



# National Motor Replacement Program



# Energy Efficiency Services Limited (EESL) – Who We Are

EESL is a joint venture company of four Public Sector Enterprises of Ministry of Power, Govt. of India



- **NTPC Limited** (India's Largest Power Generating Company | Market Cap as on 1<sup>st</sup> March 2016 – US \$15.5 billion)
- **Rural Electrification Corporation Limited** (Market Cap as on 1<sup>st</sup> March 2016 – US \$2.4 billion)
- **Power Finance Corporation Limited** (Market Cap as on 1<sup>st</sup> March 2016 – US \$3.1 billion)
- **Power Grid Corporation of India Limited** (India's Largest Power Transmission Company | Market Cap as on 1<sup>st</sup> March 2016 – US \$10.7 billion)

- A public Energy Service Company (ESCO) under Ministry of Power
- Established in the year 2009
- 100% share holding with Public Sector Enterprises
- Board of Directors represented by Ministry of Power and Bureau of Energy Efficiency (BEE)



# Programs

GOVERNMENT OF INDIA  
MINISTRY OF POWER

## NATIONAL UJALA DASHBOARD

EEESL

GOVERNMENT OF INDIA  
MINISTRY OF POWER

Total LEDs distributed as on 21 MAR 2018 09:42

# 29,27,32,242

38,016 mn kWh Energy saved per year	INR 15,207 Cr Cost saving per year	7.64 MW Avoided Peak Demand	3,07,93,169 t CO <sub>2</sub> CO <sub>2</sub> Reduction per year
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## SLNP - DASHBOARD

STREETLIGHT NATIONAL PROGRAMME

EEESL

GOVERNMENT OF INDIA  
MINISTRY OF POWER

Total Streetlight Completed as on Date: 21-03-2018

# 51,37,386

270.49 kWh Average energy savings per light per year	1153377.58 tCO <sub>2</sub> GHG Emissions Reduction	346.1 MW Avoided Capacity
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EEESL "MOTOR REPLACEMENT PROGRAM"

"Save Energy For Better Tomorrow"

SAVE ENERGY FOR BETTER TOMORROW

## HIGH QUALITY WITH EXTENDED WARRANTY

Send Enquiry

# AgDSM

# MEEP

# SOLAR

# AJAY

# BEEP

# BUILDING ENERGY EFFICIENCY PROGRAMME



# Need for the National Motor Replacement Program

- About 90% - 95% **installed motors** are of IE1 or IE0 base, which are typically **energy inefficient**.
- Recent DIPP Quality Control Order necessitates all new motors (imported or domestically produced) to be minimum IE2 compliance.
- India can leap frog to best available IE3 motors (new addition as well as replacing old ones).
- EESL brings first voluntary Motor Replacement Program to accelerate the CHANGE.
- End users to benefit from electricity consumption and extended warranty period.



# Program Design Characteristics

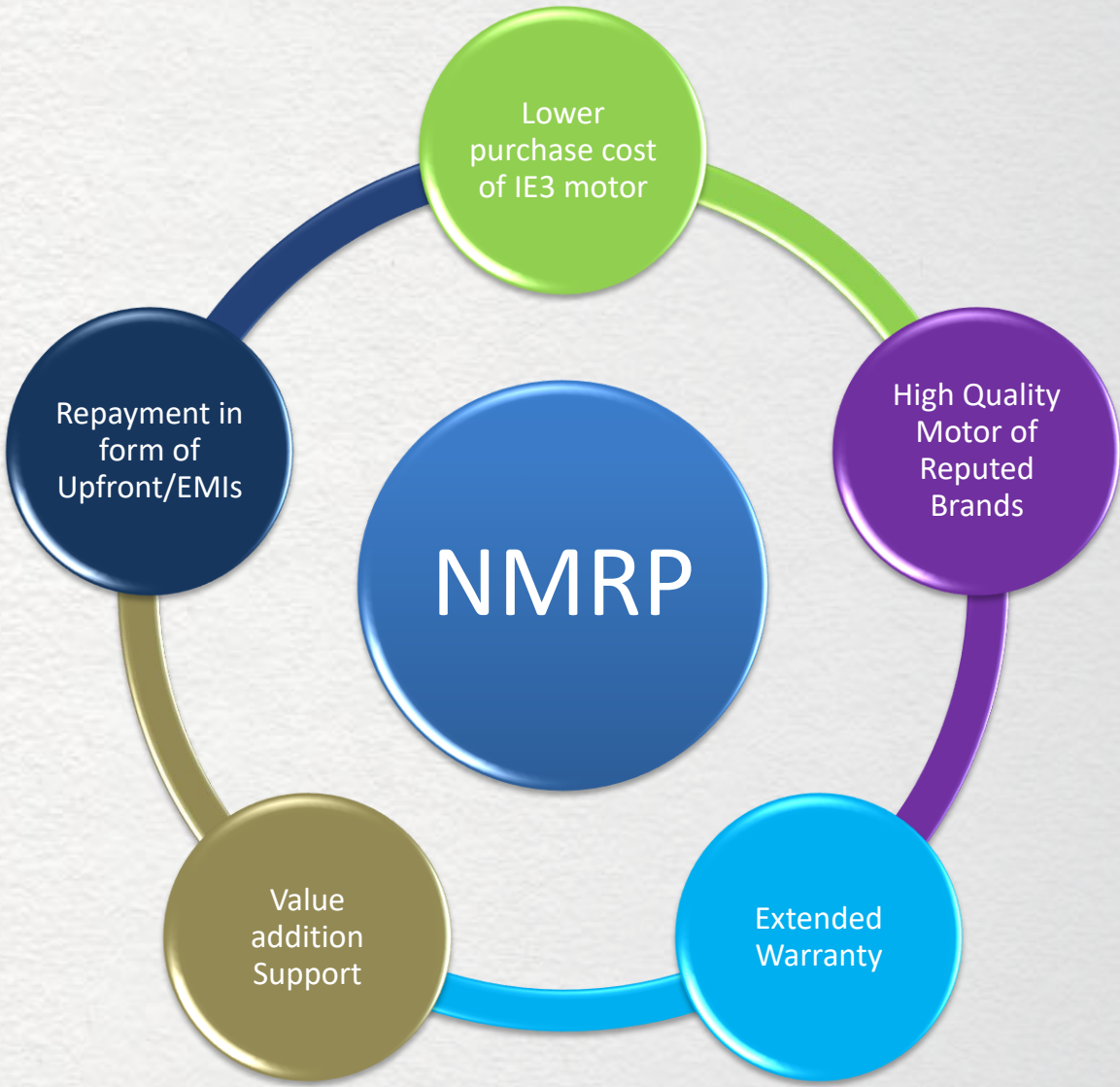
- **Program Administrator:** EESL
- **Target Group :** Industries and Commercial Establishments.
- **Project Duration :** 3 years
- **Procurement :** Open bidding process by EESL as per defined technical specifications.
- **Warranty :** 3 years from the date of Supply.
- **Supply & Installation :** Supply by EESL, Installation by industries.
- Procurement of **120,000** IE3 motors in First Phase.
- Dedicated **Web Portal** for Program Management.
- Old Motors disposal to be taken care by **End Customer**.
- **Financial Model :**
  - ESCO Model -**
    - a. Upfront Investment by EESL.
    - b. Repayment through Equal Quarterly Instalment (EQI) for 3 years from Mentioned Energy Saving.
  - PMC Model -**
    - a. Investment by End Customer.
    - b. EESL Provides PMC Support with one time Consultancy Fee (About 10 % of Project Cost).

<u>Motor Size (kW) of IE-3</u>	<u>Target Numbers for</u>
<u>Specification</u>	<u>Replacement</u>
1.1	15,000
1.5	15,000
2.2	15,000
3.7	15,000
5.5	15,000
7.5	15,000
11.0	10,000
15.0	10,000
22.0	10,000



# Program Design Characteristics

Particulars	Conventional Model	EESL Model
Motor Type	IE 1 or Less (Sub- standard efficiency)	IE 3 (High Efficiency Class )
Pricing	Retail/Supply Price by Supplier	Avg. 35 % Reduction from Retail/Supply price
Procurement Process	By Client	By Open Bidding
Price Reduction Mechanism	No	Bulk Procurement
Investment	By Client (If PMC)	By EESL (If ESCO)
Repayment to EESL	-----	Through Instalments from Monetised Energy saving or Upfront Payment
Warranty	18 Months	36 Months
Installation	By Client	By Client
Other Value Added Services (Optional)	-----	Motor Load Survey Technical training National Dash Board





# Technical Details

## Motor efficiency

- IE 3 Class as per IS 12615

## Pole & Mounting

- 4 Pole, Foot Mounting

## Operating Parameters

- 3 Phase, Squirrel Cage, Induction Motor,
- 415 V (+/- 10%), 50 Hz (+/- 5%)

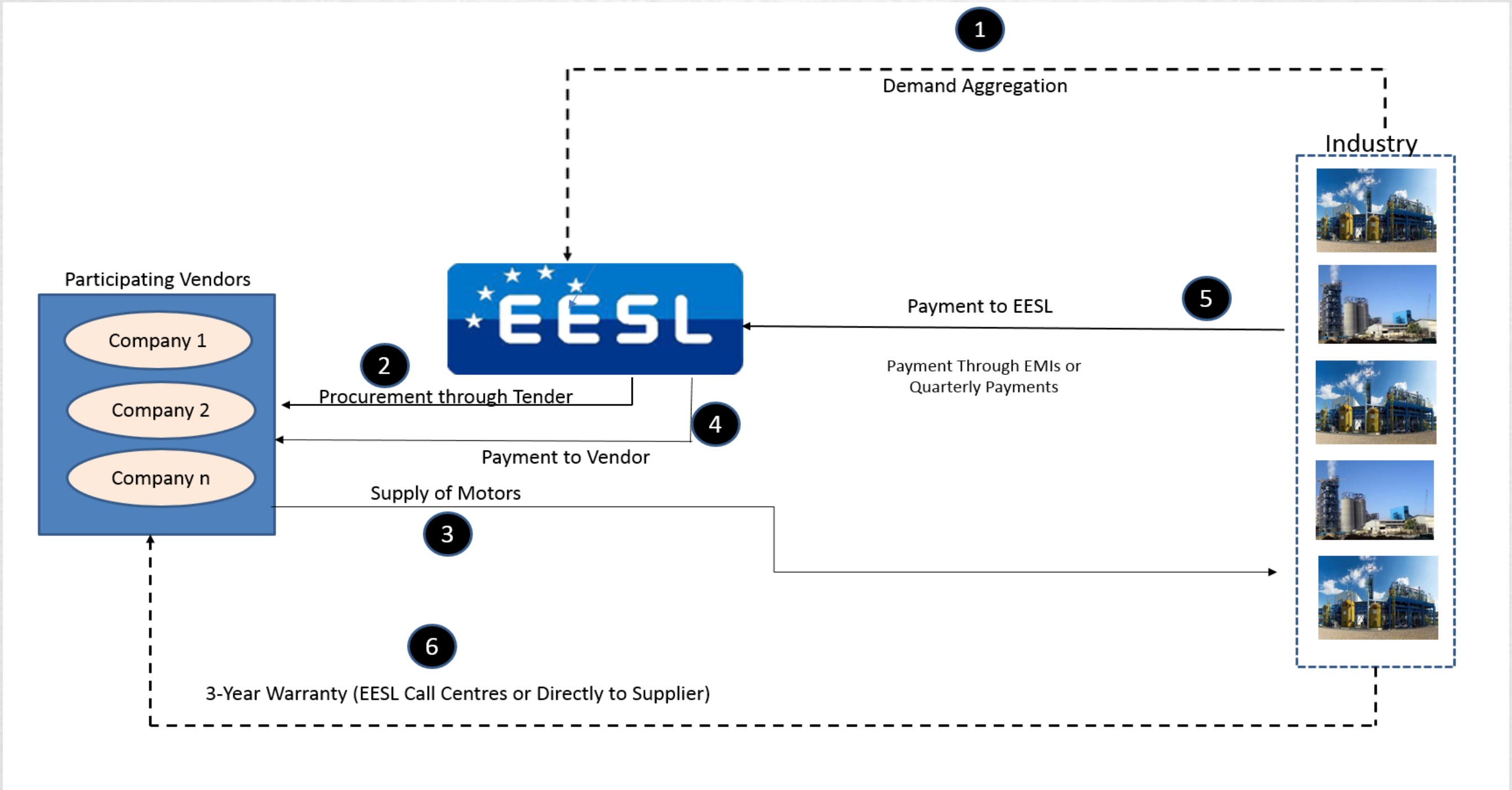
## Applications

- Pump, Fans & Blowers, Compressors, etc.
- ( Compatible with VFD)

Directly/ Non-directly coupled with load

S.No.	Rating (kW)	Frame Size
1	1.1	90 S
2	1.5	90 L
3	2.2	100 L
4	3.7	112 M
5	5.5	132 S
6	7.5	132 M
7	11	160 M
8	15	160 L
9	22	180 L

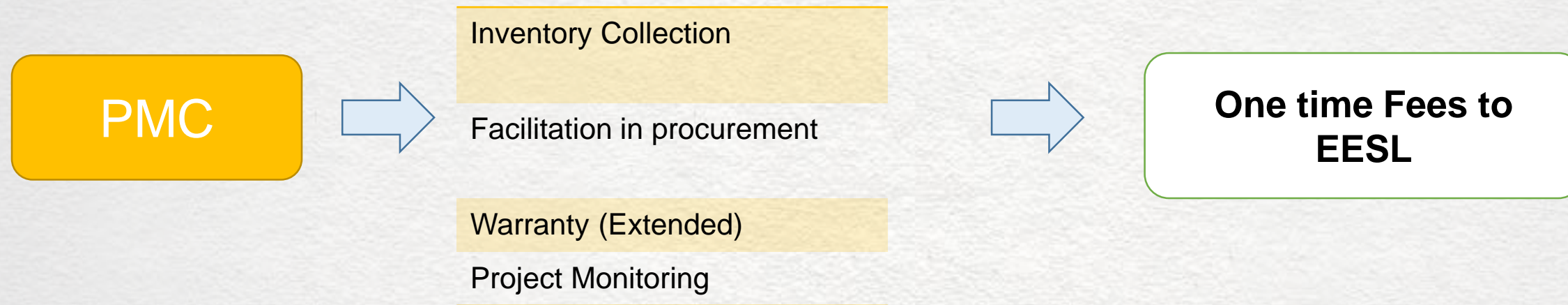
# Operating Model of the Program



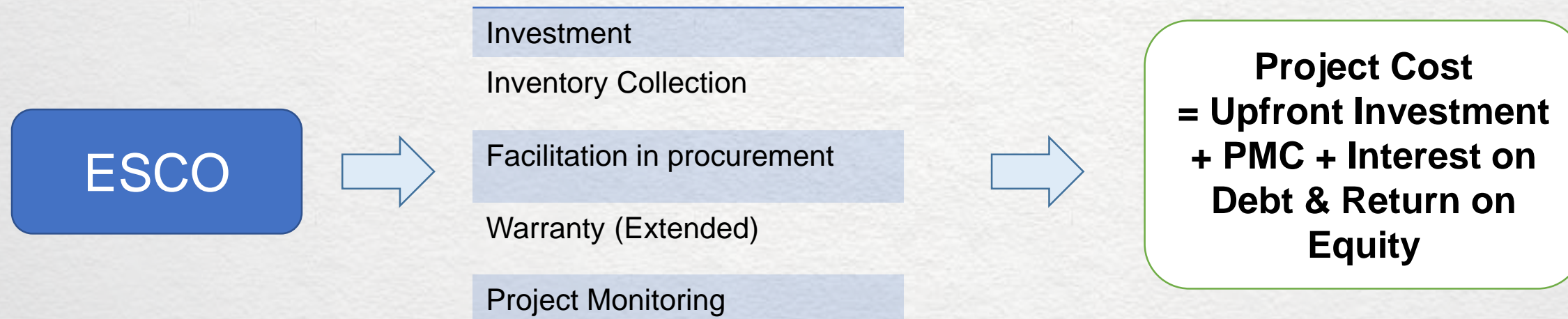


# EESL's Business Models

- **Model 1:- If 100% investment is made by customer,**



- **Model 2:- If 100% Investment by EESL**





# Case Situation (for One Motor, 7.5 kW)

S. No.	Old Motor Efficiency Class	Output Power (kW)	Efficiency (in %)	Loading (in %)	Quantity (in Nos.)	Avg. Annual Operating Hour	Annual Energy Consumption - Baseline (kWh)	New Motor Efficiency Class	Efficiency (in %)	Annual Energy Consumption - Post Replacement (kWh)	Annual Energy Savings (kWh)
1	IE1	1.1	75.00%	70%	-	7000	-	IE3	84.10%	-	-
2	IE1	1.5	77.20%	70%	-	7000	-	IE3	85.30%	-	-
3	IE1	2.2	79.70%	70%	-	7000	-	IE3	86.70%	-	-
4	IE1	3.7	82.70%	70%	-	7000	-	IE3	88.40%	-	-
5	IE1	5.5	84.70%	70%	-	7000	-	IE3	89.60%	-	-
6	IE1	7.5	86.00%	70%	1	7000	42,733	IE3	90.40%	40,653	2,080
7	IE1	11	87.60%	70%	-	7000	-	IE3	91.40%	-	-
8	IE1	15	88.70%	70%	-	7000	-	IE3	92.10%	-	-
9	IE1	22	89.90%	70%	-	7000	-	IE3	93.00%	-	-
			<b>83.50%</b>		<b>1</b>		<b>42,733</b>		<b>89.00%</b>	<b>40,653</b>	<b>2,080</b>

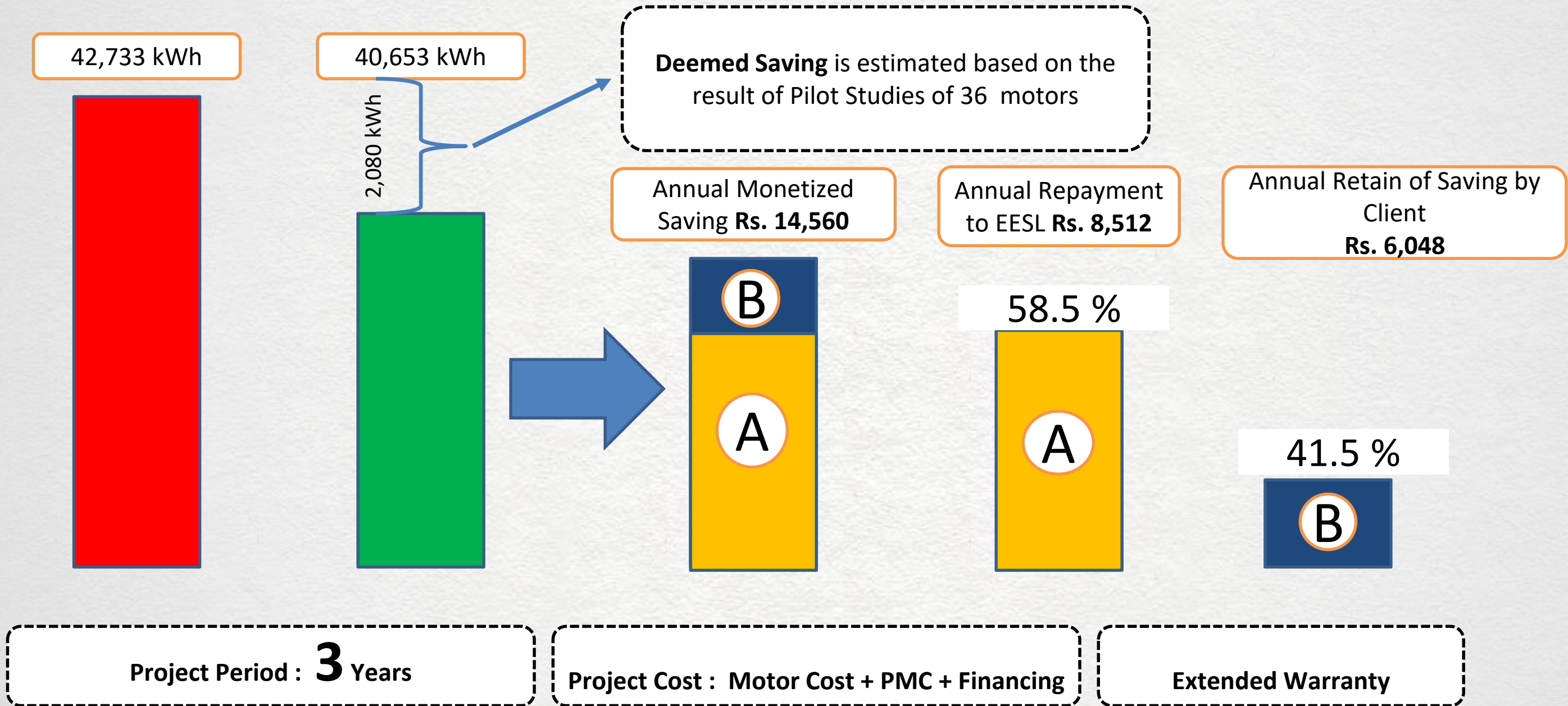


## Repayment through PMC Mode

S. No.	Particular(s)	Unit	Value
1	Total Quantity of Motor(s) across ratings	No.	1
2	Estimated Energy Savings	kWh per annum	<b>2,080</b>
3	Grid Power Cost	Rs. per kWh	7.00
4	<b>Energy Savings per Annum</b>	Rs. per annum	<b>14,559</b>
5	Capital Cost of Motor(s) (including transportation)	Rs.	<b>15,926</b>
6	EESL PMC @ 10%	Rs.	1,593
7	Capital Cost of Motor(s) (including transportation and EESL PMC)		17,519
8	GST @ 18%	Rs.	3,153
9	<b>Estimated Total Project Cost of the project</b>	Rs.	<b>20,672</b>
10	Payback (Project cost / annual savings)	Years	<b>1.20</b>



# Repayment through Monetized Energy Saving





# Repayment through ESCO Mode

S.I	Head	Unit	Value
1	Total Volume of motors across ratings	No.	1
2	Estimated Energy Savings	kWh	2080
3	Fixed Tariff,	Rs./kWh	7.00
4	Yearly Cost Savings from electricity	Rs.	14559
5	Material Cost	Rs.	15,926
6	EESL PMC fee	Rs.	1,593
7	Price of Motors Including PMC	Rs.	<b>17,519</b>
8	Equity Portion of Financing	Rs.	3,504
9	Total Return on Equity	Rs.	1,491
10	Debt portion of Financing	Rs.	14,015
11	Total Debt Interest received	Rs.	2,630
12	Total Repayment made by Motor Buyer (towards Debt and Equity)	Rs.	<b>21,640</b>
13	GST @18	Rs.	3,895
14	Net Repayment by motor buyer	Rs.	<b>25,535</b>
15	Contract Period	years	3.00
16	Yearly payout to EESL	Rs./yr	8,512
17	EESL Share	%	<b>58.50</b>
18	EESL Quaterly repayment	Rs./Quarter	2,128
19	No. of repayments	No.	12
20	Payback	Years	<b>1.49</b>



# Illustration of Deemed Saving

- EESL has been conducted the pilot study of 36 IE3 motors at

**M&M**

**Surat Textile  
Cluster**

**Jamnagar  
Brass Cluster**

**Ahmedabad  
Chemical Cluster**

- Application wise Saving

S.No.	Application	Avg. Saving (%)
1	Pump	11
2	Fan & Blower	10
3	Compressor	15
4	Processing M/c	10



# Pricing after 1<sup>st</sup> Bidding

S.No.	Rating (kW)	Typical Market Price/Motor (Rs.)	EESL Price/Motor (Rs.)	Deviation in Price (%)
1	1.1	7625	5159	-32.34
2	1.5	8388	6250	-25.49
3	2.2	11002	7466	-32.14
4	3.7	14051	9463	-32.65
5	5.5	19584	13143	-32.89
6	7.5	23018	15538	-32.5
7	11	47045	25070	-46.71
8	15	49223	30574	-37.89
9	22	64688	39859	-38.38
Avg.				<b>-34.55</b>

CG

BBL

Siemens

ABB

LHP



# Dedicated web Portal ([www.motor.eeslindia.org](http://www.motor.eeslindia.org))

✉ [motor@eesl.co.in](mailto:motor@eesl.co.in) ☎ 0120-4908000

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A JV of PSUs under the Ministry of Power

**NATIONAL MOTOR REPLACEMENT PROGRAMME**

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Less cost with quality product

Innovative financing model

Energy efficient motors

SAVE ENERGY FOR BETTER TOMORROW

**LESS COST WITH  
QUALITY PRODUCT**







Contact Us:

*Nand Kishor Jha*

**Energy Efficiency Services Limited**

***(A Joint Venture of PSUs of Ministry of Power, Govt. of India)***

A-13, IWAI Building, 4th Floor, Sector - 1

Noida – 201301, Uttar Pradesh, India

Website: [www.eeslindia.org](http://www.eeslindia.org)

Phone: +91 120 490 8000 (Ext 644)

Fax: +91 120 4908099

***Email.- [nkjha@eesl.co.in](mailto:nkjha@eesl.co.in)***

