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Background

The Nebraska Energy Office (NEO) is a state agency with the mission to promote the efficient, economic, and environmentally responsible use of energy. The NEO is located in Lincoln, Nebraska. The NEO utilizes federal funding to work towards their mission in the state of Nebraska. The NEO’s work involves benchmarking and participating in energy efficiency assessment projects for industries in Nebraska. The NEO also offers low-interest loans to industries and organizations that pursue energy efficiency improvements.

Project Description

The Partners in Pollution Prevention Wastewater Project is a multi-year project aimed to understand and improve the energy usage and associated costs of rural Nebraska small wastewater treatment plants. In prior years, interns benchmarked the energy efficiency of rural Nebraska small wastewater treatment plants. The NEO then selected plants with the most opportunity for improvement to be further evaluated by the 2018 wastewater team. The 2018 wastewater team was made up of three undergraduate students and one graduate student. Each team member assessed two to four small wastewater treatment plants.

Pollution Prevention Benefits

Energy and cost savings were the goals for this project. To achieve this, the team worked with plant operators, the NEO, other interns, vendors, and town electricians. All recommendations made entail improvements for current operations or the implementation of new methods to reduce energy usage. Some recommendations include investing in solar renewable energy, upgrading facility lighting, and improving system operations. The pollution prevention benefits and results are summarized in Table 1 below.

Table 1: Pollution Prevention Benefits and Results

Wastewater Treatment Plant	Cost Savings (\$/yr.)	Energy Savings (kWh/yr.)	GHG Reduction (MTCO₂e/yr.)
Fairbury	1,120	29,300	31
Genoa	460	6,100	6
Waco	430	4,100	4
Total	2,010	39,500	41

Additional Indirect or Intangible Benefits

Each recommendation is expected to reduce a reasonable amount of greenhouse gas (GHG) emissions. Additionally, some recommendations also provide decreased future maintenance costs and decreased future operator labor time.