

GenCell REX™

THE SUBSTATION BACKUP POWER SOLUTION WITH THE X FACTOR - EXTENDED RUNTIME

GenCell REX™

THE POWER CHALLENGE

Aging electrical grids, vulnerability to physical and cyberattacks and more frequent extreme weather make it increasingly challenging to meet the enormous power needs of today's always-connected businesses and consumer lifestyles. The U.S. Department of Energy estimates power outages cost American businesses around \$150 billion per year. According to the U.S. Energy Information Administration, the average American

experiences ~2 hours of power outage per year; this duration triples when factoring in wildfires, hurricanes and other storms. From analysis of 28 years of power outage data, Climate Central scientists determined that climate change significantly increases the risk of more violent weather and more frequent damage to power infrastructure.



Hydrogen²Power™

THE SOLUTION

- ↳ 5kW fuel cell generator
- ↳ Heat utilization unit for dissipating excess heat
- ↳ Energy bridge for instant electrical power generation and regulating power output
- ↳ Fuel supply comprised of standard hydrogen cylinders
- ↳ Shelter enclosure to protect all system components (Optional)



OUR BENEFITS

Zero emissions, no noise and no vibrations



Extends battery room operation from 4 to 72 hours



Failsafe internal redundancy between stacks ensures highest reliability



Embedded **Intelligent IoT Edge** software platform connects, configures, monitors and controls GenCell REX units



Tested and proven in harsh weather conditions, with IEEE 693 seismic certification when using optional enclosure



Cold start mechanism allows site-idle in sub-zero temperatures with NO conditioning or test runs and starts up in under an hour using minimal battery power.



HYDROGEN

↳ THE CLEAN FUEL of THE FUTURE

Hydrogen is the lightest and most abundant element in the universe and is considered the most environmentally friendly fuel. Hydrogen is a flammable fuel but has been proven to be as safe or even safer than gasoline or natural gas (methane) as it is lighter than air and quickly dissipates into the atmosphere.

Fuel cells oxidize hydrogen in a chemical reaction to form electricity, heat and water. Since they do not rely on the combustion of fuel, fuel cells do not produce any CO₂ or other greenhouse gases. In backup power use cases, hydrogen fuel cells offer utilities innovative enhancement to substation reliability via accurate extended backup power solutions that endeavor to maintain accurate, extended grid services for customers despite increasingly frequent and severe climate-related disruptions.





GENCELL. FEARLESSLY FUELING THE FUTURE.

The GenCell REX™ utility backup power solution produces 5kW of auxiliary electricity for substations during outages of any duration. Operating as a direct source of backup power or supplementing legacy backup battery systems that can provide only 6-8 hours of electricity, the GenCell REX solution offers an immediate injection of power that keeps circuit breaker “auto reclosers” operational until the grid recovers.

Unlike batteries, the GenCell REX can run for any duration, for as long as fuel is available, and its disposal involves recycling of metals and waste materials and safe disposal of hazardous materials in compliance with strict standards. Unlike fossil fuel generators, the GenCell REX has no noise, fumes, vibrations, CO2 emissions or lengthy startup time. Unlike intermittent renewable sources, the GenCell REX can run in any conditions with no limitations. Fueled by hydrogen, the clean energy of the future, the GenCell REX power solution kicks in immediately and gives maintenance crews peace of mind by ensuring unlimited backup until electricity from the utility mains is restored. The REX optionally includes a shelter that is resistant to high-voltage interference and earthquakes.

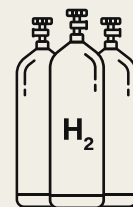
The GenCell REX is an enhanced version of the GenCell G5rx solution, available in three configurations, 130VDC, 48 VDC and an integrated solution offering a dual output of both 130/48VDC in a single unit supporting in parallel critical substation loads as well as internal communications and SCADA systems that monitor the utilities' operations.

Furthermore, the solution incorporates enhanced integration with leading utility SCADA systems alongside improved functionality of the embedded Intelligent Edge IoT Gateway software platform that affords utilities expanded remote control of the REX as well as improved visibility of other related equipment via additional data points that can be accessed by the utilities' monitoring systems.

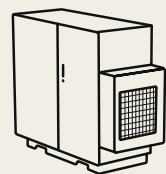
GEMS™ EDGE

— The core component of GEMS, is delivered as an embedded element of every GenCell solution for connectivity, computing and optimal system control and monitoring at the devices' edge.

- ↳ Monitoring and Data Collection
- ↳ System Utilization Tracking
- ↳ Management Software Integration
- ↳ Web-Based Remote Monitoring and Control
- ↳ Hydrogen-Level Calculations



Hydrogen



Alkaline Fuel Cell

TECHNICAL SPECIFICATIONS

Performance	
Rated Power Configurations	5kW
Output voltage configurations	-48 VDC / +48 VDC / 230 VAC / 130 VDC
Emissions	Heat, water vapor
Fuel	
Hydrogen	99.95% or higher
Fuel consumption	≤ 70 g/kWh
Input pressure	300-500 kPa
Storage	Up to 6 standard hydrogen cylinders
Electrolyte	
Potassium Hydroxide	28-32% mass
Operation	
Startup time	Immediate ¹
Automatic start/stop	Available
Installation	Outdoor
Remote control/management (NOC)	Available
Maintenance	
	Every 500 hours of operation or annually, whichever comes first

Physical	
Footprint	2,800 x 2,250 x 2,500 mm (110.2 x 88.6 x 98.4 in.)
Normal Operating Conditions	
Operating Temperature	From -20°C up to +45°C (-40°F up to +113°F)
Relative humidity	Up to 90%
Storage Temperature	-40°C up to +55°C (-40°F up to +131°F)
Certification ²	
	IEC/EN 62282-3-100, IEC 60950-1, IEC 60204-1, IEC 60335-1, EN 61000-6-2, EN 55011 IEEE693-2005 (Seismic, High Performance Level), OSHA1910.103, IEEE Std C37.90.1-2012 Sections 4.1, 4.2 EMC: EN55011/EN61000-6-2 ISO9001:2015 IEEE 693 (Seismic design)

1 When using a GenCell Energy Bridge or existing customer battery bank.

2 Certifications are for the fuel cell generator and shelter.



ABOUT GENCELL



GenCell Inc., a wholly owned U.S.-based subsidiary of GenCell Energy, leverages GenCell's legacy Hydrogen2Power™ technologies, proprietary DERMS software and field experience to further develop the hydrogen-fueled, containerized GenCell EVOX® grid-optional and backup solution to power EV fleets and diverse electrified equipment to overcome the growing power gap.

GenCell Energy (TASE: GNCL), founded in 2011 to adapt revolutionary space fuel cell technologies to serve critical power applications on Earth, is dedicated to transforming the energy landscape by providing reliable, sustainable and climate-resilient power solutions that address the growing global demand for energy security and independence.

With rapidly deployable solutions and the introduction of advanced software such as GenCell GEMS™, GenCell Inc. is well-positioned to drive growth and expand GenCell's presence in key markets across North America and beyond.

→ **CONTACT US**

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