KPMG

You can transform energy with AI.

Intelligent Energy Report

Foreword

The pace of technological advancement is nothing short of extraordinary. If this report had been written six months ago, its conclusions might already feel out of date. Six months from now, they may evolve again. That's the reality we now operate in — a world where innovation is not only constant but accelerating and where technologies once thought of as futuristic, such as quantum and agentic AI, are rapidly moving into the strategic planning horizon of the energy sector.

In the near term, the industry leaders we speak with point to agentic AI as a transformative force. Although traditional automation has delivered incremental benefits, its progress is increasingly constrained by the need for expert human intervention — expertise that is both scarce and diminishing.

Agentic AI offers a breakthrough. These systems can autonomously manage entire workflows, complementing the nuanced judgment of human experts and making complex decisions without direct oversight, providing recourse to a human expert if and when required. The level of impact seems dramatic: One company, I heard present at COP29, shared that by deploying AI agents, they reduced a 21-day process to just 18 minutes.

For energy companies, the cost of inaction is rising fast — those who delay risk being locked into outdated infrastructures, talent models, and operating assumptions that may be unfit for purpose by the end of the decade.

Scaling AI is about reimagining the enterprise and meeting the energy trilemma head on, embedding intelligence across the value chain to secure supply, decarbonize and control costs. This report provides guidance for navigating that future.

> "For AI to truly scale and deliver value, energy companies must rethink not just their technology, but their entire operating model. Those that can align AI with business strategy, integrate data and technology and create a workforce ready to embrace AI-powered decision-making will likely be the ones that lead in the next era of energy transformation."

Anish De — Global Head of Energy
KPMG International

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At a glance

Energy companies are beginning to scale their AI pilots

56% have been piloting AI but only 13 percent operate an AI center of excellence

There are early successes

79% have seen efficiency improvements

60% ROIs of greater than 10 percent

There is a twin focus on efficiency and growth

65% Efficiency

74% Revenue growth

The duality of energy creation and environmental impact is a key consideration

63% struggle to balance AI use with sustainability goals

71% view sustainability as a more important strategic goal than AI

Experimentation for breakthroughs is a critical investment area

92% believe that organizations that embrace AI will develop a competitive edge over those that do not

96% are investing in future-focused projects without the expectation of immediate returns

The industry is preparing for an AI future

63% have invested in an automated data fabric or hybrid cloud, cross platform, data integration

64% operate an enterprise-wide cloud or hybrid-cloud IT infrastructure

There are significant challenges to scaling applications

58% have data issues with inconsistent formats impacting data quality

38% face ethics and regulatory issues

Introduction

AI in energy is about more than just adopting new technologies — it's about transforming how energy is generated, distributed, and intelligently managed to maximize efficiency, minimize waste, and respond dynamically to real-time demand and system conditions.

For leaders in the energy industry, standing still is no longer an option. Customers, regulators and partners alike expect up-to-date, intelligent systems capable of delivering affordable, reliable and sustainable energy. The businesses of today will not look the same by 2030 — and the journey from here to there requires flexibility, foresight and the courage to act in uncertain times.

To understand how the sector is preparing, KPMG interviewed and surveyed AI leaders across the energy industry, including 163 senior executives from mid-to large-sized energy companies across eight countries (Australia, Canada, China, France, Germany, Japan, the United Kingdom and the United States). What emerged is a picture of the current state of AI adoption in the energy sector; insights into how organizations are approaching AI strategy, investment and implementation; and "no regrets" actions companies can take to prepare their organization for the future, including adopting a composable operating architecture that enables agility.

This report explores:

- How to define AI-driven value creation in energy — Understanding how AI can enhance operational efficiency, improve grid stability, support sustainability goals and drive commercial success.
- How AI can address challenges around regulatory compliance, cybersecurity and cross-functional integration.
- The characteristics of AI-ready energy organizations — Identifying what differentiates high-performing companies and the critical enablers of AI adoption, including data infrastructure, workforce readiness and governance models.
- An AI maturity model — A framework to help energy organizations progress through three key stages:
  - Enabling workforces and building AI foundations
  - Embedding AI across the enterprise
  - Evolving operating models and ecosystems

Figure 1: Energy must overcome strategic barriers for AI adoption

Percentage who say their organization has faced the following challenges when integrating AI

What challenges has your organization faced when integrating AI? (Maximum 5) n=163

Source: Intelligent energy: A blueprint for creating value through AI-driven transformation, KPMG International, 2025

Key recommendations

We also discovered that capturing value from AI requires a strategic, enterprise-wide approach. Our research identifies four key recommendations.

Design an AI-first business strategy and transformation roadmap

Pivoting to an AI-first approach helps ensure that intelligent systems and data-driven insights inform every decision, from infrastructure investment to workforce planning. It's not about bolting AI on to the business — instead, it's about rebuilding the business around AI. AI should enhance operational efficiency, predictive maintenance, safety and sustainability while aligning with long-term business goals. A clear roadmap should define high-impact AI use cases, balancing short-term cost reductions with long-term value creation, helping ensure AI investments generate measurable business and environmental benefits.

Build trust into the transformation roadmap from the outset

Trust is critical in an industry where safety, reliability and compliance are paramount. AI adoption must include transparent governance frameworks, robust risk management and regulatory alignment from the start. Energy firms should engage regulators, employees and external stakeholders to address concerns about data security, AI-driven decision-making and ethical considerations. By embedding explainability, accountability and fairness into AI models, companies can build the confidence needed to scale AI across operations.

Create a sustainable technology and data infrastructure for AI and agentic adoption

Scalable technology and data foundations are essential for unlocking AI's full potential in energy. Companies should invest in data governance, data fabrics, cloud-based platforms and hybrid IT infrastructures to enable seamless AI integration. Standardizing data across distributed energy networks, sensor-driven industrial sites and real-time grid operations enables AI models and autonomous agents to function effectively. Equally important is minimizing the AI energy footprint, balancing innovation with sustainability goals and regulatory requirements.

Build a culture that uses AI to uplift human potential

AI should augment, rather than replace, human expertise. Organizations should foster a culture where AI empowers engineers, technicians, grid operators and decision-makers by enhancing insights, automating routine tasks and improving safety. Investing in AI literacy and ethics training helps ensure employees are prepared for an intelligent future.

Research findings

> Introducing AI technology is a costly endeavor, requiring significant investment in hardware upgrades, software procurement, data infrastructure transformation and the recruitment of specialized talent. For large enterprises like ours, while these costs can be gradually absorbed, they still represent a substantial expenditure. Therefore, we need to be prudent, finding the most cost-effective solutions within a limited budget.

Chief Information Officer — China

The energy sector is undergoing a profound transformation, shaped by shifting market dynamics, technological disruption, regulatory pressures and the global push for sustainability.

What was once an industry built on traditional extractive and network-based models is now evolving into an interconnected, digitally enabled ecosystem.

From experimentation to scale

AI adoption in energy has moved beyond pilot projects, with 56 percent of companies scaling AI initiatives and 44 percent integrating AI as a core part of operations. Despite differences between regulated and unregulated entities (as well as the specific nuances of individual sub-sectors), the challenges and opportunities around AI tend to be broadly consistent. Companies across the energy value chain are converging on common AI use cases in areas like operational efficiency, asset optimization, safety, sustainability and predictive maintenance.

Cost reduction to fund future developments

Many organizations are pursuing aggressive cost-out programs in response to fluctuating demand, geopolitical uncertainties and increasing sustainability requirements. Respondents view AI as a key enabler of operational streamlining, with 79 percent of companies already reporting measurable efficiency improvements and 60 percent seeing ROIs greater than 10 percent. These AI-driven cost reductions are also facilitating reinvestment, creating a self-funding AI transformation model where savings are redirected into further digital innovation.

The industry is focused on the future

Ninety-two percent of organizations are investing in future-focused AI projects without the expectation of immediate returns. Energy companies are making substantial investments, with 76 percent planning to increase AI spending — 63 percent by more than 10 percent. The biggest growth areas include AI-driven automation, predictive analytics and AI-enhanced product and service development, where 80 percent of companies are embedding AI into their offerings.

Significant barriers remain to scaling AI

Organizational hurdles are hindering AI's full-scale adoption. Industry respondents cite insufficient data management, governance, investment and prioritization resulting in data quality issues (58 percent); regulatory complexities (38 percent); and budget constraints (37 percent) as key challenges. There is also a lack of connection and integration between teams charged with improving data and teams developing AI. Only 13 percent of energy companies currently operate an AI Center of Excellence, with AI leadership fragmented across IT (20 percent) or a combination of IT and business functions (34 percent).

Moving forward

The next phase of AI in energy will be about turning promise into tangible, lasting impact. CEOs and senior leaders in our research recognize the need for change, but to succeed, the sector should move beyond incremental adoption and focus on scaling AI in ways that cut costs, improve reliability and support sustainability.

Emerging trends provide a clear path forward. The companies that succeed will likely be those that streamline their operating models, integrate AI across value chains and develop the data and technology infrastructure necessary to fuel AI-driven growth.

> We approach [AI] with excitement, but also with a lot of caution. We don't want to have the tool provide input that's going to be relied on by our employees or our regulators without having a means of validating the data. There's still a human involved in every aspect of the output from Gen AI just to ensure accuracy.

Chief Risk Officer — US

AI in energy: Current state

AI projects within the energy sector fall into two categories: initiatives where there is measurable ROI and passion projects driven by industry values.

Value: Maximizing efficiency and ROI

Value-led initiatives that are designed with clear, quantifiable outcomes are driving AI adoption in energy, specifically in areas where intelligent tools and technologies reduce inefficiencies and operational costs while also mitigating risks and improving capabilities as companies grapple with the trilemma.

Many AI-driven value initiatives deliver transformative performance gains, sometimes achieving substantial efficiency improvements by automating or eliminating entire processes. For example, predictive maintenance can anticipate failures in turbines, pipelines and refineries, reducing unplanned downtime and extending asset lifecycles. Supply chain optimization helps ensure better inventory forecasting and distribution, while intelligent demand models fine-tune power consumption across facilities, minimizing waste and helping ensure a steady supply of power.

> “In the short term, we’re going to benefit most from productivity gains, so we’ll be able to reduce our dependence on managed service providers. We’ll be able to deliver more with less, which is immediate value on the balance sheet. In the medium term, we will see benefits around our assets, so reduction in asset failures, increased ability to plan and schedule maintenance. Also being able to search through manuals from forty years ago using LLMs is fantastic and that’s a real step change in terms of how you can manage forty years of aging assets.”
>
> **Senior Vice President, Corporate Services and Chief Risk Officer** — US

Passion: Driving safety, sustainability and purpose

The energy sector is deploying AI in passion projects that align with safety and sustainability goals. These initiatives help ensure regulatory compliance, reduce environmental impact, and uphold corporate responsibility standards — while also unlocking economic value through cost savings, operational efficiency, and improved risk management.

For example, AI-driven safety monitoring is transforming risk management and is already proving critical in preventing industrial accidents, oil spills and reducing injuries and mortality. Machine learning algorithms continuously scan environmental conditions, allowing energy companies to preemptively address safety risks before incidents occur. For example, intelligent systems analyze sensor data from drilling sites, power plants and refineries to detect hazardous gas leaks, structural weaknesses or potential equipment failures.

AI is also a game-changer in environmental monitoring. Advanced satellite imagery and sensor networks track emissions, detect wildlife disturbances near mining sites and flag illegal activities such as unauthorized drilling or pipeline tampering.

Worker well-being initiatives are another area where AI is making an impact. AI-powered fatigue monitoring systems use wearable sensors, biometric tracking and real-time video analytics to detect signs of exhaustion or cognitive strain among field workers. These solutions help prevent workplace injuries, ensure compliance with labor safety standards and improve overall workforce health and productivity.

Agentic AI in energy

Agentic AI is the next evolution of artificial intelligence — moving from passive tools that respond to commands to autonomous systems capable of making decisions and taking action. Agentic will likely be a transformative technology for the energy industry.

From automation to autonomy

Agentic AI enables intelligent systems to act independently towards predefined goals without constant human input. In the energy sector, this means AI agents can autonomously monitor grid health, optimize load balancing, schedule maintenance and even adjust generation levels based on real-time demand forecasts.

They can analyze vast amounts of real-time data from distributed assets — solar, wind, storage, EVs — and dynamically coordinate their output. These agents operate continuously, adapt to changing conditions and make decisions that previously required manual intervention — dramatically improving responsiveness and efficiency.

Transforming customer and market interactions

On the demand side, agentic AI can empower industrial and commercial customers to automatically buy, store, or sell energy based on price signals, usage patterns, or carbon targets. These agents can negotiate energy contracts, manage microgrids, or bid into flexibility markets with minimal human oversight, opening up new value streams and radically streamlining energy participation for customers.

Accelerating decarbonization and innovation

By continuously learning and optimizing across the system, autonomous agents can play a key role in accelerating decarbonization. They can optimize demand for high-usage customers, reduce energy waste and orchestrate low-carbon solutions across complex ecosystems. As the energy industry evolves into a dynamic, software-defined infrastructure, agentic AI will likely be central to unlocking innovation, reducing costs and ensuring resilience in a net-zero future.

Unlocking AI potential

The potential of AI — traditional, generative, and agentic — is vast. Energy organizations may inevitably identify numerous priority use cases. But without orchestration, efforts can become siloed or misaligned. Success depends on harmonizing these use cases with each other and with adjacent technologies such as digital twins, HPC, CRM and AR/VR.

Evolving the enterprise technology architecture

AI must integrate with the existing tech stack. This requires reviewing enterprise architecture to identify opportunities for streamlining and modernization.

Data is central — AI needs structured and unstructured data from varied sources. Robust capabilities for ingestion, storage, governance and access controls are essential for scale.

New layers of orchestration required

Generative and agentic AI demand new orchestration layers to manage data, prompts, and interactions across agents and systems. These should align with enterprise goals. Security should run throughout the stack — from design to operation. Finally, intuitive, user-friendly interfaces are critical to drive trust, adoption and long-term value realization.

Evolving the ecosystem

The role of the ecosystem architect is emerging as a critical complement to the traditional enterprise architect. While enterprise architects focus on optimizing internal systems and structures, ecosystem architects take a broader, outward-looking view. They are responsible for designing the interconnected platforms, data flows, and collaborative frameworks that enable utilities to operate as part of a wider, intelligent ecosystem — including customers, competitors, regulators, suppliers and technology partners.

Agentic AI

is the next evolution of artificial intelligence — moving from passive tools that respond to commands to autonomous systems capable of making decisions and taking action.

Planning for 2030:

Preparing for a radically different energy enterprise

The energy enterprise of 2030 may look fundamentally different from today's organizations. AI, automation, decentralization and decarbonization will reshape not just operations, but the very fabric of how businesses run. For leaders, this moment represents an inflection point — one that demands bold action and forward thinking.

Organizations should begin planning now for the journey to 2030. This isn't just a technology roadmap; it's a transformation in how work is done, decisions are made and expertise is retained. Many companies are already facing a wave of retirements — decades of tacit knowledge and institutional memory walking out the door. That knowledge must be captured, transferred, or replicated in new ways — particularly as agentic AI systems begin to take on more of the judgment and decision-making roles traditionally held by experts.

This requires rethinking your operating model, talent strategy and technology infrastructure — not separately, but as part of a cohesive evolution. Leaders should ask a new set of strategic questions to guide this transition.

Key strategic questions:

1 How are we preserving critical tacit knowledge before it retires?

What mechanisms do we have to codify expertise into systems, training or AI?

2 What is our AI-readiness across each value stream?

Are our workflows mapped and do we understand where intelligent automation can deliver end-to-end value?

3 What capabilities should we sunset or phase out?

Are legacy tools or practices holding us back from future scalability?

4 What must we build or acquire to stay relevant?

What new data, platforms, or technology partnerships are essential?

5 What wider ecosystem partnerships are needed?

Are we building the right partnerships across industry and academia, to accelerate innovation, share risk, and cultivate the right skills and knowledge?

6 How do we rebalance our workforce model?

What roles should remain in-house and where is a flexible, contingent or AI-augmented workforce more effective?

7 What does our skills matrix look like today — and in 2030?

Are we tracking skills gaps, reskilling priorities and emerging AI-augmented roles?

8 How do we design an organization that can adapt, not just optimize?

Are we building agility into our operating model, systems and structures to evolve with the next waves of technology?

Building the intelligent energy company

Energy companies must navigate a complex landscape of aging infrastructure, entrenched operating models and strict governance requirements.

Successfully implementing AI in an energy organization involves a strategic approach to building capability across foundational, functional and enterprise layers. Establishing a transformation management office, or AI Center of Excellence, is crucial for aligning AI strategy, value orchestration and project delivery across all layers. The body coordinates initiatives, establishes standards and best practices and facilitates cross-functional collaboration to drive accountability and enterprise-wide value.

Enterprise

This layer orchestrates transformational, enterprise-wide change, starting with how AI can adjust strategy, business models and key objectives. It defines operating model shifts, workforce evolution and risks and controls. This layer places AI initiatives on a roadmap and runs a transformation office to help manage funding and track benefits, adjusting priorities dynamically to maximize value delivery.

Functions

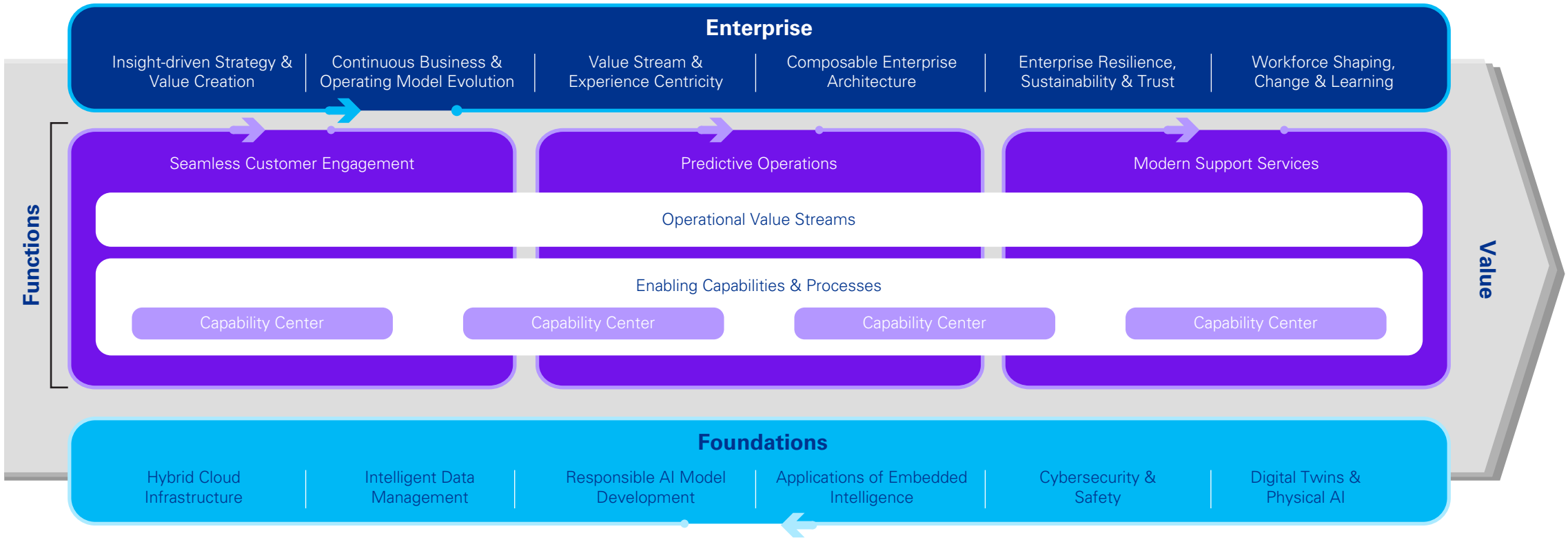
This layer drives AI-enabled transformation across business functions, prioritizing customer-facing value streams and end-to-end processes and workflows. AI applications, agents and robotics are embedded in the workflows. Functional operating model changes are delivered to realize potential benefits.

Foundations

This layer establishes the AI-first technology stack, including infrastructure, cloud and choices on partner ecosystems. High-quality enterprise data needs to be curated and diverse models are likely to be deployed to handle domain-specific AI and support AI agents. An increased focus on cybersecurity for AI is needed as well as a plan for other emerging technologies.

Blueprint for an intelligent energy company

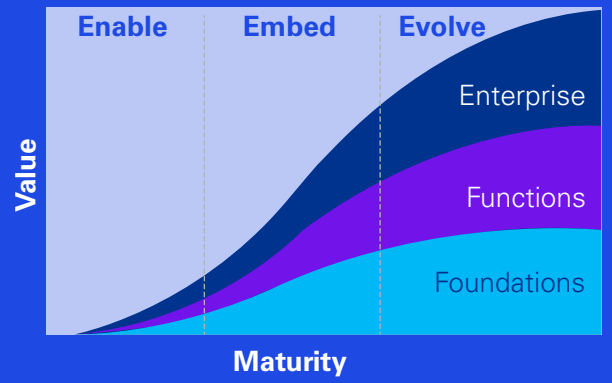
This blueprint outlines the transformation of an AI-powered, customer-centric energy company. The intelligent energy company leverages advanced technologies, personalized experiences, data-driven insights and automated operations to enhance efficiency, innovation and resilience. Focused on embedding intelligence across value streams, capability centers and processes, it ensures seamless customer interactions, robust risk management, intelligent product manufacturing and future-ready adaptability to thrive in the intelligent economy.



The journey to become an intelligent energy company.

Effective AI-enabled transformation goes beyond technology implementation. By examining leading practice, we have identified that energy companies can increase capability and value across three phases of AI transformation.

This provides a structured yet flexible framework for navigating the complexities of AI adoption. It balances the need for short-term efficiency gains with the imperative to prepare for future growth and innovation.



Enable

Enable people

The Enable phase focuses on empowering people and building AI foundations. Organizations appoint a responsible executive, create an AI strategy, identify high-value use cases, boost AI literacy, align with regulations and establish ethical guardrails. AI pilots are launched across functions, while cloud platforms and pre-trained models are leveraged with minimal customization.

Embed

Embed AI in work

The Embed phase integrates AI into workflows, products, services, value streams, robotics and wearables, delivering greater value. A senior leader drives enterprise-wide workforce redesign, reskilling and change, embedding AI into operating models with a focus on ethics, trust and security. AI agents and diverse models are deployed, supported by cloud and legacy tech modernization, while enterprise-wide data enhances operations.

Evolve

Evolve the enterprise

The Evolve phase transforms business models and ecosystems, using AI and frontier technologies to solve large sector-wide challenges. AI can orchestrate seamless value across enterprises and partners. Emphasizing ethics and trust with real-time security, this phase uplifts human potential with broad and deep workforce training, fostering a creative, innovative and value-driven future.

A company may have a portfolio of initiatives aimed at any level of the operating model within each phase. The ratio of effort and investment across the phases will vary as the organization matures. Initially, most resources will focus on phase one, with a small effort to explore enterprise-wide transformation. Over time, as foundational efficiencies are realized, more effort is invested in phase two, while, with an eye on the future, long-term investments in phase three start to lay the groundwork for transformative innovation. This dynamic balancing act ensures energy companies can achieve immediate results while setting themselves up in the right way for future success.

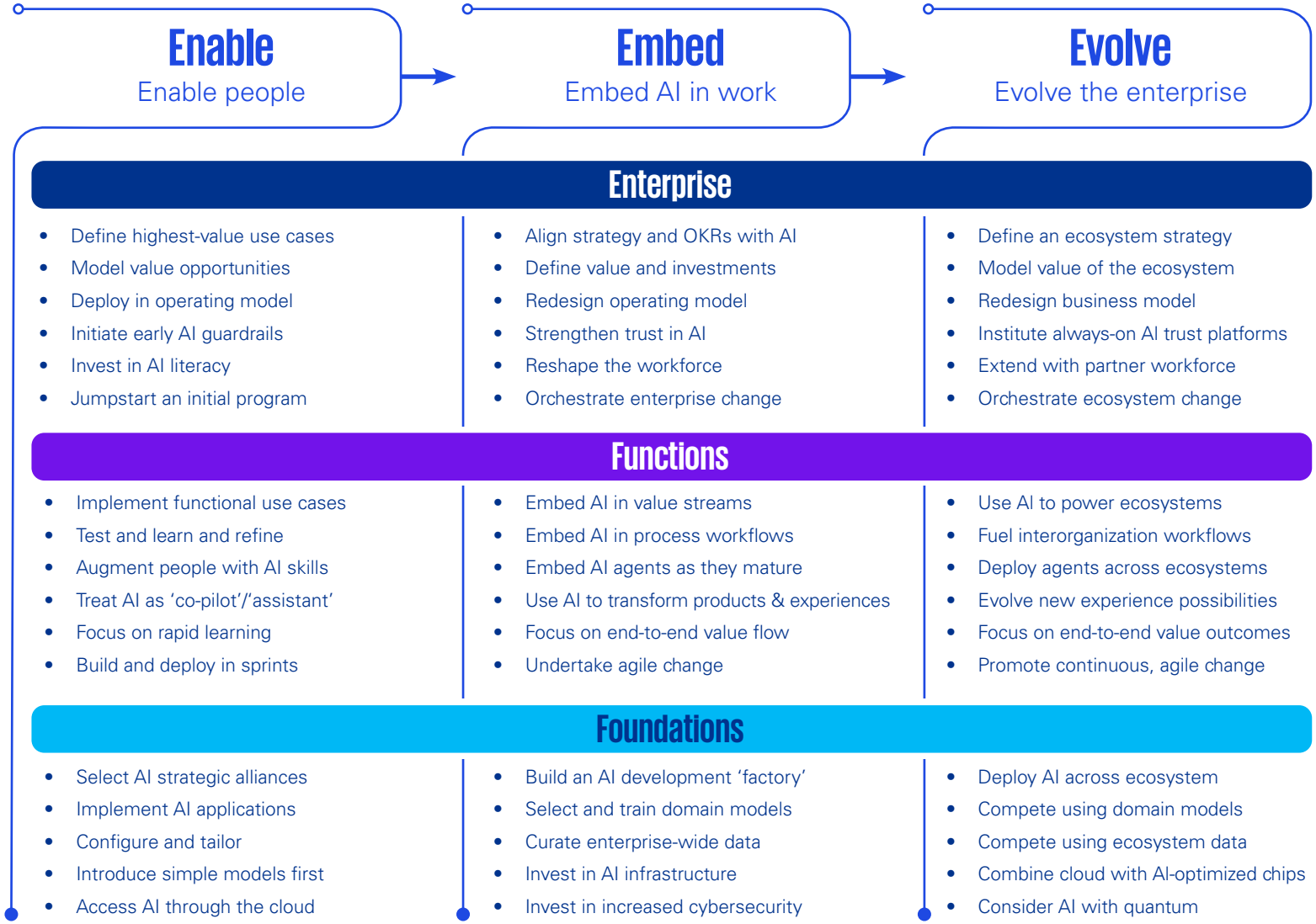
Phases of the AI journey

Focusing on maturity across the three phases — Enable, Embed and Evolve — is critical for sustained value creation. It requires increasing the maturity of the capabilities that are vital to the foundations, functions and enterprise layers simultaneously.

At the enterprise layer, increased AI maturity involves orchestrating AI across functions to enable enterprise-wide innovation and strategic alignment. Without a balanced focus on all three layers, organizations risk missing opportunities for transformation.

At the functions layer, AI should be embedded into key value streams, optimizing specific processes and creating improved outcomes, such as more compelling products and services, and more engaging, end-to-end employee and customer experiences.

At the foundations layer, organizations should build up the new AI-first technology stack, through a process of technology modernization. Infrastructure, data, models and applications can all become optimized for delivery of AI.



The first phase: Enable

Enabling AI to people

The Enable phase establishes the foundations for AI adoption. At the enterprise level, this includes appointing a responsible executive, developing an AI strategy, identifying high-value use cases, increasing AI literacy, aligning with regulations and introducing ethical guardrails.

At the function level, businesses pilot AI solutions across various areas, building skills, fostering innovation and learning from these initial implementations. At the foundation level, organizations use cloud platforms and pre-trained AI models from strategic providers with limited customization. This phase focuses on creating awareness, experimentation and alignment to help ensure the organization is prepared for broader AI integration.

Figure 2: Leveraging AI with stakeholder management is a key priority

Percentage who say their organization wants to achieve the following through using AI

Which of the following goals does your organization want to achieve through using AI? (Maximum 5) n=163

Source: Intelligent energy: A blueprint for creating value through AI-driven transformation, KPMG International, 2025

To guide clients' AI strategy and investments, KPMG in the US analyzed vast amounts of data to quantify the Gen AI opportunity. The analysis calculated the potential value at stake from fully deploying and adopting Gen AI across all potential uses within companies.

Over

17 million companies globally assessed.

After looking in depth at

7,000 companies employing

72 million people and pressure-testing results with

500 clients,

the results equate to

4 — 18% EBITDA* improvement in labor productivity alone.

Our calculations and methodologies show the potential value opportunity within the energy sector in the chart to the right.

*EBITDA = Earnings before interest, taxes, depreciation and amortization

Figure 3a: Gen AI opportunity by function: Energy (Values in US$ billions)

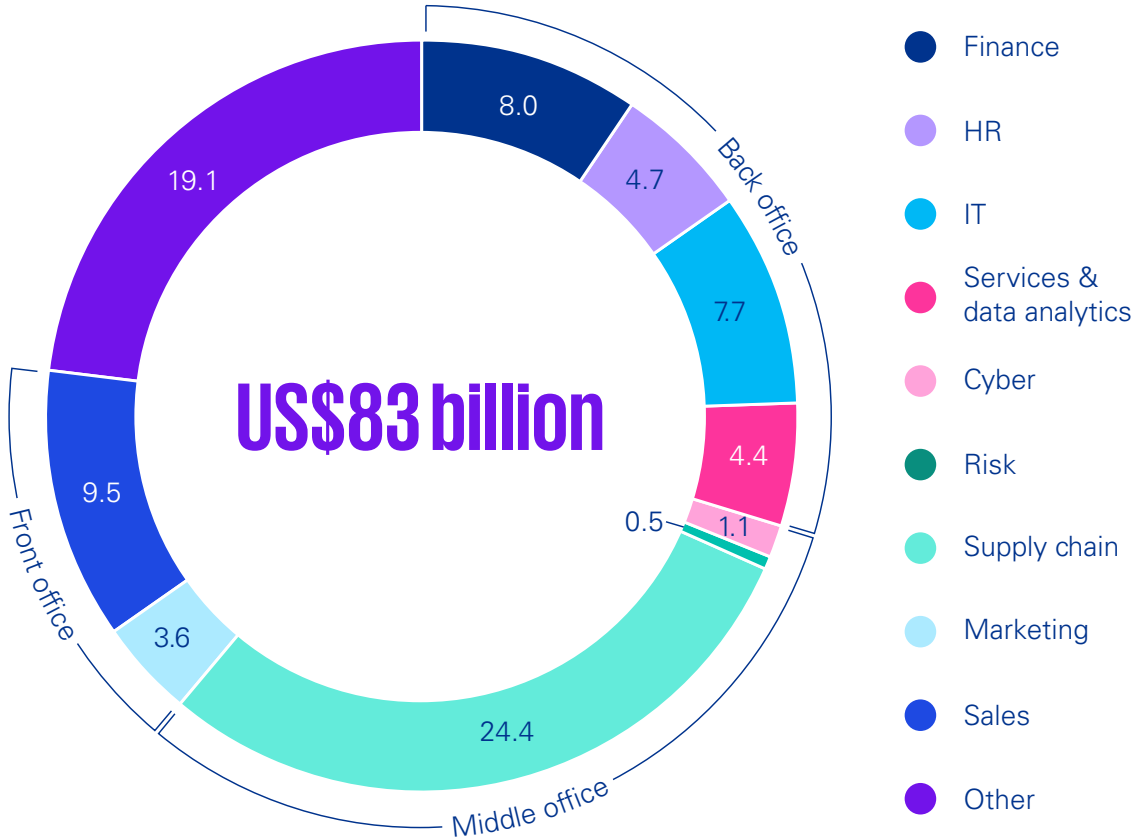
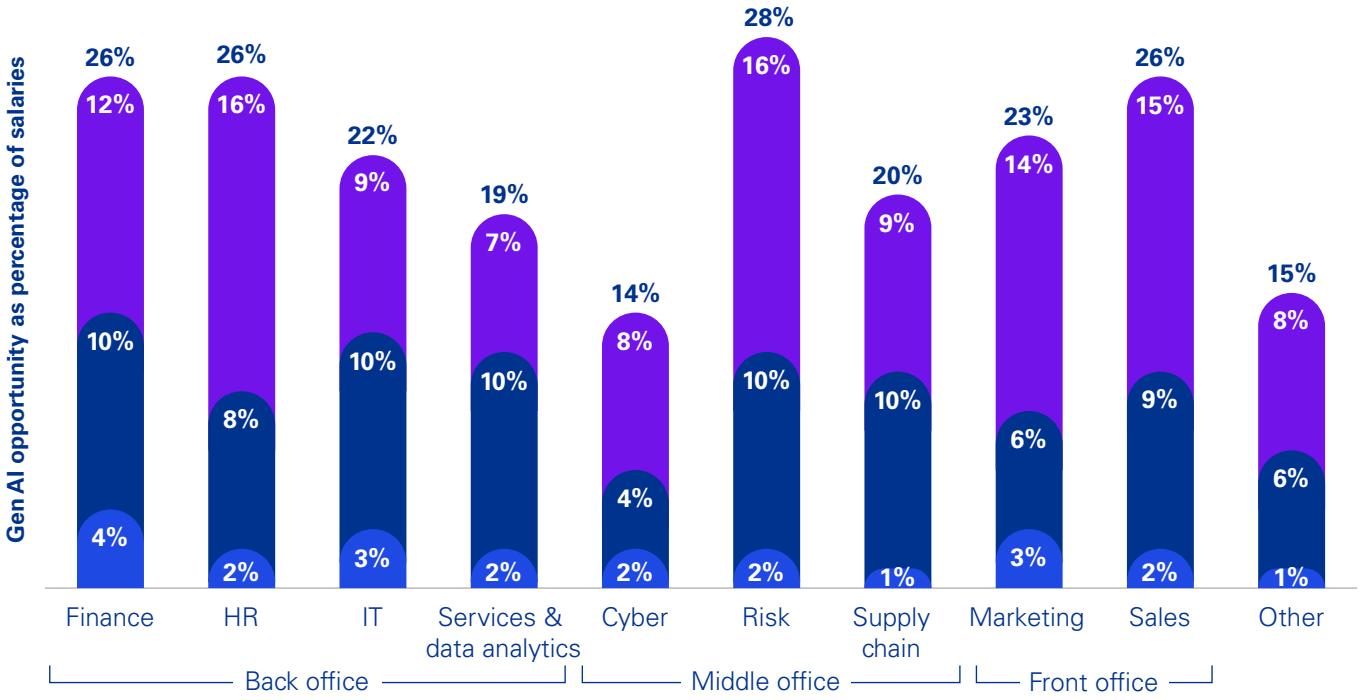


Figure 3b: Gen AI opportunity, task complexity breakdown: Energy



Low complexity

Based on tasks that are relatively simple and can be effectively augmented using readily available Gen AI tools such as Copilot, ChatGPT and other out-of-the-box technologies.

Medium complexity

Based on tasks that have potential for Gen AI augmentation but may necessitate the development of more integrated and customized solutions.

High complexity

Based on tasks that have potential for Gen AI augmentation but will likely require the creation of integrated and sophisticated solutions, as well as comprehensive governance and change management to enable adoption.

Note: Figure 3b shows the Gen AI opportunity as a share of total salary cost by degree of complexity within each function for all energy companies in the sample. The axis represents share of the Gen AI opportunity as a proportion of the total salary cost by degree of complexity within the function. Percentages in the graph may be rounded to the nearest whole number.

Source: Quantifying the GenAI opportunity, KPMG in the US, February 2025

Top areas of opportunity: Energy

01 Operations execution

02 Customer relationship management

03 Supply chain resource allocation

04 Performance optimization

05 Maintenance execution

06 Predictive analytics for IT operations

07 Event prediction

08 Chatbots and customer support

09 In-store analytics

10 Supply market risk

Source: Quantifying the GenAI opportunity, KPMG in the US, February 2025

Digital enablement pillars need to be in place

Reference architecture	Emerging technology	Data architecture and storage	Innovation ecosystem	Digital proficiency and skilling	Governance and change management
Front and back office	Cloud	Enterprise data	Internal innovation	Digital fluency	Policy
IT/OT	AI/Gen AI	Streaming data	Startup integration	Coding	Security
Security	Hyper computing	External data		Expert/Research skills	Cost/Value management
Workflow integration	Applications				

Exploration and reservoir

Drilling

Production operations

Plant operations and marketing

Corporate functions

AI use cases phase 1

From accelerating the discovery of new molecules for carbon capture and battery storage, to enhancing predictive maintenance and automating routine inspections, AI is enabling energy companies in phase 1 to reduce downtime, improve asset performance, and lower operational costs — while laying the groundwork for longer-term sustainability gains.

Molecular development

One of AI's most powerful applications in energy is in the discovery and optimization of chemical compounds, helping researchers develop more efficient catalysts, biofuels and sustainable fuels. AI-driven models can analyze molecular structures, predict chemical reactions and accelerate the discovery of next-generation energy sources. In biofuels, for example, AI is being used to engineer more effective compounds, increasing energy yield while minimizing environmental impact.[1]

Material discovery

AI is revolutionizing material discovery, enabling the development of lighter, stronger and more efficient materials essential for the energy industry. High-capacity battery components, advanced photovoltaic materials for solar cells and innovative electrolytes for energy storage are just some of the breakthroughs being driven by AI-powered simulations. AI is also helping to advance carbon capture and storage (CCS) technologies, improving porous material design to make CO_2 sequestration more effective and economically viable.[2]

Method development

AI is also making traditional exploration and refining more efficient while unlocking new opportunities in renewables. In oil and gas, AI can enhance reservoir modeling, seismic analysis and predictive drilling, reducing costs and minimizing environmental risks.[3]

Machinery innovation

At the infrastructure level, AI is supporting a more efficient and resilient global energy network. Smart grids can dynamically balance supply and demand, reducing energy waste and preventing blackouts. In renewables, AI-driven systems can optimize wind turbine performance, solar panel positioning and hydroelectric dam flow based on real-time weather and operational conditions. AI-enabled sensors, drones and robotic systems are improving safety across the sector, detecting leaks, corrosion and structural weaknesses in energy infrastructure before they lead to catastrophic failures.[4]

1 National Library of Medicine, "Artificial intelligence driven innovations in biochemistry", 1 April 2025
2 Science Direct, "Artificial intelligence enabled carbon capture: A review", 15 August 2023
3 Medium, "Top AI Trends in the Oil and Gas Industry for 2025", 13 February 2025
4 Sage Journals, "Optimizing renewable energy systems through artificial intelligence: Review and future prospects", 22 May 2024

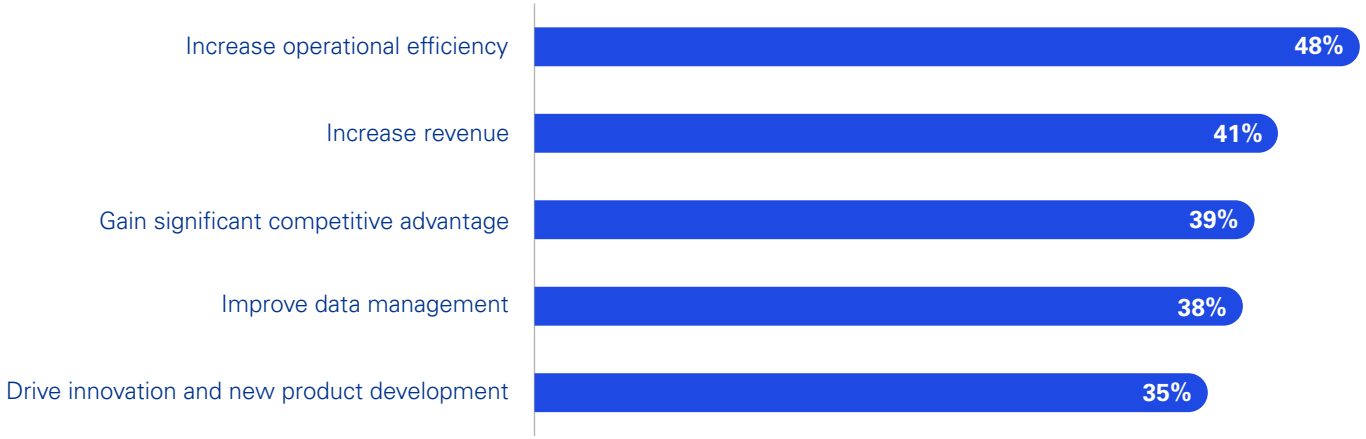
The employee experience

To build confidence in AI and accelerate adoption across the organization, energy companies should communicate tangible examples where AI delivers measurable value. Whether it's reducing unplanned downtime through predictive maintenance, optimizing fuel usage in generation assets, or improving customer satisfaction through smart support channels, these early wins help demystify AI and make potential benefits real. By focusing on use cases that solve known pain points or enhance operational efficiency, companies can move the conversation from abstract potential to demonstrated impact.

Equally important is how these proof points are shared across the workforce. Success stories should be championed by trusted internal voices — operators, engineers, analysts — who can speak to the practicality and relevance of AI in day-to-day roles. This helps build trust, counter skepticism and shift the narrative from AI as a threat to AI as a tool. When employees see AI improving workflows rather than replacing them, they're more likely to engage, experiment and contribute to AI adoption across the organization.

Figure 4: Increasing operational efficiency and revenue top AI goals

Percentage who say their organization wants to achieve the following through using AI (top 5)



Which of the following goals does your organization want to achieve through using AI? (Maximum 5) Growth AI maturity (n=115)

Source: Intelligent energy: A blueprint for creating value through AI-driven transformation, KPMG International, 2025

Case study

Using AI to drive efficiency gains

We spoke with a director of a Japanese electric utility holding company, who shared insights into the organization's journey towards AI implementation.

Current AI usage

Early AI implementation with focused use cases to enhance efficiency

The utility company is in the very early stages of AI implementation and has set up an internal team to help deploy AI tools across the organization. Currently, the team is focused on collating employee feedback to better optimize AI integration across the business.

In terms of use cases, the organization is leveraging AI for document reviews to manage the large volume of project specifications in utility projects. The director explained that electrical engineers input specifications into AI to extract key requirements for projects. Instead of manually reviewing documents, engineers can now rely on AI-generated summaries of specific requirements and use AI to answer targeted questions — significantly reducing review time and cutting labor costs. Additionally, the company is utilizing AI for business communication, assisting employees with drafting written correspondence.

Challenges

The need to overcome AI knowledge gaps

The director shared that many people in the organization have not been exposed to AI and therefore require training on how to use it effectively. The director noted challenges in implementing AI for specific tasks they aim to trial within their organization, such as inspections. They found that the tools currently in use often provide generic information rather than targeted insights. They emphasized that more tailored AI-generated insights would be significantly more beneficial and could drive greater adoption.

Organization's AI outlook

Leaders are expected to have deep AI expertise and use AI to make more data-driven decisions

The respondent emphasizes that leaders must have a deep understanding of AI, including its capabilities and limitations, to effectively drive AI implementation and value creation. They also highlight that AI is intended to support leaders in making better decisions, rather than replacing human decision-making altogether.

> "The major obstruction that I can see is that the people working in the organization are not exposed to AI."

Director — Japan

The second phase: Embed

Embedding AI in the flow of work

> I think the biggest lesson was around data architecture and infrastructure…After that, things became a lot easier.

Chief Financial Officer — Canada

The Embed phase integrates AI into end-to-end value streams and transforms ways of working across the enterprise. A senior leader, supported by a capable transformation office, oversees enterprise-wide change.

In Embed, AI enables large teams to complete complex tasks more efficiently and unlock more complex value opportunities. Energy companies should embed AI into core functions such as grid management or exploration. Intelligent decisioning, real-time operational insights and predictive maintenance will become critical to enhancing efficiency, safety and risk mitigation.

Mature data governance, shared data platforms and AI-powered decision ecosystems will play a crucial role in breaking down silos across functional teams, assets and energy networks. Key success metrics will extend beyond efficiency and cost reduction to include grid resilience, energy transition progress, operational uptime, regulatory compliance and sustainability impact.

Extending the energy ecosystem

By forging new partnerships across sectors, supply chains, and technology ecosystems, energy companies can accelerate innovation, share risk, access new capabilities, and unlock integrated solutions that no single organization could deliver alone. As AI-powered platform models gain traction, breaking down silos becomes a foundational requirement for ecosystem expansion. A customer — and market-centric approach — enabled by data products, AI-driven insights and collaborative business models — will allow energy companies to seamlessly integrate with distributed energy resources, industrial partners and carbon management initiatives. This can drive co-created value, optimized energy flows and more resilient, intelligent energy systems for the future.

Figure 5: The role of AI in transformation of the industry is evident

Percentage who say their organization has achieved the following benefits through using AI

What benefits has your organization had from using AI in the business? (Maximum 5) n=163

Source: Intelligent energy: A blueprint for creating value through AI-driven transformation, KPMG International, 2025

Value streams in phase 2: Orchestrating agentic AI at scale

In Phase 2 of the AI maturity model, organizations shift from isolated experimentation to enterprise-wide orchestration. This is where value streams become critical. With the emergence of agentic AI — systems capable of replicating expert judgment, navigating complex processes autonomously and escalating only when human input is truly needed — the traditional notion of AI "use cases" is no longer sufficient.

While traditional AI might support individual decisions,

agentic AI

takes it one step further and runs the workflow.

Use cases are merely fragments of value. They often address a task or decision point but fail to account for the end-to-end nature of operational workflows, especially in complex environments like energy production, refining or grid management. Agentic systems don't stop at discrete tasks — they can inhabit the role of an expert, manage an entire process autonomously and adapt dynamically to new information or constraints.

To realize this potential, companies should move beyond pilot thinking and embrace value stream-driven transformation.

- **Understanding the workflow** involves documenting the current human-executed process in detail, capturing how tasks are performed and decisions are made.
- **Mapping it end-to-end** requires identifying where the workflow begins and ends, who is involved at each stage, and where the key decision points and handoffs occur.
- **Reimagining it with AI** means evaluating whether the workflow should remain in its current form or be redesigned — potentially allowing agentic AI to manage a large part of the process autonomously, with humans stepping in only for exceptions.
- **Optimizing the human-machine mix** calls for determining where AI can add the most value and where human oversight remains essential for ethical judgment, safety, or contextual awareness.
- **Evaluating value at the stream level** shifts the focus from isolated use cases to assessing the cumulative value delivered across the entire end-to-end workflow.

For example, in a refinery, agentic AI could take on the persona of an 'AI Chief of Staff' to monitor the chemical balance in real time, make micro-adjustments based on external conditions and escalate only in the case of anomalies. While traditional AI might support individual decisions, agentic AI takes it one step further and runs the workflow.

This level of transformation demands a shift from deploying point solutions to orchestrating full-scale, AI-powered value streams. Only by viewing workflows holistically can energy companies unlock the true scale of benefit from agentic systems, by reducing operational bottlenecks, improving safety and enabling humans to focus on strategic oversight rather than tactical execution.

Key value streams in energy

Energy generation and production

This value stream covers the exploration, extraction, refining and generation of energy resources, whether from fossil fuels, renewables or nuclear power. For example, AI enables predictive maintenance in power plants, refineries and industrial assets by analyzing vast streams of sensor and operational data to detect early signs of equipment degradation or failure.

Machine learning models identify patterns and anomalies in temperature, vibration, pressure and other performance indicators, allowing maintenance teams to intervene before costly breakdowns occur. This shift from reactive to predictive maintenance reduces unplanned downtime, extends asset life and optimizes resource allocation.

Energy transmission and distribution

This value stream ensures that energy moves efficiently and reliably from production sites to end-users, balancing supply, demand and grid stability. For example, AI enhances pipeline and power line monitoring by using real-time data from drones, satellites, IoT sensors and smart grids to detect potential faults, leaks, or structural weaknesses before they lead to failures.

Advanced algorithms analyze environmental, pressure and flow data to identify subtle anomalies, enabling rapid, targeted maintenance. This proactive approach helps prevent environmental damage, reduces service disruptions and improves safety and regulatory compliance across critical energy infrastructure.

Energy trading and market optimization

Energy companies participate in wholesale energy markets, commodity trading and carbon credit markets, optimizing supply and pricing strategies. AI supports carbon trading and emissions tracking by automating the collection, verification and analysis of emissions data across complex operations.

Machine learning algorithms can accurately estimate carbon outputs, flag inconsistencies and ensure data integrity for regulatory reporting. This enables energy companies to meet compliance obligations more efficiently, participate in carbon markets with confidence and make data-driven decisions to reduce their environmental footprint.

Customer and energy retail management

Energy providers must deliver reliable, cost-effective and personalized energy solutions while optimizing customer engagement. AI plays a key role in customer service platforms enabling energy providers to deliver faster, more responsive support through chatbots, virtual agents and predictive call routing.

At the same time, AI analyzes consumption patterns to offer personalized energy efficiency recommendations, helping customers reduce costs and environmental impact. This combination of intelligent service and tailored insights enhances customer satisfaction, deepens engagement and supports the transition to more sustainable energy usage.

Sustainability, safety and regulatory compliance

Ensuring that energy operations align with environmental, safety and regulatory standards is essential. AI can streamline emissions monitoring and regulatory reporting by automating data collection, analysis and documentation across facilities and assets.

By integrating sensor data with compliance frameworks, AI ensures accurate, real-time tracking of emissions, flags potential violations and generates audit-ready reports. This can reduce manual effort, minimize reporting errors and help energy companies stay ahead of increasingly stringent environmental regulations.

Case study

Scaling AI across operations

The Chief Information Officer at a Chinese electric power company shared insights into how AI is being applied to improve operations.

Current AI usage

Focused and objective-driven AI implementation

The organization's AI adoption began with small teams piloting AI-based solutions in fault detection and equipment maintenance. Encouraged by positive results, the organization gradually expanded AI applications across multiple areas, including dispatch support, energy distribution optimization and customer service. Following the widespread rollout of AI, the organization established a Power AI Lab, bringing together interdisciplinary experts dedicated to researching and integrating AI into power systems. This team helps ensure that AI technology meets technical standards and addresses business needs. Additionally, they developed an AI ethics and compliance framework to promote responsible and regulatory-compliant utilization across the business.

Challenges

Overcoming challenges in cybersecurity, data governance and AI expertise

The organization highlighted several key challenges in adopting AI, including cybersecurity risks, data governance issues and the rapid pace of AI advancements. Additionally, a talent shortage and the substantial costs of AI implementation were also identified as obstacles. To address these challenges, the organization enhanced data security protections to mitigate cybersecurity risks and introduced improved data governance, standardization measures and a unified data platform or data fabric to eliminate data silos. Additionally, training and reskilling programs helped employees adapt to AI and new ways of working. The organization is also collaborating with universities to cultivate interdisciplinary expertise in both AI and power systems.

AI literate leaders

The respondent emphasized that leaders must possess technological acumen, understand AI's potential and its transformative impact on the industry and ways of working. Additionally, they must stay ahead of AI advancements, foster cross-departmental collaboration and cultivate an environment that encourages experimentation and innovation to fully harness AI's benefits. Partnering with outside organizations to add skills and specialist resources has also been essential.

Employees were concerned that AI would take away their jobs, a concern that is completely understandable but based on a misconception. It's important to clarify that the role of AI technology is to assist everyone in their work rather than replace people. To reassure our team and help them adapt to the new working environment, we provide specialized training and job transition plans. Through these measures, employees can learn new skills and find their way forward with AI.

The third phase: Evolve

Evolving your energy ecosystem

The Evolve phase transforms enterprises so they can anticipate market disruptions, forming new business models and ecosystems to solve larger, industry-wide problems and reshaping the organization.

> As costs come down, existing markets will grow and new ones will emerge. AI will open up new things that have not yet been done before. Focusing solely on cost-cutting is intellectually lazy — it's easier but less exciting. The real value lies in exploring new possibilities, which offer greater competitive advantages.

Erik Brynjolfsson — Professor and Senior Fellow at the Stanford Institute for Human-Centered AI (HAI), Director of the Stanford Digital Economy Lab

Third phase opportunities

In the third phase of AI adoption, energy companies move beyond internal optimization and become orchestrators of interconnected ecosystems, seamlessly integrating producers, grid operators, industrial consumers, governments and sustainability initiatives. AI no longer just improves efficiency — it reshapes entire energy markets, supply chains and business models, enabling self-regulating energy flows, decentralized energy distribution and data-driven decision-making at an unprecedented scale.

This transformation also demands a radical rethinking of organizational structures and operating models. Leading energy companies must embed AI into the fabric of their strategic planning — aligning leadership, governance, talent and workflows around AI-enabled value creation. To fully harness the potential of this phase and remain competitive, organizations should design comprehensive transformation roadmaps that reflect the systemic changes AI brings.

Autonomous energy grids dynamically balance supply and demand in real time

AI agents continuously analyze energy consumption patterns, market fluctuations and renewable energy generation levels, ensuring that power flows seamlessly across grids and microgrids. Instead of relying on centralized grid operators, these AI-powered grids can self-adjust to prevent blackouts, reroute energy based on need and integrate distributed energy resources, such as solar panels and wind farms, with maximum efficiency.

Cross-sector energy efficiency enables industries to share and exchange energy dynamically

Industrial hubs, manufacturing plants, data centers and commercial buildings may no longer operate in isolation but can become part of a networked energy system where excess energy can be traded or stored in real time.

Carbon and ESG marketplaces come to the fore

AI-driven platforms can automate emissions tracking, optimize carbon credit pricing and ensure regulatory compliance across industries. Real-time emissions data can allow organizations to trade carbon credits dynamically and adjust sustainability strategies based on changing regulations. These platforms can integrate data from industrial operations, supply chains and energy producers, making ESG performance a monetizable asset. Energy companies will likely become data-driven sustainability orchestrators, ensuring emissions reductions and sustainability investments translate into tangible financial returns.

Circular energy economy can redefine how energy and materials are used across industries

AI can predict when batteries and energy storage systems are nearing the end of their lifecycle, rerouting them for secondary applications in less energy-intensive environments. AI can also track industrial waste streams, identifying opportunities for energy recovery and material recycling, ensuring that byproducts from one sector become valuable inputs for another.

AI agents

continuously analyze energy consumption patterns, market fluctuations and renewable energy generation levels, helping to ensure that power flows seamlessly across grids and microgrids.

Key considerations

Key areas energy companies should address include:

1 Design an AI strategy that is driven by business strategy, aligns with core competencies and drives value

Energy companies should develop an AI strategy that is deeply integrated with their core competencies. AI should enhance operational efficiency, predictive maintenance, safety and sustainability while aligning with long-term business goals.

> As localized trials showed promising results, the leadership took notice and gradually developed a comprehensive AI strategy. Now, our company has established a Power AI Lab focused on researching the deep integration of AI with power systems, aligned with national strategic directions.”
>
> **Chief Information Officer** — China

Key actions

- Prioritize AI investments that directly address their most pressing needs — whether optimizing offshore drilling and exploration, enhancing grid resilience, improving refinery throughput or maximizing renewable energy integration.
- Map AI capabilities to operational pain points, deploying AI solutions where they can drive the greatest efficiency gains, cost savings and sustainability impact. By embedding AI in core business functions rather than treating it as an add-on, AI can deliver strategic, enterprise-wide value.
- Follow a structured roadmap, beginning with pilot projects in high-impact areas and scaling after clear success metrics are met. Each AI initiative should be tied to quantifiable outcomes, such as reducing maintenance costs by X%, lowering emissions by Y%, or improving asset uptime by Z%. Companies should balance quick wins, such as AI-driven predictive maintenance, with longer-term objectives.
- Embed AI within their broader energy transition strategy, ensuring AI solutions actively contribute to net-zero objectives. This includes using AI to optimize carbon capture and storage (CCUS), improve energy efficiency across industrial operations and enable AI-driven emissions trading and ESG reporting.
- Redesign organizational structures, operating models, and core processes to fully capture AI-driven transformation opportunities, unlock new market value and build enduring competitive moats that protect and scale advantage.

2 Build trust into the transformation roadmap from the outset

Trust is critical in an industry where safety, reliability and compliance are paramount. AI adoption should include transparent governance frameworks, robust risk management and regulatory alignment from the start. Energy firms should engage regulators, employees and external stakeholders to address concerns about data security, AI-driven decision-making and ethical considerations. By embedding explainability, accountability and fairness into AI models, companies can build the confidence needed to scale AI across operations.

> Cybersecurity is indeed a challenge, especially when adopting AI technologies. First, data security is critical because massive amounts of data [could] severely impact the accuracy of AI models if leaked or tampered with and could even threaten the security of the power grid. At the same time, AI models themselves can become targets of attacks, leading to errors in AI outputs.

Chief Information Officer — China

Key actions

- Establish clear governance frameworks that include guardrails for responsible AI use, ongoing monitoring for model drift, secure data-sharing protocols to ensure regulatory compliance and data governance to ensure proper definition and usage of data sources. Governance boards — comprising legal, compliance, IT and operational leaders — should oversee AI initiatives, ensuring decisions align with safety, ethical and business priorities.
- Help ensure models are understandable and auditable, particularly when applied to safety-critical systems, grid management and emissions reporting. Companies should invest in explainable AI (XAI) techniques that allow both internal teams and regulators to understand why AI models make certain decisions. Regular AI audits, similar to financial or operational compliance checks, should be mandated to identify biases, drift or security vulnerabilities.
- Collaborate with regulators, industry bodies and employees to help ensure alignment on safety, fairness and security. Companies should proactively engage in AI policy discussions, sharing best practices with regulatory bodies to help shape practical, industry-wide standards. Internally, training programs should educate employees on how AI impacts their roles, while externally, clear AI ethics commitments should be communicated to customers and investors.
- Adopt strong encryption, access controls and zero-trust architectures to protect AI systems from cyber threats. AI-driven risk models should assess potential vulnerabilities in operational networks, while compliance measures should ensure data sovereignty laws are met across global operations.

3 Create a sustainable technology and data infrastructure for AI adoption

Scalable technology and data foundation are essential for unlocking AI's full potential in energy. Companies should invest in automated data fabrics, cloud-based platforms and hybrid IT infrastructures to help ensure seamless AI integration. Standardizing data across distributed energy networks, sensor-driven industrial sites and real-time grid operations enables AI models to function effectively. Equally important is ensuring AI's energy footprint is minimized, balancing innovation with sustainability goals and regulatory requirements.

> On the more technical side, the cleanliness of the internal data that you're feeding into the model is also a concern of ours. We have a lot of data. A lot of it's on paper. A lot of it's in a database. How do you merge all the different datasets and make them available to the model so that, over time, it keeps learning how you like to do things? The availability of data and then also the cleanliness of the data, it's a challenge.

Chief Risk Officer — US

Key actions

- Build a unified, modular and scalable architecture that integrates legacy systems, cloud environments and edge computing for real-time energy optimization. Companies should move away from fragmented, function-based architectures towards a more holistic AI-powered ecosystem that aligns with corporate strategy and business objectives.
- Prioritize data governance and integration strategies that enable AI-driven decision-making across the enterprise. The energy industry, in many ways, is built on 100 years of accumulated data, yet inconsistent data structures, siloed information and outdated governance policies make AI implementation difficult.
- Deploy AI at the edge. As energy companies manage highly distributed operations — from offshore drilling rigs to decentralized renewable assets — edge AI is essential for real-time analytics and decision-making. Processing data closer to the source reduces latency, bandwidth costs and dependency on cloud computing. This is particularly critical for smart grid operations, predictive maintenance in remote locations and real-time emissions monitoring, where immediate AI-driven decisions can improve efficiency and prevent failures.
- Keep sustainable consumption top of mind. While AI drives efficiency across energy operations, its computational demands can be energy-intensive, creating a paradox for companies focused on decarbonization. To align AI innovation with sustainability goals, energy firms should deploy AI models that actively optimize energy consumption within data centers, industrial plants and transmission networks to help ensure that AI adoption does not undermine sustainability commitments.

4 Build a culture that uses AI to uplift human potential

AI in energy should be seen as an augmenting force rather than a replacement for human expertise. Organizations should foster a culture where AI empowers engineers, technicians, grid operators and decision-makers by enhancing insights, automating routine tasks and improving safety. Investing in AI literacy, upskilling and ethical AI training helps ensure employees are prepared for the AI-enabled future. Companies that integrate AI seamlessly into their workforce can drive productivity, innovation and long-term competitive advantage.

> Another challenge is the talent gap. The application of AI technology particularly requires professionals who understand both power business operations and AI technology, a rare combination in the market. To address this shortage, we are adopting multiple strategies: internally, we are enhancing training to upgrade the skills of existing employees; externally, we are actively recruiting those rare experts. Additionally, we are collaborating with universities to cultivate more talent who meet our needs from the ground up.

Chief Information Officer — China

Key actions

- Break down organizational silos. Functional silos between business process teams, data teams, AI development teams and business leaders often inhibit collaboration. For AI to succeed, these groups must work together as a single, integrated unit, helping ensure AI models are trained on the right data and deployed in ways that support real-world business objectives.
- Empower the workforce. AI will replace some jobs but will also create new ones; workforce resistance and skills gaps will remain significant barriers. Energy companies need to invest in AI upskilling programs to help ensure employees can effectively interpret AI-driven insights, operate AI-powered systems and make data-driven decisions.
- Prioritize change management. The energy sector has a history of structured, process-driven operations and AI introduces more agile, data-driven decision-making. Successfully embedding AI into the organization requires strong leadership, clear communication and a structured approach to foster adoption at all levels.
- Rethink the operating model. The energy sector has long been highly function-based and hierarchical, with previous attempts to overcome siloed thinking through matrix structures often falling short. AI success demands a new approach, where corporate strategy informs business architecture, which in turn defines the technology and data architecture. Without this structured approach, AI efforts risk being piecemeal and ineffective, failing to drive the transformational change energy companies need.

Conclusion

As energy companies confront the complexity of the industry trilemma — ensuring secure, reliable supply, accelerating decarbonization, and keeping costs manageable — AI is emerging as a critical enabler. It offers a powerful set of tools to optimize operations, enhance resilience, and drive the radical efficiencies needed to transition at pace. But delivering on this potential requires a shift from fragmented, use-case-driven deployments to enterprise-wide, value stream-aligned transformation.

Agentic AI represents the next leap forward. These intelligent systems can complement expert judgment, manage end-to-end workflows autonomously, and adapt dynamically to changing conditions — freeing up human talent for higher-value work and addressing the sector's growing skills gap. Whether forecasting demand, managing distributed assets, or predicting equipment failure, AI should now be embedded at the core of business models — not bolted on at the edge.

The path forward demands bold leadership, a reimagining of workflows, and a flexible technology architecture that avoids locking into today's assumptions. As this report shows, organizations that act now — aligning their AI strategy with business transformation — can be better positioned to lead through disruption, deliver on climate commitments, and meet the rising expectations of regulators, investors, and consumers alike.

The path forward demands

bold

leadership, a reimagining of workflows, and a flexible technology architecture that avoids locking into today's assumptions.

Methodology

To gain a broad understanding of how leaders are navigating the opportunities and challenges of implementing AI, KPMG International conducted a robust research program involving multiple methodologies.

This included in-depth interviews with eight AI experts spanning technology, government regulation and industry, as well as discussions with sector-specific KPMG specialists. Qualitative research was conducted to uncover nuanced, industry-specific challenges and opportunities, including insights from several industry experts, including Erik Brynjolfsson of Stanford University, a renowned authority on AI and digital transformation.

The research was further strengthened by a quantitative survey of 1,390 decision-makers across key global markets, including 163 respondents from the energy sector. These leaders shared their experiences and perspectives on overcoming barriers to AI adoption, from dismantling legacy systems to addressing organizational inertia. In parallel, an 18-month research project evaluated the realistic value at stake for fully deploying and adopting generative AI. Together, these inputs offer a clear roadmap for organizations to unlock AI's potential and drive meaningful, enterprise-wide change.

The research was further strengthened by a quantitative survey of

1,390

decision-makers across key global markets, including 163 respondents from the energy sector.

KPMG: Guiding your AI transformation with experience

With over 150 years of experience in data, industry insights, technology and regulatory expertise, KPMG is uniquely positioned to help you uncover AI opportunities, work through critical business challenges and unlock new revenue streams. From strategy to implementation, we guide you in taking small, impactful steps to tackle even the most complex problems — all underpinned by trust. We've invested in an AI-enabled platform for organizational change. It brings together the best of our thinking, frameworks, strategies and tools. So, you can change smarter and move faster — eliminating inefficiencies and building trust and confidence at every step.

Wherever you are on your AI journey, KPMG can help:

Develop a transformational AI strategy

Define your AI goals, identify opportunities and risks, and create a tailored strategy and execution plan. Build a business case with clear metrics to secure investments and ensure measurable success by scaling AI for enterprise-wide impact and building lasting capabilities.

Ensure AI trust and compliance

Scaling AI introduces complexities and risks. KPMG Trusted AI teams can help ensure your AI solutions are ethical, secure and compliant. Our Trusted AI Framework, built on 10 ethical pillars, empowers organizations to boldly deploy AI responsibly, transparently and with confidence.

Empower your workforce with AI

KPMG AI-enabled Workforce solutions deliver personalized adoption and upskilling experiences, helping your team embrace generative AI and infuse it into everyday work.

Build a sustainable AI technology infrastructure

Leverage KPMG professionals' experience to integrate AI frameworks, platforms and accelerators, helping you ensure your technology infrastructure is ready to scale AI initiatives.

We help clients harness the power and potential of AI. From strategy to implementation. Small steps towards solving seemingly impenetrable problems. Underpinned by trust.

You can discover endless opportunities with AI. You can with KPMG.

About the authors

Anish De
Global Head of Energy, Natural Resources and Chemicals
KPMG International

Anish is the Global Head of Energy, Natural Resources and Chemicals at KPMG International. He is a renowned expert in the energy sector, focusing on corporate strategy and energy transition with a focus on leveraging advanced technologies, such as AI. Anish is recognized for his contributions to major publications and has been instrumental in establishing the KPMG in India Decarbonization Hub.

Garrett Flynn
Partner, Advisory
KPMG in the US

Garrett is a leader in data and AI, focusing on Gen AI and metadata-driven architectures for agile governance frameworks. His extensive experience has equipped him with the skills necessary to transform traditional governance models for an AI-driven future that meets evolving business needs.

Maz Hussain
Head of Digital Lighthouse
KPMG in Saudi Arabia

Maz leads the Digital Lighthouse, focusing on data analytics, AI and emerging technologies. He oversees the Insights Center in Riyadh, driving digital value creation and multidisciplinary team integration. With 20 years of experience, including 10 in digital innovation at KPMG UK, he enhances decision-making and business performance in a digital economy.

Dhawal Jaggi
Partner, Data & AI
KPMG Australia

Dhawal works with Fortune 500 and ASX 100 boards and C-suites to develop award-winning AI strategies. With over 20 years in AI and machine learning, he drives intelligent enterprise transformation through data and emerging tech. His focus includes creating strategic partnerships that empower organizations to thrive in a rapidly evolving landscape.

Karyn Mercer
Partner, Consulting — Data & Cloud
KPMG Australia

Karyn is a senior executive with over 20 years of experience in strategy and transformation. Joining KPMG in 2023, she leads energy sector transformation through data and cloud initiatives. Through her expertise, Karyn helps organizations navigate the complexities of digital innovation, driven by AI technologies to foster a more sustainable future.

Shreyansh Upadhyay
Associate Partner
Business Consulting
Chair, AI for Energy
KPMG in India

Shreyansh has extensive experience in strategic digital transformation across the energy value chain, focusing on enhancing operational efficiency and driving sustainable growth. As Chair of the global AI for Energy community, Shreyansh is passionate about leveraging AI to unlock business value for his clients in the energy sector.

Adrian Clamp
Global Head of Connected Enterprise
KPMG International

Adrian is the Global Head of Connected Enterprise at KPMG International, which focuses on customer-centric and agile digital transformation. With over 30 years of experience in leading complex technology change, he specializes in large-scale digital transformation projects, utilizing advanced technologies like AI to unlock value in large organizations.

Contributors

We could not have created this report without the support, knowledge and insights of AI experts and KPMG professionals around the world who contributed their time to this report.

Thank you to:

External contributors

Erik Brynjolfsson
Professor and Senior Fellow at the Stanford Institute for Human-Centered AI (HAI), Director of the Stanford Digital Economy Lab

Editorial board

Leanne Allen
Partner, FS Consulting Technology and Data, Data Science & AI Capability Lead
KPMG in the UK

Lisa Bigelow
Managing Editor
Advisory Insights
KPMG in the US

Gerrit Bojen
Partner, Head of Technology & Finance Consulting, Financial Services
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Rebecca Brokmeier
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KPMG in the US

Sam Burns
Global Chief Marketing Officer
KPMG International

Swaminathan Chandrasekaran
Head of US AI Center of Excellence
KPMG in the US

David Conway
Senior Associate Director
Customer Excellence Centre
KPMG in the UK

Melany Eli
Managing Director, Head of Functional Marketing and AI-led Campaigns
KPMG International

Benedikt Höck
Head of Artificial Intelligence
KPMG in Germany

Scott Marshall
AI-enabled Digital Transformation
KPMG International

Joseph Parente
Principal, AI Consulting Leader
KPMG in the US

Jeff Potter
Head of Advisory Insights
KPMG in the US

David Rowlands
Global Head of Artificial Intelligence
KPMG International

René Vader
Global Markets AI Lead
KPMG International

Sector editorial group

Anish De
Global Head of Energy, Natural Resources and Chemicals
KPMG International

Garrett Flynn
Partner, Advisory
KPMG in the US

Maz Hussain
Head of Digital Lighthouse
KPMG in Saudi Arabia

Dhawal Jaggi
Partner, Data & AI
KPMG Australia

Karyn Mercer
Partner, Consulting — Data & Cloud
KPMG Australia

Matt Pearce
National Industry Leader Energy Mining & Property
KPMG Australia

Shreyansh Upadhyay
Associate Partner
Business Consulting
Chair, AI for Energy
KPMG in India

Contacts

Anish De
Global Head of Energy, Natural Resources and Chemicals
KPMG International
anishde@kpmg.com

Trevor Hart
Lead of Global Mining
KPMG International
thart@kpmg.com.au

Mike Hayes
Lead of Global Renewables
KPMG International
mike.hayes@kpmg.ie

Gillian Morris
Lead of Global Chemicals
KPMG International
gillianmorris@kpmg.com

Colm O'Neill
Lead of Global Power and Utilities
KPMG International
colm.oneil@kpmg.ie

Jonathan Peacock
Lead of Global Oil and Gas
KPMG International
jonathan.peacock@kpmg.co.uk

Sharad Somani
Partner, Head of Infrastructure Advisory, Head of Infrastructure, Asia Pacific and Head of ESG Consulting
KPMG in Singapore
sharadsomani@kpmg.com.sg

Lim Wen Bin
Partner, Infrastructure Advisory
KPMG in Singapore
wenbinlim@kpmg.com.sg

Deven Chhaya
Partner, Infrastructure Advisory
KPMG in Singapore
devenchhaya@kpmg.com.sg

kpmg.com/intelligentenergy

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