El Toro – Clute
Energy Efficiency Trial

Before

After

Project Implementation

- A KWH data logger was placed on the unit 2 weeks prior to starting the project.
- At the 2 week point, the unit condenser coil and cabinet were cleaned.
- The condenser coil was coated with MicroGuard AD 35 siloxane coating to prevent corrosion and enhance energy efficiency.
- The exterior cabinet was coated with an Energy Star Ceramic coating to protect against corrosion and to provide a radiant barrier against solar heat gain, which reduces load and energy consumption . Exterior cabinet temperature was reduced from 135*F to 92*F.
- KWH data logger continued to collect data for 2 weeks after.

Data Logging Equipment

(Records KWH energy usage)

El Toro Data Logger Sheet

Date	Max T	Mean T	Min T	Weather	KWH
4/29/2013	79	71.7	64.4	prt cloudy	229
4/30/2013	79	71.5	64	prt cloudy	233
5/1/2013	81	72.5	64	sunny	242
5/2/2013	79	65	51.1	cloudy	210
5/3/2013	68	56	44.1	rain	198
5/4/2013	78.1	59	39.9	rain	178
5/5/2013	73.9	61.4	48.9	cloudy	181
5/6/2013	79	61.5	44.1	am fog	179
5/7/2013	82	67	52	sunny	190
5/8/2013	81	69	57	sunny	211
5/9/2013	80.1	75.6	71.1	sunny	247
5/10/2013	80.1	72.2	64.4	sunny	235
5/11/2013	84	73.5	63	am fog	239
5/12/2013	81	71	61	am fog	234
5/13/2013	79	70.5	61	sunny	244
5/14/2013	80.6	66.8	53.1	am fog	189
5/15/2013	80.6	73.3	66	sunny	186
5/16/2013	82	76	70	sunny	229
5/17/2013	84	78.5	73	sunny	237
5/18/2013	88	81.5	75	am fog	241
5/19/2013	86	80	73.9	am fog	239
5/20/2013	84.9	80.4	75.9	sunny	246
5/21/2013	86	81	75.9	sunny	249
5/22/2013	89.1	82	75	cloudy	238
5/23/2013	87.1	79.1	71.1	sunny	248
5/24/2013	88	81	73.9	am fog	237
5/25/2013	86	79.5	73	sunny	241
5/26/2013	88	78	73	prt cloudy	229
5/27/2013	83	75	71	sunny	182
5/28/2013	84	73	69	sunny	184

comparable days		% reduction
5/1/2013	242	24%
5/28/2013	184	
5/9/2013	247	26%
5/27/2013	182	
5/11/2013	239	24%
5/15/2013	183	
Total average		24%

Summary of Project Results

- Corrosion protection for coil and exterior cabinet, extends life of unit and avoids capital cost replacement. Life cycle extension 25 to 50%
- Reduced coil fouling and reduced maintenance time for cleaning coil.
- Reduced peak demand
- Energy consumption (KWH) reduced on a 3 month old unit by 24%
- Simple ROI for a single unit 17 months. Simple ROI for a complete roof top 13 months (20% discount applied).
- IRR – 91.46% or 91.46% interest earned on the investment
- NPV – Net Present value of project $32,277

Project Potential

Implementation of the coating project on all of the units on this roof and the other facilities within the customer's portfolio, will have a substantial positive impact on their operating cost and overall bottom line.

Savings will be achieved in:

- Energy consumption KWH
- Peak demand KW
- Reduced maintenance cost
- Reduced mean time to failure
- Reduced capital cost replacement budget