



First National Technology Center

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First National Technology Center

- First National of Nebraska, Inc.
 - \$12 Billion Assets
 - 5,400 employees
 - 6.6 million customers in 50 states
 - 60 banking locations
 - Nebraska, Colorado, Kansas, South Dakota, Texas, Illinois
 - Largest in house merchant processor in United States
 - Top ten VISA® and MasterCard® processor
 - Top twenty automated clearing house processor
 - Strong Regional cash management services



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Data Flow

- 1,000,000 average daily credit card transactions
- 1,296,000 average daily banking transactions
- 43,500 average daily ATM transactions
- Transactions flow 24 hours a day
- Uptime is key to revenues: FNNI and customers
- Estimated cost of downtime \$6,000,000 per hour















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- The Nature of the Grid – Industrial Age Power
 - Normal Course Voltage Interruptions: 2-3 seconds
 - Lights and motors don't care
 - Grid Fluctuations
 - Transmission and distribution system problems (age, deterioration etc.)
 - Weather
 - Accidents (including squirrels)



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- Electronic Equipment - manufactured to withstand 8 *milliseconds* of voltage disruption [CBEMA Curve]
 - Chips becoming more dense, faster, less tolerant of voltage fluctuations
- Challenge
 - Grid normal operations 2 –3 second fluctuations
 - Electronic equipment takes 8 millisecond fluctuations
 - The gap is the problem

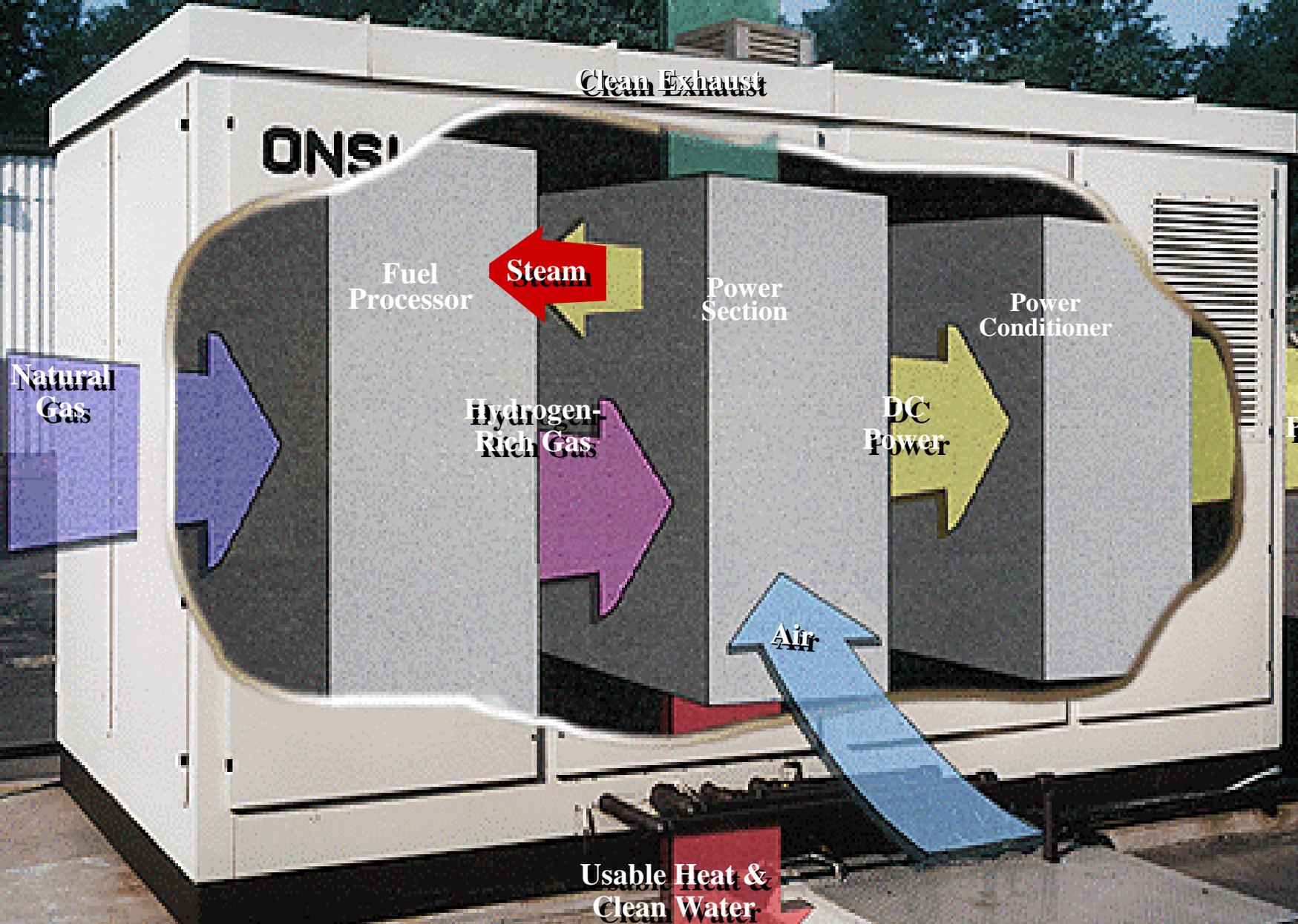


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Business Wants

- No Downtime
 - Availability to Match Computers
- Low Maintenance
 - Less Human Error
- No Unconditioned Grid Power
- Environmentally Clean
- Economic Value
- Low Risk

ONSI Fuel Cell



Natural Gas + Air = Power + Water + Heat + CO₂



ONSI corpor

Natural Gas
Fuel Cell

- Quiet
- Clean
- Reliable
- Efficient
- Premium AC Power



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Fuel Cells: Pros and Cons

- Pros

- Independent Power Source
- 2000+ Hour MTBF
- Low M & R: Do While Operating
- Chemical Process = No Emissions
- High Quality Power
- Remote Monitoring



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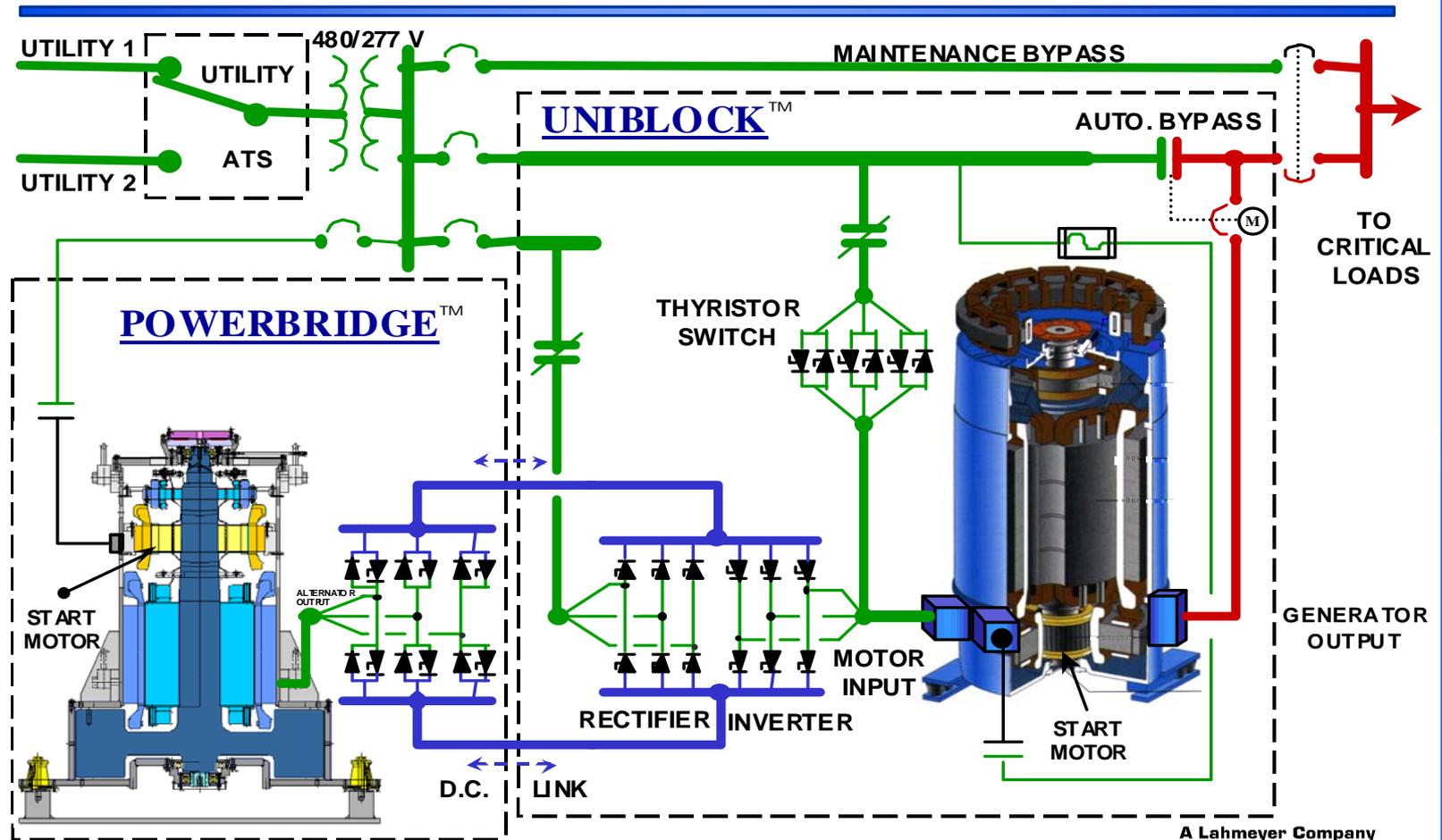
Fuel Cells: Pros and Cons

- Cons

- No Fault Clearing Current in Grid Independent Mode
- Only 80kw Step Load in Grid Independent Mode
- Flees Unstable Grid in 15 Microseconds
- Protects Self Above Load
- Three to Five Seconds to Configure to Grid Independent

Piller Rotary Technology

UNIBLOCK™ w/ POWERBRIDGE™ - one line diagram



PARTNERS FOR PREMIUM POWER

A Lahmeyer Company

PILLER



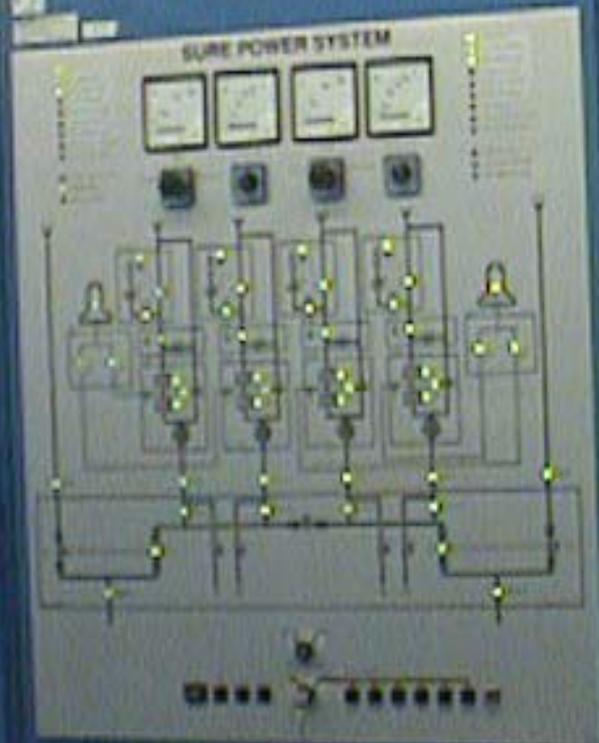
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System Performance Specifications

- Fault Clearing Without Grid: 10-15 X Rated Current
- Overload: 150% Rated Capacity - 2 Minutes
- Grid Independent Operation - Unlimited
- Ambient Operating Temp. -40°C to + 40°C
- Voltage Regulation: +/- 1% Steady State







FILLET







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Does it Work?

- Accepted April 30, 1999
- Usual Infantile Component Failures
- Several utility grid outages
- Several voltage events
- Load has never seen any fluctuation
- System operates as advertised
- Final MTI and MIT Report: .99999995 availability