FuelCell Energy

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Data Sheet

# 2.5 MW FuelCell Energy Block System™

## A 2.5 MW fuel cell system for reliable, low-carbon distributed energy generation

2.5 MW FuelCell Energy Block Systems can generate reliable and low-carbon power. The fuel flexible system can operate on natural gas, biogas, and natural gas/$H_2$ blends of up to 50% $H_2$. The system's heat can be used to generate hot water, high-pressure steam, or chilled water to increase overall efficiency. A low emissions profile allows for quicker permitting, providing customers with faster time to power.

## Key Benefits

- Fuel flexible
- Efficient power
- Low emissions
- Microgrid capable
- Compact footprint
- Scalable design

| | Natural Gas Fuel Input | Biogas Fuel Input[1,3] |
|---|---|---|
| **Output and Performance** | | |
| Net Power Output[2] | 2500 kW | |
| Voltage / Frequency | 13.8 kVAC / 60 Hz | |
| Heat Output (Maximum)[2,5] | 5.2 MMBTU/h | 5.4 MMBTU/h |
| Exhaust Conditions | 30,600 lbs/hr @ 725°F | 32,100 lbs/hr @ 712°F |
| Efficiency, Electrical/Overall (LHV)[2] | 50% / 80% | |
| Heat Rate, HHV[2] | 7,580 BTU/kWh | |
| **System Inputs** | | |
| Fuel Consumption | 18,315 SCFH | 31,280 SCFH |
| Fuel Heating Value, HHV | 1,035 BTU/SCF | 606 BTU/SCF |
| Methane Content | > 80% | 55% - 100% |
| Fuel Inlet Pressure | 15 - 20 psig | |
| Dual Fuel Option | Natural Gas & Hydrogen | Natural Gas & Biogas |
| Fuel Blending Range[4] | 0% - 50% Hydrogen | 0% - 100% Biogas |
| Water Consumption/Discharge | 7.8 gpm / 3.9 gpm | |
| **Emissions** | | |
| $NO_x$ and CO Emissions | 0.01 lb/MWh | |
| PM10, $SO_x$ Emissions | Negligible | |
| VOC | 0.02 lb/MWh | |
| $CO_2$ Emissions (Electric Only) | 886 lb/MWh | Dependent on biogas source |
| $CO_2$ Emissions (With Full Heat Recovery) | 554 lb/MWh | |
| **Physical and Environmental Attributes** | | |
| Ambient Temperature Range | -20°F to 120°F (-30°C to 48°C) | |
| Installation Footprint (L x W x H) | 72' x 60' x 25' 5" (21.9 m x 18.3 m x 7.7 m) | |
| Location | Outdoor | |
| Noise | 62 dBA @ 30 ft | |
| **Codes and Standards** | | |
| Safety | ANSI/CSA FC-1, NFPA 70 (NEC) | |
| Grid Interconnection | UL1741, IEEE1547, CA Rule 21 | |
| Emissions | CARB 2007, CARB 2013 (Biogas) | |

[1]Biogas must be pre-conditioned to meet FCE's fuel composition requirements. FCE can supply the pre-conditioning system, if desired.

[2]Power and efficiency rated at beginning of operation. Both power and efficiency will decrease by 10%-15% over the life of the fuel cell stack module.

[3]Biogas performance rating based on 60% methane.

[4]Fuel blending can be performed dynamically onboard the FCE system.

[5]Maximum heat recovery based on cooling the exhaust to 120°F.

[6]$CO_2$ emissions with full heat recovery are based on the total electric and thermal energy available from the system.



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