

DELIVERING THE NEXT GENERATION OF PATIENT SAFETY:

Ensuring Smooth Operations For the Hillel Yaffe Medical Center With the BOX Long-Duration UPS

"Any interruption to the flow of electricity to the cardio-catheterization apparatus due, for example, to an outage, can cause the device to reboot during a medical procedure. Although the backup generator restores the flow of electricity after only a few seconds, it could cause an interruption to the procedure and endanger the life of the patient. With the GenCell BOX, thanks to stabilization of the electrical flow to the electronic circuitry, there is no possibility of interruption of even a few seconds."

Dr. Amnon Ben Moshe,
Administrative Director, Hillel
Yaffe Medical Center

BACKGROUND: ROBUST, RELIABLE FUEL CELL FOR POWER BACKUP ENABLES UNINTERRUPTED MEDICAL PROCEDURES

Established in 1957, the Hillel Yaffe Medical Center houses a trauma center, educational, training and research facilities serving a diverse population of some 450,000 people. In 2016, the hospital performed over 11,600 surgical operations, 399 diagnostic and 663 therapeutic catheterizations. Based in Hadera, Hillel Yaffe is the first hospital in Israel to be granted a "Green Label" from the Israel Standards Institute and Ministry of Environmental Protection for its efforts to protect the environment. Aiming to reduce its carbon footprint while protecting patients, scheduled procedures and equipment, Hillel Yaffe decided to invest in the GenCell BOX hydrogen-based fuel cell solution. The GenCell system provides extremely reliable, uninterrupted backup power with a dynamic load extender to absorb peak power up to 100 kVA.

KEY CHALLENGES:

In accordance with public health and building codes, the Hillel Yaffe medical center is required to maintain diesel generators to provide backup power in case of outages, but these generators pose some fundamental problems. Firstly, because diesel generators are not 100% reliable, the hospital feared that power outages could negatively impact patient care and the hospital's reputation, as well as incur costs. Secondly, in case of an outage, sensitive medical devices such as the cardio-catheterization

apparatus could be easily damaged by energy transitions between the grid and the emergency generator, entailing downtime and costly repairs that could add up to sums of many hundreds of thousands of dollars. What's more, the routine monthly maintenance and testing of these diesel generators, which is mandatory by law to check their effectiveness, is time-consuming, costly and causes pollutant carbon emissions that violate the hospital's environmental values.



KEY FEATURES OF THE GENCELL BOX SOLUTION

Should the grid cease to supply power, the GenCell BOX solution kicks in seamlessly and immediately to supply power continuously for as long as the grid is out, and for as long as the cell has fuel. The solution seamlessly regulates the flow of power, activating an electronic energy bridge to absorb the intense dynamic electrical peaks and loads typical of the imaging equipment incorporated in sophisticated medical devices such as the cardio-catheterization apparatus used at Hillel Yaffe. Thanks to the proven and tested, inherently robust and reliable characteristics of alkaline fuel cells, the BOX is fail-safe. Featuring few mechanical parts, the operation of the BOX is noiseless as well as vibration and emission-free. The system is easily and economically maintained by a software-based remote IoT monitoring and management module which provides visibility into system health at all times and alerts users to take prompt proactive action in case of any issues, eliminating the need for routine maintenance. In contrast to the maintenance of diesel generators, parts and fuel replacement for the BOX are also far less frequent.

BOX PROJECT IMPLEMENTATION AT HILLEL YAFFE

Following precise and thorough measurement and testing of the electrical profile and of the behavior of the medical equipment by GenCell engineers, the backup system was carefully adapted to meet the exact requirements of the medical devices. The expertise of GenCell's engineers in specifying the topology and configuration of the system architecture, including the electronics and electrical schemes, instilled high confidence in the system. Together with local partner Medtechnica, GenCell installed the solution on-site, carried out thorough acceptance testing to confirm that the system functions in accordance with exact specifications, and trained the hospital's engineering staff to manage and maintain the system.

KEY BENEFITS



Ensures reliable, uninterrupted backup power, absorbing peak loads



Remote IoT Monitor ensures constant system availability



Protects patients, surgery schedules and equipment



Zero-emission solution enables transition from diesel



"Following the successful G5 DLX installation at Hillel Yaffe, there is already a growing interest from other hospitals in Israel, and I am sure that hospitals abroad will be quick to adopt the solution as well. I am proud and pleased that the system provides us with new and innovative methods to ensure the safety of our patients."

Ronen Edri,
Director of Technical &
Engineering Dept, Hillel Yaffe
Medical Center

BENEFITS

Thanks to the G5 power backup solution, the staff at the Hillel Yaffe Medical Center are carrying out cardio-catheterization processes without hesitation and fear of power outages. The G5 system protects patients and medical procedure schedules and extends the lifetime of the imagery solution and the peripheral equipment, enabling considerable financial savings caused by the minimization of equipment downtime, repairs and part replacements. The solution improves the quality and integrity of the electrical flow within the operating facility and throughout the medical center, while also supporting the hospital's environmental objectives by moving towards the elimination of polluting diesel generators.

"From the start of testing, we have been impressed by the GenCell G5's flawless performance. In addition to its measurable contribution to smooth equipment operations, the reliability of regular power now enables our staff to carry out medical procedures with full confidence and peace of mind – undoubtedly, this has resulted in better patient care and personnel well-being,"

Ronen Edri,
Director of Technical & Engineering Dept, Hillel Yaffe Medical Center

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