

SWEDISH SUCCESS STORY —

MANY A LESSONS TO BE LEARNT

Energy use of the Industry in Sweden has fallen considerably during the period 1970 - 1984. The use of oil has dropped from 71 TWh in 1970 to 19 TWh — a reduction of 60%. Electricity usage has increased from 32 TWh in 1970 to 44 TWh in 1984. There had been an increase in the use of Coal, forest residues and peat from 45 TWh to 58 TWh in the same period.

The total energy use during the period has dropped by approximately 11%.

RESTRUCTURING THE INDUSTRIES

Investigation as to how this happened was undertaken recently. The investigation revealed that the primary cause as the two oil crises in 1973/74 and 1979/80 and the restructuring which took place in the Industry.

“Restructuring has occurred both between and within sectors. The Iron and Steel industry, for example, has contracted, while the engineering industry has prospered. Within the sectors, restructuring has occurred through forward integration, towards a greater degree of processing and added value. Again, the Iron and Steel industry constitutes an example of this trend, as does the pulp and paper industry.

In general, restructuring has tended to be away from energy-intensive sectors and sub-sectors towards less energy-intensive ones.

To this must be added that fact that a large number of smaller manufacturing units have been closed down, with resulting benefits for larger and more modern units. Investment in more modern processes, too, together with a greater degree of mechanisation and automation, has made its mark on energy use, as has investment specifically aimed at reducing energy use.

In terms of the number of work places and of employees, there has been an across-the board contraction of the entire industrial sector. However, in terms of production, there has been an overall increase, averaging 1.3% per year.”

“The report also analyses further, the two major industries, viz., the Pulp and Paper Industry and Steel Industry. Referring to the pulp industry, the report states, “the industry has undergone a considerable degree of forward integration, in that pulp production at many sites has been complemented by down stream paper manufacture. A large number of older manufacturing units, especially sulphite mills, have been closed, while massive investments have been made in new mills and new processes. The reasons for greater use of electrical energy is due to increase production

of thermo-mechanical pulp, and increased automation. Conservation measures and conversion to other energy sources were the main contributors to the change after 1979.”

THE STEEL INDUSTRY

About the Steel Industry the report states “Production development has also played an important part, primarily in the change from ingot casting to continuous casting in steel mills. Investments in improved process control and more efficient furnaces have also made important contribution to the total reduction in energy demand although there has been a resulting increase in consumption of Electrical Energy.”

THE GENERAL TREND

The report commenting on the general trend. “In general new processes and new technology always result in more efficient use of energy. **This means that much of investment within practically all sectors of Industry has resulted in more efficient use of energy, even though this may not always have been the primary objective. However, the introduction of modern technology has nearly always resulted in greater use of electrical energy.** This then raises the question as to whether investments made purely with the objective of conserving energy have played any part. **It is quite clear that investments made with an eye on oil consumption have changed the pattern of energy use. This change has been partly, but far from entirely, to the benefit of other energy sources. Energy has therefore been saved, although the underlying objective may have been to switch to cheaper source of energy.**”

Throughout the period, investments in energy conservation measures have been subject to the same financial return criteria as all other investments.

The most common energy conservation measures have been various forms of heat recovery, improved control processes, speed control of electric motors, installation of more efficient electric and solid fuel boilers and insulation and draught proofing buildings.

Considering the overall reduction in energy use between 1970 and 1984, there has been an accumulated cost reduction of SEK 19.6×10^3 Million (expressed in 1984 price level) for the Swedish Industry. **The cost reduction largely covers the estimated value of the investments made to reduce energy used.**

(Acknowledgement Energy Technology
— Staff Reporter)