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## Maine Craft Breweries: Sustainability Benchmarking

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# Maine Craft Breweries: Sustainability Benchmarking

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## Abstract

Sustainability can have many definitions and meanings, usually derived from the same set of parameters. The Maine Department of Environmental Protection supports a comprehensive and coordinated approach to environmental stewardship in managing resources we utilize in our daily lives.<sup>1</sup> For Maine, sustainable practices in the brewing industry are becoming even more important as our craft breweries are continuously growing. With environmental stewardship in natural resource management in mind, the Brewers Association (BA) has created the sustainability benchmarking tool for paying members in order to help brewers track and decrease their use of natural resources. University of Southern Maine (USM) interns have collaborated with the New England Environmental Finance Center (EFC) on a grant project, sponsored by the U.S. Environmental Protection Agency (EPA), to connect with Maine craft breweries and provide technical assistance on environmental sustainability, and reducing the use of toxic cleaning and sanitizing chemicals.

## Background

The BA benchmarking data inputs include the costs and usages of production (bbls), electricity (kWh), water (HCF), wastewater treatment (\$), fuel/gas (therms) and off-site waste disposal (lbs). Through an analysis of these data inputs for each brewery, the BA sustainability benchmarking tool uses algorithms to show and explain the use of natural resources for the business, and then compares them to a national benchmark to show the status of their resource use. The BA ranks Maine third in number of breweries per capita with a total of 11.3 breweries per 100,000 adults 21+, and estimates an economic impact of \$656 million for the industry.<sup>2</sup>

## Objective

- Connect with Maine craft breweries to compile data inputs that are to be entered into the sustainability benchmarking tool where they are weighed against the production data of the brewery.
- Help breweries find cost savings through source reduction by assisting them evaluate the report, and recommend minor changes that can lead to major differences.
- Promote environmental stewardship for Maine craft breweries to further sustain our limited natural resources.

## Methods

- Tabulate Maine craft breweries business statements, list of charges, and production data to input into a spreadsheet that is entered into the BA's sustainability database (Figure 1) under the discretion of the EFC.
- Evaluate the performance of each microbrewery using the BA's algorithmic outputs for sustainability benchmarking (Figure 2).
- Report findings to each microbrewery and recommend potential areas for improvement and cost-savings to promote sustainable practices.

Resource Key Performance Indicators (KPI's)		Units
BBL Packaged (Default Normalizing Factor)		bbl
Electricity - Total Purchased Usage		kWh
Electricity - Total Purchased Cost		\$
Fuel - Total Purchased Usage		therm
Fuel - Total Purchased Cost		\$
Water - Total Purchased Usage		gal
Water - Total Purchased Cost		\$
Wastewater - Municipal/Private Treatment Works Disposal Cost		\$
Off-site Waste Disposal Quantity (typically estimated)		lb
Off-site Waste Disposal Cost		\$
Off-site Waste Recycling Quantity (typically estimated)		lb
Off-site Waste Recycling Revenue		\$
CO2 - Total Purchased Quantity		lb
CO2 - Total Purchased Cost		\$

Figure 1. Basic Data Inputs

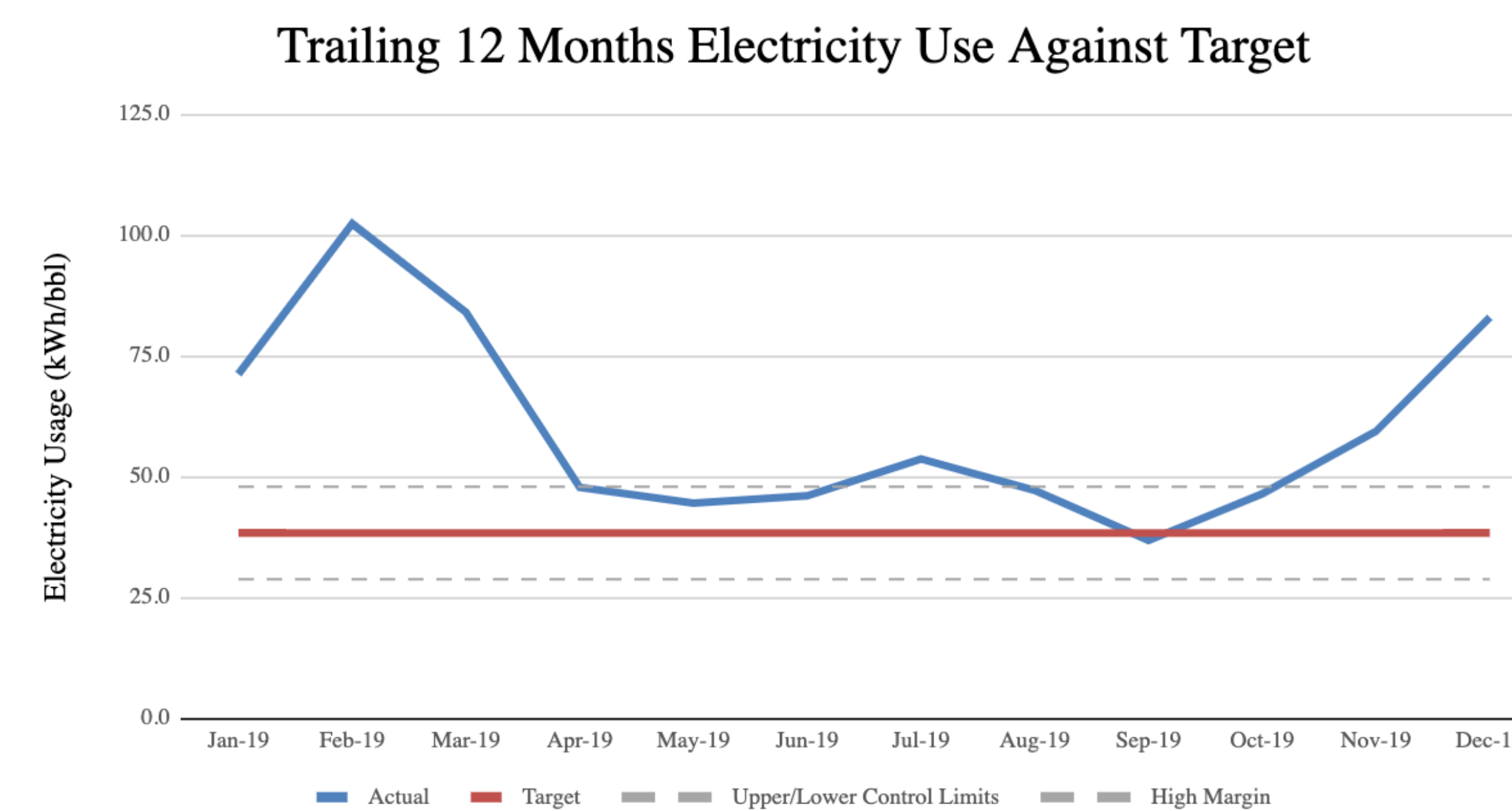


Figure 2. Algorithmic Output for Electricity Trend (Brewery A)

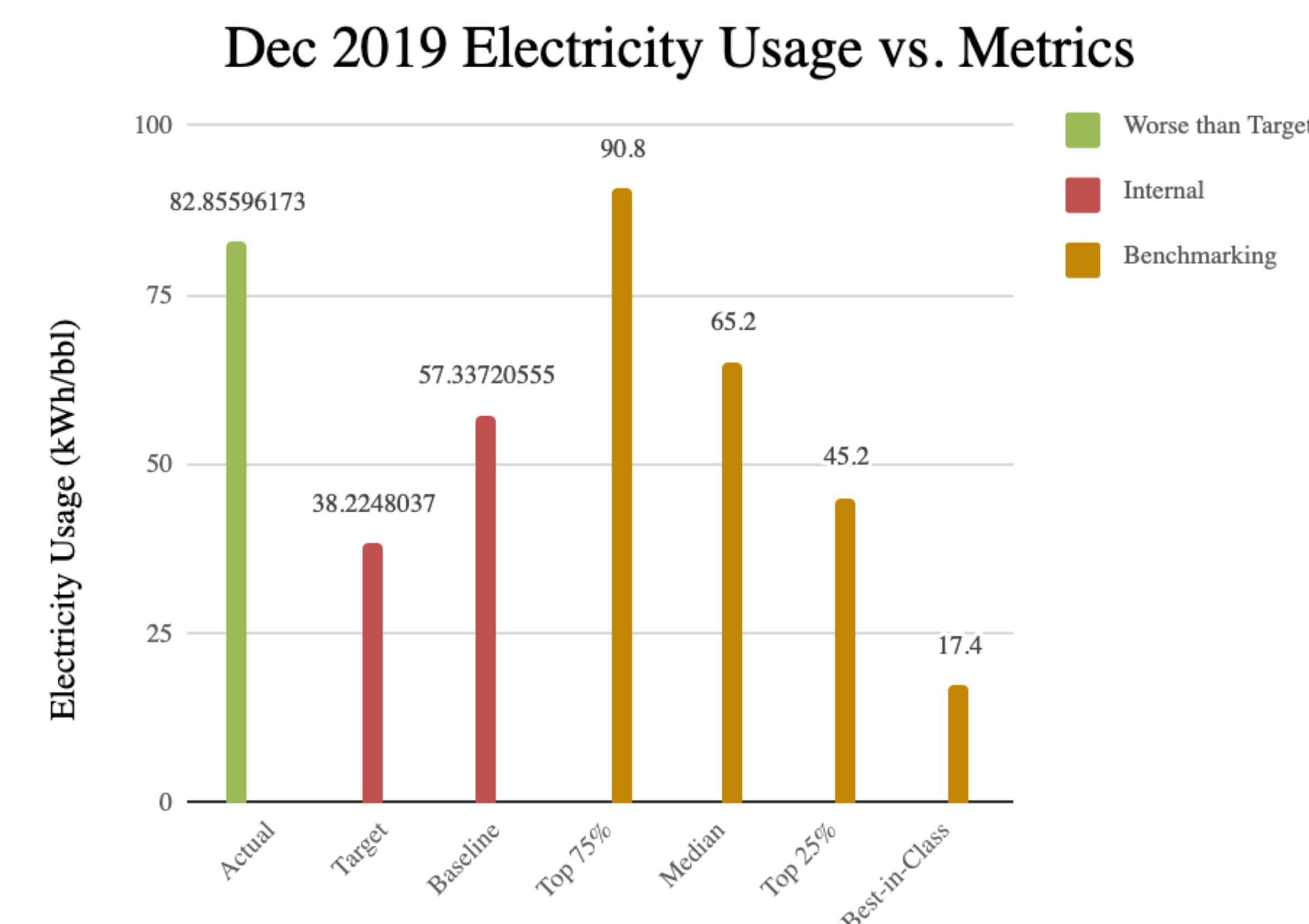


Figure 3. Usage vs. Metrics (Brewery A)

## Results

- Connected with five Maine craft breweries and gathered basic data inputs that have been entered into the BA sustainability benchmarking tool for each breweries profile.
- Collaborated with the Toxic Use Reduction Institute (TURI) to test cost effective, less toxic, and sustainable cleaning and sanitizing procedures for breweries.
- Shared findings with craft brewers at the 2020 New England Brew Summit to enlighten brewers about sustainability in the industry.

## Discussion

### Limitations:

- Many breweries are simply too busy to sit down and organize bills into data to be entered into the BA.
- Some data inputs are difficult to measure and keep track of without proper tools needed; often times they are estimated.
- The BA sustainability benchmarking tool can be difficult to maneuver and become quite confusing in some areas, potentially leading to less participation.

### Industry Future:

- Improvements to the BA sustainability benchmarking tool could be made to make it easier for brewers to report their variables.
- TURI has had case studies that found cost effective, and less toxic cleaning and sanitizing procedures for brewers that also uses less water.
- Sustainable resource development trends have increased in the brewing industry.<sup>3</sup>

## Conclusion

The craft brewing industry has shown an increase in sustainability trends.<sup>3</sup> Maine craft breweries should take advantage of the rising popularity for sustainably brewed products by forming more sustainable standard operating procedures in order to market towards a larger group. By utilizing this market power, they have the potential to increase their profits while also practicing environmental stewardship towards sustaining the industry and its limited natural resources.

## References

- <sup>1</sup> Maine Department of Environmental Protection. (2019). *Sustainability*. Retrieved from, <https://www.maine.gov/dep/sustainability/index.html>.
- <sup>2</sup> Brewers Association. (2018a). *Maine's Craft Beer Sales and Production Statistics, 2018*. Retrieved from, <https://www.brewersassociation.org/statistics-and-data/state-craft-beer-stats/?state=ME>.
- <sup>3</sup> Brewers Association. (2018b). *Brewers Association 2017 Sustainability Benchmarking Report*. Retrieved from, <https://s3-us-west-2.amazonaws.com/brewersassoc/wp-content/uploads/2019/01/2017-Sustainability-Benchmarking-Report.pdf>

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