



# The Emerging US-China Energy Rivalry: Fossil Power vs Renewable Energy

*Tan Kong Yam*



*RSIS Commentary is a platform to provide timely and, where appropriate, policy-relevant commentary and analysis of topical and contemporary issues. The authors' views are their own and do not represent the official position of the S. Rajaratnam School of International Studies (RSIS), NTU. These commentaries may be reproduced with prior permission from RSIS and due credit to the author(s) and RSIS. Please email to Editor RSIS Commentary at [RSISPublications@ntu.edu.sg](mailto:RSISPublications@ntu.edu.sg).*

## **The Emerging US-China Energy Rivalry: Fossil Power vs Renewable Energy**

*By Tan Kong Yam*

### **SYNOPSIS**

*The article argues that the US-China rivalry is evolving into a competition between two energy systems: America's fossil-fuel order and China's renewable-energy industrial model. It highlights battles over AI, critical minerals, maritime security, and Global South influence, framing the energy transition as a broader geopolitical struggle over future global power.*

### **COMMENTARY**

The emerging rivalry between the United States and China is increasingly becoming an energy-system competition. At its core lies a structural divide between two competing models of global power: a US-centred fossil-fuel order and a China-centred renewable-energy industrial order. While the United States continues to derive geopolitical leverage from oil, liquefied natural gas (LNG), maritime security, and hydrocarbon abundance, China has positioned itself at the centre of the renewable-energy ecosystem through dominance in solar panels, batteries, electric vehicles (EVs), and clean-energy supply chains.

Yet this rivalry is more complex than a simple transition from "dirty" to "clean" energy. It should be noted that China is not replacing fossil fuels so much as adding renewables to existing energy systems. China's strategy is therefore less a pure climate transition than a long-term industrial and geopolitical strategy centred on scale, manufacturing dominance, and energy security.

## **From “Petro America” to “Electro China”**

The United States and China increasingly represent two distinct energy paradigms.

The United States remains deeply embedded in the fossil fuel economy. It is one of the world’s largest producers of oil and natural gas and retains immense strategic influence through its control of global maritime chokepoints, LNG exports, and the dollar-based energy trade system. American policymakers increasingly view domestic fossil fuel abundance as a strategic asset, particularly as energy-intensive industries such as artificial intelligence (AI) and advanced manufacturing demand massive amounts of reliable electricity.

China, by contrast, dominates the manufacturing infrastructure of the renewable age. It controls large portions of the global supply chain for solar panels, wind turbines, batteries, EVs, and critical clean-energy components. China’s electrification strategy aims not only to decarbonise parts of the economy but also to reduce dependence on imported oil and on vulnerable maritime trade routes such as the Straits of Hormuz and Malacca.

This divergence has produced two different energy strategies: “Petro America vs Electro China”: one power anchored in fossil-fuel geopolitics, the other in electrified industrial systems.

However, the distinction should not be overstated. China still relies heavily on coal, which continues to supply a large share of its electricity generation. Hence, China’s strategy is best understood as “addition, not subtraction”: the simultaneous expansion of renewables and fossil-fuel capacity.

## **The Global South as the Main Battleground**

The most important arena in this rivalry is the Global South.

Developing economies across Asia, Africa, the Middle East, and Latin America are becoming the key battlegrounds where competing energy systems are exported and institutionalised.

The United States seeks to leverage its dominance in LNG exports and hydrocarbon finance to maintain influence over developing states. Through tariffs, trade restrictions, and geopolitical pressure, Washington encourages partners to remain integrated within a US-led fossil-fuel and security architecture.

China offers a different model. Through the Belt and Road Initiative (BRI), Beijing exports low-cost renewable infrastructure, including solar farms, batteries, EVs, transmission systems, and increasingly nuclear technology. Chinese firms provide

scalable industrial solutions that many developing countries regard as cheaper and faster than Western alternatives.

This creates a structural dilemma for emerging economies: align with US-linked fossil-fuel systems and security guarantees or integrate into Chinese clean-energy manufacturing ecosystems.

In many cases, developing countries are attempting to hedge between the two systems rather than choose one outright.

### **Artificial Intelligence and the New Energy Race**

The rise of AI is intensifying the rivalry. AI data centres require enormous quantities of stable electricity. As a result, energy infrastructure is increasingly becoming inseparable from technological supremacy.

The United States views fossil fuel abundance – especially natural gas – as essential for powering AI infrastructure and keeping electricity costs low. American policymakers increasingly frame expanded oil and gas production as a national security requirement for technological competition.

China is pursuing a different approach. It integrates AI infrastructure into its broader electrification strategy, combining renewable energy expansion, battery storage, nuclear power, and grid development. Beijing aims to build a long-term energy ecosystem capable of supporting industrial automation, AI deployment, and large-scale electrification simultaneously.

The strategic implications are profound: the country that can provide abundant, cheap, and reliable electricity at scale may dominate the future AI economy.

Energy policy is therefore no longer simply about climate or fuel prices – it has become central to technological sovereignty.

### **Critical Minerals and Weaponised Supply Chains**

Another major front in the rivalry concerns critical minerals and industrial supply chains. The United States has increasingly used export controls, tariffs, and Entity List restrictions to limit Chinese access to advanced technologies and to reduce dependence on Chinese clean-energy supply chains.

China has responded with export controls on critical minerals and processing technologies vital to semiconductors, defence industries, EVs, and advanced manufacturing. Minerals such as neodymium, scandium, yttrium, and indium have become strategic tools in a broader contest over industrial vulnerability.

This reflects a wider shift towards “weaponised interdependence,” in which supply chains themselves become instruments of geopolitical leverage.

At the same time, both sides face constraints. The United States struggles with scaling manufacturing capacity domestically despite leading in innovation. China excels at industrial scaling but increasingly faces accusations of overcapacity, trade distortions, and dependence on heavy state support.

## **Energy Security and Maritime Strategy**

The rivalry also has a critical military and geopolitical dimension.

For decades, US global dominance rested partly on its ability to secure maritime oil routes and to control the global fossil fuel order. American naval power remains central to protecting – or potentially disrupting – critical chokepoints such as the Strait of Hormuz and the Strait of Malacca.

China’s electrification strategy partially reduces this vulnerability. As EV adoption and renewable deployment increase domestically, China’s long-term oil dependence may peak or even decline. This weakens the effectiveness of maritime pressure strategies traditionally used against import-dependent powers. Renewables, therefore, provide China with more than just environmental benefits: they offer strategic insulation against the risk of blockade. This is one reason Beijing views electrification as a national security imperative rather than merely a climate policy.

## **The Structural Weaknesses in Both Systems**

Despite China’s dominance in renewables, significant weaknesses remain. China’s industrial strategy has led to severe overcapacity in sectors such as solar panels and EVs. Local government debt, property market weakness, and declining fiscal flexibility may constrain future subsidy capacity. Consequently, China’s economic model increasingly resembles a classic overproduction crisis: extremely high manufacturing output alongside relatively weak domestic consumption.

The United States faces different problems. Its energy advantage is undermined by political volatility. Repeated policy swings between administrations create uncertainty for investors and manufacturers. This instability has already disrupted EV investment plans, delayed projects, and complicated long-term industrial strategy. Thus, both powers possess strengths but also deep structural contradictions.

Ultimately, the US-China energy rivalry is not simply about oil versus renewables. It is about competing models of geopolitical power.

The old fossil fuel order was based on scarcity, chokepoints, naval control, and hydrocarbon production. The emerging electrified order is increasingly based on

manufacturing scale, industrial ecosystems, grid infrastructure, batteries, and critical mineral supply chains.

The paradox is that fossil fuel crises may accelerate the very transition that undermines fossil fuel power. Every major oil shock, like the Iranian crisis, strengthens incentives for electrification, renewable deployment, energy efficiency, and industrial substitution.

In this sense, the global energy transition is not only an environmental transformation – it is a geopolitical reordering of the international system. The United States continues to dominate the legacy energy architecture. China increasingly shapes the infrastructure of the next one

---

*Professor Tan Kong Yam is Emeritus Professor of Economics at Nanyang Technological University (NTU), Singapore. He was a senior economist at the World Bank's office in Beijing from June 2002 to June 2005. Before that, he was the chief economist of the Singapore Government. His research interests are international trade and finance, economic and business trends in the Asia Pacific region and economic reforms in China. Professor Tan is currently the NTUC Professor of International Economic Relations at the S. Rajaratnam School of International Studies (RSIS) at Nanyang Technological University (NTU).*

---

**S. Rajaratnam School of International Studies, NTU Singapore**  
Block S4, Level B3, 50 Nanyang Avenue, Singapore 639798

*Please share this publication with your friends. They can subscribe to RSIS publications by scanning the QR Code below.*

