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**TECHNICAL PAPER FOR ISSUE # EE 06 FROM MR. P.P. DHAMANGAONKAR**

**My views on points raised in issue**

Point	Present Status	Corrective Action
Any meaningful impact of an energy manager in a firm depends heavily on his/her ability to organize energy data logging as well as data collection from various departments of the firm not to mention data analysis and aggregation.	Data logging & collection from various departments is available. Data is analysed and aggregated in isolation by energy managers.	<ul style="list-style-type: none"> <li>• Involvement of user department in collecting data.</li> <li>• Analysis of data with participation of user.</li> <li>• Aggregation of data not to only derive a statistical paper, presentation to top management, but to make an action plan for achieving energy saving in consultation with user.</li> </ul>
The energy manager is faced with not so trivial issues such as comprehensiveness of data as well as correctness of data.	Agree with the statement	<ul style="list-style-type: none"> <li>• Collected data must be compiled comprehensively so that corrective action can be planned easily.</li> </ul>
Validation is as well an issue.	Sometimes true	<ul style="list-style-type: none"> <li>• Energy manager/team to supervise the data collection system on shop floor at regular intervals and not to rely hundred percent on the data &amp; printouts submitted by user department.</li> </ul>
Even in so called ISO 900X certified companies, which are supposed to regularly calibrate and repair in line instrumentation, sometimes instrumentation is simply not working.	Sometimes true	<ul style="list-style-type: none"> <li>• ISO 900X, instrumentation calibration procedure to make provision of random calibration of key instruments, in addition to predetermined calibration schedules.</li> <li>• Weekly/fortnightly review of production Vs energy consumption is a must which will help to ensure all the established norms are followed.</li> </ul>

		<ul style="list-style-type: none"> <li>Standby calibrated instruments, sufficient spares for key energy instruments are must. We keep standard standby spares for all machinery, why energy manager should not keep standby instruments/spares for key instruments?</li> </ul>
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<p>A stunningly simple procedure to make departments accountable for energy consumption is to either internally charge departments for their energy consumption, or even assign consumption ceiling to individual equipment.</p>	<p>Energy Manager submits monthly energy report, which is reviewed. If energy norms are achieved, he is neglected but if energy consumption is higher than standards, he is questioned/blamed. But he is never asked; how he is going to achieve standard energy norms next month.</p>	<ul style="list-style-type: none"> <li>User Department should be made accountable for energy consumption. But the way in which only Energy Manager can't be blamed for higher energy consumption internally charging energy consumption or ceiling consumption will not solve problems. What is needed is Energy Managers continual interaction with user to :</li> <li>Keep user continuously informed about energy consumption.</li> <li>Help them solve their problems by prompt quick corrective actions.</li> <li>To help to design a system to match user's requirement.</li> <li>Continuous awareness programme with grass root users, who are actually operating the equipment.</li> </ul>
<p>There are advantages as well as disadvantages making a boiler, or the ceramic tile department, or a motor-fan arrangement into a profit or loss centre.</p>	<p>The concept of profit or loss centre is made in very few companies, also only energy consumption don't make any unit as profit or loss centre, other factors such as investment, depreciation, operating expenses contribute to decide profit or loss centre</p>	<ul style="list-style-type: none"> <li>Each department, which is providing service (in the case boiler, ceramic tile department or motor fan unit) must be given a chart of standard energy consumption at various output. This will make operator to operate the equipment at optimum energy consumption. Also standard for cut-off energy consumption for these departments must be decided and action plan to be made, if energy consumption is on</li> </ul>

**Management Scheme employed in our factory to improve energy accounting/consumption since 2000 is as below :**

- Energy cell was set up in factory.
- Engineers of user departments (production), utility, maintenance, instrument departments are the members of energy cell.
- Proper energy accounting/metering system is put at various locations.
- Proper energy consumption/ton of production is fixed up after studying all departments energy consumption for the year at the beginning of year. (A format of electrical energy accounting is as per Annexure I).
- Every 10 days energy consumption is reviewed with user.
- Based on present consumption and comparing with pre-determined standard, actions for next 10 days are taken.
- Monthly energy consumption report is prepared and submitted to top management.
- Action plan for next month is prepared before 5<sup>th</sup> of every month.
- Energy cell meeting is conducted once in a three months, under the chairmanship of Vice-President for review and action plan of energy cell.
- Energy awareness programmes, training programmes are done in different departments at regular intervals. (We don't follow energy day/week concept but encon energy conservation is a ongoing activity).
- All energy consumption figures are displayed on work place notice board every month, along with energy cost to make every operator energy cautious.
- In our company energy accounting system is not the only a function of energy department, but an action plan based on data is the real function..
- This system had helped us to improve our electrical energy consumption Fig /Ton as follows for our four products:

All figures in KWH/Ton

Product	2001-2002	2002-2003	2003-04 (4 months)
A	41	44	40
B	708	692	675
C	1167	1127	975
D	1560	1414	1550

- We also display savings in terms of money on all work place notice boards.
- We could achieve this only because of our top management's thrust not to save energy for making profits but to save energy for nation and future and continual interaction with energy cell.
- Also in our factory surprise energy audits are carried out to find out a mistake but to help user to achieve his target and keep all installed equipments/instruments in correct working condition.
- To conclude I write, unless energy data is collected properly, comprehended into action plan, action plan is implemented and reviewed at regular intervals with user in team merely collecting and comprehension data by energy department is not effective.