***Estimated Performance Data (GE)***

| *Load Condition* | BASE | BASE | BASE | BASE | BASE | 75% LOAD | 75% LOAD | 75% LOAD | 75% LOAD | 75% LOAD | 50% LOAD | 54% LOAD | 50% LOAD | 50% LOAD | 50% LOAD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Ambient Temperature, °F* | 98 | -10 | 110 | 50 | 20 | 98 | -10 | 110 | 50 | 20 | 98 | -10 | 110 | 50 | 20 |
| *Turbine Output, MW (gross)* | 190.117 | 199.546 | 185.459 | 195.287 | 202.067 | 142.588 | 149.66 | 139.094 | 146.465 | 151.551 | 95.058 | 99.773 | 92.729 | 97.643 | 101.034 |
| *Heat Rate (LHV), BTU/kWh* | 8905 | 8828 | 8950 | 8783 | 8732 | 9420 | 9587 | 9506 | 9291 | 9281 | 11024 | 11473 | 11159 | 11029 | 11118 |
| *Exhaust Flow, 1000 lbs/hr* | 3688 | 3877 | 3620 | 3710 | 3818 | 2930 | 3181 | 2907 | 2956 | 3108 | 2387 | 2549 | 2387 | 2377 | 2491 |
| *Exhaust MW, lbs/lb-mol* | 28.28 | 28.52 | 28.22 | 28.49 | 28.51 | 28.39 | 28.52 | 28.34 | 28.49 | 28.52 | 28.41 | 28.53 | 28.36 | 28.5 | 28.52 |
| *UHC, lbs/hr* | 15 | 15 | 14 | 15 | 15 | 12 | 12 | 11 | 12 | 12 | 9 | 10 | 9 | 9 | 10 |
| *$CO_2$, % vol* | 3.89 | 3.89 | 3.88 | 3.95 | 3.95 | 3.9 | 3.86 | 3.87 | 3.93 | 3.87 | 3.74 | 3.84 | 3.69 | 3.87 | 3.86 |
| *% Efficiency, LHV basis* | 38.33% | 38.66% | 38.13% | 38.86% | 39.09% | 36.23% | 35.60% | 35.90% | 36.73% | 36.77% | 30.96% | 29.75% | 30.59% | 30.95% | 30.70% |

***Calculated Performance Parameters***

| *Load Condition* | BASE | BASE | BASE | BASE | BASE | 75% LOAD | 75% LOAD | 75% LOAD | 75% LOAD | 75% LOAD | 50% LOAD | 54% LOAD | 50% LOAD | 50% LOAD | 50% LOAD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Ambient Temperature, °F* | 98 | -10 | 110 | 50 | 20 | 98 | -10 | 110 | 50 | 20 | 98 | -10 | 110 | 50 | 20 |
| *$CH_4$, lbs/hr* | 12 | 12 | 11.2 | 12 | 12 | 9.6 | 9.6 | 8.8 | 9.6 | 9.6 | 7.2 | 8 | 7.2 | 7.2 | 8 |
| *$N_2O$, lbs/hr* | 5.59 | 5.81 | 5.48 | 5.66 | 5.82 | 4.43 | 4.73 | 4.36 | 4.49 | 4.64 | 3.46 | 3.78 | 3.41 | 3.55 | 3.71 |
| *$CO_2$, lbs/hr* | 223,210 | 232,674 | 218,996 | 226,324 | 232,749 | 177,100 | 189,432 | 174,666 | 179,414 | 185,565 | 138,263 | 150,957 | 136,655 | 142,019 | 148,342 |
| *$CO_2$-e, lbs/hr* | 225,176 | 234,705 | 220,909 | 228,311 | 234,763 | 178,660 | 191,082 | 176,185 | 180,992 | 187,188 | 139,474 | 152,283 | 137,851 | 143,257 | 149,648 |
| *$CO_2$, lbs/MWh* | 1209 | 1201 | 1216 | 1194 | 1186 | 1279 | 1304 | 1293 | 1262 | 1261 | 1498 | 1558 | 1518 | 1498 | 1512 |
| *$CO_2$-e, lbs/MWh* | 1221 | 1213 | 1228 | 1205 | 1198 | 1292 | 1316 | 1306 | 1274 | 1273 | 1513 | 1573 | 1533 | 1513 | 1527 |

*Red values denote maximum values over range of normal operation, except that BACT limits in lbs/MWh are proposed at 75% load as a rolling 365-day average.*

***Factors Used for Calculations***

| | | |
|---|---|---|
| *$CH_4$/UHC, % as a fraction* | 0.8 | *Based on GE data for VOC and total HC emissions.* |
| *HHV/LHV* | 1.1 | *Typical ratio.* |
| *$N_2O$ emission factor, lbs/MM BTU (HHV)* | 0.003 | *From EPA's AP-42, Table 3.1-2a* |
| *GHG warming equivalency factors, lb $CO_2$-e/lb:* | | *From GHG Warming Potential Equivalency Factors (40 CFR Part 98 Subpart A, Table A-1)* |
| *- $CO_2$* | 1 | |
| *- $CH_4$* | 25 | |
| *- $N_2O$* | 298 | |
| *Heat Rate degradation factor, %* | 3 | *Based on degradation in heat rate between major overhauls* |

***Example Calculations (Base Load, 98°F Ambient)***

CH4: (15 lbs UHC/hr) X (0.8 lbs CH4/lb UHC) = 12 lbs CH4/hr

N2O: (190117 kW) X (8905 BTU-LHV/kWh) X (MM BTU/1,000,000 BTU) X (1.1 BTU-HHV/BTU-LHV) X (0.003 lbs N2O/MM BTU-HHV) = 5.59 lbs N2O/hr

CO2: (3688000 lbs exhaust/hr) X (lb-mol exhaust/28.28 lbs exhaust) X (3.89 lb-mol CO2/100 lb-mol exhaust) X (44 lbs CO2/lb-mol CO2) = 223210 lbs CO2/hr

CO2-e: (223,210 lb CO2/hr) X (1lb CO2-e/lb CO2) + (12 lbs CH4/hr) X (25 lb CO2-e/lb CH4) + (5.59 lbs N2O/hr) X (298 lb CO2-e/lb N2O) = 225176 lbs CO2-e/hr

CO2-e, lbs/MWh: (225176 lbs CO2-e/hr) / [190.117 MW (gross) X (100% - 3 % HR degradation)/100%] = 1221 lbs CO2-e/MWh


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**Murin Environmental Inc.**
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