

PACKAGED CHP SYSTEM PERFORMANCE SUBMITTAL FORM

System Description

Packaged CHP System Model Number				
Prime Mover Type	Choose Prime Mover Type			
Number of Prime Movers per System				
Fuel Type	Choose fuel type			
Remote Monitoring Capability <input type="checkbox"/>	CHECK IT			
Sound Power @ 3ft height and 30ft distance DbA	Yes			
System /Component	Width in feet	Length in feet	Height in feet	Weight in pounds
Prime Mover/Generator system (Includes maintenance clearances)				
Heat Recovery subsystem if separate (Includes maintenance clearances)				
Chiller if separate (Includes maintenance clearances)				
Total System Layout (Includes maintenance clearances)				
Largest part for delivery				
Heaviest part for delivery				

Grid Interconnection

Grid interconnection operation	Selection operation modes	
Transition Type from Grid Parallel to Grid Island and Back to Grid Parallel	Select Transition Type	Explain Other Transition Here

Generator/Inverter		
Type	Choose Type	
Manufacturer		
Model		
Power output rating	kW	
Power output rating	kVA	
Rated voltage	V	
Rated efficiency	%	
Rated current	Amps	
Protective Relay/Switchgear		
Protective Relay Manufacturer/Model		
Synchronization Manufacturer/Model		

Heat Recovery	
Type of Thermal Energy Output	<input type="checkbox"/> Water <input type="checkbox"/> Steam <input type="checkbox"/> Steam <input type="checkbox"/> Chilled Water
System Availability	<input type="checkbox"/> %
Certifications	
IEEE 1574 Compliant	<input type="checkbox"/> Check Provide documentation if Yes
UL 1741	<input type="checkbox"/> Check Provide documentation if Yes
UL 2200	<input type="checkbox"/> Check Provide documentation if Yes
Other	<input type="checkbox"/> Check List others below and provide documentation
List Other	

Energy and Emissions Conversions

Energy Conversions:

- Conversion from Btu Higher Heating Value (HHV) to Btu Lower Heating Value (LHV)
- Conversion from lb/MMBtu HHV to lb/MMBtu LHV multiply by 1.099 for natural gas
- HHV Natural Gas 1,030 (Btu/scf), 21,980 (Btu/lb)
- LHV Natural Gas 937 (Btu/scf), 20,000 (Btu/lb)
- 1 horsepower hour (hp-hr) = 2,545 Btu
- 1,000,000 Btu = 1 MMBtu = 392.9 hp-hr
- 1 kW = 3,413 Btu per hour (Btu/hr)
- 1 MMBtu/hr = 293 kW
- 1 kWh = 3,413 Btu
- 1 MMBtu = 293 kWh
- 0.7457 kW = 1 hp
- 1 kW = 1.341 hp

Emissions Conversions:

Combustion Turbines and Microturbines

Criteria pollutant emissions for turbines are typically presented as parts per million (ppm) in exhaust stack. The eCatalog is requesting emissions data in an output based format (lb per MWh) for common comparison among technologies and systems.

Conversion factor table for Natural Gas combustion at 15% O₂

	HHV	LHV
NO _x	272	248
CO	446	406
SO ₂	196	178

Conversion from ppm to lb/MWh using heat rate

$$\frac{\text{lb}}{\text{MWh}} = \frac{(\text{ppm @ 15\% O}_2) \times (\text{heat rate } \frac{\text{Btu}}{\text{kWh}})}{\text{conversion factor} \times 1,000}$$

Conversion from ppm to lb/MWh using efficiency

$$\frac{\text{lb}}{\text{MWh}} = \frac{(\text{ppm @ 15\% O}_2) \times (3,413)}{\text{conversion factor} \times (\% \text{ efficiency})}$$

Recip Engines

Criteria pollutant emissions for engines typically are reported as g/hp-hr. The eCatalog is requesting emissions data in an output based format (lb per MWh) in order to facilitate a common comparison among technologies and systems. The eCatalog based format (lb per MWh) in order to facilitate a common comparison among technologies and systems is described in terms of percent efficiency or brake specific fuel consumption (BSFC).

Conversion from BSFC to % efficiency

$$\% \text{ efficiency} = \frac{2,545}{(\text{BSFC Btu}/\text{hp-hr})}$$

(2010 Btu/hp-hr)

Conversion from g/hp-hr to lb/MWh

$$\frac{\text{lb}}{\text{MWh}} = (\text{g/hp-hr}) \times (3.11) \text{ (Including 95\% generator efficiency)}$$

/) multiply by 0.91 for natural gas
gas

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b per MWh) in order to facilitate a

g is requesting emissions data in an output
ologies and systems. The efficiency of
(BSFC) in Btu/hp-hr.

