

60
Years

Fuel Cell experience

2014 acquisition of UTC Power



630

Employees

Based in Korea and U.S.

250

Patents

Largest stationary fuel cell IP portfolio,

500
MW

Capacity installed

125
MW/yr

Manufacturing Capacity

Korea and U.S. factories



Doosan
Fuel Cell America, Inc.

Technology Scope

Phosphoric Acid Fuel Cell

Fuels: Natural Gas, H₂, LPG

Cell Stack Life: 10 years

Efficiency: 43% Electrical*; 47% Thermal
(*48% on H₂)

Dispatchability: 10kW/sec (0-100% in <1 min.)

Electrical Output:

- 460kW net
- 480VAC
- -0.85 to +0.85 pf



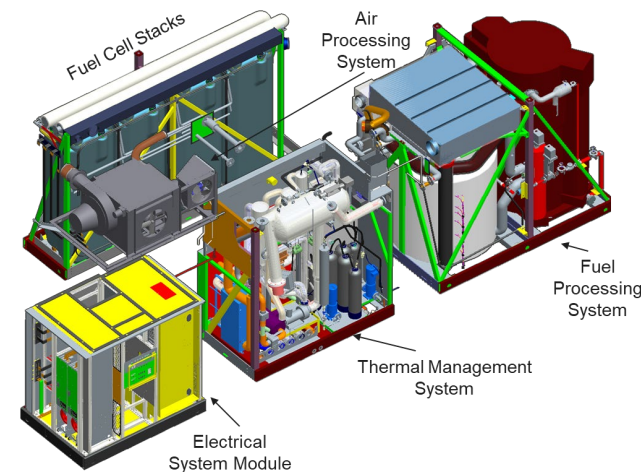
Applications:

Grid Support – Multi-MW

- Distribution System Connected
- Transmission System Connected

Combined Heat & Power (Behind-the-Meter)

Critical Power – Backup, Microgrid, Data Center



Power and Controls Electronics Needs

Grid Support Needs (IEEE-1547/UL-1741)

- ❖ Voltage Regulation
 - Volt-Var, Watt-Var,
- ❖ Response to Abnormal Conditions
 - Voltage Ride Through
 - Frequency Ride Through
 - Anti-Islanding
- ❖ Power Quality: Harmonics, etc
- ❖ Interoperability

Fuel Cell Needs

- Dual Mode: Grid Connected, Grid Independent
 - Support plant parasitic loads on grid disturbances/outages to shorten return to service
- Backup & Microgrid Operation
 - Multi-Unit Load Sharing
 - Rapid Load Transients
 - Transformer Pickup
 - Modeling



Thank you!