An Efficient Brewing Process — The New Glarus Brewing Company is located in New Glarus, WI. It was established in 1993 by Deb and Dan Carey. Approximately 90 people are currently employed. The brewery’s mission is to produce world-class, handcrafted beer. In 2014 the brewery sold 162,000 barrels of beer. New Glarus applied for the Green Tier program in 2012 and was accepted in August of 2013.

“To truly become number one, you must constantly strive to surpass yourself... not the competition.” - Deb Carey

Sustainability affects every process and person in a brewery and community. Our brewery has embarked on a quest to reduce consumption through process improvements and system upgrades. The individuals involved are what make this standard equipment unique: Brewer challenge the process to utilize resources more effectively, Team Leaders dream up ways to reduce our use of resources, Programmers modify systems, Welders modify pipes and fittings, Lab Technicians evaluate cleaning programs, Gift Shop Staff communicate our story to visitors and Maintenance Technicians install equipment and support operations. Improving sustainability is a team effort.

Energy Consumption

Gas (Next target is 1.37 Therms/BBL & 121.2 MJ/HL)

2012 – 1.46 Therms/BBL 131.2 MJ/HL
2013 – 1.41 Therms/BBL 126.7 MJ/HL
2014 -- 1.39 Therms/BBL 124.9 MJ/HL

Electric (Next target is 17.00 Kwh/BBL & 14.49 Kwh/HL)

2012 – 19.48 Kwh/BBL 16.34 Kwh/HL
2013 – 18.49 Kwh/BBL 15.51 Kwh/HL
2014 – 17.19 Kwh/BBL 14.65 Kwh/HL

Note: Consumption numbers include: Riverside and Hilltop locations and associated visitor areas, Gift Shop and Beer Depot.
An Efficient Brewing Process – continued

2014 Items in Review

- Heat Recovery Systems
  - We installed three process wastewater heat recovery systems. The boiler blow down and skim water heat will be heat exchanged into the makeup water for the boiler. The other two systems will collect hot water from process points and cleaning systems in the Brewhall. This heat will be transferred into makeup water for the warm water system in the Brewhall.

- Upgrade to Refrigeration Plant
  - We installed a closed loop & VFD compressor pump system. The total energy consumption decreased due to compressor VFD’s coupled directly to the system demand, switching to a “Closed Loop” system and integrating programming that allows multiple operating parameters based on ambient conditions, trend tracking and system warnings. We insulated all hot and cold lines affected by change on system.

- Conversion of a compressed air bottle blow off system to a centrifugal blower.
  - The wiping and drying of rinse water off filled bottles is important to the labeling process. This inefficient use of compressed air is expensive.
    - 20HP was replaced with 5HP, that’s a 75% reduction.

- Continue use of smart LED high bay lighting in the warehouse expansion.

2015 Goals

- Pre-Run Vessel & Heat Recovery
  - We plan to collect more vapor during the boil process and use this heat to pre-heat wort prior to the kettle stage. The energy storage tank, at 95°C, will increase the useful energy level of heat reclaimed from the vapor condenser. The additional volume will also give us the needed capacity to utilize all vapor energy from boiling. We can reduce kettle fouling, which reduce CIP’s, decreasing water use and brewing time. All these items will increase efficiency in the Brewhall.

- Warehouse-air movement & infiltration around docks and levelers. These areas can let in cold outside air which increases heating costs unnecessarily. The goal is to reduce cold air infiltration with minimal impact to fork truck operation.

- CIP 1 & 2
  - CIP system 1 & 2 will each get water/chemical recovery tanks. This will reduce water/chemical use. These tanks will hold solutions so the system does not have to reheat water as often or as much. The solution can be up-concentrated to utilize chemical more than once, there by reducing chemical usage.

- A continued use of LED lighting in new construction.
Sustainable Brewing Process – These are the actions you have or will take in your processes that drive you as close to truly sustainable as possible.

*Water Target; Reduce water ratio to 3.5:1, ultimate goal is 2.5:1*

What is your past, current and future BBL beer to BBL water?
- 3.66 in 2012
- 3.83 in 2013
- 3.88 in 2014

What actions have you taken to get you to this point?
- Identifying water/chemical operations & keying in volumes used.

What actions will you take to achieve your goals? (To reduce water use)
- CIP system 1 & 2 system upgrades, chemical & water tanks.
  - Improvements start with the addition of recovery tanks on CIP system 1 and 2. This means that there is no need to empty the entire system between chemical washes; saving a great deal of chemical and water waste. The caustic recovery tanks recover caustic to be reused in a required pre-flush rinse on the next equipment CIP. The only time there is a need to completely empty the system is when the CIP system itself needs to be cleaned.
  - Work on CIP 1 & 2 to bring on-line.
- Brewhall Heat Recovery will reduce CIP’s for a fouled kettle, decreasing water and chemical use.

Reduce-Reuse-Recycle

*Divert waste from landfill*
- Less than 9 yards per week to landfill, which includes Gift Shop and visitor garbage.
- Less than 9 yards per week of commingled recyclables.
- 2013—22.8 tons of paid for recyclables. NGB segregated cardboard and stretch film and sold them instead of paying to haul it away.
- 2014—45.25 tons of paid for recyclables. NGB started segregating some high use plastics and paper.
- Pallet recycle reuse and repair program is ongoing.
- 2015—Extend commingled recycling containers to the visitor areas.
Reduce-Reuse-Recycle-continued

What have you been doing to drive down the amount of waste from your processes?

- 2013 – 1st completed year of baling & selling corrugated cardboard and stretch film. E-waste recycling program started.
- 2014 Review– Segregate #4 plastics from commingled recyclables, separate mixed paper and bale poly and paper bags.
- Scrap pallet re-use and recycle plan.

Sustaining Community

What have you done and are you planning to do to increase your interaction with the community and employees?

- Events sponsored in part by New Glarus Brewing. (See next page)

New Glarus Brewing Company has been a proud supporter of events in our village. The brewery is a major sponsor for Oktoberfest, the Beer, Bacon & Cheese/PolkaFest event, and the annual Bike Rodeo for Kids. We are grateful to the village that we’ve called home for over 20 years and we donate money, beer and merchandise, as well as our time, to help support the village’s many events and organizations.

- 90+ employees and growing.
- Use of local skilled labor in construction/maintenance of the brewery.
- Gift Shop staff advocates “Local” businesses & information.

People Planet Profit

- We use local suppliers for raw materials.
- We currently have 320 suppliers in WI.
- We use Green Tier Company Suppliers; currently 6.
- Our suppliers use recycled contents; collet glass 30-35%, paper related 34%.
New Glarus Brewing Company

Green Tier Breweries
Annual Report 2014

At the close of another year...we gratefully pause to wish all of our friends a warm and blessed New Year!

AceStaehnen Memorial Agricultural Research Foundation
Albany FFA
Albany FTO
Alphorn Trillation
American Cancer Society
American Family Children’s Hospital
American Heart Association
American Legion
American Red Cross
Angel Among Us
Angie Booscher Club
Angie Post Prom
Belleville Fire Department
Belleville High School Post Prom
Belleville Police Bike Rodeo
Benefit for Angie Johnson
Benefit for Bonnie Wilde Sigman
Benefit for Sabrina Feary and Family
Benefit for Ava and Audrey’s Angels
Benefit for Ava Bial
Benefit for Branson Midd
Benefit for Brenda Schad
Benefit for Gary Armbrust
Benefit for Sabrina
Benefit for Shawn Smith family
Benefit for Talin Zatorski
Big Brothers/Big Sisters Club
Blackhawk FFA
Blackhawk Post Prom
Boys and Girls Club Dane County
Breast Cancer for Women Golf outing
Brochard FFA
Bundled Blessings
Camp Gray
Carbon Cancer Center Alzheimer Walk
Carbon Cancer Center
Chicago Fire Department
Centra and Cottage Foundation
Cystic Fibrosis Foundation Dane County
Dane County Domestic Abuse Intervention Services
Dana’s Sisters United
Dodge County Safe Ride
Dubuq Unlimited
Eagle Pass for Parkinson Disease
EMMA STRONG benefit for Emma Hicks
Epilepsy Foundation
Federal Industries
Feed America
Greyhound Fundraiser
Green County 4-H
Green County EMS
Green County United Way
Green County Ag Chest
Green County Alliance on Mental Illness
Green County Cheese Day
Green County Child Advocacy Center
Green County Fair of the Fair
Green County Fair
Green County Fair Nationals
Green County Family Premea
Green County Farm Bureau
Green County Food Pantry
Green County Foster Care
Green County Habitat for Humanity
Green County Humane Society
Green County Sexual Assault Response Program
Green County Tourism
Green County YMCA
Green Haven Family Advocates Monroe
Harvest Fest
Heidi Festiva
Helping Hands Medical
Hollandale Fire Department
Hollandale Sportman Club
Juda Jamboree
Juda Post Prom
Little Thunder Foundation
Logan’s Heart and Smiles
Lupus Foundation
March of Dimes
Matt Grossen Memorial Fund
MBA Conference
MBA Teen Run
Milwaukee Children’s Hospital
Monroe Alpine Curling Club
Monroe Arts Cartier
Monroe Avalanche Hockey
Monroe Clinic Hospital
Monroe Fire Department
Monroe Homecoming
Monroe High School
Monroe Ice Rink
Monroe Jaycees
Monroe Justice For A Cure
Monroe Shriners
Monroe Youth Hockey
Monticello Buckle Run Scramble
Monticello FFA
Monticello Fire Department Tj Dash
Monticello Homecoming
Monticello Lions Club
Monticello Post Prom
Monticello Public Library
Mount Vernon Breast Cancer Fundraiser
New Glarus Area EMS
New Glarus FTO
New Glarus Schools
New Glarus Car Show
New Glarus Chamber of Commerce
New Glarus Co-Ed Kickball Team
New Glarus Community Foundation
New Glarus Dad Dash
New Glarus FFA Alumni
New Glarus Fire Department
New Glarus Gift of Community
New Glarus Christmas Chari
New Glarus Lions Club
New Glarus Music Fest
New Glarus Oktoberfest
New Glarus Post Prom
New Glarus Public Library
New Glarus School Knight Pride
New Glarus School YWLAking Park
New Glarus Shop with a Cop
New Glarus Small World Childcare
New Glarus Special Olympics
New Glarus Sports Boosters
New Glarus Teachers Golf Outing
New Glarus Village
New Glarus Winterfest
New Glarus Yodel Club
NYSTT Sugar River
Old World Wisconsin
Pink Ribbon Riders/Beast Cancer
Parason Rides
Poulkast
Project Home
Ronald McDonald House
Ride 4 A Cure
Rainbow Benefit
READ Food Group
St. Jude’s
Sangerfest
Second Harvest Food Drive
State FFA Banquet
Sugar River Rapids
State Teachers Conference
Sexual Assault Recovery Program
Teacher’s Aid Association
Tyler Piers Memorial
Toys for Tots
Thunder Run-Juvenile Diabetes
UW Food and Science
Volkefest
Velter’s Benefit Ride
Walk to Cure Diabetes
Whirlwind Deer Unlimited
Wi Agribusiness Council
Wi FFA Convention
Wi National Guard
Wi Army Chapter
Wi Deer & Elk Farmers Association
Wi Department Of Tourism
Wi Disabled American Veterans
Wi DNR
Wi Parent of the Fair
Wi Farm Bureau
Wi Teacher’s Association
Wi Veterans Museum
Wi Vietnam Veterans Chapter 3
Wi Wetlands Association
Wi Women’s Health Gala
Wi Public Television
William Tell Festival
Women for Women Cancer Cure
Worm Ride-Hope’s Transplant Hope
Wounded Warriors In Action
Yellowstone Lake Fundraiser