

## Creating a Zero Waste Facility at Sierra Nevada Brewery

**Location:** Mills River, North Carolina

**Type of property:** Brewery

**Type of membership:**  
Audubon Cooperative Sanctuary

**Member since:** July 2017

**Certified since:** April 2018



Sierra Nevada Brewing Company

At Sierra Nevada Brewing Co, sustainability is both a cultural and operational philosophy. Since their founding in 1980, Sierra Nevada has worked to limit their impact on the environment while brewing the highest quality product possible. A few decades and pints later, Sierra Nevada began construction on their second brewery in Mills River, North Carolina with the same commitment to environmental stewardship.

The Mills River brewery, nestled in Appalachia, began production in 2014 and opened its taproom to the public in 2015. In 2016, the brewery received Platinum TRUE Zero Waste certification by diverting 98.9% of their total solid waste from the landfill- following its parent brewery which was the first company to be certified in 2013. Sierra Nevada continued their zero waste journey and successfully increased their diversion

rate to 99.8% in 2017 through employee education, a reevaluation of waste services, and identifying new opportunities. Their program not only reduces waste to the landfill but also reduces costs.

Instead of paying \$36,000 a year for waste services, Sierra Nevada surpassed their goal of a 30% decrease in net cost and turned their zero waste program into its own profit center!



Sierra Nevada's wastewater pre-treatment plant creates a closed loop.

### **2016**

Cost of services: \$64,582.85

Revenue: \$28,545.86

**Net cost: \$36,036.99**

### **2017**

Cost of services: \$45,205.35

Revenue: \$46,441.73

**Net costs: -\$1,236.38**

The company uses a closed loop philosophy throughout its operations and expands the definition of “waste” to all resources including water, energy, materials, and time. An onsite wastewater pre-treatment facility uses anaerobic digestion to generate biogas from brewing effluent water and spent yeast. The biogas is used as fuel for a 400kW Capstone microturbine system and offsets the use of natural gas in the brewery’s boilers. Carbon dioxide produced during fermentation is also reused. The brewery captures and cleans CO2 from the fermentation process which is reused throughout the facility for cleaning, purging tanks, and moving beer.

Waste reduction and reuse is also paramount to the company. Purchasing decisions that include reusable materials and shipping containers along with preference for recyclable materials helps reduce waste before it starts. In 2016, Sierra Nevada began purchasing nitrile gloves from Kimberly Clark to participate in their glove recycling program. All gloves are collected separately and recycled into durable products such as park benches and street signs.

The story is the same for the brewery’s organic waste. All spent grain is used for animal feed at local farms, food waste from the taproom is composted locally, and landscaping and garden waste is composted onsite in an aerated pile. The compost produced onsite is used in landscaping and to make compost tea which reduces the amount of fertilizer and pesticides that would otherwise need to be applied.

Education is the single most important aspect of any zero waste program and has been instrumental to Sierra Nevada’s success. Numerous in-person workshops and online trainings in conjunction with regularly posted articles and blogs on the company’s intranet educate and engage employees. These efforts help create context for the zero waste program and show employees how they can participate.



*Reusable pallets and slip sheets help eliminate waste.*



*Source separation create cleaner and higher value recyclables.*

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