

PowiDian tests hydrogen-powered generator under extreme conditions

13 June 2022, 02:00

We all know that water freezes below 0 °C and that fuel cells can be impacted at such low temperatures. Lithium batteries performances are also affected. Nevertheless, the M110 Mobhyl Power from Powidian has successfully performed cold start tests at temperatures as low as -20 °C. For Sirris it was the first time to successfully facilitate a climatic chamber test in which hydrogen was used.

PowiDian develops, installs and maintains intelligent autonomous energy stations that provide electricity at all times. The M110 hydrogen-powered generator PowiDian, which was designed to sustain such harsh environment on the field to meet customers' expectations, successfully tested at Sirris's large climatic test chamber, consists of a 70 kW fuel cell and a lithium-ion battery pack to supply peak demands of 110 kVA.

Testing under safest circumstances

Next to several cold start tests at -20 °C, performance tests at +45 °C were executed, to assess the algorithm that optimises the energy taken from the batteries and fuel cell, to increase the efficiency of the fuel cell and thus minimise the hydrogen consumption.

During all these tests dozens of temperatures, pressures, flow rates and electrical parameters were closely monitored, to ensure that the unit did not exceeds it operating limits. Next to this, external hydrogen detectors were set up in the climatic chamber to automatically shut down the hydrogen supply in case of a leakage. This as a matter of safety, as safety was indeed a top priority to the PowiDian-Sirris team during the entire project.

This case is one of twenty inspiring examples of how technological innovation can be put into practice in industry, included in our Annual Report 2022. Curious for more? Then be sure to read the other cases in our Annual Report, let them inspire you and discover what technological innovation can mean for you!

Read the full Annual Report

(Source images: PowiDian)

Authors