



PG&E's Energy Management Solutions for

REFRIGERATED WAREHOUSES

Pacific Gas and Electric Company offers design assistance and financial incentives up to \$350,000 per project to support energy-efficient, high performance refrigerated warehouses. Whether you are building a new refrigerated warehouse, retrofitting old inefficient equipment, or implementing demand response capabilities, PG&E's energy management solutions can be customized to meet the unique needs of your project.

In October of 2003, Stamoules Produce in Mendota began working with PG&E's energy management programs on a 60,000 square foot expansion of their cold storage facility.

"The cost of energy is such a major component of our process, so we were excited to work with PG&E's engineers, who made recommendations to improve the efficiency of our expanded refrigeration system pre-cooling and cold storage rooms. These recommendations were adopted into the design and are projected to increase the efficiency of the refrigeration system by 25% through use of an improved control system, with variable speed drives on condenser and cooling fans. This increase in efficiency is estimated to save 937,535 kWh and reduce our energy bill by over \$93,000 each year. We also received an incentive of \$75,000 from PG&E."

Tom Stefanopolous
Owner, Stamoules Produce

DESIGN ASSISTANCE, REBATES AND INCENTIVES ARE AVAILABLE FOR THE FOLLOWING MEASURES:

EVAPORATIVE AND AIR CONDENSERS – Moderately oversized evaporative condensers can reduce head pressure in hot climates, while variable frequency drives (VFDs) can reduce fan energy and match the condenser load to compressor output.

EFFICIENT COMPRESSORS – Compressors with premium-efficiency motors can reduce energy use over the life of the compressor. A trim compressor with a VFD can reduce energy losses by minimizing inefficient slide valve control of large compressors at part load. Improper compressor control can reduce efficiency significantly.

COMPUTER CONTROLS – Computer control systems that allow reducing head pressure and varying suction pressure increase efficiency by reducing compressor work.

EFFICIENT EVAPORATOR FANS – Properly sized evaporator coils with VFD controlled fans can significantly reduce energy use over fixed speed or two speed fans with inefficient coils.

INSULATION – Optimum levels of insulation in coolers and freezers can help to reduce heat gain and cooling loads.

HIGH-EFFICIENCY LIGHTING AND CONTROLS – Specifying high-efficiency fixtures and lighting controls can help to reduce internal gains and refrigeration loads.

Individually each measure may reduce energy use by 5-10%. The combination of the above measures can reduce energy use by 25 to 35 % annually over a baseline system.

For more information on PG&E's ENERGY MANAGEMENT SOLUTIONS, call the Business Customer Service Center (800) 468-4743 or visit www.pge.com/business



Pacific Gas and Electric Company



PG&E'S ENERGY MANAGEMENT SOLUTIONS can help you control your operating expenses through building energy efficiency and demand response capabilities into your new and existing facilities, and your long-range planning. Services include energy analyses of existing facilities, design assistance for planned projects, equipment rebates, project incentives, and education and training.

PG&E'S Energy Management Solutions



PG&E OFFERS
A WIDE RANGE
OF SOLUTIONS
TO HELP YOU
MANAGE
THE ENERGY
AT YOUR
REFRIGERATED
WAREHOUSE.
CONTACT
PG&E TO FIND
OUT HOW
YOU CAN TAKE
ADVANTAGE
OF THESE
SERVICES.

Energy Analyses

An energy analysis - also referred to as an "energy audit" - is the first step towards a comprehensive energy management plan and can help you identify no cost, low cost and investment grade opportunities. In addition to on-site, phone-based, or on-line audits, PG&E also offers larger refrigerated warehouses the on-site Integrated Energy Audit, which identifies opportunities in demand response and self-generation as well as energy efficiency.

Energy Efficiency Rebates for Your Business

Rebates are the quickest and simplest way for you to get cash back for your eligible energy efficient purchases. PG&E offers rebates for hundreds of energy-efficient technologies in multiple categories: Refrigeration, Agricultural Products, Appliances and General Improvements, Boilers and Water Heating, Food Service, Heating Ventilation and Air Conditioning (HVAC), and Lighting. To find out if a product qualifies under the rebate program, go to http://www.pge.com/biz/rebates/rebates_assistance/index.html or contact the Business Customer Service Center at (800) 468-4743 to request an application and one or more technology catalogs.

Customized Energy Efficiency/Demand Response Incentive Application

For more customized energy efficiency projects or projects with a demand response component, PG&E offers design assistance, calculation support and standardized incentive rates through Customized Energy Efficiency/Demand Response Incentives.

Lighting05 per kWh saved
Process08 per kWh saved
HVAC and Refrigeration*.....	.14 per kWh saved
Natural Gas80 per therm saved

**Please note that some refrigeration-related equipment is considered Process.*

Total incentive payments are based on actual reductions in energy usage. Customers and/or their consultants may sponsor projects under this approach. Be sure to contact PG&E early in the design process, before you start your project, so that you can schedule optional technical support and the required pre-inspection of your existing equipment.

New Construction Design Assistance and Cash Incentives

PG&E's new construction program - also referred to as Savings By Design - provides owner and design team cash incentives, technical design assistance, and education to support the design and construction of energy efficient new facilities and process systems. Incentives are based on exceeding 2005 Title 24 requirements by at least 10% for standard building systems, and on exceeding industry standard practice baselines for process systems. Through both the simple Systems Approach and the more integrated Whole Building Approach, customers can now receive up to \$150,000 in cash incentives per project.

Energy Management Education and Training

You can learn about the latest and best energy-efficiency practices, technologies, tools and more through the hundreds of free classes offered by PG&E every year. To search by market sector, technology, class location (including Web-based classes) or target audience, use the Pacific Energy Center's class search tool at http://www.pge.com/education_training/classes/energy_efficiency/index.jsp



Additional Resources on Energy Efficiency for Refrigerated Warehouses

- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) - www.ashrae.org
- Refrigerating Engineers and Technicians Association - www.reta.com
- CalArch California Building Reference Tool - poet.lbl.gov/cal-arch/index.html