

USER GROUP - TIRUPUR (A MODEL TO CONSERVE ENERGY)

Presented By,
Conquest Quality Systems Services Ltd.




AGENDA

- ▶ **What is User Group (UG)?**
- ▶ **Focus of User Group**
- ▶ **Benefits and Improvement Opportunities**




USER GROUP ?

- ▶ With the growing concerns over the **environmental impact & foot prints** of the product among the consumers, The industries are forced to tune their process activities from **“more energy intense to lesser energy intense”**
 - ▶ User Group is a well known methodology adapted in The **Netherlands** to implement Energy Conservation in **Textile Industries** which gave a result of **about 8% energy consumption reduction at the nation wide.**
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USER GROUP ?

- ▶ In a user group, comparable industrial processes are optimised in different companies by means of adjustments that are initiated by the exchange of experiences and gaining knowledge.

USER GROUP ?

- ❖ The aim of the project is to implement the Energy management & Energy conservation opportunities available for the Textile chemical processing industries in & around Tirupur by adapting the User Group methodology.
 - ❖ The participating companies have the product ranges of fabric dyeing, yarn dyeing, mercerizing & printing.
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ENERGY MANAGEMENT IN TEXTILE PROCESSING INDUSTRY

THE DYNAMICS...

Voluntary participation

Ready To Learn

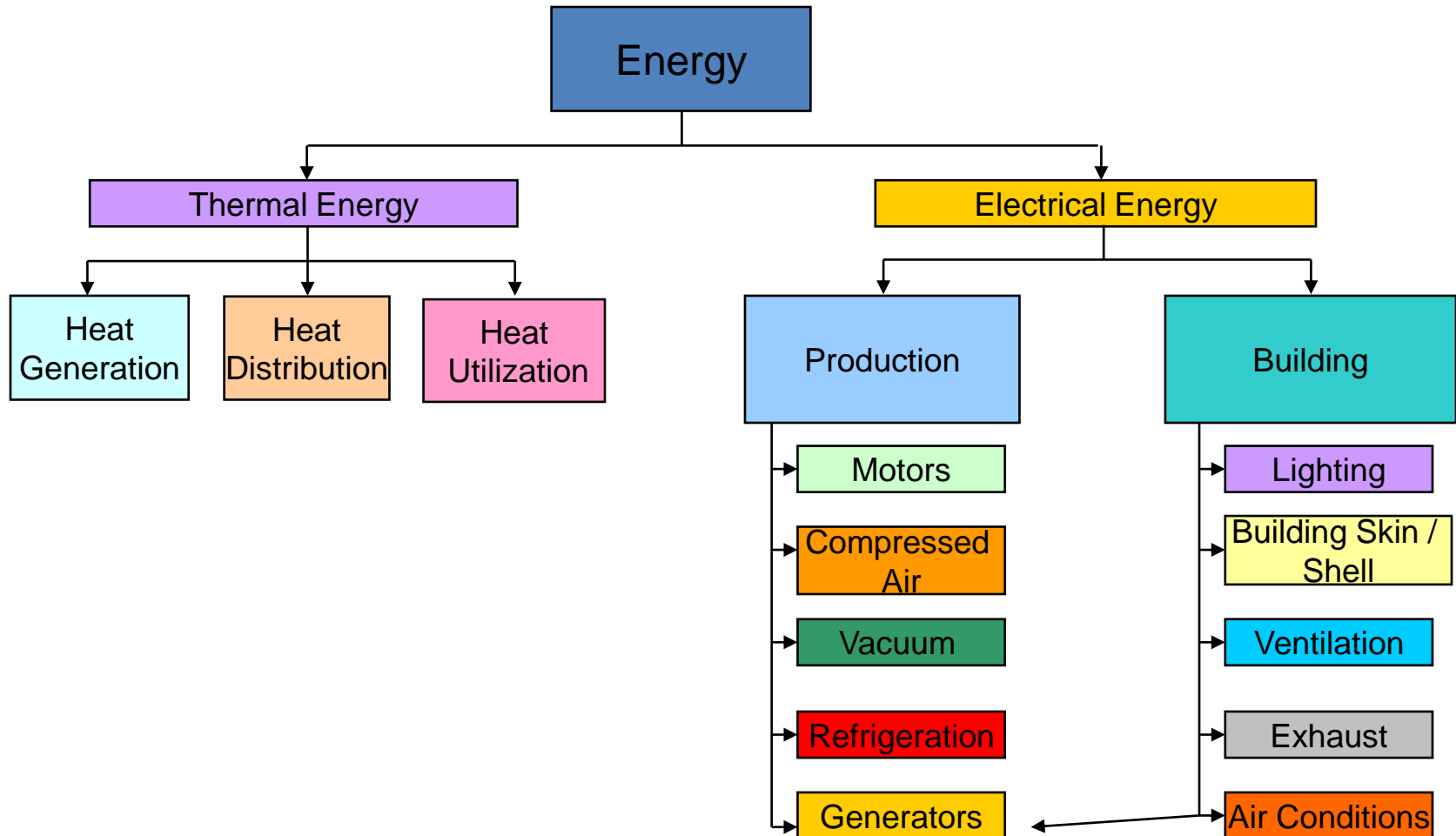
Open Discussions

Agree to Disagree

Exploratory

ENERGY MANAGEMENT IN TEXTILE PROCESSING INDUSTRY

THE FOCUS...



USER GROUP MEETINGS

- ▶ Three User Group Initiated
 1. User Group (UG) (Jul2008 – Feb 09)
 - Focus on thermal energy conservation.
 2. User Group Learning Together (UGLT) (May 2009 – Dec 09)
 - Focus area – Electrical energy Conservation
 3. User Group Steam (Sep 2009 –Feb 2010)
 - Focused on steam distribution systems energy conservation



USER GROUP

| User Group | No. of Participating Companies |
|--------------|--------------------------------|
| User Group 1 | 10 |
| User Group 2 | 16 |
| User Group 3 | 18 |

USER GROUP - PARTICIPANT COMPANIES

- ARORA FASHIONS LTD – TIRUPUR**
- COLORSBURG (SHAKTHI KNITTING LTD) – SIPCOT PERUNDURAI**
- EXIM KNITS PVT LTD – SIPCOT PERUNDURAI**
- POPPYS ARTWORK – TIRUPUR**
- PRECOT MERIDIAN LTD – TIRUPUR**
- PRINTEX INDIA – TIRUPUR**
- RENAISSANCE RTW ASIA (P) LTD DYEING UNIT – TIRUPUR**
- RBR GARMENTS (P) LTD (PROCESSING DIV) – TIRUPUR**
- SARNITA COMPACTING - TIRUPUR**
- SHRI BHAVANI TEXTILE PROCESSORS (P) LTD – GOBI**
- SP TEXTILE PROCESSORS PVT LTD – ERODE**
- TIP TOP PROCESSING - TIRUPUR**
- TRINIITY COLOUR INDIA PVT LTD – SIPCOT PERUNDURAI**
- VICTUS DYEINGS – TIRUPUR**
- WAGON WHEEL KNIT WORKS (PROCESSING DIV) – TIRUPUR**
- KTM PROCESSING DIVISION – TIRUPUR**
- MAHANTEX - TIRUPUR**
- NETWORK CLOTHING COMPANY PVT LTD – SIPCOT PERUNDURAI**
- TIPTOP PROCESSING - TIRUPUR**

FOCUS AREA

| User group | Focus topic |
|--------------|--|
| User Group 1 | Maintenance of Steam Traps |
| User Group 2 | Electrical Motor Management (Right sizing, Compensating and Replacing Rewound Motors) |
| User Group 3 | <ul style="list-style-type: none">➤ Insulation (feed water tanks, Steam Pipe lines, Condensate lines, Valves and Strainers),➤ Effectiveness of Insulation and➤ Maintenance of Steam Traps. |

APPROACH

THE BASIS...

**BESS = Benchmarking
and Energy
Management Schemes
in SME's**

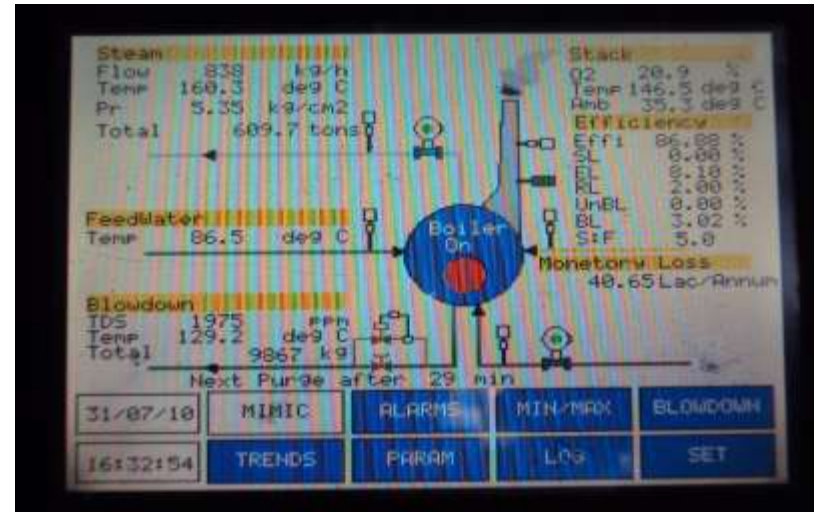
**Horizontal
Measure List**

www.bess-project.info/

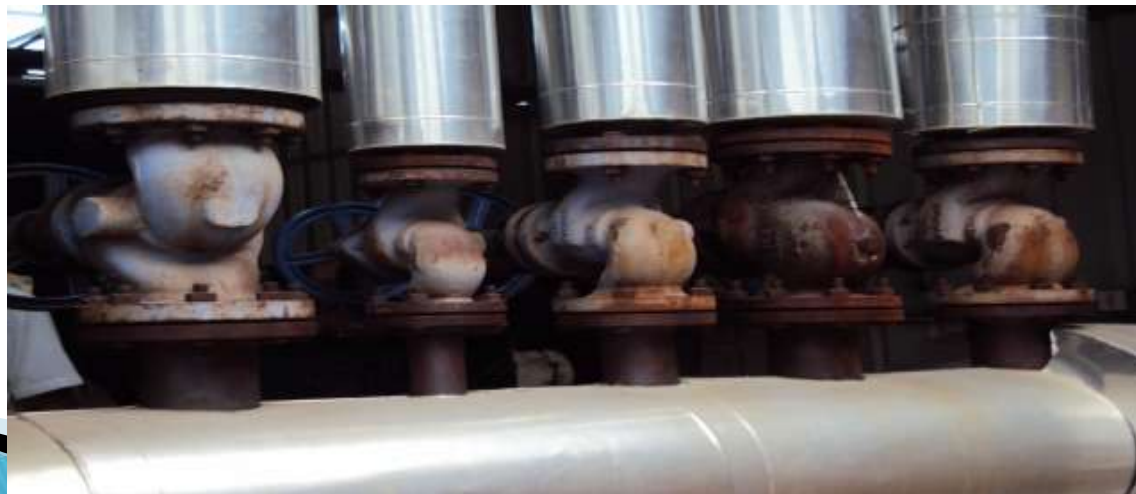


APPROACH

- ▶ High cost Long Term

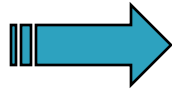
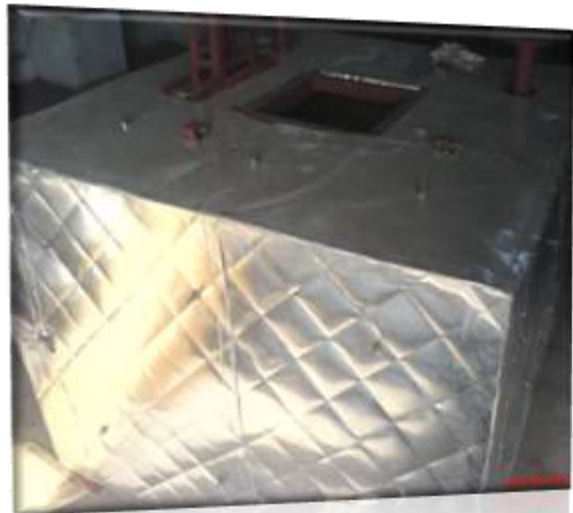
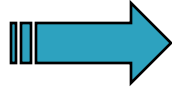


- ▶ Low cost Short Term



HIGHLIGHTS

| User Group Meetings | Highlights |
|---------------------|---|
| User group 1 | 28 – 30% of the traps found faulty |
| User Group 2 | 25 % of the motors rewound more than twice 28 % found to be not appropriately loaded 71% found to have scope for capacitor compensation |
| User Group 3 | Five energy saving opportunities observed in insulation and steam trap maintenance |



OUTCOME

| | |
|--------------|--|
| User Group 1 | 2000 tones Of Fuel /600 MTOE/1800 tones of CO2/INR 1 Crore |
| User Group 2 | 8,00,000 Units/70 MTOE/672 tones of CO2/INR 40 Lakhs |
| User Group 3 | 1500 Tones of Fuel/450 MTOE/1350 Tones of CO2/INR 70 Lakhs |

LEARNINGS FROM UG 1

- ▶ **Few interesting points in the UG 1**
 - From the discussion **1% of excess oxygen results 0.75% increase** in the fuel consumption at the same time **1 % decrease oxygen 2.75 % of excess fuel consumption.**
 - The best case of fuel consumption will be **1.57 Kg of fuel to process 1 Kg of fabric** the average consumption will be **2.75 Kg of fuel and worst case is up to 5 kg of fuel.**
 - **FD fans and ID fans could not be run both at the same time** , there by the run of the ID fans can be reduced.

LEARNINGS FROM UG 2

- ▶ **Few interesting discussion points in UGLT**
 - Running the motor at **optimum load** will give the **efficiency is about 70 – 80%**
 - By **downsizing one under loading motor about 10%** of energy conserved, **upgrading of the motor can conserve about 5%** of energy.
 - Motors equipped with **automatic star delta starter will saves about 10–15%**.
 - **Power factor improvement** can results in **20% of KVA reduction**.

LEARNINGS FROM UG 2

- ▶ In compressor and drives incorporating VFD results in reduction of 35% of energy.
- ▶ In DG sets air intake temp is 25C to 40 C air fuel ratio decreases by 5% results intake of the fuel is increased by 0.5% to 2%.
- ▶ Proper sizing of the DG sets directly reflect into efficiency of the system. Results 5% increase the fuel cost.

LEARNINGS FROM UG – 3

- ▶ Few important point in the meeting
 - The **velocity of the saturated steam** (which we normally use for the process) in the line has to be in the range of **25–30 m/sec.**
 - Insulation of the main steam line and the condensate line results more energy savings.
 - **Insulation effectiveness** to be monitored since **25 Deg. Temperature difference** for the loss of **340Kcal.m².hr.**



Solutions are within our Reach



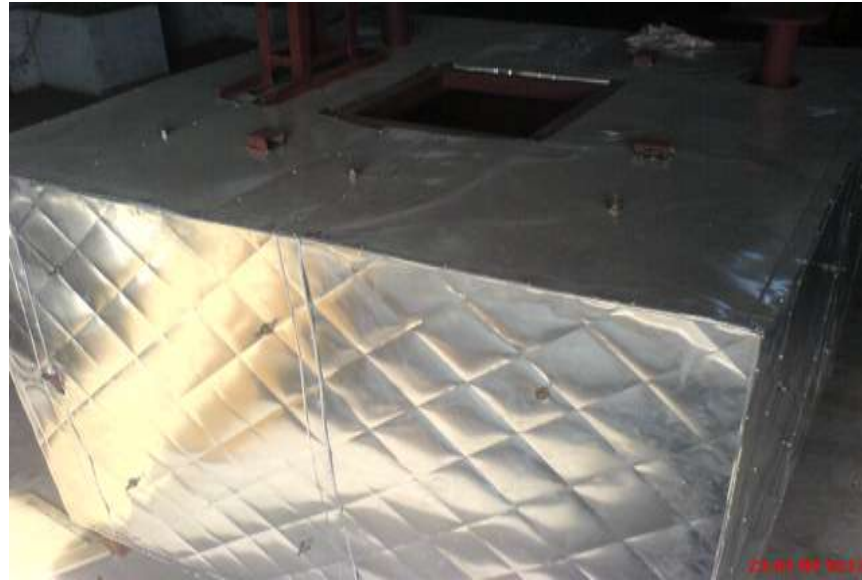
25 Hours of Being Together

Awareness can do Wonders



25 Hours of Being Together

Triggers Experimentation



25 Hours of Being Together

Benefits Can Multiply



25 Hours of Being Together

Fuel Savings leading to money savings,
Leading to...



25 Hours of Being Together

Reduction in CO₂ Emissions



25 Hours of Being Together

Still Lot More Opportunities To Conserve Energy



Thanks to PSTPA
(Perundurai SIPCOT Textile
Processors Association)

The User Group Journey
Continues



THANK U !!!

