



Capstone Microgrid Solutions

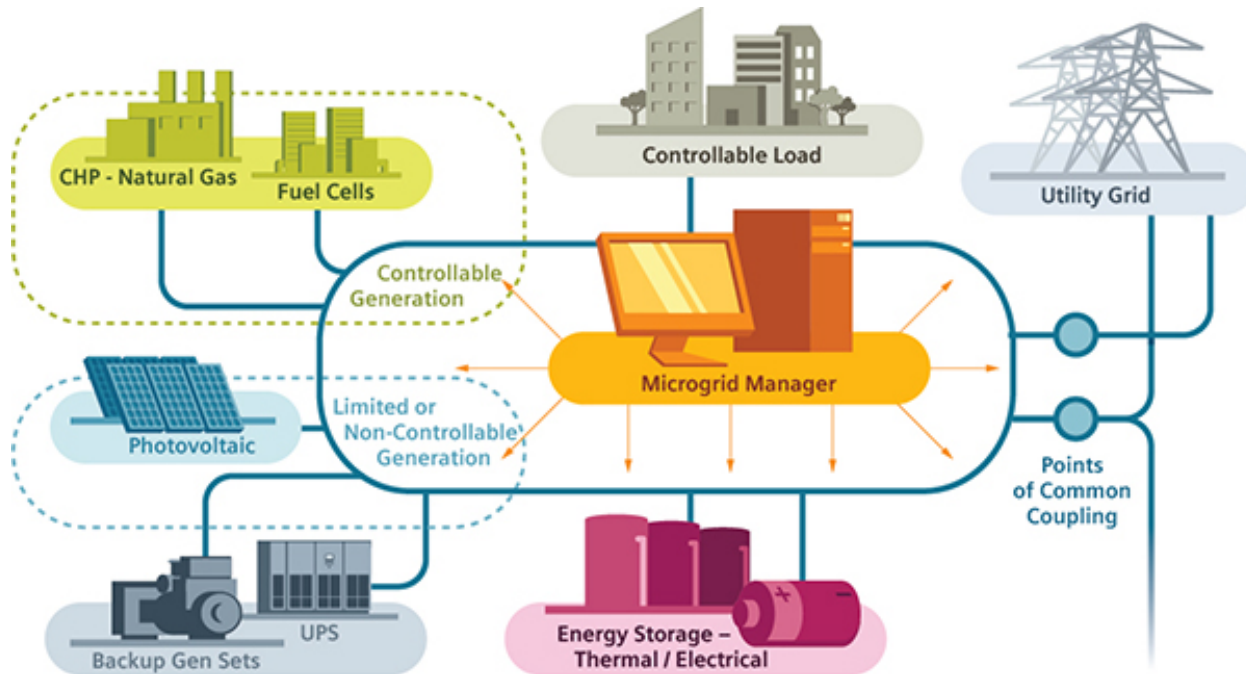
Jim Crouse, Executive Vice President, Sales & Marketing

Reliable power when and where you need it.
Clean and simple.

What is a Microgrid?



- Multiple generation resource types and loads
- Clearly defined electrical boundaries to a utility grid
- Able to operate island mode
- Controllable as a single entity
- ✓ Microgrid controllers optimize generation resource deployment



Capstone Microgrid Solutions



Capability to Lead Projects with the Following Characteristics:

1. Able to run stand alone (may also run connected to the grid for some applications, but this is easier than running stand alone)
2. Includes more than just the microturbine – usually renewables like solar PV, wind turbines, etc.
3. Microturbine generator size range from 65kW to 6MW
4. Capstone is the grid forming generation source



Capstone Microgrid Controller



PowerSync Controller

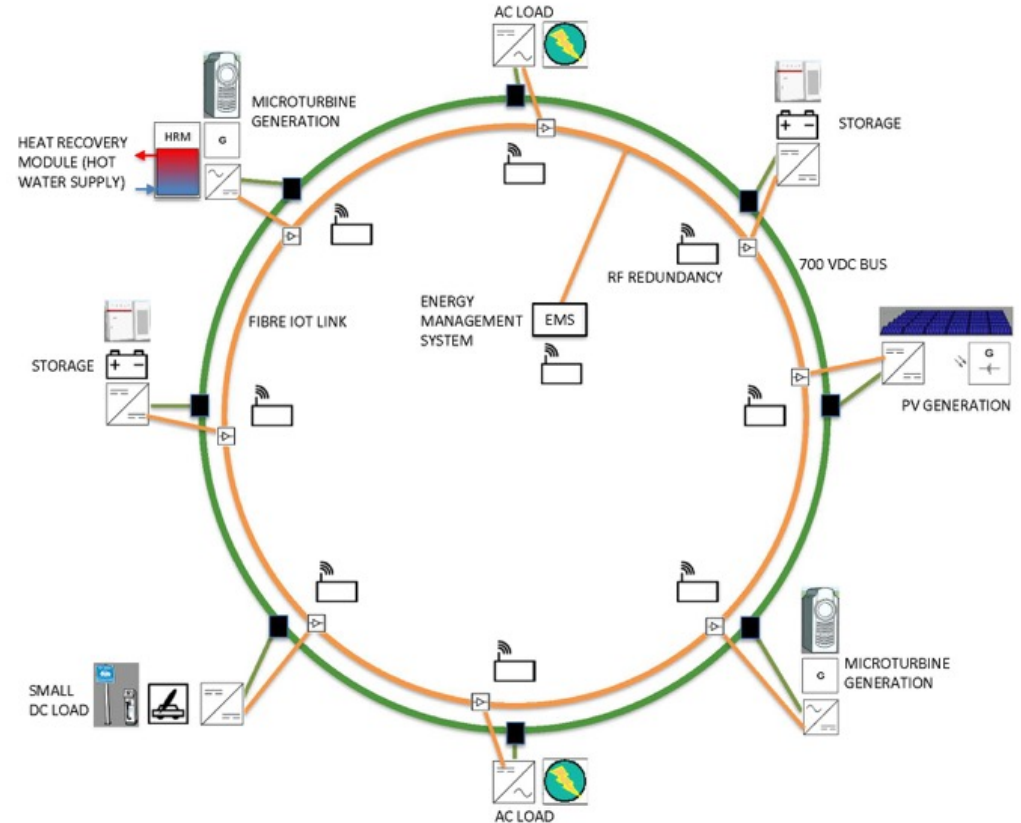
- ✓ Provide redundant auto-failover control.
- ✓ Extended communications capability to include solar/wind.
- ✓ Capstone Microgrid Management functionality to automatically adjust generation, energy storage, and shed loads for system optimization.



DC Microgrid



- Easy to Synchronize Devices
- Ring Bus for High Availability
- Mix Generation Technologies
- Integrates with Energy Storage

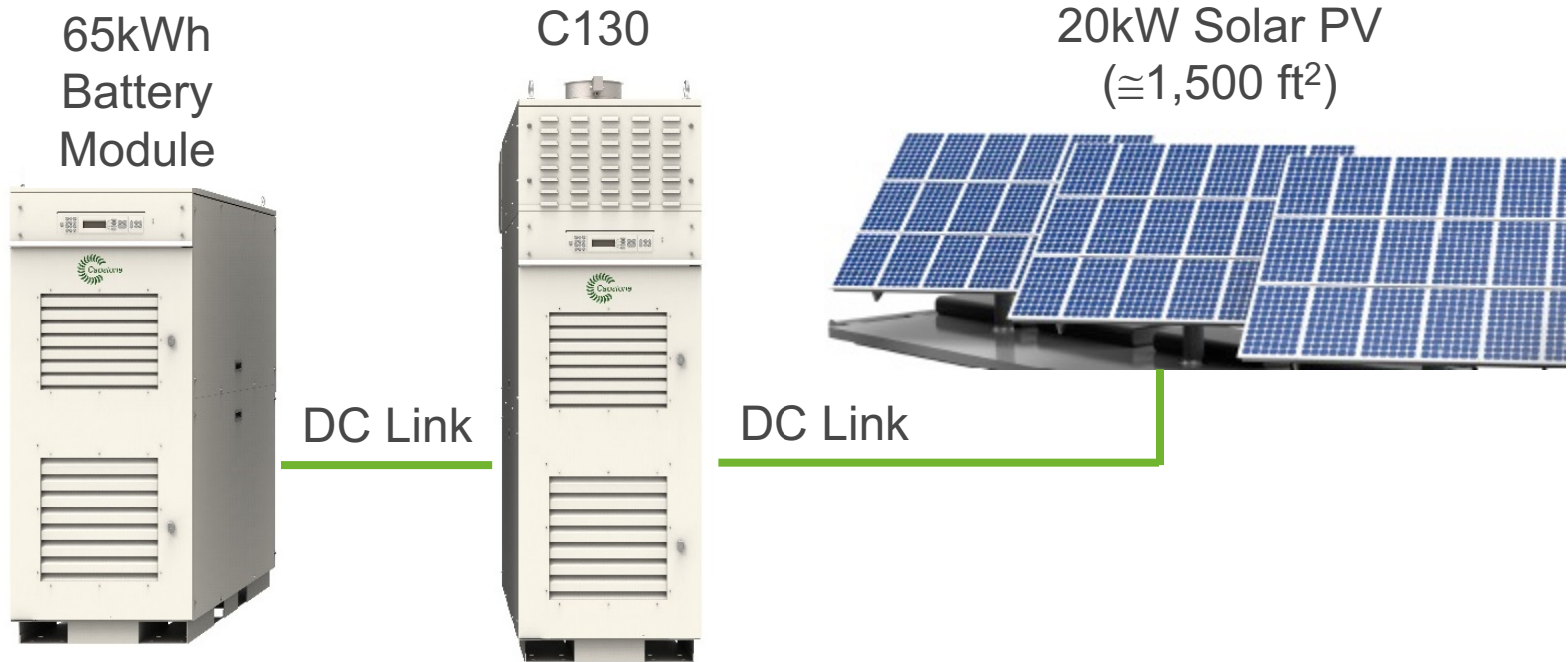


Pre-Engineered Capstone Microgrid



Li-ion Pre-packaged Batteries Plus C65 HUPS

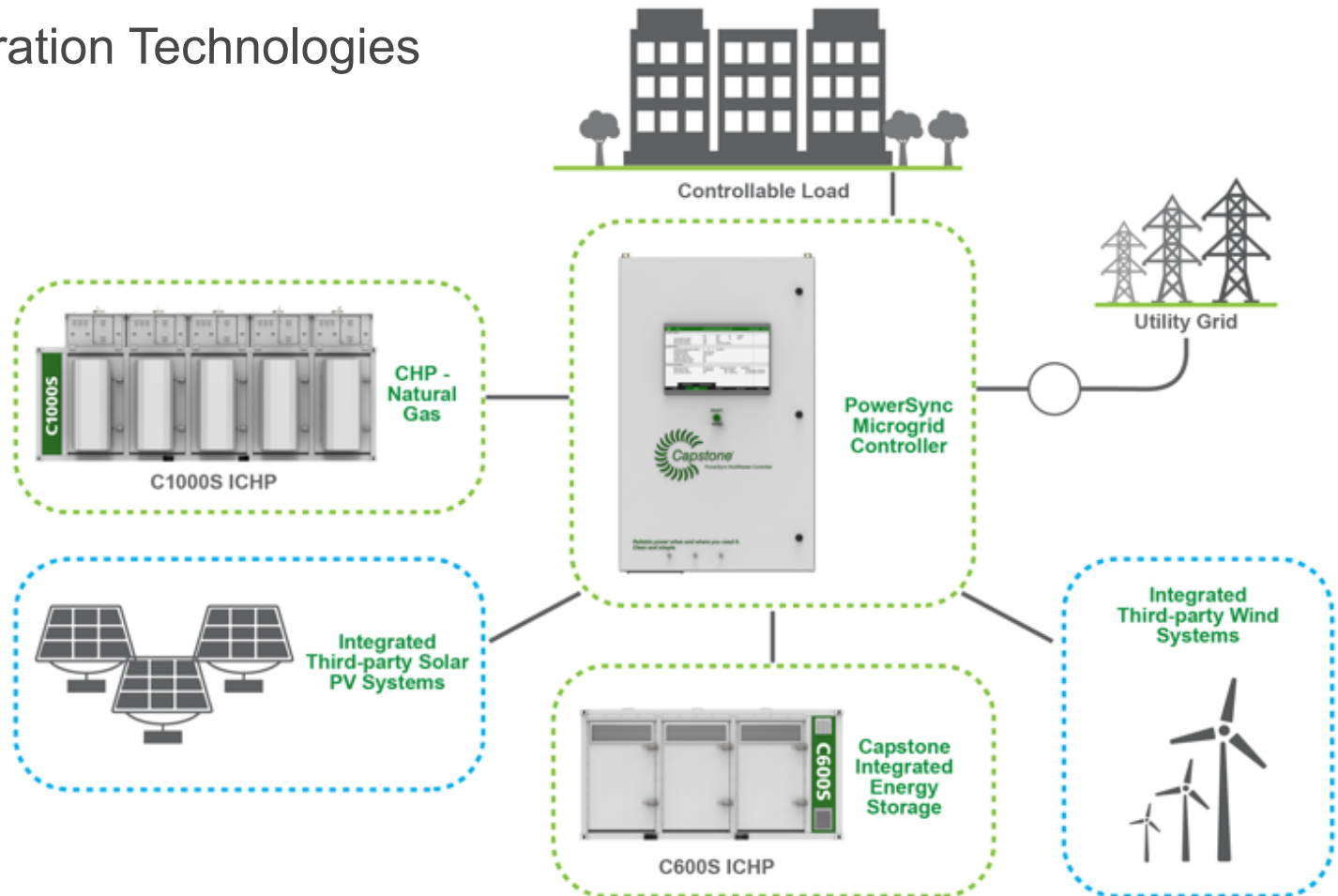
- ✓ Li-ion storage in standard C65 enclosure (65kWh)
- ✓ Solar PV connection to DC bus



Capstone Integrated Microgrid Solution



- Capstone PowerSync Microgrid Controller
- AC or DC Distribution
- Mixed Generation Technologies



Utility Software Company



Application

- Microgrid - CCHP

Technologies

- Capstone C600S Microturbine
- 200-ton Absorption Chiller
- Hot Water Heat Exchanger (3MMBTU)
- Solar Panels
- Wind Turbines
- Battery Energy Storage
- Diesel Backup Generator



Project Highlights

- The site features a dual mode C600S, the first Signature Series unit in the world.
- The MT runs 24/7/365 with its output dispatched by a master controller integrated with the other distributed energy systems in the building
- Microturbine is cleaner than the Grid.

Pharmaceutical Manufacturing

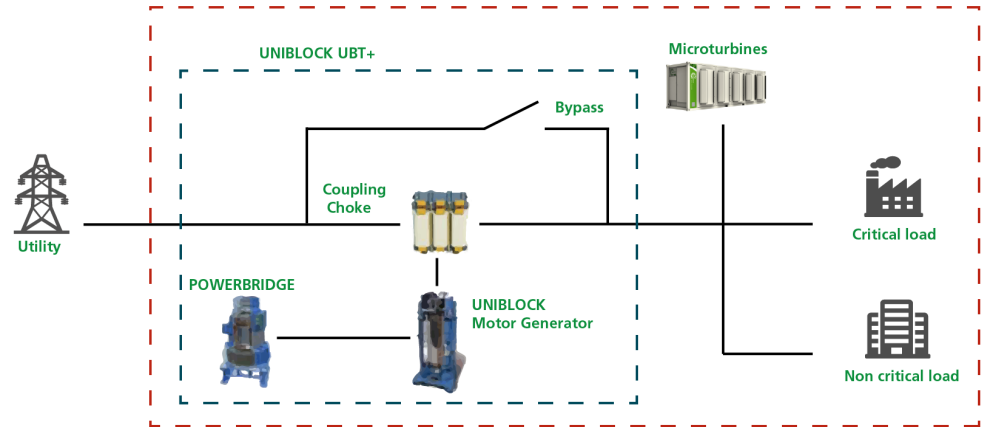


Application

- Microgrid - CHP

Technologies

- Two Capstone C1000R microturbines
- Piller Rotating UPS



Project Highlights

- Generate 100% of their own critical power and thermal energy.
- Operate either grid connected or in island operation generating clean and uninterrupted power for their critical loads.
- The facility has been able to decrease operating costs by close to 50% and qualify for \$5.4 million in tax credits, and incentives.
- System supported several week power outage.

