



Romancing the Foam No. 91



My Growler piece (<http://growlermag.com/climate-changes-impact-on-beer-what-you-need-to-know/>) last month on the impact of climate change on beer led me to the question, “How is beer impacting the climate?” Probably a lot but not as much as it used to. From the mid-17th century well into the 20th coal-fired breweries belched sulfurous CO₂ laden grey smoke onto the surrounding environs – roughly producing 3.49 lbs. of CO₂ for every gallon of beer produced and using upwards of 20 gallons of water to make one gallon of beer. As Pogo said: “We have met the enemy, and he is us.”

Brewers have gotten better. The top ten firms worldwide account for 65% of beer sold. Eight of the top ten firms, accounting for 56% of the total share of throat, have taken significant steps to promote sustainability and address climate change. Anheuser-Busch has solar collectors at three of its US plants, eight of their plants recover biogas for fuel from their waste water, their plant in Fort Collins Colorado has a 4.1 MW windmill, and their breweries are pushing the gallons of water per gallon of beer ratio below 3.5. Asahi has solar on two of their Japanese breweries, collects biogas for fuel from the wastewater at all 9 of its Japanese breweries, is converting excess CO₂ into fuel at eight of its nine breweries and has purchased renewable energy credits to ensure that its beer is carbon neutral. Heineken has solar collectors (5.5 MW total) on 5 of its breweries, transforms waste water into biomass fuel at two, and in 2014 announced that its water conservation efforts saved the corporation \$83.4 million over the past 6 years. SAB Miller has cut global carbon emissions by 35% since 2008 – nearly one million tons. In 2015 they achieved \$117 million in annual savings through energy and water efficiency compared with 2010. They reduced their lbs. CO_{2e}/gallon of beer from 0.86 in 2014 to 0.78 in 2015. Carlsberg’s 2014 global CO₂ emissions are down 5% from 2013 and they have reduced their global water use to around 3.3 gallons of water per gallon of beer. In 2013 Tsingtao reduced its energy consumption by 4.3% from 2012 and its water consumption by 7.3% while increasing their overall production by 8.5%. They have reduced coal consumption per unit by 7.2%. In its 2014 Corporate sustainability report,

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Molson Coors reported that it saved 1.4 billion gallons of water from 2008-2014, have achieved a 99.99% corporate recycling rate, have saved 800,000,000 kilowatt hours of electricity from 2008-2014 and now operate 7 landfill-free breweries. Their Irwindale California MillerCoors subsidiary boasts a 3.2 MW solar array. Kirin's 2013 CO2 emissions from Japanese manufacturing and distribution operations were reduced 55% from 1990 levels.

I found 563 breweries worldwide with notable sustainability efforts and 378 in the US, primarily craft breweries. Some really stand out. A google earth shot of Sierra Nevada's Chico California plant borders on enviro-porn. The EPA named Sierra Nevada Green Business of the Year in 2010 for its sustainability practices. More than 10,500 solar panels cover the roofs of the buildings generating 2.6 MW of electricity. Methane recovered from brewery waste water powers three fuel cells (1 MW total) that provide heat for steam and electricity to supplement the solar panels. Sierra Nevada kept 99.8% of their waste out of landfills in 2012. In the picture below, to the right, you can see their two acre garden and eight acre hop field. Sierra Nevada's 2015 sustainability report is here:

<http://www.cdn.sierranevada.com/sites/www.sierranevada.com/files/content/sustainability/reports/SustainabilityReport2015.pdf>.



I have had 32 beers from Sierra Nevada and I haven't had one I wouldn't repeat. Sierra Nevada's Pale Ale is Ken Grossman's original beer that debuted in 1980, it is the second bestselling craft beer in the US and is a true classic. Besides its signature Pale Ale, Sierra Nevada offers seven year round beers, a

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selection of seasonal beers, and a selection of specialty beers. In the specialty category, Sierra Nevada's Ovila Belgian Abbey style ales are particularly good.



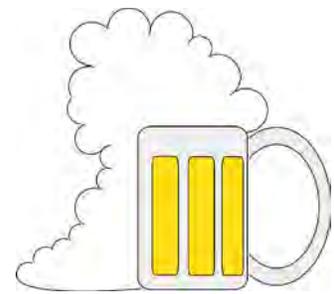
Since 2014, Sierra Nevada has teamed up with craft brewers across the country to produce mixed collaboration 12-packs. In 2016 they will team up with 30 of the finest craft brewers to form six regional teams (Northern California, Southwest, Pacific Northwest and the Rockies, the Midwest, the Northeast and Mid-Atlantic, and the Southeast). Sierra Nevada will start selling tickets in February for 6 regional events in June 2016 (<http://beercamp.sierranevada.com/>). In the past they have distributed the beer camp 12-packs nationally. Look for them.

Sierra Nevada's Torpedo Extra IPA (7.2% abv, 65 IBU) showcases Sierra Nevada's creativity and quality. Hop flavors and bitterness come from a variety of acids and essential oils in the flowers of the hop plant. Vigorously boiling the hops for a long time changes the alpha acids giving beer its bitterness. It also drives off the essential oils which provide hop aroma and flavor. Adding a portion of the hops near the end of the boil preserves some of the aromas and flavors. Adding hops to the beer during fermentation (dry hopping) accentuates the aromas. Sierra Nevada improved on the dry hopping technique by inventing the hop torpedo, a stainless steel cylinder that allows the brewer to circulate fermenting wort through the hops during fermentation enhancing the extraction of essential oils. Many dry hopped beers have a haze. Torpedo pours a beautiful, brilliant copper gold under a clingy and persistent 3" off-white foam collar with a very fine bead. The bitter hop oils help the head's longevity. Those lucky enough to find this on tap or get a fresh can will notice citrus, resin and melon aromas from a foot or so away with a hint of vegetal in the background. The tongue immediately notices rich malt flavors quickly followed by lemon, tropical fruit and growing grapefruit rind bitterness. The flavors layer in an almost parfait-like quality with more sweet fruit and malt flavors in the body and more resinous grapefruit rind bitterness in the foam and then a pleasant balance as they converge. The body is medium but very creamy with fine, soft carbonation. I rate it 95.



Fort Collins Colorado's New Belgium Brewing Company is employee owned and one of the more sustainable breweries around. On their one year anniversary, new employees get a Fat Tire Cruiser Bike.

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After 5 years employees get a one week trip to Belgium to learn about all things Belgian. For every 2 hours of volunteer service, employees get one hour of paid time off.

New Belgium treats the planet as well as they treat their employees. They have a 0.3 MW solar array on their roof, they collect biogas from their waste water to fire their boilers and produce electricity, they purchase wind power renewable energy credits to make their brewery carbon neutral, reduce costs through waste heat recovery, are a certified zero waste facility, have cut their water use to 3.5 gallons of water per gallon of beer, are certified salmon safe, and capture and reuse CO₂. In 2008 New Belgium produced 1.43 lbs CO₂ per gallon of beer. By 2014 they cut that number to 1.10 lbs CO₂ per gallon. You can read their sustainability report here:

https://www.newbelgium.com/files/sustainability/New_Belgium_Sustainability_Brochure.pdf?pdf=sustainabilityreport. New Belgium is also a Certified B corporation. B Corporations "... are a new type of company that uses the power of business to solve social and environmental problems." Find more info at: <https://www.bcorporation.net/>.

I have had 42 different New Belgium beers. Their highly regarded signature Fat Tire Amber often shows up where most craft beers do not. They offer a series of flavorful, yet approachable year round beers, some big hoppy IPAs, a selection of sours, a Lips of Faith series that showcases the brewer's creativity, some seasonals, a series of big hop beers, and some gluten reduced beers. They have a nice collection of old standbys that you keep coming back to and wildly creative stuff that you just have to try.



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New Belgium's Ben & Jerry's Salted Caramel Brownie Brown Ale (6.3% abv, 14 IBU) captures the essence of New Belgium blending creativity with social conscience. It is a special beer brewed in collaboration with Ben & Jerry's Ice Cream, another Certified B Corporation. Simultaneously Ben & Jerry's is releasing an ice cream flavored with the beer. A portion of the proceeds from the beer and the ice cream will support Protect Our Winters (<http://protectourwinters.org/>), an organization geared towards mobilizing winter sports enthusiasts to work against climate change.



Salted Caramel Brownie Brown Ale is a pretty, slightly decadent beer, pouring bright brown with ruby highlights under a lacy ½" tan foam cap that dissipates fairly fast. The beer smells like its name with caramel, chocolate, some dried fruit and a trace of brownie aromas wafting up from the glass. The beer feels good in the mouth coming on with a big salted caramel chocolate brownie palate lightly laced with the kind of fruit flavors one might find in a brownie. Salted chocolate brownie flavors linger. Salted Caramel Brownie Brown Ale is well balanced with nothing cloying or overstated. Despite its rich flavors, its body is medium and carbonation soft and medium low. If you can find a bottle of this beer and a pint of the Ben & Jerry's ice cream flavored with the beer, try them together. I had mine with a salted chocolate caramel and some Jasper Hill Harbissons cheese. It would probably also work with a chocolate brownie. I rate this flavor packed brown ale 84.

I started my exploration of the sustainability of beer expecting that small craft brewers would stand head and shoulders above the big global brewers. The more I dig, the more sustainability appears to have taken root in the entire industry. On December 18, 2015 Reuters reported that New Belgium has contacted Lazard Middle Market in search of a buyer. The employee-owned new Belgium could be worth well over \$1 billion. This could be a life changing moment for many of the employees. Will the new buyer maintain the employee programs and social and environmental conscience of the current company? The environmental behavior of the top ten global brewers provides some grounds for hope, but the answer will obviously depend on the buyer. Until then, we can all sit back and save the climate one beer at a time.