

## Successful Implementation – Energy Conservation Measure

<b>Measure</b>
Use of " <u>VARIABLE SPEED DRIVE</u> " in centrifugal pump (oil handling pump) at Oil handling terminal of Indian Oil Corporation Ltd, Kanpur, UP
<b>Equipment</b>
Centrifugal pump of oil handling
<b>Industry / Sector</b>
Oil Sector (IOCL, Kanpur)
<b>Year of Implementation</b>
Since I was on deputation to PCRA from 1997 to April 2002, it was during that period i.e. around 1999. (The study was conducted by me)
<b>Cost Benefit Analysis</b>
<ul style="list-style-type: none"> <li>□ The power consumption from 20 kW dropped to 4.5 kW (approx). The cost of VSD for 30 HP drive was around Rs 2.5 lacs and the payback period was less than 2 years.</li> </ul>
<b>Implementation Highlights</b>
<ul style="list-style-type: none"> <li>▪ To my knowledge, after its implementation the management of IOCL decided to implement it in other oil handling terminals also.</li> </ul>

### Summary

By installation of VSD in centrifugal pump (oil handling application with variable requirement of flow), the power consumption from 20 kW dropped down to 4.5 kW (approx).

**Background**

In IOCL oil handling terminal at Kanpur and at other oil handling terminals, oil from the storage tank is pumped to the tankers. These tankers goes on varying in numbers and the output of the pump is controlled by opening the recirculation valve which feeds back some of the oil back to the storage tank and in this process, power consumption remains same irrespective of the number of tankers i.e. truck and lot of power is wastes. This process is known as recirculation method. the capacity of the motor connected with pump was 26 kW.

**Principle**

In case of centrifugal pump, the power consumption varies as the cube of speed of the pump. Hence a slight reduction in speed substantial power is saved.

**Details of techno-econmics:**

Power consumption from 20 kW dropped to 4.5 kW, after installation of VSD. Which was measured by M/S Allen Bradley (the VSD manufacturer).

**Implementa  
tion issues**

Whenever there is variable kind of flow in centrifugal pumps, VSD can definitely give lot of savings with a pay back period of about 2 years.

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