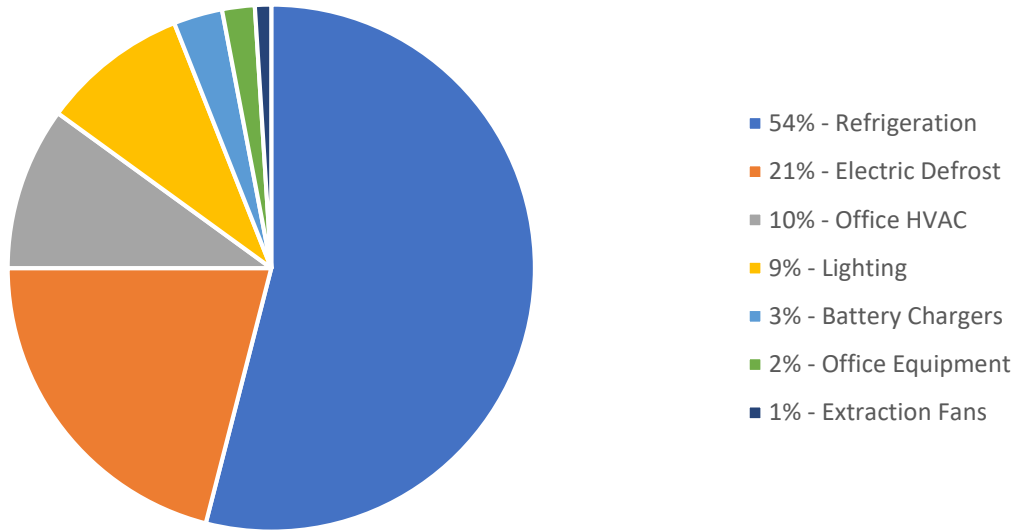


COLD STORAGE ENERGY USAGE

ENERGY USAGE PROFILE FOR TYPICAL COLD STORE FACILITY



cost of electric defrost

- 21% of total energy costs
- Some of this heat is dumped into the conditioned space,
- Any way to make this more efficient can have a profound payback

AVERAGE COST SAVINGS

Defrost Heater	Standard Operation	With Defrost Duct
Heater Watts per Evaporator	10 950	10 950
Defrosts per day	4	4
Length of defrost - minutes	30	15
kWh per day	21.90	10.95
Price per kWh	R0.80	R0.80
Price per day per evaporator	R17.52	R8.76
No of Evaporators	2	2
Total Cost per day	R35.04	R17.52
Defrost Heater cost per year	R12 789.60	R6 394.80
Recovery Factor	30%	15%
Defrost recovery Energy cost	R3 836.88	R959.22
Defrost Cost Per Year	R16 626.48	R7 354.02
Annual Energy Cost Savings		R9 272.46
Estimated Installed Cost		R2 000.00
Payback Period (MONTHS)		2.6

Demonstration

For a typical medium storage facility - 2 - units 46K BTU cooling each
 Electric defrost heater using ~11KW
 Assumed cost of Power: **R 0.80** per kWh with a **50%** reduction in defrost time

Things to point out:

- Length of defrost cut to: 15 minutes from 30 min,,4 x a day
- Only 1 hour of defrost time, which means 23 hours of cooling
- Recovery Factor: cool the coils back down and recover the heat, Typically 30%
- Half can be eliminated, fan outlets are covered, but air intake remains open

Results: **56%** reduction in defrost costs per year. **R9 272.46**