

The BLACKOUT scenario

Kappetijn Safety Specialists outline why prolonged blackouts are no longer a remote risk and how 72 hours without power could paralyse operations, safety and continuity

It is not the potential occurrence of a regional blackout that should raise the greatest concern, but rather the often-limited awareness and preparedness of companies for such an event.

A total and prolonged power outage directly impacts a company's core interests: its brand reputation, product quality, the safety of personnel and the environment, integration within supply chains, the ability to support neighbouring communities and the financial costs of disrupted operations.

The continuity of operations is abruptly and indefinitely disrupted. All the more reason to clearly define the phases of such a scenario and focus on the planning, equipment and knowledge needed to respond effectively.

How do we safely shut down operations while minimising product loss and damage to installations? At what minimal 'pilot light' level can we keep critical processes running? And how do we prepare for a fast and efficient restart?

A blackout scenario has a significant impact on both the site and its personnel. Imagine an entire industrial facility shutting down—along with everything in a 50-kilometre radius. Total darkness. In the first few hours, only emergency power keeps essential systems running in parts of the region. Difficult to picture, perhaps, but not impossible to prepare for.

A blackout situation

Severe weather hits part of Western Europe. Electricity demand is high—too high. Wind, solar and battery sources fall short of supplementing conventional power plants. A large portion of the power grid collapses, including sections in the Netherlands. Much of the public infrastructure powered by electricity grinds to a halt. Transport systems and infrastructure support services fail. Cities come to a standstill.

Traffic lights, street lighting, access control systems and parking garages go dark. Homes lose power. Inside office buildings, lighting, climate control systems and elevators stop

functioning. Healthcare institutions and hospitals must scale up their operations, yet their capabilities rapidly diminish. Facilities without emergency power are paralysed. For those with emergency generators, only the most essential functions continue—while the clock starts ticking on fuel reserves.

"Instability may tip into chaos and civil unrest, with the demand for assistance quickly outpacing the capacity of already stretched police and emergency services."

Bad weather intensifies societal tension. Instability may tip into chaos and civil unrest. The demand for assistance quickly



outpaces the capacity of police and emergency services. Employees try to contact their families, but communication networks have failed. There is no information on when power might return. Plans from the government stipulate that non-essential companies will be last to come back online.

Impact on a large industrial company

Now, imagine a company producing capital-intensive goods through complex manufacturing processes. Raw materials, production stages and end products are all high-value. The company is part of a tightly integrated supply chain - each link critical to the final product of its predecessor.

Chemical substances play a major role in both production and storage. When operations stop, intermediate products become unusable and unique installations may be damaged. The company is subject to

strict GMP and legal standards for safety and continuity, requiring a high level of operational control. The sewer system is disrupted, fire safety systems shut down, overflow and emergency storage of chemical substances is uncontrolled.

Process control via IT is disrupted. Data from the last 24 hours is inaccessible. Several hundred employees work on site, operating in a continuous 24/7 shift system.

All operations run on electricity. In the event of a blackout, emergency power enables a phased shutdown and can support up to 20% of operations. A complete power failure essentially forces all processes to shut down. Emergency generators are primarily designed to power control systems, allowing for a safe and controlled shutdown.

Dilemmas and risks

What risks and dilemmas does a company face during a power

outage? Is your organisation equipped with emergency power - and if so, what will remain operational (and more importantly, what won't)? How long can those systems be sustained? What are the implications for your employees and contractors and how will communication be maintained?

Due to increased strain and instability on the power grid, as well as the growing frequency of extreme weather events, the likelihood of long-term power outages is rising. A large-scale blackout - even across the Netherlands - is no longer unthinkable. In fact, the probability of a widespread power failure across a broad geographic area is increasing significantly. Government already advises the public to prepare for blackout scenarios lasting up to 72 hours by stocking water, food, battery-operated radios and torches.

For Seveso/COMAH-classified companies, the consequences of a power outage can be severe - disrupting operations and potentially ▶

compromising the safety of personnel, production assets, site infrastructure, the environment and neighbouring businesses. This makes robust risk management practices critical for companies working with hazardous substances.

By implementing the right safety protocols, ensuring reliable (and enduring) emergency power systems and regularly training crisis teams, organisations can significantly reduce the impact of power outages.

Key considerations

A sudden, rapid and potentially prolonged power failure falls into the category of "low probability, high impact" events - requiring proactive preparation through planning, provisioning and training. According to research institutions, it is not a matter of if, but when this scenario will occur.

"Government already communicates to society to prepare for blackout scenarios lasting up to 72 hours by stocking water, food, radios and alternative light sources."

Every organisation is unique, with its own products, processes, materials, workforce and safety and continuity strategies. However, certain elements are universally important for all businesses to consider in advance.

There are ten essential questions every continuity manager should be asking. Does the installed emergency power system provide sufficient capacity to



maintain essential primary and supporting processes that cannot be interrupted without causing unacceptable damage? Is there a sufficient reserve of fuel for the emergency power system and are there secured agreements in place to replenish this supply within a few hours?

Are other strategic facilities also connected to emergency power, such as the security control room, crisis management centre, cafeteria and the emergency response/fire station? Can a minimum level of security - including cybersecurity - be maintained in the event of a total power outage, even with emergency power support?

Is there a plan in place to manage the inbound and outbound flow of personnel on-site without access to power? Has it been determined which critical roles must be staffed on-site to manage shut-down processes and uphold essential safety functions?

Have the strategic areas within the site been identified and is access to these areas guaranteed during a total power outage?

Can communication within the site and with external stakeholders continue during a blackout?

Reality check and training

To ensure thoughtful and well-informed preparation for a long-term blackout scenario and its potential consequences,

a dedicated blackout training is a highly effective tool.

Ideally conducted over the course of a full working day, this simulation immerses participants in real-time scenarios that expose the critical dilemmas organisations may face. Crisis team members begin their day with initial briefings that signal the onset of a metaphorical "tsunami" of challenges. As the day progresses, new layers of complexity and decisions are introduced.

The training is tailored to each specific organisation, drawing on existing plans and crisis procedures to reflect the specific risks relevant to the site. During the exercise, participants will engage in activating the crisis team and taking specific roles, using the crisis room, structuring internal meetings, supporting personnel, managing internal and external communication, executing a safe site shutdown and preparing to restart production processes.

This experience enables the crisis team to practice prioritisation, collaborate using the structured FADCM decision-making model and expand their situational awareness beyond the physical boundaries of the site. FADCM: get Facts, Analyse, Decide, Communicate & Monitor.

The result is a significant increase in awareness of what truly matters when preparing a facility for a worst-case scenario - and a stronger, more resilient organisation. ■