

CLIMATE / ENERGY / MACROECONOMICS

GATE Macro Climate *Weekly*

#1

The GATE Macro Climate Weekly note investigates questions at the intersection of climate change, energy, macroeconomics and investment strategies. We monitor emerging physical risks, energy systems disruptions, technological developments, assessing their implications for growth, inflation, monetary policy and asset prices. Our focus is on understanding how these developments affect economic and financial-market expectations, and where they may create risks and investment opportunities.

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We also review the latest research and its implications for investors.

PHYSICAL RISK

1. El Niño: Rising Physical Risks Challenge the Macroeconomic Outlook

Physical climate risks are becoming increasingly relevant to the macroeconomic outlook. In a recent note, Bloomberg Economics estimates that heat reduced EU GDP by approximately **0.17% between April and September**, equivalent to roughly **€17 billion**. Its estimates suggest impacts of approximately 0.2% of French GDP and 0.1% of German GDP during the second quarter.

In a publication released on 20 October, the European Central Bank warned that food inflation could rebound materially over the coming year. While euro-area food inflation stood at only 1.3% in September, the ECB's September projections anticipate an increase to 3.4% by the third quarter of 2027. ECB staff estimate that adverse European weather conditions alone could **add approximately 0.3–0.8 percentage points to food inflation over the next year**, while rising energy and fertiliser costs exert further pressure.

The strengthening El Niño adds risks to global agricultural production. Berkeley Earth's latest temperature assessment, published on 22 October, found that the September Niño 3.4 index had reached approximately +2.9°C, a record on its conventional measure. The organisation increased its estimated probability of 2026 becoming the warmest year on record from 93% to 96%. The World Meteorological Organization also warned that tropical Pacific sea-surface temperatures could reach approximately 3.8°C above normal between November 2026 and January 2027, suggesting that weather-related disruptions could persist into next year.

The macroeconomic implications of rising physical risks extend beyond food prices.

Repeated supply disruptions can raise headline inflation while weakening household purchasing power and economic activity, complicating monetary-policy decisions. The magnitude of these effects will depend on the persistence of shocks, their transmission through supply chains and the response of inflation expectations.

For investors, the distinction between short- and long-term inflation expectations is particularly relevant. Sheenan, Aminian and Kothe (2026) find that shocks to perceived physical climate risk raise short-term inflation compensation and weigh on corporate and green-bond returns during periods of elevated market volatility, while longer-term inflation expectations remain more stable. Their findings suggest that markets can price greater near-term inflation risk without necessarily anticipating a persistent deterioration in price stability.

The implications for nominal government yields, however, are less straightforward. Moench and Schaal (2026) show that sovereign-yield responses to extreme weather events depend on fiscal capacity. Inflationary pressures and reconstruction spending can push yields higher, while weaker growth and expectations of monetary easing can pull them lower.

Rising physical climate risks are becoming an important source of macroeconomic instability, often materialising as negative supply shocks that push prices higher while weakening household purchasing power and economic activity. This complicates central banks' efforts to maintain price stability without further weakening growth. In our view, investors will increasingly need to incorporate these risks into their assessment of inflation, monetary policy and asset valuations.

ELECTRICITY & INVESTMENT

2. The New Scarcity: Grid Infrastructure Constraints Translate into Financial Losses

The rapid expansion of artificial intelligence and electrification is placing increasing pressure on electricity infrastructure. After decades of relatively stagnant electricity demand in several advanced economies, data centres, industrial electrification and new technologies are driving a structural increase in power requirements. Yet electricity networks, generating capacity and permitting processes cannot always expand at the same pace. **In our view, access to reliable electricity is becoming an increasingly important determinant of corporate profitability and investment returns.**

Grid bottlenecks are changing the economics of AI infrastructure. According to [Reuters reporting published on 23 October](#), grid-connection delays for large data centres can extend to three to six years. This is encouraging developers to increasingly consider on-site power generation rather than relying exclusively on conventional grid connections. Rystad Energy projects that investment in fuel cells for data centres could increase from approximately **\$2.8 billion in 2025 to \$30 billion by 2030**. It also estimates that around 40% of projected US data-centre capacity could seek dedicated on-site power.

Fuel cells are particularly interesting because they can provide reliable electricity without the same construction timelines as major grid projects. However, many systems currently operate using natural gas, meaning that their deployment does not necessarily imply a reduction in carbon emissions.

This development illustrates a broader tension: **the rapid expansion of electricity-intensive**

technologies can reinforce short-term fossil-fuel demand, even as the long-term energy system moves toward electrification and decarbonisation.

Last week's developments provide a striking illustration of how grid constraints can translate into financial losses. On 21 October, Australian data-centre operator NEXTDC saw its shares plunge approximately 42% after delays to electricity network upgrades at its Melbourne facility forced the company to cut its FY2027 underlying EBITDA guidance from A\$385–410 million to A\$245–265 million. The delays, partly driven by local opposition to infrastructure works, mean contracted data-centre capacity cannot be delivered and billed as originally planned. Similar pressures are emerging in the United States, where grid operator PJM recently issued emergency alerts during autumn, a period traditionally associated with relatively comfortable electricity supply margins.

We think these constraints could generate substantial dispersion across equity markets.

Companies supplying scarce electricity infrastructure, flexible generation and grid equipment may be well positioned to benefit from sustained investment demand. Conversely, businesses dependent on rapid access to electricity may face delayed revenues, higher financing costs and disappointing returns on invested capital. The critical distinction for investors is between companies able to monetise infrastructure scarcity and those whose profitability is constrained by it.

TRANSITION POLICY

3. Climate Policies: Decarbonisation Meets Industrial Competitiveness

European climate policy is entering a period of increasingly difficult trade-offs between emissions reduction, industrial competitiveness and energy affordability. Several developments last week illustrate how policymakers are seeking to preserve decarbonisation objectives while limiting the economic burden on businesses and households.

On 20 October, the European Parliament and Council reached a provisional agreement to modify the EU ETS Market Stability Reserve, increasing the threshold for permanently cancelling allowances from 400 million to 700 million. The measure would preserve a larger stock of allowances that could potentially be released under future market conditions, limiting the risk of extreme carbon-price increases as the emissions cap tightens. Separately, the European Parliament adopted a position supporting additional free emission allowances for certain industrial installations over 2026–2030. Meanwhile, lawmakers advanced proposals to ease the EU's 2035 vehicle emissions requirements, reflecting continued pressure from Europe's automotive industry.

At the same time, the European Commission selected 77 projects for €3.4 billion in support from the

Innovation Fund, targeting industrial decarbonisation, clean technologies, energy storage and other strategic investments.

In our view, these developments reflect a more pragmatic European approach to decarbonisation, with greater recognition of industrial competitiveness concerns. The changes to the Market Stability Reserve could reduce upside tail risks for carbon prices, while additional free allowances provide some relief to energy-intensive industries. However, we doubt these adjustments will be sufficient to address the industry's concerns. European producers continue to face elevated energy costs, substantial decarbonisation investment requirements and competition from countries with lower production costs and, in some cases, weaker carbon constraints.

The tension between climate objectives and industrial competitiveness is therefore unlikely to disappear. We expect it to remain an important driver of European climate-policy decisions, with consequences for carbon prices, industrial profitability and investment in decarbonisation technologies. At the same time, we emphasise **the sometimes underappreciated momentum behind carbon markets** globally. In our view, CBAM can reinforce this momentum while helping to level the playing field between European producers and their foreign competitors.

RESEARCH & INVESTMENT IMPLICATIONS

4. Need-to-know research

ECB: why the euro area is less exposed to energy shocks

ECB · 21 October 2026

An ECB analysis published on 21 October examines why the euro area has remained more resilient than expected despite this year's energy-price increases. The authors point to lower energy intensity, changes in economic structure and reduced fossil-fuel dependence, alongside temporary support from fiscal policy and AI-related investment. Oil use per unit of real GDP is now approximately half its level in the early 1990s.

The electricity mix is also changing the transmission of gas-price shocks. In Spain, the share of hours in which gas-fired plants set wholesale electricity prices fell from around 80% in 2020 to just above 20% in 2026. In France, it fell from around 60% to 20%. These comparisons cover the first nine months of each year.

The investment implication is that the same fuel-price shock can have different effects on inflation, output and corporate costs. Exposure depends on the structure of the economy and its electricity system, rather than the commodity-price move alone.

Source: [Read the ECB analysis](#)

Extreme heat: the human cost of Europe's summer

Imperial College London / LSHTM · 23 October 2026

Research published on 23 October estimates approximately 50,391 heat-related deaths across 854 European urban areas during summer 2026, with around 65% attributable to human-induced climate change.

These are model-based estimates rather than confirmed counts of individual deaths. The urban areas studied represent around 40% of the population of the 30 countries covered. The findings underline the growing importance of adaptation to extreme heat.

Source: [Read the LSHTM research summary](#)

Institutional investors turn towards adaptation

Morgan Stanley · 22 October 2026

Morgan Stanley's 2026 Sustainable Signals survey places adaptation and resilience ahead of mitigation among respondents' priorities: 59% cite adaptation, compared with 52% for mitigation. Almost 90% report difficulty assessing physical climate effects on their assets, up from 66% a year earlier.

The survey covers 900 institutional investors already practising or planning sustainable investing. It is not representative of all investors and does not establish that climate risks are mispriced. **It does, however, point to demand for research connecting physical climate risks with corporate performance and portfolio outcomes.**

Source: [Read the Sustainable Signals findings](#)

NEED-TO-KNOW RESEARCH / CONTINUED

Electrification: compare the efficiency of the whole system

Academic exchange discussed in Jan Rosenow's 25 October analysis

An academic debate highlighted in [Jan Rosenow's 25 October analysis](#) examines whether electrification reduces emissions even when the additional electricity is generated using fossil fuels. Rosenow and co-authors argue that heat pumps and electric vehicles can reduce emissions even before electricity generation is fully decarbonised, thanks to their greater energy efficiency.

For example, consider heating a home using natural gas. A conventional gas boiler converts around 85% of the gas consumed into useful heat. Alternatively, gas can be used to generate electricity at a power plant with 40% efficiency, which then powers a heat pump. Because heat pumps extract additional heat from the environment, they can deliver more than three units of heat per unit of electricity consumed. Under these assumptions, the heat pump uses approximately one-third less natural gas to deliver the same amount of heating, despite relying entirely on gas-generated electricity.

The precise emissions savings depend on equipment efficiency, upstream emissions and the electricity generation mix. Nevertheless, the analysis illustrates that electrification can reduce fossil-fuel consumption even before the power grid becomes carbon-free.

Source: [Jan Rosenow's analysis](#)

Concluding thoughts:

This week's developments reinforce the importance of distinguishing between the economic benefits of the energy transition and the financial consequences of implementing it.

Renewables, electrification, storage and interconnections can reduce exposure to fossil-fuel supply shocks. Yet rapid electricity-demand growth, inadequate grid infrastructure and the need for reliable power are also sustaining investment in conventional energy technologies.

At the same time, new research suggests that the economic costs of physical climate change are becoming increasingly relevant within conventional investment horizons.

For investors, the objective should be to identify how these developments alter expected growth, inflation, corporate profitability and financial risks, and, crucially, whether those changes are already reflected in market prices.

The underlying theme is not simply that climate and energy risks are increasing. It is that the economic transmission of those risks is changing as energy systems and climate exposure evolve.