

Project Overview

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Major: Chemical Engineering

School: University of Nebraska-Lincoln

Company Background

The Nebraska Energy Office (NEO) is an agency that allocates money from a U.S. Department of Energy grant to provide information and loans to help address the state's energy issues and priorities. The mission of the NEO is to promote the efficient, economic, and environmentally responsible use of energy.



Project Description

The NEO and the University of Nebraska-Lincoln are working together to help reduce the energy use of wastewater treatment facilities (WWTFs) in Nebraska. The wastewater treatment facilities of Beemer, Bennet, Coleridge, Dodge, and Wayne were assessed over the course of the summer. This report provides detailed energy efficiency recommendations for each facility.



Pollution Prevention Benefits

Pollution prevention can be accomplished by reducing a facility's energy usage. By reducing this energy usage, there is a direct correlation to a reduction in carbon emissions. Pollution prevention recommendations made for each wastewater treatment facility could not only decrease the amount of energy consumption, operating costs, and carbon emissions, but also improves the public image of the plants. The potential benefits associated with the assessment recommendations at each wastewater facility are shown in Table 1.

Table 1: Summary of Recommendation Benefits by Facility

| Facility | Annual Energy Savings | Annual Cost Savings | GHG Reduced (MT CO ₂ e per year) |
|----------------|-----------------------|---------------------|---|
| Beemer WWTF | 8,300 kWh | \$550 | 5.8 |
| Bennet WWTF | 7,400 kWh | \$740 | 5.2 |
| Coleridge WWTF | 3,300 kWh | \$280 | 2.3 |
| Dodge WWTF | 132,000 kWh | \$10,300 | 93 |
| Wayne WWTF | 49,000 kWh | \$5,300 | 34 |
| Total | 200,000 kWh | \$17,170 | 140.3 |