Government and military communications networks encompass a wide variety of technologies designed for the optimum ability to keep people safe and complete the mission at hand. Whether the application is E-911 services, video surveillance, radio and repeater sites, flight guidance systems or continuity of operations, each of these technologies share the need for power. In a mission critical situation, loss of power is unacceptable. ReliOn fuel cell solutions are proven to electrically harden critical networks against service-impacting issues.
Federal and State Government agencies face many challenges to completing their critical missions involving communications, security and response. Keeping power flowing should be the least concern, but without the power needed to keep it running, critical equipment goes off-line and is no longer useful to the operation. Extreme weather, human error and sabotage all pose threats to stable grid power service. According to an average of the 2005 through 2011 data provided by the DOE’s Energy Information Administration, these major disturbances typically last between one hour and five days. This does not include the day-to-day disturbances we all experience from time to time or the true disasters with durations of more than six days.

When your mission involves the need for communications no matter what, backup power becomes imperative - and having options is important. Resiliency and redundancy are required to supply consistent power, ensuring an absolute minimum of downtime and providing for stable services by improving reliability and availability. Fuel scarcity in times of disaster can threaten fuel supply for backup generators, and in some regions, the generators themselves are at risk of theft or sabotage.

At ReliOn, we understand the difficulties – with over 125 years combined experience with communications networks on our management team, many of us have been where you are. We provide backup power solutions for communications in several branches of the Federal Government as well as State Agencies – through hurricanes, snowstorms and extreme cold - in applications needing as little as 50 Watts as well as those needing several kilowatts – for sites needing hours of backup power and those needing days or weeks.

ReliOn’s forward-thinking design provides a fuel cell power solution that gives you the ability to grow as power requirements increase. Modular, scalable architecture enables a highly-reliable, cost-effective backup solution with a seamless upgrade path, maximizing initial investments in fuel cell backup systems, and dramatically reducing the impact on operating budgets.

**Electrical Hardening for Mission Critical Applications**
Government personnel install power systems both indoors and outdoors, depending on the characteristics of the installation site. ReliOn’s fuel cell systems can be installed in a wide variety of configurations, both indoors in standard racks, and in our own outdoor enclosures. Product scalability allows ReliOn systems to meet your actual power requirements, whether smaller or larger capacity is needed. As your power needs change, ReliOn’s system can adapt quickly, protecting your investment going forward.

**Tactical Advantages**
In critical equipment installations, excess heat and noise become a detriment to mission security. ReliOn’s fuel cell solutions are tactically advantageous due to their low heat signatures and quiet operations. And easy deployment and low maintenance requirements mean fewer trips to equipment sites.

**Fuel Supply**
ReliOn's fuel cell solution uses industrial-grade hydrogen, available through multiple industrial gas suppliers, and with little competition for supply during widespread outages. With multiple fuel storage options, supplying fuel for hours or days becomes a simple issue.
ReliOn fuel cell systems have revolutionized the application of reliable backup power for critical equipment. ReliOn’s E-series and T-series products provide several advantages over traditional backup power methodologies - batteries and internal combustion generators - as the sole power solutions. Like batteries, fuel cells provide current directly to the DC bus, but have a significantly increased service life and decreased maintenance costs, as well as a smaller footprint for longer runtimes. Installation is accomplished with ease. Additionally, fuel cell runtime, as with a generator, is a function of fuel storage, but with few moving parts and lower maintenance.

Reliable
- Advanced design enables advanced management of fuel cell membranes, which leads to increased reliability of the system.
- N+1 or 1+1 redundancy is designed into the system.

Modular
- Patented modular cartridge design means ReliOn is the only company providing easy hot-swappable* maintenance in seconds, without tools, and while continuing to provide power to the customer load.
- ReliOn's E-series offers a modular, fault-tolerant design, ensuring continued power to customer equipment, using larger power module building blocks. Multiple bus and multiple voltage scenarios are easy to accomodate.

Scalable
ReliOn products allow the customer to configure the product to suit the load.
- From under 100 Watts to 20,000 Watts.
- Scalable hydrogen storage provides for up to hundreds of hours of runtime easily.

Low Maintenance
- Annual air filter inspection.
- Refueling as needed - hours to weeks of runtime between refueling cycles.
- Mean time to repair - minutes.
- Advanced diagnostics and self-testing

Environmentally friendly
- Hydrogen in, power and warm water out.
- No emissions
- Low noise signatures under 60 dBA @ 5 feet.

U.S. Tax Credit Availability
- Federal tax credits available for systems above 500W.
- $3,000 per kilowatt or 30% of system cost, whichever is less.
- Additional incentives available in some States make value proposition very attractive.

Environmentally-hardened
- Temperature range from -40°C to 50°C / -40°F to 122°F.
- Field-proven ability to perform during hurricanes, ice storms and other harsh weather.
- Diverse geographic locations.

Monitoring and Control
- Remote / local system configuration and status monitoring for historical and operational data.

Hybrid configurations
- Whether off-grid or on, ReliOn fuel cells work well in hybrid solutions with solar and wind power for a complete clean energy solution.

* ReliOn’s T-1000 and T-2000 fuel cell systems offer hot-swappable maintenance.
## Specifications

### E-1100™ Rack Mount

**Dimensions (W x D x H):** 17.25” x 24” x 7”

**Weight:** 160 lbs / 72.5 kg

**Mounting:** 19” or 23” rack mount

### Fuel

- **Composition:** Natural gas
- **Pressure:** 0 to 1,100 PSI

### DC Voltage

- **Nominal:** 24V DC

### Operation

- **Temperature:** 23°C to 35°C
- **Humidity:** 5% to 95% non-condensing

### Location

- **Indoors or hardened outdoor cabinet**

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### E-1100™ 16U Cabinet with 6Cy1300 Fuel Storage

**Dimensions (W x D x H):** 41.3” x 72” x 34.3”

**Weight:** 478 lbs / 216.8 kg

**Mounting:** 23” rack mount cabinet/wall

### Fuel

- **Composition:** Natural gas
- **Pressure:** 0 to 1,100 PSI

### DC Voltage

- **Nominal:** 24V DC

### Operation

- **Temperature:** 23°C to 50°C
- **Humidity:** 0-95% non-condensing

### Location

- **Indoors or hardened outdoor cabinet**

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### E-2500™ Rack Mount

**Dimensions (W x D x H):** 21.2’ x 24’ x 14’

**Weight:** 113 lbs / 51.4 kg

**Mounting:** 23” rack mount (8U)

### Fuel

- **Composition:** Natural gas
- **Pressure:** 0 to 1,200 PSI

### DC Voltage

- **Nominal:** 24V DC

### Operation

- **Temperature:** 23°C to 50°C
- **Humidity:** 0-95% non-condensing

### Location

- **Indoors or hardened outdoor cabinet**

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### T-2000® Rack Mount

**Dimensions (W x D x H):** 21” x 21.5” x 26” (in rack)

**Weight:** 53.3 lbs / 46.4 kg

**Mounting:** 23” rack mount

### Fuel

- **Composition:** Natural gas
- **Pressure:** 0 to 1,200 PSI

### DC Voltage

- **Nominal:** 24V DC

### Operation

- **Temperature:** 23°F to 100°F
- **Humidity:** 0-95% non-condensing

### Location

- **Indoors or hardened outdoor cabinet**

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*Weight references fully equipped solutions, without hydrogen cylinders.*