TCW

Cross-Asset Research

Energy Transition Outlook: Security, Scale, and the Cost of Disorder

Nicholas Britz
Vice President
Cross-Asset Research & Sustainable Investment Group

Key Takeaways

01 Security has replaced climate as the transition's prime mover, and the Hormuz shock made it plain. Capital now follows security and affordability, funding the same grids, transmission, and clean capacity that decarbonization depends on.

02 The transition is addition, not substitution. Every major energy source set records in 2025; with demand rising about 40% by 2050, the binding constraint is build speed, not generation.

03 Disorder is the base case, and it rewards selection. A roughly 2.8°C trajectory and diverging blocs make energy shocks structural rather than tail risks, favoring breadth across the stack, active selectivity, and exposure to bottlenecks.

June 2026

A quarter of the world's seaborne oil stopped at a single point on the map this year. The Strait of Hormuz closed, took a fifth of global LNG with it[1] and months on has still not fully reopened, the most severe oil supply disruption on record. This unprecedented disruption is a stark reminder of the fragility of our energy systems. We are not flagging it for the headline. We are flagging it because of what it reveals about the energy transition: how policy and capital are shifting, and what those shifts mean for the next decade.

The short version is straightforward. Energy security is back at the top of the agenda. Demand is rising faster than supply can be built. Climate outcomes are not lost in this: the security agenda is paying for the same technologies decarbonization depends on, and may scale them faster than climate policy alone ever could. The path from here to a decarbonized system will be bumpy enough to put a premium on selectivity and active risk management.

Priorities Reordered. The Crisis, Less So.

For most of the last decade, governments talked about three goals: security, affordability, and sustainability. Sustainability usually came first, with the harder trade-offs deferred rather than resolved. There was a logic to that. Cheap gas, stable shipping lanes, and frictionless, globalized supply chains made it easier to treat the other two priorities as broadly in hand.

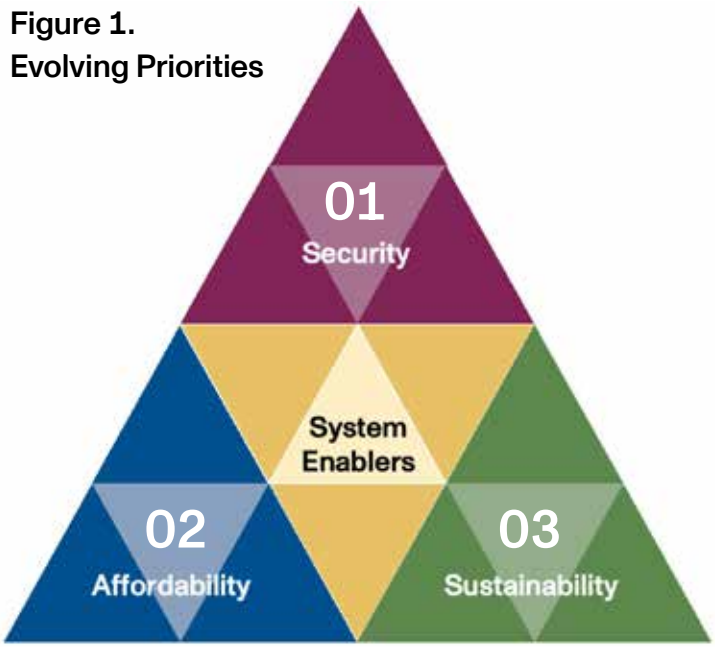
Four things changed. COVID exposed supply-chain fragility, and protectionism quietly followed. Europe lost cheap Russian gas overnight. Electricity demand began rising after 20 flat years. Then there is Hormuz, which spelled out in real time how much of the global energy system runs through a single chokepoint.

The order is now reversed. Security first: domestic supply, varied suppliers, a grid that holds up. Affordability second: prices that households and industry can plan around. Sustainability third: still on the agenda, but no longer winning arguments it cannot fund. Energy security is a strategic variable now, not a background condition. The lesson is not to retreat from global markets but to carry more slack within them. Energy systems are shifting from just-in-time to just-in-case, favoring storage, redundancy, and a wider supplier base over lean efficiency, and that insurance is not free.

One paradox is worth flagging. The new agenda is paying for the same investments decarbonization has long needed: grids, transmission, domestic manufacturing, replacement of imports with local capacity.

Those investments decarbonize an economy as a side effect. We think that is a bigger story than it sounds. The build-out may move faster under a security regime than under transition policy alone.

Figure 1.
Evolving Priorities



Security and affordability are driving the agenda – and in doing so, may be accelerating the sustainability outcomes investors once had to subsidize.

The energy transition was built on security logic before it was built on climate logic, and that framing has returned. Governments are navigating security, affordability, and sustainability in that order, with tariffs, export controls, and domestic content requirements now first-order tools of energy governance.

Climate progress is real but uneven, and off-track versus Paris. Yet the domestic build-out, grid investment, and supply chain reshoring driving the security agenda are accelerating decarbonisation as a byproduct. Durable capital follows security and affordability, and sustainability may move faster for it.

01 | Security

Domestic supply adequacy: Sufficiency of indigenous energy production relative to demand

Source diversification: Reduced dependence on any single fuel, technology, or supplier

Critical minerals supply chains: Availability and resilience of materials underpinning the energy transition

Infrastructure resilience: Physical and cyber robustness of grids, pipelines, and storage assets

Geopolitical risk exposure: Vulnerability of supply routes and trade relationships to external shocks

02 | Affordability

Consumer price stability: Household and industrial energy cost predictability

Industrial competitiveness: Energy costs as a factor in manufacturing and investment location decisions

Access & reliability: Universal availability of energy services across income levels and geographies

Transition cost distribution: Who bears the cost of decarbonization and how it is allocated across the economy

03 | Sustainability

Emissions reduction: Trajectory toward lower-carbon energy production and consumption

Decarbonization pathways: Portfolio of technologies (renewables, gas, CCS, nuclear) enabling the transition

Resource stewardship: Responsible land, water, and materials use across the energy system

Circular economy: Recycling and reuse of critical minerals and energy infrastructure components

System Enablers

Energy efficiency: Demand-side optimization across industrial, commercial, and residential sectors
Grid stability & flexibility: Balancing supply and demand as the generation mix evolves
Capital mobilization: Scale and pace of private and public investment required to fund the transition
Technological innovation: Cost reduction and deployment of next-generation energy technologies
Market & policy design: Regulatory frameworks and price signals that align incentives across the trilemma

Source: TCW Research, World Energy Council

The Transition is an Expansion: Energy Addition, not Substitution

A common assumption is that the transition looks like a handoff. Old energy declines, new energy rises, and the chart crosses neatly. That is not what we see in the data, and 2025 illustrated why. The world set records in renewables, oil, gas, coal, and nuclear at the same time, with solar contributing the largest single share of demand growth for the first time on record. Every other source still grew.[2] (See Figure 2).

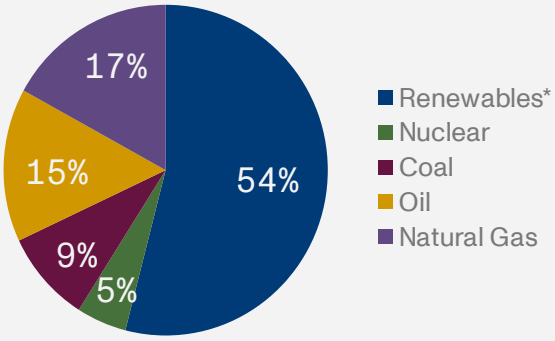
Demand is the engine. Global energy use is expected to rise by roughly 40% by 2050, which is the equivalent of adding another China to the system. Meeting that demand requires building as much energy infrastructure in the next 25 years as Europe and North America currently operate combined.[3] Three forces are doing the pushing. Manufacturing is moving back to higher-cost places. Electrification is reaching into heat, transport, and industry. And computing is consuming electricity at a rate nobody modeled five years ago.[4] AI's binding constraint is looking less like chips and more like energy. (See Figure 3).

The bill is large, and not large enough. Investment hit $3.3 trillion in 2025, with $2.2 trillion going to clean technologies and $1.1 trillion to oil, gas, and coal.[5] That is a record. Against a build-out of that scale, it still falls short. After 20 years of capital flowing to asset-light businesses, the shift is now toward companies building and running physical energy infrastructure. That is the lens we bring to the energy and power complex. It also extends the investable life of many parts of the energy stack, and makes the pathway uneven. Build rates differ by geography, permitting regimes, supply chain depth, and access to finance.

The constraint is not how much electricity the world can generate. It is whether the system can be built fast enough to deliver it. That is a coordination problem, not a technology one, and coordination problems take time to solve. This is not ideology. It is engineering and timing. Energy security is no longer only about oil supply. It is also about electricity reliability, grid resilience, and the supply chains for the equipment and materials needed to build and connect new capacity.

Figure 2. Global Share of Energy Demand Growth by Source, 2025

Every major energy source grew simultaneously in 2025: renewables, oil, gas, coal, and nuclear. For the first time on record, a modern renewable (solar PV) contributed the largest single share of that growth.



Source: TCW Research, IEA
*Renewables includes solar PV, wind, hydropower, bioenergy and waste, liquid biofuels, geothermal, and solar thermal. A small fraction of waste is non-renewable (e.g., plastics)

The Transition is Disorderly, and That is the Signal

Here is the data point we keep coming back to. Under current conditions, the world is on track for around 2.8°C of warming this century.[6] That is not a forecast of catastrophe. It is a forecast of a transition that does not run smoothly. The disorder is already visible in the tape.

The deeper point is that the disorder is structural, not cyclical. In 2025, advanced economies grew their emissions faster than emerging ones for the first time since the 1990s, with weather accounting for roughly half of the global increase.[7]

Each bloc is solving the same trilemma differently. The United States is expanding fossil production and tightening trade restrictions while building out nuclear, gas turbines, and grid. Shale has handed Washington a foreign-policy lever, though the crisis showed its reach is finite: net-exporter status has not spared U.S. consumers from a higher global price. Europe is hardening climate regulation while scrambling to replace the cheap, secure energy it once had, rethinking its opposition to nuclear and discovering how little influence it has over a chokepoint it cannot reach.

Figure 3. New Energy Does Not Replace Old Energy – It Adds to It. This is Not a Handoff – It is an Expansion

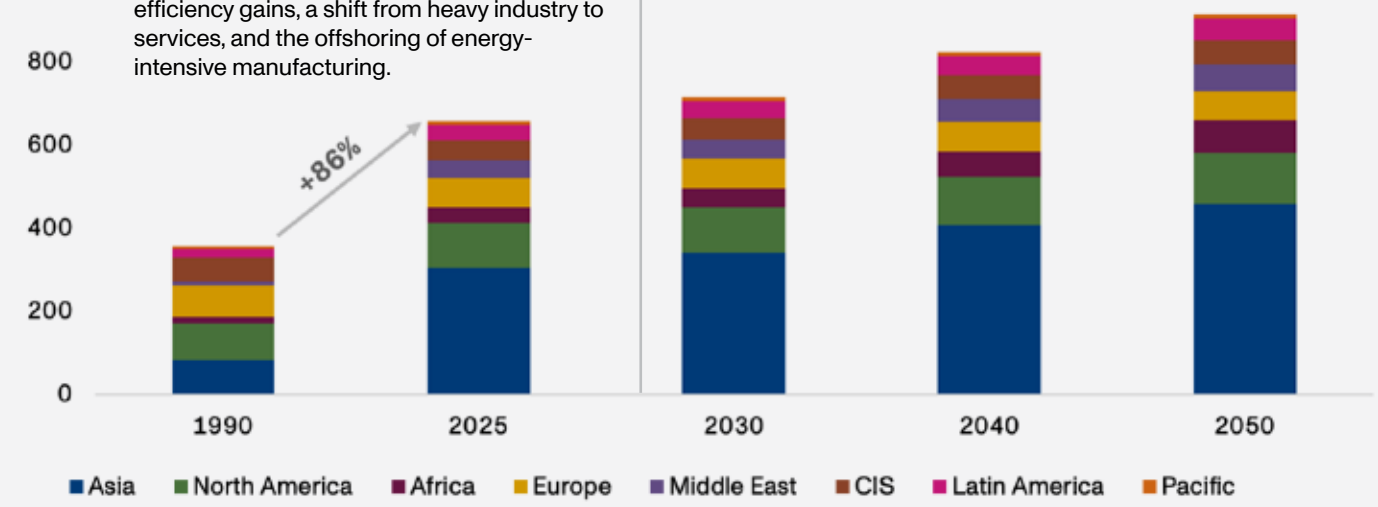
Global energy demand nearly doubled between 1990 and 2025 - and almost all of it came from the developing world.

Emerging markets, notably China, India, and Southeast Asia, fueled growth through industrialization and urbanization.

Meanwhile, energy use in advanced economies stayed stable or fell, thanks to efficiency gains, a shift from heavy industry to services, and the offshoring of energy-intensive manufacturing.

Global energy demand is projected to rise in both emerging and developed economies, ushering in a new phase of worldwide energy growth.

Growth is slower, but still significant: energy use from 2025 to 2050 will rise by about 40%, equal to adding another China. Although percentage increases were larger from 1990 to 2025, the upcoming period may see one of the biggest absolute jumps in history.



Source: TCW Research, IEA, EIA, BNEF, EI

China is doing all of it at once: record solar, leading nuclear construction, and dominant positions in critical-mineral processing. For Beijing, electrification is itself an energy-security strategy. The Gulf, meanwhile, is racing to route around its own chokepoint, leaning on bypass pipelines to keep crude moving and protect its standing as a reliable supplier. India and the wider developing world are running their own versions, with growth and resilience taking priority. Treating any of this as a tail risk is mispricing it. It is our central case. Disorder is not a side risk. It is the base case for a system that is being rebuilt while it is still operating.

What this Means for Investors

In our view, three things.

First, this is not the moment to over-weight last decade's winners. Renewables, gas, nuclear, and grid are all going to grow, even if the risk-reward is more attractive in some than in others. Owning only one part of the stack leaves too much of that growth on the table.

Second, this is an environment that rewards selectivity over broad exposure. A 2.8°C world favors investors who can identify durable economics and pricing power, not those who rebalance to a benchmark whose weights were drawn in calmer years. These are capital-intensive, regulated industries where company-level economics vary widely. Selection matters more than breadth alone, and it matters most when applied to what has to be built rather than what is merely in fashion.

Third, we focus on bottlenecks. The constraint is not how much capital is available but how fast the system can be built and connected. That is where pricing power and duration tend to show up.

The energy transition has not failed. It is being rebuilt around a different set of priorities. The argument is no longer about whether the world needs cleaner power. It is about who pays for the build, who runs the infrastructure, and who keeps supply moving while the system absorbs shock after shock.

1 Jason Bordoff and Meghan O'Sullivan, "After Hormuz: energy security in a fragmented world," in Oxford Energy Forum, "Unpacking the Hormuz Crisis: Implications for energy markets and the energy transition," Issue 149, May 2026
2 IEA, Global Energy Review 2026
3 TCW Cross-Asset Research, 1H26 Energy Transition Outlook
4 IEA, Global Energy Review 2026
5 IEA, World Energy Investment 2025
6 UNEP, Emissions Gap Report 2025
7 IEA, Global Energy Review 2026