



## Sustainable Practice Highlight: Energy Efficiency

### Benefits of Energy Auditing for Wineries and Vineyards

California wineries and PG&E have teamed up to reduce energy consumption through the utility's Agriculture and Food Processing Program.

Patsy Dugger, supervising manager for the PG&E program, says that wineries are natural candidates for this program.

"I wanted to do outreach to the wine industry about the same time that the Wine Institute and the California Sustainable Winegrowing Alliance were targeting energy management as a top priority. That is how the partnership happened. The timing was great."

PG&E offers customized information, winery-specific training, facility audits, tools, calculators, and rebates and incentives to help wineries and other food processors prioritize and implement their energy management plans.

"Participation has doubled in one year and continues to increase," Dugger said. "Just last year alone we worked on 50 winery projects."

Dugger attributes this interest to a general growing awareness that energy efficiency is one of the primary solutions to climate change and that PG&E has a program that can help wineries be more cost competitive.

Cash rebates and project incentives from PG&E are available for energy efficient technologies, whether for upgrading existing equipment with new energy efficient technologies or purchasing new energy efficient equipment. One example of rebate-eligible energy efficient equipment upgrade is wine tank insulation. Additionally, cash incentives and design

the pond can significantly reduce the cost and energy required for aeration.

An energy audit or analysis is the first step toward a comprehensive energy management plan. It provides information and insight into how a business uses energy, a cost/benefit analysis, and recommendations, including equipment review, rebate availability, and no-cost measures.



Energy efficient vineyard practices are explained at a CSWA/PG&E workshop with Tim Thornhill, a partner at Mendocino Wine Company's carbon-neutral Parducci Winery.

assistance are available for new buildings and facility expansions.

The program also shows how saving energy requires an integrated system approach throughout the winery, and that improving internal efficiencies often has better returns on investment. For example, a large energy user is the aerator on a process water pond. Source reduction of process water going to

Wineries interested in getting started can request a free energy audit by calling their PG&E account representative or 1-800/468-4743.

The winery can then harvest the "low-hanging fruit" and use the savings for the next level of efficiencies or invest in renewable energy after efficiency gains are made.

More information is available online at

### PG&E Rebates and Incentives

PG&E offers incentives such as rebates for retrofit projects and design assistance for new construction projects through Savings by Design to help wineries save money and manage energy costs.

Customized incentives are available for retrofit projects not covered in the standard PG&E rebate catalogs. Some examples of customized measures include efficiency improvements to systems such as:

- Air compressors
- Boilers
- Chillers
- Lighting
- Motors and VFDs
- Refrigeration

For more information, call the PG&E Business Customer Service Center at 1-800/468-4743 or check online at [http://www.pge.com/biz/rebates/rebates\\_assistance](http://www.pge.com/biz/rebates/rebates_assistance).

[www.pge.com/biz/rebates/agriculture/index.html](http://www.pge.com/biz/rebates/agriculture/index.html)

## Sustainable Practices at Korbel

In addition to taking a number of steps to save energy, Korbel Champagne Cellars closely follows the Sustainable Wine-growing Program workbook in order to protect the environment, according to Mel Sanchetti, vice president of vineyard operations. Some examples:

- All properties have cover crops, and soil analysis is done twice yearly.
- Nesting boxes are used to attract predatory owls that control rodents.
- Land not used as vineyards is retained in its natural state to maintain biodiversity. This includes redwoods and other forest property.
- Integrated Pest Management (IPM) practices are followed and only soft chemicals are used, if needed.
- Process water is reclaimed, treated and used for irrigation.
- Pomace, prunings and manure from horses and chickens are turned into compost that is used in the vineyards.
- Deer fences are used only around vineyards, allowing wildlife to wander freely through the rest of Korbel's property.

## Energy Efficiency at Korbel Champagne Cellars

When he crunched the numbers, it didn't take Bill Owens of Korbel Champagne Cellars long to figure out that energy efficiency was the right thing to do.

Faced with an annual utility bill in the neighborhood of half a million dollars, Owens researched ways to cut power usage. As production vice president at Korbel, it was his charge to investigate alternatives because of the continuing climb of electricity rates.

changes at the winery, including using foam insulation on tanks and changing to more efficient lighting and electrical motors.

"Working with PG&E was easy. They were customer-oriented and understood the idiosyncrasies that exist in the wine industry, stepping in whenever there were difficult questions or circumstances between what is theoretical and what is practical. We also received help with bridging the gaps

tures with the insulation. We received a significant two-year payback. Installation of the insulation started in the late 1980s and continued up to the late '90s. Currently all of our tanks are insulated," he said.

Changing the lighting from the old ballast and bulb system to fluorescent was another move at Korbel. Better illumination resulted as well as substantial reduction in power usage.

Other changes included consolidating the chillers from multiple units to a single unit to provide equal to or greater refrigeration at less cost. A number of older electric motors have also been replaced.

"The new motors that are out there are a little more expensive up front, but their electrical efficiency is vastly improved," he said. "We usually buy the more expensive motors in the beginning and get our money back over time."

How does one measure success? Owens does it by looking at Korbel's annual utility bill. Five years ago it was pushing a half-million dollars. "Since then, our production has increased about 25 percent, requiring more demands on equipment and facilities, yet our utility costs are the same or below from what they were five years ago."



*Korbel's investment in tank insulation had a two-year payback and helped keep the utility bill at the same level as five years ago, even with a 25 percent increase in production, says Bill Owens (right).*

*Korbel Champagne Cellars photo*

"It is also important to us to be efficient users of resources. They aren't endless," he said. "We as an industry and as a private company have a sincere interest in preserving resources as long as we physically can."

Owens worked closely with PG&E energy consultants to make

for filling out paperwork, providing data, and determining the scheduling for our return on our investments," he said.

Tank insulation was one of the major projects at Korbel to bring about energy savings.

"From a quality standpoint, we wanted to stabilize our tempera-

## Long Meadow Ranch Saves Energy with Rammed-Earth Winery Strategy

When Ted Hall and his family decided to build a winery at their 650-acre Long Meadow Ranch in the Mayacamas Mountains above Napa Valley, their original thought was to use quarried stone from the ranch as construction material.

They soon discovered that there wasn't enough stone onsite for the building. After examining a number of possibilities, including building it out of rice straw bales, the Halls hit upon the idea of a building constructed of rammed earth.

"Rammed earth is a process that has been used for several thousand years," said Hall. "It is created by taking earth, combining it with water and some other binder, and pounding it between two forms to create a large adobe-like form. The difference is that adobe is made brick by brick and rammed earth is made as if the whole building is one brick. The structure is unique in that it has tremendous thermal mass."

Using a concept developed by local engineer David Easton and a design by William Turnbull, a well-known architect and University of California, Berkeley professor, the 16,000-square-foot winery is the ultimate in energy efficiency. It maintains a comfortable temperature year-round without heating or air conditioning units and



*The thermal mass of Long Meadow's rammed-earth winery maintains a comfortable temperature year-round without heating or air conditioning.*  
Long Meadow Ranch photo

uses natural sunlight rather than artificial lighting. The walls themselves vary in thickness from 28 inches to 6 feet.

"The building was designed very ingeniously so that skylights and windows are in appropriate locations, without them being overdone," Hall said. "I'm sitting in my office in the middle of the day and there isn't a single light on. If you go down to the fermentation room, the guys are working without any lights on."

Long Meadow Ranch also uses three large solar projects. One of the units is large enough to run the winery and the main ranch.

"We produce enough electricity during the course of the year to

power our entire facility."

Hall, who also produces premium olive oil, grass-fed beef, eggs and vegetables at the ranch all organically, said he would like to see others examine energy efficiency at their farms and wineries.

"We aren't asking people to spend extra money to make the world better, but think hard, explore the options and discover that good farming and conservation practices can lay a solid framework for making business decisions. For example, our solar project makes money and the building is attractive from a philosophical standpoint. We didn't have to make economic compromises to do the right thing."

## Long Meadow Ranch Sustainable Practices

The winery's energy efficiency projects aren't the only sustainable agriculture activities at Long Meadow Ranch. Instead of high-input, energy intensive "mono-culture" agriculture, the Halls have developed an integrated farming system that relies on each part of the ranch contributing to the health of the whole. Highlights include:

- Fertilizers, created through an extensive composting operation involving all of the winery solid waste (stems and pomace), employs a by-product of olive oil production, called vegetable water, as a source of nitrogen.
- Permanent cover crops control soil erosion and build new soils through a careful selection of grasses, clovers and legumes.
- Herbicides or pesticides are never used and all crops are certified by California Certified Organic Farmers.
- Poultry are fed leftover vegetables from the ranch gardens, reducing the cost of chicken feed. The vegetable diet produces healthy birds which lay ultra-high quality eggs.
- Chicken manure provides a source of essential nitrogen.



# California's Sustainable Winegrowing Program

The Sustainable Winegrowing Program (SWP), introduced in 2002 by members of Wine Institute and the California Association of Winegrape Growers (CAWG), has earned the California wine community a reputation as the wine world's leader in the adoption of practices that are environmentally sensitive, socially responsible and economically feasible. The organizations formed the California Sustainable Winegrowing Alliance (CSWA), a 501(c)(3) nonprofit organization, a year later to advance the program.

CSWA has held over 210 educational workshops throughout the state, attended by several thousand winery and vineyard enterprises. More than 1,300 workshop participants have evaluated their operations using a 490-page workbook of best management practices, developed by the Joint Committee of 50 members from Wine Institute, CAWG and other key stakeholders.

In December 2006, CSWA issued a Progress Report providing a program update since release of the 2004 Sustainability Report. The 2004 report showed the initial baseline level of sustainable practices among vintners and growers statewide. The 2006 Progress Report contains statewide results for 53 percent of California's 273 million case production and 33 percent of its 522,000 winegrape acres.

California wine is unique as the first industry sector to use a common

assessment tool to document the adoption of sustainable practices among its members and report the results publicly.

In addition to other updates, the 2006 report documents progress made against the pest management chapter. Winegrowers increased their performance for 31 of 38 criteria and across all criteria by 8 percent from the 2004 to 2006 reports. Greater increases for certain practices were: reduced-risk pesticides, up 18%; employee



*PG&E Chief Executive Peter Darbee spoke at Wine Institute's Board meeting to talk about the utility's efforts in addressing climate change and helping customers expand and enhance their energy efficiency.*

training, up 16%; predatory mite releases, up 44%; and weed monitoring, up 22%.

**WORKSHOPS.** In addition to self-assessment workshops, targeted education workshops are being held to help vintners and growers increase SWP adoption and improve scores in individual chapter areas. Grants for workshops and related activities have been provided by: American Farmland Trust



*Online self-assessment is now available at [www.sustainablewinegrowing.org](http://www.sustainablewinegrowing.org).*

for integrated pest management; Natural Resources Conservation Service (NRCS) to address air and water quality; National Fish & Wildlife for ecosystem management; and PG&E for energy efficiency.

#### **PARTNERSHIPS.**

Wine Institute, CAWG and CSWA are reaching out to

was released in December 2006, and includes a new air quality chapter as well as updates. The new chapter, funded by the NRCS grant, was developed by the Joint Committee and internal and external reviewers of the SWP workbook.

Another major improvement is the introduction of a newly launched web site at [www.sustainablewinegrowing.org](http://www.sustainablewinegrowing.org). The workbook is available online for California participants to self-assess and receive reports about their individual results.

**REPORTING.** By publicly documenting winegrowing practices through the publication of sustainability reports, the SWP program can demonstrate progress and challenges, and serve as a model for other sectors.

Governor Arnold Schwarzenegger awarded CSWA the state's top environmental award, the Governor's Environmental and Economic Leadership Award in 2004. California Council for Environment and Economic Balance also named Wine Institute, CAWG and CSWA recipients of the 2005 Edmund G. "Pat" Brown Award for the program's demonstration of ideals of environmental and economic balance.

For information, call 415/356-7545 or e-mail [info@sustainablewinegrowing.org](mailto:info@sustainablewinegrowing.org)

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