GATE
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GATE Macro Climate *Weekly* #2

The GATE Macro Climate Weekly explores the connections between climate change, energy, macroeconomics and investment. Each week, we examine developments in physical climate risks, energy systems, technology and policy, assessing their implications for growth, inflation, monetary policy and asset prices. By connecting current events with recent research, we help investors understand how these forces affect the economy and financial markets, and where risks and investment opportunities may emerge.

THIS WEEK'S HIGHLIGHTS

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We would be pleased to discuss how our approach could support your investment process.

PHYSICAL RISK & RESILIENCE

Physical risks go mainstream

Physical climate risks meet the AI investment boom

Physical climate risks are increasingly becoming mainstream financial considerations. As highlighted in our recent investor communication, Anthropic's high-profile IPO filing identifies electricity availability, cooling-related water needs and extreme weather as risks to its operations and costs. SpaceX has similarly flagged water scarcity and drought as potential constraints on its AI data-centre operations. **In our view, disclosures by leading technology companies provide a strong signal that physical risks can affect even the most prominent investment themes, including AI.**

These developments directly reinforce several of our key investment themes: accelerating electrification, increasingly binding electricity-grid constraints, and their interaction with physical climate risks. As electricity demand expands, rising temperatures, water scarcity and extreme weather can place additional pressure on already constrained infrastructure.

Importantly, these developments also create investment opportunities. Companies providing electricity infrastructure, grid modernisation, efficient cooling, water-management solutions and reliable power generation could benefit from growing demand for more resilient infrastructure.

We believe these considerations will become increasingly important for investors as AI infrastructure expands and companies face growing competition for electricity, water and other critical resources.

Warming up to a warmer world

At the same time, policymakers are increasingly recognising the need to prepare for more severe climate outcomes.

On 27 October, the European Commission proposed a new Climate Resilience Framework, introducing a common reference trajectory of approximately **3°C of global warming by 2100** for climate-risk assessments.

This represents an important development. While the EU remains committed to its decarbonisation objectives, the proposed framework explicitly recognises that economic and investment decisions must account for potentially severe physical climate risks.

The Commission estimates that Europe will require approximately **€70 billion annually in climate-adaptation investment**.

As climate risks become more material under plausible warming scenarios, assessing portfolio resilience becomes increasingly important. Our **GATE Macro Climate** model supports this analysis by transparently assessing portfolio resilience and the sources of exposure across asset classes through a transparent, top-down framework. More information is available here: gatemacroclimate.com

INSURANCE & FINANCIAL TRANSMISSION

The insurance sector is sending warning signals… and we should listen

Physical climate risks are becoming increasingly visible through insurance markets, which we believe provide a **valuable early warning signal**. Insurers have strong financial incentives to assess physical risks accurately, given their direct exposure to future claims. Changes in insurance premiums, coverage and insurability can therefore reveal emerging vulnerabilities well before physical damages materialise. **In our view, these signals deserve close attention.**

In a Reuters commentary published on 28 October, Nina Seega of the University of Cambridge emphasises how rising physical climate risks can propagate throughout the financial system. Higher insurance premiums and reduced coverage can undermine property valuations, tighten lending conditions and constrain investment, even before disasters occur.

The scale of the exposure is considerable. According to Swiss Re, approximately **$113 billion of the $220 billion in global natural-catastrophe losses in 2025 were uninsured**. These losses can have lasting macroeconomic consequences. Research from the Bank for International Settlements finds that uninsured losses are a major driver of the persistent economic costs of natural disasters.

Importantly, the economic effects can emerge even before disasters materialise. As households become more exposed to potential uninsured losses, they may increase precautionary savings and reduce consumption. A 2026 empirical study of Chinese households provides evidence of precisely this mechanism, finding that greater climate risk depresses consumption partly through stronger precautionary-saving motives. **Physical climate risks can therefore weaken economic activity not only through realised damages, but also through changes in expectations and financial behaviour.**

> The broader implication is that insurance markets can act as an important transmission channel for physical climate risks. As insurance becomes less affordable or less available, greater uninsured exposure can undermine property valuations, tighten credit conditions and encourage precautionary savings, potentially weighing on consumption, investment and economic growth even before physical damages materialise.

ELECTRICITY & INVESTMENT

Energy & Electrification: Grid infrastructure, grid infrastructure, grid infrastructure…

Global renewable development faces infrastructure constraints

The rapid expansion of renewable electricity generation is encountering increasingly important infrastructure constraints.

On 27 October, Francesco La Camera, Director-General of the International Renewable Energy Agency (IRENA), warned that global renewable-capacity additions could decline in 2026, following five consecutive years of accelerating deployment.

This would represent a significant change following record additions of **692 GW in 2025**, which brought global renewable capacity to approximately 5,149 GW.

One of the main constraints is the inability of electricity transmission and distribution networks to keep pace with renewable installations.

The implications extend beyond installation volumes. Renewable capacity that cannot be connected to the grid, or whose output must frequently be curtailed, generates lower revenues and can discourage future investment.

In Brazil, rapid solar and wind deployment has outpaced transmission and storage infrastructure, forcing renewable generators to reduce output and weakening project economics. Bloomberg reported on 28 October that investment has slowed as curtailment increasingly weighs on profitability.

These developments reinforce an important distinction: **the economics of renewable generation increasingly depend on the ability of electricity systems to transport, store and deliver power when it is needed.**

> For investors, the long-term opportunity may therefore extend beyond renewable-generation technologies to transmission networks, grid equipment, battery storage and electricity-system flexibility.

GRID EQUIPMENT & INVESTMENT OPPORTUNITIES

Infrastructure scarcity creates investment opportunities

While electricity bottlenecks pose challenges for data-centre developers and energy-intensive industries, they also generate opportunities for infrastructure suppliers.

On 28 October, GE Vernova announced its acquisition of Trench Group, a manufacturer of high-voltage electrical equipment, for approximately **$9 billion**.

Trench is expected to generate around $1.9 billion in revenues in 2028, with an adjusted EBITDA margin of approximately 36% (which is exceptionally strong for an industrial equipment manufacturer!!). **This illustrates the potentially attractive economics of specialised grid-equipment suppliers amid growing demand and infrastructure constraints.**

GE Vernova also reported strong quarterly results, with orders increasing 96% organically and its total backlog reaching $197 billion, including both power-generation and electrification activities.

The acquisition illustrates the growing commercial importance of high-voltage equipment, grid modernisation and electricity transmission infrastructure.

Demand is being supported by several structural forces: ageing electricity networks, growing data-centre electricity consumption, renewable-energy deployment and industrial electrification.

> **The central investment question is which companies can monetise infrastructure scarcity through sustainable earnings growth, rather than merely benefiting from a compelling structural narrative.**

TRANSITION POLICY

Climate policies: striking the right balance

Spain's renewable requirements illustrate Europe's decarbonisation ambitions

The growing interaction between AI investment and energy-transition objectives is becoming increasingly visible in regulatory decisions. On 26 October, Spain relaxed its proposed data-centre regulations, raising the minimum capacity subject to regulation from 1 MW to 10 MW and introducing greater flexibility in renewable-electricity procurement.

Despite these concessions, the requirements remain ambitious, particularly because of the hourly matching obligation. Data centres would still need to match at least 80% of their electricity consumption with renewable generation in every hour, rather than simply over the course of a year (although a conditional transition period of up to five years is available). For facilities operating continuously, such as data centres, this is particularly challenging during periods of limited solar and wind generation, potentially requiring substantial additional investment in renewable generation, electricity storage and more complex procurement arrangements.

The decision is particularly interesting given Spain's substantial renewable resources and Europe's largest LNG regasification infrastructure, which provides additional flexibility to support electricity generation. Nevertheless, the government is clearly prioritising renewable generation to accommodate growing electricity demand. This could support investment in renewables, storage and grid infrastructure, while potentially increasing costs for data-centre developers.

We believe this development deserves attention because Europe remains one of the world's most ambitious major economic blocs in terms of decarbonisation. Spain's approach illustrates the balance policymakers must strike between accelerating the energy transition and maintaining industrial competitiveness. We expect this tension to remain an important driver of European energy-policy decisions, with significant implications for investment in both clean-energy technologies and electricity-intensive industries.

RESEARCH & INVESTMENT IMPLICATIONS

Need-to-know research

01 Federal Reserve: El Niño could have broader inflationary consequences than previously appreciated

A working paper published on 13 October by Brigitte Roth Tran at the Federal Reserve Bank of San Francisco examines the macroeconomic consequences of El Niño episodes.

- Using a modified local-projection framework, the author finds that exceptionally strong El Niño events can materially influence US inflation and employment.
- In the baseline specification, a typical very strong El Niño is associated with approximately **1% higher headline PCE price levels by November of the following year**. The author cautions that the longer-run price response depends in part on whether El Niño is followed by La Niña.
- Interestingly, the delayed effects extend beyond food and energy prices. Core services, including financial services, insurance and healthcare, contribute to the estimated price response.
- The findings are particularly relevant given the exceptionally powerful El Niño currently developing in the Pacific. Berkeley Earth reported on 22 October that the Niño 3.4 index had reached record strength on its conventional measure.

> **Our interpretation:** Weather and climate information may contain economically relevant signals for inflation forecasts beyond conventional commodity-price indicators. Because the El Niño–Southern Oscillation (ENSO) is partly forecastable months in advance, incorporating weather forecasts into macroeconomic models could potentially improve their predictive performance.

02 Goldman Sachs: physical climate risks are increasingly discussed in corporate financial reporting

A study published by Goldman Sachs Asset Management on 14 October provides additional evidence of the growing financial relevance of physical climate risks.

- The researchers examined five years of earnings-call transcripts from companies in the MSCI ACWI Index, identifying approximately **12,000 references connecting physical climate hazards to financial impacts across 1,000 companies**.
- The findings reveal substantial differences across sectors. Utilities, energy and materials companies most frequently reported links between physical hazards and financial performance, reflecting their extensive exposure to physical assets and infrastructure.
- Insurance companies were also particularly prominent in these disclosures, although primarily through underwriting losses and claims rather than direct damage to their own assets.
- The findings also reveal geographical differences in the types of physical hazards reported by companies, reinforcing the importance of location-specific climate-risk assessments.

GATE PERSPECTIVE

Concluding thoughts

This week's developments highlight how climate change and the energy transition are becoming increasingly intertwined with economic growth, industrial competitiveness and financial-market performance. The expansion of AI infrastructure and electrification is creating growing demand for electricity, while inadequate grid capacity and exposure to physical climate risks can constrain supply and increase costs.

At the same time, these pressures create opportunities for companies providing the infrastructure, technologies and services needed to improve energy-system resilience.

Our view is that the growing interaction between electrification, infrastructure constraints and physical climate risks will become an increasingly important determinant of economic and financial outcomes.

For investors, the challenge is not simply to identify climate-related risks and opportunities, but to understand **where they originate, how they propagate through the economy and financial markets, and what they ultimately mean for asset valuations and portfolios**. These are complex and often unfamiliar questions, but understanding and quantifying the underlying exposures is essential to making informed investment decisions.

This is precisely the objective of our **GATE Macro Climate Risk Model**: to bring clarity to the financial implications of climate change and the energy transition. By identifying and quantifying the sources of risk and opportunity across climate scenarios and asset classes, our model provides a transparent framework to help investors better understand their exposures and make informed decisions.

We would be pleased to discuss how our approach could support your investment process.

Learn more: www.gatemacroclimate.com