

Industrial Services **FACTSHEET**

Energy Efficiency in Wineries

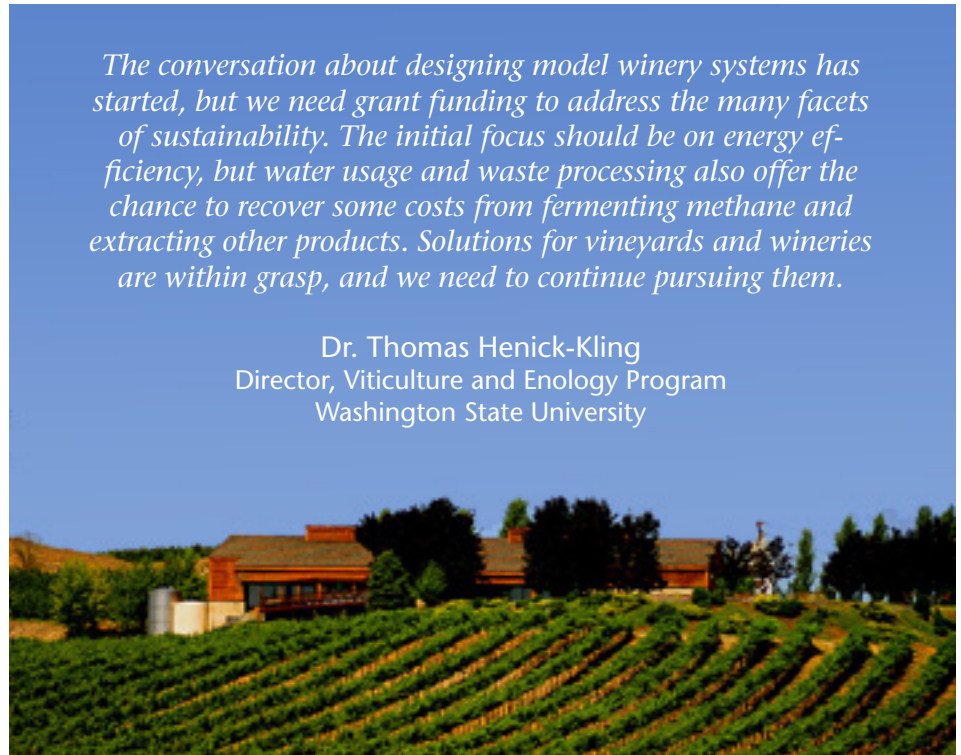
Wineries are leaders in blending old-world art with modern scientific knowledge to find smarter ways of doing business. Because a winery's success is deeply rooted in a healthy environment, it makes sense to update old practices with new technologies so wineries can produce, bottle, and distribute wine in the most energy-efficient way possible.

Many of today's more progressive wineries engage in practices focused on sustainability. By implementing sustainable best practices, wineries can reduce their energy consumption and waste, which can also help reduce their carbon footprint. Wineries that strive to reduce energy consumption often also reap the immediate benefit of reducing their operating expenses and increasing their profit margins. In addition, wineries that adopt a sustainable approach enhance their appeal to consumers who appreciate the importance of using natural resources in a respectful way.

In every level of winery operations, from raw materials to final product quality, sustainable best practices ensure business success. These practices in wineries should focus on improving energy

The conversation about designing model winery systems has started, but we need grant funding to address the many facets of sustainability. The initial focus should be on energy efficiency, but water usage and waste processing also offer the chance to recover some costs from fermenting methane and extracting other products. Solutions for vineyards and wineries are within grasp, and we need to continue pursuing them.

Dr. Thomas Henick-Kling
Director, Viticulture and Enology Program
Washington State University



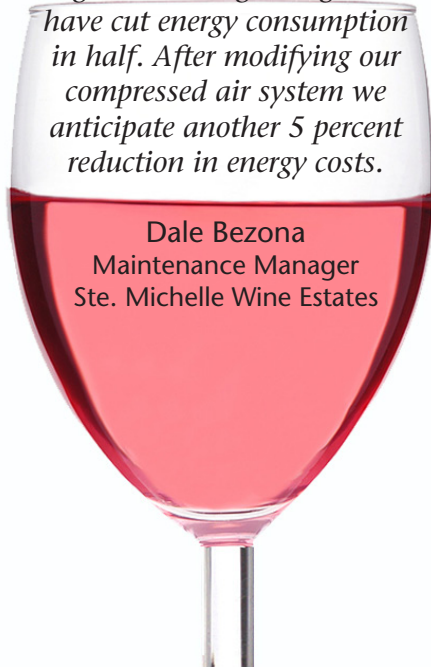
efficiency, water use, and waste water management, asserts Dr. Thomas Henick-Kling from the Washington State University Viticulture and Enology Program. He notes that while these efforts can be challenging for smaller wineries, they can save significant dollars and resources, resulting in an improved bottom line. The resources listed at the end of this factsheet can help wineries of any size implement best practices to improve their energy efficiency. Joy Andersen from Snoqualmie

Wines says that managing energy wisely is the top priority in helping the winery thrive. Snoqualmie Wines has already improved the efficiency of its lighting, and is looking for more energy-efficient ways to produce, bottle, and transport its wines.

Getting Started

When looking to improve energy efficiency, some good places to start include refrigeration for temperature control, especially during the "cold stabilization"

Columbia Crest Winery is committed to sustainability and minimizing our carbon footprint. With recent lighting and bottling changes we have cut energy consumption in half. After modifying our compressed air system we anticipate another 5 percent reduction in energy costs.



Dale Bezona
Maintenance Manager
Ste. Michelle Wine Estates

process; cooling and cold storage, which consume the most energy at a typical winery; lighting; ventilation; compressed air systems; and tank insulation. Specific ideas include:

Refrigeration:

- Make sure refrigeration systems are well maintained to cut energy use and extend equipment life. Check refrigerant levels, clean filters, and control operations to ensure cooling is provided only as needed.
- Insulate refrigeration supply piping to maintain a more consistent processing temperature.
- Use reflective paint on the facility roof to reduce cooling loads.
- Install variable speed refrigerant compressors.

Tank insulation:

- Insulate wine storage tanks to reduce heat gain from the surrounding air.

Lighting:

- Install skylights to minimize the use of electric lighting.
- Install high-efficiency lighting in the cellar with occupancy sensors and staged lighting levels to allow lower intensity for walking around and higher intensity in work areas. The Bonneville Power Administration states that in addition to potential energy cost savings from 25-50 percent, energy-efficient lighting often results in longer equipment life, increased employee productivity and morale, and positive reactions from customers touring your winery.

Compressed air:

- Implement programs to detect leaks in compressed air and steam lines.
- Optimize the control strategy of your compressed air system. Use properly sized equipment, along with staging, to increase the operation of your compressed air system.

Energy efficiency experts at utility companies, wine industry associations, university extension programs, and state agencies can help winery managers identify energy efficiency improvements tailored for their winery and implement best practices in each of these areas. In addition, many utilities also offer generous incentives to fund these projects, making your local utility a good place to start. See *Resources for Northwest Wineries* listed on page 4.

The tools are in our hands to improve the use of energy, water and waste. We are in the process of assessing practices to build a better winery with a smaller carbon footprint. Workshops like the compressed air training are a great way to bring interested parties together to pluck the "low-hanging fruit" of energy efficiency.

Joy Andersen
Senior Wine Maker
Snoqualmie Wines



Best Practices Training Opportunities

The Washington State University (WSU) Extension Energy Program offered a unique opportunity to learn compressed air system best practices in May 2010. The training workshop, hosted by Columbia Crest Winery, addressed compressed air fundamentals and management practices. Attendees also participated in an innovative, hands-on exercise using ultrasonic leak detection equipment inside the winery.

Dale Bezona, Maintenance Manager for Columbia Crest, which is owned and operated by Ste. Michelle Wine Estates, stated the compressed air training workshop provided best practices and technology training that, when implemented, could help reduce electrical energy consumption at the winery.

The WSU Extension Energy Program works with organizations primarily in Washington state, and in some cases Oregon, Montana, and Idaho, to bring timely and relevant information to processors, operators, maintenance and engineering staff, and management. The WSU team offers:

- Technical assistance that can include energy assessments and guidance to tailor an energy management approach for your winery.
- Best practices training programs to help organizations identify and implement energy improvements. Training opportunities range from one-day workshops on system fundamentals to three-day national certification programs covering topics including motors, pumps, fans, refrigeration, process heat, compressed air, and steam.

Contact the WSU Extension Energy Program to learn more about upcoming trainings or how to access WSU's technical team.

Contact

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About the WSU Extension Energy Program

Our staff of approximately 100 includes energy engineers, energy specialists, technical experts, software developers, and energy research librarians who work out of our Olympia, Spokane, and other satellite offices.

Our customers include large and small manufacturing plants and commercial businesses, public and private utilities, local and state governments, tribes, federal agencies and facilities, professional and trade associations, schools, universities, national laboratories, and consumers.

For more information, visit www.energy.wsu.edu.

Resources for Northwest Wineries

Washington Association of Wine Grape Growers

“Winery Wise” resources include self-assessment evaluation tools and an online guide of best practices for sustainable wineries.

www.wawgg.org/index.php?page_id=94

WSU Extension Energy Program Industrial Resources

WSU Extension Energy Program industrial energy systems engineers provide best practices training, conduct assessments, offer consultations, and can provide referrals to other organizations, including your local utility, to help you plan or implement your energy projects.

www.energy.wsu.edu/IndustrialEfficiency.aspx

The **WSU Extension Energy Program Library** prepares *Industrial Energy Newsbriefs*, a free monthly review of articles, reports, funding opportunities, and trainings related to energy efficient manufacturing. To subscribe:

www.energy.wsu.edu/EnergyLibrary/Newsbriefs.aspx#Industrial

Megawatts & Merlot, Northwest Winery Energy Efficiency Savings,

Bonneville Power Administration

BPA and your local utility may offer incentives or technical assistance for energy efficiency improvements at wineries.

www.bpa.gov/energy/n/pdf/BPA_winery_incentives_4-20-09.pdf

BEST-Winery: Benchmarking and Energy and Water Efficiency Savings Tool, Lawrence Berkeley National Lab

This software application was designed to evaluate the energy and water efficiency at wineries, and to help assess the environmental and financial impacts of potential improvement strategies.

<http://best-winery.lbl.gov/download/bestreg.php>

Northwest Energy Efficiency Alliance Industrial Training Calendar

Find upcoming training for plant operators, engineers, managers, or executives in the Northwest.

www.nwalliance.org/participate/calendar.aspx?MODE=CALENDAR&CATEGORY=Industrial

U.S. Department of Energy Industrial Technologies Program – Best Practices website

Provides a wide collection of manuals, factsheets, training, software tools, technical assistance, and partnership opportunities for industries.

www.eere.energy.gov/industry/bestpractices/about_bestpractices.html

Washington State University Extension Energy Program Mission Statement

To advance environmental and economic well being by providing unmatched energy services, products, education, and information based on world-class research.

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