



**NO DOWNTIME.
THE NEW REALITY.**

**Clean, Reliable Power,
Anytime, Anywhere**

Advanced fuel cell solutions from the
clean backup power leader

RELIABLE

Relied on by telecom and mission-critical government applications for modern, resilient networks and security. Altery fuel cells provide uninterrupted power during severe storms where legacy systems failed.

PROVEN

With more than 8.3 million watts deployed and 32 million operational hours logged, Altery fuel cells have provided continuous power while the grid has failed during routine outages, severe weather, and prolonged public safety shutdowns.

LOWEST COST

Altery fuel cells can reduce the total cost of ownership for backup power solutions by up to 50 percent over a ten-year period compared to legacy technologies.

CLEAN

Altery fuel cells have been certified by the California Air Resources Board to produce zero-emissions at the source and can help reduce your carbon footprint and sustainability goals.



The grid can be unreliable, but your services cannot.

In our connected world, perpetual connectivity is expected. Your customers now turn to their smartphones and internet for everything. What movies are playing? Where am I? Is it going to rain tomorrow? Is the flight on time? Whatever the question, the expectation is that they can get what they want, anytime, anywhere, in their immediate context. It creates a sense of security. If you're there for them they won't notice. But when the grid fails and they lose connectivity and their wireless and internet devices don't work, who do they blame? You or the grid? This constant connectivity is a newly perceived right and requires continuous power. Backup power must be a priority, not an afterthought in this connected world. Protect your customer's peace of mind and retain your customer's business with the most modern, sustainable, and reliable backup power solution on the market today - Alteryg's fuel cells. These next generation solutions allow you to meet constant connectivity demands of customers as well as FCC mandates.

Did you know?

- The US endures more blackouts than any other industrialized nation on earth
- US Grid fails **285%** more often than it did in 1984
- Outages cost US economy **\$150B**, or **\$500/m/w/c**
- Outages now last 3 to 5 times longer
- **62%** of cellular/network/Cable failures are due to power loss
80% of those power losses are due to battery failure

“It's time for radical change ... like clean, modern, affordable power on demand ... how's that for a new reality?”

Batteries and generators have been the popular choices for backup power, not because of their superior technology, but because of inertia. They are previous generation technology. Today, old technology such as dirty diesel or lead acid batteries with limited runtime often backup mission critical operations. Why? They have been the only choices available, even though technological advances in batteries and generators have been limited since their inception. Can you meet today's sustainability and connectivity requirements?



Altery Freedom Power Technology

Revolutionary design keys durability, cost, size, and weight breakthroughs

Freedom Power technology is the revolutionary breakthrough behind Altery's clean, reliable, on-demand power solutions. Freedom Power technology replaces the fragile, expensive components and hand-made assembly traditionally used in fuel cells with rugged, low-cost materials and the first automated fuel cell assembly line in the world.

Altery's Freedom Power technology utilizes a completely reimagined fuel cell design to deliver:

Lower Initial Cost – Altery's patented design reduces critical component costs by more than 80%, which in turn can make the capital expenditure for Altery fuel cells less expensive than batteries and generators.

Lower Total Cost – Altery's Freedom Power technology features rugged components and no moving parts in the cell stack, leading to lower maintenance costs and lower total cost of ownership.

Greater Durability – Freedom Power replaces graphite and other fragile components used in conventional fuel cells.

Lightweight Construction – Altery's Freedom Power technology design reduces size and weight making Altery fuel cells ideal for rooftop installations.

Fast Start-Up – Altery fuel cells start up in seconds.

Quiet Operation – With no moving parts and no internal combustion, Altery's Freedom Power technology operates at a barely audible hum.

Easy Maintenance – The primary maintenance required for Altery fuel cells is replacing air filters once a year.

Modular, Scalable Flexibility – Altery Freedom Power technology is inherently scalable, and can be deployed from watts to kilowatts.

Simple Installation – Altery Freedom Power technology reduces backup power installation from days to a few hours.

Long Life – Altery fuel cells have a design life of more than 20 years.

While the U.S. EPA continues to regulate diesel engine emissions and replacement battery costs skyrocket, Altery has revolutionized fuel cell design to deliver clean, long-lived backup power solutions with greater deployment flexibility and economics.





**8.3 MILLION
WATTS DEPLOYED**

**32 MILLION
RUNTIME HOURS LOGGED**

Break Through the Status Quo

Increasingly, business leaders are adopting clean backup power solutions to protect operations during grid failures. Batteries have limited runtimes, short lifespans, and high replacement costs; diesel generators have noise, performance, and emissions issues. Neither technology has changed significantly in decades.

Hydrogen powered fuel cells are being advanced in telecom, aerospace, automotive, and other sectors, and Alteryg's breakthroughs are rapidly making fuel cells the clean power source of choice.

	 VS. 	 VS. 
	Alteryg Fuel Cells vs. VRLA Batteries	Alteryg Fuel Cells vs. Diesel Generators
	End the cycle of constantly buying replacement batteries	Eliminate noise and see how clean outperforms dirty
Cost	Alteryg fuel cells have lower operating costs, lower ongoing maintenance costs, and lower total cost of ownership than batteries.	Alteryg fuel cells have lower operating costs, lower ongoing maintenance costs, and lower total cost of ownership than diesel generators.
Rooftop Deployment	Alteryg fuel cells weigh a fraction of VRLA batteries, take up less space, and are ideal for rooftop installation.	Avoid the weight problems and fire risks that can prevent diesel generators from qualifying for rooftop installation permits.
Environmental Impact	Batteries tend to be replaced every few years, and must be disposed of through a heavily regulated process; fuel cells produce clean power and have a design life of more than 20 years.	Diesel generators face ongoing regulatory restrictions in an effort to decrease noise and greenhouse gas emissions, and address climate change; Alteryg fuel cells are CARB-certified to produce zero emissions.
Durability	Heat, other environmental conditions, and discharge cycles decrease battery performance and lifespan; Alteryg fuel cells maintain their performance in extreme hot or cold temperatures and have provided uninterrupted power where legacy battery systems have failed.	Strenuous start cycles, extreme temperatures, prolonged periods of inactivity, and extended continuous runtime can degrade diesel generator performance; Alteryg fuel cells maintain their performance in extreme hot or cold temperatures and have provided uninterrupted power where legacy systems have failed.
Runtime	Batteries typically deliver two to four hours of performance, insufficient runtimes to adequately back-up critical systems for the required 8 to 24 hrs.	Alteryg fuel cells can provide from hours to months of continuous runtime on a single fuel fill-up.
Maintenance	Batteries require constant charging and field maintenance conducted by skilled technicians; while the primary maintenance required for Alteryg fuel cells is replacing air filters once a year.	No complex maintenance schedules, fuel filtering or expensive replacement parts; mostly simply replacing air filters about once a year.



Alteryx Nacelle

Our latest solution has broken the price barrier! The Nacelle is a more compact and lower-cost advancement of Alteryx's proven fuel cell power system. The Nacelle can beat batteries and generators on CapEx, operating cost, TCO, footprint, weight, volume, and reliability.



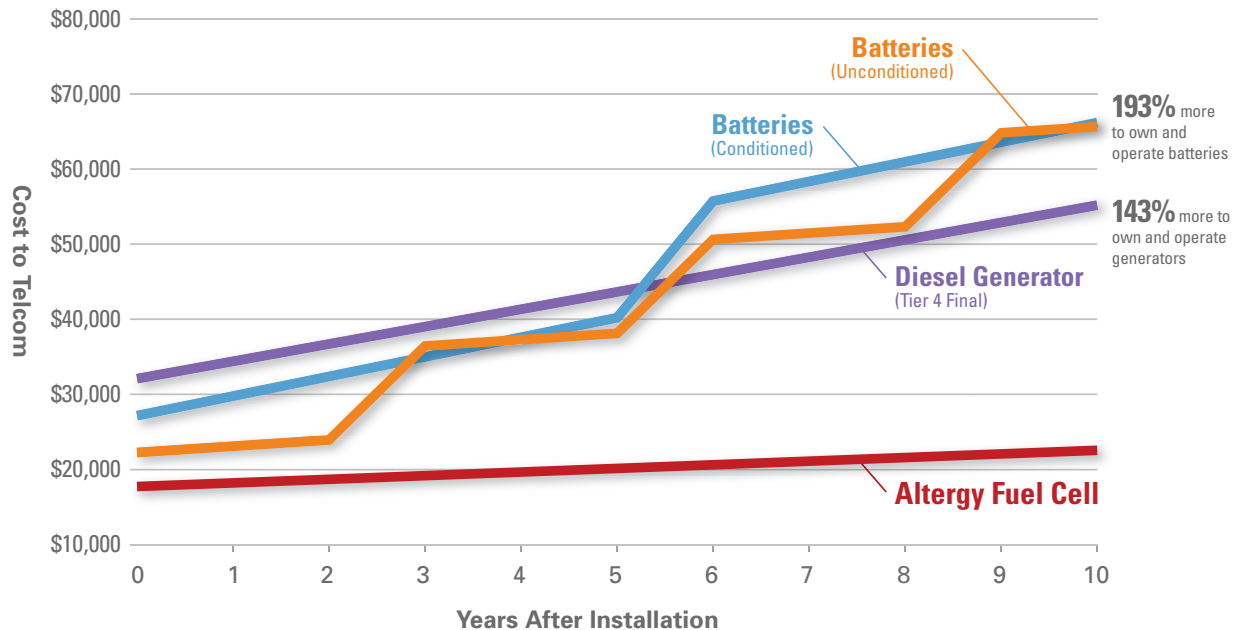
The World's Only Automated Fuel Cell Production Process

Alteryx is the first company to successfully design, mass-produce, and commercially deploy rugged, low-cost fuel cells. With its breakthrough technology, Alteryx manufactures a fuel cell about every 30 seconds on the world's first and only automated, robotic fuel cell assembly line.

Alteryx's Freedom Power technology is designed from the outset to be produced in high volumes using off-the-shelf materials, stamped and molded fabrication, and standard, robotic automated assembly equipment. Utilizing modular, pretested sub-assemblies that assure fast assembly time, Alteryx delivers the best fuel cell systems in mass production.

Altery Fuel Cells – The Best Value in Backup Power

Altery's Freedom Power technology's patented design can reduce total cost of ownership by 50% or more compared to legacy technologies. Altery's Freedom Power technology solutions have a design life of more than 20 years, and maintenance is simply cleaning or replacing air filters once per year.



TCO based on a 5kW load, 8 hours of runtime. Battery quantities and size determined at end of battery life. Generators are Tier 4 Final. Analysis includes acquisition costs, plus permitting and installation costs, as well as ongoing maintenance (and battery replacement) costs for all three technology alternatives. Data sources for the analysis include research reports (Batelle, Battery Council International, etc.), Manufacturer data sheets, prices, white papers and Altery Systems information.

Worry-free Refueling

Altery's Freedom Fuel Service ensures convenient hydrogen or methanol fuel delivery so when you need power, you have it. With Altery Freedom Fuel Service, you get timely delivery and expert on-site monitoring services – everything you need for extended runtimes on demand.

Trust Altery's Freedom Fuel Service to:

- Deliver ready-to-use industrial hydrogen gas or liquid methanol
- Bundle refueling and maintenance for optimum savings
- Service fuel cell equipment
- Monitor consumption and to maximize uptime
- Safely refuel multi-site networks
- Never run out of power

Flexible Lease and Finance Options

Altery's revolutionary fuel cell design lowers capital expenditure costs, and our flexible lease and finance options can virtually eliminate them. With Altery's lease agreements, equipment maintenance is built-in and acquisition costs can be replaced with low monthly payments.



Alteryg Featured Products

Flexible, Modular, and Configurable Systems from Watts to Kilowatts!



Description (5kW specs & graphics unless noted)	1-5kW Fuel Cell Engine w/Nacelle on medium sized fuel storage	1-5kW Fuel Cell Engine w/Nacelle w/BTS space w/large fuel storage	2-10kW Fuel Cell Engine w/Nacelle w/BTS space w/large fuel storage	2-10kW Fuel Cell Engine w/Nacelle on extra large fuel storage
Rated Power (kW)	1-5	1-5	2-10	2-10
Nominal Current (@5kW)	100	100	200	200
Rated Voltage, DC	48	48	48	48
Dimensions (W x D x H in.)	30 x 56 x 72 Footprint 30 x 41	60 x 56 x 72 Footprint 60 x 41	60 x 56 x 72 Footprint 60 x 41	60 x 56 x 72 Footprint 60 x 41
Approximate Weight (lbs. w/o cylinders)	460	760	1200	1200



Description (5kW specs & graphics unless noted)	1-5kW Fuel Cell Engine	1-40kW Fuel Cell Engine Power Cabinet	2-24 Cylinder Fuel Storage Module w/manifold, regulator, hoses	5kW Fuel Cell Engine w/Hydrogen Gas Generator in Integrated Enclosure
Rated Standby Power (kW)	1-5	1-40		5
Nominal Current	100	100		100
Rated Voltage, DC	48	48		48
Dimensions (W x D x H in.)	21 x 26 x 21	26 x 41 x 72	24 x 12 x 72 36 x 41 x 72	60 x 36 x 60
Approximate Weight (lbs. w/o cylinders)	188	280	125 325	1020

*Additional configurations available upon request
**Specifications subject to change without notice

Alteryg's Freedom Power fuel cells provide freedom from:



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