



# POWERSTAR - SAFELY PROTECTING POWER SUPPLY FOR LIFE-CRITICAL SERVICES

## CASE STUDY

Ensuring an uninterrupted power supply for the patients and staff undertaking and undergoing life saving treatments within hospitals is an incredibly important task.

Crowcon were privileged to support Powerstar in their efforts to do just this at Rotherham General Hospital.



**IN A GLOBAL SOCIETY WITH AN EVER-GROWING NEED FOR ENERGY AND A BURGEONING POPULATION, THERE ARE MORE DEMANDS THAN EVER BEFORE PLACED ON ENERGY GRIDS INTERNATIONALLY.**

Powerstar - Resilient Power

Sheffield-based Powerstar are smart energy solutions manufacturers and designers, working hard to deliver power resilient technology across an array of industries to avoid operational disturbances from sudden power outages.

Powerstar works across a range of sectors to help clients reach their net zero carbon goals, whilst maintaining their operational requirements without power supply related issues and less dependence on grid system supplies.

In a global society with an ever-growing need for energy and a burgeoning population, there are more demands than ever before placed on energy grids internationally. This increasing demand can result in interrupted supply with sudden power cuts. This is no more of an issue than in places like hospitals and healthcare environments, where sudden power loss impacts the capacity to fuel life critical services, and so poses a risk to the lives of patients.



## **POWERSTAR TEAM RECRUITED THE HELP OF THE CROWCON TEAM TO OVERCOME A HURDLE THEY ENCOUNTERED**

### Rotherham General Hospital - Ensuring Uninterruptible Supply

Powerstar's latest project at Rotherham General Hospital involved the provision of a battery operated storage system, on behalf of the NHS Trust. The delivery of the battery storage system and facility was implemented to provide the Rotherham General team with an uninterruptible power supply. This is crucial for the hospital to ensure all of their services, specifically their critical services, operate continuously.

However, the Powerstar team recruited the help of the Crowcon team to overcome a hurdle they encountered and needed to monitor for, namely the issue of thermal runaway.

Speaking about the impact of power outages during life-crucial treatments, Claire Parker, Field Services Engineer for Crowcon, and member of the Rotherham General Hospital Powerstar project, said:

"The uninterrupted power supply that this unit will provide to the hospital is obviously vitally important for the patients that come in. You don't want the power going out when you are in the middle of an MRI scan or if you've got a loved one who is being monitored for a serious illness, using chemotherapy for example. You need that constant supply of power to make sure that nothing goes wrong."



## **THERMAL RUNAWAY IS THIS POSITIVE FEEDBACK CYCLE AND PROCESS THAT CAN LEAD TO FIRES, DECOMPOSITION OF THE BATTERY SYSTEM AND HEAT TRANSFERS TO OTHER CELLS.”**

### Avoiding Thermal Runaway and System Failure

Speaking about the things that can go wrong with battery storage systems and the issues caused by thermal runaway, Solon Mardapittas, Powerstar’s Chief Technical Officer and COO said:

“Crowcon’s technology helped to solve a major problem with our system. So the risk around battery storage systems is that they can, if improperly managed or under situations that can occur at random, go into thermal runaway.

“Thermal runaway is this positive feedback cycle and process that can lead to fires, decomposition of the battery system and heat transfers to other cells.”

Uncontrolled feedback processes can result in unmanageable temperature increases and tend to occur when the heat created within a battery surpasses

the amount of heat that is distributed to its surroundings. The likelihood of thermal runaway starts at temperatures of 60°C and becomes extremely critical as figures edge towards 100°C.

[See our video](#)



## **SAFEGUARDING AGAINST A PLETHORA OF POTENTIALLY LETHAL GASES**

### Detecting Gas, Saving Lives - It's What We Are Good At

'Utilising Crowcon gas detection equipment enables the battery storage systems and facilities implemented by Powerstar to be ongoingly monitored, and ensure that teams are alerted in the case of battery decomposition, the presence of combustible gases or heat transfers.

Safeguarding against the plethora of potentially lethal gases which could present themselves in these units is vital to maintain the safety of the patients, hospital staff and maintenance workers.

Crowcon's Claire Parker said:

**"It all goes back to detecting gas, and saving lives. That is what we do, and that's what we are good at."**