

STATISTICAL ENERGY CONSUMPTION DATA OF INDIAN FIRMS IN AUDITED ANNUAL REPORTS



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PRELUDE :

Energy Conservation statistics are a part of audited balance sheets of limited companies as per section 217 (1)(e) of Companies act 1956. As per this section, every balance sheet laid before a general body meeting , the **board of directors report** with regard to CONSERVATION OF ENERGY apart from other items shall be attached. This report generally provides measures taken by the company during the year towards energy conservation. The report also contains details of various forms of energy use and specific energy consumption in tabular form as an annexure with a comparison of current and previous years statistics. As this is a statutory requirement as per the laws of the land firms and companies religiously include this report.

How ever the provision often gets least attention from the directors or share holders of the company , as energy conservation is not viewed as a contributing factor for profits. Some well managed companies really take up some energy conservation measures and report the same under this provision. But there are majority of companies who would just provide some information (which is very insignificant and has no real impact on energy efficiency) as an unnecessary duty and a ritual, just because they have to provide it as per the rules. This conclusion I have arrived at, based on my review of a sizable number of annual reports of various industries in public sector as well as private sector.

Another important factor is the Annual report contains a Profit and loss account. Some companies show expenditure on power and fuel as a separate head under expenditures. (Ahmedabad electricity company, Rashtriya chemicals and fertilizers, Bharat petroleum corporation Ltd etc.) Yet there are some companies who show the power and fuel expenditure in separately under the head Other expenditure which will have a separate schedule elsewhere in the report.. There are many companies who do not show power and fuel expenditure anywhere in the report. The expenditure is simply shown as manufacturing or other expenditure. As there is no statutory requirement as on date in this regard, there is no uniformity or seriousness in providing this statistics.

The fact remains that unless top management attention and involvement is there , energy efficiency projects in the Indian industry would receive least response from the functional executives. Top management attitude, their interest for energy efficiency improvement are key ingredients for success of plans for Energy efficiency improvement projects. At present energy efficiency projects are viewed as any other project. The

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same would compete for funds with other projects and would get funding based on the returns and profitability, determined by IRR (internal rate of return). But then, if sufficient economic justification is there for these projects, no management worth the name can ignore these projects.

Hence along with economic justification, if statutory requirement is there to draw attention to Energy consumption, energy expenditure and efforts made to improve the energy efficiency, it would go a long way in institutionalizing Energy Efficiency in Indian Industry.

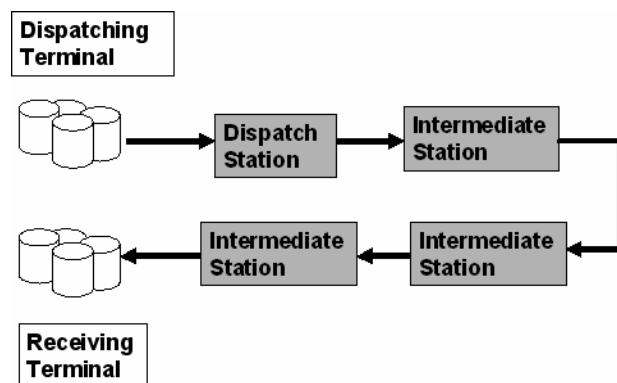
DISCUSSION :

I provide below a case study highlighting the factors favorable for marketing energy efficiency projects under the present situation (where there is only a minor statutory requirement for disclosure of Energy statistics)

While trying to market energy efficiency projects to our management, we have done some analysis of operating costs in petroleum distribution terminals and pipelines at one of the largest petroleum companies in India, it has been observed that 33% of operating cost of distribution terminals is for Energy (electrical power) and almost 40 to 50% of the operating cost for pipeline pumping stations is for power. It was found that there exists a potential to save up to 30% of energy in petroleum distribution terminals and 35% savings potential for pipeline operations based on the operational parameters of the centrifugal pumps used in the process. That translates to a potential reduction of 10% operating cost for petroleum terminals and 14% to 17.5% reduction in operating cost of pipeline stations. The company under reference has been implementing energy conservation projects aggressively based on the assessed potential to save energy and opportunity to reduce the operating costs. But the criteria for project approval was always based on project IRR.

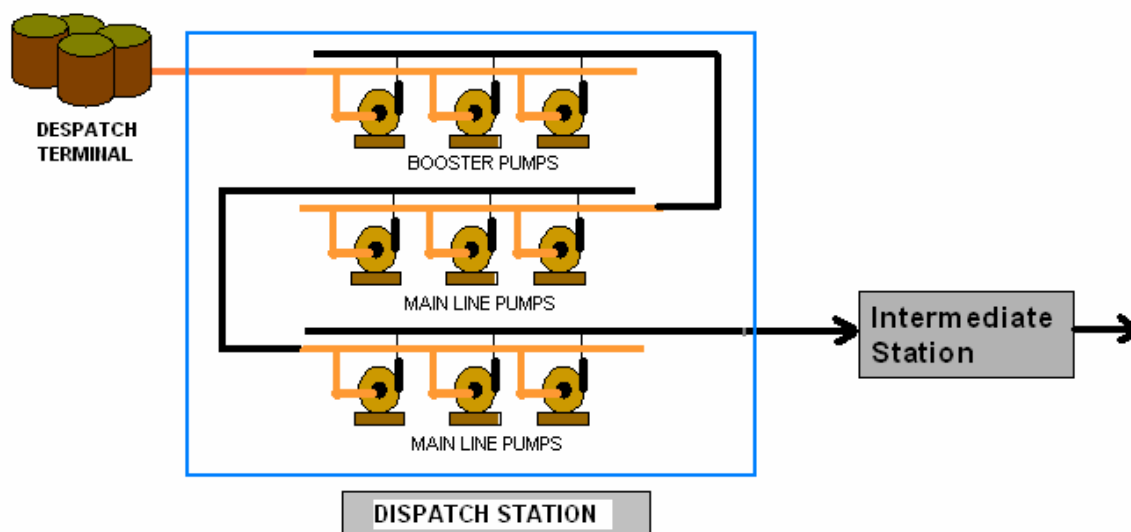
CASE STUDY :

Pipeline operation is most energy intensive. Almost 50% of the operating expenditure is for power. This is so because product transmission is achieved by means of centrifugal pumps driven by electric motors of very large size 500 KW to 3500 KW or more operating at 6.6 KV. Typical schematic for a pipeline is given below.



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Typical arrangement of a dispatch station is shown below :



Following is the typical annual revenue expenditure for a 700 KM cross country pipeline with a capacity of 5.77 MTPA through put, with One dispatch station and 3 intermediate pumping stations.

PIPELINE OPERATING COST / ANNUM

Item Description	Amount (Rs.)
POWER	81400000
MAINTENANCE & REPAIR	41500000
SECURITY	13300000
TRAVEL	2380000
CONTRACT LABOR	4140000
MAN POWER	30390956
OTHER EXPENDITURE	32455000
TOTAL	205565956
% EXPENDITURE FOR POWER	39.59%

Typical Profitability of the pipeline and the impact of Energy savings is provided below :

PROFITABILITY AND ENERGY EXPENDITURE (All figures in Rs. Crores except as noted)		
Item Description	ACTUAL EXPENDITURE	PROJECTED EXPENDITURE WITH ENERGY SAVINGS @ 30%
EARNINGS / Annum	157**	157**
Expenditure / Annum	20.55	17.701
Operating Profit	136.45	139.299
less Depreciation	30	30
PBIT	106.45	109.299
less TAX @ 36%	38.322	39.348

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PAT***	68.128	69.951
Add Depreciation	30	30
NET PROFIT	98.128	99.951
Energy as % of Net profit (%)	8.30	5.72
Energy As % of Expenditure (%)	39.61	29.89

** Earnings are based on 70% of rail freight and are only indicative.

*** Interest not considered

$$\begin{aligned} \text{\% Improvement in Net Profit} &= \frac{(99.951 - 98.128) \times 100}{98.128} = 1.86 \\ \text{due to 35\% energy savings} &= \end{aligned}$$

For the above project the revenue from operations was at Rs.157 Crores per annum and the operating expenditure was Rs.20.55 Crores. The actual energy cost was 39.6% of the total expenditure. Which translated in to 8.30% of the Net profit after Tax. It was found that the potential to save energy was 30% at the terminals and 35% at the pipelines. With the proposed energy saving project (presently under implementation) the company would expect an increase of 1.86% profits due to the reduction of Energy cost by 35%

CONCLUSIONS :

(a) The above operation in question is highly profitable and very energy intensive. But energy as a percentage of net profits is too meager to make an impact for marketing energy efficiency projects

(a) From the above analysis it is obvious that 1.86 % rise in net profit for the operation , may not appear to be lucrative enough for the management to pursue energy efficiency

projects. Because it will be argued that just by increasing the throughput / turn over by a certain percentage, the net profit also will increase in linear proportion. Where as 35% reduction in Energy cost has resulted in only 1.86% increment in net profit.

(b) The best way to market energy efficiency projects to the management was by IRR (internal rate of return) . The above project has shown an IRR of over 17%. The project has been approved and is under advanced stages of implementation.

(c) It is important that the top managements attention is drawn to the impact of Energy savings on the over all profitability of the operations, but it is also essential that the Energy efficiency project shall result in an acceptable IRR.

(d) Apart from profitability, if mandatory requirement of reporting energy related statistics is imposed, top management attention will be drawn automatically

ANSWER TO THE QUERY :

Following shall be made mandatory under the companies act :

(a) As all company's registered under the company's act are required publish audited annual reports , inclusion of Energy statistics in the reports would help in institutionalizing Energy Efficiency in the Industry / firm. Such inclusion shall be so designed to draw the attention of board of directors of the company.

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(b) The provision under the companies act section 217 (1) e for inclusion of Energy conservation measures under the board of directors report shall continue, but with a difference. The data and report provided shall be certified by an authorized Energy auditor (BEE certified) after due audit of the firm / industry. The report shall necessarily contain detailed energy consumption statistics and energy expenditure data. The energy expenditure data reported under this provision shall be carried to the Profit and loss account (P&L account) of the annual report.

(a) Provide ' **Expenditure on fuel and electricity** ' as a special head under expenditures in the Profit and Loss account (P&L statements) in the annual report. This will draw attention of the share holders

(b) Companies must be made to report the target reduction in **specific Energy** during the year, measures taken for the same and the actual achievement as a part of the Auditors Annual report. The details and data for such inclusion in the annual report must be certified by an authorized **Energy Auditor** (BEE- Certified). This will ensure that all companies will necessarily conduct Energy audit and identify / report energy savings religiously.

(c) It should be made mandatory for the companies to have an **Energy policy** and an **Energy committee** headed by the CEO which will go a long way in realizing the energy saving potential in the industry. Annual report of the energy committee shall be part of the Company's annual report as part of the board of directors report. This will ensure that the top management will necessarily get to know the energy activities undertaken in their company.

HYPOTHESIS -1:

I concur with this hypothesis. When profits erode, as a natural response companies look for ways and means to reduce expenditure. A careful analysis of expenditure will tell them that most expenses have either already been controlled or not controllable. If an energy auditor tells them that it is possible to reduce ENERGY expenditure with out affecting their normal production by making small improvements, they would most likely buy the idea. It is true that energy is a controllable expense.

HYPOTHESIS -2 :

I do not concur with this hypothesis. The investment potential for Energy saving projects do not depend on the profits. If there is awareness and will to improve the operations by Energy cost reduction, the company would find the investments. Otherwise even if the company were to be profitable and have money to invest they may invest in other projects which they consider important than investing in Energy conservation projects. Top management out look and attitude are the key elements for acceptance of Energy Efficiency projects.

HYPOTHESIS – 3:

I do not agree with this hypothesis. It is the attitude of the management and the initiative taken by the functional executives in a company that determines the need for energy cost reduction advise and not the profits they make. Example M/S Hindustan Petroleum Corporation Ltd. With over Rs.1900 Cr Net profits has been aggressively implementing Energy Savings projects though the impact of the projects on profitability may appear too meager. M/s Reliance Industries Ltd. is another example where energy savings is given a very high priority despite very huge net profits.