

# City of Hinckley Water Treatment Facilities

22992 Lone Pine Rd  
Hinckley, MN 55037

## FACILITY ENERGY ANALYSIS

January 16, 2025



Prepared By:  
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The suggestions in this Energy Analysis (“Analysis”) are provided as a service to the City of Hinckley and are based on a visual analysis of conditions observed at the time of the survey, information provided by the customer and costs based on the energy assessor’s experience on similar projects. The performance guidelines provided in the Analysis are for informational purposes only and are not to be construed as a design document. Frontier will not benefit in any way from a customer’s decision to select a particular contractor or vendor to supply or install the products and measures. Furthermore, any reference to a particular product or brand is strictly intended to illustrate a particular product category and Frontier does not recommend any one product over the other.

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## Customer Information

### Facility Information:

Business Name: City of Hinckley  
Service Address: 22992 Lone Pine Rd, Hinckley, MN 55037  
Electric Account: Multiple  
Meter Numbers: Multiple  
Customer Contact: Leaha Jackson  
Customer Phone #: 320-384-7491  
Customer Email: [cityadmin@cityofhinckley.com](mailto:cityadmin@cityofhinckley.com)

Date of Analysis: 1/16/2025  
Date of Report: 2/12/2025  
Annual Energy Usage: 1,535,645 kWh (total across all meters)  
Peak Energy Demand: 288 kW (peak across all meters)  
Building/Business Type: Municipal

### Consultant Contact

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Consulting Firm: Frontier Energy  
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Chanhassen, MN 55317

## Executive Summary

An Energy Analysis is the first step toward identifying opportunities to keep operating costs low, remain competitive in the marketplace, and start saving energy and money. This report contains specific recommendations to reduce energy usage, many of which are low or no cost opportunities. Some of these recommendations may qualify for a rebate to help reduce your initial equipment costs and provide a faster payback on your energy investment.

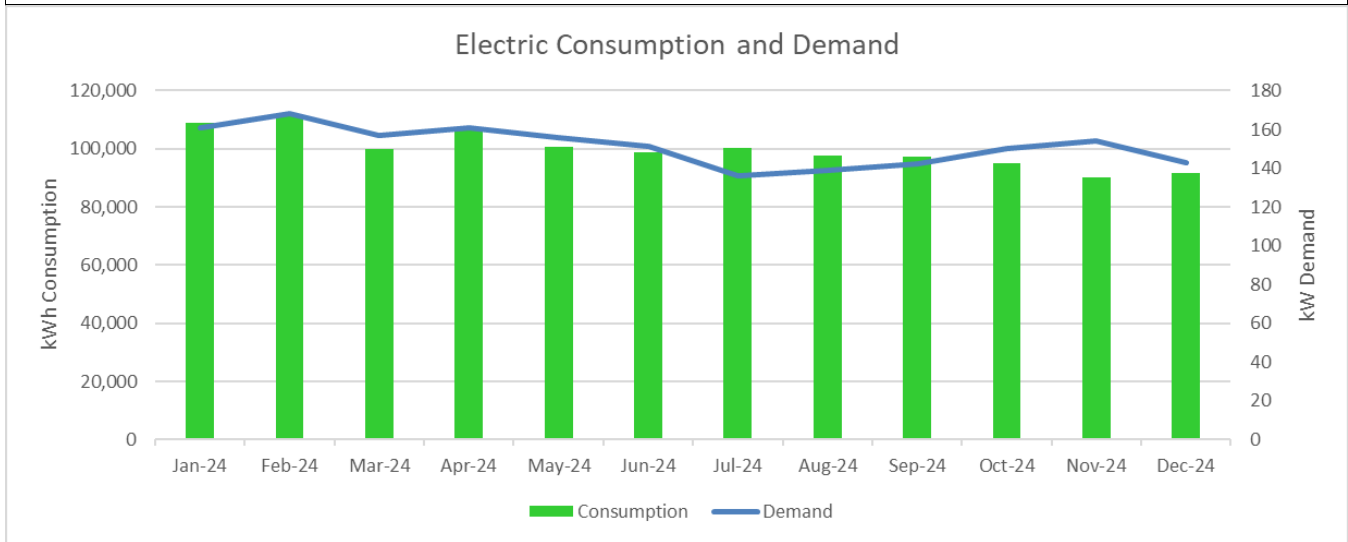
City of Hinckley provides water and wastewater services to a community of 1,936 people. They have a wastewater treatment plant (WWTP), a water treatment plant (WTP), (5) lift stations and (3) wells.

The primary loads consist of aeration pumps and blowers, lift pumps, well pumps, unit heaters, lighting and generator coolant heaters.

## Energy Usage

There are eleven electrical meters at the various facilities.

| ELECTRIC ENERGY AND DEMAND SUMMARY |              |                                        |                  |              |                     |                |             |
|------------------------------------|--------------|----------------------------------------|------------------|--------------|---------------------|----------------|-------------|
| <b>Customer:</b>                   |              | City of Hinckley - WWTP                |                  |              |                     |                |             |
| <b>Address:</b>                    |              | 22992 Lone Pine Rd, Hinckley, MN 55037 |                  |              |                     |                |             |
| <b>ACCOUNT #:</b>                  |              | 6263610000                             |                  |              |                     |                |             |
| <b>PERIOD:</b>                     |              | Jan-24                                 |                  | through      |                     | Dec-24         |             |
| Month                              | Billing Days | Measured Demand                        | Total kWh        | kWh/Day      | Total Cost          | \$/kWh         | Load Factor |
| Jan-24                             | 31           | 161                                    | 108,975          | 3,515        | \$12,816.06         | \$0.118        | 91%         |
| Feb-24                             | 31           | 168                                    | 111,080          | 3,583        | \$13,772.58         | \$0.124        | 89%         |
| Mar-24                             | 29           | 157                                    | 99,984           | 3,448        | \$11,784.86         | \$0.118        | 91%         |
| Apr-24                             | 31           | 161                                    | 106,626          | 3,440        | \$12,425.07         | \$0.117        | 89%         |
| May-24                             | 30           | 156                                    | 100,635          | 3,354        | \$12,038.91         | \$0.120        | 90%         |
| Jun-24                             | 31           | 151                                    | 98,838           | 3,188        | \$11,391.18         | \$0.115        | 88%         |
| Jul-24                             | 32           | 136                                    | 100,324          | 3,135        | \$11,773.17         | \$0.117        | 96%         |
| Aug-24                             | 31           | 139                                    | 97,698           | 3,152        | \$11,630.32         | \$0.119        | 94%         |
| Sep-24                             | 31           | 142                                    | 97,242           | 3,137        | \$11,010.30         | \$0.113        | 92%         |
| Oct-24                             | 30           | 150                                    | 95,199           | 3,173        | \$10,834.30         | \$0.114        | 88%         |
| Nov-24                             | 29           | 154                                    | 90,232           | 3,111        | \$10,416.61         | \$0.115        | 84%         |
| Dec-24                             | 30           | 143                                    | 91,579           | 3,053        | \$10,896.61         | \$0.119        | 89%         |
| <b>TOTAL</b>                       | <b>366</b>   | <b>168</b>                             | <b>1,198,411</b> |              | <b>\$140,789.97</b> |                |             |
| <b>AVERAGE</b>                     | <b>31</b>    | <b>152</b>                             | <b>99,868</b>    | <b>3,274</b> | <b>\$11,732.50</b>  | <b>\$0.117</b> | <b>90%</b>  |

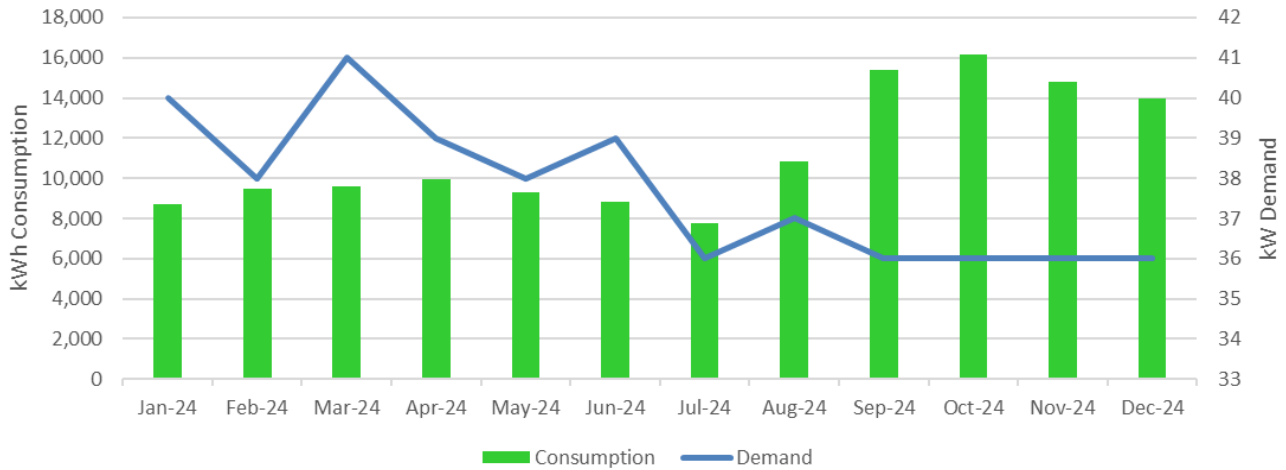


## ELECTRIC ENERGY AND DEMAND SUMMARY

|                   |                                 |         |        |
|-------------------|---------------------------------|---------|--------|
| <b>Customer:</b>  | City of Hinckley - WTP & Well 3 |         |        |
| <b>Address:</b>   | 2nd St & Stephan Ave S          |         |        |
| <b>ACCOUNT #:</b> | 6263610000                      |         |        |
| <b>PERIOD:</b>    | Jan-24                          | through | Dec-24 |

| Month          | Billing Days | Measured Demand | Total kWh      | kWh/Day    | Total Cost         | \$/kWh         | Load Factor |
|----------------|--------------|-----------------|----------------|------------|--------------------|----------------|-------------|
| Jan-24         | 31           | 40              | 8,698          | 281        | \$1,070.31         | \$0.123        | 29%         |
| Feb-24         | 31           | 38              | 9,497          | 306        | \$1,233.50         | \$0.130        | 34%         |
| Mar-24         | 29           | 41              | 9,566          | 330        | \$1,187.41         | \$0.124        | 34%         |
| Apr-24         | 31           | 39              | 9,927          | 320        | \$1,228.11         | \$0.124        | 34%         |
| May-24         | 30           | 38              | 9,328          | 311        | \$1,179.85         | \$0.126        | 34%         |
| Jun-24         | 31           | 39              | 8,837          | 285        | \$1,083.47         | \$0.123        | 30%         |
| Jul-24         | 32           | 36              | 7,773          | 243        | \$994.67           | \$0.128        | 28%         |
| Aug-24         | 31           | 37              | 10,843         | 350        | \$1,387.79         | \$0.128        | 39%         |
| Sep-24         | 31           | 36              | 15,369         | 496        | \$1,854.87         | \$0.121        | 57%         |
| Oct-24         | 30           | 36              | 16,141         | 538        | \$1,923.55         | \$0.119        | 62%         |
| Nov-24         | 29           | 36              | 14,805         | 511        | \$1,746.56         | \$0.118        | 59%         |
| Dec-24         | 30           | 36              | 13,999         | 467        | \$1,723.09         | \$0.123        | 54%         |
| <b>TOTAL</b>   | <b>366</b>   | <b>41</b>       | <b>134,782</b> |            | <b>\$16,613.18</b> |                |             |
| <b>AVERAGE</b> | <b>31</b>    | <b>38</b>       | <b>11,232</b>  | <b>370</b> | <b>\$1,384.43</b>  | <b>\$0.124</b> | <b>41%</b>  |

Electric Consumption and Demand

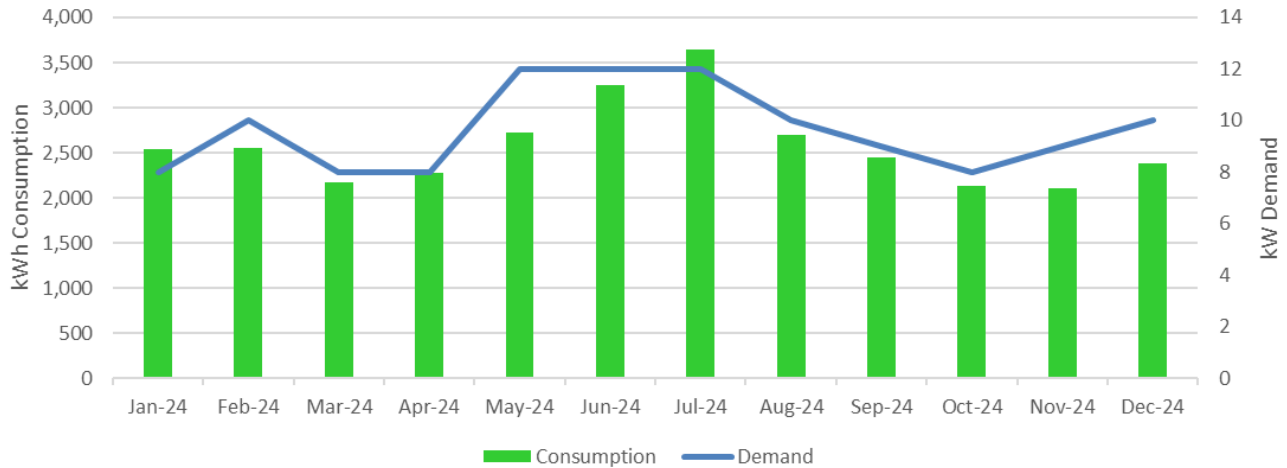


## ELECTRIC ENERGY AND DEMAND SUMMARY

|                   |                                   |         |        |
|-------------------|-----------------------------------|---------|--------|
| <b>Customer:</b>  | City of Hinckley - Lift Station 1 |         |        |
| <b>Address:</b>   | 205 3rd St NE                     |         |        |
| <b>ACCOUNT #:</b> | 6263610000                        |         |        |
| <b>PERIOD:</b>    | Jan-24                            | through | Dec-24 |

| Month          | Billing Days | Measured Demand | Total kWh     | kWh/Day   | Total Cost        | \$/kWh         | Load Factor |
|----------------|--------------|-----------------|---------------|-----------|-------------------|----------------|-------------|
| Jan-24         | 31           | 8               | 2,537         | 82        | \$382.71          | \$0.151        | 43%         |
| Feb-24         | 31           | 10              | 2,558         | 83        | \$436.62          | \$0.171        | 34%         |
| Mar-24         | 29           | 8               | 2,174         | 75        | \$358.68          | \$0.165        | 39%         |
| Apr-24         | 31           | 8               | 2,276         | 73        | \$360.76          | \$0.158        | 38%         |
| May-24         | 30           | 12              | 2,720         | 91        | \$465.51          | \$0.171        | 31%         |
| Jun-24         | 31           | 12              | 3,246         | 105       | \$515.69          | \$0.159        | 36%         |
| Jul-24         | 32           | 12              | 3,645         | 114       | \$580.46          | \$0.159        | 40%         |
| Aug-24         | 31           | 10              | 2,698         | 87        | \$449.51          | \$0.167        | 36%         |
| Sep-24         | 31           | 9               | 2,443         | 79        | \$392.67          | \$0.161        | 36%         |
| Oct-24         | 30           | 8               | 2,137         | 71        | \$345.33          | \$0.162        | 37%         |
| Nov-24         | 29           | 9               | 2,108         | 73        | \$339.30          | \$0.161        | 34%         |
| Dec-24         | 30           | 10              | 2,385         | 80        | \$391.51          | \$0.164        | 33%         |
| <b>TOTAL</b>   | <b>366</b>   | <b>12</b>       | <b>30,927</b> |           | <b>\$5,018.75</b> |                |             |
| <b>AVERAGE</b> | <b>31</b>    | <b>10</b>       | <b>2,577</b>  | <b>84</b> | <b>\$418.23</b>   | <b>\$0.162</b> | <b>37%</b>  |

Electric Consumption and Demand

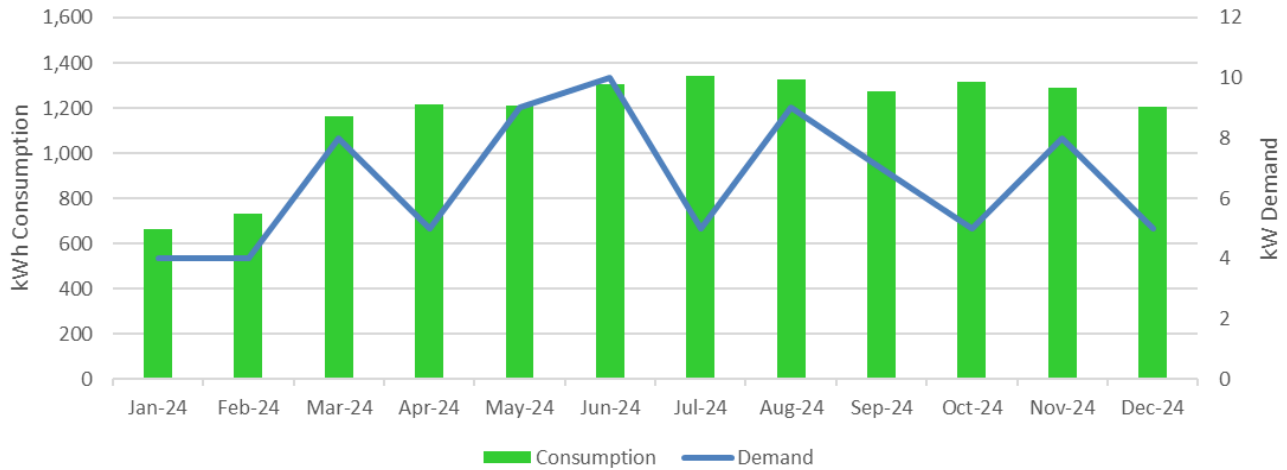


## ELECTRIC ENERGY AND DEMAND SUMMARY

|                   |                                   |         |        |
|-------------------|-----------------------------------|---------|--------|
| <b>Customer:</b>  | City of Hinckley - Lift Station 2 |         |        |
| <b>Address:</b>   | 260 Morris Ave N                  |         |        |
| <b>ACCOUNT #:</b> | 6263610000                        |         |        |
| <b>PERIOD:</b>    | Jan-24                            | through | Dec-24 |

| Month          | Billing Days | Measured Demand | Total kWh     | kWh/Day   | Total Cost        | \$/kWh         | Load Factor |
|----------------|--------------|-----------------|---------------|-----------|-------------------|----------------|-------------|
| Jan-24         | 31           | 4               | 662           | 21        | \$116.39          | \$0.176        | 22%         |
| Feb-24         | 31           | 4               | 730           | 24        | \$134.60          | \$0.184        | 25%         |
| Mar-24         | 29           | 8               | 1,164         | 40        | \$195.34          | \$0.168        | 21%         |
| Apr-24         | 31           | 5               | 1,218         | 39        | \$203.07          | \$0.167        | 33%         |
| May-24         | 30           | 9               | 1,211         | 40        | \$205.13          | \$0.169        | 19%         |
| Jun-24         | 31           | 10              | 1,307         | 42        | \$214.66          | \$0.164        | 18%         |
| Jul-24         | 32           | 5               | 1,344         | 42        | \$226.93          | \$0.169        | 35%         |
| Aug-24         | 31           | 9               | 1,325         | 43        | \$224.88          | \$0.170        | 20%         |
| Sep-24         | 31           | 7               | 1,275         | 41        | \$208.48          | \$0.164        | 24%         |
| Oct-24         | 30           | 5               | 1,317         | 44        | \$212.82          | \$0.162        | 37%         |
| Nov-24         | 29           | 8               | 1,292         | 45        | \$207.41          | \$0.161        | 23%         |
| Dec-24         | 30           | 5               | 1,206         | 40        | \$201.15          | \$0.167        | 34%         |
| <b>TOTAL</b>   | <b>366</b>   | <b>10</b>       | <b>14,051</b> |           | <b>\$2,350.86</b> |                |             |
| <b>AVERAGE</b> | <b>31</b>    | <b>7</b>        | <b>1,171</b>  | <b>38</b> | <b>\$195.91</b>   | <b>\$0.168</b> | <b>26%</b>  |

Electric Consumption and Demand

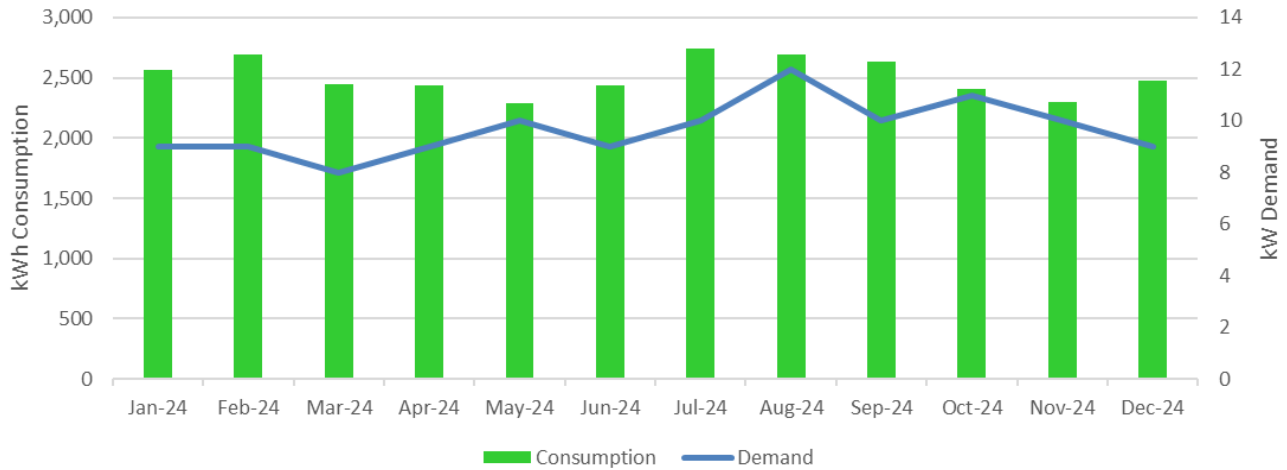


## ELECTRIC ENERGY AND DEMAND SUMMARY

|                   |                                   |         |        |
|-------------------|-----------------------------------|---------|--------|
| <b>Customer:</b>  | City of Hinckley - Lift Station 3 |         |        |
| <b>Address:</b>   | Highway 48                        |         |        |
| <b>ACCOUNT #:</b> | 6263610000                        |         |        |
| <b>PERIOD:</b>    | Jan-24                            | through | Dec-24 |

| Month          | Billing Days | Measured Demand | Total kWh     | kWh/Day   | Total Cost        | \$/kWh         | Load Factor |
|----------------|--------------|-----------------|---------------|-----------|-------------------|----------------|-------------|
| Jan-24         | 31           | 9               | 2,567         | 83        | \$444.50          | \$0.173        | 38%         |
| Feb-24         | 31           | 9               | 2,696         | 87        | \$481.09          | \$0.178        | 40%         |
| Mar-24         | 29           | 8               | 2,443         | 84        | \$435.80          | \$0.178        | 44%         |
| Apr-24         | 31           | 9               | 2,440         | 79        | \$443.70          | \$0.182        | 36%         |
| May-24         | 30           | 10              | 2,284         | 76        | \$449.71          | \$0.197        | 32%         |
| Jun-24         | 31           | 9               | 2,438         | 79        | \$440.17          | \$0.181        | 36%         |
| Jul-24         | 32           | 10              | 2,746         | 86        | \$508.03          | \$0.185        | 36%         |
| Aug-24         | 31           | 12              | 2,697         | 87        | \$540.43          | \$0.200        | 30%         |
| Sep-24         | 31           | 10              | 2,634         | 85        | \$478.43          | \$0.182        | 35%         |
| Oct-24         | 30           | 11              | 2,410         | 80        | \$467.33          | \$0.194        | 30%         |
| Nov-24         | 29           | 10              | 2,300         | 79        | \$433.68          | \$0.189        | 33%         |
| Dec-24         | 30           | 9               | 2,477         | 83        | \$447.78          | \$0.181        | 38%         |
| <b>TOTAL</b>   | <b>366</b>   | <b>12</b>       | <b>30,132</b> |           | <b>\$5,570.65</b> |                |             |
| <b>AVERAGE</b> | <b>31</b>    | <b>10</b>       | <b>2,511</b>  | <b>82</b> | <b>\$464.22</b>   | <b>\$0.185</b> | <b>36%</b>  |

Electric Consumption and Demand

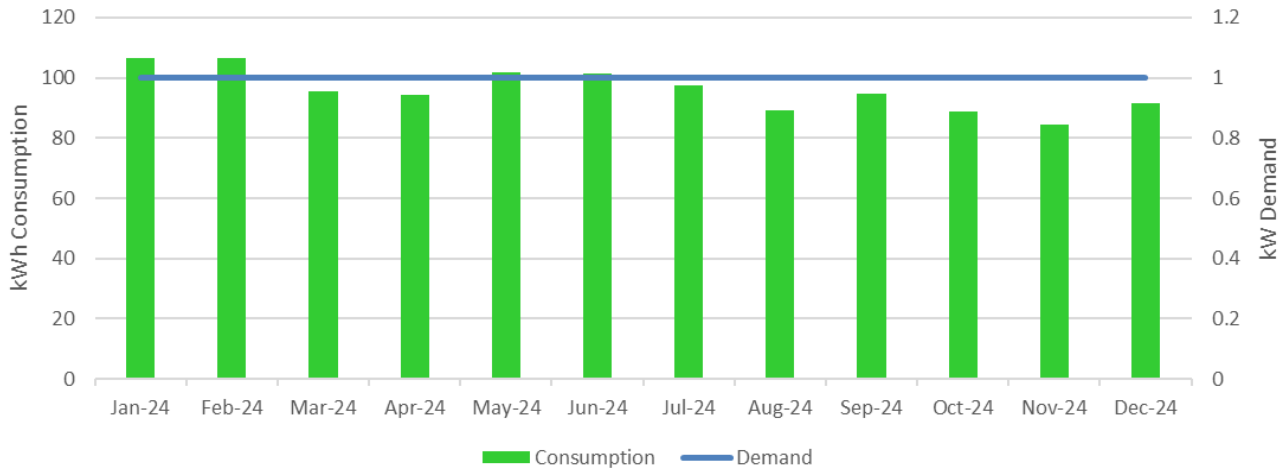


## ELECTRIC ENERGY AND DEMAND SUMMARY

|                   |                                   |         |        |
|-------------------|-----------------------------------|---------|--------|
| <b>Customer:</b>  | City of Hinckley - Lift Station 4 |         |        |
| <b>Address:</b>   | Tower Rd                          |         |        |
| <b>ACCOUNT #:</b> | 6263610000                        |         |        |
| <b>PERIOD:</b>    | Jan-24                            | through | Nov-24 |

| Month          | Billing Days | Measured Demand | Total kWh    | kWh/Day  | Total Cost      | \$/kWh         | Load Factor |
|----------------|--------------|-----------------|--------------|----------|-----------------|----------------|-------------|
| Jan-24         | 31           | 1               | 107          | 3        | \$35.21         | \$0.330        | 14%         |
| Feb-24         | 31           | 1               | 107          | 3        | \$37.65         | \$0.353        | 14%         |
| Mar-24         | 29           | 1               | 96           | 3        | \$35.41         | \$0.370        | 14%         |
| Apr-24         | 31           | 1               | 94           | 3        | \$35.19         | \$0.373        | 13%         |
| May-24         | 30           | 1               | 102          | 3        | \$36.57         | \$0.359        | 14%         |
| Jun-24         | 31           | 1               | 102          | 3        | \$36.12         | \$0.356        | 14%         |
| Jul-24         | 32           | 1               | 98           | 3        | \$36.02         | \$0.369        | 13%         |
| Aug-24         | 31           | 1               | 89           | 3        | \$34.84         | \$0.390        | 12%         |
| Sep-24         | 31           | 1               | 95           | 3        | \$34.98         | \$0.370        | 13%         |
| Oct-24         | 30           | 1               | 89           | 3        | \$34.03         | \$0.382        | 12%         |
| Nov-24         | 29           | 1               | 85           | 3        | \$33.27         | \$0.393        | 12%         |
| Dec-24         | 30           | 1               | 92           | 3        | \$34.78         | \$0.379        | 13%         |
| <b>TOTAL</b>   | <b>366</b>   | <b>1</b>        | <b>1,153</b> |          | <b>\$424.07</b> |                |             |
| <b>AVERAGE</b> | <b>31</b>    | <b>1</b>        | <b>96</b>    | <b>3</b> | <b>\$35.34</b>  | <b>\$0.369</b> | <b>13%</b>  |

Electric Consumption and Demand

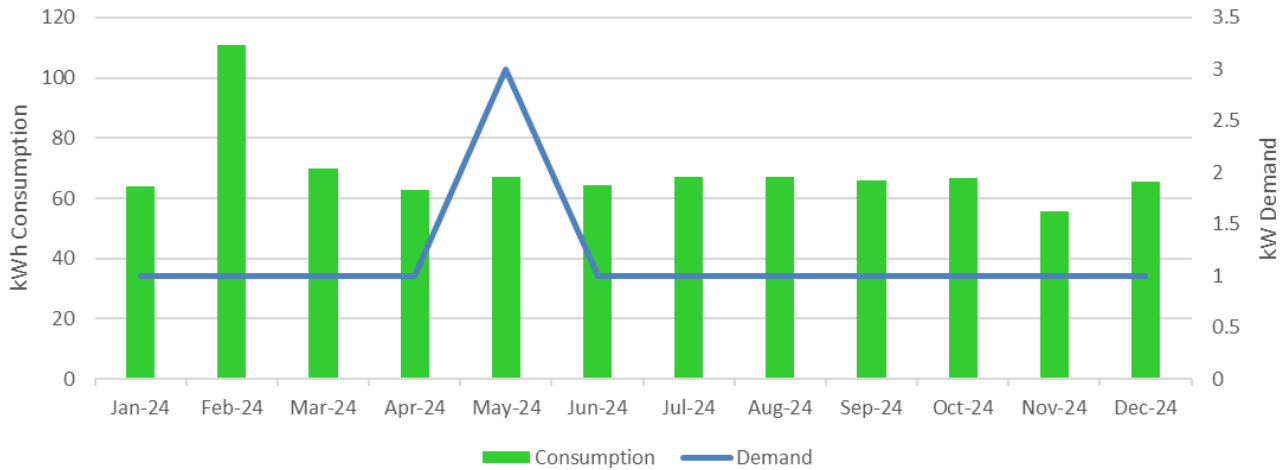


## ELECTRIC ENERGY AND DEMAND SUMMARY

|                   |                                   |         |        |
|-------------------|-----------------------------------|---------|--------|
| <b>Customer:</b>  | City of Hinckley - Lift Station 6 |         |        |
| <b>Address:</b>   | 6th St SE                         |         |        |
| <b>ACCOUNT #:</b> | 6263610000                        |         |        |
| <b>PERIOD:</b>    | Jan-24                            | through | Dec-24 |

| Month          | Billing Days | Measured Demand | Total kWh  | kWh/Day  | Total Cost      | \$/kWh         | Load Factor |
|----------------|--------------|-----------------|------------|----------|-----------------|----------------|-------------|
| Jan-24         | 31           | 1               | 64         | 2        | \$29.00         | \$0.453        | 9%          |
| Feb-24         | 31           | 1               | 111        | 4        | \$38.31         | \$0.346        | 15%         |
| Mar-24         | 29           | 1               | 70         | 2        | \$31.57         | \$0.451        | 10%         |
| Apr-24         | 31           | 1               | 63         | 2        | \$30.46         | \$0.485        | 8%          |
| May-24         | 30           | 3               | 67         | 2        | \$31.26         | \$0.467        | 3%          |
| Jun-24         | 31           | 1               | 64         | 2        | \$30.61         | \$0.476        | 9%          |
| Jul-24         | 32           | 1               | 67         | 2        | \$31.38         | \$0.467        | 9%          |
| Aug-24         | 31           | 1               | 67         | 2        | \$31.40         | \$0.468        | 9%          |
| Sep-24         | 31           | 1               | 66         | 2        | \$30.78         | \$0.467        | 9%          |
| Oct-24         | 30           | 1               | 67         | 2        | \$30.81         | \$0.461        | 9%          |
| Nov-24         | 29           | 1               | 56         | 2        | \$29.10         | \$0.523        | 8%          |
| Dec-24         | 30           | 1               | 66         | 2        | \$30.90         | \$0.470        | 9%          |
| <b>TOTAL</b>   | <b>366</b>   | <b>3</b>        | <b>827</b> |          | <b>\$375.58</b> |                |             |
| <b>AVERAGE</b> | <b>31</b>    | <b>1</b>        | <b>69</b>  | <b>2</b> | <b>\$31.30</b>  | <b>\$0.461</b> | <b>9%</b>   |

Electric Consumption and Demand

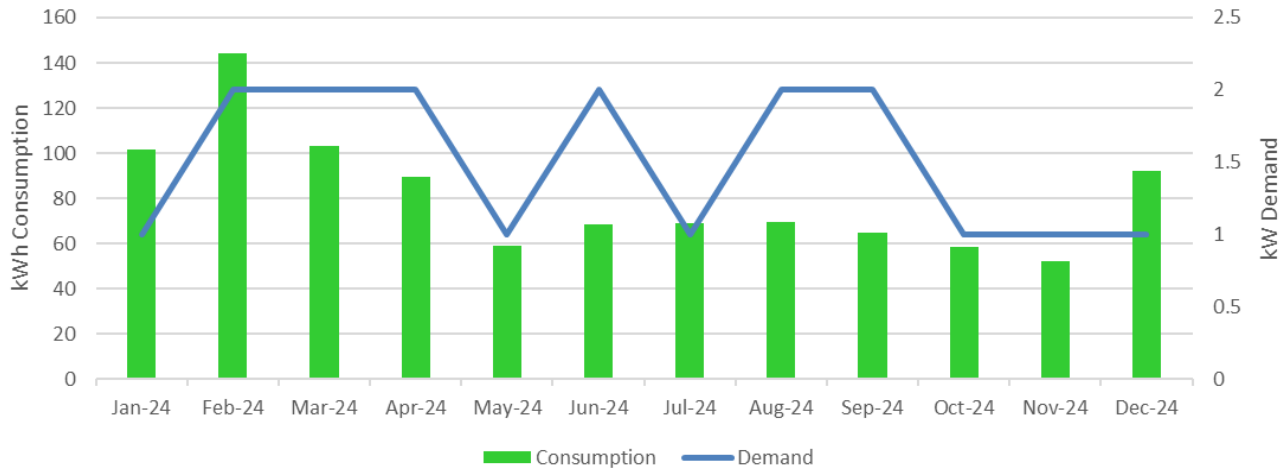


## ELECTRIC ENERGY AND DEMAND SUMMARY

|                   |                                   |         |        |
|-------------------|-----------------------------------|---------|--------|
| <b>Customer:</b>  | City of Hinckley - Lift Station 7 |         |        |
| <b>Address:</b>   | Morris Ave                        |         |        |
| <b>ACCOUNT #:</b> | 6263610000                        |         |        |
| <b>PERIOD:</b>    | Jan-24                            | through | Dec-24 |

| Month          | Billing Days | Measured Demand | Total kWh  | kWh/Day  | Total Cost      | \$/kWh         | Load Factor |
|----------------|--------------|-----------------|------------|----------|-----------------|----------------|-------------|
| Jan-24         | 31           | 1               | 102        | 3        | \$34.49         | \$0.339        | 14%         |
| Feb-24         | 31           | 2               | 144        | 5        | \$43.51         | \$0.301        | 10%         |
| Mar-24         | 29           | 2               | 103        | 4        | \$36.55         | \$0.354        | 7%          |
| Apr-24         | 31           | 2               | 90         | 3        | \$34.45         | \$0.385        | 6%          |
| May-24         | 30           | 1               | 59         | 2        | \$32.11         | \$0.543        | 8%          |
| Jun-24         | 31           | 2               | 68         | 2        | \$32.23         | \$0.471        | 5%          |
| Jul-24         | 32           | 1               | 69         | 2        | \$32.28         | \$0.468        | 9%          |
| Aug-24         | 31           | 2               | 70         | 2        | \$32.30         | \$0.464        | 5%          |
| Sep-24         | 31           | 2               | 65         | 2        | \$32.19         | \$0.499        | 4%          |
| Oct-24         | 30           | 1               | 58         | 2        | \$32.08         | \$0.549        | 8%          |
| Nov-24         | 29           | 1               | 52         | 2        | \$31.97         | \$0.612        | 8%          |
| Dec-24         | 30           | 1               | 92         | 3        | \$34.82         | \$0.378        | 13%         |
| <b>TOTAL</b>   | <b>366</b>   | <b>2</b>        | <b>972</b> |          | <b>\$408.98</b> |                |             |
| <b>AVERAGE</b> | <b>31</b>    | <b>2</b>        | <b>81</b>  | <b>3</b> | <b>\$34.08</b>  | <b>\$0.447</b> | <b>8%</b>   |

Electric Consumption and Demand

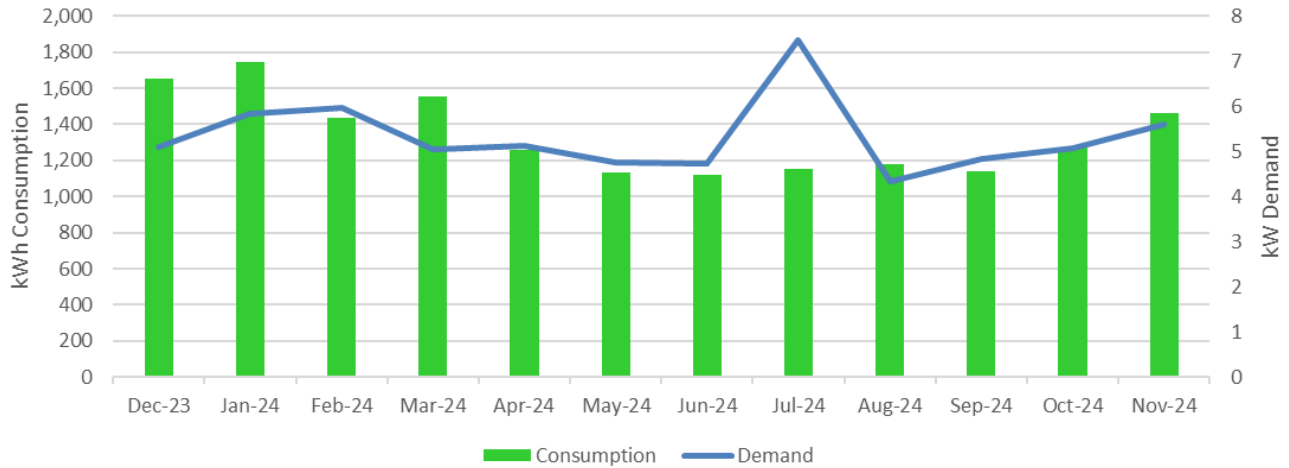


## ELECTRIC ENERGY AND DEMAND SUMMARY

|                   |                                   |         |        |
|-------------------|-----------------------------------|---------|--------|
| <b>Customer:</b>  | City of Hinckley - Lift Station 8 |         |        |
| <b>Address:</b>   | 38786 Hinckley Rd                 |         |        |
| <b>ACCOUNT #:</b> | 207329400                         |         |        |
| <b>PERIOD:</b>    | Dec-23                            | through | Oct-24 |

| Month          | Billing Days | Measured Demand | Total kWh     | kWh/Day   | Total Cost        | \$/kWh         | Load Factor |
|----------------|--------------|-----------------|---------------|-----------|-------------------|----------------|-------------|
| Dec-23         | 31           | 5.086           | 1,655         | 53        | \$254.94          | \$0.154        | 44%         |
| Jan-24         | 31           | 5.824           | 1,745         | 56        | \$254.94          | \$0.146        | 40%         |
| Feb-24         | 29           | 5.965           | 1,433         | 49        | \$294.65          | \$0.206        | 35%         |
| Mar-24         | 31           | 5.054           | 1,552         | 50        | \$263.08          | \$0.170        | 41%         |
| Apr-24         | 30           | 5.112           | 1,261         | 42        | \$272.39          | \$0.216        | 34%         |
| May-24         | 31           | 4.748           | 1,134         | 37        | \$238.83          | \$0.211        | 32%         |
| Jun-24         | 30           | 4.73            | 1,121         | 37        | \$224.18          | \$0.200        | 33%         |
| Jul-24         | 31           | 7.455           | 1,154         | 37        | \$226.59          | \$0.196        | 21%         |
| Aug-24         | 31           | 4.323           | 1,179         | 38        | \$225.94          | \$0.192        | 37%         |
| Sep-24         | 30           | 4.842           | 1,138         | 38        | \$229.38          | \$0.202        | 33%         |
| Oct-24         | 31           | 5.076           | 1,273         | 41        | \$224.65          | \$0.176        | 34%         |
| Nov-24         | 30           | 5.605           | 1,460         | 49        | \$240.22          | \$0.165        | 36%         |
| <b>TOTAL</b>   | <b>366</b>   | <b>7</b>        | <b>16,105</b> |           | <b>\$2,949.79</b> |                |             |
| <b>AVERAGE</b> | <b>31</b>    | <b>5</b>        | <b>1,342</b>  | <b>44</b> | <b>\$245.82</b>   | <b>\$0.186</b> | <b>35%</b>  |

Electric Consumption and Demand

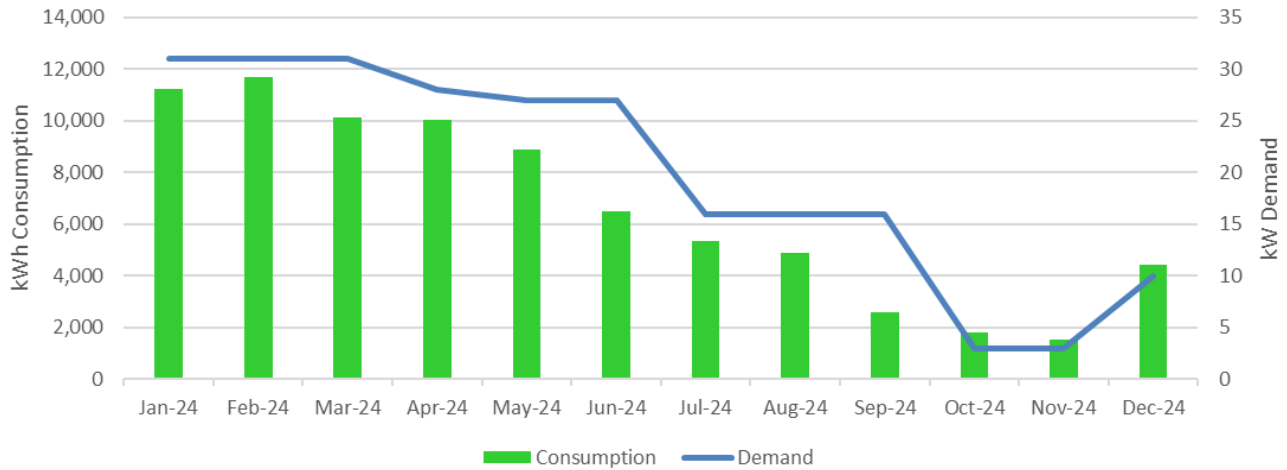


## ELECTRIC ENERGY AND DEMAND SUMMARY

|                   |                           |         |        |
|-------------------|---------------------------|---------|--------|
| <b>Customer:</b>  | City of Hinckley - Well 4 |         |        |
| <b>Address:</b>   | Lady Luck Dr              |         |        |
| <b>ACCOUNT #:</b> | 6263610000                |         |        |
| <b>PERIOD:</b>    | Jan-24                    | through | Dec-24 |

| Month          | Billing Days | Measured Demand | Total kWh     | kWh/Day    | Total Cost        | \$/kWh         | Load Factor |
|----------------|--------------|-----------------|---------------|------------|-------------------|----------------|-------------|
| Jan-24         | 31           | 31              | 11,255        | 363        | \$1,380.06        | \$0.123        | 49%         |
| Feb-24         | 31           | 31              | 11,713        | 378        | \$1,517.10        | \$0.130        | 51%         |
| Mar-24         | 29           | 31              | 10,126        | 349        | \$1,255.97        | \$0.124        | 47%         |
| Apr-24         | 31           | 28              | 10,046        | 324        | \$1,242.66        | \$0.124        | 48%         |
| May-24         | 30           | 27              | 8,886         | 296        | \$1,124.72        | \$0.127        | 46%         |
| Jun-24         | 31           | 27              | 6,476         | 209        | \$798.87          | \$0.123        | 32%         |
| Jul-24         | 32           | 16              | 5,327         | 166        | \$687.37          | \$0.129        | 43%         |
| Aug-24         | 31           | 16              | 4,880         | 157        | \$634.60          | \$0.130        | 41%         |
| Sep-24         | 31           | 16              | 2,575         | 83         | \$325.90          | \$0.127        | 22%         |
| Oct-24         | 30           | 3               | 1,819         | 61         | \$232.95          | \$0.128        | 84%         |
| Nov-24         | 29           | 3               | 1,511         | 52         | \$194.62          | \$0.129        | 72%         |
| Dec-24         | 30           | 10              | 4,444         | 148        | \$559.45          | \$0.126        | 62%         |
| <b>TOTAL</b>   | <b>366</b>   | <b>31</b>       | <b>79,057</b> |            | <b>\$9,954.27</b> |                |             |
| <b>AVERAGE</b> | <b>31</b>    | <b>20</b>       | <b>6,588</b>  | <b>216</b> | <b>\$829.52</b>   | <b>\$0.127</b> | <b>50%</b>  |

Electric Consumption and Demand

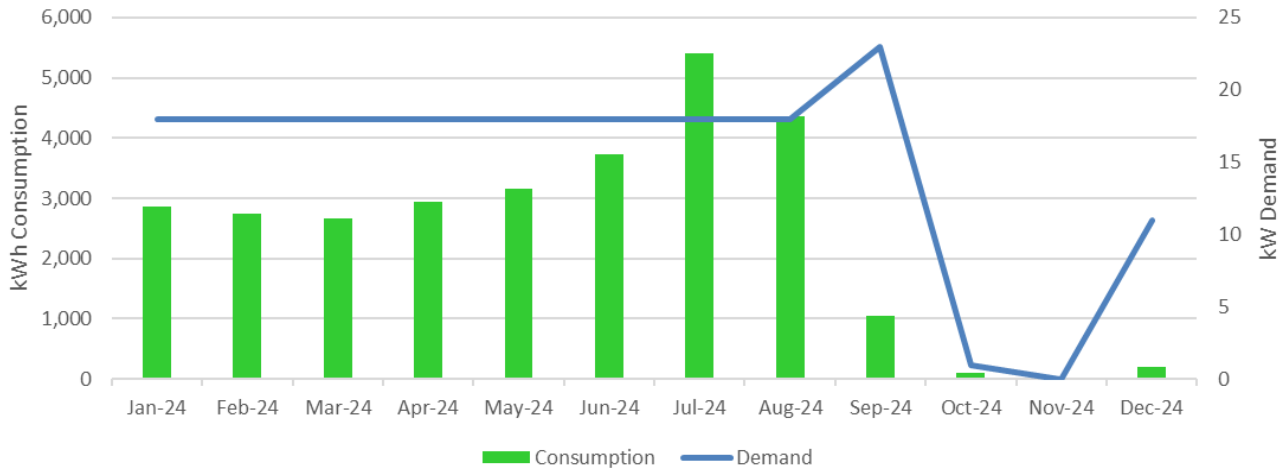


## ELECTRIC ENERGY AND DEMAND SUMMARY

|                   |                           |         |        |
|-------------------|---------------------------|---------|--------|
| <b>Customer:</b>  | City of Hinckley - Well 5 |         |        |
| <b>Address:</b>   | Lady Luck Dr              |         |        |
| <b>ACCOUNT #:</b> | 6263610000                |         |        |
| <b>PERIOD:</b>    | Jan-24                    | through | Dec-24 |

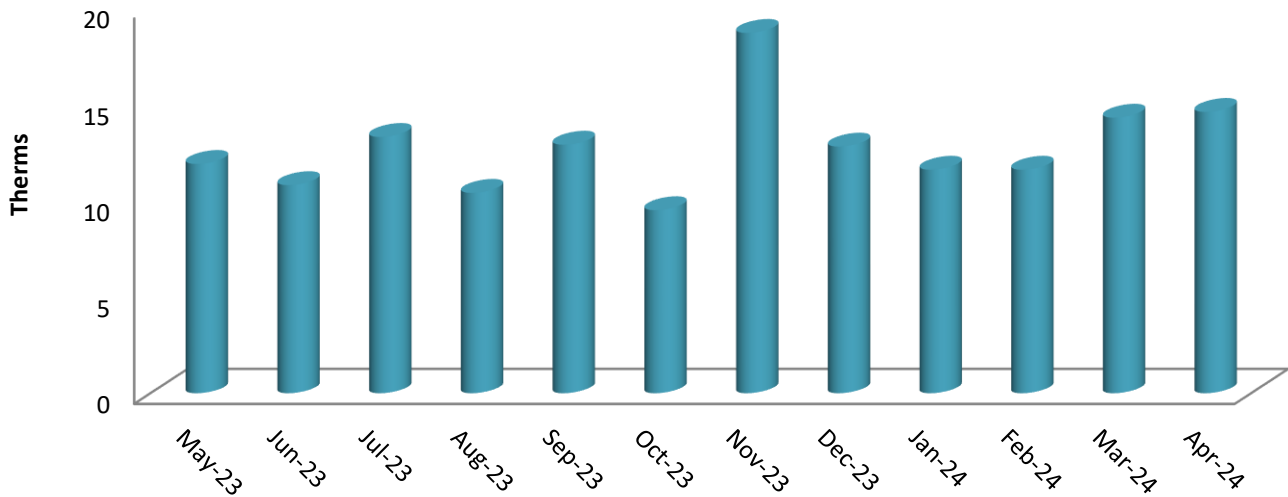
| Month          | Billing Days | Measured Demand | Total kWh     | kWh/Day   | Total Cost        | \$/kWh         | Load Factor |
|----------------|--------------|-----------------|---------------|-----------|-------------------|----------------|-------------|
| Jan-24         | 31           | 18              | 2,862         | 92        | \$503.96          | \$0.176        | 21%         |
| Feb-24         | 31           | 18              | 2,744         | 89        | \$523.40          | \$0.191        | 20%         |
| Mar-24         | 29           | 18              | 2,674         | 92        | \$499.35          | \$0.187        | 21%         |
| Apr-24         | 31           | 18              | 2,943         | 95        | \$529.97          | \$0.180        | 22%         |
| May-24         | 30           | 18              | 3,161         | 105       | \$563.86          | \$0.178        | 24%         |
| Jun-24         | 31           | 18              | 3,724         | 120       | \$616.61          | \$0.166        | 28%         |
| Jul-24         | 32           | 18              | 5,410         | 169       | \$839.40          | \$0.155        | 39%         |
| Aug-24         | 31           | 18              | 4,356         | 141       | \$714.94          | \$0.164        | 33%         |
| Sep-24         | 31           | 23              | 1,049         | 34        | \$369.14          | \$0.352        | 6%          |
| Oct-24         | 30           | 1               | 105           | 4         | \$51.19           | \$0.487        | 15%         |
| Nov-24         | 29           | 0               | 0             | 0         | \$31.08           | -              | -           |
| Dec-24         | 30           | 11              | 199           | 7         | \$181.00          | \$0.909        | 3%          |
| <b>TOTAL</b>   | <b>366</b>   | <b>23</b>       | <b>29,227</b> |           | <b>\$5,423.90</b> |                |             |
| <b>AVERAGE</b> | <b>31</b>    | <b>15</b>       | <b>2,436</b>  | <b>79</b> | <b>\$451.99</b>   | <b>\$0.286</b> | <b>21%</b>  |

Electric Consumption and Demand



There are three natural gas meters at various facilities.

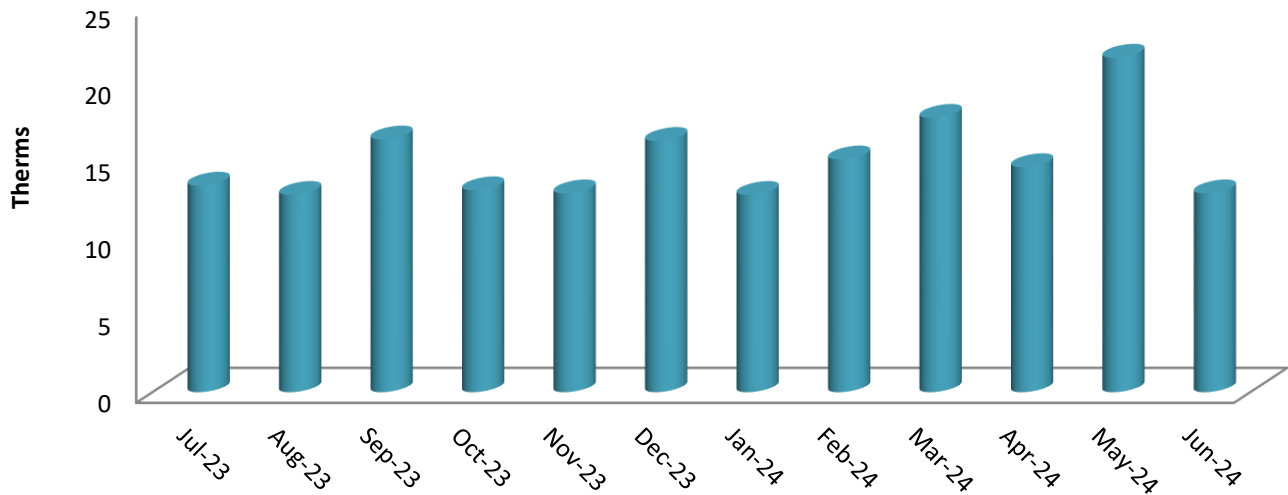
| NATURAL GAS USAGE SUMMARY |                               |                      |                |
|---------------------------|-------------------------------|----------------------|----------------|
| <b>LOCATION:</b>          | 38786 Hinckley Rd - Station 8 |                      |                |
| <b>RATE CLASS:</b>        | 82-Gas Small Commercial Htg   |                      |                |
| <b>PREMISE #:</b>         | 204618030                     |                      |                |
| <b>PERIOD:</b>            | May 2023                      | through              | April 2024     |
| Month                     | Monthly Cost                  | Total Usage (Therms) | \$/Therm       |
| May-23                    | \$40.20                       | 12                   | \$3.378        |
| Jun-23                    | \$39.79                       | 11                   | \$3.684        |
| Jul-23                    | \$39.15                       | 13                   | \$2.944        |
| Aug-23                    | \$36.39                       | 10                   | \$3.499        |
| Sep-23                    | \$15.35                       | 13                   | \$1.190        |
| Oct-23                    | \$33.21                       | 10                   | \$3.496        |
| Nov-23                    | \$41.77                       | 19                   | \$2.234        |
| Dec-23                    | \$35.09                       | 13                   | \$2.741        |
| Jan-24                    | \$33.30                       | 12                   | \$2.871        |
| Feb-24                    | \$33.46                       | 12                   | \$2.884        |
| Mar-24                    | \$32.50                       | 14                   | \$2.273        |
| Apr-24                    | \$28.79                       | 15                   | \$1.972        |
| <b>TOTAL</b>              | <b>\$409.00</b>               | <b>152</b>           |                |
| <b>AVERAGE</b>            | <b>\$34.08</b>                | <b>13</b>            | <b>\$2.684</b> |



## NATURAL GAS USAGE SUMMARY

**LOCATION:** 205 3rd St NE - Lift 1  
**RATE CLASS:** 82-Gas Small Commercial Htg  
**PREMISE #:** 204341978  
**PERIOD:** July 2023 through June 2024

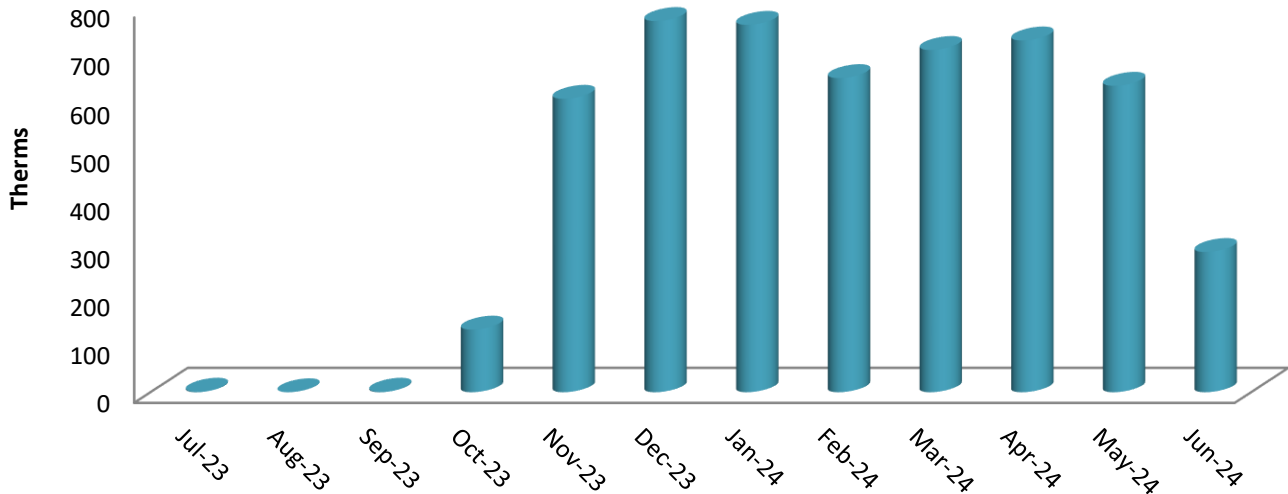
| Month          | Monthly Cost    | Total Usage (Therms) | \$/Therm       |
|----------------|-----------------|----------------------|----------------|
| Jul-23         | \$39.24         | 13                   | \$2.928        |
| Aug-23         | \$38.89         | 13                   | \$3.038        |
| Sep-23         | \$14.56         | 16                   | \$0.888        |
| Oct-23         | \$36.77         | 13                   | \$2.807        |
| Nov-23         | \$36.23         | 13                   | \$2.809        |
| Dec-23         | \$38.18         | 16                   | \$2.342        |
| Jan-24         | \$34.27         | 13                   | \$2.677        |
| Feb-24         | \$36.33         | 15                   | \$2.406        |
| Mar-24         | \$35.42         | 18                   | \$1.990        |
| Apr-24         | \$28.79         | 15                   | \$1.972        |
| May-24         | \$34.72         | 22                   | \$1.600        |
| Jun-24         | \$27.65         | 13                   | \$2.143        |
| <b>TOTAL</b>   | <b>\$401.05</b> | <b>180</b>           |                |
| <b>AVERAGE</b> | <b>\$33.42</b>  | <b>15</b>            | <b>\$2.231</b> |



## NATURAL GAS USAGE SUMMARY

**LOCATION:** 309 2nd - Well 3  
**RATE CLASS:** 82-Gas Small Commercial Htg  
**PREMISE #:** 204341978  
**PERIOD:** July 2023 through June 2024

| Month          | Monthly Cost      | Total Usage (Therms) | \$/Therm       |
|----------------|-------------------|----------------------|----------------|
| Jul-23         | \$65.29           | 1                    | \$54.408       |
| Aug-23         | \$64.18           | 0                    | -              |
| Sep-23         | \$60.84           | 1                    | \$50.700       |
| Oct-23         | \$178.08          | 130                  | \$1.369        |
| Nov-23         | \$601.79          | 609                  | \$0.988        |
| Dec-23         | \$684.54          | 771                  | \$0.888        |
| Jan-24         | \$622.74          | 763                  | \$0.816        |
| Feb-24         | \$548.51          | 652                  | \$0.841        |
| Mar-24         | \$570.11          | 711                  | \$0.802        |
| Apr-24         | \$530.97          | 730                  | \$0.727        |
| May-24         | \$486.72          | 636                  | \$0.765        |
| Jun-24         | \$243.89          | 291                  | \$0.838        |
| <b>TOTAL</b>   | <b>\$4,657.66</b> | <b>5,295</b>         |                |
| <b>AVERAGE</b> | <b>\$388.14</b>   | <b>441</b>           | <b>\$0.880</b> |

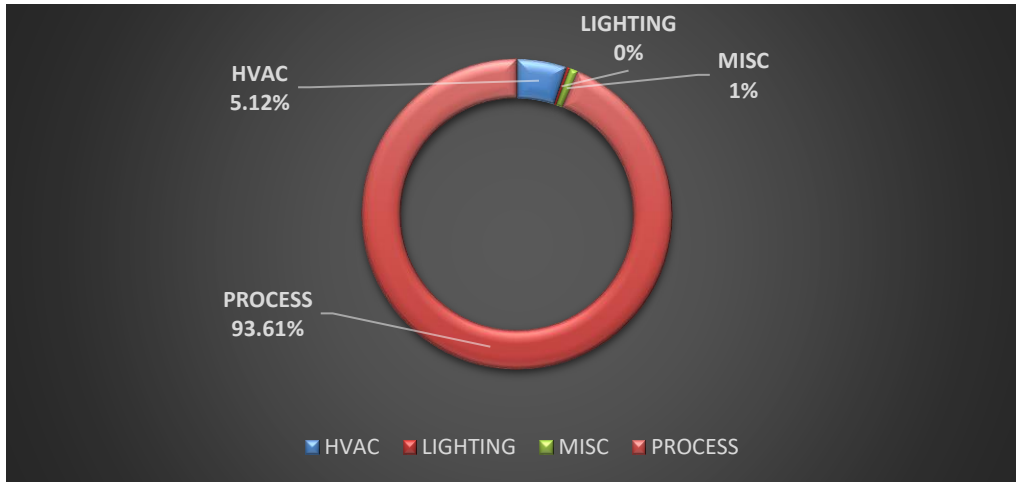


## Equipment End Use

The complete list of equipment served by each electric meter is included in the appendix.

### 22992 Lone Pine Rd - WWTP

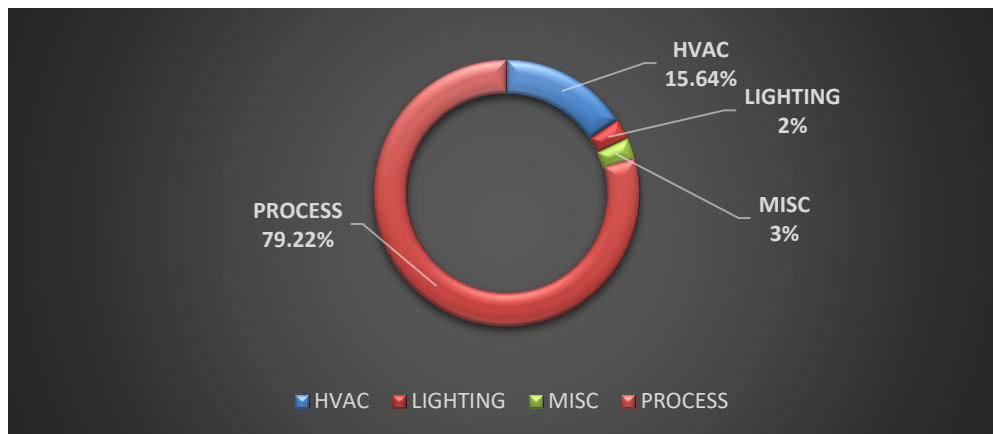
The primary loads consist of the aeration pond motors, blower motor and WAS/RAS pumps.



*22992 Lone Pine Rd - WWTP*

### 309 2<sup>nd</sup> – Water Treatment Plant and Well 3

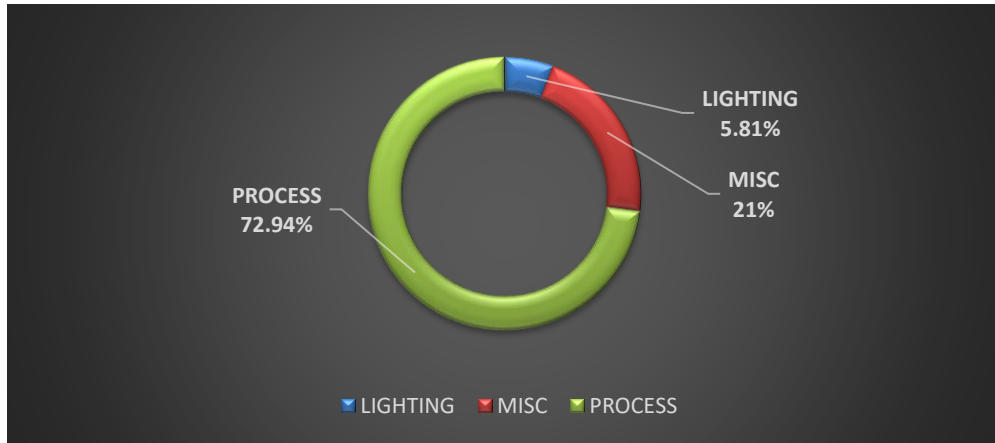
The load consists of (2) pumps, motors, lighting, HVAC equipment, and jacket water heater on the standby generator.



*309 2nd – WTP and Well 3*

205 3<sup>rd</sup> St NE – Lift Station 1

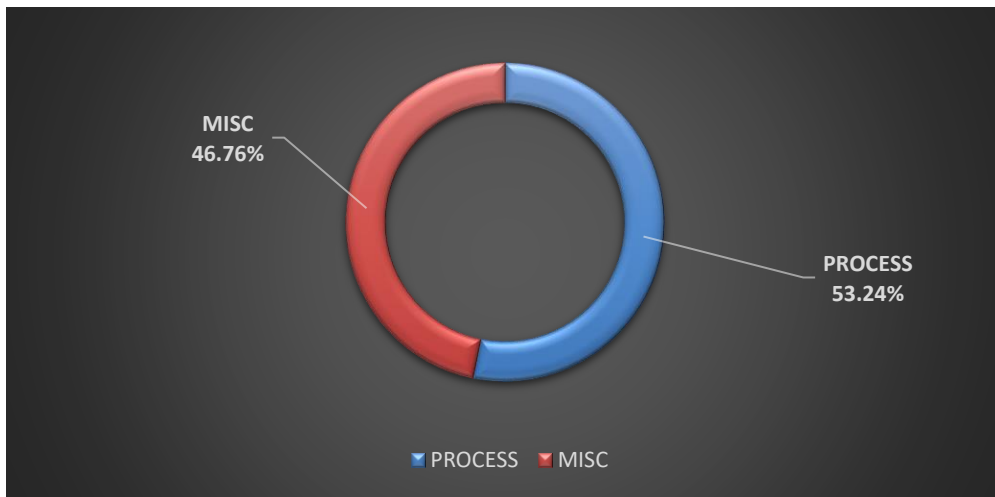
The load consists of (3) lift pumps, pole light, and jacket water heater on the standby generator.



*205 3<sup>RD</sup> St NE – Lift Station 1*

260 Morris Ave – Lift Station 2

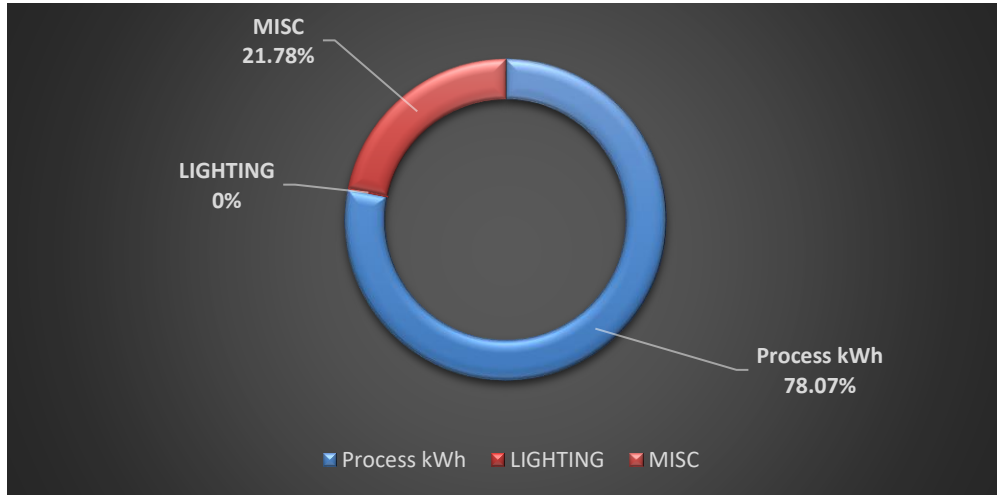
The load consists of (2) lift pumps and jacket water heater on the standby generator.



*260 Morris Ave – Lift Station 2*

Highway 48 – Lift Station 3

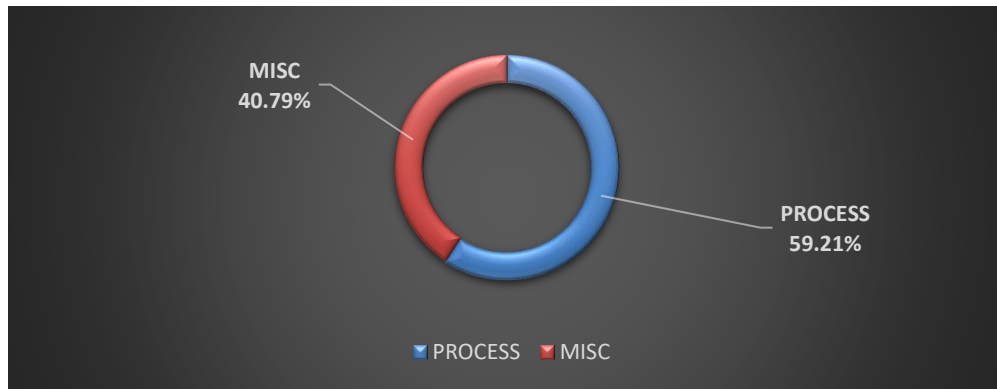
The load consists of (3) lift pumps, a grinder, a pole light and jacket water heater on the standby generator.



*Highway 48 – Lift Station 3*

38786 Hinckley Rd – Lift Station 8

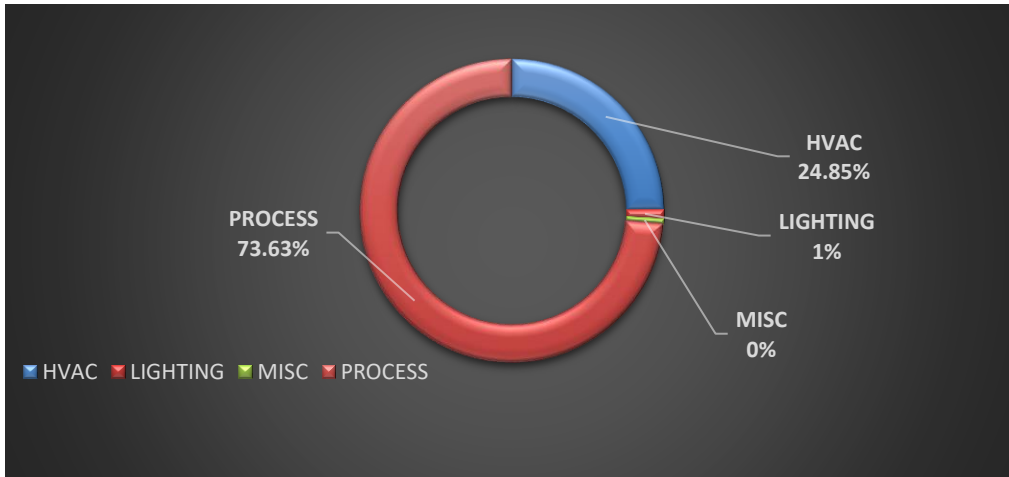
The load consists of (3) lift pumps, grinder, and jacket water heater on the standby generator.



*38786 Hinckley Rd – Lift Station 8*

Lady Luck Dr – Well 4

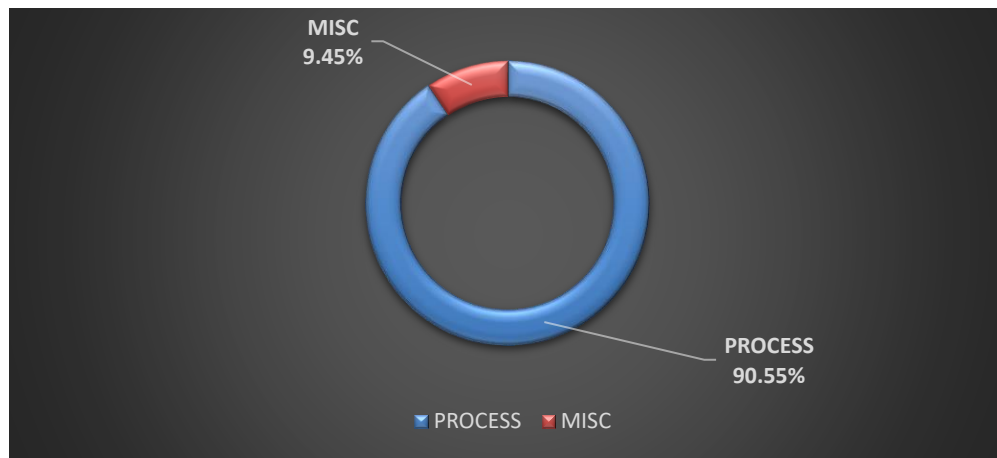
The load consists of (1) well pump, multiple motors, a box fan, and unit heaters.



*Lady Luck Dr – Well 4*

Lady Luck Dr – Well 5

The load consists of (1) well pump, a heater, and a small A/C unit.



*Lady Luck Dr – Well 5*

Morris Ave – Lift Station 7, 6<sup>th</sup> St SE – Lift Station 6, Tower Rd – Lift Station 4

The only loads are the lift pumps.

Natural Gas End Use

The natural gas equipment consists of (3) natural gas standby generators and a furnace at the water treatment plant.

## Summary of Opportunities

The recommendations in this report are based on an analysis of conditions observed at the time of the survey, information provided to the auditors, and costs based on experience on similar projects. Estimated savings are calculated on the basis of research by government agencies, product literature, and engineering associations. Actual savings will depend on several factors including conservation measures implemented, seasonal weather variations, fuel price increases, and specific energy use practices of the facility's occupants and workers. Performance guidelines provided in the report are for informational purposes only and are not to be construed as a design document. This report is written for energy saving purposes only and should not be used for bid specifications. Installation costs are estimates only and the customer is responsible for obtaining quoted prices from vendors and contractors.

| ECM #        | Description         | Annual Cost Saved | Monthly Demand Saved (kW) | Annual Energy Saved (kWh) | Estimated Project Cost | Simple Payback (Years) | % Electric Reduced |
|--------------|---------------------|-------------------|---------------------------|---------------------------|------------------------|------------------------|--------------------|
| 1            | Blower Controls     | \$5,136           | 0.0                       | 112,282                   | \$27,917               | 5.4                    | 7.3%               |
| 2            | Aerator Pond Motors | \$33,389          | 59.3                      | 519,812                   | \$206,000              | 6.2                    | 33.8%              |
| 3            | Efficient Lighting  | \$756             | 4.5                       | 5,000                     | \$6,172                | 8.2                    | 0.3%               |
| 4            | Heat Pumps          | \$2,906           | 31.9                      | 29,159                    | \$30,750               | 10.6                   | 1.9%               |
| <b>Total</b> |                     | <b>\$42,188</b>   | <b>96</b>                 | <b>666,253</b>            | <b>\$270,839</b>       | <b>6.4</b>             | <b>43.4%</b>       |

### Blower Controls

The existing 40 hp blower motor is not being controlled automatically. Dissolved oxygen (DO) measurements have to be taken remotely, and the speed of the motor adjusted manually - if necessary. The motor mostly runs at 100%. We recommend adding sensors and controls to measure the DO and control the speed of the motor automatically.

### Aerator Pond Motors

The aerator ponds have (8) 20 hp motors that mix air and water in the bottom of the ponds. The city has a proposal to replace the existing system with (8) new 10 hp mixers and (8) 2 hp blowers. The new system will provide the same amount of aeration while using 40% less hp. We also recommend using dissolved oxygen (DO) sensors to automatically control the variable speed drives on the mixers and blowers to maintain the optimum DO levels and further reduce energy cost.



*Aeration Pond*

### LED Lighting

Replace existing incandescent, fluorescent and HID lighting with energy efficient LED lights. While looking for new lighting, look for DLC or energy star rated lighting options. Installing LED lights is one of the most cost-effective way to reduce energy usage, as LEDs use about 50% less electricity than traditional fluorescent options, resulting in substantial energy cost savings. LEDs typically have an expected lifespan of 30,000-50,000 hours or longer, depending on the quality of the lamp or fixture compared to standard lighting options with 8,000 to 10,000-hour lifespan. LED retrofit kits replace your existing fluorescent fixtures, have longer lifespans and reduce maintenance cost, making them a good long-term investment option.

This can be done with ballast bypass tubes or ballast compatible tubes. Typically keeping the ballast is ideal for safety reasons as it acts as a surge protector. Fluorescent ballast compatibility varies so check that the make and model of your current fluorescent fixtures are acceptable for LED. Please

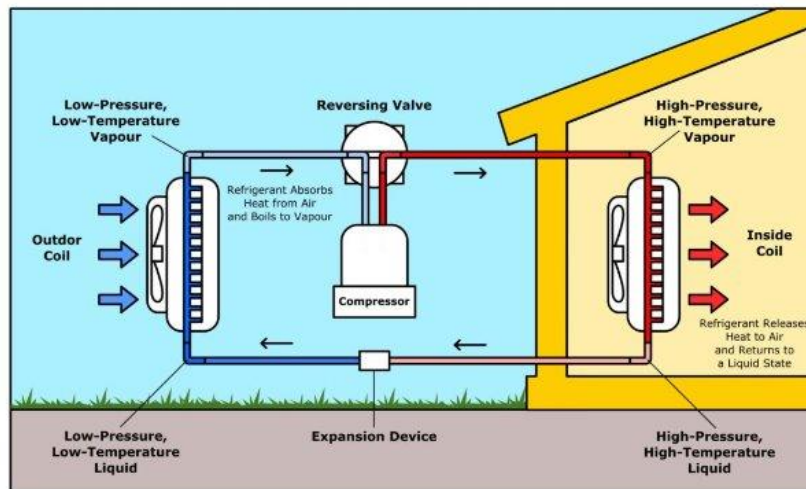
work with your contractor to figure out the best option as not all LED tubes work with all ballasts. Ballasts have a lifespan and need to be replaced upon failure.



*Metal Halide Pole Fixture at Lift #1*

### Heat Pumps

Multiple facilities are using electric unit heaters to heat the buildings. These electric heaters have a coefficient of performance (COP) of 1 meaning for every BTU of electrical energy that goes in, there is a BTU of heat energy that comes out. Heat pumps have COPs up to 4. This is possible because instead of creating heat, they are simply moving heat from one location to another. When in heating mode, the heat pump is moving heat from an outdoor heat exchanger to an indoor heat exchanger. They even work in freezing temperatures. We recommend keeping the existing unit heaters for backup, but make sure controls are in place to keep them from running when the heat pumps are working.



*Illustration of a Heat Pump in Heating Mode*

### **Auditor Qualifications:**

Thomas Vagts has been with Frontier Energy, a private energy consulting firm, for 7 years. Previously he worked for another energy consulting firm for 4 years. He also has 18 years of experience in the power generation industry working for utilities, dealerships, and manufacturers. He has completed 100s of energy audits at commercial, industrial, municipal and agricultural facilities.

Here is a summary of projects that Thomas has worked on in the past 12 months:

- Minnesota Power requested a refrigeration study for a seafood processing company in North Central Minnesota. Reviewed existing refrigeration systems and identified energy savings options using a centralized refrigeration plant
- Minnesota Power requested an Energy Analysis for a ski hill in northern Minnesota. The ski hill was interested in learning how to reduce their cost to run the snow making equipment.
- Capacity study for Foster City, CA. Determined if the existing electrical distribution system could sustain a reach code to replace natural gas consumption with electrical consumption to achieve the final goal of net zero greenhouse gas emissions for the city.
- Measurement and verification study as required by the Department of Commerce. Thomas assisted in completing a measurement and verification study for a paper mill with over 1,000,000 kWh savings for a single project.
- Frontier Energy completes over 200 natural gas energy audits for Centerpoint Energy each year. Thomas worked on 82 of these audits over the past 12 months.
- Frontier Energy was awarded a CARD Grant by the MN Department of Commerce last year. The CARD Grant is for the detailed feasibility assessment for deploying district geothermal systems in 2 to 3 rural MN communities. Thomas is one of the senior engineers working on this program for the last 6 months.

Frontier Energy (formerly known as Energy Insight Inc in 2020) is on the list of formally endorsed energy auditors by the Minnesota Rural Energy for America Program [MN-REAP Energy Auditors.pdf \(usda.gov\)](#). Please consult the Frontier Energy website for more information on the expertise of our auditors [Expertise - Frontier Energy](#).

Frontier Energy is also a qualified third-party Industrial Training & Assessment Center (ITAC) Program assessor. Upon entity eligibility verification, this assessment may be used in an ITAC Implementation grant application. To verify eligibility and grant program activity, please visit [ITAC Workstream 1 - Overview of Opportunity](#).

## Appendix A: Spreadsheets

# VARIABLE FREQUENCY DRIVE

**RECOMMENDATION:**

Consider installing a controller to manage the speed of the 40 HP blower motor based on the dissolved oxygen level.

|                     |                         |                        |                     |                                   |
|---------------------|-------------------------|------------------------|---------------------|-----------------------------------|
| Motor Size:         | <b>40.00</b> HP         | Proposed Control Type: | <b>VFD</b>          |                                   |
| Number of Motors:   | <b>1</b> # Proposed     | Motor Efficiency:      | <b>94.1%</b>        | VFD Efficiency = <b>96%</b>       |
| Total Motor Size:   | <b>40.00</b> HP         | Electric Demand Rate:  | <b>\$13.50</b> kW   | Hours of Operation = <b>8,760</b> |
| Current Motor Type: | <b>New Premium Eff.</b> | Electricity Rate:      | <b>\$0.0457</b> kWh | Operating Months = <b>12</b>      |
| Existing Control:   | <b>None - Fan</b>       | Motor Loading:         | <b>75%</b>          |                                   |
| Load Profile:       | <b>Standard</b>         |                        |                     |                                   |

| System Rated Flow | Operating  | Percent of Full Input Power |              | Full-Load Power kW | Existing Motor Input Power | Proposed Motor Input Power | kW Power Savings | Hours Per Year | kWh/Yr. Energy Savings |
|-------------------|------------|-----------------------------|--------------|--------------------|----------------------------|----------------------------|------------------|----------------|------------------------|
|                   |            | Existing                    | Proposed VFD |                    |                            |                            |                  |                |                        |
| 0%                | 0%         | 100%                        | 6%           | 0.0                | 0.0                        | 0.0                        | 0.0              | 0              | 0                      |
| 20%               | 0%         | 100%                        | 5%           | 31.7               | 23.8                       | 1.3                        | 22.5             | 0              | 0                      |
| 25%               | 0%         | 100%                        | 6%           | 31.7               | 23.8                       | 1.6                        | 22.2             | 0              | 0                      |
| 30%               | 0%         | 100%                        | 8%           | 31.7               | 23.8                       | 2.0                        | 21.8             | 0              | 0                      |
| 35%               | 0%         | 100%                        | 10%          | 31.7               | 23.8                       | 2.5                        | 21.3             | 0              | 0                      |
| 40%               | 0%         | 100%                        | 13%          | 31.7               | 23.8                       | 3.2                        | 20.6             | 0              | 0                      |
| 45%               | 0%         | 100%                        | 16%          | 31.7               | 23.8                       | 4.0                        | 19.8             | 0              | 0                      |
| 50%               | 0%         | 100%                        | 20%          | 31.7               | 23.8                       | 5.0                        | 18.8             | 0              | 0                      |
| 55%               | 0%         | 100%                        | 25%          | 31.7               | 23.8                       | 6.2                        | 17.6             | 0              | 0                      |
| 60%               | <b>20%</b> | 100%                        | 30%          | 31.7               | 23.8                       | 7.5                        | 16.3             | 1,752          | 28,483                 |
| 65%               | <b>20%</b> | 100%                        | 37%          | 31.7               | 23.8                       | 9.1                        | 14.7             | 1,752          | 25,812                 |
| 70%               | <b>20%</b> | 100%                        | 43%          | 31.7               | 23.8                       | 10.8                       | 13.0             | 1,752          | 22,805                 |
| 75%               | <b>20%</b> | 100%                        | 51%          | 31.7               | 23.8                       | 12.7                       | 11.1             | 1,752          | 19,450                 |
| 80%               | <b>20%</b> | 100%                        | 60%          | 31.7               | 23.8                       | 14.8                       | 9.0              | 1,752          | 15,733                 |
| 85%               | 0%         | 100%                        | 69%          | 31.7               | 23.8                       | 17.1                       | 6.6              | 0              | 0                      |
| 90%               | 0%         | 100%                        | 79%          | 31.7               | 23.8                       | 19.7                       | 4.1              | 0              | 0                      |
| 95%               | 0%         | 100%                        | 91%          | 31.7               | 23.8                       | 22.5                       | 1.3              | 0              | 0                      |
| 100%              | 0%         | 100%                        | 103%         | 31.7               | 23.8                       | 25.5                       | (1.7)            | 0              | 0                      |

100%

**SAVINGS:**

|                         |                   |                     |                |
|-------------------------|-------------------|---------------------|----------------|
| Implementation Cost =   | <b>\$27,917</b>   |                     |                |
| kWh Saved =             | <b>112,282</b>    | O&M Savings:        | <b>\$1,000</b> |
| kW Saved =              | <b>-</b>          |                     |                |
| Annual Cost Savings =   | <b>\$5,135.78</b> |                     |                |
| Rebate =                | <b>\$3,929.87</b> | kWh saved X \$0.035 |                |
| Payback Before Rebate = | <b>5.4</b> Years  |                     |                |
| Payback After Rebate =  | <b>4.7</b> Years  |                     |                |

|       |                |
|-------|----------------|
| Total | <b>112,282</b> |
|-------|----------------|

|                     |
|---------------------|
| <b>Rebate Rate</b>  |
| <b>\$0.035 /kWh</b> |
| <b>\$200 /kW</b>    |



Disclaimer: All values are estimates based on information provided at the time. These values are not to be taken as fact and proof of installation is needed for rebates to be issued.

Please contact us at (218) 355-2843.

## MOTOR EFFICIENCY

**RECOMMENDATION:**

Consider replacing the eight 20 HP impellers with eight 10 HP mixers and eight 2HP blowers on VFDs.

**ENERGY COSTS:**

Demand = \$13.50 /kW  
 On Peak = \$0.04574 /kWh

**Estimated Standard Equipment Assumptions =**

| Description | Count | HP    | VSD | Efficiency | Load Factor | kW    | Hours | Annual kWh |
|-------------|-------|-------|-----|------------|-------------|-------|-------|------------|
| Impellers   | 8     | 20.00 | No  | 91%        | 75%         | 98.33 | 8,760 | 861,406    |

**Estimated New Equipment Assumptions =**

| Description | Count | HP    | VSD | Efficiency | Load Factor | kW    | Hours | Annual kWh |
|-------------|-------|-------|-----|------------|-------------|-------|-------|------------|
| Mixers      | 8     | 10.00 | Yes | 93%        | 50%         | 32.18 | 8,760 | 281,870    |
| Blowers     | 8     | 2.00  | Yes | 88%        | 50%         | 6.82  | 8,760 | 59,724     |

**DEMAND SAVINGS:**

Standard Demand = 98.33 kW  
 New Demand = 38.99 kW  
 Demand Saved = **59.34 kW**

**ENERGY SAVINGS:**

**519,812 kWh/Year**

**COST SAVINGS:**

**\$33,389 /Year**

**O & M SAVINGS:**

**\$160**

**INCENTIVE:**

**\$18,193** kWh saved X \$0.035

**INCREMENTAL COST:**

Incremental Cost = \$206,000  
 After Incentive = \$187,806.56

**SIMPLE PAYBACK:**

Before Incentive = 6.2 Years  
 After Incentive = 5.6 Years

v1.2

Disclaimer: All values are estimates based on information provided at the time. These values are not to be taken as fact and proof of installation is needed for rebates to be issued.

Please contact us at (218) 355-2843.



**ENERGY EFFICIENT LIGHTING MEASURES**

**RECOMMENDATION:** It is recommended that the existing fluorescent and metal halide lights be replaced with LED options at 22992 Lone Pine Rd - WWTP. All values presented here are estimates based on information provided at the time. These values are not to be taken as fact. Proof of installation is needed for rebates to be issued.

**Demand:** \$13.50 per kW      **Rebate:** \$200 per kW      **Analysis Type:** Rebate Estimate      **TRM Version:** 4.0  
**Energy:** \$0.04574 per kWh      \$0.035 per kWh      **Rebate Type:** kW-based

| AREA DESCRIPTION:          | Construction Type        | Existing System |               |               |                |             |              | Proposed System |                  |               |                |             |              | Energy Savings          |                 |                    |                       |                   |             |                 |
|----------------------------|--------------------------|-----------------|---------------|---------------|----------------|-------------|--------------|-----------------|------------------|---------------|----------------|-------------|--------------|-------------------------|-----------------|--------------------|-----------------------|-------------------|-------------|-----------------|
|                            |                          | Lighting Type   | Lighting Size | # of Fixtures | Lamps/ Fixture | Watts/ Lamp | Fixture Watt | Lighting Type   | Lighting Size    | # of Fixtures | Lamps/ Fixture | Watts/ Lamp | Fixture Watt | Hours of Operation /yr. | Peak kW Reduced | Annual kWh Reduced | Annual Energy Savings | Rebate            | Cost        | Payback (years) |
| Office Building Exterior   | Retrofit without Ballast | Metal_Halide    | MH100         | 4             | 1              | 100         | 130          | LED             | Wallpack Fixture | 4             | 1              | 39          | 39           | 4,380                   | 0.36            | 1,594              | \$102.41              | \$72.80           | \$797       |                 |
| Preliminary Treatment Room | Retrofit without Ballast | Metal_Halide    | MH150         | 12            | 1              | 150         | 185          | LED             | Highbay Fixture  | 2             | 1              | 60          | 60           | 52                      | 2.10            | 109                | \$345.19              | \$420.00          | \$1,040     |                 |
| Chemical Storage           | Retrofit without Ballast | T8_Lighting     | F32T8 4' 32W  | 6             | 2              | 32          | 56           | LED             | T8 Tube          | 6             | 2              | 14          | 28           | 260                     | 0.17            | 44                 | \$29.55               | \$33.98           | \$191       |                 |
|                            |                          |                 |               |               |                |             |              |                 |                  |               |                |             |              | <b>2.63</b>             | <b>1,748</b>    | <b>\$477.15</b>    | <b>\$526.78</b>       | <b>\$2,028.36</b> | <b>4.25</b> |                 |

v3.16

Disclaimer: All values are estimates based on information provided at the time. These values are not to be taken as fact and proof of installation is needed for rebates to be issued.

**ENERGY EFFICIENT LIGHTING MEASURES**

**RECOMMENDATION:** It is recommended that the existing metal halide be replaced with LED options upon failure at 205 3rd St NE - Lift 1. All values presented here are estimates based on information provided at the time. These values are not to be taken as fact. Proof of installation is needed for rebates to be issued.

**Demand:** \$8.00 per kW      **Rebate:** \$200 per kW      **Analysis Type:** Rebate Estimate      **TRM Version:** 4.0  
**Energy:** \$0.06507 per kWh      \$0.035 per kWh      **Rebate Type:** kW-based

| AREA DESCRIPTION: | Construction Type        | Existing System |               |               |                |             |              | Proposed System |               |               |                |             | Energy Savings |                         |                 |                    |                       |                   |              |                 |
|-------------------|--------------------------|-----------------|---------------|---------------|----------------|-------------|--------------|-----------------|---------------|---------------|----------------|-------------|----------------|-------------------------|-----------------|--------------------|-----------------------|-------------------|--------------|-----------------|
|                   |                          | Lighting Type   | Lighting Size | # of Fixtures | Lamps/ Fixture | Watts/ Lamp | Fixture Watt | Lighting Type   | Lighting Size | # of Fixtures | Lamps/ Fixture | Watts/ Lamp | Fixture Watt   | Hours of Operation /yr. | Peak kW Reduced | Annual kWh Reduced | Annual Energy Savings | Rebate            | Cost         | Payback (years) |
| Area Light        | Retrofit without Ballast | Metal Halide    | MH350PS       | 1             | 1              | 350         | 410          | LED             | Pole Light    | 1             | 1              | 109         | 109            | 4,380                   | 0.30            | 1,318              | \$114.68              | \$60.20           | \$1,460      |                 |
|                   |                          |                 |               |               |                |             |              |                 |               |               |                |             |                | <b>0.30</b>             | <b>1,318</b>    | <b>\$114.68</b>    | <b>\$60.20</b>        | <b>\$1,459.60</b> | <b>12.73</b> |                 |

v3.16

Disclaimer: All values are estimates based on information provided at the time. These values are not to be taken as fact and proof of installation is needed for rebates to be issued.

**ENERGY EFFICIENT LIGHTING MEASURES**

**RECOMMENDATION:** It is recommended that the existing fluorescent lights be replaced with LED options at 309 2nd St - Well 3. All values presented here are estimates based on information provided at the time. These values are not to be taken as fact. Proof of installation is needed for rebates to be issued.

**Demand:** \$0.00 per kW      **Rebate:** \$200 per kW  
**Energy:** \$0.06770 per kWh      **Rebate:** \$0.0350 per kWh

**Analysis Type:** Rebate Estimate      **TRM Version:** 4.0  
**Rebate Type:** kW-based

| AREA DESCRIPTION:           | Construction Type        | Existing System |               |               |                |             |              | Proposed System |                  |               |                |             |              | Energy Savings          |                 |                    |                       |                 |             |                 |
|-----------------------------|--------------------------|-----------------|---------------|---------------|----------------|-------------|--------------|-----------------|------------------|---------------|----------------|-------------|--------------|-------------------------|-----------------|--------------------|-----------------------|-----------------|-------------|-----------------|
|                             |                          | Lighting Type   | Lighting Size | # of Fixtures | Lamps/ Fixture | Watts/ Lamp | Fixture Watt | Lighting Type   | Lighting Size    | # of Fixtures | Lamps/ Fixture | Watts/ Lamp | Fixture Watt | Hours of Operation /yr. | Peak kW Reduced | Annual kWh Reduced | Annual Energy Savings | Rebate          | Cost        | Payback (years) |
| Brown Building Interior     | Retrofit without Ballast | T8 Lighting     | F32T8 4' 32W  | 2             | 2              | 32          | 56           | LED             | T8 Tube          | 2             | 2              | 14          | 28           | 260                     | 0.06            | 15                 | \$1.00                | \$11.33         | \$64        |                 |
| Brown Building Exterior     | Retrofit without Ballast | Incandescent    | I60           | 1             | 1              | 60          | 60           | LED             | A19 Bulb         | 1             | 1              | 10          | 10           | 260                     | 0.05            | 13                 | \$0.88                | \$10.00         | \$5         |                 |
| White Building Control Room | Retrofit without Ballast | T8 Lighting     | F32T8 4' 32W  | 3             | 2              | 32          | 56           | LED             | T8 Tube          | 3             | 2              | 14          | 28           | 260                     | 0.08            | 22                 | \$1.50                | \$16.99         | \$96        |                 |
| White Building Interior     | Retrofit without Ballast | T8 Lighting     | F32T8 4' 32W  | 11            | 2              | 32          | 56           | LED             | T8 Tube          | 11            | 2              | 14          | 28           | 260                     | 0.31            | 81                 | \$5.48                | \$62.30         | \$351       |                 |
| White Building Bathroom     | Retrofit without Ballast | T8 Lighting     | F32T8 4' 32W  | 1             | 2              | 32          | 56           | LED             | T8 Tube          | 1             | 2              | 14          | 28           | 52                      | 0.03            | 1                  | \$0.10                | \$5.66          | \$32        |                 |
| White Building Upstairs     | Retrofit without Ballast | T8 Lighting     | F32T8 4' 32W  | 6             | 2              | 32          | 56           | LED             | T8 Tube          | 6             | 2              | 14          | 28           | 260                     | 0.17            | 44                 | \$2.99                | \$33.98         | \$191       |                 |
| White Building Exterior     | Retrofit without Ballast | Metal Halide    | MH150         | 2             | 1              | 150         | 185          | LED             | Wallpack Fixture | 2             | 1              | 32          | 32           | 4,380                   | 0.31            | 1,340              | \$90.74               | \$61.20         | \$199       |                 |
|                             |                          |                 |               |               |                |             |              |                 |                  |               |                |             |              | <b>1.01</b>             | <b>1,517</b>    | <b>\$102.68</b>    | <b>\$201.47</b>       | <b>\$937.64</b> | <b>9.13</b> |                 |

v3.16

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**ENERGY EFFICIENT LIGHTING MEASURES**

**RECOMMENDATION:** It is recommended that the existing fluorescent lights be replaced with LED options at the Highway 48 building - Station 3. All values presented here are estimates based on information provided at the time. These values are not to be taken as fact. Proof of installation is needed for rebates to be issued.

**Demand:** \$8.00 per kW      **Rebate:** \$200 per kW      **Analysis Type:** Rebate Estimate      **TRM Version:** 4.0  
**Energy:** \$0.06507 per kWh      \$0.035 per kWh      **Rebate Type:** kW-based

| AREA DESCRIPTION:    | Construction Type        | Existing System |               |               |                |             |              | Proposed System |               |               |                |             |              | Energy Savings          |                 |                    |                       |            |         |                 |
|----------------------|--------------------------|-----------------|---------------|---------------|----------------|-------------|--------------|-----------------|---------------|---------------|----------------|-------------|--------------|-------------------------|-----------------|--------------------|-----------------------|------------|---------|-----------------|
|                      |                          | Lighting Type   | Lighting Size | # of Fixtures | Lamps/ Fixture | Watts/ Lamp | Fixture Watt | Lighting Type   | Lighting Size | # of Fixtures | Lamps/ Fixture | Watts/ Lamp | Fixture Watt | Hours of Operation /yr. | Peak kW Reduced | Annual kWh Reduced | Annual Energy Savings | Rebate     | Cost    | Payback (years) |
| Station 3 Area Light | Retrofit without Ballast | Metal Halide    | MH400         | 1             | 1              | 400         | 454          | LED             | Pole Light    | 1             | 1              | 109         | 109          | 100                     | 0.35            | 35                 | \$35.36               | \$69.00    | \$1,460 |                 |
|                      |                          |                 |               |               |                |             |              |                 |               |               |                |             |              | 0.35                    | 35              | \$35.36            | \$69.00               | \$1,459.60 | 41.28   |                 |

v3.16

Disclaimer: All values are estimates based on information provided at the time. These values are not to be taken as fact and proof of installation is needed for rebates to be issued.

**ENERGY EFFICIENT LIGHTING MEASURES**

**RECOMMENDATION:** It is recommended that the existing fluorescent lights be replaced with LED options at Lady Luck Drive - Well 4. All values presented here are estimates based on information provided at the time. These values are not to be taken as fact. Proof of installation is needed for rebates to be issued.

**Demand:** \$0.00 per kW  
**Energy:** \$0.06916 per kWh

**Rebate:** \$200 per kW  
 \$0.035 per kWh

**Analysis Type:** Rebate Estimate  
**Rebate Type:** kW-based

**TRM Version:** 4.0

| AREA DESCRIPTION: | Construction Type        | Existing System |               |               |                |             |              | Proposed System |               |               |                |             |              | Energy Savings          |                 |                    |                       |                 |              |                 |
|-------------------|--------------------------|-----------------|---------------|---------------|----------------|-------------|--------------|-----------------|---------------|---------------|----------------|-------------|--------------|-------------------------|-----------------|--------------------|-----------------------|-----------------|--------------|-----------------|
|                   |                          | Lighting Type   | Lighting Size | # of Fixtures | Lamps/ Fixture | Watts/ Lamp | Fixture Watt | Lighting Type   | Lighting Size | # of Fixtures | Lamps/ Fixture | Watts/ Lamp | Fixture Watt | Hours of Operation /yr. | Peak kW Reduced | Annual kWh Reduced | Annual Energy Savings | Rebate          | Cost         | Payback (years) |
| Well 4 Building   | Retrofit without Ballast | T8 Lighting     | F32T8 4' 32W  | 7             | 2              | 32          | 56           | LED             | T8 Tube       | 7             | 2              | 14          | 28           | 1,825                   | 0.20            | 362                | \$25.02               | \$39.65         | \$223        |                 |
| Chemical Room     | Retrofit without Ballast | T8 Lighting     | F32T8 4' 32W  | 2             | 2              | 32          | 56           | LED             | T8 Tube       | 2             | 2              | 14          | 28           | 365                     | 0.06            | 21                 | \$1.43                | \$11.33         | \$64         |                 |
|                   |                          |                 |               |               |                |             |              |                 |               |               |                |             |              | <b>0.25</b>             | <b>382</b>      | <b>\$26.45</b>     | <b>\$50.98</b>        | <b>\$286.92</b> | <b>10.85</b> |                 |

v3.16

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## GENERAL EQUIPMENT IMPROVEMENT

**RECOMMENDATION:**

Consider replacing electric unit heaters with a mini-split heat system at 22992 Lone Pine Rd - WWTP.

**ENERGY COSTS:**

|           |                |                          |     |
|-----------|----------------|--------------------------|-----|
| Demand =  | \$13.50 /kW    | Is There a Current Unit: | Yes |
| On Peak = | \$0.04574 /kWh | Operational Months:      | 6   |

**BASELINE EQUIPMENT:**

| Component   | Quantity | kW Capacity | COP | Load Factor | Annual Hours | Demand       | Annual kWh    | Annual Cost        |
|-------------|----------|-------------|-----|-------------|--------------|--------------|---------------|--------------------|
| Unit Heater | 1        | 2.50        | 1   | 75%         | 1700         | 2.50         | 3,188         | \$ 348.30          |
| Unit Heater | 1        | 5.00        | 1   | 75%         | 1700         | 5.00         | 6,375         | \$ 696.59          |
| Unit Heater | 1        | 7.50        | 1   | 75%         | 1700         | 7.50         | 9,563         | \$ 1,044.89        |
|             |          |             |     |             |              | <b>15.00</b> | <b>19,125</b> | <b>\$ 2,089.78</b> |

**PROPOSED EQUIPMENT:**

| Component | Quantity | kW Capacity | COP | Load Factor | Annual Hours | Demand      | Annual kWh   | Annual Cost      |
|-----------|----------|-------------|-----|-------------|--------------|-------------|--------------|------------------|
| Heat Pump | 1        | 2.50        | 2.5 | 75%         | 1700         | 1.00        | 1,275        | \$ 139.32        |
| Heat Pump | 1        | 5.00        | 2.5 | 75%         | 1700         | 2.00        | 2,550        | \$ 278.64        |
| Heat Pump | 1        | 7.50        | 2.5 | 75%         | 1700         | 3.00        | 3,825        | \$ 417.96        |
|           |          |             |     |             |              | <b>6.00</b> | <b>7,650</b> | <b>\$ 835.91</b> |

**ENERGY SAVINGS:**

|                  |                        |
|------------------|------------------------|
| Baseline kWh =   | 19,125 kWh/Year        |
| Proposed kWh =   | 7,650 kWh/Year         |
| kWh Savings =    | <b>11,475 kWh/Year</b> |
| <br>             |                        |
| Baseline kW =    | 15 kW                  |
| Proposed kW =    | 6 kW                   |
| Demand Savings = | <b>9 kW</b>            |

**COST SAVINGS:**

|                        |                          |
|------------------------|--------------------------|
| Baseline Energy Cost = | \$ 2,089.78 /Year        |
| Proposed Energy Cost = | \$ 835.91 /Year          |
| Energy Cost Savings =  | <b>\$ 1,253.87 /Year</b> |

**OTHER SAVINGS:**

O&M Savings = \$150

**INCENTIVE:**

Incentive = \$1,800.00  
 Total Incentive = **\$1,800.00** \$200/kW

**FULL INSTALL COST:**

Equipment Cost = \$6,500.00  
 Labor Cost = \$3,250.00  
 Full Install Cost = \$9,750.00  
 After Incentive = \$7,950.00

**SIMPLE PAYBACK:**

Before Incentive = 7.8 Years  
 After Incentive = 6.3 Years

v1.8

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Please contact us at (218) 355-2843.



## GENERAL EQUIPMENT IMPROVEMENT

**RECOMMENDATION:**

Consider replacing the electric unit heaters with a mini-split heat system at 309 2nd St - Well 3.

**ENERGY COSTS:**

|           |                |                          |     |
|-----------|----------------|--------------------------|-----|
| Demand =  | \$13.50 /kW    | Is There a Current Unit: | Yes |
| On Peak = | \$0.04574 /kWh | Operational Months:      | 6   |

**BASELINE EQUIPMENT:**

| Component   | Quantity | kW Capacity | COP | Load Factor | Annual Hours | Demand       | Annual kWh    | Annual Cost        |
|-------------|----------|-------------|-----|-------------|--------------|--------------|---------------|--------------------|
| Unit Heater | 1        | 5.60        | 1   | 75%         | 1,500        | 5.60         | 6,300         | \$ 741.76          |
| Unit Heater | 1        | 7.50        | 1   | 75%         | 1,500        | 7.50         | 8,438         | \$ 993.43          |
|             |          |             |     |             |              | <b>13.10</b> | <b>14,738</b> | <b>\$ 1,735.19</b> |

**PROPOSED EQUIPMENT:**

| Component | Quantity | kW Capacity | COP | Load Factor | Annual Hours | Demand      | Annual kWh   | Annual Cost      |
|-----------|----------|-------------|-----|-------------|--------------|-------------|--------------|------------------|
| Heat Pump | 1        | 5.60        | 2.5 | 75%         | 1,500        | 2.24        | 2,520        | \$ 296.70        |
| Heat Pump | 1        | 7.50        | 2.5 | 75%         | 1,500        | 3.00        | 3,375        | \$ 397.37        |
|           |          |             |     |             |              | <b>5.24</b> | <b>5,895</b> | <b>\$ 694.08</b> |

**ENERGY SAVINGS:**

|                  |                       |
|------------------|-----------------------|
| Baseline kWh =   | 14,738 kWh/Year       |
| Proposed kWh =   | 5,895 kWh/Year        |
| kWh Savings =    | <b>8,843 kWh/Year</b> |
| <br>             |                       |
| Baseline kW =    | 13 kW                 |
| Proposed kW =    | 5 kW                  |
| Demand Savings = | <b>8 kW</b>           |

**COST SAVINGS:**

|                        |                          |
|------------------------|--------------------------|
| Baseline Energy Cost = | \$ 1,735.19 /Year        |
| Proposed Energy Cost = | \$ 694.08 /Year          |
| Energy Cost Savings =  | <b>\$ 1,041.12 /Year</b> |

**OTHER SAVINGS:**

O&M Savings = \$150

**INCENTIVE:**

Incentive = \$1,572.00  
 Total Incentive = **\$1,572.00** \$200/kW

**FULL INSTALL COST:**

Equipment Cost = \$6,500.00  
 Labor Cost = \$3,250.00  
 Full Install Cost = \$9,750.00  
 After Incentive = \$8,178.00

**SIMPLE PAYBACK:**

Before Incentive = 9.4 Years  
 After Incentive = 7.9 Years

v1.8

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Please contact us at (218) 355-2843.



## GENERAL EQUIPMENT IMPROVEMENT

**RECOMMENDATION:**

Consider replacing the electric unit heaters with a mini-split heat system at Lady Luck Dr - Well 4.

**ENERGY COSTS:**

|           |                |                          |     |
|-----------|----------------|--------------------------|-----|
| Demand =  | \$0.00 /kW     | Is There a Current Unit: | Yes |
| On Peak = | \$0.06916 /kWh | Operational Months:      | 6   |

**BASELINE EQUIPMENT:**

| Component   | Quantity | kW Capacity | COP | Load Factor | Annual Hours | Demand | Annual kWh    | Annual Cost        |
|-------------|----------|-------------|-----|-------------|--------------|--------|---------------|--------------------|
| Unit Heater | 1        | 7.50        | 1   | 75%         | 786          | 7.50   | 4,421         | \$ 305.73          |
| Unit Heater | 1        | 5.00        | 1   | 75%         | 786          | 5.00   | 2,947         | \$ 203.82          |
| Unit Heater | 1        | 5.00        | 1   | 75%         | 786          | 5.00   | 2,947         | \$ 203.82          |
| Unit Heater | 1        | 7.50        | 1   | 75%         | 786          | 7.50   | 4,421         | \$ 305.73          |
|             |          |             |     |             |              | 25.00  | <b>14,735</b> | <b>\$ 1,019.09</b> |

**PROPOSED EQUIPMENT:**

| Component | Quantity | kW Capacity | COP | Load Factor | Annual Hours | Demand | Annual kWh   | Annual Cost      |
|-----------|----------|-------------|-----|-------------|--------------|--------|--------------|------------------|
| Heat Pump | 1        | 7.50        | 2.5 | 75%         | 786          | 3.00   | 1,768        | \$ 122.29        |
| Heat Pump | 1        | 5.00        | 2.5 | 75%         | 786          | 2.00   | 1,179        | \$ 81.53         |
| Heat Pump | 1        | 5.00        | 2.5 | 75%         | 786          | 2.00   | 1,179        | \$ 81.53         |
| Heat Pump | 1        | 7.50        | 2.5 | 75%         | 786          | 3.00   | 1,768        | \$ 122.29        |
|           |          |             |     |             |              | 10.00  | <b>5,894</b> | <b>\$ 407.64</b> |

**ENERGY SAVINGS:**

|                  |                       |
|------------------|-----------------------|
| Baseline kWh =   | 14,735 kWh/Year       |
| Proposed kWh =   | 5,894 kWh/Year        |
| kWh Savings =    | <b>8,841 kWh/Year</b> |
| <br>             |                       |
| Baseline kW =    | 25 kW                 |
| Proposed kW =    | 10 kW                 |
| Demand Savings = | <b>15 kW</b>          |

**COST SAVINGS:**

|                        |                        |
|------------------------|------------------------|
| Baseline Energy Cost = | \$ 1,019.09 /Year      |
| Proposed Energy Cost = | \$ 407.64 /Year        |
| Energy Cost Savings =  | <b>\$ 611.45 /Year</b> |

**OTHER SAVINGS:**

O&M Savings = \$150

**INCENTIVE:**

Incentive = \$3,000.00  
 Total Incentive = **\$3,000.00** \$200/kW

**FULL INSTALL COST:**

Equipment Cost = \$7,500.00  
 Labor Cost = \$3,750.00  
 Full Install Cost = \$11,250.00  
 After Incentive = \$8,250.00

**SIMPLE PAYBACK:**

Before Incentive = 18.4 Years  
 After Incentive = 13.5 Years

v1.8

Disclaimer: All values are estimates based on information provided at the time. These values are not to be taken as fact and proof of installation is needed for rebates to be issued.

Please contact us at (218) 355-2843.



**ELECTRIC END USE ANALYSIS**

**Company:** City of Hinckley - WWTP  
**Address:** 22992 Lone Pine Rd, Hinckley, MN

**Utility:** Minnesota Power  
**Account:** 6263610000

| #                       | Equip Code | Location               | Description                | Quantity | Volts | Amps | Phase | HP    | Efficiency | Watts Each | Total kW | % Full Load | Hrs/Year | Annual kWh    | Peak kW      |
|-------------------------|------------|------------------------|----------------------------|----------|-------|------|-------|-------|------------|------------|----------|-------------|----------|---------------|--------------|
| 1                       | HVAC       | Office                 | Unit Heater                | 1        |       |      |       |       |            | 2,500      | 2.500    | 100%        | 1,739    | 4,348         | 2.50         |
| 2                       | HVAC       | Office                 | Unit Heater                | 1        |       |      |       |       |            | 7,500      | 7.500    | 100%        | 1,739    | 13,043        | 7.50         |
| 3                       | HVAC       | UV Room                | Unit Heater                | 1        |       |      |       |       |            | 7,500      | 7.500    | 100%        | 1,739    | 13,043        | 7.50         |
| 4                       | HVAC       | Treatment Control      | Unit Heater                | 1        |       |      |       |       |            | 2,500      | 2.500    | 100%        | 1,739    | 4,348         | 2.50         |
| 5                       | HVAC       | Blower Motor Room      | Unit Heater                | 1        |       |      |       |       |            | 5,000      | 5.000    | 100%        | 1,739    | 8,695         | 5.00         |
| 6                       | HVAC       | Blower Motor Basem     | Unit Heater                | 1        |       |      |       |       |            | 2,500      | 2.500    | 100%        | 1,739    | 4,348         | 2.50         |
| 7                       | HVAC       | Generator Room         | Unit Heater                | 1        |       |      |       |       |            | 2,500      | 2.500    | 100%        | 1,739    | 4,348         | 2.50         |
| 8                       | HVAC       | Chemical Storage       | Unit Heater                | 1        |       |      |       |       |            | 5,000      | 5.000    | 100%        | 1,739    | 8,695         | 5.00         |
| 9                       | HVAC       | Binary Treatment Bu    | Exhaust Hoods              | 3        |       |      |       | 1.00  | 85.5%      | 873        | 2.618    | 75%         | 261      | 512           | 1.96         |
| <b>SUB TOTAL</b>        |            |                        |                            |          |       |      |       |       |            |            |          |             |          | 61,377        | 36.96        |
| <b>DIVERSITY FACTOR</b> |            |                        |                            |          |       |      |       |       |            |            |          |             |          |               | 95%          |
| <b>HVAC</b>             |            |                        |                            |          |       |      |       |       |            |            |          |             |          | <b>61,377</b> | <b>35.12</b> |
| 9                       | Lighting   | Office Building Exteri | Wallpack                   | 4        |       |      |       |       |            | 100        | 0.400    | 100%        | 4,380    | 1,752         | 0.40         |
| 10                      | Lighting   | Office                 | LED 2L Fixture             | 7        |       |      |       |       |            | 34         | 0.238    | 100%        | 1,304    | 310           | 0.24         |
| 11                      | Lighting   | Restroom               | LED Strip Fixture          | 1        |       |      |       |       |            | 35         | 0.035    | 100%        | 261      | 9             | 0.04         |
| 12                      | Lighting   | Generator Room         | LED 2L Fixture             | 4        |       |      |       |       |            | 34         | 0.136    | 100%        | 261      | 35            | 0.14         |
| 13                      | Lighting   | UV Room                | LED 2L Fixture             | 5        |       |      |       |       |            | 34         | 0.170    | 100%        | 261      | 44            | 0.17         |
| 14                      | Lighting   | Binary Treatment Bu    | Wallpack                   | 4        |       |      |       |       |            | 100        | 0.400    | 100%        | 4,380    | 1,752         | 0.40         |
| 15                      | Lighting   | Binary Treatment R     | Explosion-Proof Fixtures   | 12       |       |      |       |       |            | 150        | 1.800    | 100%        | 261      | 469           | 1.80         |
| 16                      | Lighting   | Treatment Control      | LED 2L Fixture             | 3        |       |      |       |       |            | 34         | 0.102    | 100%        | 52       | 5             | 0.10         |
| 17                      | Lighting   | Blower Motor Room      | LED 2L Fixture             | 9        |       |      |       |       |            | 34         | 0.306    | 100%        | 52       | 16            | 0.31         |
| 18                      | Lighting   | Blower Motor Basem     | LED 2L Fixture             | 12       |       |      |       |       |            | 34         | 0.408    | 100%        | 52       | 21            | 0.41         |
| 19                      | Lighting   | Chemical Storage       | Fluorescent 2L Fixture     | 6        |       |      |       |       |            | 56         | 0.338    | 100%        | 52       | 18            | 0.34         |
| <b>SUB TOTAL</b>        |            |                        |                            |          |       |      |       |       |            |            |          |             |          | 4,432         | 4.33         |
| <b>DIVERSITY FACTOR</b> |            |                        |                            |          |       |      |       |       |            |            |          |             |          |               | 95%          |
| <b>LIGHTING</b>         |            |                        |                            |          |       |      |       |       |            |            |          |             |          | <b>4,432</b>  | <b>4.12</b>  |
| 20                      | Misc.      | Office                 | Ceiling Fan                | 1        |       |      |       |       |            | 100        | 0.100    | 100%        | 1,300    | 130           | 0.10         |
| 21                      | Misc.      | Office                 | Monitor                    | 2        |       |      |       |       |            | 50         | 0.100    | 70%         | 1,300    | 91            | 0.07         |
| 22                      | Misc.      | Office                 | Small printer              | 1        |       |      |       |       |            | 100        | 0.100    | 50%         | 1,300    | 65            | 0.05         |
| 23                      | Misc.      | Office                 | Fridge                     | 1        |       |      |       |       |            | 450        | 0.450    | 50%         | 8,760    | 1,971         | 0.23         |
| 24                      | Misc.      | Office                 | Power Tool Battery Charger | 4        |       |      |       |       |            | 50         | 0.200    | 25%         | 1,300    | 65            | 0.05         |
| 25                      | Misc.      | Generator Room         | Generator Coolant Heater   | 1        |       |      |       |       |            | 1,500      | 1.500    | 100%        | 4,380    | 6,570         | 1.50         |
| 26                      | Misc.      | UV Room                | Mini Fridge                | 1        |       |      |       |       |            | 450        | 0.450    | 50%         | 8,760    | 1,971         | 0.23         |
| <b>SUB TOTAL</b>        |            |                        |                            |          |       |      |       |       |            |            |          |             |          | 10,863        | 2.22         |
| <b>DIVERSITY FACTOR</b> |            |                        |                            |          |       |      |       |       |            |            |          |             |          |               | 25%          |
| <b>MISC</b>             |            |                        |                            |          |       |      |       |       |            |            |          |             |          | <b>10,863</b> | <b>0.56</b>  |
| 27                      | Process    | Office                 | Grinder Pump               | 1        |       |      |       | 2.00  | 86.5%      | 1,725      | 1.725    | 75%         | 12       | 16            | 1.29         |
| 28                      | Process    | UV Room                | Trojan UV Controllor       | 1        |       |      |       |       |            | 150        | 0.150    | 50%         | 8,760    | 657           | 0.08         |
| 29                      | Process    | UV Room                | Trojan UV                  | 2        |       |      |       |       |            | 4,600      | 9.200    | 100%        | 8,760    | 80,592        | 9.20         |
| 30                      | Process    | Binary Treatment F     | Agitator Motor             | 1        |       |      |       | 2.00  | 86.5%      | 1,725      | 1.725    | 75%         | 730      | 944           | 1.29         |
| 31                      | Process    | Aeration Ponds         | Propeller Motor            | 7        |       |      |       | 20.00 | 93.0%      | 16,043     | 112.301  | 75%         | 8,760    | 737,818       | 84.23        |
| 32                      | Process    | Binary Treatment Ex    | Chemical Bubbler           | 1        |       |      |       | 0.25  | 82.5%      | 226        | 0.226    | 75%         | 8,760    | 1,485         | 0.17         |
| 33                      | Process    | Blower Motor Room      | Blower Motor               | 1        |       |      |       | 40.00 | 94.1%      | 31,711     | 31.711   | 75%         | 8,760    | 208,341       | 23.78        |

|    |         |                    |                             |   |     |       |   |       |       |        |        |      |       |           |        |
|----|---------|--------------------|-----------------------------|---|-----|-------|---|-------|-------|--------|--------|------|-------|-----------|--------|
| 34 | Process | ower Motor Baseme  | WAS Pump                    | 1 |     |       |   | 15.00 | 92.4% | 12,110 | 12.110 | 75%  | 365   | 3,315     | 9.08   |
| 35 | Process | ower Motor Baseme  | RAS Pump                    | 1 |     |       |   | 15.00 | 92.4% | 12,110 | 12.110 | 75%  | 8,760 | 79,565    | 9.08   |
| 36 | Process | ower Motor Baseme  | Backup Pump                 | 1 |     |       |   | 15.00 | 92.4% | 12,110 | 12.110 | 0%   | 0     | 0         | 0.00   |
| 37 | Process | ower Motor Baseme  | Sampler Machine             | 1 | 120 | 15.00 |   |       |       | 1,440  | 1.440  | 25%  | 52    | 19        | 0.36   |
| 38 | Process | Chemical Storage   | Water Heater                | 1 |     |       |   |       |       | 4,500  | 4.500  | 100% | 859   | 3,865     | 4.50   |
| 39 | Process | Chemical Storage   | Chemical Pump               | 2 | 120 | 1.7   | 1 |       |       | 184    | 0.367  | 75%  | 4,380 | 1,206     | 0.28   |
| 40 | Process | Clarifyer Building | Scum Pump                   | 1 |     |       |   | 2.00  | 86.5% | 1,725  | 1.725  | 75%  | 730   | 944       | 1.29   |
| 41 | Process | Clarifyer Building | Scraper Motor               | 1 |     |       |   | 0.50  | 82.5% | 452    | 0.452  | 75%  | 8,760 | 2,970     | 0.34   |
|    |         |                    |                             |   |     |       |   |       |       |        |        |      |       |           |        |
|    |         |                    | <b>SUB TOTAL</b>            |   |     |       |   |       |       |        |        |      |       | 1,121,739 | 144.97 |
|    |         |                    | <b>DIVERSITY FACTOR</b>     |   |     |       |   |       |       |        |        |      |       | 100%      | 88%    |
|    |         |                    | <b>PROCESS</b>              |   |     |       |   |       |       |        |        |      |       | 1,121,739 | 128.21 |
|    |         |                    |                             |   |     |       |   |       |       |        |        |      |       |           |        |
|    |         |                    | <b>TOTAL FACILITY USAGE</b> |   |     |       |   |       |       |        |        |      |       | 1,198,411 | 168.00 |

**ELECTRIC END USE ANALYSIS**

Company: City of Hinckley - Well 3  
 Address: 309 2nd/ 2nd & Stephan

Utility: Minneota Power  
 Account: 6263610000

| #                           | Equip Code | Location                 | Description                  | Quantity | Volts | Amps  | Phase | HP    | Efficiency | Watts Each | Total kW | % Full Load | Hrs/Year | Annual kWh | Peak kW |
|-----------------------------|------------|--------------------------|------------------------------|----------|-------|-------|-------|-------|------------|------------|----------|-------------|----------|------------|---------|
| 1                           | HVAC       | Brown Building           | Unit Heater                  | 1        |       |       |       |       |            | 5,600      | 5.600    | 100%        | 1,500    | 8,400      | 5.60    |
| 2                           | HVAC       | Brown Building           | Exhaust Fan                  | 1        |       |       |       | 1.00  | 85.5%      | 873        | 0.873    | 75%         | 260      | 170        | 0.65    |
| 3                           | HVAC       | White Building           | Unit Heater                  | 1        |       |       |       |       |            | 7,500      | 7.500    | 100%        | 1,500    | 11,250     | 7.50    |
| 4                           | HVAC       | White Building Upsta     | Air Handler AC Compressor #1 | 1        | 230   | 13.90 | 3     |       |            | 4,707      | 4.707    | 75%         | 300      | 1,059      | 3.53    |
| 5                           | HVAC       | White Building Upsta     | Air Handler Blower Motor     | 1        |       |       |       | 1.00  | 85.5%      | 873        | 0.873    | 75%         | 300      | 196        | 0.65    |
| <b>SUB TOTAL</b>            |            |                          |                              |          |       |       |       |       |            |            |          |             |          | 21,075     | 17.94   |
| <b>DIVERSITY FACTOR</b>     |            |                          |                              |          |       |       |       |       |            |            |          |             |          |            | 50%     |
| <b>HVAC</b>                 |            |                          |                              |          |       |       |       |       |            |            |          |             |          | 21,075     | 8.97    |
| 6                           | Lighting   | own Building Interi      | Fluorescent 2L Fixture       | 2        |       |       |       |       |            | 56         | 0.113    | 100%        | 260      | 29         | 0.11    |
| 7                           | Lighting   | own Building Exteri      | Exterior Wallpack            | 2        |       |       |       |       |            | 100        | 0.200    | 100%        | 4,380    | 876        | 0.20    |
| 8                           | Lighting   | own Building Exteri      | Exterior Red Fixture         | 1        |       |       |       |       |            | 60         | 0.060    | 100%        | 260      | 16         | 0.06    |
| 9                           | Lighting   | Brown Building           | Exterior Square Fixture      | 1        |       |       |       |       |            | 60         | 0.060    | 100%        | 260      | 16         | 0.06    |
| 10                          | Lighting   | White Building Exteri    | LED Recessed Discs           | 2        |       |       |       |       |            | 25         | 0.050    | 100%        | 4,380    | 219        | 0.05    |
| 11                          | Lighting   | White Building Control R | Fluorescent 2L Fixture       | 3        |       |       |       |       |            | 56         | 0.169    | 100%        | 260      | 44         | 0.17    |
| 12                          | Lighting   | White Building Interi    | Fluorescent 2L Fixture       | 11       |       |       |       |       |            | 56         | 0.620    | 100%        | 260      | 161        | 0.62    |
| 13                          | Lighting   | White Building Bathro    | Fluorescent 2L Fixture       | 1        |       |       |       |       |            | 56         | 0.056    | 100%        | 52       | 3          | 0.06    |
| 14                          | Lighting   | White Building Upsta     | Fluorescent 2L Fixture       | 6        |       |       |       |       |            | 56         | 0.338    | 100%        | 260      | 88         | 0.34    |
| 15                          | Lighting   | White Building Exteri    | LED Wallpack                 | 2        |       |       |       |       |            | 75         | 0.150    | 100%        | 4,380    | 657        | 0.15    |
| 16                          | Lighting   | White Building Exteri    | Exterior Wallpack            | 2        |       |       |       |       |            | 150        | 0.300    | 100%        | 4,380    | 1,314      | 0.30    |
| <b>SUB TOTAL</b>            |            |                          |                              |          |       |       |       |       |            |            |          |             |          | 3,422      | 2.12    |
| <b>DIVERSITY FACTOR</b>     |            |                          |                              |          |       |       |       |       |            |            |          |             |          |            | 95%     |
| <b>LIGHTING</b>             |            |                          |                              |          |       |       |       |       |            |            |          |             |          | 3,422      | 2.01    |
| 17                          | Misc.      | White Building Interi    | Ceiling Fan                  | 4        |       |       |       |       |            | 100        | 0.400    | 100%        | 8,760    | 3,504      | 0.40    |
| 18                          | Misc.      | Behind White Buildin     | Generator Heater             | 1        |       |       |       |       |            | 1,500      | 1.500    | 100%        | 4,380    | 6,570      | 1.50    |
| 19                          | Misc.      | White Building Bathro    | Water Heater                 | 1        |       |       |       |       |            | 4,500      | 4.500    | 100%        | 1,000    | 4,500      | 4.50    |
| <b>SUB TOTAL</b>            |            |                          |                              |          |       |       |       |       |            |            |          |             |          | 3,504      | 6.40    |
| <b>DIVERSITY FACTOR</b>     |            |                          |                              |          |       |       |       |       |            |            |          |             |          |            | 50%     |
| <b>MISC</b>                 |            |                          |                              |          |       |       |       |       |            |            |          |             |          | 3,504      | 3.20    |
| 18                          | Process    | Brown Building           | Pump                         | 1        |       |       |       | 30.00 | 94.1%      | 23,783     | 23.783   | 65%         | 3,596    | 55,592     | 15.46   |
| 19                          | Process    | White Building           | Sharpe Mixer G-025           | 1        |       |       |       | 0.25  | 85.5%      | 218        | 0.218    | 75%         | 2,565    | 420        | 0.16    |
| 20                          | Process    | White Building           | Sterling Electric Motor      | 2        |       |       |       | 0.25  | 58.0%      | 322        | 0.643    | 38%         | 2,565    | 619        | 0.24    |
| 21                          | Process    | White Building           | High Service Pump            | 2        |       |       |       | 30.00 | 94.1%      | 23,783     | 47.566   | 38%         | 2,565    | 45,753     | 17.84   |
| 22                          | Process    | White Building Upsta     | Water Tank Exhaust Fan       | 1        |       |       |       | 0.50  | 85.5%      | 436        | 0.436    | 75%         | 2,565    | 839        | 0.33    |
| 23                          | Process    | White Building Upsta     | Water Tank Mixer             | 1        |       |       |       | 2.00  | 86.5%      | 1,725      | 1.725    | 75%         | 2,565    | 3,318      | 1.29    |
| 24                          | Process    | White Building Upsta     | Blower/Aerator Fan?          | 1        |       |       |       | 30.00 | 91.0%      | 6,148      | 6.148    | 75%         | 52       | 240        | 4.61    |
| <b>SUB TOTAL</b>            |            |                          |                              |          |       |       |       |       |            |            |          |             |          | 106,780    | 39.93   |
| <b>DIVERSITY FACTOR</b>     |            |                          |                              |          |       |       |       |       |            |            |          |             |          | 100%       | 67%     |
| <b>PROCESS</b>              |            |                          |                              |          |       |       |       |       |            |            |          |             |          | 106,780    | 26.82   |
| <b>TOTAL FACILITY USAGE</b> |            |                          |                              |          |       |       |       |       |            |            |          |             |          | 134,782    | 41.00   |

**ELECTRIC END USE ANALYSIS**

**Company:** City of Hinckley - Lift Station 1  
**Address:** 205 4rd St NE

**Utility:** Minnesota Power  
**Accounts:** 6263610000

| # | Equip Code | Location | Description                 | Quantity | Volts | Amps | Phase | HP   | Efficiency | Watts Each | Total kW | % Full Load | Hrs/Year | Annual kWh | Peak kW |
|---|------------|----------|-----------------------------|----------|-------|------|-------|------|------------|------------|----------|-------------|----------|------------|---------|
| 1 | Lighting   | Lift 1   | Pole Light                  | 1        |       |      |       |      |            | 410        | 0.410    | 100%        | 4,380    | 1,796      | 0.41    |
|   |            |          | <b>SUB TOTAL</b>            |          |       |      |       |      |            |            |          |             |          | 1,796      | 0.41    |
|   |            |          | <b>DIVERSITY FACTOR</b>     |          |       |      |       |      |            |            |          |             |          |            | 95%     |
|   |            |          | <b>LIGHTING</b>             |          |       |      |       |      |            |            |          |             |          | 1,796      | 0.39    |
| 2 | Misc.      | Lift 1   | Wet Well Supply Fan         | 1        |       |      |       | 0.50 | 85.5%      | 436        | 0.436    | 70%         | 12       | 4          | 0.31    |
| 3 | Misc.      | Lift 1   | Generator Heater            | 1        |       |      |       |      |            | 1,500      | 1.500    | 100%        | 4,380    | 6,570      | 1.50    |
|   |            |          | <b>SUB TOTAL</b>            |          |       |      |       |      |            |            |          |             |          | 6,574      | 1.81    |
|   |            |          | <b>DIVERSITY FACTOR</b>     |          |       |      |       |      |            |            |          |             |          |            | 100%    |
|   |            |          | <b>MISC</b>                 |          |       |      |       |      |            |            |          |             |          | 6,574      | 1.81    |
| 4 | Process    | Lift 1   | Pump 1                      | 1        |       |      |       | 9.40 | 91.0%      | 7,706      | 7.706    | 75%         | 1,301    | 7,519      | 5.78    |
| 5 | Process    | Lift 1   | Pump 2                      | 1        |       |      |       | 9.40 | 91.0%      | 7,706      | 7.706    | 75%         | 1,301    | 7,519      | 5.78    |
| 6 | Process    | Lift 1   | Pump 3                      | 1        |       |      |       | 9.40 | 91.0%      | 7,706      | 7.706    | 75%         | 1,301    | 7,519      | 5.78    |
|   |            |          | <b>SUB TOTAL</b>            |          |       |      |       |      |            |            |          |             |          | 22,558     | 17.34   |
|   |            |          | <b>DIVERSITY FACTOR</b>     |          |       |      |       |      |            |            |          |             |          |            | 100%    |
|   |            |          | <b>PROCESS</b>              |          |       |      |       |      |            |            |          |             |          | 22,558     | 9.81    |
|   |            |          | <b>TOTAL FACILITY USAGE</b> |          |       |      |       |      |            |            |          |             |          | 30,927     | 12.00   |

**ELECTRIC END USE ANALYSIS**

**Company:** City of Hinckley - Lift Station 2  
**Address:** 260 Morris Ave

**Utility:** Minnesota Power  
**Accounts:** 6263610000

| # | Equip Code | Location | Description                 | Quantity | Volts | Amps | Phase | HP    | Efficiency | Watts Each | Total kW | % Full Load | Hrs/Year | Annual kWh | Peak kW |
|---|------------|----------|-----------------------------|----------|-------|------|-------|-------|------------|------------|----------|-------------|----------|------------|---------|
| 1 | Misc.      | Lift 2   | Generator Heater            | 1        |       |      |       |       |            | 1,500      | 1.500    | 100%        | 4,380    | 6,570      | 1.50    |
|   |            |          | <b>SUB TOTAL</b>            |          |       |      |       |       |            |            |          |             |          | 6,570      | 1.50    |
|   |            |          | <b>DIVERSITY FACTOR</b>     |          |       |      |       |       |            |            |          |             |          |            | 100%    |
|   |            |          | <b>MISC</b>                 |          |       |      |       |       |            |            |          |             |          | 6,570      | 1.50    |
| 2 | Process    | Lift 2   | Pump 1                      | 1        |       |      |       | 10.00 | 91.7%      | 8,135      | 8.135    | 75%         | 613      | 3,741      | 6.10    |
| 3 | Process    | Lift 2   | Pump 2                      | 1        |       |      |       | 10.00 | 91.7%      | 8,135      | 8.135    | 75%         | 613      | 3,741      | 6.10    |
|   |            |          | <b>SUB TOTAL</b>            |          |       |      |       |       |            |            |          |             |          | 7,481      | 12.20   |
|   |            |          | <b>DIVERSITY FACTOR</b>     |          |       |      |       |       |            |            |          |             |          | 100%       | 70%     |
|   |            |          | <b>PROCESS</b>              |          |       |      |       |       |            |            |          |             |          | 7,481      | 8.50    |
|   |            |          | <b>TOTAL FACILITY USAGE</b> |          |       |      |       |       |            |            |          |             |          | 14,051     | 10.00   |

**ELECTRIC END USE ANALYSIS**

**Company:** City of Hinckley - Lift Station 3  
**Address:** Highway 48, Hinckley, MN, 55037

**Utility:** Minnesota Power  
**Account:** 6263610000

| # | Equip Code | Location         | Description                 | Quantity | Volts | Amps | Phase | HP   | Efficiency | Watts Each | Total kW | % Full Load | Hrs/Year | Annual kWh | Peak kW |
|---|------------|------------------|-----------------------------|----------|-------|------|-------|------|------------|------------|----------|-------------|----------|------------|---------|
| 1 | Lighting   | Station 3        | Area Light                  | 1        |       |      |       |      |            | 454        | 0.454    | 100%        | 100      | 45         | 0.45    |
|   |            |                  | <b>SUB TOTAL</b>            |          |       |      |       |      |            |            |          |             |          | 45         | 0.45    |
|   |            |                  | <b>DIVERSITY FACTOR</b>     |          |       |      |       |      |            |            |          |             |          |            | 95%     |
|   |            |                  | <b>LIGHTING</b>             |          |       |      |       |      |            |            |          |             |          | 45         | 0.43    |
| 2 | Misc.      | Kohler Generator | Heater                      | 1        |       |      |       |      |            | 1,500      | 1.500    | 100%        | 4,380    | 6,570      | 1.50    |
|   |            |                  | <b>SUB TOTAL</b>            |          |       |      |       |      |            |            |          |             |          | 6,570      | 1.50    |
|   |            |                  | <b>DIVERSITY FACTOR</b>     |          |       |      |       |      |            |            |          |             |          |            | 95%     |
|   |            |                  | <b>MISC</b>                 |          |       |      |       |      |            |            |          |             |          | 6,570      | 1.43    |
| 3 | Process    | Station 3        | Pump 1                      | 1        |       |      |       | 7.50 | 91.0%      | 6,148      | 6.148    | 75%         | 1,989    | 9,171      | 4.61    |
| 4 | Process    | Station 3        | Pump 2                      | 1        |       |      |       | 7.50 | 91.0%      | 6,148      | 6.148    | 75%         | 1,989    | 9,171      | 4.61    |
| 5 | Process    | Station 3        | Pump 3                      | 1        |       |      |       | 7.50 | 91.0%      | 6,148      | 6.148    | 75%         | 1,989    | 9,171      | 4.61    |
| 6 | Process    | Station 3        | Grinder                     | 1        |       |      |       | 2.00 | 86.5%      | 1,725      | 1.725    | 75%         | 1,989    | 2,573      | 1.29    |
|   |            |                  | <b>SUB TOTAL</b>            |          |       |      |       |      |            |            |          |             |          | 30,087     | 15.13   |
|   |            |                  | <b>DIVERSITY FACTOR</b>     |          |       |      |       |      |            |            |          |             |          |            | 100%    |
|   |            |                  | <b>PROCESS</b>              |          |       |      |       |      |            |            |          |             |          | 30,087     | 11.57   |
|   |            |                  | <b>TOTAL FACILITY USAGE</b> |          |       |      |       |      |            |            |          |             |          | 30,132     | 12.00   |

**ELECTRIC END USE ANALYSIS**

**Company:** City of Hinckley - Lift 4  
**Address:** Tower Rd

**Utility:** Minnesota Power  
**Account:** 6263610000

| # | Equip Code | Location | Description                 | Quantity | Volts | Amps | Phase | HP | Efficiency | Watts Each | Total kW | % Full Load | Hrs/Year | Annual kWh | Peak kW |
|---|------------|----------|-----------------------------|----------|-------|------|-------|----|------------|------------|----------|-------------|----------|------------|---------|
| 1 | Process    | Lift 4   | Pump 1                      | 1        |       |      |       | 2  | 86.5%      | 1,725      | 1.725    | 58%         | 1,153    | 1,153      | 1.00    |
| 2 | Process    | Lift 4   | Pump 2                      | 1        |       |      |       | 2  | 86.5%      | 1,725      | 1.725    | 58%         | 1,153    | 1,153      | 1.00    |
|   |            |          | <b>SUB TOTAL</b>            |          |       |      |       |    |            |            |          |             |          | 2,306      | 2.00    |
|   |            |          | <b>DIVERSITY FACTOR</b>     |          |       |      |       |    |            |            |          |             |          | 50%        | 50%     |
|   |            |          | <b>PROCESS</b>              |          |       |      |       |    |            |            |          |             |          | 1,153      | 1.00    |
|   |            |          | <b>TOTAL FACILITY USAGE</b> |          |       |      |       |    |            |            |          |             |          | 1,153      | 1.00    |

**ELECTRIC END USE ANALYSIS**

**Company:** City of Hinckley - Lift 6  
**Address:** 6th St SE

**Utility:** Minnesota Power  
**Account:** 6263610000

| # | Equip Code | Location | Description                 | Quantity | Volts | Amps | Phase | HP   | Efficiency | Watts Each | Total kW | % Full Load | Hrs/Year | Annual kWh | Peak kW |
|---|------------|----------|-----------------------------|----------|-------|------|-------|------|------------|------------|----------|-------------|----------|------------|---------|
| 1 | Process    | Lift 6   | Pump 1                      | 1        |       |      |       | 3.00 | 89.5%      | 2,501      | 2.501    | 65%         | 254      | 414        | 1.63    |
| 2 | Process    | Lift 6   | Pump 2                      | 1        |       |      |       | 3.00 | 89.5%      | 2,501      | 2.501    | 65%         | 254      | 414        | 1.63    |
|   |            |          | <b>SUB TOTAL</b>            |          |       |      |       |      |            |            |          |             |          | 827        | 3.25    |
|   |            |          | <b>DIVERSITY FACTOR</b>     |          |       |      |       |      |            |            |          |             |          | 100%       | 92%     |
|   |            |          | <b>PROCESS</b>              |          |       |      |       |      |            |            |          |             |          | 827        | 3.00    |
|   |            |          | <b>TOTAL FACILITY USAGE</b> |          |       |      |       |      |            |            |          |             |          | 827        | 3.00    |

**ELECTRIC END USE ANALYSIS**

**Company:** City of Hinckley - Lift Station 7  
**Address:** Morris Ave

**Utility:** Minnesota Power  
**Accounts:** 6.3E+09

| #                           | Equip Code | Location | Description | Quantity | Volts | Amps | Phase | HP   | Efficiency | Watts Each | Total kW | % Full Load | Hrs/Year | Annual kWh | Peak kW |
|-----------------------------|------------|----------|-------------|----------|-------|------|-------|------|------------|------------|----------|-------------|----------|------------|---------|
| 1                           | Process    | Lift 7   | Pump 1      | 1        |       |      |       | 5.00 | 89.5%      | 4,168      | 4.168    | 75%         | 311      | 972        | 3.13    |
| 2                           | Process    | Lift 7   | Pump 2      | 1        |       |      |       | 5.00 | 89.5%      | 4,168      | 4.168    | 0%          | 0        | 0          | 0.00    |
| <b>SUB TOTAL</b>            |            |          |             |          |       |      |       |      |            |            |          |             |          | 972        | 3.13    |
| <b>DIVERSITY FACTOR</b>     |            |          |             |          |       |      |       |      |            |            |          |             |          | 100%       | 64%     |
| <b>PROCESS</b>              |            |          |             |          |       |      |       |      |            |            |          |             |          | 972        | 2.00    |
| <b>TOTAL FACILITY USAGE</b> |            |          |             |          |       |      |       |      |            |            |          |             |          | 972        | 2.00    |

**ELECTRIC END USE ANALYSIS**

**Company:** City of Hinckley - Lift Station 8  
**Address:** 38786 Hinckley Rd

**Utility:** East Central Energy  
**Accounts:** 207329400

| # | Equip Code | Location         | Description                 | Quantity | Volts | Amps | Phase | HP   | Efficiency | Watts Each | Total kW | % Full Load | Hrs/Year | Annual kWh | Peak kW |
|---|------------|------------------|-----------------------------|----------|-------|------|-------|------|------------|------------|----------|-------------|----------|------------|---------|
| 1 | Misc.      | Cummins Generato | Heater                      | 1        |       |      |       |      |            | 1,500      | 1,500    | 100%        | 4,380    | 6,570      | 1.50    |
|   |            |                  | <b>SUB TOTAL</b>            |          |       |      |       |      |            |            |          |             |          | 6,570      | 1.50    |
|   |            |                  | <b>DIVERSITY FACTOR</b>     |          |       |      |       |      |            |            |          |             |          |            | 100%    |
|   |            |                  | <b>MISC</b>                 |          |       |      |       |      |            |            |          |             |          | 6,570      | 1.50    |
| 2 | Process    | Station 8        | Pump 1                      | 1        |       |      |       | 5.00 | 89.5%      | 4,168      | 4,168    | 75%         | 894      | 2,793      | 3.13    |
| 3 | Process    | Station 8        | Pump 2                      | 1        |       |      |       | 5.00 | 89.5%      | 4,168      | 4,168    | 75%         | 894      | 2,793      | 3.13    |
| 4 | Process    | Station 8        | Pump 3                      | 1        |       |      |       | 5.00 | 89.5%      | 4,168      | 4,168    | 75%         | 894      | 2,793      | 3.13    |
| 5 | Process    | Station 8        | Grinder                     | 1        |       |      |       | 2.00 | 86.5%      | 1,725      | 1,725    | 75%         | 894      | 1,156      | 1.29    |
|   |            |                  | <b>SUB TOTAL</b>            |          |       |      |       |      |            |            |          |             |          | 9,535      | 10.67   |
|   |            |                  | <b>DIVERSITY FACTOR</b>     |          |       |      |       |      |            |            |          |             |          |            | 56%     |
|   |            |                  | <b>PROCESS</b>              |          |       |      |       |      |            |            |          |             |          | 9,535      | 5.96    |
|   |            |                  | <b>TOTAL FACILITY USAGE</b> |          |       |      |       |      |            |            |          |             |          | 16,105     | 7.46    |

**ELECTRIC END USE ANALYSIS**

**Company:** City of Hinckley - Well 4  
**Address:** Lady Luck Drive

**Utility:** Minnesota Power  
**Account:** 6263610000

| #                           | Equip Code | Location        | Description            | Quantity | Volts | Amps | Phase | HP    | Efficiency | Watts Each | Total kW | % Full Load | Hrs/Year | Annual kWh | Peak kW |
|-----------------------------|------------|-----------------|------------------------|----------|-------|------|-------|-------|------------|------------|----------|-------------|----------|------------|---------|
| 1                           | HVAC       | Well 4 Building | Unit Heater            | 1        |       |      |       |       |            | 7,500      | 7.500    | 100%        | 786      | 5,894      | 7.50    |
| 2                           | HVAC       | Well 4 Building | Unit Heater            | 1        |       |      |       |       |            | 5,000      | 5.000    | 100%        | 786      | 3,929      | 5.00    |
| 3                           | HVAC       | Chemical Room   | Unit Heater            | 1        |       |      |       |       |            | 5,000      | 5.000    | 100%        | 786      | 3,929      | 5.00    |
| 4                           | HVAC       | Chemical Room   | Unit Heater            | 1        |       |      |       |       |            | 7,500      | 7.500    | 100%        | 786      | 5,894      | 7.50    |
| <b>SUB TOTAL</b>            |            |                 |                        |          |       |      |       |       |            |            |          |             |          | 19,647     | 25.00   |
| <b>DIVERSITY FACTOR</b>     |            |                 |                        |          |       |      |       |       |            |            |          |             |          |            | 50%     |
| <b>HVAC</b>                 |            |                 |                        |          |       |      |       |       |            |            |          |             |          | 19,647     | 12.50   |
| 5                           | Lighting   | Well 4 Building | Fluorescent 2L Fixture | 7        |       |      |       |       |            | 56         | 0.394    | 100%        | 1,825    | 719        | 0.39    |
| 6                           | Lighting   | Chemical Room   | Fluorescent 2L Fixture | 2        |       |      |       |       |            | 56         | 0.112    | 100%        | 365      | 41         | 0.11    |
| <b>SUB TOTAL</b>            |            |                 |                        |          |       |      |       |       |            |            |          |             |          | 760        | 0.51    |
| <b>DIVERSITY FACTOR</b>     |            |                 |                        |          |       |      |       |       |            |            |          |             |          |            | 95%     |
| <b>LIGHTING</b>             |            |                 |                        |          |       |      |       |       |            |            |          |             |          | 760        | 0.48    |
| 7                           | Misc.      | Chemical Room   | Box Fan                | 1        |       |      |       |       |            | 50         | 0.050    | 100%        | 8,760    | 438        | 0.05    |
|                             |            |                 |                        | 2        |       |      |       |       |            |            |          |             |          |            |         |
| <b>SUB TOTAL</b>            |            |                 |                        |          |       |      |       |       |            |            |          |             |          | 438        | 0.05    |
| <b>DIVERSITY FACTOR</b>     |            |                 |                        |          |       |      |       |       |            |            |          |             |          |            | 100%    |
| <b>MISC</b>                 |            |                 |                        |          |       |      |       |       |            |            |          |             |          | 438        | 0.05    |
| 8                           | Process    | Well 4 Building | Well Pump              | 1        |       |      |       | 40.00 | 94.1%      | 31,711     | 31.711   | 65%         | 2,762    | 56,927     | 20.61   |
| 9                           | Process    | Well 4 Building | Air Compressor         | 1        |       |      |       | 0.75  | 85.5%      | 654        | 0.654    | 75%         | 183      | 90         | 0.49    |
| 10                          | Process    | Well 4 Building | Chlorine Pump          | 1        |       |      |       | 0.50  | 85.5%      | 436        | 0.436    | 75%         | 2,190    | 717        | 0.33    |
| 11                          | Process    | Well 4 Building | Green Motor            | 1        |       |      |       | 7.50  | 91.0%      | 6,148      | 6.148    | 75%         | 26       | 120        | 4.61    |
| 12                          | Process    | Chemical Room   | Chemical Mixer         | 1        |       |      |       | 0.25  | 85.5%      | 218        | 0.218    | 75%         | 2,190    | 358        | 0.16    |
| <b>SUB TOTAL</b>            |            |                 |                        |          |       |      |       |       |            |            |          |             |          | 58,212     | 26.20   |
| <b>DIVERSITY FACTOR</b>     |            |                 |                        |          |       |      |       |       |            |            |          |             |          | 100%       | 69%     |
| <b>PROCESS</b>              |            |                 |                        |          |       |      |       |       |            |            |          |             |          | 58,212     | 17.97   |
| <b>TOTAL FACILITY USAGE</b> |            |                 |                        |          |       |      |       |       |            |            |          |             |          | 79,057     | 31.00   |

**ELECTRIC END USE ANALYSIS**

**Company:** City of Hinckley - Well 5  
**Address:** Lady Luck Drive

**Utility:** Minnesota Power  
**Account:** 6263610000

| # | Equip Code | Location | Description                 | Quantity | Volts | Amps | Phase | HP    | Efficiency | Watts Each | Total kW | % Full Load | Hrs/Year | Annual kWh | Peak kW |
|---|------------|----------|-----------------------------|----------|-------|------|-------|-------|------------|------------|----------|-------------|----------|------------|---------|
| 1 | Misc.      | Well 5   | Hot Box Heater              | 1        |       |      | 1     |       |            | 2,000      | 2.000    | 100%        | 1,200    | 2,400      | 2.00    |
| 2 | Misc.      | Well 5   | AC                          | 1        |       |      |       |       |            | 1,202      | 1.202    | 75%         | 400      | 361        | 0.90    |
|   |            |          | <b>SUB TOTAL</b>            |          |       |      |       |       |            |            |          |             |          | 2,761      | 2.90    |
|   |            |          | <b>DIVERSITY FACTOR</b>     |          |       |      |       |       |            |            |          |             |          | 100%       | 100%    |
|   |            |          | <b>MISC</b>                 |          |       |      |       |       |            |            |          |             |          | 2,761      | 2.90    |
| 3 | Process    | Well 5   | Pump                        | 1        |       |      |       | 30.00 | 94.1%      | 23,783     | 23.783   | 85%         | 1,317    | 26,466     | 20.10   |
|   |            |          | <b>SUB TOTAL</b>            |          |       |      |       |       |            |            |          |             |          | 26,466     | 20.10   |
|   |            |          | <b>DIVERSITY FACTOR</b>     |          |       |      |       |       |            |            |          |             |          | 100%       | 100%    |
|   |            |          | <b>PROCESS</b>              |          |       |      |       |       |            |            |          |             |          | 26,466     | 20.10   |
|   |            |          | <b>TOTAL FACILITY USAGE</b> |          |       |      |       |       |            |            |          |             |          | 29,227     | 23.00   |