

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

NATIONAL MOTOR REPLACEMENT PROGRAM (NMRP)



Need for a National Program

- Around 90% of installed motors are of IE1 or IE0 base, which are typically energy in-efficient
- DPIIT's Quality Control Order necessitates all new motors (imported or domestically produced) to be minimum IE2 compliant in India
- Accelerate the adoption of Premium Eff. Motors (IE3) by addressing higher/upfront cost barrier for motors procurement.
- The Perform, Achieve & Trade (PAT) program of BEE is a lever for the designated industries to adopt the same



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Efficiency

Motor Market – Operating Model (BAU)





Motor Market – Operating Model (EESL)

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Motor Eff. Values (as per IS 12615)



	IE1 – Standard Efficiency			IE2 – High Efficiency			IE3 – Premium Efficiency		
kW	2-pole	4-pole	6-pole	2-pole	4-pole	6-pole	2-pole	4-pole	6-pole
0.75	72.1	72.1	70.0	77.4	79.6	75.9	80.7	82.5	78.9
1.1	75.0	75.0	72.9	79.6	81.4	78.1	82.7	84.1	81.0
1.5	77.2	77.2	75.2	81.3	82.8	79.8	84.2	85.3	82.5
2.2	79.7	79.7	77.7	83.2	84.3	81 <mark>.</mark> 8	85.9	86.7	84.3
3	81.5	81.5	79.7	84.6	85.5	83.3	87.1	87.7	85.6
4	83.1	83.1	81.4	85.8	86.6	84.6	88.1	88.6	86.8
5.5	84.7	84.7	83.1	87.0	87.7	86.0	89.2	89.6	88.0
7.5	86.0	86.0	84.7	88.1	88.7	87.2	90.1	90.4	89.1
11	87.6	87.6	86.4	89.4	89.8	88.7	91.2	91.4	90.3
15	88.7	88.7	87.7	90.3	90.6	89.7	91.9	92.1	91.2
18.5	89.3	89.3	88.6	90.9	91.2	90.4	92.4	92.6	91.7
22	89.9	89.9	89.2	91.3	91.6	90.9	92.7	93.0	92.2
30	90.7	90.7	90.2	92.0	92.3	91.7	93.3	93.6	92.9
37	91.2	91.2	90.8	92.5	92.7	92.2	93.7	93.9	93.3
45	91.7	91.7	91.4	92.9	93.1	92.7	94.0	94.2	93.7
55	92.1	92.1	91.9	93.2	93.5	93.1	94.3	94.6	94.1
75	92.7	92.7	92.6	93.8	94.0	93.7	94.7	95.0	94.6
90	93.0	93.0	92.9	94.1	94.2	94.0	95.0	95.2	94.9
110	93.3	93.3	93.3	94.3	94.5	94.3	95.2	95.4	95.1
132	93.5	93.5	93.5	94.6	94.7	94.6	95.4	95.6	95.4
160	93.8	93.8	93.8	94.8	94.9	94.8	95.6	95.8	95.6

Illustrative Example





Validation of Deemed Savings

EESL has conducted **pilot studies for 40 nos.** IE3 motors to understand the energy savings by replacing old motors (IE1 or below) in various industries





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TECHNICAL DETAILS



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Operating Model



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3 Years Warranty (EESL / Manufacturer Toll Free Customer Care)



Total Project Cost: Motor Cost + EESL PMC Fees + Financing Cost

Unique Features of NMRP



- Lower prices as compared to market retail price
- IE3 Motors of leading brands with extended 3 years warranty
- Entire investment to be made by EESL (under ESCO mode)
- Pre despatch inspection conducted by EESL for all orders
- Prices are F.O.R basis
- Hassle free repayment options
- Value addition support like M&V of motors on sample basis, technical training for maintenance teams

ESCO Mode - NMRP





Case Situation



S. No.	Output Power (kW)	Pole	IE1 Efficiency (%)	Loading (%)	Quantity (Nos.)	Avg. Annual Operating Hour	Annual Energy Consumption - Baseline (kWh)	IE3 Efficiency (%)	Annual Energy Consumption - Post Replacement (kWh)	Annual Energy Savings (kWh)
1	0.75	6	70.00%	80%	1	7000	6,000	78.09%	5,323	677
2	1.1	6	72.90%	80%	1	7000	8,450	81.00%	7,605	845
3	2.2	2	79.70%	80%	2	7000	30,916	85.90%	28,685	2,231
4	3.7	2	82.70%	80%	2	7000	50,109	87.80%	47,198	2,911
5	5.5	2	84.70%	80%	5	7000	1,81,818	89.20%	1,72,646	9,172
6	7.5	4	86.00%	80%	4	7000	1,95,349	90.40%	1,85,841	9,508
7	11	2	87.60%	80%	2	7000	1,40,639	91.20%	1,35,088	5,552
8	15	4	88.70%	80%	3	7000	2,84,104	92.10%	2,73,616	10,488
9	22	4	89.70%	80%	2	7000	4,11,123	93.00%	3,97,419	13,704
10	45	4	91.70%	80%	3	7000	5,49,618	94.20%	5,35,032	14,586
			TOTAL		25		18,58,127		17,88,452	69,675

Case Situation



			PMC MODEL	ESCO MODEL
S. No.	Particular(s)	Unit	Value	Value
1	Total Quantity of Motors across 10 ratings	Nos.	25	25
2	Estimated Annual Energy Savings	kWh	69,675	69,675
3	Grid Power Cost	INR	7	7
4	Annual Cost Savings	INR	4,87,725	4,87,725
5	Capital Cost of Motors	INR	7,72,171	7,72,171
6	EESL PMC	INR	77,217	77,217
7	Project Cost	INR	8,49,388	8,49,388
8	Finance Cost	INR	NIL	2,00,199
9	Estimated Total Project Cost	INR	8,49,388	10,49,587
10	Contract Period		NA	3
11	Annual Repayment to EESL	INR	NA	3,49,862
12	% Share of cost savings to EESL	%	NA	71.73
13	Quarterly Repayment to EESL	INR	NA	87,466
14	Payback Period	Years	1.78	-
15	Number of Quarters	No.	NA	12
		NOTE: GST applicable	e as extra	

Web Portal (www.motor.eeslindia.org)





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Home	About NMRP	Quick Start Guide +	Downloads -	Gallery	FAQs +	About EESL	Contact Us	
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tor (kW)*		RPM (Pole)*			M	ounting*		
elect Motor kW		✓ Select RPMLabel			× 1	Select		
me Size		Quantity*			Ar	Annual Operating Hours*		
iding %*		Electricity Tarif	f in Rs.*		No	of rewinding		
elect		~			0			

Motor Inventory Format

Existing installed motors details for replacement

Company Name	
Address	
Sector	
Year of Establishment	
Electricity Tariff Rate (Rs.)	
Contact Details	

Existing Motor Name Plate Details Annual Application Loading No. of times Quantity Year of Operating S.No. (Pumps/Compressors/Fans/Blowers) (Nos.) Motor Efficiency Mounting (%) Installation motor rewinded Rating Pole Frame size hours (kW / HP) (2,4,6) (%) (Foot/Flange) 1 2 3 4 5 6 7 8 9 10

Motors with following details only to be considered for replacement

3 Phase Squirrel Cage Induction Motors 415 V, 50 Hz, S1 Duty, IP 55



Program Engagement





FEW MAJOR CUSTOMERS









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Seshasayee Paper and Boards Limited













NMRP – Point of Contacts







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