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MANUFACTURING

Planning for failure

How robust
is your power
contingency plan?



Cooling Tower

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Foreword

For householders a power blackout is an irritation. But for an organisation, be they public or private sector, it can be at best extremely costly, or at worst catastrophic.

In the last year alone, a manufacturer of active pharmaceutical ingredients, Shilpa Medicare, was issued a Form 483 following an investigation which noted unreliable power supply. Manchester Airport was plunged into chaos when one critical piece of refuelling equipment was left without power leaving 13,000 passengers stranded. Supermarkets were forced to remove food stock from fridges due to the summer heatwave. The list goes on.

Very often the cause of the power cut is beyond the organisation's direct control. Lightning strikes, vehicle accidents, equipment fault, flooding and vandalism, can all result in blackouts that leave businesses at risk of failing to meet demand.

Ageing equipment can also be a disruptor. If a chiller or freezer fails, production grinds to a halt, regardless of the mains supply. While the majority of downtime we see is down to energy, there has been a rise in temperature control equipment failure which is significantly impacting production.

However, what companies can do is plan for failure and have a robust contingency plan in place that helps provide extra stability to your operations. Ultimately, this gives your

customers peace of mind, that if the worst was to happen, you have a plan in place that can fix the problem without too much impact.

Unfortunately, many companies do not have a stringent contingency plan in place. This problem is exacerbated in manufacturing, for example, where ageing equipment and failure to replace old machinery can lead to equipment downtime.

Each industry has intricate challenges, but they all have commonalities. While machines are not producing, employees still need to be paid. And if orders are not met, reputation can be severely impacted and supply contracts broken.

We hope this report helps emphasise the importance of contingency plans. If you have any questions, please don't hesitate to get in touch with me and we can discuss your individual concerns and thoughts.



Chris Rason
Managing Director
Northern Europe
Aggreko UK

The scale of the problem in numbers

There is a plethora of statistics available which demonstrate the scale of the issue downtime causes across UK industry.

In a recent survey of 200 UK energy decision makers, Aggreko found that 82 per cent of UK businesses describe power continuity as a major or significant concern. This is clearly encouraging, as it shows an awareness of the potential impact downtime can have on a business.

However, slightly more concerning is the fact that of those Aggreko surveyed, one quarter do not have a power continuity plan in place.

Complacency is clearly a worrying trend among UK industry, where the cost of failure is only taken into consideration after an outage has occurred.

Downtime, whether caused by power or equipment failure, has a large impact on business. It can result in orders not being met in time and therefore reputational damage that simply cannot be repaired.

This is, of course, a worry but when you factor in the cost of downtime, it becomes alarming. In the UK alone, downtime costs manufacturers around £180 billion each year (Oneserve, 2017). According to a 2017 study by Oneserve, three per cent of all working days are lost annually in manufacturing due to faulty machinery. This equates to 49 hours and an eye-watering £31,000 per company.

Can your business really afford this damage?

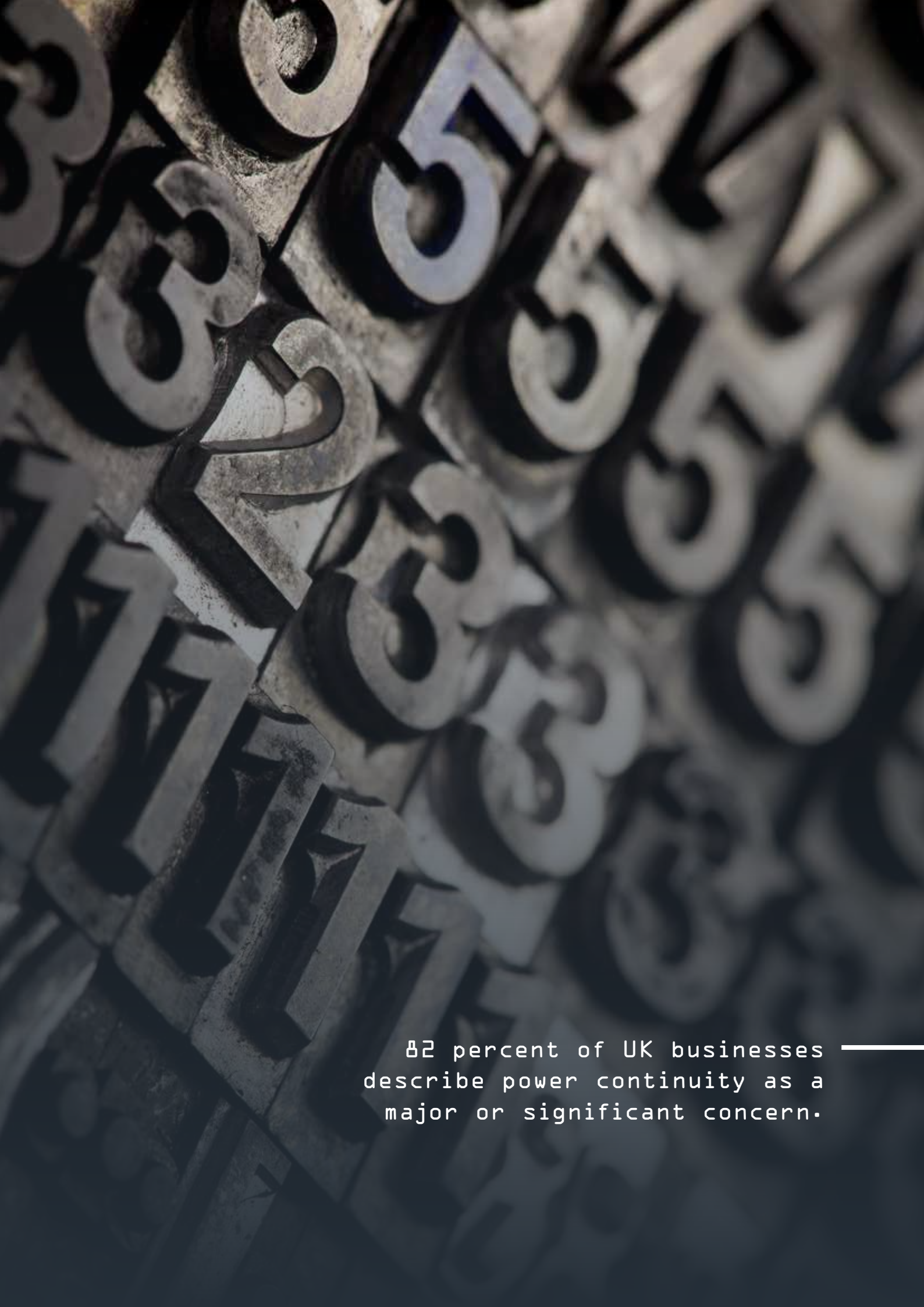
Another cause for disruption is freak weather. Incidents such as floods, fires, and extreme heat are growing. A lightning strike and the sudden loss of two large electricity generators

caused nearly a million people to lose power in August 2019, causing disruption to business, travel and even hospitals.

Hot weather is also causing power failure, with food going to waste as chillers fail. And as forecasters expect the UK and Europe to continue experiencing further extreme heatwaves, organisations must act now in order to prepare for overheating and system failure.

Combined with a rise in Just in Time contracts, the pressure to deliver has never been higher. And while some of the downtime may be a result of the Distribution Network Operations (DNO), and therefore costs can be recovered, it's still the responsibility of the site to maintain the ageing equipment.

Making the decision to implement a contingency plan has never been more important. With so much to consider, it is recommended that a professional site survey is undertaken. The rest of this paper delves into the requirements, what you should be looking for and reiterates the benefits to your business.



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Safety for life

Site surveys

Should you have a contingency plan in place?

Contingency plans are an absolute necessity in order to mitigate with risk. As the economic climate continues to remain unclear, failing to have a plan in place should the power fail, or there be a problem with a chiller or boiler, could cost hundreds of thousands of pounds in lost income. These costs aren't per day, but per hour.

Companies simply cannot afford to take the gamble.

Contrary to belief, the most common contingency plan call-outs we see is through equipment failure, rather than a blackout. If any owned equipment fails, it is the responsibility of the organisation to replace it. Sourcing a replacement item, and finding the budget to fund it, can be timely. And in these situations, time really does cost money.

As production halts, orders cannot be met. And if orders aren't met, reputation is damaged and the likelihood of repeat orders falls.

You understand the risks associated with not having an adequate contingency plan. But where do you start when it comes to implementing a plan? And how do you know you have covered all possible risk?

Given the intricacies of equipment, having a trained eye to spot the signs of potential fault is critical. This is why the site survey plays a crucial role.

Technical site survey

The process of implementing a contingency plan all starts with a technical site survey. This truly delves into what your business really needs in order to plan for failure.

Technical site surveys go beyond simply looking at what equipment is required. It considers the infrastructure of the building, the logistics of delivering replacement power or equipment, and also what modifications are required should the worst happen.

The survey is of paramount importance. Without it, you could call for back-up power or equipment and have the wrong cables or the roads could be too narrow to fit a certain sized vehicle.

Essentially, it provides an overarching view of the considerations you need to consider from trained engineers. Identifying potential points of failure, the surveys importantly establish the changes required to prevent significant downtime. It ensures your business is fully prepared if a power failure was to occur, which is priceless.

Contingency plans – what to think about

We have emphasised the importance of having a contingency plan in your facility. The difficult part is actually implementing one. There are lots of considerations which can often feel overwhelming.

Here, we have identified some of the key considerations which are consistently uncovered during technical site surveys.

Six considerations for your contingency plan

1. What is your escalation procedure?

Every contingency plan needs to have an appropriate escalation process. Each shift needs to have somebody who can take a lead and know what to do in case of emergency. Ensuring that an escalation procedure is in place means you are in the best place possible to react, because an outage can happen at any time.

2. How much equipment is required?

The list of equipment that you may need can be endless. Whether it's power, high voltage power, or temperature control, having an understanding of how much equipment is needed is crucial.

3. Is your site accessible?

Infrastructure is key for any contingency plan. We have already touched upon site access within the technical site survey, but it is surprising how ill-prepared facilities are even when replacement equipment is delivered. Site access stretches to transportation, unloading and equipment placement, and that doesn't even cover connectivity.

4. Are you well connected?

When you do manage to receive critical equipment, one of the biggest challenges is

ensuring it connects. As not all machinery has the same connection requirements, it is imperative the existing site systems, such as cabling, pipework modifications or building adjustments are seen to ahead of the contingency equipment being installed.

5. Have you engaged all stakeholders?

Gaining approval from all stakeholders ensures that the contingency plan is signed off and actioned. The benefit of a contingency plan is that all costs are pre-agreed and budgeted for. Stakeholders range from facilities managers, finance departments, landlords and even customers. Leaving no stone unturned is key here and results in a smooth delivery.

6. Establishing fuel management services

How often do you need to refuel? This the final major consideration required when implementing a contingency plan for your plant or facility. Establishing the levels of fuel required, which again will be calculated in the technical site survey, is critical for re-establishing smooth operations.

There are other considerations, including having emergency engineers prepared, which will also be covered in a detailed plan following the site surveys.

Benefits of a contingency plan

Any business that relies on power needs a contingency plan. The importance is clear, but the benefits should not be overlooked.

Tender process

When companies are seeking suppliers, a growing requirement is proof of a robust contingency plan. Disaster recovery plays an increasing role in the tender process and some contracts hang on how robust plans are.

Additionally, when applying for ISO accreditations, companies have to showcase a valid contingency procedure. This again can play an imperative role when pitching for new business.

Insurance

Having a contingency plan is not only favourable when tendering for new business, but also for reducing insurance premiums. If there is a disaster recovery plan in place, some insurers will offer litigation against any losses. It can also help to bring insurance costs down, due to the reduced downtime risk.

Immediate activation

If a contingency plan is pre-agreed, then it can be delivered within hours. Customers will have a reference number, and once this is quoted the plan is in full flow. By having a plan, everything is pre-approved and in place for successful installation.

Additionally, contingency plans can be activated at any time of the day meaning you can immediately act should you lose power.

Fixed prices

Another important element of a contingency plan is ensuring that a flat cost is sought. This allows power failures to be budgeted for without the worry of extorted costs. Unfortunately, some suppliers may see an opportunity to raise the cost of the equipment

At Aggreko, a flat rate is re-agreed, meaning budgets can be managed and therefore no further surprises occur when you least need them.

Contractor availability

When taking out a contingency plan, utilising a supplier which has trusted and nominated contractors available can also be a huge benefit. As power failures happen at the most unexpected time, sourcing a reliable contractor or engineer to come in on short notice is difficult. Aggreko has a number of service teams across the UK who are available to respond when a contingency plan is actioned.

Final thoughts

If you were to lose power, would you be able to fulfil the demands of your customers? The number of risks facing UK industry is rising. And these are out of our control. From extreme weather changes to overreliance on the national grid and through to ageing equipment, the chances of power failure are only likely to increase.

Having a contingency plan is therefore not just essential for providing that much-needed peace of mind should the unexpected happen, but also fulfils your customers' expectations that you are fully prepared.

And even if a contingency plan is in place, is it updated regularly with the correct contact details and site information?

Before making a decision, taking advantage of a complete site survey is an easy and cost-effective way for you to truly understand the risks you face.

To make a decision you need to be aware of your infrastructure limitations, equipment performance and energy reliance. Once you have this, you are well-placed to decide

whether a contingency plan is a necessity for your business.

We cannot predict the future but we can ensure that any risk associated with power outage and downtime is mitigated. You will know the top-line impact downtime will have on your production and outputs.

If this isn't actioned, then you run the risk of losing power, money and reputation. Can you afford to not have a contingency plan in place?

If you were to lose power, would you be able to fulfil the demands of your customers?



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Case study:

Preventing spoilage and saving stock

After noticing a fault in a cold store, a UK manufacturer called upon Aggreko in a bid to save £1 million worth of stock from perishing.

Problem

Aggreko was asked to find a rapid solution to prevent spoilage of a manufacturer's stored food stock when temperatures at its distribution centre's cold store began to rise.

Working with the manufacturer's refrigeration and facilities management company, Aggreko discovered that the fan coil units inside the cold store were freezing up due to under performing evaporators and moisture/warm air ingress.

As a result, the cooling capacity of the cold store was reduced, causing temperatures to rise. Within four hours of the enquiry, Aggreko's specialist temperature control team surveyed the site and devised a quick and cost-effective solution.

Solution

After the consultation with Aggreko, three 50 kW low temperature fluid chillers were installed which could reach a consistently low temperature of -19°C. These then fed into

nine low temperature air handling units inside the cold store unit. To ensure full kW design capacity, Aggreko programmed the defrost functionality to ensure only one of the nine air handling units defrosted at any one time.

Powered by three Aggreko generators with a combined output of 500 kVA, Aggreko's low temperature air-cooled chillers can achieve temperatures as low as -30°C, compared to standard air cooled chillers, which tend to go down to -12°C.

By cooling to -30°C, the manufacturer was able to increase the capacity of each air handler and therefore reduce the number of units required inside the cold store. With space at a premium, this was especially important, while the inclusion of remote monitoring technology means pump performance, fuel levels and consumption rates, load monitoring and diagnostic checks are performed 24/7.

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For more information

 **0345 824 7365**

 **aggreko.com/contingency**