

Project Overview

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Company Background

Midwest Renewable Energy (MRE) is a dry-mill fuel ethanol plant that started in 2004. The plant was started by a small team of investors and has been a staple of both the Sutherland and North Platte communities. Midwest Renewable Energy is replacing Middle East oil with Midwest moonshine. Midwest Renewable Energy believes in the reduction of greenhouse gas emissions. MRE takes steps to reduce greenhouse gas and has a respectable CI score of 62 as of the summer of 2023. MRE invests time and money into projects that will reduce emissions.

Project Descriptions

The projects included in the report identified different ways to preserve thermal energy. The solutions found were a new exchanger, an economizer, and piping for both thanks and piping. The exchanger will help retain heat for the beer as it is transported to the distilling column. The economizer will use the flue gas to heat up the feed water before it goes into the boiler. The piping and tank insulation will help retain heat of hot liquids that are being transported or sitting around the facility.

Pollution Prevention Benefits

The pollution prevention benefits are all realized in natural gas reduction. The savings are significant if all of the recommendations are implemented. There are still significant benefits to pollution prevention in carbon intensity scores. By reducing the carbon intensity score it is possible to gain extra profit in selling in carbon-based market.

Results

The pollution prevention benefits and results are summarized in Table 1:

Table 1: Pollution Prevention Benefits and Result of the Project

Recommended Action	Natural Gas Savings (MMBtu/year)	Annual Cost Savings (\$/year)	Implementation Cost	Payback Period	Emissions Reduction (MTCO _{2e})
Install Heat Exchanger	7,400	\$42,700	\$39,000	0.9 years	394
CIP Pipes by foot	2.81	\$16.43	\$38	2.3 years	62
Beer Pipes by foot	1.74	\$12.68	\$33	2.6 years	62
Steam Pipes by foot	13.05	\$94.75	\$60	0.63 years	62
CIP Tank	1,330	\$7,700	\$14,000	1.8 years	47
Degasser Tank	444	\$2,600	\$13,000	5 years	47
Economizer	15,398	\$62,349	\$59,785	0.96 years	819
Total	24,590	\$115,473	\$125,916	N/A	1,493