
AMERICA
ATMO
sphere

SDG&E Accelerating the Adoption of Energy Efficient Refrigeration Technologies

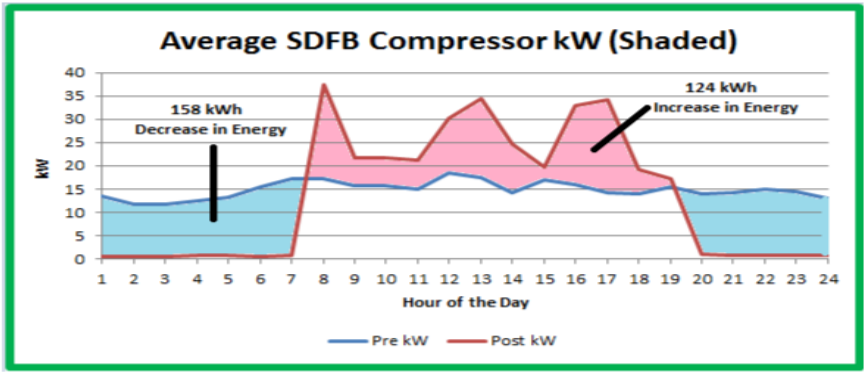
Presented By: Christopher M. Roman CEM, CDSM

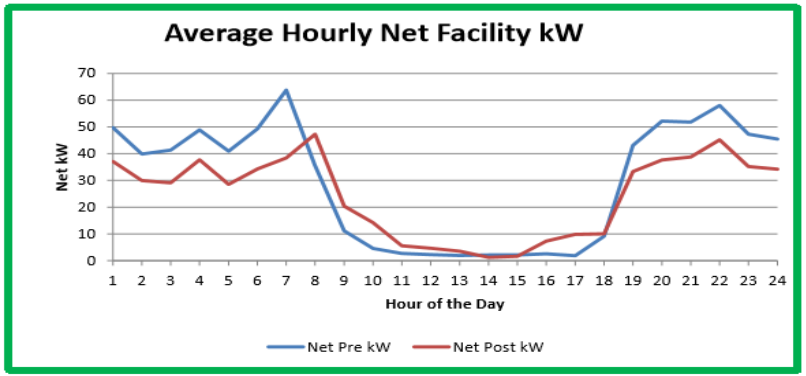
Wednesday June 7th 2017

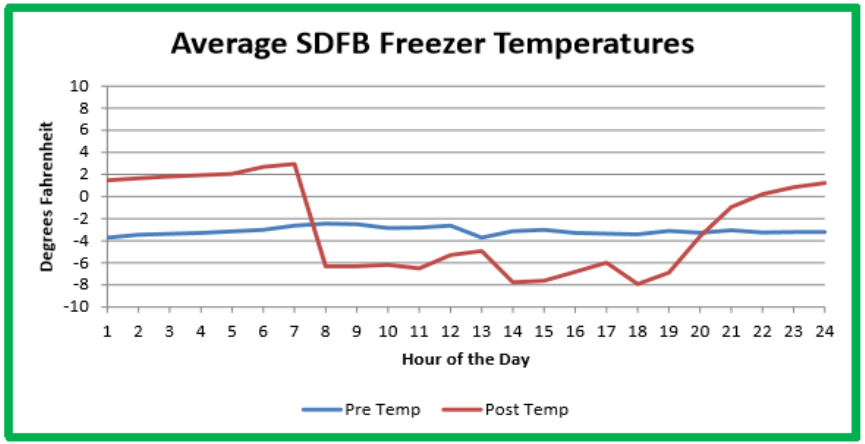
Emerging Technologies Program

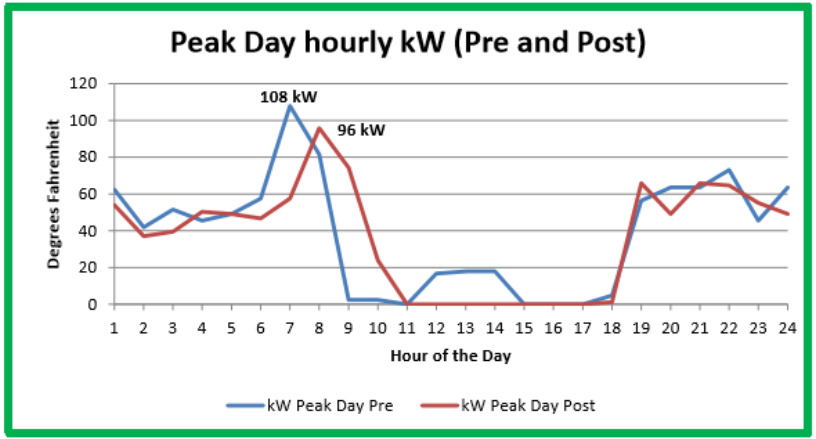
PA Needs	ETP Objective	ETP Strategies
Identify new measures	Provide PAs a comprehensive set of suitable technology options for new measures.	1. Develop and execute Technology Priority Maps (TPMs)
Understand how the market will respond to new measures	Provide PAs actionable market information to inform program delivery	2. Solicit and meet PA requests for additional market or customer research on emerging technology measures
Technologies suited for PAs' programs.	Confirm that technology development partners understand what measures PAs need.	3. Work with technology developers with products <1 year from commercialization, including new technology vendors, manufacturers, and entrepreneurs.
		4. Work with technology developers with products <5 years from commercialization, including CEC, universities and colleges

Emerging Technologies Program









Emerging Technologies Program

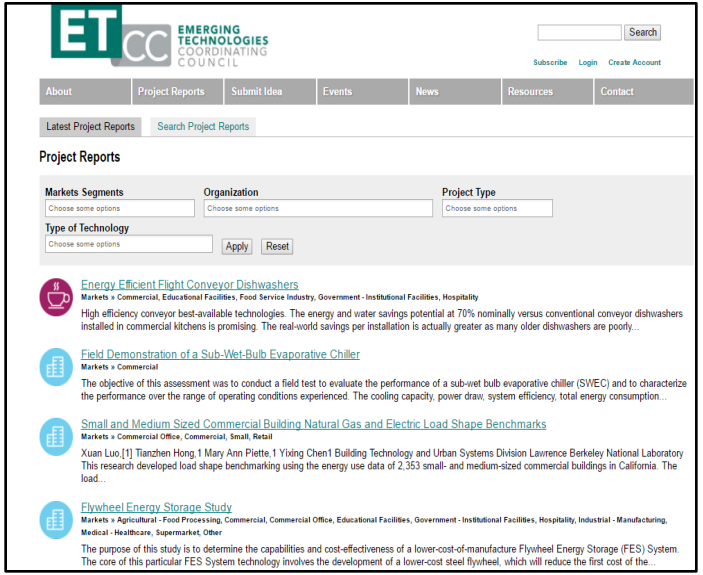
TABLE-ES 4. MESS HALL FINANCIAL ANALYSIS

SCENARIO	IMPLEMENTATION COST	INCENTIVE	TOTAL COST	ANNUAL COST SAVINGS	SIMPLE PAYBACK
Current Installation, no incentive	$19,723.00	$0.00	$19,723.00	$816.70	24.1 Years
Current Installation, with incentive	$19,723.00	$1,822.05	$17,900.95	$816.70	21.9 Years
Forecasted 2017 Installation, with incentive	$6,000.00	$1,822.05	$4,177.95	$816.70	5.1 Years

TABLE-ES 5. SDFB FINANCIAL ANALYSIS

SCENARIO	IMPLEMENTATION COST	INCENTIVE	TOTAL COST	ANNUAL COST SAVINGS	SIMPLE PAYBACK
Current Installation, no incentive	$47,039.43	$0.00	$47,039.43	$8,154.93	5.8 Years
Current Installation, with incentive	$47,039.43	$7,525.35	$39,514.08	$8,154.93	4.8 Years
Forecasted 2017 Installation, with incentive	$24,000.00	$7,525.35	$16,474.65	$8,154.93	2.0 Years

Check out our completed reports on www.etcc-ca.com



Energy Efficiency Business Rebates (EEBR)

INDIRECT EVAPORATIVE COOLER – CENTRAL SYSTEM

Requirements:

- The indirect evaporative cooler must meet a minimum of 65% effectiveness and be installed in the airstream of the make-up air of an air handler.
- Air must be used for space cooling to induce human comfort.
- Applicant must include the cooler specification sheet and original project scope letter.
- Rebate is $38/ ton of AHU chilled water coil capacity.

Indirect Evaporative Cooler – Central System Table

Product Code	Product Description	Rebate/Unit
463321	Indirect Evaporative Cooler – Central System	$38.00/capacity ton

INDIRECT EVAPORATIVE COOLER – PACKAGED SYSTEM

Requirements:

- Indirect evaporative cooler must meet a minimum of 65% effectiveness and be installed in the airstream of the make-up air of a package unit.
- Air must be used for space cooling to induce human comfort.
- Applicant must include the cooler specification sheet and original project scope letter.
- Rebate is $65/ton of a package unit capacity.

Indirect Evaporative Cooler – Packaged System Table

Product Code	Product Description	Rebate/Unit
463322	Indirect Evaporative Cooler – Packaged System	$65.00/capacity ton

Note:

A work-paper must be created to derive these fixed values shown per measure.

The work-paper process takes more time up front to derive. However, the EEBI process has much less paper work and no M&V process.

Energy Efficiency Business Incentives (EEBI)

Targeted Non-Lighting **Energy - $0.15 / kWh** **Peak Demand - $150 / kW**	**HVAC** ▪ High-efficiency water-cooled replacements ▪ High-efficiency air-cooled chillers replacements* ▪ Variable Speed Drive installations on existing air conditioning or refrigeration compressor motors. ▪ **SDG&E and PG&E only:** Water source heat pumps (WSHP) of any size* ▪ Constant air volume to variable air volume conversions ▪ Chiller heat reclaim ▪ Evaporative cooling unit installations ▪ Evaporative pre-cooling unit installations ▪ Indirect evaporative cooling (single stage and dual stage) ▪ Heat transfer (including heat pumps) to heat sinks, such as ground source cooling in air-conditioned buildings ▪ Variable Refrigerant Flow (VRF) system* ▪ Air-cooled to evaporative condensers ▪ Oversized condenser installation ▪ Compressor replacement (A/C or Refrigeration) ▪ **SDG&E only:** VAV laboratory exhaust system installation ▪ **SDG&E and SCE only**: Whole Building EMS ▪ **SDG&E and PG&E only:** Packaged air conditioner and heat pumps greater than 760,000 Btu/hr or 63.3 tons* *These measures may also be offered through upstream deemed programs through distributors; equipment that is purchased via the upstream channel is ineligible for Customized incentives. **REFRIGERATION** ▪ Refrigeration floating head controller installations ▪ Variable Speed Drive installations on existing air conditioning or refrigeration compressor motors. ▪ Air-cooled to evaporative condensers ▪ Oversized condenser installation ▪ Compressor replacement (A/C or Refrigeration)

Example:

If the Refrigeration Replacement Saved:

kWh Annual Saving: 50,000 kWh

kW On-Peak Savings: 25 kW

Estimated Incentive Payout:

kWh Incentive: $7,500

kW Incentive: $3,750

Total Incentive: $11,250

This would lower net-cost of the refrigeration replacement as well as the overall simple payback!


Questions?

AMERICA

ATMO sphere

Thank you very much!