



Market Musings 07/26

For Professional Investors only

Climateflation

When heat drives both sides of power markets

Today it's 35 degrees in Amsterdam. Curtains are closed during the day, windows open in the evenings, and the fan running all night.

Climate risk is increasingly visible in power markets. A heatwave can hit both sides of the electricity market at once: demand rises sharply as temperatures climb, while supply becomes less reliable as heat constrains nuclear, hydro and renewable output.

The result is not higher power prices, but more volatile ones. Through energy markets, climate is becoming a more direct driver of inflation. For investors, physical asset risk is not the only climate risk, we now need better inflation protection.

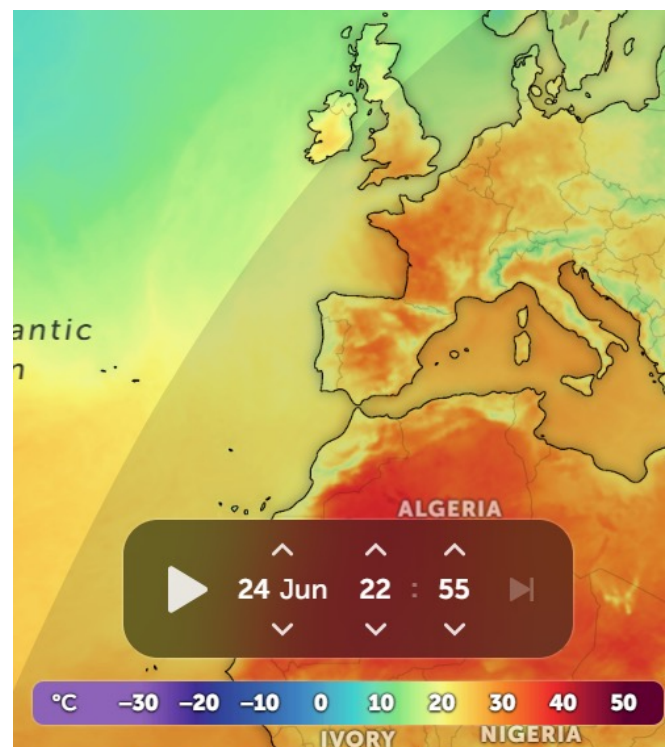
Demand: a new summer peak

The most visible impact of extreme heat is on electricity demand. As temperatures across Western Europe climb towards 40°C, the widespread use of cooling systems drive a sharp increase in load.

The map apposite shows the scale and spread of that heat across Europe.

The more structural issue is synchronisation. Historically, Europe benefited from geographic diversification: peak demand in one country could be offset by lower demand elsewhere, enabling cross-border balancing. Heatwaves, however, are region-wide phenomena. When France, Germany, Spain and the UK experience elevated temperatures at the same time, this diversification breaks down.

The result is that Europe is increasingly facing a summer peak problem. Systems designed around winter demand are now under similar levels of stress in summer, driven by cooling demand instead.



Supply: capacity under stress

Extreme heat is now reducing available supply across the power system, with impacts visible across nuclear, renewables and price formation.

» Nuclear running too hot

France's nuclear fleet, the cornerstone of Europe's baseload supply, is particularly exposed. Nuclear reactors rely on river water for cooling, and environmental regulations limit how warm that water can become when returned to rivers, typically capped at around 28°C.

During the current heatwave, river temperatures have risen to levels that force output reductions or shutdowns. As a result, French nuclear output has been reduced materially, by 7% of demand. Some reactors are offline, others are running at reduced capacity and blackouts are already occurring.

The loss of capacity matters, but the larger impact is on market structure. France is typically Europe's largest exporter of low-cost carbon-free electricity. When French exports fall, neighbouring markets lose a key source of cheap supply, pushing regional prices higher.

» Renewables and supply variability

Renewable energy, while abundant during summer, introduces additional variability. Solar output is strong during daylight hours, and can temporarily suppress prices, but generation falls rapidly as the sun sets.

At the same time, wind generation can be below average during heat events, further reducing available supply. The result is a pronounced 'duck-curve' dynamic: a U-shaped pattern where midday solar pushes prices down, while evening demand and falling renewable generation force thermal plants to ramp up quickly, leading to sharp price spikes.

» Price formation under gas marginal pricing

The combined effect of these factors is to push Europe's power markets back toward gas marginal pricing. With nuclear constrained and renewables variable, gas-fired generation increasingly sets the clearing price.

This explains why prices have not only risen but are becoming more volatile. In many markets, the steepest spikes are concentrated in evening hours, when demand remains elevated while renewable output declines.

From isolated shocks to systemic stress

Traditionally, power systems were designed around relatively predictable demand and supply patterns, with stress events concentrated in cold winter periods. Climate change is introducing a more complex year-round risk profile.

Demand shocks are increasing in both frequency and intensity, particularly in summer due to cooling needs. Supply is also becoming more weather-dependent, not only through renewables but also through thermal constraints affecting nuclear and hydro assets.

As a result, extreme events are no longer isolated but increasingly correlated across regions, reducing the effectiveness of cross-border interconnections as a balancing mechanism.

Implications for a more volatile system

First, price volatility is likely to increase structurally. The interaction between intermittent supply and temperature-driven demand creates sharper intraday price movements, particularly around peak periods.

Second, flexible capacity becomes more valuable. Assets that can ramp quickly, such as gas peakers, storage and demand response, are essential to manage the transition from high solar output to evening peaks.

Third, baseload reliability is being re-evaluated. Nuclear power, long considered a stable anchor of the system, is itself vulnerable to climate conditions. Interconnection's diversification benefits for energy security may also diminish during extreme events particularly when multiple connected countries are strained simultaneously.

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Climateflation

The current European heatwave illustrates a shift in how electricity markets respond to climate change. The story is no longer simply about rising demand or increased renewable supply. Instead, it is about the interaction of demand spikes and supply constraints driven by the same underlying climatic forces.

In this environment, extreme heat does more than lift electricity consumption. It constrains the very systems designed to meet that demand. As climate change intensifies, such episodes are likely to become more frequent, pointing to a future defined not just by higher demand, but by a new pattern of scarcity, shaped by climate-driven supply constraints.

The need to build in system buffers, alongside rising pressure on supply as demand increases, points to more persistent source of price pressure. This is climate-driven inflation, and while the world attempts to mitigate climate change, real assets investors that protect against climate risk by analysing physical asset risk, will also need to consider better inflation protection. This new era is Climateflation.

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