ESCO: Making it Happen in Private Sector in India

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1. Background:
2. Market:
3. Opportunity & Barriers:
4. ESCO's Job - Continuous Barrier Removal
5. How/Solution: Long Term Holistic Approach
6. Example:

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1. Background:

- Market has tasted EE & RE in bits & pieces through:
  - Internal Resources (Plant Persons' initiatives)
  - EE & RE Equipment Suppliers
  - Implementation of measures as outcome of Energy Audits
- Market size is too big and heavily diversified
- Rising Energy Prices & Ever growing competition has constant pressure to reduce Production Cost
- Awareness drive & Platform creation is at its best

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2. Market:

- The market of energy conservation business in India offers big volumes (Rs. 74000 Crores): Project implementers, Equipment Manufacturers & Dealers, ESCOs **&** Energy Auditors
- Two types of ESCOs:
  - * Shared savings type, most incur financial investments (Govt. Sector)
  - * Performance guarantee type, do not incur financial investments but instead provides guaranteed savings (Private Sector)
- Private Sector - Not dearth of investments excluding a few (As these units have invested to set the plant, they can very well invest in energy conservation projects, provided they are willing, their banks are ready to finance them)
- So where is the bottleneck? – Plant owner/Management is not attracted enough to make the investment on EE/RE – Reason – Who will own the results, Who will deliver it, How Will it be delivered?

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3. Opportunity & Barriers:

- **In many cases nobody right from plant management, plant personnel, energy auditor as well as equipment supplier is ready to own/deliver the savings.**
- **Here lies very good opportunity for performance guarantee based ESCOs to cater to this unfulfilled demand of the industry.**
- **How to cater to these markets?**
- **What could be possible business models?**
- **How to complete supply chain of EE & RE delivery which needs to be served by ESCOs for long term profitability of its clients as well as themselves (ESCO)?**
- **How knowledge based software can provide a platform to ESCO to carry out its all operations including getting associated with clients, and all stakeholders so that delivery of energy cost reduction is achieved on a sustained basis so as to take care of long term interest of the ESCO, Client and other stakeholders?**

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4. ESCO's Job: Continuous Barrier Removal

1. Prepare Status Report (Get baselines, SEC, Eff.)

2. Find out most relevant EE & RE Measures along with cost-benefit analysis

3. Source proven implementers of Measures

4. Do not miss to place agreed M&V system

5. Prioritize Measures (No Cost, Low Cost, Medium Cost & Higher Cost)

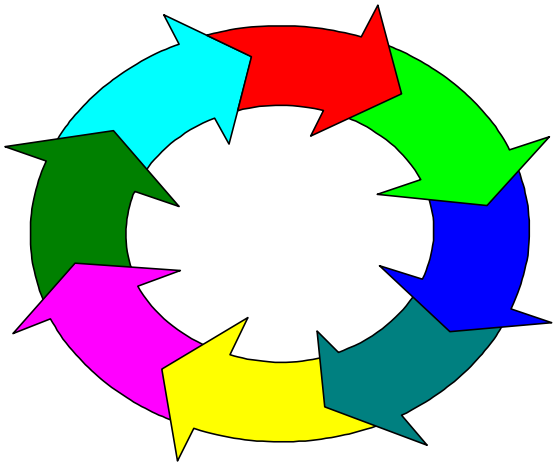
6. Start implementing No & Low Cost Measures: Establish the results

7. Get client's confidence & make Client ready to Invest

8. Take Projects one by one for implementation (Queue always starts with Smallest)

9. If required, arrange the finance (repayment < savings, Ensure Dep.)

10. Do not miss to deliver results through M&V, Client will ask you to go for bigger one



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5. How/Solution: Long Term Holistic Approach

Requirements:

- Detail information about your energy consumption and its cost
- Detail design and operating information of all electrical and thermal utilities
- Evaluation of present performance of utilities and all major equipments
- Enabling regular testing of energy performance at plant level
- Drawing energy picture (Visualization of section wise Energy Balance)
- More value added log sheets to analyze on-going efficiency, specific energy consumption, identification of loss points so as to take timely action

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5. How/Solution: Long Term Holistic Approach

Requirements:

- Customized Benchmarking: Setting up targets for achieving specific energy consumption (SEC) by comparing present SEC with benchmark SEC (Getting place Industry wise Best Practices)
- Identification of energy conservation measures & their potential
- List of approved suppliers & technology providers along with their proposals for identified measures
- An effective and tailor made Monitoring & Verification system for various energy conservation measures

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5. How/Solution: Long Term Holistic Approach

Areas:

Energy Monitoring: At Plant, Section & Equipment

More Productive Log-Sheets (Tailor made): Tri & Co-generation, Boilers, TFH, HWG, HAG, Electrical & Fuel Fired Furnaces, DG, TG, Capacitors, Compressors & Compressed Air System, Chillers, Refrigeration Systems & AHUs, Pumping System and all other utilities

Electrical: Tariff related all issues (PF, LF, MD, TOD & Others), Transformers, Motors, Air Compressors, Pumps, Refrigeration & Air Conditioning System, Cooling Towers, Lighting, Fans & Blowers

Thermal: Fuel Fired Furnaces, Boilers, TFH, HWG, HAG, Driers, Vapor Absorption Chillers

Tri & Co-generation Systems

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5. How/Solution: Long Term Holistic Approach

Why Knowledge Based Software:

- ✓ Readymade energy balance on click of button
- ✓ Effective tool to understand and monitor present energy bill
- ✓ Draw the energy picture of the plant
- ✓ Evaluate the performance of your utility equipments on daily basis
- ✓ Generate baseline specific energy consumption for your utilities
- ✓ Get targets for specific energy consumption for major energy consuming equipments
- ✓ Identification of energy conservation measures and technologies
- ✓ Get list of similar case studies of successful projects
- ✓ Generate approved list venders & technology providers along with their case studies
- ✓ Monitoring & Verification of energy savings for your projects

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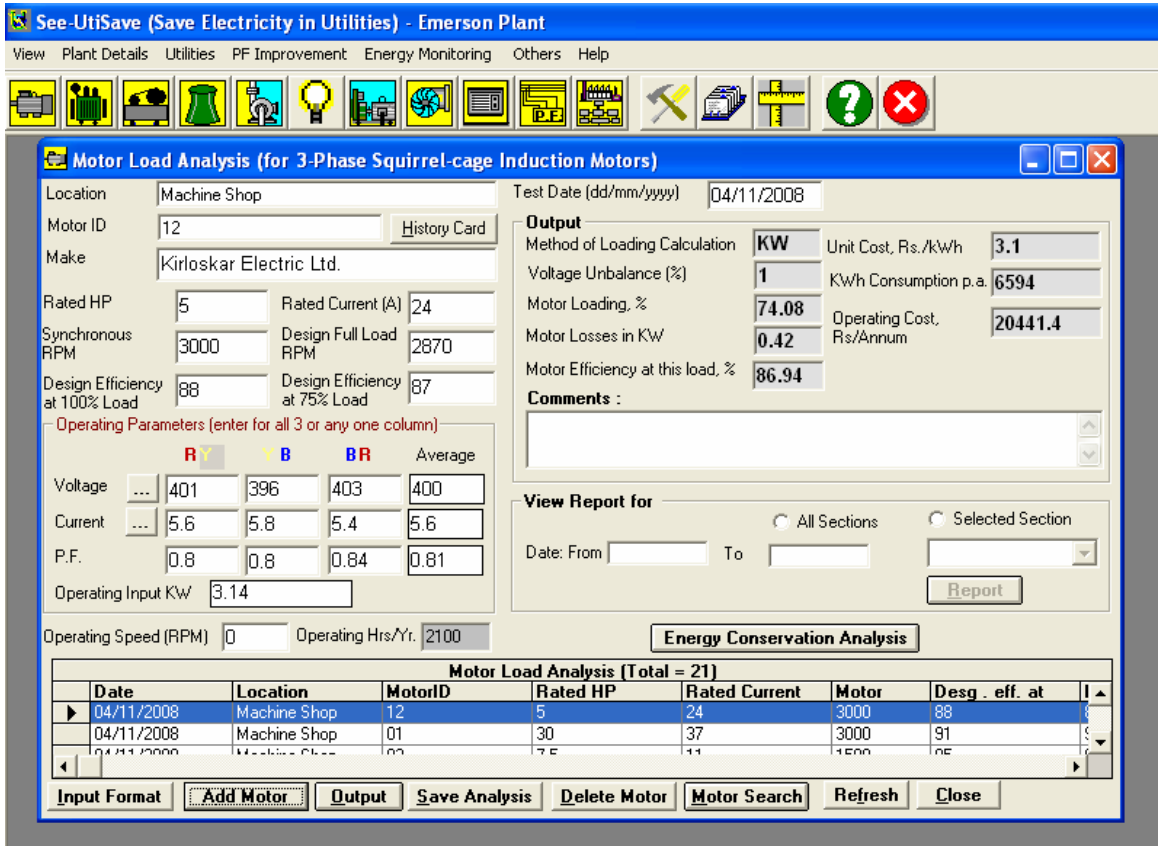
5. How/Solution: Long Term Holistic Approach



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Example:

*** To Carry out Energy Audit through Implementation of Knowledge based web enabled software: LetsConserve**

*** LetsConserve makes Energy consumption as well as its Cost Baseline at Plant Level, Section or Process Level as well as Equipment Level;**

*** It also gives achievable Benchmarks from various technologies and possible options thus one can select one. One can also get successful case studies for the technology under consideration;**

*** Chosen measure is implemented by the Agency by Client placing the Order on the Agency;**

*** Energy consumption after implementation is monitored in the same manner and savings are calculated. Client, ESCO as well as Bank can see the progress simultaneously.**

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Essence:

* There are 2 sources of revenue generation, one from proper operation and control of operating parameters and second from Capital investment. Both revenue (energy saving) streams are independent to each other.

* All parties Bank, Client & SEE-Tech are paid from savings.

* In Capital investment based savings, Energy Savings are distributed for 1. Loan Repayment 2. To Client 3. To SEE-Tech

* In Non - Capital investment based savings, Energy Savings are distributed for 1. Client 2. To SEE-Tech

* Cash flow is explained…

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		Data	Value	Reference
	Energy Bill, Rs/month	1,000,000		
	KWh/Month	222,222	4.5	Rs/KWh
	Avg. Load in KW	386	576	Hrs/Month
	CD, KVA	600		
4%	Savings by M&V through Lets Conserve	40,000		Rs/Month
6%	Savings by Capital Investment	60000		Rs/Month
10%	Total Savings	100,000		Rs/Month
	% Savings	10%		
	Investment, INR	802,500		
	Payback Period for Investment	13		Months

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End of Month	Savings by M&V through Lets Conserve (Non Cap Invest), INR in Thousand	Savings to ST, INR in Thousand	Savings to Client, INR in Thousand	Total Savings by Capital Investment by Client, INR in Thousand	Savings for Loan Repayment, INR in Thousand	Savings to Client, INR in Thousand	Savings to ST, INR in Thousand
1	0	0	0	0	0	0	0
2	40	20	20	0	0	0	0
3	40	20	20	15	7.5	3.75	3.75
4	40	20	20	30	15	7.5	7.5
5	40	20	20	60	30	15	15
6	40	20	20	60	30	15	15
7	40	20	20	60	30	15	15
8	40	20	20	60	30	15	15
9	40	20	20	60	30	15	15
10	40	20	20	60	30	15	15
11	40	20	20	60	30	15	15
12	40	20	20	60	30	15	15

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End of Month	Savings by M&V (Non Cap Invest)	Savings to ST	Shared Savings to Client	Total Savings by Capital Investment by Client	Savings for Loan Repayment	Savings to Client	Savings to ST
13	40	20	20	60	30	15	15
14	40	20	20	60	30	15	15
15	40	20	20	60	30	15	15
16	40	20	20	60	30	15	15
17	40	20	20	60	30	15	15
18	40	20	20	60	30	15	15
19	40	20	20	60	45	15	0
20	40	20	20	60	45	15	0
21	40	20	20	60	45	15	0
22	40	20	20	60	45	15	0
23	40	20	20	60	45	15	0
24	40	20	20	60	45	15	0
25	40	20	20	60	45	15	0
26	40	20	20	60	45	15	0
Total	1,000	500	500	1,365	802.5	341.25	221.25

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Period	**2 years, 2 months**	
Total Saving, INR	**2,365,000**	
Total Loan Re-payment to Bank, INR	**802,500**	**Per Month**
Net Earning to Client, INR	**841,250**	**35,052**
Payment to See Tech, INR	**721,250**	**30,052**

Thank You