	<p>6 Agreement for <b>IGEA with 25 States/UTs</b>. IGEA report submitted for 390 cities</p>	<p><b>Electric Vehicles</b></p>	<p>11 <b>1,514 e-cars</b> deployed/under deployment; <b>470 AC &amp; DC Captive chargers</b> installed</p>
		<p><b>Public Charging Infrastructure</b></p>	<p><b>66 public charging stations</b> installed</p>
		<p>National E-Mobility Programme</p>	



## Demand Aggregation

### Pay as you Save



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# Thanks for kind attention

- **EESL model and reach provides ecosystem**
- **Platform for Pilot projects**
- **Upscaling and implementation**
- **Huge market**
- **Investment with high returns**

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