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# FUEL CELL BACKUP POWER SYSTEMS PROVE RELIABLE



**CASE STUDY**



## Ballard’s 120 hydrogen fuel cell backup power systems prove reliable over 5 years of operation in Denmark’s public safety network (SINE)

### Situation

The communications system originally used by Denmark’s emergency responders (including police, ambulance service, fire-fighting and rescue services) was not an interconnected system and was on average 15 years old. In 2007 the Danish Preparedness Act was modified by an act of Parliament to ensure all emergency responders use a common radio communications system known as SINE, the Danish public safety network.

SINE was to be based on the newest digital Tetra technology, with strict guidelines to ensure that the peak load would not overload or allow the network to become inoperative as a result of terrorism or other emergencies. In addition, the system required adequate backup power supply to ensure uninterrupted service in the event of an emergency.

### Solution

Ballard’s FCgen®- H2PM outdoor fuel cell solution was selected to support the SINE network, based on its commercial and technical merits. Compared to conventional backup technologies such as batteries and diesel generators, the FCgen®- H2PM solution provides higher reliability, lower maintenance costs, significant environmental benefits and can ensure network uptime for extended durations.

The fuel cell system utilizes Ballard’s FCgen®-1020ACS fuel cell stacks, which operate using direct hydrogen fuel, providing clean reliable backup power. The rapid start-up of fuel cell-power ensures seamless, uninterrupted service to end-customers.

Site	Danish SINE - Tetra Network
Application	Ballard’s integrated outdoor cabinet fuel cell solution for Denmark’s emergency radio
System	FCgen®- H2PM
Configuration	2 kW
Fuel	Hydrogen
Objectives	Provide a reliable, lower maintenance system with extended duration runtime for backup power solution within the strict guidelines outlined for the TETRA network.

### Result

Ballard’s FCgen®- H2PM fuel cell backup power system has been successfully installed and operated at approximately 120 radio base station sites throughout the Denmark SINE emergency services network.

These systems have been in operation for over 5-years and have zero start failures through an estimated 4,000 power outages, providing a critical backup power solution with extended run time to ensure continuous service during any emergency situation.



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