**Sector Highlights**

Cold Storages in Nepal are mainly used to store agriculture products after harvest at appropriate cold temperature. They basically store food products such as potatoes, fruits, spices, etc. In some cases cold storages are also used to store meat products. About 10% of them also produced ice blocks as secondary product. According to the Association of Cold Storage of Nepal, about 35 cold storages are running in Nepal, among which 23 are the members of the association. The average size of the cold storages of Nepal is 3,000 metric tones. The average annual storage is 1,506 metric tonnes. Government of Nepal has a provision of 50% subsidy in the electricity bill to the cold storage.

**Energy Saving Potential**

Electricity is the only form of energy used by the cold storages in Nepal. During load shedding there is a provision of supplementary supply from Diesel Generators. Generally cold storages consume electrical energy for its cooling process. In particular, its energy consuming areas are electrical distribution, transformer & power systems; electrical drives, diesel generating sets, refrigeration system, pumps & air handling units, compressors and lighting.

The energy cost on product value is 38% for the cold storages. Energy saving potential for electrical energy is estimated to be 20% for the cold storages in Nepal.

<table>
<thead>
<tr>
<th>Type</th>
<th>Electrical (weighted average)</th>
<th>Thermal (weighted average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold storage (general)</td>
<td>283.53 KWh/MT</td>
<td>NA*</td>
</tr>
</tbody>
</table>

*Not applicable

Table 1: Specific energy consumption in Nepalese Cold Storage Sector (GIZ/NEEP, 2012)

**Nepal Cold Storages by numbers**

- 35 cold storages in operation*
- 3,000 metric tons average size*
- 1,506 metric tons average annual storage*
- 38% - energy cost

**Saving potential - annual**

- 1,838 MWh of electrical energy
- NPR 13,191,797 from cold storages
- 162 kg of CO₂ emission

*Status 2010/11

Figure 1: Sources of electrical energy use in cold storage (GIZ/NEEP, 2012)

Figure 2: Monetary saving potential in Nepalese Cold Storage Sector (GIZ/NEEP, 2012)
Experiences from the past have identified many options for improving energy efficiency in the cold storage sector that are highly profitable with the payback period of less than 2 years.

<table>
<thead>
<tr>
<th>Option</th>
<th>Estimated Payback Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical load management to attain benefit of differential tariff.</td>
<td>immediate</td>
</tr>
<tr>
<td>Improvement in insulation of the cold piping.</td>
<td>0.25 yrs</td>
</tr>
<tr>
<td>Improving the Coefficient of Performance (COP) of the Cooling System</td>
<td>1 yrs</td>
</tr>
<tr>
<td>Improvement of power factor by installing capacitor banks.</td>
<td>1.5 yrs</td>
</tr>
<tr>
<td>Improvement of insulation of side walls and ceilings of cold rooms.</td>
<td>2 yrs</td>
</tr>
</tbody>
</table>

Table 2: Energy saving option and payback period of investment for cold storage sector (Danida/ESPS, 2005)

Energy Saving Tips

Contact details

If you are interested to know more about energy efficiency, please, do not hesitate to contact us!

- If you are a business man
  get information about energy saving opportunities in your company and get an energy audit done by our professional expert team

- If you are an engineer
  explore the articles in our energy efficiency knowledge website and participate in our training programs

- If you are a banker...
  participate in our awareness raising seminars and explore the new market of energy efficiency investment.

- If you are an energy auditor...
  register in our database of energy efficiency professionals and be listed on our webpage.

- If you are a supplier for energy-efficient technology
  register in our online B2B portal and list your products and services.

\(^2\) Danida/ESPS, 2005: Cleaner Production report of cold storage sector.