



Ove Summary of results: Storage and Cooling chambers(cameras)
Lattia!, Rancho Kankabchen
November 2006

GRUPO ENERGETICO MEXICANO

Attention: Ing. Alberto Barbosa, Service chief, Bepensa Industrial, Mérida, Yucatán, México.

- 1) **OBJECTIVE.**- Determine the Energy savings reached by the refrigeration units after being treated by Grupo Energético Mexicano using the measurement methodology according to the ASHRAE Standard 37-1988 norms.
- 2) **SETTING.**- 2 FRIGUS devices in good conditions, feeding a storage Camera, which presented the following values before being treated:

Results Table "PRE"

Maximum Temperature 9.806 °C, Registered at 7:54 AM on 12/09/2006

Minimum Temperature -2.595°C Registered at 1:22AM on 13/09/2006

Average Temperature 2.961 °C (Results measured from the 11th to the 13th of Sept. of 2006).

Daily Energy Consumption: 126.46 KWH (Results measured from the 11th to the 13th of Sept. of 2006).

- 3) **DEVELOPMENT OF THE TEST.**- Devices to measure Energy were installed in the unit and in the maintenance camera from the 11th to the 13th of Sept. of 2006. We have called this results "PRE"
By the end of this phase, 2 oz. of MAXR were installed to each unit. After 50 days, measures were repeated, installing the devices during the same time and days, to have equal operation circumstances. These measures were called "POST".
- 4) **RESULTS / CONCLUSIONS.**-
 - A Decrease in the consumption of kwh of **49.82%** (126.46 pre V.S. 63.46 post).
 - **The real annual savings of the Camera from NOV 06 will be of \$21,102.84 without considering the monthly increase (4%) in electricity tariffs.**
 - The Camera's temperature had positive variations:
 - Its new average temperature is **-1.877°C**, 4.83°C less than in the "Pre" period.
 - The minimum temperature reached in the "Post" period was **-8.940 °C**, 6.34°C lower than the minimum temperature registered in the "Pre" period.

Results Table "POST"

Maximum Temperature 9.060 °C, Registered at 7:54 AM on 12/09/2006
Minimum Temperature -8.940°C Registered at 1:22AM on 13/09/2006
Average Temperature -1.877 °C (Results measured from the 11th to the 13th of Sept. of 2006).
Daily Energy Consumption: 63.46 KWH (Results measured from the 11th to the 13th of Sept. of 2006).

After the explanation of our products and the obtainment of results, we can say that the savings on Lattia's devices will help the company to:

- 1) Save \$21,102.84 pesos in one year, due to the energy savings in the devices of the storage Camera.
- 2) The unit generates better temperatures, with less effort and lower cost.
- 3) An important increase in the useful life of the units.
- 4) In case of investing in this application (proposed by Grupo Energético Mexicano) the pay-back will be in 1.26 months. (\$1,758.03 savings against \$2,200.00 investment).

We can conclude that the project's objective of saving energy has been accomplished.

5) GRAPHICS AND ANNEXES

Consumption and Cost Table, based on November's tariff (CFE)

CONSUMPTION			COST			
ENERGY	DEMAND	ENERGY	DEMAND	TOTAL	Cost/ day	
BEFORE MAXR	3,763.86	11.00	\$3,346.07	\$1,421.75	\$4,767.82	\$158.93
POST MAXR	1,903.90	11.00	\$1,692.57	\$1,421.75	\$3,114.32	\$103.81
SAVINGS					\$ 1,653.50	

SAVINGS	\$ 1,653.50
IVA	\$ 248.02
SUBTOTAL	\$ 1,901.52
DAP	\$ 95.08
TOTAL	\$ 1,996.60

SAVINGS WITHOUT IVA \$1,758.57

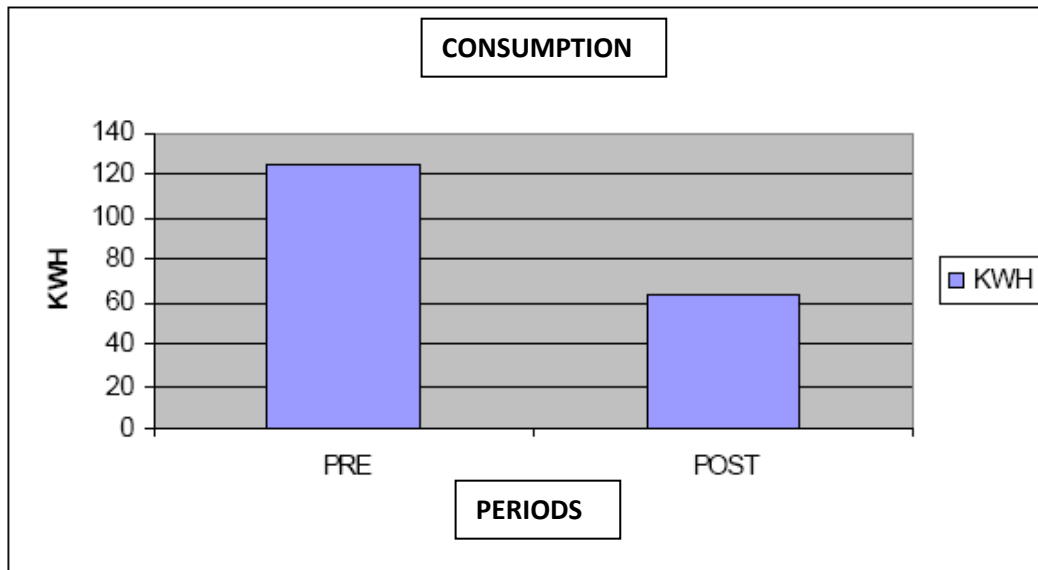
INVESTMENT
TRS

\$2,200.00
1.26 MONTHS

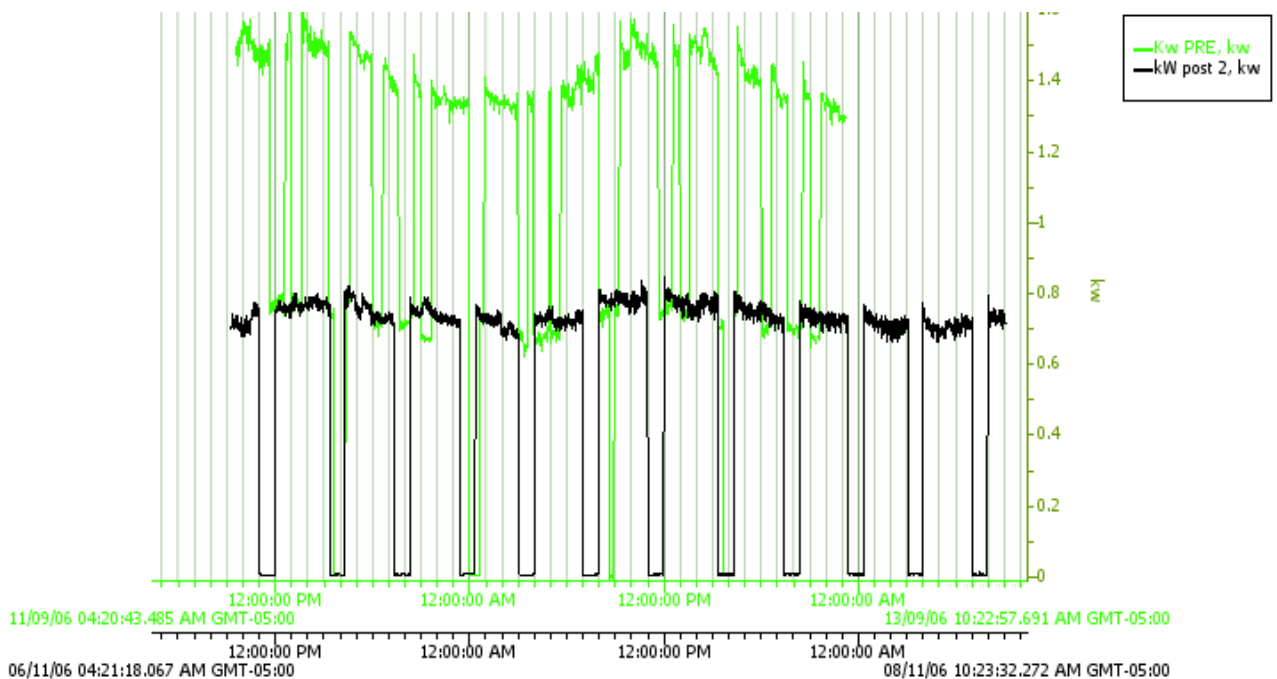
Daily Consumption of KWH

PRE MAX R
POST MAXR

126.46 Kwh
63.46 Kwh



KWH CONSUMPTION DURING THE MEASUREMENT PERIOD



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