



Delivering the future.....

NHA Annual Conference

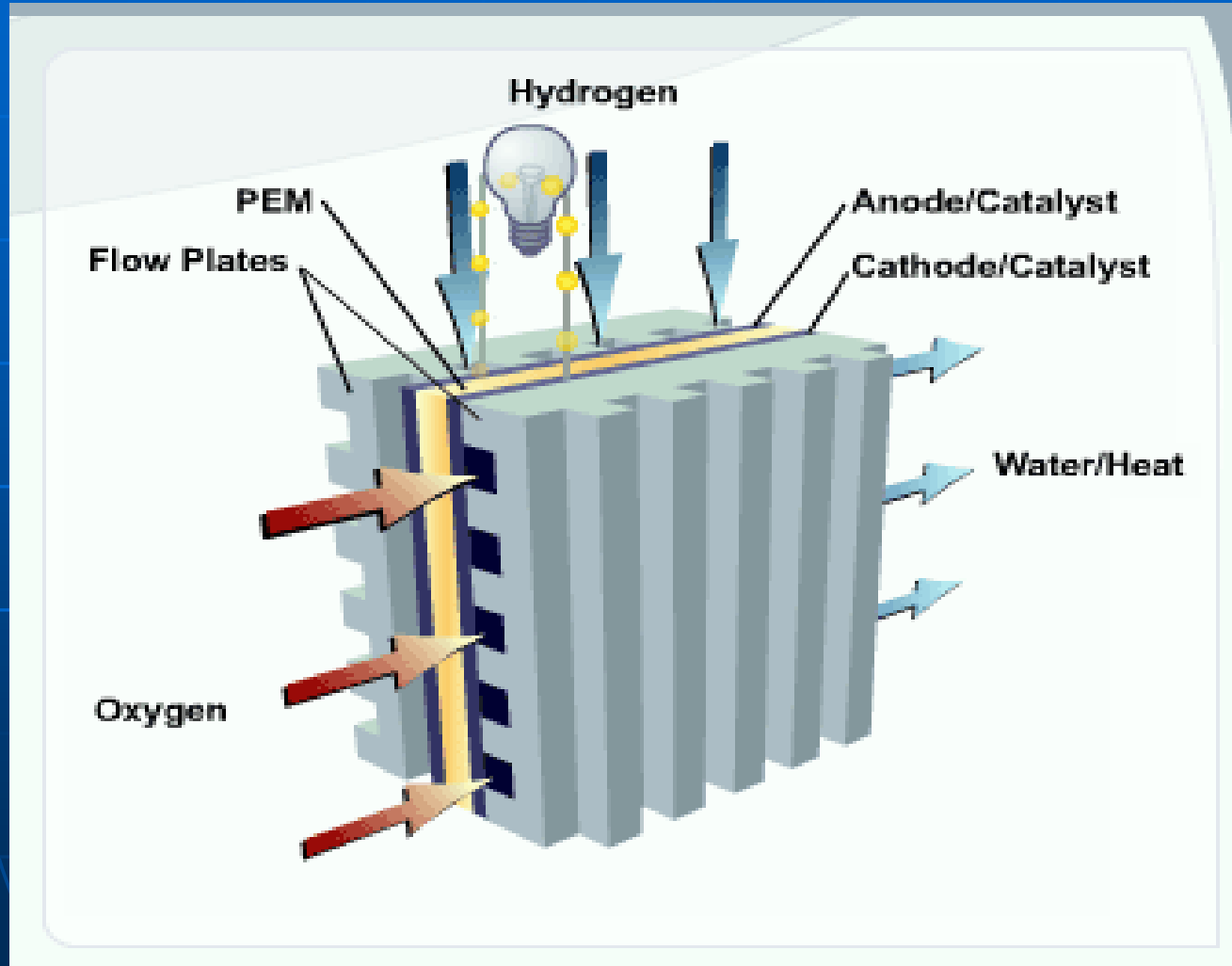
March 31, 2008

“Propelled by Microcell”

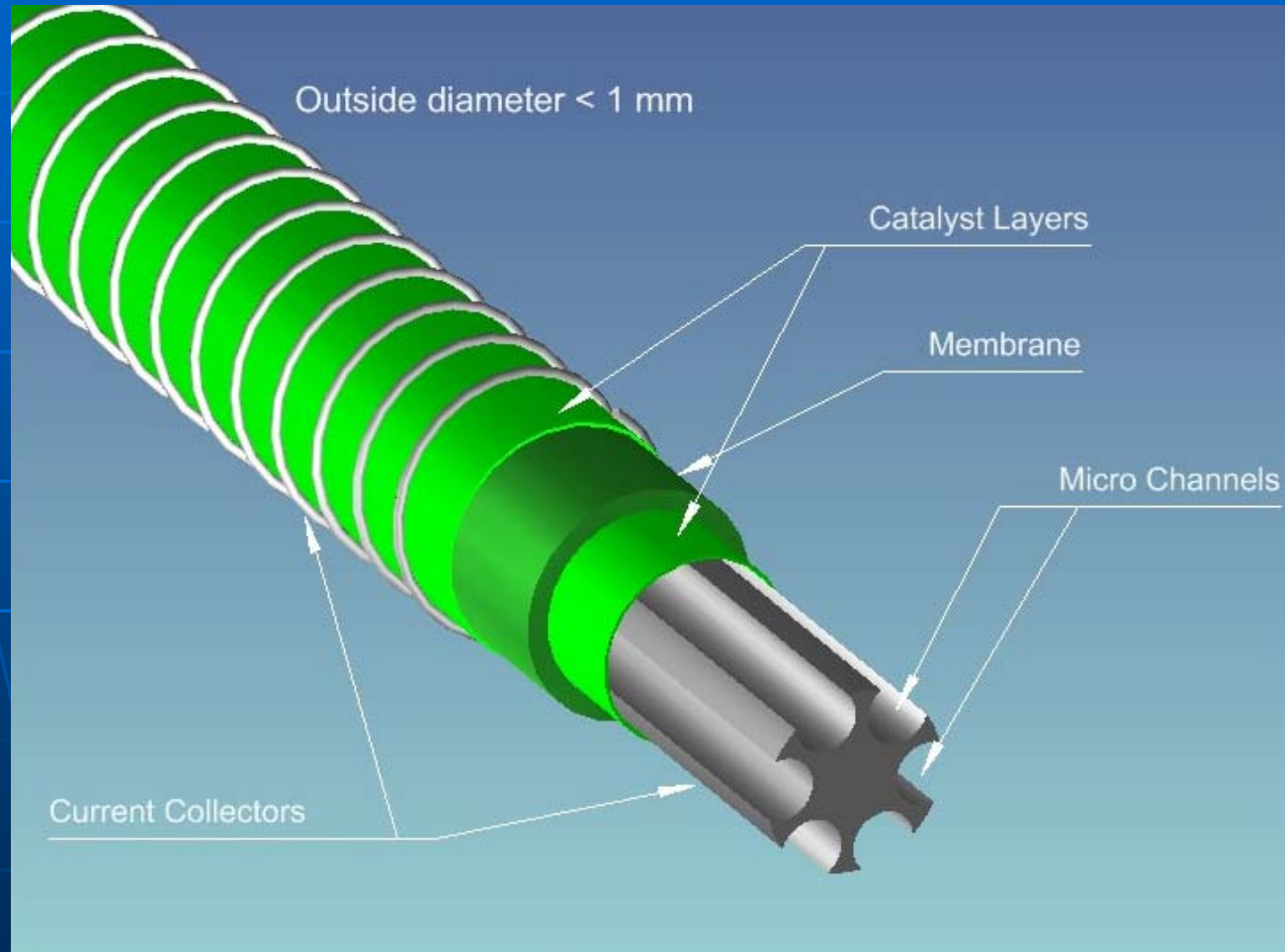
Agenda

- Technology Background
- Company Information
- Commercial Product Focus
- Results of Fuel Cell Demonstration Project

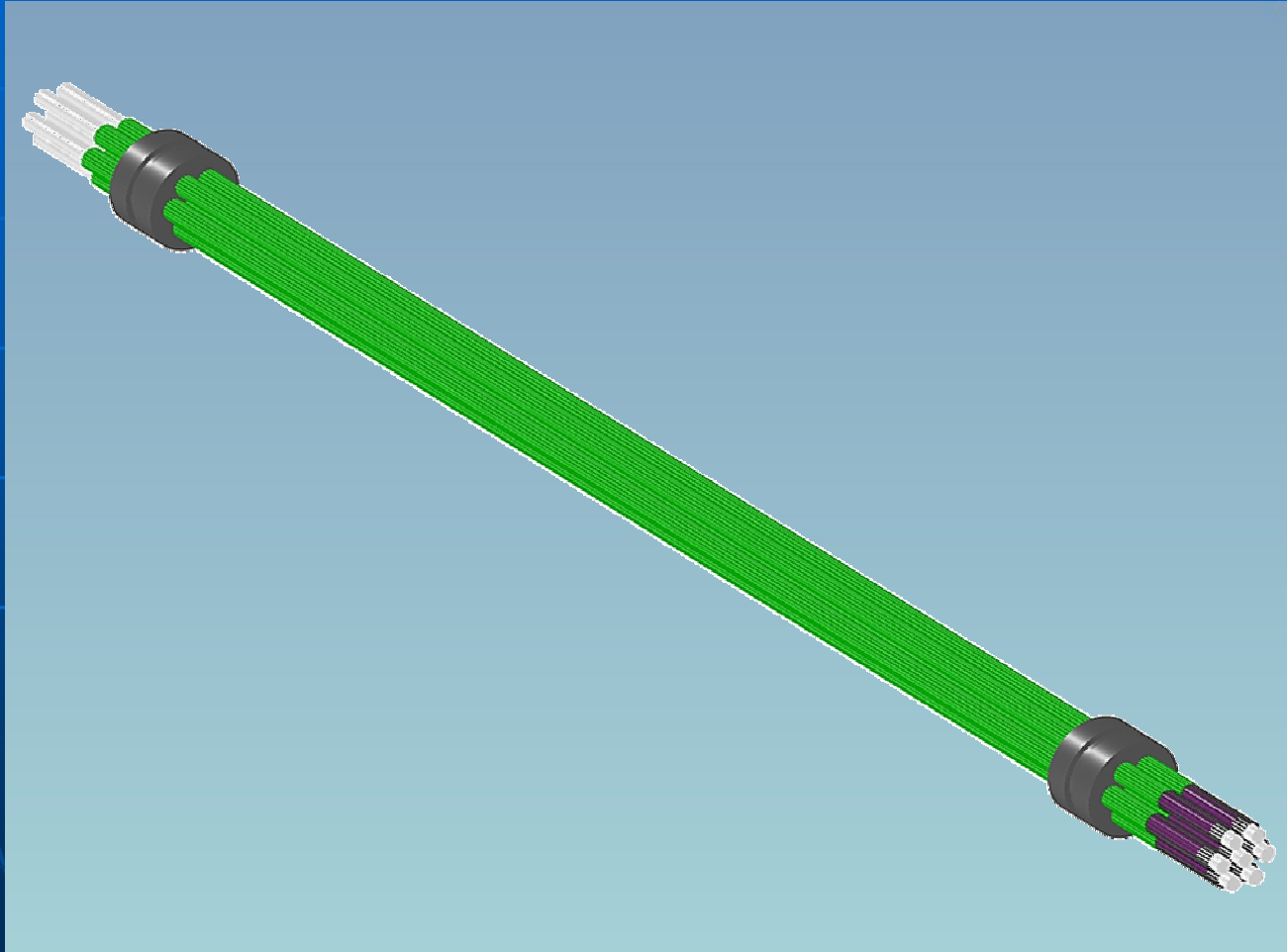
Conventional PEM Fuel Cell



Technology - Individual Microcell



Technology – Unicell



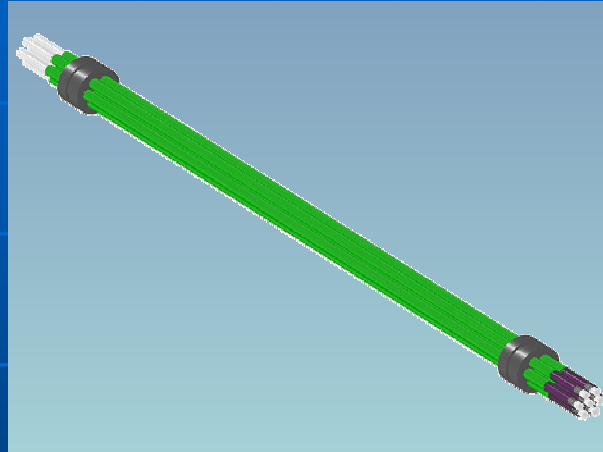
Technology – Microcell Assembly

Microcell



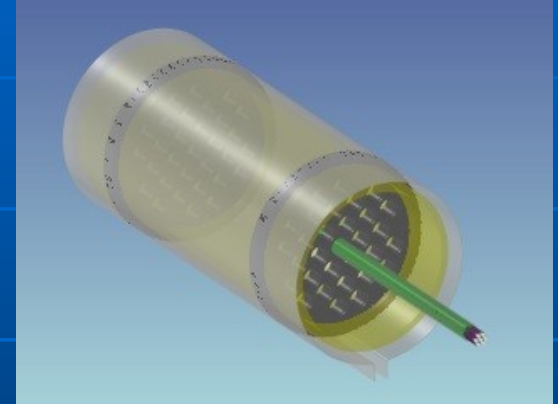
- Approximately 1-1.5W per cell
- Mass produced on automated extrusion line

Unicell



- 10 – 15W per Unicell
- Fuel, air and thermal management incorporated

Module



- Fuel cell Cores: 0.5-10kW

Significant Competitive Advantages

Lower Production Cost

- Continuous automated extrusion process
- Derived from raw materials compared to purchasing components
- Elimination of expensive bipolar flow field plates
- Reduced auxiliary and control equipment requirements; no humidification equipment
- Simplified design and fabrication processes = lower labor costs

High Power Density

- Simplified design and no humidification system = compact and lightweight
- Cylindrical shape provides the ideal fibrous geometry, resulting in the highest possible surface area / volume ratio

Ease of Repair, Serviceability

- Individual Microcell Unicells are inserted into a fuel cell module
- Individual Unicells can be replaced without replacing the entire module

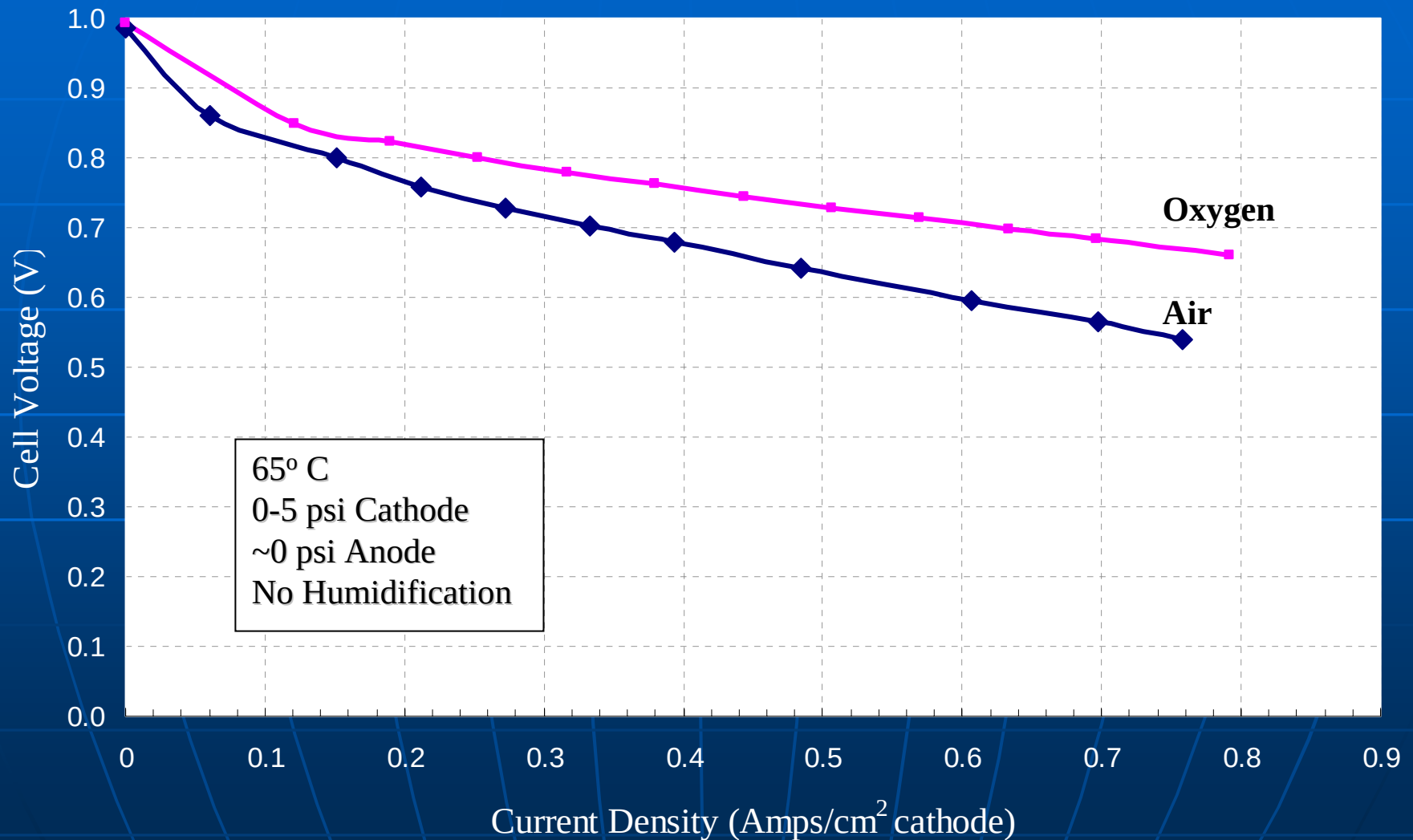
High Thermal Efficiency

- Heat removal occurs from every inch of every single cell
- Design allows for optimal heat removal to reduce cell degradation

Quick Start Operation

- Metallic current collectors heat up much faster than graphite plates
- Reach operating temperature quickly; essential for operating effectively in cold weather conditions

Polarization Curve - H₂ Fuel



Potential Markets

*Propelled
By Microcell*

DG/APU

Residential

Commercial

REC

Military

Portable

Laptops

PDAs

Cell Phones

Military

Vehicular

Automobiles

Buses/Fleets

Recreational

Military

Company Information

- New Manufacturing Facility

- Robersonville, NC

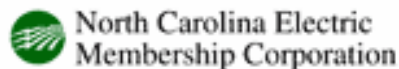


- R & D Facility

- Raleigh, NC

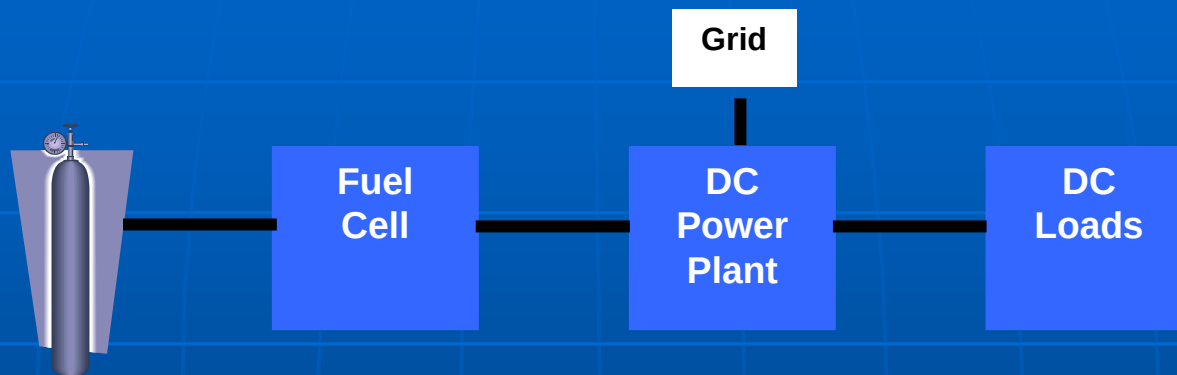


- Investors



Private Investors

Utility DC Power Supply



Environmentally friendly replacement for lead-acid battery based DC power supplies. Provides extended run-time during power outages and the off-loading of the distribution system during overload conditions. Potential to provide capex and O&M savings along with mitigating the problem of maintaining and disposing of lead-acid batteries.

Distributed Demand Response/Back-Up Power Option



*Super-peaking power from fuel cell as dispatched by the utility.
Fueled by hydrogen stored during off-peak hours or from renewable sources. Would normally operate grid parallel only. With optional dual-mode inverter and physical grid separation device, could provide back-up power.*

Microcell Fuel Cell System



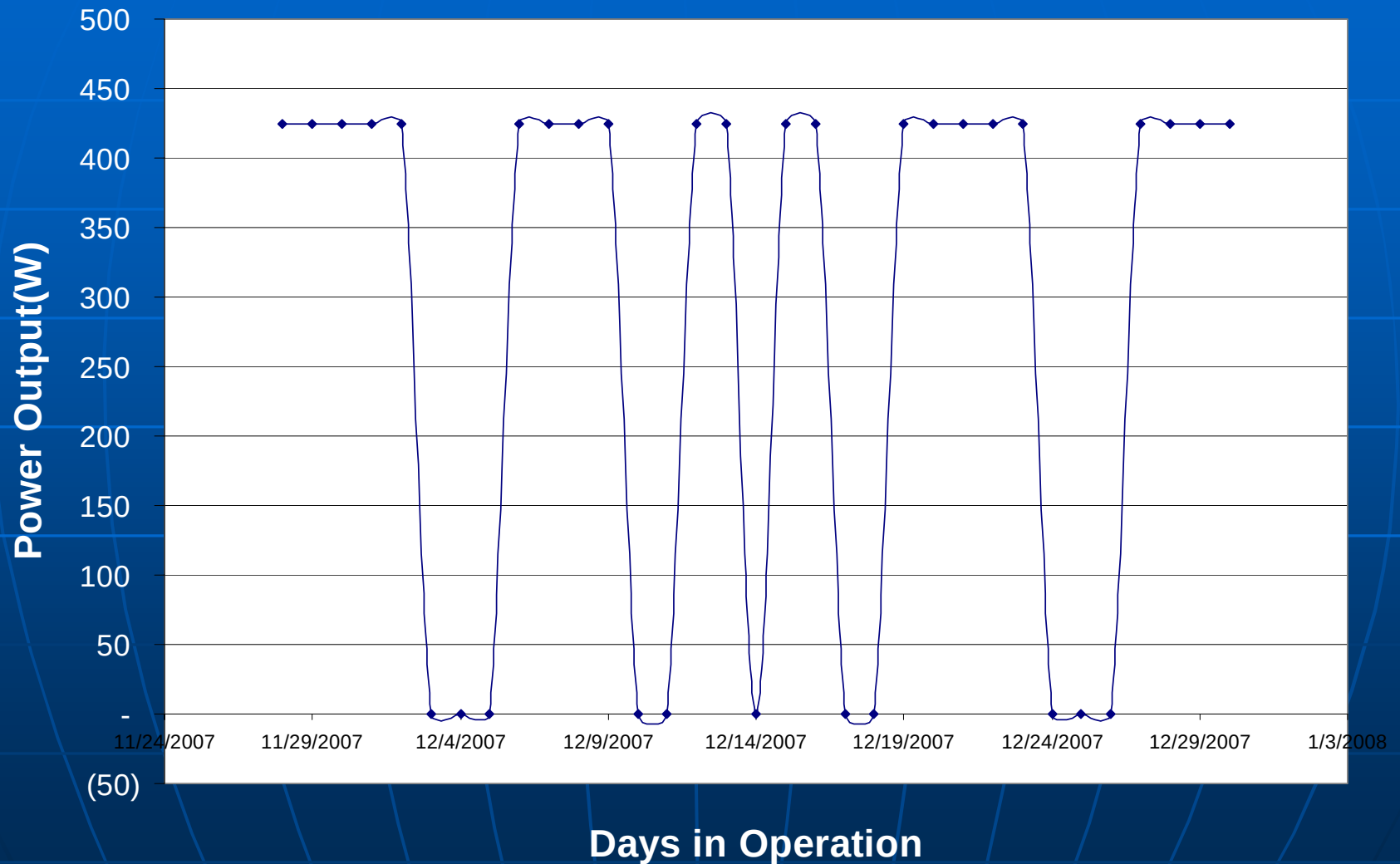
Smithsonian National Zoo Installation



Smithsonian National Zoo Installation

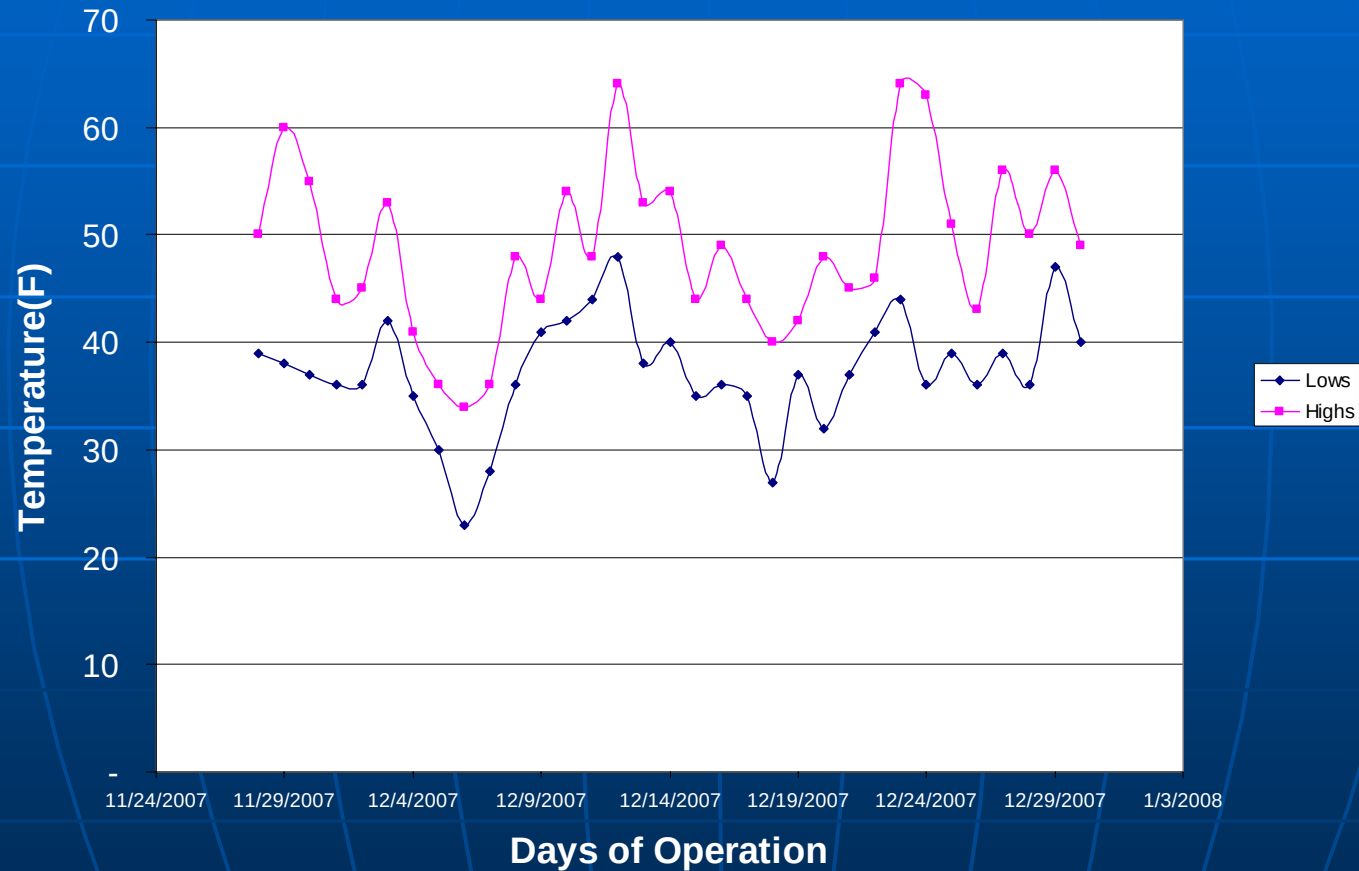


Fuel Cell Performance vs. Time



(50)

Outdoor Temperature During Operation



Operating Results

- Cell operating conditions:
 - H₂ pressure – 4 psi
 - Air Pressure – 0-4 psi
 - Coolant inlet temperature – 55°C
 - Module Temperature -65-70°C
 - Fuel Efficiency – 99%
 - Cell efficiency – 56.6%
 - FC Voltage ~ 17.0V
 - Number of cycles- ~30
 - Output Voltage – 48V DC



Microcell Corporation

www.microcellcorp.com