

Technical Bulletin no 2 - Bloom Energy Servers, Solid Oxide Fuel Cell technology



Green Company Rating System

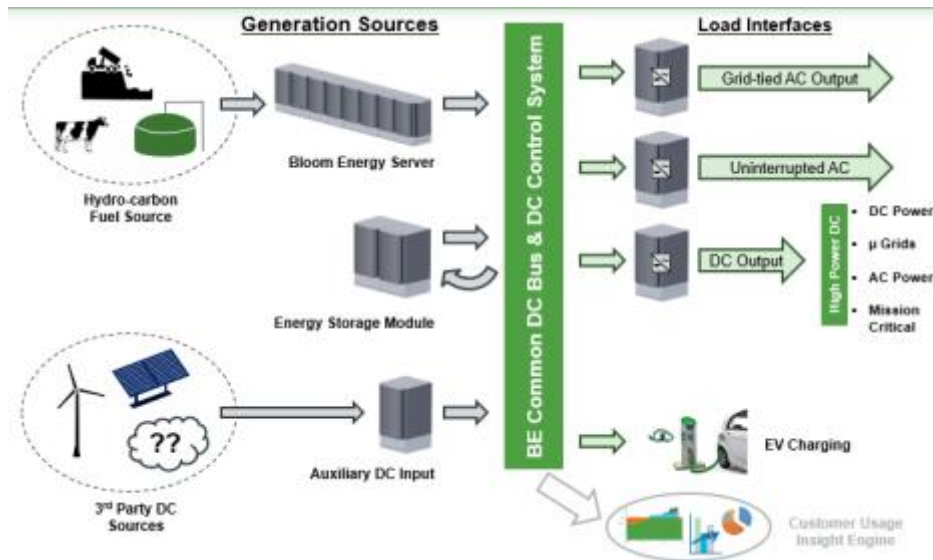
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Bloom Energy – Transforming Power Strategy



Bloom Energy is an advanced, distributed power generation system that provides always-on primary power which is customizable. It delivers reliable, resilient, clean and affordable energy, particularly in areas of high electricity costs. The Bloom Energy Platform works like a smart phone — a single core platform that can be personalized to the needs of its user through the addition of applications that extend features and provide benefits to the user.

How does it work?



Based upon the concept of “Solid Oxide Fuel Cell” technology, Bloom Energy Servers convert fuel into electricity through an electrochemical process without combustion at very high efficiency. The system has been designed for modularity—similar to a building block, any number systems can be clustered together in various configurations to form solutions from hundreds of kilowatts to many tens of megawatts. Each Energy Server produces 200 to 300 kilowatts of power in a footprint roughly equivalent to that of half a standard 30-foot shipping container.

Comparison with Indian Thermal Power Plants

Parameter	Thermal Power Plant	Bloom Energy
Water Consumption	3.5 m ³ / MWh ¹	None
NOx emission	4.8 kg / MWh ²	Negligible
Sox emission	7.3 kg / MWh ²	Negligible
CO2 emission	0.97 tonnes / MWh ³	0.343 tonnes/MWh (~65% lower)

1 - Source:

- 1 Government of India, Ministry of Environment, Forest & Climate Change, Notification, Dec 7th 2015,
- 2 Government of India, Ministry of Environment, Forest & Climate Change, Press Release, Dec 22nd 2016
 - 3 Government of India, Ministry of Power, Central Electricity Authority, May 2017

Advantages

- There is “No Combustion” involved in the entire process, hence no harmful gaseous emission as well as no water / vapor generation
- Designed for fault tolerant architecture, hence no downtime and easy installation

- Size customizable to Footprint & Customer Loads & Integrates with other power generating Systems
- High Capacity Factor > 95%
- Highest Electrical Efficiency ~ 65%
- 65% lower GHG emission than Indian grid
- No Air or Noise pollution
- Can be operated in grid parallel, DG parallel or if required in a grid independent mode

For further details about the technology, please visit; <https://www.bloomenergy.com/solutions/energy-server-platform>

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