

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 tonnes. 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

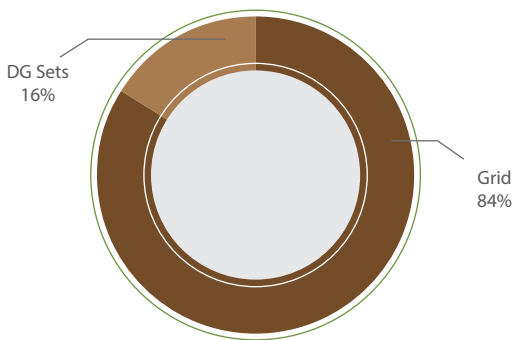


Figure 1: Sources of electrical energy use in cold storage (GIZ/NEEP, 2012¹)

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.

Type	Electrical (weighted average)	Thermal (weighted average)
Cold storage (general)	283.53 KWh/MT	NA*

*Not applicable

Table 1: Specific energy consumption in Nepalese Cold Storage Sector (GIZ/NEEP, 2012¹)

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 2: Monetary saving potential in Nepalese Cold Storage Sector (GIZ/NEEP, 2012¹)

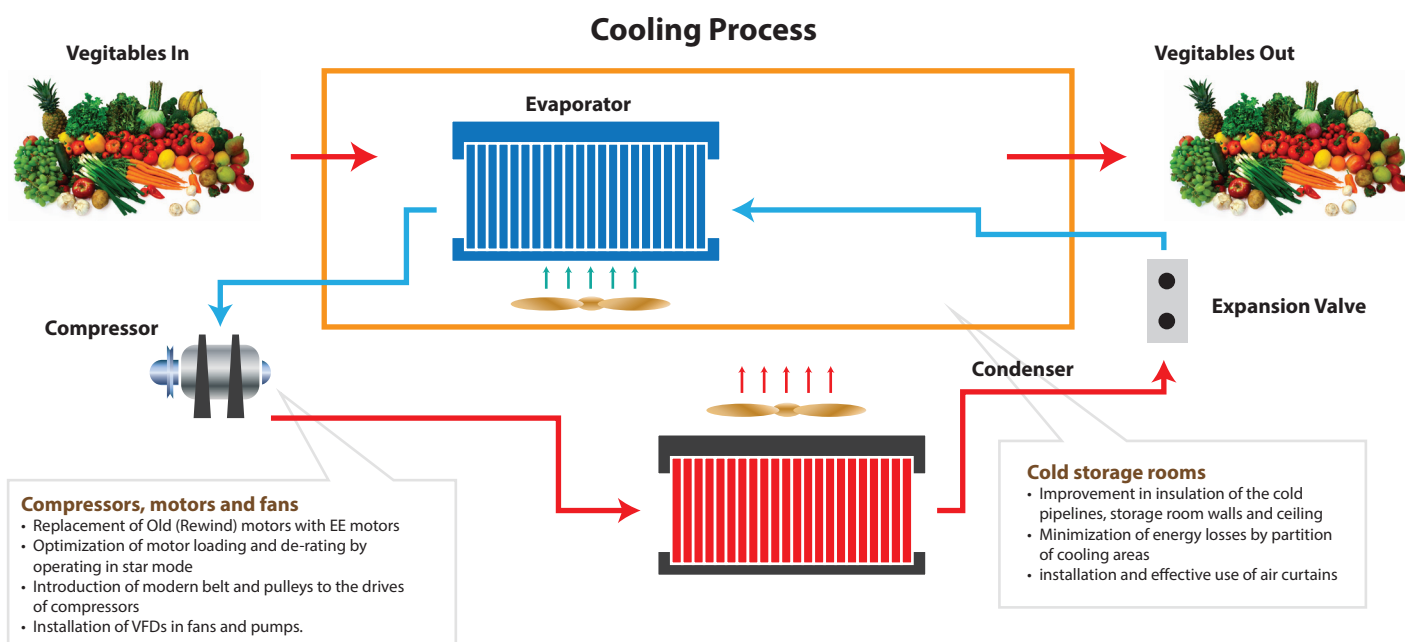
¹ GIZ/NEEP, 2012: Baseline study of selected sector Industries.

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.

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

Table 2: EEnergy saving option and payback period of investment for cold storage sector (Danida/ESPS, 2005²)

Energy Saving Tips



General measures

- Power factor improvement/optimization by installation of capacitor banks
- Regular cleaning and maintenance of condenser
- Use of energy efficient lamps
- Minimization of leakages of compressed ammonia gas
- Regular cleaning of cooling tower to prevent algae formation.
- Replacement of old traditional refrigerator system with efficient direct drive compressors and inverter based refrigeration system.
- Preventive/ Scheduled Maintenance of the Plant and Machinery
- Installation of de-icing system in evaporators.

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.



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² Danida/ESPS, 2005: Cleaner Production report of cold storage sector.