

Project:
Subject:

Hunt Utilities Group LLC, Pine River, MN
Emission Reduction from Wind vs. Coal

Wind Turbine Description: Jacobs 31-20
 Rated Turbine Capacity: 20 kW
 Predicted Power Output: 15,000 kW-Hr/Yr
 Predicted Power Output: 1,250 kW-Hr/Month
 Predicted Power Output: 51,180,000 Btu/Yr
 Coal Heat Content: 12,300 Btu/Lb
 Energy Conversion Efficiency (estimate): 33%
 Equivalent Coal Usage: 6.30 Tons/Yr
 Coal Sulfur Content: 3 % by wt.
 Electrostatic Precipitator Control Efficiency: 95%

| Pollutant | Emission Factor¹ (lb/ton) | Emission Reduction (tons/yr) |
|---|---|---|
| Particulate Matter (controlled by ESP) | 66.0 | 0.0104 |
| Particulate Matter less than 10 microns (controlled by ESP) | 13.2 | 0.0021 |
| Carbon Monoxide | 5.0 | 0.0158 |
| Hydrogen Chloride | 1.2 | 0.0038 |
| Hydrogen Fluoride | 0.15 | 0.0005 |
| Total Nonmethane Organic Compounds | 0.05 | 0.0002 |
| Sulfur Dioxide | 114.0 | 0.3594 |
| Nitrogen Oxides | 8.8 | 0.0277 |
| Carbon Dioxide | 4810 | 15.1623 |
| Antimony | 0.000018 | 0.000000 |
| Arsenic | 0.00041 | 0.000001 |
| Beryllium | 0.000021 | 0.000000 |
| Cadmium | 0.000051 | 0.000000 |
| Chromium | 0.00026 | 0.000001 |
| Chromium (VI) | 0.00008 | 0.000000 |
| Cobalt | 0.00010 | 0.000000 |
| Lead | 0.00042 | 0.000001 |
| Magnesium | 0.01100 | 0.000035 |
| Manganese | 0.00049 | 0.000002 |
| Mercury | 0.00008 | 0.000000 |
| Nickel | 0.00028 | 0.000001 |
| Selenium | 0.00130 | 0.000004 |
| Total Emissions | | 15.5821 |

¹ Emission factors taken from USEPA, Compilation of Air Pollutant Emission Factors for Bituminous and Subbituminous Coal Combustion, AP-42, Section 1.1