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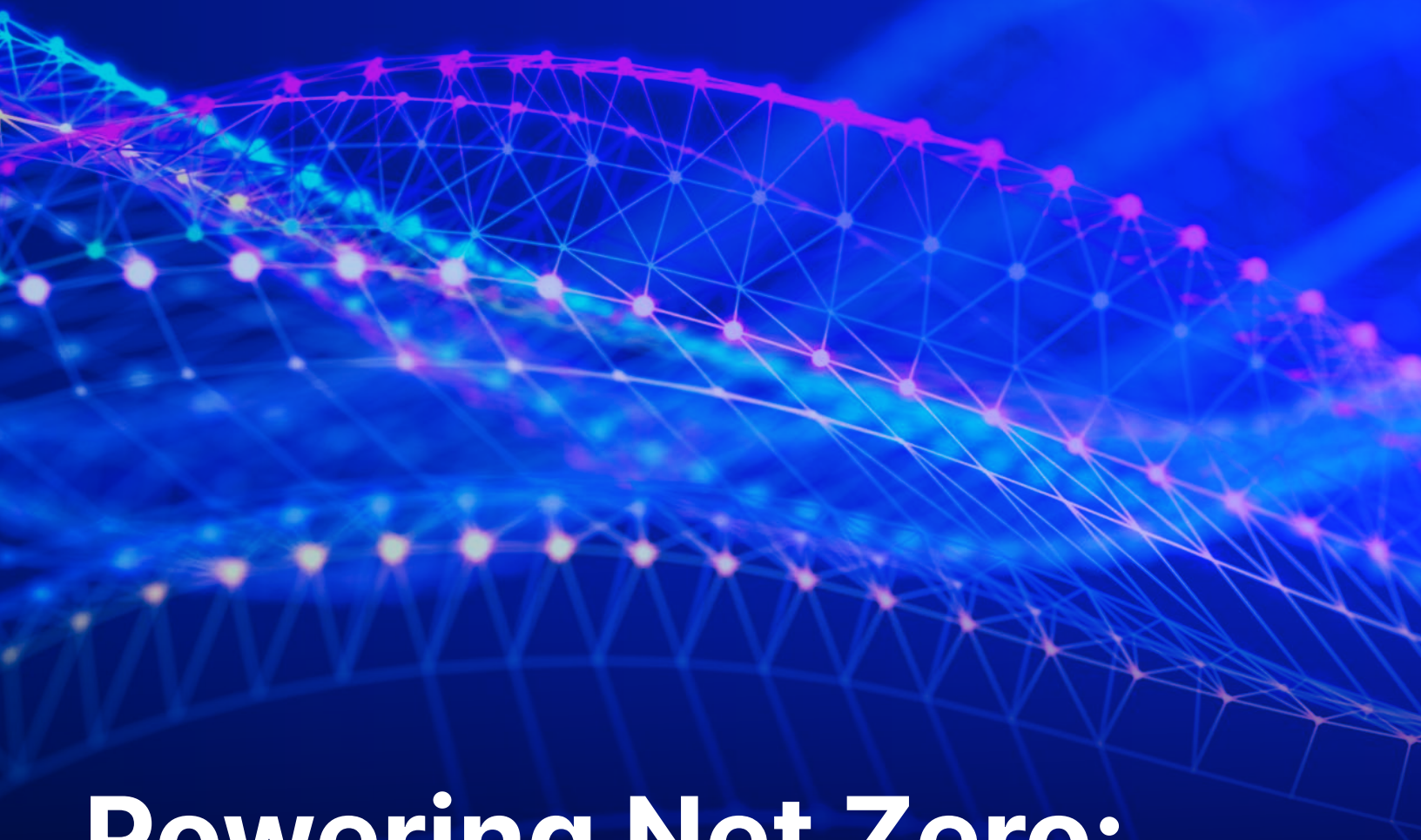

Powering Net Zero: Aligning Budgets, Data and Teams for Smarter Electrification

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ABB Welcome Message

Rising to the Challenge

Meeting the world's electrification needs is one of the defining challenges of our time. With global electricity demand rising rapidly, our ability to meet that demand while reducing emissions will shape the future of industries, economies and communities alike.

That's why ABB is proud to sponsor this report, which underscores the urgency of the energy transition. Organizations across every sector face rising pressure from regulators, investors and customers to decarbonize, often while managing aging infrastructure that is unfit for what lies ahead.

Electrification, paired with renewable energy and digital optimization, has emerged as a powerful lever. It not only reduces emissions but also improves operational resilience and lowers costs. This report brings together insights from leaders in healthcare, manufacturing, technology, logistics and beyond, demonstrating how data-driven decision-making, the Industrial Internet of Things and AI are helping organizations modernize infrastructure, monitor energy use and make strategic investments.

It also highlights the key barriers: high upfront costs, complex planning and the need to align financial and operational decision-making. As the report makes clear, organizations that embed electrification into their strategy, supported by net zero goals, data and cross-functional governance, will be better positioned to reduce risk and unlock long-term value.

To those just beginning the journey, start with an energy audit. Identify your near-term opportunities and begin to digitize your infrastructure. Every step taken strengthens your path forward.

By embedding electrification into core business strategy, companies not only cut emissions, they build greater resilience, reduce energy costs and prepare their operations for a low-carbon future.

I hope you find the insights in this report valuable and that they help you take the next step forward.

Stuart Thompson

President, ABB Electrification Service

Executive Summary

The global energy transition is no longer a distant ambition — it is a strategic and operational imperative. Companies across sectors are under growing pressure from regulators, investors and customers to cut greenhouse gas (GHG) emissions and reduce reliance on fossil fuels. Electrification has become a critical enabler, not only for decarbonization, but also for enhancing reliability, ensuring energy availability and building long-term operational resilience.

This report explores how electrification — alongside the strategic integration of technologies such as digital monitoring, smart automation and remote energy management — supports corporate goals for sustainability, reliability and operational excellence. Drawing on insights from leaders in healthcare, manufacturing, technology and logistics, it highlights the practical challenges and innovative solutions companies are leveraging to balance environmental responsibility with performance and profitability.

Key Insights:

- **Electrification is essential for decarbonization and operational reliability.** Replacing fossil fuel-based systems with electric alternatives, especially when powered by renewables and optimized through digital tools, cuts emissions while improving system stability and uptime.
- **Aligning CapEx and OpEx unlocks momentum.** Short-term budget silos often stall projects that offer long-term efficiency gains. Organizations that integrate sustainability into capital planning can prioritize electrification without sacrificing performance. This unlocks cost savings and enhances availability.
- **Data-driven insights improve energy performance.** Industrial Internet of Things (IIoT) and AI-powered analytics help companies track consumption, detect inefficiencies and make smarter investment decisions that support both uptime and sustainability.
- **Cross-sector collaboration accelerates adoption.** Success depends on executive leadership, integrated planning and public-private partnerships that unlock incentives and financing, reducing barriers to transformation.

To accelerate electrification, companies should conduct energy audits to uncover reliability and efficiency gains, phase upgrades to manage costs and embed sustainability into financial planning to avoid missed opportunities. Incentive programs and strategic partnerships can ease the transition, while data-driven strategies ensure systems are not only cleaner, but also more dependable and future-ready.

Section 1

Introduction

The global energy transition is reshaping industries across the world. Global electricity demand rose by just over 4 percent in 2024 and is expected to grow at around the same rate annually through 2027, driven by expanding industrial production, increasing use of air conditioning, electrification and the rapid growth of data centers[1]. Companies face mounting pressure from regulators, investors, customers and employees to modernize operations, reduce reliance on fossil fuels and pursue comprehensive decarbonization strategies. Among a host of available solutions, electrification has emerged as a cornerstone approach to decouple the growth of energy use from greenhouse gas emissions.

Electrification is more than a replacement strategy for fossil fuel-powered equipment — it's a catalyst for rethinking how organizations operate as they decarbonize. Many companies are aligning with a net-zero emissions pathway by 2050, deploying a broad portfolio of clean energy technologies to meet their goals. Electrification plays a central role in this transition by integrating advanced systems such as digital monitoring, remote asset control and smart automation to optimize energy use across facilities.

Companies adopting decarbonization strategies are upgrading their electrical infrastructure, leveraging the IIoT to collect operational data from networked devices and applying data analytics to identify efficiency opportunities. Digital solutions enable predictive maintenance, enhance operational flexibility and provide actionable insights that drive continuous improvement. When combined with direct decarbonization tactics such as renewable energy procurement and battery storage, electrification amplifies sustainability outcomes and helps future-proof operations.

While the promise of improved efficiency, cost savings and emissions reductions is compelling, the journey toward electrification and decarbonization is complex. Companies must navigate technological challenges, capital planning complexities and organizational hurdles while ensuring core business functions are uninterrupted. Achieving meaningful progress requires coordinated efforts across functions, with a clear understanding of how operational upgrades align with long-term sustainability goals.

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1 *Net zero by 2050: A roadmap for the global energy sector*, International Energy Agency, 2021.

This report draws on insights from leaders exploring the challenges, tools and prioritization strategies to electrify their operations at their companies while balancing productivity, profitability and sustainability. Insights span a diverse range of sectors, from healthcare and manufacturing to technology and logistics, underscoring both the shared obstacles and unique considerations each industry faces in the pursuit of electrification and decarbonization.

Interviewees for the Report

- ABB – Matthew Wise, Head of Strategy and Business Development, Electrification Service
- CBRE – Stephanie Greene, Global Head of Sustainability Advisory
- EcoLab – Emilio Tenuta, Senior Vice President & Chief Sustainability Officer
- Mass General Brigham – Dennis Villanueva, Director of Utilities, Energy Strategy & Procurement
- McCormick – Duncan Mwendwa, Director, Global Supply Chain Sustainability
- Microsoft – Charlie Sellars, Director, Sustainability, Cloud Operations & Innovation
- Polaris Energy Sustainability Solutions – Eman Sabbah, Vice President, Green Buildings
- Prologis – Keara Fanning, Director, Net Zero & Sustainability
- Pure Storage – Don Kirouac, Technical Lead, Product Sustainability; Elizabeth Rubin, Senior Director, ESG Finance; Kathy Mulvany, Global Head of ESG
- Reformation – Beba Greer, Associate Director, Sustainable Operations & Engagement
- Shaw Industries – Candi Hampton, Senior Director, Sustainability
- Solventum – Maria Watson, Director, Sustainability
- VF Corporation – Jeannie Renné-Malone, Vice President, Global Sustainability
- Vontier – Katie Rowen, SVP, Chief Administrative Officer

Section 2

Getting Started

In the journey toward electrification, digital modernization and decarbonization, organizations face a complex landscape. Some seek to lead in reducing emissions, while others target minimum compliance standards. Regardless of the motivation, there are three basic steps companies can take to get started:

1. **Defining the scope:** Begin by assessing the carbon footprint at a company or facility level to understand the full extent of emissions, including direct operations and the entire supply chain. This comprehensive view provides the foundation for an effective decarbonization strategy.
2. **Identifying immediate changes:** Conduct a detailed analysis of existing infrastructure to identify where upgrades or replacements can significantly reduce emissions. Prioritize changes that offer clear benefits, such as transitioning light commercial vehicles to electric alternatives.
3. **Investing in electrical infrastructure:** A robust electrical supply is essential for reducing reliance on fossil fuels. This may involve implementing charging stations for electric vehicles or exploring renewable energy sources such as solar, wind or hydrogen to support operations.

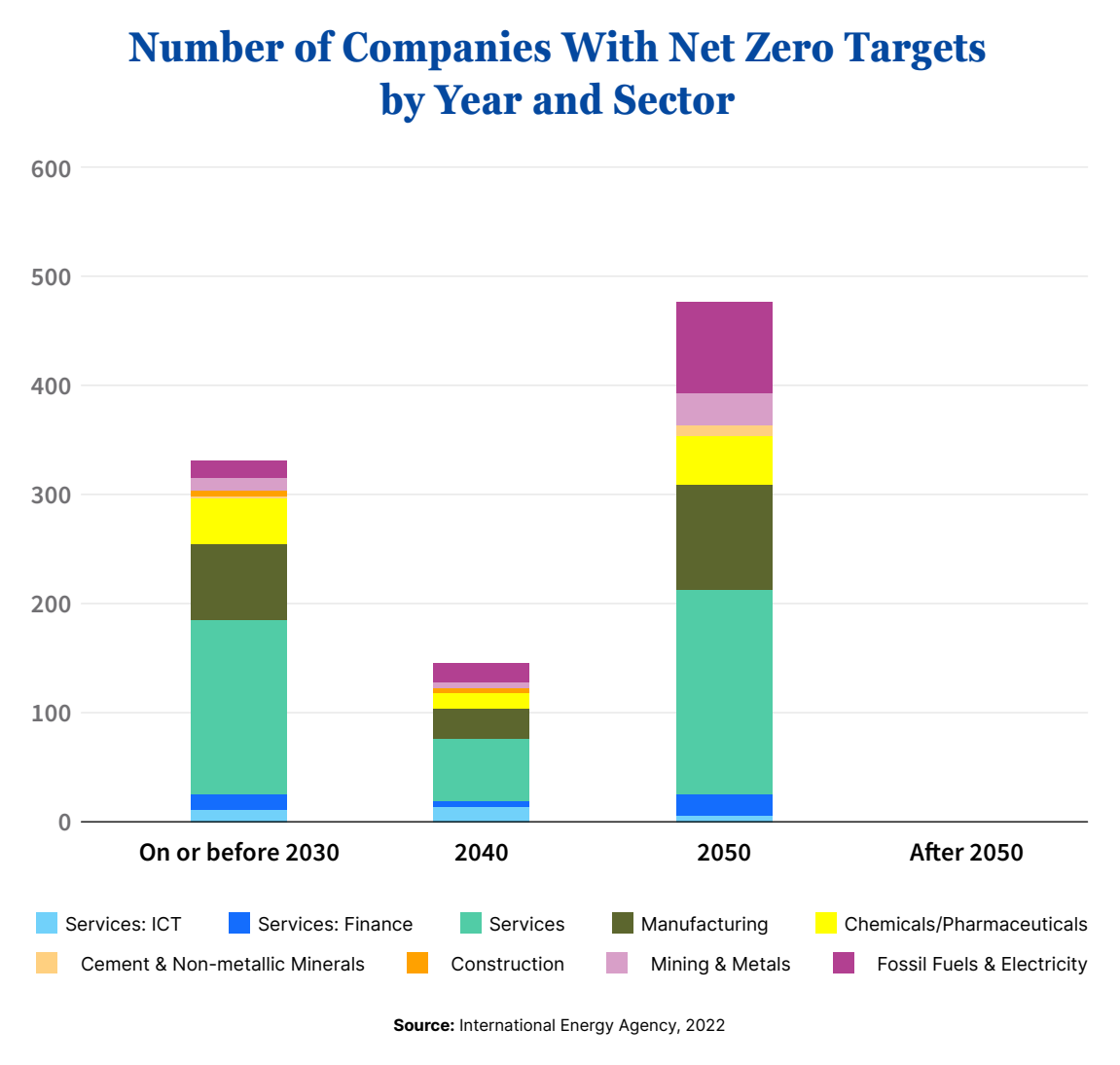
Net Zero Goals

The Science Based Targets initiative (SBTi) provides a Corporate Net Zero Standard, which offers practical guidance, criteria and recommendations to help organizations create decarbonization plans and demonstrate progress. To reach the SBTi net zero standard, companies must eliminate almost all greenhouse gas emissions, usually by 2050, and use high-quality carbon removals to neutralize any emissions that remain.

Reaching net-zero typically requires reducing three types of emissions:

- **Scope 1:** Direct emissions from owned or controlled sources, such as on-site fuel combustion.
- **Scope 2:** Indirect emissions from purchased electricity, steam, heating and cooling.
- **Scope 3:** All other indirect emissions, including those from the company's supply chain and product use.

As of mid-2023, nearly two-thirds of the world's 2,000 largest companies have set net-zero emissions targets, although only a small fraction meet rigorous credibility standards[2].

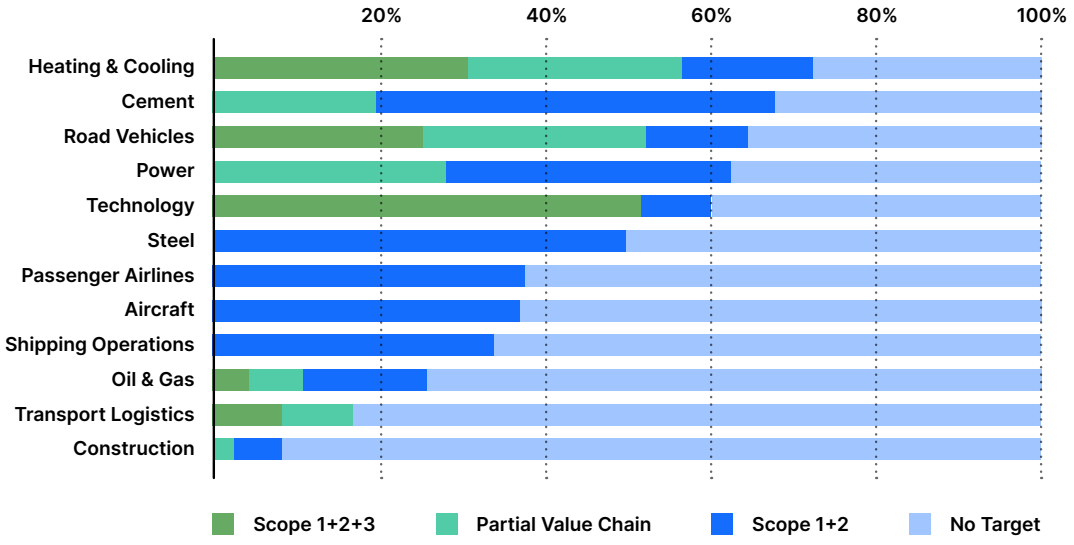


Source: International Energy Agency, 2022

The SBTi requires all material emissions to be included in net zero targets, but some companies choose not to have their targets validated in the initiative. As the figure below shows, this means that net zero targets in some sectors cover only a fraction of emissions.

2 *Net zero targets among world's largest companies double, but credibility gaps undermine progress*, Net Zero Tracker, 2023.

Sectoral Activity of Large Energy-Related Companies With Announced Pledges to Reach Net-zero Emissions by 2050



Source: International Energy Agency, 2021

Net zero goals set by companies in this report include:

- **ABB** – Net zero by 2050, with an 80 percent reduction by 2030
- **CBRE** – Net zero by 2040
- **Ecolab** – Net zero by 2050, with a 50 percent reduction by 2030
- **Mass General Brigham** – Net zero by 2050
- **McCormick** – Net zero by 2050
- **Microsoft** – Carbon negative by 2030
- **Prologis** – Net zero by 2040
- **Pure Storage** – Net zero by 2040
- **Shaw Industries** – Net zero enterprise operations by 2030
- **Solventum** – Net zero by 2050
- **VF Corporation** – Net zero by 2050
- **Vontier** – Net zero by 2050

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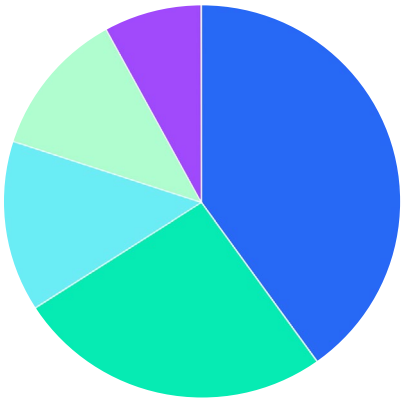
Section 3

Key Challenges

Interviews for this report identified several key challenges organizations face in decarbonizing their operations, from budget constraints and aging infrastructure to the complexity of aligning sustainability with core business objectives. Research from the World Business Council for Sustainable Development reinforces these findings. As highlighted in the council's Business Breakthrough Barometer 2024[3], "businesses are facing fundamental transition barriers in all sectors. Technology is no longer the main challenge – it ranks third (14 percent) – while the top two barriers, cited by a combined 66 percent of respondents, are the weak investment case and the slow scale-up of hard infrastructure."

Business Sentiment to Barriers for Accelerating Net Zero Transition



Top 3 barriers for accelerating transition, all sectors

40%	Investment case
26%	Infrastructure
14%	Technology
12%	Customer behavior
8%	Supply constraint

Source: WBCSD, 2024

Financial Constraints and Investment Hurdles

Switching costs are the most immediate barrier to electrification. Replacing fossil fuel-based systems such as boilers, HVAC units, production equipment and vehicle fleets requires substantial investment. Even with anticipated operational savings, including lower maintenance costs, many companies find it challenging to secure funding, particularly when return on investment timelines stretch beyond typical corporate planning cycles.

"When running a traditional net present value (NPV) or return on investment (ROI) analysis, the savings are evident. However, the challenge is that capex budgets

[3] *Business Breakthrough Barometer 2024*, World Business Council for Sustainable Development, 2024.

may be rigid, which means NPV-positive projects with significant opex savings still may not get approved," said Stephanie Greene, global head of sustainability advisory at CBRE.

Organizations face pressure to demonstrate near-term financial gains and procurement teams may focus on upfront costs rather than total lifecycle value, complicating approval processes. "Electrifying operations is crucial for decarbonizing Scope 1 emissions, particularly as alternatives to natural gas are still limited," said Duncan Mwendwa, director, global supply chain sustainability at McCormick. "The challenge arises from the substantial investments needed to replace natural gas assets when they reach the end of their lifecycle, while technology continues to evolve."

The sophistication of business cases for energy efficiency upgrades varies by industry and business category. For publicly traded companies, shareholder expectations for quarterly returns often clash with the long-term nature of electrification projects. Private companies may have more flexibility, but even so, traditional return-on-investment models can struggle to justify electrification projects. Companies often face limitations on payback periods and hurdle rates for new capital expenditures. Incentive programs and government grants can ease financial burdens, but navigating eligibility requirements and application processes is resource-intensive and often requires specialized expertise.

Greene of CBRE concludes, "The key to making the business case work is collaborating with finance to ensure that short-term budget constraints don't prevent long-term financial and operational gains."

In recent years, companies in sectors such as manufacturing, transport and logistics have begun to focus more deliberately on the resilience, cost and carbon intensity of their power supply. "Once this awareness reaches decision-makers and operators, especially those with KPIs tied to economic output or marginal cost, power systems are no longer seen as just a utility," said Matthew Wise, head of strategy and business development, ABB. "They become recognized as a critical component of business continuity and operational performance."

Technical and Infrastructure Complexities

Beyond financial hurdles, technical and infrastructure challenges often slow progress. Many industrial facilities, especially those built decades ago, were not designed to support the electrical loads required by modern equipment and electric vehicle charging infrastructure. Upgrading electrical panels, transformers and wiring can be costly and time-consuming. In some cases, companies must coordinate with local utilities to secure sufficient power capacity, adding months or even years to project timelines.

Many companies cite grid capacity and technological limitations as barriers to large-scale electrification and the shift away from natural gas. “Electrification remains a key focus and one of the biggest hurdles in transitioning real estate to net zero,” said Keara Fanning, director, ESG and net zero strategy at Prologis. “Our approach is to improve energy efficiency across our buildings to significantly reduce consumption. We’re on track to equip 80 percent of our portfolio with LED lighting by year’s end, bringing us closer to our sustainability goals.”

Space constraints further complicate retrofits. Facilities often lack the physical room to house new equipment without disrupting ongoing operations. Coordinating construction schedules to avoid production downtime requires careful planning and stakeholder engagement. Additionally, integrating new technologies with legacy systems raises compatibility concerns, demanding customized engineering solutions.

For most building types, constructing an all-electric, highly energy-efficient, zero-emissions facility is often more cost-effective than a traditional gas-powered one. “As long as the financial analysis is done properly, the business case for all-electric new construction is often very clear,” said CBRE’s Greene. Even in cases when cost savings aren’t immediate, electrification typically achieves cost parity. The financial case is especially strong for large developments, where avoiding gas infrastructure, such as new gas lines, lowers upfront expenses.

Organizational Momentum

Internal dynamics play a critical role in the success or failure of electrification and decarbonization initiatives. Siloed decision-making structures can impede progress, with sustainability teams advocating for long-term gains while operations prioritize immediate performance and procurement focuses on cost containment.

Achieving alignment requires ongoing dialogue, transparency and shared accountability across departments. Without clear organizational cohesion, even well-intentioned projects can stall.

“In one of my projects, a historic building retrofit, the priority was showcasing architectural elements over sustainability,” said Eman Sabban, vice president, green buildings at Polaris. “Lighting design was a key focus of the project and there were opportunities to improve energy efficiency such as reducing light pollution or lowering light power density but they were often overlooked.”

Yet interviews for this report revealed strong enthusiasm for electrification and sustainability initiatives among facility managers and technicians, especially when given the necessary resources. Many have long recognized the need for improvements, such as modernizing circuit breakers, replacing inefficient HVAC systems or upgrading lighting, but lacked the authority or budget to act.

“The facilities leaders and plant managers that I have met are excited about being listened to on these projects,” said Maria Watson, director, sustainability at Solventum. “With a GHG lens, it’s not just about extending asset life; we can engage them in asset upgrades, to cut energy use, reduce emissions and save money on constant repairs.” Unlocking financial support and providing clear direction taps into this latent momentum, accelerating operational improvements.

Executive-level commitment is critical. Board and senior leadership buy-in signals organizational priorities, ensuring that the rest of the company follows suit with aligned objectives, resource allocation and structured training programs. Without this top-down support, middle management may struggle to maintain momentum and asset upgrades risk being deprioritized. Executive commitment catalyses aspirational sustainability goals into actionable, company-wide initiatives.

"I provide regular updates to our board of directors on sustainability progress, including an annual deep-dive and ongoing check-ins throughout the year,” said Katie Rowen, chief administrative officer at Vontier. “We track key sustainability KPIs — Scope 1, 2 and 3 emissions; wastewater; and waste — while also expanding our focus to broader metrics like safety and environmental certifications. For example, we assess what percentage of our factories hold an ISO environmental certification. The board is looking at a wide range of indicators to ensure progress."

Building Momentum for Decarbonization: Lessons from Shaw Industries

Shaw Industries demonstrates that tackling simpler projects first creates momentum for larger, more complex electrification initiatives. By focusing on early, achievable upgrades, the company built a foundation for long-term decarbonization. This approach meant that when faced with larger external challenges, such as reliance on coal-powered grids, Shaw could direct its energy and resources toward overcoming them.

“We're proud to have reduced our greenhouse gas (GHG) emissions – Scope 1 and Scope 2 – by more than 60 percent compared to 2010,” said Candi Hampton, senior director, sustainability at Shaw. “We did it by tackling the low-hanging fruit head-on, like boiler upgrades and LED lighting.”

Following this milestone, Shaw intends to achieve net zero enterprise operations by 2030. The company's decarbonization strategy focuses on reducing energy consumption through technology upgrades and more efficient equipment, shifting from coal to natural gas and electricity where feasible and investing in renewable energy credits and carbon offsets for remaining emissions. With most operations in the U.S., particularly in the Southeast, Shaw faces regional grid challenges due to coal reliance. However, the company continues to transition to cleaner energy, including electrifying lift trucks and some tractor-trailers.

Now, as the company invests in new equipment, energy efficiency is a core consideration in its decarbonization strategy. Rather than focusing on a single initiative, Shaw integrates energy efficiency into all equipment updates, ensuring sustainability is a key factor in capital investment decisions. They made a $500 million investment into a South Carolina facility to incorporate automation and more efficient equipment. Similarly, a $250 million modernization effort at a South Alabama facility replaced aging equipment with more efficient and reliable alternatives. Together, these projects represent nearly $750 million in upgrades, reinforcing Shaw's commitment to reducing emissions and improving long-term sustainability.

Shaw's journey points to a key lesson: Starting with accessible efficiency gains builds the necessary momentum and internal buy-in to tackle the bigger challenges ahead.

Section 4

Available Tools and Tactics for Electrifying Operations

Despite the challenges, companies are employing a variety of tools, technologies and strategies to advance electrification efforts. Success depends on leveraging data-driven insights, selecting the right technologies, fostering collaboration and maintaining flexibility in execution.

Data-Driven Decision Making

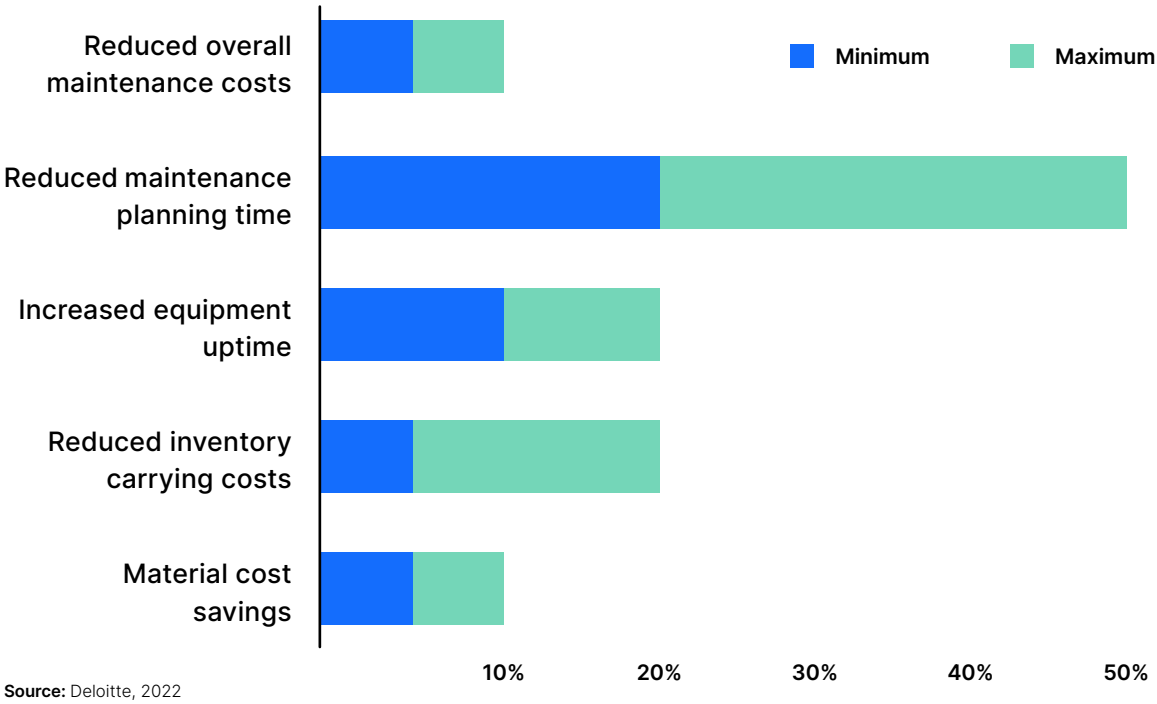
Reliable data is the foundation of effective electrification strategies. "The maturity curve for data rigor and expectations in corporate sustainability has evolved dramatically," said Vontier's Rowen. Like most companies interviewed, Vontier has invested in custom sustainability platforms and dashboards to monitor energy consumption, greenhouse gas emissions and equipment performance. These systems collect site-level, asset-health data — such as equipment temperature, humidity and acoustic signals — that enable targeted interventions and continuous improvement.

For companies selecting asset monitoring services, providers set up systems to collect raw data and deliver the analytical capabilities needed to transform it into actionable insights. "Good data is fundamental," said ABB's Wise. "Real-time monitoring combined with smart analytics provides a clear view of system performance and empowers service providers to keep assets running efficiently, reliably and safely. It's the key enabler of energy efficiency, system resilience and scalable electrified operations."

By tracking energy intensity metrics, companies can better understand how systems are performing, identify inefficiencies, set realistic reduction targets and measure progress over time. Automated data collection through IIoT sensors and integrated software platforms improves accuracy while reducing administrative burden. Crucially, this data also lays the groundwork for predictive maintenance, enabling teams to detect potential failures before they occur and schedule maintenance at the optimal time, reducing downtime and extending asset life. The potential ROI of setting up data infrastructure to enable predictive maintenance is substantial; for example, predictive maintenance can reduce maintenance costs by 20 percent and increase asset uptime by 10–20 percent[4].

4 *Predictive maintenance and the smart factory*, Deloitte, 2022.

Potential Benefits of Predictive Maintenance



Source: Deloitte, 2022

Advanced analytics tools also enable scenario modeling, allowing organizations to assess trade-offs between investment options. Some use cost-per-ton CO_2 reduction metrics to prioritize high-impact projects, while others apply AI to optimize equipment performance and forecast long-term savings. Robust data-driven decision-making supports the development of net zero tools that can visualize performance and energy modeling and, if paired with real estate data, help estimate savings and strengthen the business case for electrification. These tools also improve stakeholder communication by translating technical data into actionable business insights.

Does Efficiency Matter if the Energy Is Renewable?

Yes. A common consideration in energy management is whether equipment upgrades matter when operations already use renewable energy sources. From a compliance-focused perspective, inefficient equipment may appear less critical. However, wasted energy — renewable or not — results in higher operational costs.

Inefficient assets also increase overall energy demand, placing unnecessary strain on electrical infrastructure. Even when powered by renewables, such inefficiencies can necessitate additional energy generation, potentially diverting clean energy from other users. Replacing aging equipment — such as outdated HVAC systems, pumps and lighting fixtures — with modern, high-efficiency alternatives reduces energy consumption, enhances operational resilience and extends asset lifespan.

Strategic Investments in Technology

Selecting the right technologies is critical for maximizing the benefits of electrification. Companies are focusing on equipment upgrades that offer immediate efficiency gains and long-term reliability.

Investments being made by companies interviewed for this report include:

- **Variable Frequency Drives** that provide improved motor efficiency in HVAC systems, pumps and conveyors (Solventum, McCormick).
- **Advanced Heat Pumps** to replace gas-fired boilers and reduce Scope 1 emissions (Mass General Brigham, Prologis, Shaw).
- **Battery Storage Systems**, which enhance grid stability and enable peak load shifting (Pure Storage, Ecolab, Prologis).
- **Smart Building Management Systems** that automate energy optimization across facilities (McCormick, Mass General Brigham, CBRE).
- **EV Chargers** (Ecolab, CBRE, Reformation).
- **Fleet Electrification**, in this case by transitioning light- and medium-duty vehicles to EVs (Ecolab, Prologis).

Companies are integrating microgrids and renewable energy to support electrification while also finding ways to reduce overall energy consumption. On-site solar installations, paired with battery storage, enable facilities to operate independently during outages, improving resilience and lowering carbon footprints. However, successfully integrating these systems requires careful planning to ensure compatibility with existing infrastructure, regulatory requirements and the availability of trained local maintenance workers.

Energy efficiency in data storage is another often-overlooked opportunity. “Data storage is often overlooked in energy efficiency discussions, yet optimizing it can cut data center energy use up to 20 percent,” said Don Kirouac, technical lead, product sustainability at Pure Storage. “Data storage consumes power, takes up space and costs money. Raising awareness of its impact is key to driving more sustainable solutions.”

Companies should also consider retrofits and upgrades, which offer an efficient and sustainable alternative to replacement. Upgrading outdated components can reduce the cost of equipment by one-third, extend life by as much as 30 years and reduce the potential for costly downtime caused by breakdowns. Upgrade over replacement also reduces carbon footprint, and retrofitting avoids the emissions associated with manufacturing new systems.

A final consideration for electrical upgrades is operational practicality, particularly in remote locations. “Electrification isn’t just a financial decision — it also comes with logistical, maintenance, and operational considerations,” said Beba Greer, associate director, sustainable operations and engagement at Reformation. “For production facilities located in rural areas, electrifying equipment like yard goats or heavy-duty trucks means you’ll need to account for access to qualified electrical maintenance workers. Without nearby specialized technicians, a breakdown could leave you stranded."

Collaborative Frameworks and Cross-Functional Teams

Electrification works best as a cross-departmental endeavor. Sustainability leaders at VF, CBRE, Vontier and Ecolab emphasized the importance of forming cross-functional teams that include representatives from operations, finance, procurement and IT. “VF Corporation’s Sustainability team partnered with its Finance team to link financial transactions with sustainability KPIs, issuing €1

billion total across two separate green bonds," said Jeannie Renné-Malone, vice president, global sustainability at VF Corporation. "The green bond covers investments like on-site renewable energy installations and LEED-certified buildings."

Employee engagement is equally important. Mass General Brigham has implemented change management programs that include staff training, feedback loops and incentives for energy-saving behaviors. "Our team strives to keep up with the latest developments and passes that knowledge to stakeholders. We provide training as needed. We learn together as we adopt new technologies," said Dennis Villanueva, the organization's director of utilities, energy strategy and procurement. "Our engineering department supports building managers in maintaining operational standards while integrating sustainable practices." By involving frontline employees in decision-making processes, companies can foster ownership and promote collaboration resulting in enhanced operational efficiency.

Leveraging Incentives and External Partnerships

"One of the key benefits of electrification is the ability to rely on the grid to power operations, which has the potential to significantly lower emissions compared to on-site fuel combustion," said Charlie Sellars, director, sustainability, cloud operations and innovation at Microsoft. While grants, tax credits and utility rebates can reduce project costs, navigating the application process often requires dedicated resources. Companies must cultivate and leverage public-private partnerships to overcome these barriers. "One way we're addressing the challenge of intermittent energy from our on-site solar is by building strong relationships with utilities in key markets," said Fanning at Prologis. "These partnerships help us send a clear demand signal that increased capacity is a necessity, not a choice."

Ecolab & Ford Pro: A Strategic Electrification Partnership

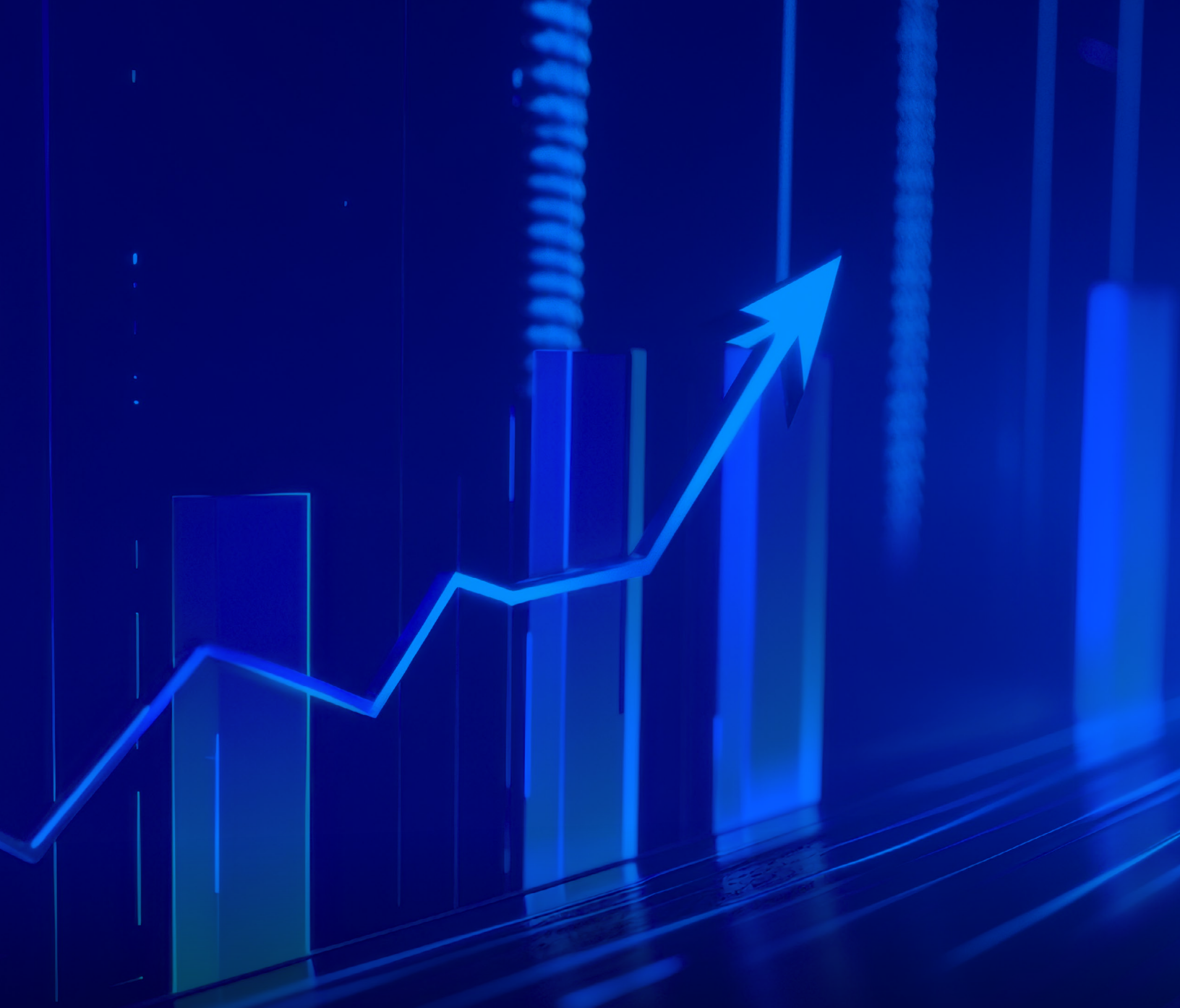
Ecolab is partnering with Ford Pro to electrify 1,000 vehicles in California by the end of 2025 as part of its broader goal to cut Scope 1 and 2 emissions by 50 percent by 2030. The initiative involves regular collaboration on vehicle supply, charging infrastructure and change management.

"Electrifying our fleet is not just about emissions reduction; it's about business resilience, operational efficiency and meeting customer expectations," said Emilio Tenuta, a senior vice president and chief sustainability officer at Ecolab. "Transitioning to EVs required us to carefully plan for infrastructure, training and cost alignment. Our finance team ensured a strong business case, while change management strategies supported field service teams in adapting to new workflows."

Key success factors include:

- Full engagement from the chief supply chain officer and other C-suite executives.
- Finance team involvement to build a strong business case.
- Change management to keep up field service productivity.
- A phased rollout, starting with California as a priority market.

"This initiative is a major step in our broader climate goals," Tenuta explained. "Success required more than just switching vehicles, it meant integrating sustainability into our supply chain, engaging leadership and ensuring financial viability."

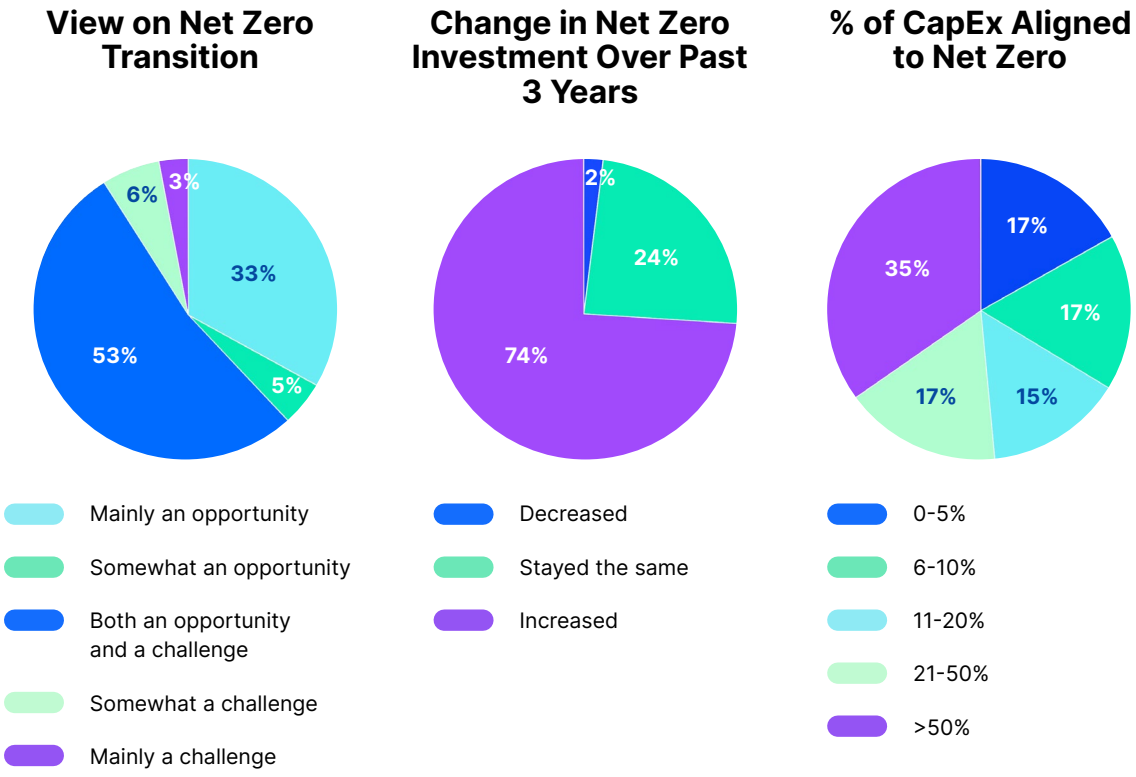


Section 5

Balancing Productivity, Profitability, and Sustainability

Successfully electrifying operations requires balancing short-term operational needs with long-term sustainability goals. To do this, organizations are developing strategies to set clear goals, sequence projects effectively, allocate resources and manage stakeholder expectations.

Despite an uncertain investment environment, many businesses are committing significant capital to the net zero transition. According to the Business Breakthrough Barometer 2024, 91 percent of companies view the net zero transition as either fully or partly an opportunity. Among transition leaders, 74 percent have increased their investment in the transition over the past three years and 35 percent are allocating more than half of their total capital to these efforts. This signals a shift in mindset, from viewing decarbonization as a cost center to treating it as a strategic driver of resilience and growth. As the WBCSD notes, “Companies are moving from ambition to action by strengthening strategy, governance and incentives.” The following sections examine how organizations are activating their strategies through executive leadership and governance, risk mitigation and resilience planning and phased implementation.



Source: WBCSD, 2024

Executive Leadership and Governance Structures

Executive leadership can play a critical role in accelerating electrification upgrades and decarbonization by setting a clear strategy, defining achievable KPIs and embedding these goals into core business decision-making processes. By leveraging familiar tools such as ROI analysis or investment prioritization, leaders can guide their teams to evaluate electrification projects through a business lens focused on cost savings, operational resilience and long-term value. Once supported by data and aligned with measurable targets, these initiatives can be assessed and implemented using standard business case frameworks.

“It’s about using the tools and investment approaches companies already have to make smart decisions around electrification and energy efficiency,” said ABB’s Wise. This alignment of strategy, metrics and governance ensures that sustainability and performance are not competing goals, he noted, but mutually reinforcing outcomes.

Companies with clear governance structures, such as sustainability steering committees or dedicated electrification task forces, are better equipped to drive cross-functional alignment. “Our chief sustainability and innovation officer oversees both sustainability and innovation teams, ensuring they work closely together,” said Hampton of Shaw Industries. “This alignment drives innovation, whether in products or processes, while keeping sustainability at the core, allowing us to find new ways to innovate while advancing our broader goals." Board-level oversight can also ensure that energy transition initiatives remain a corporate priority, with regular progress updates integrated into broader strategic reviews.

Risk Management and Resilience Planning

Risk management is central to prioritization decisions, as companies assess potential disruptions to operations, supply chain vulnerabilities and regulatory risks when determining which projects to advance first. “The idea of sustainability as a cost center is a myth; sustainability is a value creator and risk mitigator,” said CBRE’s Greene.

Without proper coordination, facility managers may default to replacing aging gas-powered systems with similar models instead of transitioning to more sustainable options. “Sustainable operations need to be prioritized because they protect against risks, optimize resource efficiency and prepare for a lower carbon future,” added Greene.

Facilities with aging equipment, high energy intensity, or exposure to volatile fuel markets are often prioritized for electrification, according to Ecolab and McCormick. In critical sectors such as healthcare, ensuring an uninterrupted power supply is paramount, leading to hybrid solutions that combine electrification with backup systems, a strategy employed by Mass General Brigham.

Energy Kaizens

Vontier employs *energy kaizens* as part of continuous improvement initiatives to eliminate waste and reduce electricity consumption across its facilities. Energy kaizens are focused workshops that enable cross-functional teams to identify inefficiencies, implement targeted solutions and monitor progress toward energy reduction goals. By leveraging this structured approach, Vontier has achieved a 40 percent reduction in Scope 1 and Scope 2 emissions since 2020. The success of these efforts is driven by applying the company's "energy trilemma" lens, which considers the competing needs of sustainability, affordability and energy security.

"For us, the energy trilemma serves as a guiding framework. It helps us anticipate customer needs and assess the best energy solutions for different industries and regions" said Rowen at Vontier. "By looking through this lens, we can determine the most viable options for various modes of transportation and ensure they align with both economic and environmental priorities."

Develop an OpEx-centric Strategy

The benefits of treating OpEx more strategically stem from a confluence of factors. The energy trilemma — the need to balance energy security, affordability, and sustainability — places an enormous strain on companies' bottom lines, especially given the increased demand from consumers, clients and regulators to mitigate climate risk. Increasingly, the net zero agenda is at the forefront of operations as companies seek ways to optimize energy use and lower their carbon footprint, all while meeting evolving client expectations.

The key to unlocking the full potential of an OpEx-centric strategy lies in adopting

a holistic, lifecycle-based approach to servicing and modernizing assets. By investing in high-quality maintenance, repair and retrofit programs, companies can substantially extend the lifespan of equipment, improve performance and reduce operating costs. And while this focus on OpEx is a response to the challenges of now, it provides additional future benefits that include improved circularity practices.

"The shift towards an OpEx strategy is a transformation that requires a fundamental rethinking of how organizations approach asset management and value creation," said Wise. "Companies that embrace OpEx as a strategic lever for growth, rather than a mere cost-cutting measure, will be better positioned to navigate the uncertainties of the future and emerge as industry leaders."

Phased Implementation and Pilot Programs

Phasing projects over several years allows organizations to manage costs, learn from early implementations and adapt to changing market conditions. Pilot programs act as valuable testing grounds, helping companies refine technical specifications, assess operational impacts and gather employee feedback before scaling solutions. Quick-win projects, including LED retrofits or installation of variable frequency drives in HVAC systems, provide immediate savings and build momentum. "Low-hanging fruits, like VFD, are my favorites," said Solventum's Watson, emphasizing the importance of early, high-impact efficiency measures.

Implementing more complex pilot programs requires a more strategic approach. Fanning at Prologis shares how her company is bridging the transition to electric heating: "Heat pumps often struggle on extremely cold days, losing efficiency as temperatures drop. Many buildings are addressing this by using a hybrid approach, primarily relying on electric systems but keeping backup natural gas for the coldest days when heat pumps alone aren't enough."

To advance heat pump technology, Prologis is partnering with manufacturers, other companies and the U.S. Department of Energy through the Heat Pump Accelerator program. "This initiative lets us work directly with manufacturers to test new heat pump solutions in our buildings and identify ways to improve performance," said Fanning. "Everyone recognizes the current limitations, both in cost and capability, and this program is helping to move the market forward."

Conclusion

Call to Action

The transition to electrified operations is complex, but companies that take a proactive approach will gain long-term advantages in cost savings, resilience and emissions reductions. As this report has shown, organizations are navigating a rapidly evolving landscape shaped by infrastructure limitations, budget pressures and rising stakeholder expectations. Despite these challenges, electrification offers a pathway to optimize operations, reduce risk and future-proof performance.

Success depends on cross-functional collaboration, data-driven decision-making and integrating electrification into core business planning. Whether your organization is just beginning to explore electrification or is looking to accelerate progress, the following actions can help build momentum and deliver meaningful results:

- **Conduct an Energy Audit**
  Assess current energy usage, identify inefficiencies and prioritize upgrades that will yield the greatest impact. Modernize with low-hanging fruit, such as LED lighting retrofits, HVAC optimizations and smart building controls.
- **Plan Phased Implementation with Cross-Functional Collaboration**
  Test pilot programs before scaling and align sustainability goals across finance, operations and innovation teams.
- **Build a Data-Driven Foundation**
  Invest in monitoring and analytics to enable predictive maintenance, optimize asset performance and translate energy data into actionable insights that support electrification.
- **Integrate Electrification into Financial Planning**
  Connect decarbonization goals with capital and operational budgeting cycles. Prioritize funding for predictive maintenance and service to maximize asset performance and support resilient, low-carbon operations.

Advocates for electrification should remember that the business case is strong – electrification improves efficiency, lowers operating costs and increases infrastructure resilience. When paired with direct decarbonization tactics such as renewable energy procurement, battery storage and grid optimization, electrification can multiply impact and future-proof operations. There's no single path to achieving these goals, but by starting today with deliberate and strategic actions, companies can unlock value, reduce risk and drive long-term performance in a low-carbon economy.

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