

What Will You Get From Walk Through Audit ? A Way Forward to 20% Savings in Energy Cost



SEE- Tech Solutions Pvt. Ltd.

www.seetechsolutions.in

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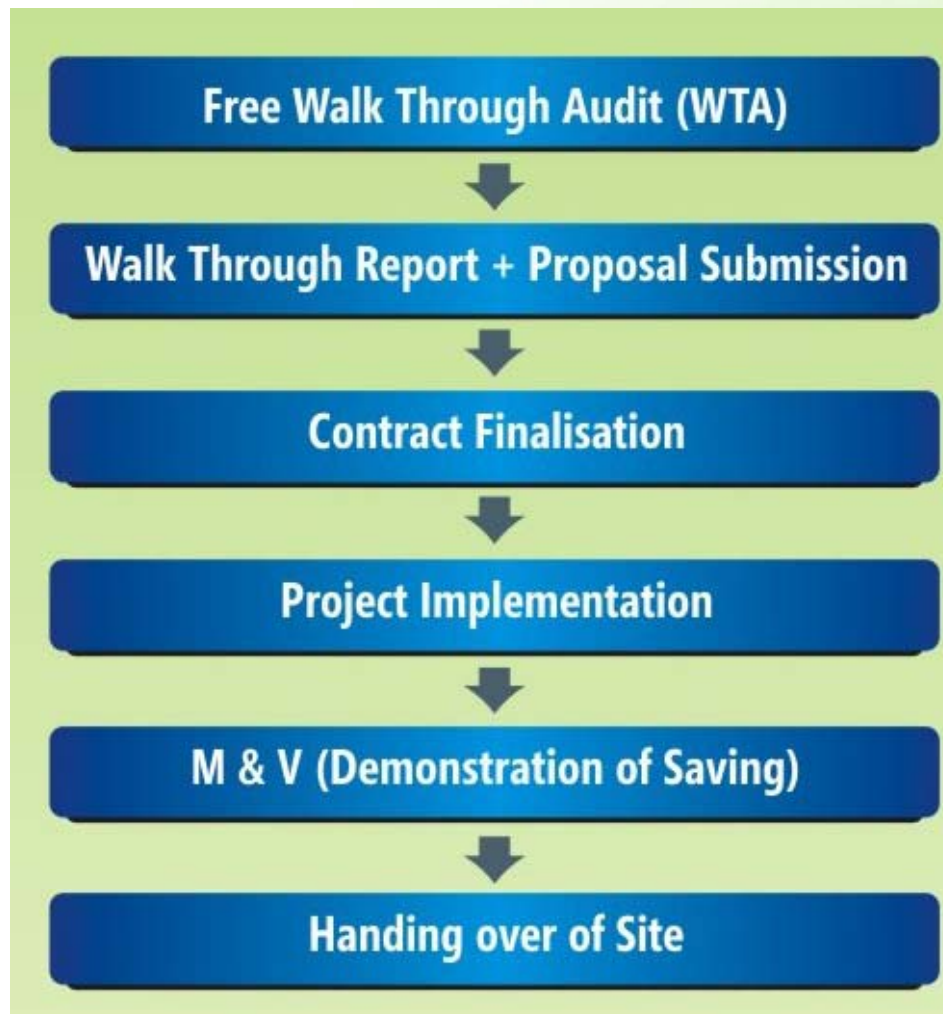


Energy Conservation- Need of the Ages:

- Globally, 42% of the electricity is consumed by Building Sector - way more than any other sector
- This can be justified with our day to day practice as we all spend our 90% of the time in building
- Unfortunately, in most of the buildings, energy consumption is accepted as a fixed cost that can not be controlled
- Despite having very advanced infrastructure, building EPI is on higher side
- Due to tariff hike, Energy Bills are escalating drastically
- Energy use can account for up to 40% of the total operating expenses

What Will You Get From Walk Through Audit? A Way Forward

Our Approach: As Described in Presentation



What Will You Get From Walk Through Audit? A Way Forward



WTA (Walkthrough Audit):

Objective:

1. Fastest way to identify measures leading to 20% energy saving.
2. Technically and Financial feasible measures with short payback period i.e. 18 to 24 months.
3. Understanding present energy scenario in building.

Approach:

Team of SEE-Tech will observe, analyze energy use in all electrical utilities and find out measures that will reduce energy cost.

Some of the measures which are widely in vogue are:

- Tariff related measures
- Air Conditioning system performance improvement
- Lighting
- Use of Voltage optimizer
- Building heat load reduction
- Others (Transformer, Pumps, Refrigerator, Lifts, Diesel Generator Sets etc.)
- After the study, report will be submitted with different practically feasible implementation models.

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Deliverables:

1. Study of 24 months energy consumption trend
2. Comparison of Energy Performance Index (EPI) with standard benchmark
3. Detail of Electricity connection
4. Energy cost analysis of last 24 months
5. Energy Balance
6. Energy conservation measures (ECM) with financially acceptable payback period
7. Effect of ECM on Net Cash Flow & Internal Rate of Return

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Our Offerings After WTA:

- After implementation, Comprehensive Maintenance for Energy conservation measures will be provided FREE of cost for first year.
- Free demonstration of project, and free Knowledge based software to monitor performance of electrical utilities.
- Electrical safety audit of the firm will be done at free of cost after Implementation work.
- In case of Less Guaranteed savings, Interest lost on delayed payback will be refundable.

What Will You Get From Walk Through Audit? A Way Forward



OUR IMPLEMENTED , TESTED AND PROVEN PROJECTS

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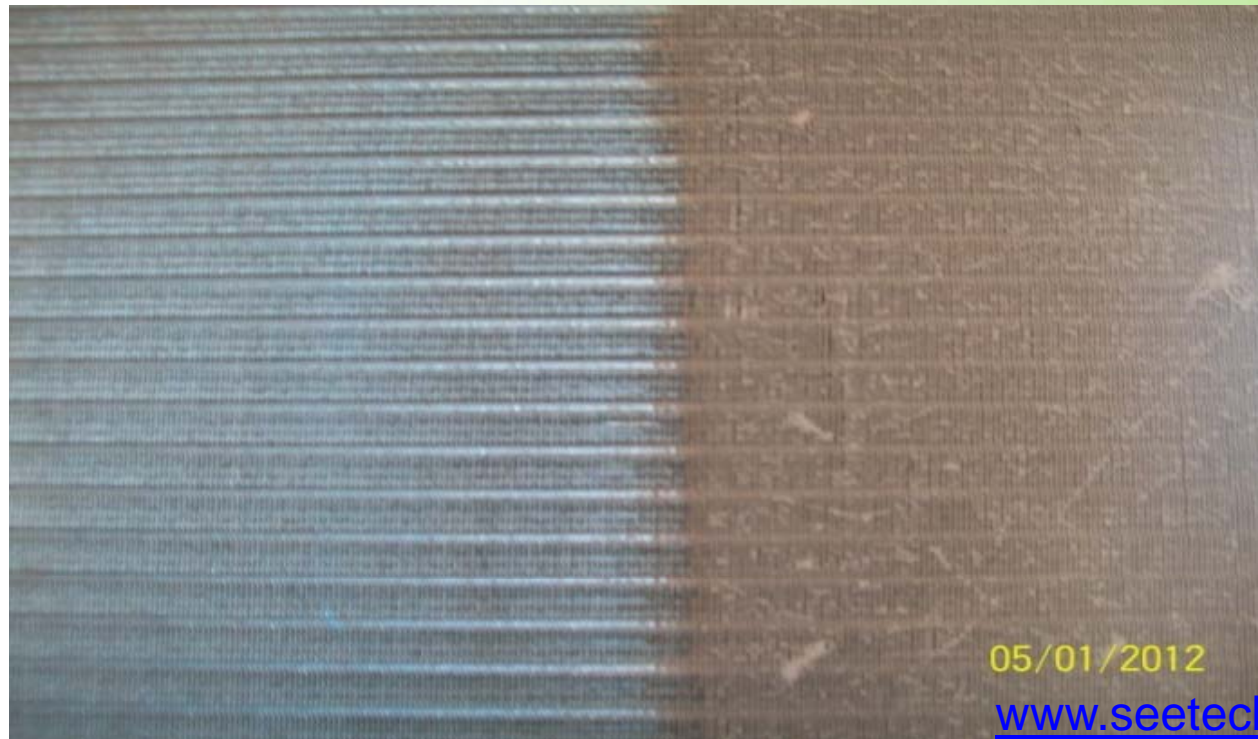


Tested by Our Regional
Energy Efficiency Centre

**Saving in Air Conditioning unit by
Improving heat transfer area of
Condenser (18% to 20%)**

After Project

Before Project



05/01/2012



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What Will You Get From Walk Through Audit? A Way Forward



Building Heat Load Reduction (Savings 6% to 8%)

Tested by Our REEC

Before: Temperature = 53 ⁰ C, Project on Roof Surface for Reduction of Heat Load	After: Temperature = 45 ⁰ C, Project on Roof Surface for Reduction of Heat Load
	

What Will You Get From Walk Through Audit? A Way Forward

**Saving in AC due to Energy Controlling Unit on
Window, Split & Package ACs (Savings 14% to 16%)**



Tested by Our REEC

**Window AC with AC Energy
Controlling Unit**



**Split AC with AC Energy
Controlling Unit**





What Will You Get From Walk Through Audit? A Way Forward



**Saving in AC due to Use of Evaporative Pad
on outdoor unit (Savings 10% to 12%)**

Tested by Our REEC



Reduction in Compressor Discharge Pressure	Evaporative Pads on AC outdoor unit (from back side)
 A photograph of a white AC outdoor unit mounted on a metal rack. The unit has a large circular fan grille on the left and a control panel on the right with three pressure gauges and red service valves. The brand name "TATA Product" is visible on the control panel.	 A photograph showing the back of an AC outdoor unit. A large, dark brown, rectangular evaporative pad is attached to the back. A green hose is connected to the pad, and a tray is visible at the bottom to catch any water.

What Will You Get From Walk Through Audit? A Way Forward



Common Fans Versus Energy Efficient Fans (Savings 15% to 18%)

Tested by Our REEC



Common Fan (70 to 80 W)	Energy Efficient Fans (48 to 53 W)
	

What Will You Get From Walk Through Audit? A Way Forward

**Common Lighting Versus Energy Efficient Lighting
(Savings 10% 15 %)**



Tested by Our REEC


Before: T12 Lights	After: Replaced with T5 + Reflector
 A photograph of a long, rectangular T12 fluorescent light fixture mounted on a white ceiling. The fixture has a metal grid cover and contains several long, thin fluorescent tubes.	 A photograph of a shorter, wider T5 fluorescent light fixture with a reflector, mounted on a white ceiling. The fixture has a metal grid cover and contains several shorter, wider fluorescent tubes.

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Energy Savings by Voltage Optimization on Lighting & Fan Load (Savings 10% to 16%)



Tested by Our REEC

Before: No project on Lighting or Fans	After: Voltage Optimization Project
<h1>X</h1>	 A photograph of an electrical control panel. At the top right, there is a digital display unit labeled "TAS - PTPL" with a small LCD screen and several blue buttons. Below it, there are two red emergency stop buttons labeled "SW-1" and "SW-2". To the left of the display, there are two indicator lights labeled "Bypass" and "Alarm". The panel is mounted on a wall.

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Tested by Our REEC

OUR RECENT ACHIEVEMENTS & CASE STUDIES IN MUMBAI

What Will You Get From Walk Through Audit? A Way Forward



Case 1: Quarterly Savings Achieved

Sr	Description	Site 1	Site 2
1	First Quarter (Jan 12 to Mar 12)	Rs. 14.78 lacs (8.63%)	Rs. 10.18 lacs (15.99%)
2	Second Quarter (Apr 12 to Jun 12)	Rs. 18.78 lacs (7.31%)	Rs. 7.36 lacs (8.69%)
3	Third Quarter (Jul 12 to Sept 12)	Rs. 34.41 lacs (10.91%)	Rs. 11.49 lacs (13.28%)
4	Fourth Quarter (Oct 12 to Dec 12)	Rs. 53.23 lacs (18.91%)	Rs. 8.46 lacs (9.93%)
	Total Savings	Rs. 121.2 lacs (11.44%)	Rs. 37.49 lacs (11.97%)

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Case 2... the way forward to min 20% savings

Sr. No.	Project Name	Annual Savings, kWh	Annual Savings, Rs	% Savings	Investment, Rs.	Payback Period, Months
1	Energy Saver cum Voltage Control	38,700	264,918	2.35%	210,000	9.51
2	Reduction in Building Heat Load (Envelope)	163,226	1,117,358	9.90%	500,000	5.37
3	Performance optimization of HVAC	160,036	1,095,518	9.71%	1,500,000	16.43
4	EE Lights	13,751	94,134	0.83%	116,600	14.86
5	Lighting Switches	6,673	45,680	0.40%	100,650	26.44
TOTAL		382,386	2,617,608	23.20%	2,427,250	11.13

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Case 3... the way forward to min 20% savings

Sr. No.	Project Name	Annual Savings, kWh	Annual Savings, Rs	% Savings	Investment, Rs.	Payback Period, Months
1	Power Factor Improvement	-	52,415	0.98%	30,000	6.87
2	Voltage Controller	15,957	108,467	2.03%	70,000	7.74
3	Reduction in Building Heat Load	68,869	468,128	8.78%	350,000	8.97
4	Performance optimization of HVAC	74,221	504,508	9.46%	702,000	16.70
5	EE Lightings	7,762	52,758	0.99%	60,000	13.65
6	Light Switches	1,995	13,567	0.25%	33,300	29.45
TOTAL		168,804	1,199,844	22.50%	1,245,300	12.45

What Will You Get From Walk Through Audit? A Way Forward



Finally This is What We Always Deliver:

**Minimum 20% Reduction in Energy
Cost**

What Will You Get From Walk Through Audit? A Way Forward

Our Regional Energy Efficiency Center: A One Stop Solution for Demonstration of Energy Conservation Measures

- For Development, Deployment & Promotion of Energy Conservation Technologies
- Demonstration of 150 Energy Conservation Projects in pipeline
- Supported by USAID under ECO-III project in 2009 to 2011 & now by WB/SIDBI Project
- Developed Knowledge based Software Solutions for electrical & thermal Energy Conservation (See-UtiSave & See-ThermiSave)
- Seeing is believing....



...On mission to reduce more than 20% energy cost for existing buildings