

Southern California Edison Optimization Program

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Presented By:

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SCE's HVAC Optimization Program

FACT: 44% of a commercial building's energy consumption is attributed to its HVAC systems.

- Southern California Edison's (SCE) HVAC Optimization Program is a winning combination of an enhanced "planned" HVAC maintenance plan and financial incentives.



How Businesses Benefit

- Lower energy bills
- Increase system reliability
- Improve indoor air quality and thermal comfort
- Lower repair costs and reduce amount of unplanned service calls
- Reduce capital costs by achieving longer equipment life
- Reduce carbon footprint



Why?

- Budget cuts have dramatically impacted your ability to efficiently maintain and operate the numerous air cooled systems within the District
- Energy costs begin to rise due to inefficient equipment operation
- Standard maintenance is frequently rescheduled until a later more convenient time “Deferred”
- Staff and Student complaints
- When maintenance is deferred, service requests begin to multiply or repeat and they typically receive “Reactive Solutions” to the problem



Reactive Solutions

- **Adjust thermostat** – Quick Fix (Hero)...for today!
- **Ignore problem** – No time to deal with it, too busy putting out fires!
- **Override Problem** – Inexperience with system /Faster Solution
- **Improper Repair** – This will do for now!



Current Operating Impact to the District

1. Excessive energy consumption
2. Excessive energy costs
3. Drain on maintenance staff hours to handle temperature complaints
4. Unbudgeted repair costs for failed package AC, split system AC and/or heat pump units
5. Needed repairs continue to get deferred until total system failure (Budget Surprise)



Solution:

Optimize the air cooled HVAC systems by implementing the Southern California Edison “HVAC Optimization Program”



Financial Incentive

Air Cooled Air Conditioning Systems

HVAC Optimization Program offers lucrative incentives to bring existing systems up to ASHRAE, 180 standards and maintain them going forward.

1. Optimization of existing AC systems maintenance
2. Optimization of existing AC systems fresh air economizers
3. Optimization of AC systems air distribution
4. Optimization of AC systems refrigerant (refrigerant leakage into the atmosphere)





Chaffey Community College Case Study



Chaffey Community College CD

- Three Campuses
 1. Rancho Cucamonga Campus
 2. Chino Campus
 3. Fontana Campus
- 108 Package AC and Split System AC Units
- Ranging in size from 3 tons to 60 tons each
- Ranging in age from 15 years to 5 years old
- Total tonnage is 747 tons



Required Repairs Identified

- Worn and/or broken belts and pulleys
- Inoperative economizers (bad motors, frozen damper blades or disconnected)
- Low refrigerant charge (causing frozen coils or compressor failures)
- Bad or improperly set thermostats
- Wrong type, wrong size, improperly installed filters
- Units run outside of required time schedules



SCE's HVAC Optimization Program



“Belt Cracked & Worn”

Impacts units ability to deliver the correct volume of air to the room causing stuffy feeling and increases energy costs



“OSA Damper Stuck Open”

Puts excessive load on AC unit and can create warm classrooms along with increasing energy usage



One of three Calculation Sheets

Version 1.6 (12/15/2011)

SCE HVAC Optimization Customer Maintenance Incentive Calculator

2/15/2013

Contractor:

Southland Industries

Customer:

Chaffey College

Building Address:

5885 Haven Avenue, Rancho Cucamonga, Ca 91737

Payment upon signing Maintenance Agreement	\$	4,784	20%
Anticipated Payment at the end of Year 1	\$	3,979	25%
Anticipated Payment at the end of Year 2	\$	8,371	35%
Anticipated Payment at the end of Year 3	\$	4,784	20%
Total Anticipated Payment	\$	23,918	

This calculator is to be used to calculate anticipated incentive amounts. Final incentive amounts will be determined by SCE program staff. Incentives will be paid pending customer qualification and unit verification.

Unit Name(s)	Unit quantity must be at least 1. If multiple units meet the same incentive criteria, indicate the quantity here.						Total Anticipated Payment	Payment upon signing Maintenance Agreement	Anticipated Payment at the end of Year 1	Anticipated Payment at the end of Year 2	Anticipated Payment at the end of Year 3
	Quantity	Enrolled Unit	Tonnage	Compressors	Age	Econo					
Skill Labs	1	y	6-25 Tons	2	Over 12	Y	\$ 1,688	\$ 338	\$ 422	\$ 591	\$ 338
Skill Labs	2	y	6-25 Tons	1	Over 12	Y	\$ 2,138	\$ 428	\$ 534	\$ 748	\$ 428
Skill Labs	5	y	Under 6 Tons	1	Over 12	Y	\$ 3,938	\$ 788	\$ 984	\$ 1,378	\$ 788
Skill Labs	2	y	Under 6 Tons	1	Over 12	N	\$ 1,125	\$ 225	\$ 281	\$ 394	\$ 225
							\$ -	\$ -	\$ -	\$ -	\$ -
Child Dev A	3	y	Under 6 Tons	1	Under 6	N	\$ 1,215	\$ 243	\$ 304	\$ 425	\$ 243
Child Dev B	3	y	Under 6 Tons	1	Under 6	n	\$ 1,215	\$ 243	\$ 304	\$ 425	\$ 243
Child Dev C	1	y	6-25 Tons	2	6-12	Y	\$ 1,440	\$ 288	\$ 360	\$ 504	\$ 288
Child Dev D	2	y	Under 6 Tons	1	Under 6	n	\$ 810	\$ 162	\$ 203	\$ 284	\$ 162
							\$ -	\$ -	\$ -	\$ -	\$ -
SSA	3	y	Under 6 Tons	1	6-12	n	\$ 1,350	\$ 270	\$ 338	\$ 473	\$ 270
							\$ -	\$ -	\$ -	\$ -	\$ -
Press Booth	1	y	Under 6 Tons	1	Over 12	n	\$ 563	\$ 113	\$ 141	\$ 197	\$ 113
							\$ -	\$ -	\$ -	\$ -	\$ -
Purch Trailer	2	y	Under 6 Tons	1	Over 12	n	\$ 1,125	\$ 225	\$ 281	\$ 394	\$ 225
							\$ -	\$ -	\$ -	\$ -	\$ -
LDC Facility	3	y	Under 6 Tons	1	Over 12	Y	\$ 3,938	\$ 788	\$ 984	\$ 1,378	\$ 788
							\$ -	\$ -	\$ -	\$ -	\$ -
Academic Fon	2	y	Over 25 Tons	2	Under 6	Y	\$ 3,375	\$ 675	\$ 844	\$ 1,181	\$ 675
							\$ -	\$ -	\$ -	\$ -	\$ -
Total Enrolled Units							32				
Total Anticipated Incentives							\$ 23,918	\$ 4,784	\$ 5,979	\$ 8,371	\$ 4,784



Financial Incentive

1. Incentives:

- HVAC Optimization – SCE \$ 96,000
(From SCE's Incentive Calculation Sheets)

2. Projected KWH Savings (Annually):

- Projected kWh Reduction 825,313 kWh
(From SCE's Savings Forecast Tool)

3. Projected Energy Savings (Annually):

- Projected Energy Savings \$ 108,651
(Based on \$0.1313 blended kWh cost/per kWh)



Financial Investment

1. Investment: \$ 315,400
 - HVAC Optimization (over 3 Years)
 - Includes \$150,000 in maintenance repairs
2. 1st Year Energy Savings & Incentive: \$ 187,000
 - One Time Incentives \$ 96,000
 - 1st Annual Energy Savings \$108,000
3. Simple Return in Years: 2.03Years



Information Update – Dan Estrada

Dan Estrada recently retired with over 32 years with the California Community College Chancellor's office.

Dan was instrumental in developing the Investor Owned Utility / California Community College (IOU/CCC) Partnership.

Through his efforts the Community College Partnership delivered over \$15,000,000 in utility incentives on over 500 projects state wide.



Information Update – Dan Estrada

1. Impact of Utilities “Smart Meters” on energy bills
2. Demand Response Programs
3. Establishing a green revolving fund
4. Prop 39 funding for energy efficiency
5. Energy and sustainability “Best Practices”



Questions?

