Cheri Chastain  
Sustainability Manager
Energy Efficiency

- Heat recovery
  - Fuel cells
  - Boilers
  - Brew kettles
  - Into fermentation

- Lighting, equipment and electronics upgrades

- LEED Project in Mills River, NC

- Education and Monitoring
2014 kWh Consumed per BBL of Beer Produced

The amount of kWh consumed for each BBL of beer produced

2014 Goal = 14.00
2013 = 14.47

- 2014
- 2014 YTD
- 2014 Goal
- 2013

January: 12.65
February: 13.27
March: 13.88
April: 13.45
May: 13.58
June: 16.48
July: 15.52
August: 15.43
September: 15.49
October: 14.25
November: 14.00
December: 12.18
North Carolina Solar

http://www.youtube.com/watch?feature=player_embedded&v=fWjIsbNo7Ws
Solar Thermal
2014 On-Site kWh Generation

kWh = kilowatt hour, unit of electrical energy
The percentage of electricity consumed that was generated on-site via solar panels and fuel cells
2013 = 77.74%

- 2014
- 2014 YTD
- 2013

Jan: 67.22%  85.49%  86.80%
Feb: 62.18%  73.44%  74.11%
Mar: 79.14%  84.41%  85.10%
Apr: 94.32%  86.80%
May: 72.41%
Jun: 68.73%  88.05%  78.20%
Jul: 80.05%  80.37%
Aug: 57.40%  75.37%
Sep: 64.34%  78.20%
Oct: 79.01%  80.05%

2013 kWh Generated by Type v. Energy Consumption

This chart compares the electricity generated on-site via solar panels and fuel cells to total electrical consumption. The difference is purchased from the PG&E electrical grid.

- **kWh Generated by Fuel Cells**
- **kWh Generated by Solar**
- **Total SNBC kWh Consumed**

![Graph showing kWh generated by fuel cells and solar, compared to total electrical consumption for 2013.](image-url)
Closing the Biogas Loop - Chico

Spent brewing process water is pretreated onsite.

The first treatment phase is an anaerobic digester.

The biogas is recovered, cleaned up, compressed and used to offset the natural gas needed for our boilers.

Boilers provide the heat source in order to boil wort.
DevEStATION BLACK IPA
ALMOST Homegrown Ale

All farmers know that there are good harvests and bad, but this year we lost our entire barley crop in the wake of nature. Not to be deterred, we bring you this all new beer in honor of the barley that wasn’t...
Closing the Compost Loop

Discards are collected from restaurant, break rooms, and some brewing operations.

Organics are composted onsite in the HotRot.

Finished compost is used in onsite restaurant garden supplying the kitchen.

2 weeks later we have stable compost!
Water Conservation

- Automation
- Flow Meters
- Dry lube switch in packaging (from a water based lube)
- Hose bib controls
- Drip irrigation and smart controls
- Behavior
Trending Water Use

BBLs of Water Purchased and BBLs of Waste Water per BBL of Beer Produced

- Purchased
- Waste Water
- BBL Beer Produced

<table>
<thead>
<tr>
<th>Year</th>
<th>Purchased</th>
<th>Waste Water</th>
<th>BBL Beer Produced</th>
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<tr>
<td>2007</td>
<td>6.02</td>
<td>3.87</td>
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<td>2008</td>
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NC Storm Water Management
Brewers for Clean Water
Transparency

For more information about Sierra Nevada’s sustainability program, check out the sustainability report at www.sierranevada.com/brewery/about-us/sustainability
Cheers!

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