



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



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



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



Failsafe internal redundancy between stacks ensures highest reliability



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.

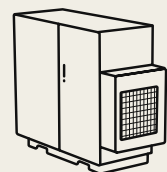
INTELLIGENT IoT EDGE SOFTWARE

— Our embedded software platform connects, configures, monitors and controls GenCell products locally or remotely.

- ↳ Built-in web server to monitor and control all units
- ↳ Automated online reporting to keep you on track
- ↳ Compatibility with common industrial protocols for connectivity to other systems in use
- ↳ Smart security and notifications



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 Energy (TASE: GNCL) develops GreenFSG power solutions based on reliable, zero-emission alkaline fuel cells, Hydrogen2Power™, Ammonia2Power™ and Water2Power™ technologies that deliver uninterrupted power to help the world #SayNoToDiesel and transition to clean energy.

The ability to produce not only clean power from GenCell's fuel cells, but also the green fuel on which the fuel cells run, sets GenCell in a far superior position as a well-to-wheel total green energy solution provider.

GenCell delivers resilient, robust and weather-resistant backup power for utilities, telecom, EV charging and other mission-critical applications which have been deployed in 23 countries. Going ahead, we are designing an ammonia-based hydrogen-on-demand solution to provide economical primary power for off-grid and poor-grid sites, as well as for rural electrification.

GenCell numbers some 150 employees, including veterans of space and submarine projects. The Company is headquartered in Israel with a worldwide distribution and support network and retains unique intellectual property that includes patents, trade secrets and know-how.

→ **CONTACT US**

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