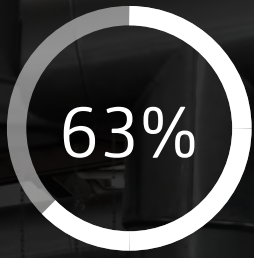


# Safeguard production quality and timescales with increased resilience

Powering competitiveness for industrial manufacturers



The percentage of UK manufacturers who said they are vulnerable to an energy shortage due to having inadequate plans in place<sup>1</sup>

# The critical importance of production resilience

Operating in a highly competitive global market, UK industrial manufacturers need to ensure right first time production while meeting stringent just-in-time (JIT) delivery schedules. We believe these pressures make the costs of production downtime critical – both financially and for business reputation.

To meet customer expectations around product quality and delivery timescales, and avoid the costs of lost output, industrial manufacturers must ensure they have robust production resilience.

We believe that adopting new energy technologies and implementing an effective energy strategy enables manufacturers to safeguard their operations and enhance their resilience to energy outages, ensuring JIT schedules are consistently achieved and quality targets are met.

## The growing costs of unreliability

**Growing pressures from customers for shorter production schedules makes avoiding the costs of disruption – and the knock-on impact throughout the supply chain – of paramount importance.**

In 2016, for example, two automotive suppliers experienced a major system outage that froze deliveries to their customer – Volkswagen. The impact on Volkswagen’s production lines resulted in an estimated loss of over £75 million to the automaker.<sup>2</sup>

Production downtime that causes deadlines to be missed can result in dissatisfied customers, wasted resources and lost outputs. Margins that are already squeezed get even tighter and profitability can be significantly damaged. In one survey, 59% of manufacturers said that their success was defined by their ability to meet on-time deliveries consistently.<sup>3</sup>

Added to which, manufacturers also have the responsibility of guaranteeing quality control throughout their production lines. Failure to ensure right first time production can result in serious safety issues, expensive product recalls and damaged reputation.

One global car company incurred costs of up to £3.7 billion after 9 million vehicles were affected by a fault with the accelerator.<sup>4</sup> A fault with Rolls-Royce’s Trent 1000 jet engines in 2016 resulted in the business facing additional costs of £300 million.<sup>5</sup>

In today’s highly competitive market, ensuring quality and precision in production operations also provides a key differentiator for UK industrial manufacturers. According to research from Miele, nearly 78% of British manufacturers believe that quality is the key to driving business growth.<sup>6</sup> As a result, many are addressing the need to protect and enhance productivity by investing heavily in automation and new production technologies, such as 3D printing.

As one recent report found, 38% of manufacturing respondents said that adopting additive printing technologies offered opportunities for improvements in production accuracy, and 23% said it offers opportunities for improved quality.<sup>7</sup> But with an increasing reliance on automation comes an increasing vulnerability to power outages.

We believe it is essential for manufacturers to explore innovative new energy technologies. Advances in energy solutions now enable manufacturers to ensure the reliability of their energy supply, helping them to protect JIT schedules, guarantee right first time production and prevent additional costs.



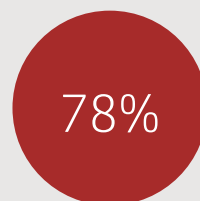
The estimated loss in 2016 to Volkswagen when two of its suppliers experienced a major system outage that froze deliveries<sup>8</sup>



The percentage of manufacturers who said that their success was defined by their ability to meet on-time deliveries consistently<sup>9</sup>



The additional costs to Rolls-Royce following a fault in its Trent 1000 jet engines<sup>10</sup>



The percentage of British manufacturers who believe that quality is the key to driving business growth<sup>11</sup>

# Ensuring a quality energy supply

**Given the manufacturing imperatives of reliability, quality and precision, it's essential to ensure resilience against production interruptions. For machines to run optimally and deliver right first time production, we believe that having a stable energy supply is crucial. As a Centrica Business Solutions survey found, 44% of manufacturers believe their reputation depends on having a consistent energy supply.<sup>12</sup>**

Meeting customer delivery time expectations means minimising exposure to production downtime that can result in delays. Having an energy strategy that ensures a reliable and stable supply is crucial in achieving production resilience and preventing the costs of lost output. 25% of manufacturers in the Centrica Business Solutions survey believed that they would experience more frequent energy-related failures over the next five years.<sup>13</sup>

As industrial manufacturers increase their dependence on automation and other advanced technologies, the criticality of a reliable energy supply also increases. But despite this many industrial manufacturers lack an adequate energy resilience strategy and are often reliant on both an ageing energy infrastructure and an unreliable grid supply. Their vulnerability to downtime is alarming.

## Energy innovations that improve resilience

We believe manufacturers need to act now. Adopting new energy technologies can improve the resilience needed for meeting JIT schedules and protecting right first time production.

These innovations include:

**On-site generation**, such as combined heat and power (CHP) and battery storage solutions, can reduce reliance on the national grid and increase self-sufficiency – helping protect delivery schedules. A Centrica Business Solutions survey found that 25% of manufacturers have already implemented battery storage units at some of their sites.<sup>14</sup>

By highlighting anomalies in energy usage or temperature, **sensor-based insight solutions** play an important role in providing early warning of potential equipment failures. This enables remedial action to be taken before downtime occurs, avoiding any impact on production precision and preventing additional costs – one in ten manufacturers who had experienced disruption in energy supply incurred costs of between £50,000 and £1 million.<sup>15</sup>

**Case study:** A global building material supplier saved £219,000 annually through our energy insight solution, Panoramic Power – measuring energy use across equipment and plants. £7,000 of the savings were achieved by identifying energy that was being consumed unnecessarily outside of working hours.

**Regular operations and maintenance programmes** enable manufacturers to ensure their energy estates are operating efficiently. Given the high energy requirements of industrial processes and the 24/7 nature of production, this is particularly important for ensuring maximum production uptime, safeguarding production quality and reducing unnecessary costs. Process controls maintenance, for example, can typically save a company 5-15% of its process energy.<sup>16</sup>

But, with operational staff often over-stretched, this is an area that can be easily neglected until a problem occurs. Outsourcing aspects of energy management to a third-party, such as Centrica Business Solutions, can help address this risk.

## 25%

The percentage of manufacturers who believed that they would experience more frequent energy-related failures over the next five years<sup>17</sup>

## 44%

The percentage of manufacturing respondents who said that their reputation depended on having a consistent energy supply<sup>18</sup>

## 25%

The percentage of manufacturing respondents who have already implemented battery storage units across some of their sites<sup>19</sup>

## 1 in 10

The number of UK manufacturers who – having experienced disruption in energy supply – incurred costs of between £50,000 and £1 million<sup>20</sup>

1 Powering on, Energy resilience in UK manufacturing, Barclays, 2016

2 I.T. Resilience Keeps Supply Chain Traffic Moving, Supply Chain Brain, 2018

3 What drives growth in manufacturing?, IQMS Manufacturing ERP

4 Product recalls in the automotive industry, Swiss RE Report

5 Rolls-Royce Jet Engine Fault, Telegraph, 2018

6 Miele Professional Division Research, 2018

7 Annual manufacturing report 2017, The Manufacturer and Hennik Group

8 I.T. Resilience Keeps Supply Chain Traffic Moving, Supply Chain Brain

9 What drives growth in manufacturing?, IQMS Manufacturing ERP

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11 Miele Professional Division Research, 2018

12 Energy Advantage Research, Centrica Business Solutions. Statistics based on a six country survey of more than 1,000 energy decision-makers in large organisations

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14 Energy Advantage Research, Centrica Business Solutions. Statistics based on a six country survey of more than 1,000 energy decision-makers in large organisations

15 Powering on, Energy resilience in UK manufacturing, Barclays, 2016

16 High temperature industry, The Carbon Trust, 2012

17 Energy Advantage Research, Centrica Business Solutions. Statistics based on a six country survey of more than 1,000 energy decision-makers in large organisations

18 Powering on, Energy resilience in UK manufacturing, Barclays, 2016

19 Energy Advantage Research, Centrica Business Solutions. Statistics based on a six country survey of more than 1,000 energy decision-makers in large organisations

20 Powering on, Energy resilience in UK manufacturing, Barclays, 2016





1.15M kWh

By installing a high efficiency trigeneration plant for a plastics manufacturer, we helped them self-generate 1,150,000 kWh of electricity in the first five months of operation, equating to an expected saving of £96,144

## Your priorities

Our experience of working with industrial manufacturers has highlighted the energy strategies that we believe you should prioritise, enabling you to achieve right first time production, meet customer demands and protect margins:

- **Improve self-sufficiency and resilience against power outages** through on-site generation and storage technologies.
- **Protect quality and ensure precision control** by taking advantage of energy insights that ensure optimal performance of production equipment.
- **Reduce costs and meet JIT schedules** through effective on-site energy estate maintenance programmes.

## Our solutions

Our work with leading industrial manufacturing businesses across multiple sectors means that we are ideally placed to help you secure the production resilience you need to meet JIT schedules. Our solutions include:

- **On-site generation (including CHP, back-up generators and storage solutions)** that reduce your grid dependency and ensure a secure and scalable supply to your manufacturing facility.
- **Full operations and maintenance support of your energy assets** that ensures the reliability of your on-site infrastructure.
- **Insight and sensor solutions** that provide early warning of faulty equipment, enabling predictive maintenance of your production assets.
- **Expert advice and energy management systems** that help to deliver an optimised production environment.

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