

# Evolving Energy Transition, Evolving Opportunities

BlackRock's insights on an evolving energy transition and related investment opportunities

## The Crosscurrents Reshaping Energy

In our view, the energy system sits at the intersection of several powerful mega forces shaping the global economy. Among the most relevant to the energy transition are:

- **Digital disruption and AI:** The rise of artificial intelligence has created unprecedented demand for power-hungry data centres
- **Geopolitical competition:** Industrial policy and trade protectionism are reshaping supply chains and markets for critical technologies
- **Climate, energy, and industrial policy:** Governments are constantly rebalancing objectives across security, affordability, resilience, and decarbonisation

Together, these forces are accelerating capital expenditure and creating mismatches between demand growth, investment flows and investment performance.

## An Evolving Energy Transition

The trajectory of the energy transition continues to be debated, with seemingly divergent signals across regions, sectors, and markets. Some low carbon technologies are growing rapidly, but so too is aggregate energy demand. Policymakers around the world are balancing sometimes conflicting objectives, while geopolitical competition and technological disruption are shaping how nations and corporations access secure, reliable, low carbon and affordable energy to power the global economy.

For investors, we believe the energy transition is not a single straight line to a low-carbon future. It is a complex, multi-speed evolution that will generate both risks and opportunities across asset classes.

## Rising Power Demand: AI, Air Conditioners and Electrification

One of the most striking developments of recent years has been the surge in global electricity demand. Since 2000, total raw energy use has risen by roughly 50%, but electricity generation has doubled.<sup>1</sup> This reflects the electrification of homes, factories, vehicles — and quickly rising demand sources like data centres.

The race to build and train AI models has spurred a wave of investment in cloud infrastructure. As just one example, U.S. data centres already account for about 4% of national power consumption,

and some projections suggest that could rise by more than 200% by 2030.<sup>1</sup> Utilities most exposed to this demand delivered 20% higher investment returns in 2024 than peers with less exposure.<sup>2</sup>

Cooling demand is another powerful driver. As incomes rise and extreme heat is forecast to become more frequent, particularly but not solely in emerging markets, the adoption of air conditioning is set to soar.<sup>3</sup> Combined with the electrification of transport and industry, these factors point to a sustained period of strong electricity demand growth.

Globally, fossil fuels, renewables, nuclear and other emerging energy sources are all growing to meet surging power demand. This means that even as low-carbon energy grows rapidly, traditional energy is likely to maintain significant market share for decades to come.

## Strategic Competition: From Oil Barrels to Solar Panels

Since the oil crises of the 1970s, energy security debates focused on oil supplies. Today, the competition has broadened to include low-carbon technologies - and the minerals that underpin them - as one of many considerations in evaluating energy security. China has established itself as a leading manufacturer of solar panels, batteries, and electric vehicles. In many cases, its production capacity already exceeds global demand.<sup>4</sup> Beyond energy, the demand for critical minerals is also being driven by geopolitics, shifting supply chains and the advent of new technologies. For example, in the U.S., rare minerals have emerged as a focus topic for both national security as well as industrial policy initiatives.

Certain governments have responded with industrial policies that combine subsidies with trade barriers, such as the EU's Net Zero Industry Act. These policies aim to foster domestic production, boost resilience, and support jobs, but they also fragment markets and create return dispersion across regions.

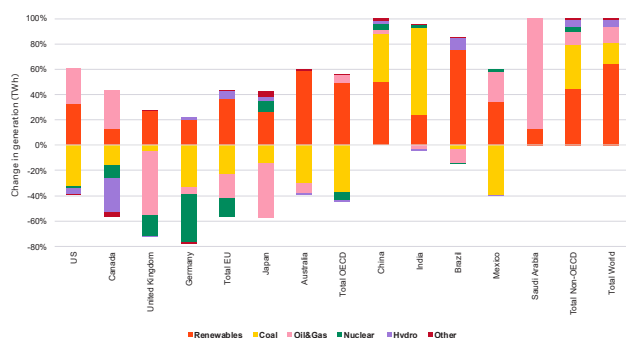
The outcome is a new phase of strategic competition—less about oil shocks, more about trade policy, subsidies and technological dominance. For investors, this market fragmentation highlights the importance of selectivity: profitability may flourish in protected domestic markets even as global competition compresses exposed margins.

## Policy in Flux: Elections and Energy Priorities

Domestic politics remains central to the shape and speed of the energy transition. The energy crisis following Russia's invasion of Ukraine underscored how security and affordability can overtake decarbonization in the short-term policy hierarchy in Europe, and it contributed to the goals of energy independence in the U.S. The 2024 wave of elections around the world added another layer of complexity. Some countries, such as India and Japan, signalled policy continuity, keeping existing strategies in place. Others indicated a recalibration, with shifts toward traditional energy or adjustments to green incentives. Elsewhere, the UK, countries across continental Europe, Brazil and others are embracing a growing priority for renewables. See Figure 1.

The ASEAN region has reaffirmed its commitment to build a modern, interconnected regional grid by 2045 to facilitate power trade and accelerate renewable energy initiatives across its 10 member countries, although progress on this initiative to-date has been modest. Political and regulatory alignment, technical standardization, and financing challenges remain. Individual countries, however, may be able to move faster. For example, Singapore has demonstrated consistent leadership

**Figure 1: Relative change in power generation by type, 2019-2024**



Sources: BlackRock investment Institute with data from Energy Institute [2025] Statistical Review of World Energy, August 2025. Note: The chart shows the percentage change in power generation in 2024 relative to 2019 levels.

**Figure 2: Big Rotations within Energy Stock**  
Performance of indexes and thematic baskets



The figures shown relate to past performance. Past performance is not a reliable indicator of current or future results. Index performance returns do not reflect any management fees, transaction costs or expenses. Indices are unmanaged and one cannot invest directly in an index. Source: BlackRock Investment Institute, with data from Bloomberg, information as of 31 July 2025. Notes: The heatmap shows the annual and 2019 to 31 July 2025 returns for major equity indexes and key energy sectors. Returns are scaled by calendar year, with the lowest values (for that calendar year) in red and the largest values in green. The black boxes indicate the energy sub-sector that outperform MSCI World in each respective year. Indices used: S&P Global Clean Energy Index (Renewables), S&P 500, Solactive Global Uranium & Nuclear Components Total Return Index (Nuclear), S&P 1200 ELEC COM&EQU TR Index (Grids), Solactive Copper Miners Index (Copper), MSCI World Utilities Index (Utilities), MSCI World Energy Index (Hydrocarbons), and MSCI World Index. Gas turbine OEMs represent baskets of stocks that combined represent more than 50% of gas turbine order books as of H1 2025, and AI-exposed utilities represents basket of stocks that are deemed as early beneficiary of AI data-centre demand. They are provided solely for illustrative purposes and do not necessarily reflect the broader sector or industry.

and innovation in energy transition finance. It seeks to accelerate Southeast Asia's energy transition through collaborations with key global public, private and philanthropic partners through the Financing Asia's Transition Partnership ("FAST-P"). This is a Singapore-led blended finance initiative to mobilize investments to de-risk and finance Asia's decarbonisation and climate resilience efforts. Another example is Japan's Green Transformation ("GX") Policy, which aims to catalyse international private investment into a range of energy technologies to accelerate Japan's energy transition. This global patchwork reinforces the reality of a multi-speed energy transition: some regions accelerate, others slow, but the overall long-term direction remains toward more electrification and eventually lower emissions.

### Investment Implications: Maintaining an Active Approach

Adapting to dispersion and navigating granular opportunities requires an active approach, we think – whether through index funds or alpha-seeking strategies. Performance data since 2019 underscore this point. Renewable energy public equities initially outperformed, only to

underperform as interest rates rose and supply chain issues emerged. More recently, nuclear and grid-linked equities have delivered higher investment returns, while hydrocarbons have staged cyclical comebacks during supply shocks. See figure 2.

This pattern reflects the energy transition's complexity. As mega forces collide—AI adoption, climate policy, industrial competition—different parts of the energy system gain or lose favour. Staying active can help investors seek to capture opportunities when market rotations occur, rather than being caught on the wrong side of them.

Private markets, in particular, are poised to play a central role in funding energy infrastructure. With annual capital-investment needs projected to average nearly \$4 trillion, much of the financing will come from asset owners invested in private equity, infrastructure funds, and partnerships between public and private capital.<sup>5</sup>

### Looking Ahead: A Complex, Investment Opportunity-Rich Transition to a Low Carbon Economy

The uneven pace of the energy transition creates dispersion—in profitability and in investment returns. For investors, that can mean opportunities across multiple segments of the energy system:

- **Utilities, grids, and infrastructure:** Rising demand from AI and electrification requires significant grid expansion and modernization. Utilities positioned to supply always-on, low-carbon power are emerging as beneficiaries
- **Natural gas:** Often seen as a bridge fuel, gas remains strategically important for governments seeking reliability amid rising intermittent renewable generation
- **Clean technologies:** Despite volatility, solar, batteries, and electric vehicles continue to gain market share, though profitability varies by geography
- **Emerging innovations:** Modular nuclear reactors, enhanced geothermal, long-duration storage, and even fusion are attracting both public and private investment.

### Conclusion: Navigating the Energy Transition as Investors

The energy transition is not a straight road but a series of intersecting currents. For investors, it represents both a challenge and an opportunity.

The investment challenge lies in its complexity: uneven speeds across regions, shifting policy landscapes, technological uncertainty, and geopolitical competition. The investment opportunity lies in its scale: the potential to attract trillions in capital investment, new business models, and a reconfigured global energy map.

By staying active, selective, and forward-looking, investors can position themselves not only to weather the turbulence but also to capture the opportunities emerging at the crossroads of energy, technology, and policy.

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<sup>1</sup>Source: BlackRock Investment Institute, with data from the International Energy Agency, JP Morgan, Goldman Sachs, Bank of America, Schneider, Semianalytics, Bernstein, McKinsey, Boston Consulting Group, and BlackRock's Global Infrastructure and Fundamental Equities team, December 2024.

<sup>2</sup>Indices are unmanaged and one cannot invest directly in an index. Source: BlackRock Investment Institute, with data from Bloomberg and Aladdin Climate, December 2024. The data universe is based on the MSCI Utilities Index representing a segment of utilities and independent power producers (IPPs) in the U.S. AI beneficiaries represent

a segment of utilities and IPPs that we classified as beneficiaries of artificial intelligence (AI), based on our review of sell-side reports and investor interviews.

<sup>3</sup>Source: BlackRock Investment Institute, with information from International Energy Agency (IEA), ThunderSaid Energy (TSE), as of July 2024.

<sup>4</sup>Source: BlackRock Investment Institute with data from International Energy Agency (IEA), October 2024.

<sup>5</sup>Source: BlackRock Investment Institute with data from the Energy Institute's 2024 Statistical Review of World Energy, September 2024.

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