



**VCU Energy and Sustainability Conference
January 30 – 31, 2013**



 MillerCoors®

Shenandoah Brewery Quick Facts

- Started as Packaging Facility in 1987
- Brewing Started up March, 2007
- 500 Team Members
- Capacity of more than 7 million barrels
- Fully functional brewery and support Infrastructure
- Shenandoah brews and packages Coors Light, Keystone Light, Blue Moon Belgian White, Extra Gold, Keystone Premium, and Killian's Irish Red



Sustainability-Responsibility

The MillerCoors Shenandoah Brewery Sustainability program consists of managing our environmental, social and economic risks and opportunities in a strategic way to protect our reputation and maximize business value.



Because our beers are rooted in agriculture, brewed with water, produced with energy and stored in packaging, we have focused on reducing our environmental impacts related to:

- Reducing Water
- Reducing Energy and Emissions
- Sustaining our zero-waste-to-landfill status
- Reducing Carbon Footprint
- Reducing overall impacts

2015 Water Goal

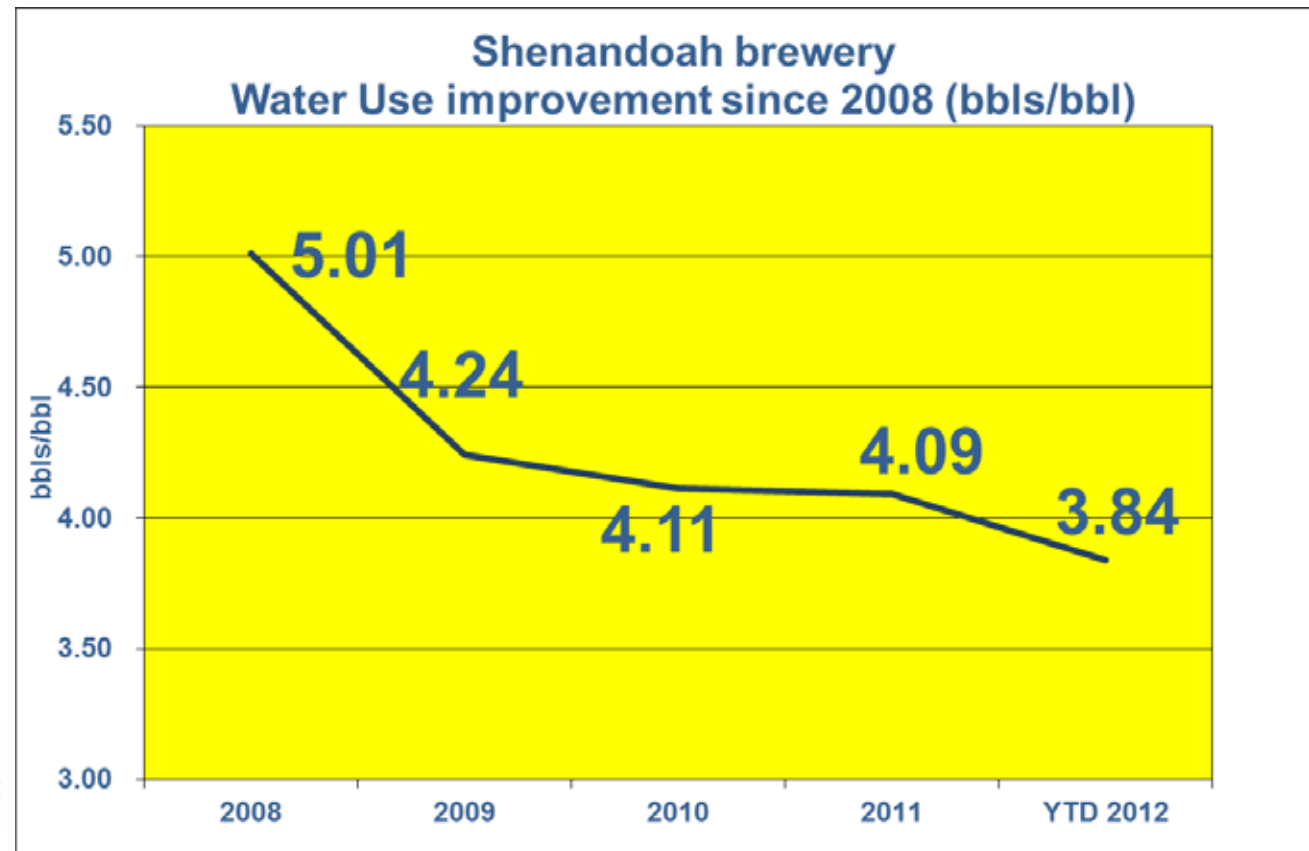
Reduction of water use has had multiple impacts on the Brewery's Environmental Footprint. Beer is 95% water. A sustainable supply of good quality water is paramount to the operation.

Across the MillerCoors enterprise, the 2015 water goal is to reduce usage by 15% over 2008. As a plant we have already achieved the 15% reduction from 2008 by achieving a 23% reduction in water vs. 2008 including a 6% improvement in 2012 vs. 2011.



Update Goal for 2013

Our 2013 goal is to reduce our water usage from 3.84 bbls in 2012 to 3.61 bbls. per barrel of beer produced.



2013 Energy Goal

Energy is a substantial cost to the business.

The Shenandoah Brewery is one of the most energy efficient and high tech brewery in the world ranking 16th among the 88 SABMiller worldwide Breweries in energy efficiency.

Shenandoah ranks 1st in the MillerCoors network at 106 MJ/hl – (company average of 145 MJ/hl).



Our goal for 2013 to reduce energy usage from 106 MJ/hl to 100 MJ/hl.



Energy and Water Efficiency

- Refrigeration system optimization
- CO2 recovery System Optimization
- Boil and Wort Cooling Optimization
- Lights Out Shutdowns
- Water Reuse/CO2 Vaporization
- Production Efficiency Improvements/Waste Reduction
- Leaks Squads
- Metering
- Awareness and Accountability



2015 Waste Goal

The Shenandoah Brewery has been a zero-waste-to-landfill facility since 2009.

Through the efforts of the Green Team and all members of the Shenandoah Brewery, this continues to be a sustainable goal.





Recent Capital Projects

Shenandoah Biogas Utilization

Scope: Install 1.4 MW Biogas Generator.



- Startup: June 8, 2012
- Benefits: Saving
- OPTIONAL: Features: GE Jenbacher Generator, gas conditioning system and a duplex Iron Sponge.

Shenandoah Lighting Project

Scope: Install Orion T5, 4-Lamp Fully Dimmable Fixtures, With Dynamic Control. Install 92 Orion Light Tubes, Fully Integrated, Dynamic Control.



- Startup: December, 2012
- Benefits: Annual Energy Savings of \$31.5K
- OPTIONAL: Light Tubes
- Equipment: Orion T5, 4-Lamp, Enclosure HB, Full Dimming, Dynamic Control
- Environmental Benefits

Infrastructure Improvement-Amperage Reduction

A decreased lighting load may prevent costly electrical infrastructure improvements.

System Voltage:	277
Total existing amps draw:	198
Total proposed amps draw:	36
Ampacity Gained	162

CO2 Removed (tons).....	254.6
SO2 Removed (tons).....	0.930
NOX Removed (tons).....	0.349
Mercury Removed (lbs).....	0.011
Acres of Trees Planted.....	72.2
Gallons of Gas Saved.....	32,505.4



Shenandoah ICE Roofing Project

Scope: Installation of Tremco’s LEED Certified 3-Part ICE Roofing System

- *ICE Coating*, a highly reflective, low-VOC, acrylic, elastomeric roof coating that satisfies the requirements of ENERGY STAR®, the Cool Roof Rating Council and California’s Revised Title 24 Energy Code. The ICE Coating uses Tremco’s patent-pending nanotechnology, enhancing both durability and reflectivity, and has superior early ponded water resistance, especially when used in conjunction with the ICE Adhesive and Reinforcing Fabric. Its high reflectivity (.86) and emissivity (.93) equate to a Solar Reflectance Index of 108, well exceeding the LEED® requirement of 78 for reflective roof coatings.



ROOF AREA: 31,700 sq. ft.

DATE OF JOB COMPLETION: January 25, 2012

Solar Cost Savings Calculations: Per DOE Cool Roof Calculator

Existing Roof Verses Black Roof - Annual Cost Savings (\$/SF)	\$0.015
Proposed Roof vs Black Roof - Annual Cost Savings (\$/SF)	\$0.053





Other Projects

Shenandoah Great Water Month

The Shenandoah Brewery partnered with the Shenandoah Valley Pure Water Forum to restore a community storm water and detention pond at Spotswood High School.

56 volunteers donated approximately 363 hours to the day-long event.

Nearly two dozen similar events took place in brewery operating communities across the country. 2012 was the fourth year that MillerCoors has dedicated September as Great Water Month.



Questions?

