Brewery Sustainability & Process Improvement
Emily Berg, Conner Thorsen, Corey Wageman
Environmental Studies Program

Abstract
In conjunction with IDEQ and COBE’s TechHelp, our project sought to research improvements for three local breweries to increase efficiency, sustainability and workplace safety. Brewing beer is an energy, water and resource-intensive process, as such, smaller-scale craft breweries are faced with a number of sustainability challenges and opportunities. Reducing energy and resource consumption could make craft breweries more financially and environmentally sustainable. Specifically, our research focused on the ways craft brewers can increase energy, refrigeration, transportation and workspace efficiencies, improve packaging, and reduce waste and water use.

Making improvements to ergonomic design, such as with grist loaders, in breweries will save on labor time and improve health and safety in the workplace.

Insulating pipes can reduce heat loss by 90% and help insure proper steam pressure in plant equipment. Any surface over 120°F should be insulated and routinely checked.

There is technology used in large-scale beer production coming to market for smaller craft breweries that allows breweries to recapture CO2 and use it for carbonating and canning/bottling.

Organizing workspace equipment according to the 5-S Design Principles, an essential component to Lean Manufacturing, reduces time wastes throughout the brewery and improves equipment reliability.

Stripdoor curtains on refrigerators are only about 65% effective. To save money on refrigeration, breweries can install rapid-close doors, optimize cooling systems, and schedule regular maintenance.

On the canning line, regular maintenance can take a brewery from unplanned downtime to 96% efficiency in some cases. There are also possibilities for water recycling from the can rinsing phase.