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Navigating the Energy Labyrinth

Finding the path to sustainable manufacturing

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Manufacturers stand at a crossroads

Manufacturers are at the sharp end of the energy transition: more exposed to global competition, more sensitive to energy price shocks, higher carbon emissions, and more reliant on uninterrupted power to keep production lines moving.

Some manufacturers are emerging as innovative and pragmatic leaders. They are reimagining energy not just as a cost to be managed, but as a strategic asset that can drive resilience and competitive advantage.

But not all manufacturers are keeping pace. Many struggle to navigate the energy transition and are blocked by key challenges – including grid congestion, budget restrictions and more.

If you find yourself lost in this energy labyrinth, this manufacturing-focused report is here to guide you. We recently surveyed **500** energy-intensive businesses across Europe about their energy strategy, of which **125** respondents were from the manufacturing sector.

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125 of the respondents were from the manufacturing sector.

We outline three ways manufacturing is leading the energy transition, and three ways it's being left behind. Benchmark your organisations' energy strategy against the wider manufacturing industry and businesses at-large, and use these findings as evidence in your business case for new investments.

3 ways manufacturing is **leading** the energy transition.

3 ways manufacturers are **lagging** in the energy transition.

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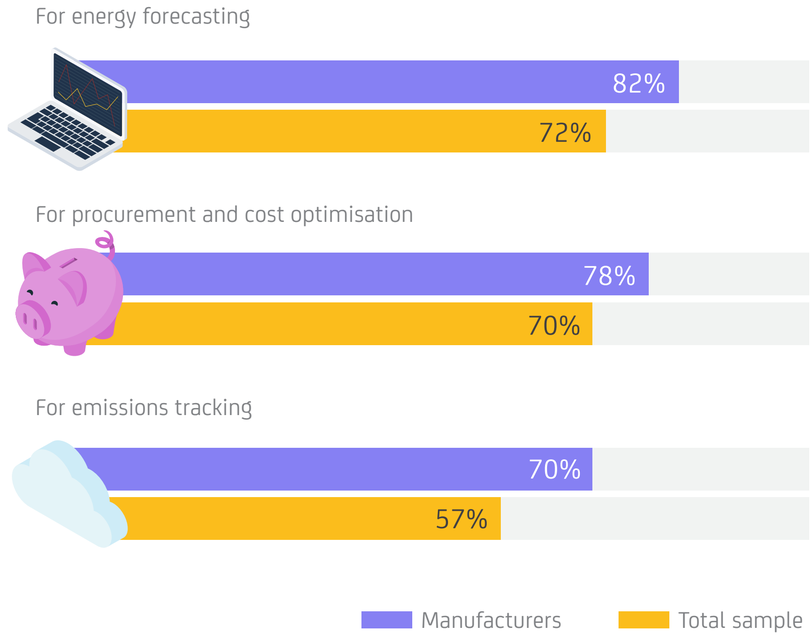
1. Leading in AI-driven energy management

Manufacturers are more advanced in their use of artificial intelligence (AI) in energy management than the broader business population:

- **82%** of manufacturers report advanced deployment of AI for energy forecasting, (vs. **72%** of the total sample).
- **78%** of manufacturers are using AI for procurement and cost optimisation (vs. **70%** of the total sample).
- **70%** of manufacturers have advanced AI systems for emissions tracking (vs. **57%** of the total sample).

These figures suggest that manufacturers are not only investing in AI but are also integrating it deeply into their operations. This gives them a competitive edge in predicting demand, optimising procurement, and tracking emissions in real time.

Advanced use of artificial intelligence



Not keeping pace? Our recommendation:

If your organisation is still in the testing phase or hasn't yet explored AI for energy, consider starting with **forecasting or emissions tracking** – areas where your peers are already seeing measurable returns. Solutions like Panoramic Power collect real-time energy data at device-level, with wireless, self-powered and easy-to-install sensors.

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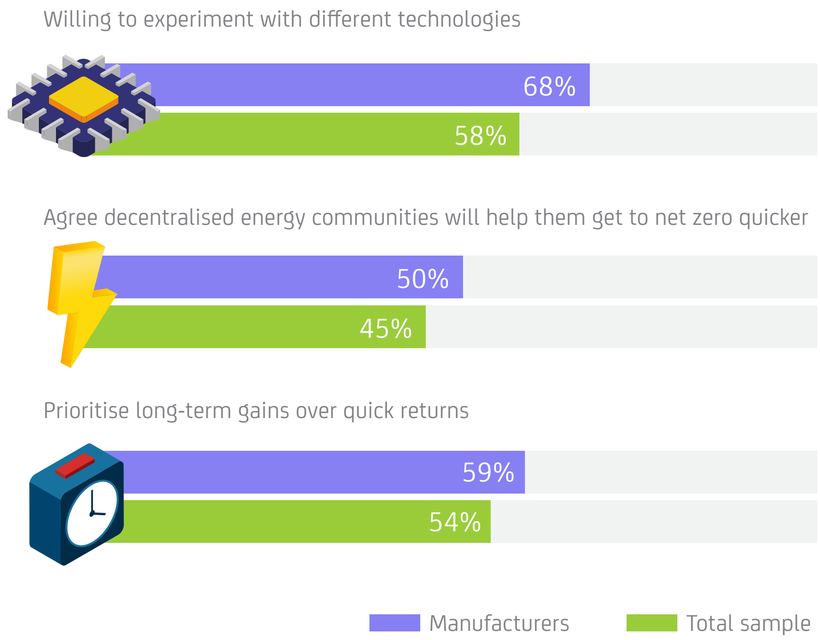
2. Leading in experimentation and innovation

Sustainability is the new normal, and so innovation has become the new focus. Almost half (**48%**) of manufacturers say energy innovation is their main priority for the next three years. As a result, they're more open to experimentation and long-term thinking:

- **68%** of manufacturers agree they are willing to experiment with different technologies to build a long-term business case, compared to **58%** overall.
- **50%** of manufacturers agree decentralised energy communities will help them get to net zero quicker (vs. **45%** of the total sample).
- **59%** of manufacturers say they prioritise long-term gains over quick returns, versus **54%** of the wider market.

This mindset is crucial for navigating the uncertainties of the energy transition. This is particularly the case for heavy industry, where many of the long-term decarbonisation solutions are reliant on emerging technologies, like hydrogen.

Experimentation and long-term thinking



Not keeping pace? Our recommendation:

Foster a culture of innovation. Pilot new technologies, partner with energy solutions experts, or join industry consortia to stay ahead of the curve. Explore the feasibility of **on-site generation technologies** such as Solar, Heat Pumps, or Combined Heat and Power (CHP) systems. These not only reduce reliance on the grid but also support your decarbonisation goals.

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3. Leading in investment planning

Budget constraints are a blocker to net zero. **54%** of manufacturers say market volatility has made it more difficult to justify capital expenditure on new low-carbon or zero-carbon technology than the past (vs. **50%** of the total sample).

In response, alongside exploring available Government subsidies, manufacturers are being proactive in exploring alternative financing models:

- **72%** are likely to adopt new financing models like Power Purchase Agreements (PPAs) or Energy-as-a-Service (EaaS), compared to **65%** of the total sample.
- **79%** expect to secure external funding or grants, slightly ahead of the wider market (**76%**).
- **73%** of manufacturers also agree that investing in carbon-intensive, but lower cost, energy will facilitate a faster transition to net zero overall.

This shows that manufacturers are not only investing in new energy technology, but also exploring innovative financial structures to support their energy transitions.

UK manufacturers embrace new financing models

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Securing external funding and grants

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Investing for a faster net zero transition

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Not keeping pace? Our recommendation:

If budget constraints are a concern, investigate third-party financing models, such as our in-house Power Purchase Agreements for Solar and Discount Energy Purchase for Combined Heat and Power. These can help de-risk investments and accelerate implementation.

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1. Lagging due to internal blockers

A range of factors are blocking manufacturers' transition to net zero. While some of the problems are wider industry or global issues, many of the challenges facing manufacturers are problems within their own operations.

The skills and resources of the workforce need to be carefully reviewed, to address these challenges. Many of these blockers can also be resolved with more effective leadership and decision-making frameworks. Clear direction is needed from the top to build momentum around the energy imperative. Better data can help to increase leadership engagement on energy issues, but how that data is transformed into insights is equally important.

Skills and resources can be attained outside of your own workforce, too. For example, external energy partners can be utilised, if internal knowledge and expertise is missing.

Internal challenges facing manufacturers

36% of manufacturers report that data or technology gaps are impacting their decarbonisation efforts.

34% of manufacturers say they lack skills needed to progress towards net zero.

29% of manufacturers face a misalignment between sustainability goals and business objectives.

27% of manufacturers struggle with stakeholder misalignment on the net zero transition.

Facing these challenges too? Our recommendation:

Leaders may have limited capacity to deal with energy issues, so **sharing the load** with partners can help. Using the expertise of energy solutions providers or specialist advisors make it possible to **deliver improvements quicker** and run multiple projects in parallel with one another.

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2. Lagging due to lack of Scope 3 focus

Manufacturers place importance on achieving key strategic outcomes through energy improvements:

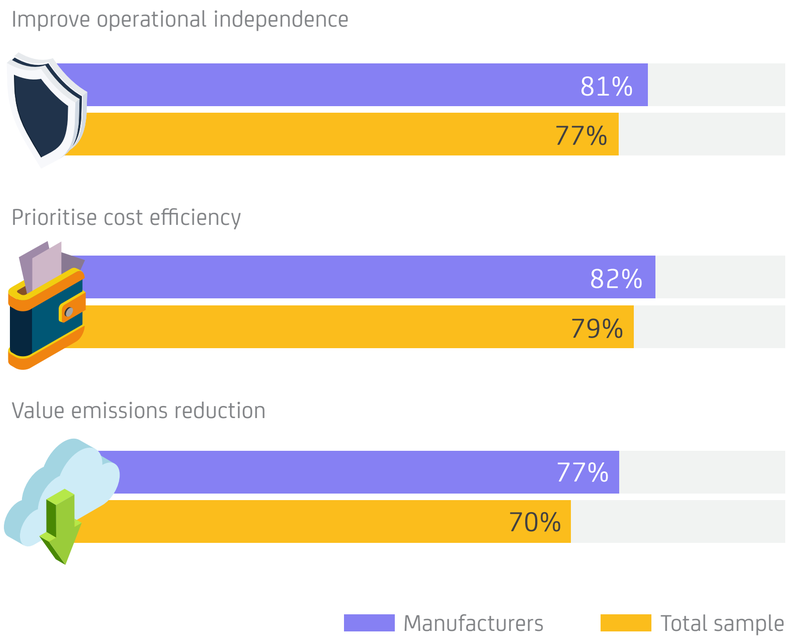
- **81%** of manufacturers say operational independence is important (vs. **77%** of the total sample).
- **82%** of manufacturers prioritise cost efficiency (vs. **79%** of the total sample).
- **77%** of manufacturers value emissions reduction (vs. **70%** of the total sample).

This suggests that manufacturers are more likely to view energy as a strategic lever – not just a cost centre.

Grappling with Scope 1 and 2 emissions has been a key focus for manufacturers in recent years, since this is where the greatest control and return-on-investment lies. Scope 3 emissions have yet to become a focus for many firms. **59%** of manufacturers say they are unlikely to engage with their suppliers to address Scope 3 emissions in the next 12 months.

Your Scope 3 emissions will make up a considerable proportion of your overall carbon footprint. Retailers are increasingly judging and choosing their suppliers based on their sustainability criteria. Your competitive advantage depends on having your suppliers' emissions in order, as well as your own direct emissions.

Key strategic outcomes



Facing these challenges too? Our recommendation:

Start conversations with key suppliers about emissions data and reduction strategies. Even small steps can build momentum and improve transparency. Consider **outsourcing** more of your **Scope 1 and 2 strategy** to external energy partners to free your capacity to address the more complex Scope 3 challenge.

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3. Lagging due to grid capacity

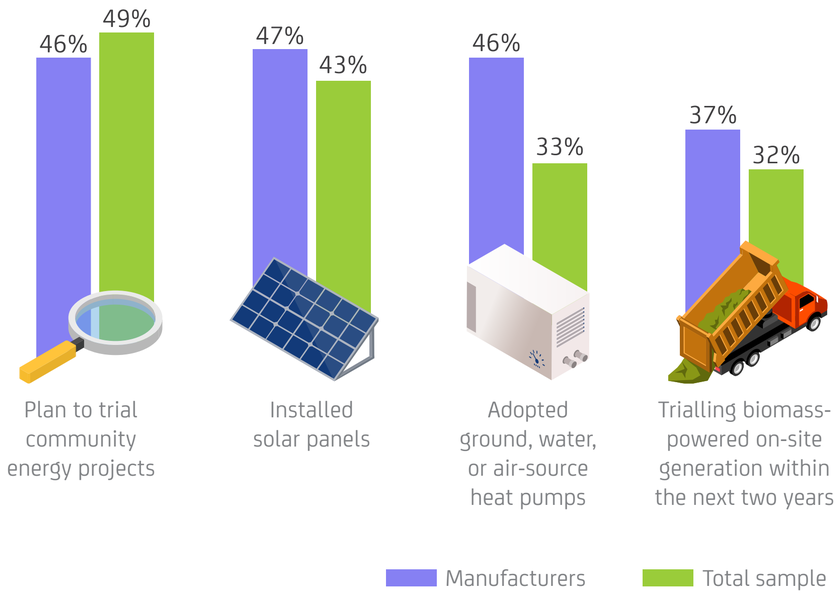
41% of manufacturers say their biggest obstacle in the energy transition are constraints on grid capacity. The power grid is not expanding quickly enough to meet growing demand for electricity. In addition to creating significant bottlenecks for renewable energy generation, this is slowing electrification efforts as manufacturers looking to expand face long waits to access the grid.

In response, some manufacturers trialling or planning to adopt new onsite energy generation and storage technologies, especially where the business case is robust. For example:

- **46%** of manufacturers plan to trial community energy projects within the next two years (vs. **49%** of the total sample).
- **47%** have already installed solar panels (vs. **43%** of the wider market).
- **46%** of manufacturers have adopted ground, water, or air-source heat pumps (vs. **33%** of the total sample).
- **37%** of manufacturers plan to trial biomass-powered on-site generation within the next two years (vs. **32%** of the total sample).

This reflects a sector that values operational independence and resilience, seeking to buffer itself from volatile energy markets and grid constraints.

Adoption of new onsite energy generation and storage technologies



Facing these challenges too? Our recommendation:

Consider how **investing in your own off-grid energy generation and storage technologies** could allow you to fast-track your decarbonisation plans, alongside protecting you from wider market price fluctuations. For example, a Microgrid solution would enable your organisation to be powered by a self-sufficient and self-contained system of interconnected energy generation and storage technologies – operating completely separately to the grid.

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Final thoughts: A blueprint for energy maturity

Manufacturers must be pragmatic pioneers in the energy transition – investing in resilience, digitalisation, and on-site solutions, but always balancing cost, risk, and sustainability. Manufacturers who are struggling to navigate the energy labyrinth can also learn valuable lessons from their more-advanced peers:

Invest in technology and on-site solutions

AI and on-site energy solutions deliver measurable value in complex, energy-intensive environments.

Nurture your internal culture

Clear leadership from the top, and a culture of innovation, will unlock faster progress.

Don't ignore the big issues

Scope 3 emissions and grid constraints may feel like a barrier, but solutions and small steps can build momentum.

Consider alternative approaches

Budgets may be limited, but new financing models can fast-track investment in energy technologies.

Explore a partner approach

Consider how energy partners can help you navigate the energy transition and accelerate progress.

Want more insights on building energy resilience?

Download our full research report for more insights on how you can strengthen your control of energy.

Download →

Find out more

Centrica Business Solutions helps manufacturers to balance the demands of planet and profit.

We build, operate and maintain on-site, large-scale energy assets including Solar PV, Heat Pumps and Combined Heat and Power (CHP) – to help organisations to decarbonise and save money.

We also help manufacturers across the UK and Ireland to define an actionable pathway of decarbonisation activities and implement on-site energy generation solutions, to achieve their net zero ambitions.

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