

Great Western Malting

In the winter of 2014, the Industrial Assessment Center (IAC) at Oregon State University, also known as the OSU Energy Efficiency Center, visited Great Western Malting in Vancouver, Washington. The assessment was sponsored by the U.S. Department of Energy and was led by IAC director Joseph Junker.

The assessment team identified four energy savings opportunities with potential savings of \$658,516 that would pay for costs in five years.



Great Western Malting is located in Vancouver, Washington and supplies the area with a range of premium, quality ingredients and equipment. *Photo from Great Western Malting*

Assessment at a Glance

- Conducted on February 17th, 2014
- Identified four energy savings opportunities aimed at minimizing energy consumption and optimizing efficiency
- Facility successfully implemented three of the four recommendations
- Implemented recommendations will save the facility over \$854,000 annually
- Payback periods of implemented recommendations range from 7 months to 4 years

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Summary

This audit was unique, as not only did OSU IAC get the opportunity to work with Great Western Malting but it also got to collaborate with some of the most important stakeholders in the region. This collective effort made this audit a fruitful experience that yielded significant energy savings.

A diverse group of stakeholders including CREDC, Clark Public Utilities, NWFP, Impact Washington, Bonneville Power Administration (BPA) and the Oregon State University Industrial Assessment Center (OSU-IAC) came together in January 2012 to develop a shared resource model that aimed to positively impact the bottom line of the participating companies.

While larger companies qualified for a dedicated energy manager who would be paid by the local utility provider, many of the small and medium-sized companies were not able to meet the minimum electrical energy use and associated potential electrical savings targets to be eligible. As a solution to this problem, a pilot program was established on a cluster-based approach that allowed large and small plants to combine savings targets and to share a dedicated Energy Project Manager (EPM) across multiple companies. This program was built on the existing

energy efficiency program that funds staff positions, and develops, and manages energy projects.

Seven companies in the food processing industrial sector have benefitted from the shared EPM technical support. Each company developed a goal for savings achieved at each plant site that combined to meet the program targeted savings threshold. This case study is a success story of one of the assessments OSU IAC performed for Great Western Malting in Vancouver, Washington, in the winter of 2014.

Facility Background

The Great Western Malting Co. was founded in 1934 and is the oldest malting company in the western United States. The company supplies brewers, distillers, and food processors with premium quality malts in the United States, Canada, Asia, and Mexico.

The Washington facility encompasses about 75,000 sq.ft. with an annual production of around 120,000 tons of malt. The management prioritizes improving energy saving, waste reduction, and productivity practices. Based on the International Environmental Standard ISO, the company's Environmental Management has developed a system of benchmarking resource use and performance for each of their malt house in comparison to others around the world in order to identify best practices. They use this approach to build these practices into their processes.

Our Approach

On February 17th, 2014, the IAC team, consisting of Lead Analyst Miles Naughton; Energy Analysts Tracie Tran and Josh Mutch; Safety Officer Scott Lindbloom; and Center Director & Principal Auditor Joseph Junker arrived on-site for the initial assessment.

Overall areas of interest were discussed with facility personnel before touring the facility. After visiting the boiler area, Compartment Houses, and the Flex House the team gathered for a brainstorming session with the Productions and Operations managers and other facility personnel. This led to the development of number of ideas for potential energy savings opportunities within the facility.

Based on plant personnel feedback, the opportunities of greatest interest were targeted for evaluation and analysts were assigned to study them further. After the meeting, some analysts were escorted to systems to collect data and set data loggers, while others worked in the meeting building to collect data from facility personnel. A week later the team made a second visit to the company to set additional data loggers on equipment of interest to develop a better energy profile of the facility

Recommendations

Observations and data collected throughout the facility by the IAC team were used to develop four significant recommendations for energy savings.

- Bypassing both Stripping towers at ground level to reduce elevation head and hydraulic horsepower needed from the well pumps, reducing energy consumption by 45.5%
- Lower boiler system load by capturing heated air exiting the germination processes in the Compartments Houses reducing annual energy consumption
- Recirculating attemperation water using local pumps and installing new nozzles to atomize the water more effectively
- Replacing the Compartments House Process Heat Boiler with a direct fire “anox” system to increase process heating efficiency

Implementation

With the support of the Shared Energy Manager, the company management was very active in investigating the benefits of implementing the IAC team recommendations. The following “Implemented Recommendations” table summarizes energy saving measures that have been implemented to date. The facility was able to obtain more energy and cost savings than originally determined in the conservative estimates.

The Great Western Malting audit was a great experience for the entire OSU IAC team. It is truly admirable that the company provided needed support to the team during this project and was able to implement recommendations for significant energy and cost savings.

Implemented Recommendations

Assessment Recommendations	Annual Resource Savings	Total Annual Savings	Capital Costs	Simple Payback
Bypass Stripping Towers	2,389 mmBTU/yr	\$37,907	\$21,000	0.6 years
Replace Boiler System	3,023 mmBTU/yr	\$666,259	\$3.8 million	5.8 years
Recirculate Attemperation Water and Install New Nozzles	3,852 mmBTU/yr	\$151,928	\$3,764	0.02 years