Annexure-I

Energy Efficiency in Textile Sector
An Experience Sharing

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GOOD PRACTICES OVERVIEW

IN GENERAL:

- EC Act / Incentives / EA Capacity
- Energy Policy, ISO 14000, Transparency of EIS Data Sharing
- Norms / Research & Development By SITRA, ATIRA, BTRA, NITRA etc.

A. CURRENT DIRECTIONS:

- Use of High Speed , 1008 spindle R /F' s
- R/F Power Optimization Through Wharve Dia, Lift, Ring Dia, Ring Dia, VFD's etc.
- Old /Rewound/ Inefficient Motors Replacement
- Inverter drives on main motors
- Pneumafil fan upgrades for higher efficiency
- VFD Applications in Autoconer, AC Plants
- Use of FRP Blades, Soft Water Use

- Use of efficient Screw Compressors, transvector nozzles, use pressure optimization, Leakage Minimization
- Automatic PF Controls
- Automatic MD Controls
- Lighting Voltage Control, Electronic Ballasts, CFL's, LED devices
- High Efficiency Pumps
- WHR From GENSETS for Steam Generation, Chilling Needs

B. EXPERIENCES & IMPRESSIONS BASED ON AUDITS

- Managements are concerned, proactive and progressive despite competition

- Technologies , O & M practices are almost on par and comparable as per OEM specs

C. IDENTIFIED SAVING OPPORTUNITIES

- Waste Heat Recovery From GG Sets

(27-28% losses) for inlet air cooling, Steam Genn etc.

- Engine room Ventilation Improvements/ Tuning / APF Control , AMD Control
- VFD Applications in Ring Frames , Autoconers, A/C Plants
- Phasing out old motors on no load loss basis
- Ring frame power saving measures like spindle lift optimization, spindle tape improvements, alignment checks for eccentricity, IR scanning for hot spots, belt tensio adjustment/optimization.

C: IDENTIFIED SAVING OPPORTUNITIES

- Softwater Use for A/C Plants
- Use of instruments like load analyser for identifying old, High loss motors – anemometer for fan performance.
- Use of FRP Blades for AC Fans, Energy Efficient Pumps
- Lighting System Improvements
- Compressed Air System (screw compressors, Transvector Nozzles)
- Across Sector GG WHR, Motor System Efficiency, AC Plants felt to be a key result area
- Review of power sourcing arrangements (GG sets Vs low speed GG sets Vs Wapda Vs Multifuel sets Vs Gas Turbine sets, Heat Recovery Integration)

C: IDENTIFIED SAVING OPPORTUNITIES

- Adoption of absorption chillers for inlet air cooling
- Adoption of back pressure steam turbine/upgradation of waste heat boilers
- Adoption of combustion controls, oxygen trim systems in boilers and thermic fluid heaters
- Maximizing condensate recovery
- Adoption of RO plants
- Adoption of triple effect evaporators in CRU
- Water saving initiatives for waste water control
- Monitoring, MIS, cost center approach for specific steam consumption, specific power consumption, specific gas consumption
- Adoption of ENERGY POLICY by management

ENERGY EFFICIENCY STRATEGY

D. SUGGESTED APPROACH

Energy Audits are recommended in all units addressing specific areas like

- Power & Steam generation studies
- Motor Load surveys
- AC plant studies
- Audit of Utilities like compressed air
- Audit of process energy efficiency in ring spinning, weaving & processing departments
- Audit of water balance
- Lighting studies

D. SUGGESTED APPROACH

- All the Industries may procure the portable instruments like power analyser, anemometer, infrared gauges etc. for better in house energy management
- A bright motivated young team from NPO associated in these studies can continue to work, for industry, helped by instruments/further training
- Demo projects for replication, like Waste Heat Recovery, VFD's in AC Plants can be designed and taken up by NPO & partners institutions or as desired by industry
- Development of Projects of centralized combined cycle generation as against local generation for higher efficiency.
- Development of Projects for CDM
- Nurturing Industry-Academia Relation for capacity building & sponsored research

DESIRABLE INSTRUMENTS AT UNIT LEVEL

1. LOAD ANALYSER
2. ANEMOMETER
3. LUX METER
4. INFRA RED SCANNER
5. STROBOSCOPE
6. BELT TENSIO METER
7. DIGITAL HYGROMETER
8. FLUE GAS ANALYSER
9. PORTABLE PH METER
10. PORTABLE TDS ANALYSER
11. LUBE OIL TEST KIT FOR GENERATOR SETS
12. NON-CONTACT ULTRASONIC FLOW METER

THANK YOU