Bloomenergy®

Solution Data Sheet

Energy Server® with Heat Capture

Power & Cooling

Bloom Energy is a world leader in fuel cell-based power generation. With a platform based on solid oxide fuel cell (SOFC) technology, the Bloom Energy Server system uses an electrochemical reaction to convert fuel to energy. The Energy Server system runs on natural gas and is fuel-flexible with the ability to operate on biogas, hydrogen, or a blend of fuels. The Energy Server platform can be configured as a primary power solution–operating in parallel with the grid, as a microgrid to increase the power system's resiliency, or as an off-grid load following system.

The Energy Server system can produce clean energy at one of the highest efficiencies in the market today. Energy Server power modules have an internal operating temperature of around 800°C, generating high-grade exhaust heat that can be captured and converted into chilled water through absorption chillers—ideal for cooling applications such as data centers, industrial, and commercial applications.

Fuel cells, working in combination with absorption chillers, turn waste heat into value, delivering both power and cooling from a single system. When configured in a Combined Cooling, Heat, and Power (CCHP) setup, SOFCs drive PUE gains of 10–20% and enable AI data centers to operate leaner, cleaner, and more efficiently.

By replacing mechanical chillers and reducing infrastructure redundancy, these CCHP systems not only significantly improve overall efficiency but also reduce carbon emissions, including Hydrofluorocarbons (HFCs), further enhancing the customer's sustainability goals.

Clean: The system reduces criteria pollutants (NO_x, SO_x, and particulate matter) to near zero and has far lower carbon emissions than conventional technologies.

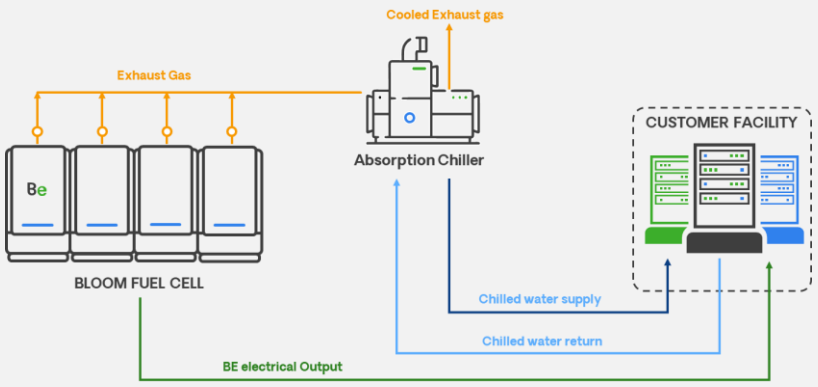
Energy Efficiency: Reuse of waste heat for cooling boosts the total energy utilization and reduces dependency on inefficient grid-sourced electricity—essential in an era of rising power costs and capacity constraints.

Cost Savings: By generating power and cooling at the source, customers can significantly lower both capital and operational expenses. The results are reduced total cost of ownership through lower utility bills, minimized infrastructure requirements, and fewer backup systems.

Scalability and Flexibility: Modular and tailored to specific power and cooling requirements, the system allows for rapid deployment without the delays or constraints of grid interconnection, enabling agile growth as the customer plant expands.

Reliability and Resilience: Consistent 24/7, local power supply and cooling, integrated into a microgrid, these systems ensure uninterrupted operations during outages and enhance energy security.

Specifications



228 – 293 Tons of chilling per 1.3MWe of fuel cell

Inputs

Fuel[1]	Natural gas
Input fuel pressure	12–18 psig (15 psig nominal)
	0.82-1.24 barg (1 barg nominal)
Water	None during normal operation

Electrical Output (single Energy Server system)

Nameplate power output (net AC)	325 kW
Voltage	3-ph, 480, 415, 400, 380 V
Frequency	50/60 Hz

For system-related performance data, please refer to:
https://www.bloomenergy.com/resource/bloom-energy-server/

Chilling output[2]

Platform Size	Chilling Capacity (7°C/12°C) (44°F/ 53°F)	Chilling Capacity (18°C/28°C) (64°F/82°F)	Footprint (On ground)		Footprint (Stacked)	
(MW)[3]	tons (kW_{th})	tons (kW_{th})	(m^2)	(Acre)	(m^2)	(Acre)
1.3 (4 x 325kW)	228 (800)	260 (914)	358	0.09	256	0.06
2.6	455 (1600)	520 (1828)	451	0.11	327	0.08
3.25	568 (1997)	650 (2285)	585	0.14	424	0.10
5.2	910 (3,200)	1,040 (3,657)	985	0.24	669	0.17
6.5	1,137 (3998)	1,300 (4,571)	1,145	0.28	792	0.20
10.4	1,820 (6,400)	2,080 (7,313)	1,691	0.42	1,078	0.27
20.8	3,640 (12,800)	4,160 (14,627)	3,567	0.88	2,211	0.55
32.5	5687 (19,995)	6,500 (22,854)	6,285	1.55	3,259	0.81
41.6	7,280 (25,600)	8,320 (29,253)	7,878	1.95	4,143	1.02

- CO_2 saved from chilling is 240 lbs/MWh (108 kg/MWh) with 18°C/28°C chilling.[5]
- Electric chiller COP of 4 and 7% refrigerant leak rate.
- Footprint includes Fuel cell, Absorption chiller, cooling tower and associated auxiliaries
- Footprint indicated are for Primary Power application
- Sizes other than the ones listed in the table are available on request

[1] Contact us for information on utilizing biogas, blended hydrogen, and hydrogen with the Energy Server platform
[2] Fuel cell operating at ISO Conditions. 15°C, 0m elevation, and avg. project life performance.
[3] Other sizes for Energy Server platforms are available upon request.
[4] NOx and CO measured per CARB Method 100; VOCs measured as hexane by SCAQMD Method 25.3
[5] Considering Grid emissions at 500kg/MWh.
[6] Country-specific codes and standards for the cogeneration equipment shall be followed.
[7] Certifications are expected to be available in early 2026.

Physical Attributes and Environment

Temperature range	-20 °C to 45 °C (-4 °F to 113 °F)
Humidity	0% - 100%
Seismic vibration	ASCE7 SDC (Seismic Design Category D)
Location	Outdoor
Noise	<65 dBA @ 10 ft (3 m)

Codes and Standards

Safety	FC1, UL 1741, UL 1998, CE, KESCO
EMC	EN5501/KN11, EN61000, KN32, KN35
Grid Interconnection	IEEE1547 2018, UL1741SB, CA Rule 21, CEI 016, KEPCO, G99, C10/11, VDE[7]
Heat Exchanger Design Standards[6]	ASME, PED

Emissions Generation[4] [lbs/MWh (kg/MWh)]

No_x	0.003 (0.001)
So_x	Negligible
CO	0.013 (0.005)
VOCs	0.01 (0.004)
CO_2	679–833 (308 - 378)
Net SOFC + CCHP CO_2	461 -615 (209 - 279)

Additional Benefits

Access to a secure website to monitor the system performance & environmental benefits. Remotely managed and monitored by Bloom Energy. Capable of emergency stop based on input from the site.

Meets stringent CARB 2007 Distributed Generation emission standards.

An Energy Server system is a Stationary Fuel Cell Power System. It is Listed by UL Solutions (UL LLC) as a 'Stationary Fuel Cell Power System' to ANSI/CSA FC1-2014 under UL Category IRGZ and UL File Number MH45102.

Model number for Energy Server 6.5 with CHP follows the format: ES6-XXXXXXXXXX-XXXXXX

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Reliable. Cost-effective. Future Proof.

Power you can count on, at any scale.