

CASE STUDY: NIAGARA MALT

A JOURNEY TOWARDS CARBON NEUTRAL MALT PRODUCTION



COMPANY

A sustainable choice for New York craft brewers and distilleries

Niagara Malt LLC began in 2013 with hop farming and grain malting. The agricultural operation is located in Cambria, NY, and is based on sustainable practices and wildlife habitat promotion. Malted grains (barley, wheat, rye and other) are sold to New York craft brewers and distilleries.

The farm, “Cambria Vines ‘N Bines”, is along the Niagara County wine trail and includes fields (15 acres) under rotation to produce malting grains. A malt house (1700 ft²) has been constructed to house grain cleaning and malting operations.

In 2020, Niagara Malt received organic certification from NOFA-NY to process and malt organic grains.



CHALLENGES

A business in financial jeopardy due to inefficient systems

Malting is an energy intensive process, requiring temperature-controlled germination of grains followed by the rapid drying of wet, sprouted grain and final curing to give the malt its characteristic color and flavor.

Niagara Malt began operations using an all-electric malting system that utilized electric heating coils. The electricity use exceeded the company owner's original estimates, as the inefficient system put them into National Grid's demand rate pricing structure. Niagara Malt was reclassified into a higher utility demand rate due to use of more than 2000kWh per month, which meant tripled electricity bills and restrictions on production. The shock stimulated considerable soul-searching and research into reducing use of commercial electricity and integrating the use of renewable energy resources

SOLUTIONS

In 2017, Niagara Malt completed a NYSERDA energy audit and purchased a wood pellet boiler and hydronic heat exchanger to supply the bulk of heat needed in malt drying and curing. The boiler uses approximately 400lbs. of wood pellets per ton of grain. This system has reduced the company's energy use by 75%, allowing Niagara Malt to increase production at the lower rate schedule for electricity.

The reduction in electricity use also allowed Niagara Malt to contract for 100% renewable electricity supply. In 2018, Niagara Malt took the next step of installing a grid-connected 15kW solar roof-top system from Solar Liberty. Solar Liberty and Niagara Malt are both members of the WNY Sustainable Business Roundtable and connected at the annual Sustainable Business Summit.

RESULTS

The boiler system reduced Niagara Malt's electric consumption by 65% - 75% per one-ton batch, reducing average electrical use to approximately 450 - 500 kWh/ ton grain. As of March 2020, Niagara Malt's solar roof system has generated a total of 20.28 MWh of electricity, including 7500 kWh of electricity in excess of usage YTD.

To summarize, the solar panels in conjunction with the boiler system have consistently produced electricity credits that are carrying over to colder months. This sets Niagara Malt on a financially stable pathway as they are expanding their sustainable business.

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The WNY Sustainable Business Roundtable has been inspirational in our transition by facilitating networking, a supportive community and sustainability education through its meetings, newsletters and seminars



Niagara Malt's actions and results have been reported within the framework of The Western New York Sustainable Business Roundtable's Recognition Program, a continuous improvement program structured to help businesses reach achievable sustainability targets. The program encourages companies to implement a comprehensive sustainability plan. This includes systematic benchmarking, identification of further environmental efficiency opportunities, and quantification of results when improvements are put into place.

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