

Fuel Cells for Critical Power/Prime Power

State and Regional
Hydrogen Initiatives Workshop
Sacramento, California

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• Three Real World Examples

- First National Bank of Omaha
- Fresno California Guaranteed Savings Building
- Camp Pendleton Marine Corps Base

• First National Bank of Omaha

- Four 200 kilowatt PAFC – 800 kilowatts total
- Fuel cells are part of high availability critical power system

First National Bank of Omaha



- Largest “in house” merchant processor in United States
 - Top ten VISA® and MasterCard® processor
 - Top twenty automated clearing house processor



First National Technology Center



- First National Technology Center – Downtown, Omaha
190,000 FT²
- 1,000,000 average daily credit card transactions
- 1,296,000 average daily banking transactions
- 43,500 average daily ATM transactions
- Estimated cost of downtime \$6,000,000 per hour



Commissioned May 1999



February 18, 1999



Fuel Cell Room



Customer Requirements



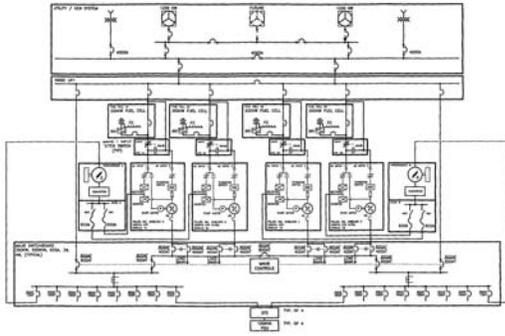
- Independent verification of 99.9999% system availability using Probabilistic Risk Analysis (PRA).
- Eliminate cascade and single points of failure.
- Seamless transfer from *Grid Parallel* to *Grid Independent* operation.
- Ability to perform maintenance on system without disrupting power to load.

Customer Requirements



- Fault clearing without grid: 10 -15 X rated current.
- Overload capability: 150% rated capacity for two minutes.
- Unlimited grid independent operation.
- Voltage regulation to critical loads: +/- 1% steady state.

Electrical One-line



- Fresno, California Guaranteed Savings Building

- Three 200 kilowatt PAFC – 600 kilowatts total
- Combined Heat and Power with cooling
- Back-Up power capability



Fresno, CA Office Building



MCB Camp Pendleton



Site Prep



Rigging



Installing



Completion

Camp Pendleton



LOGANEnergy Corporation
The Power of Fuel Cells

Thank You !

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