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University of Georgia Energy Security Studies Program (ESSP)







Update on Supplies & Policies in a Changing Energy Landscape

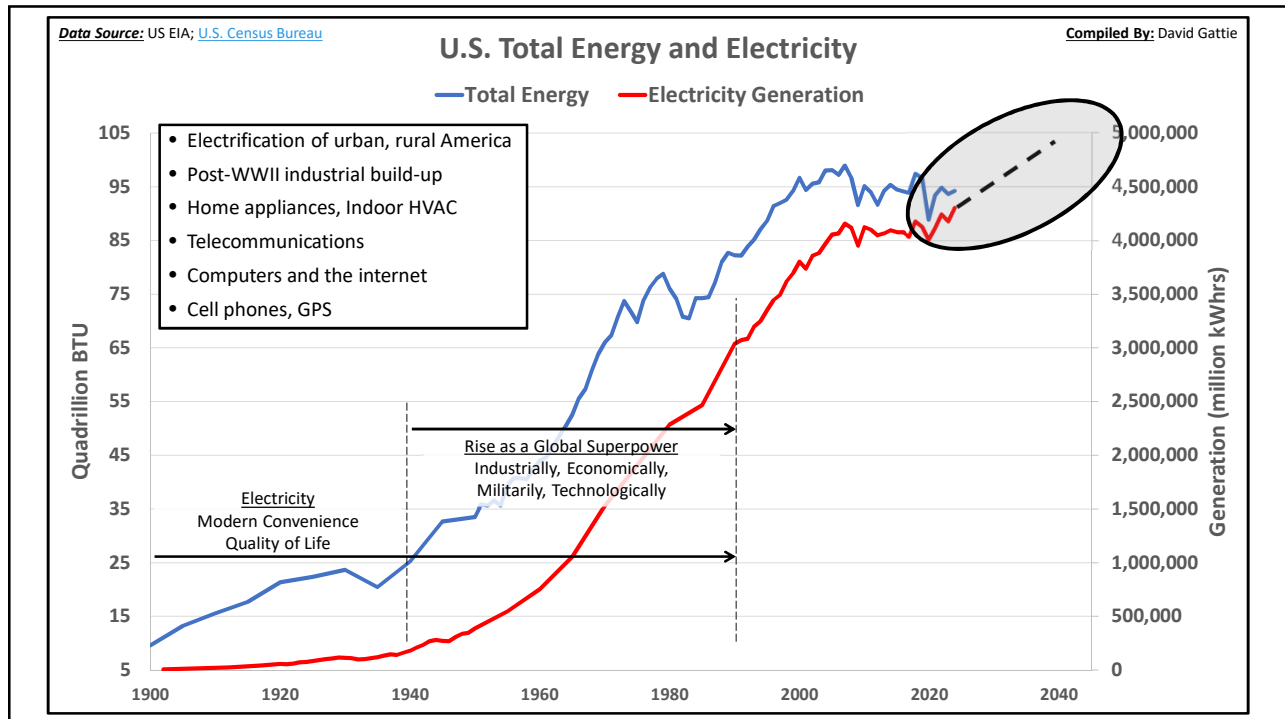
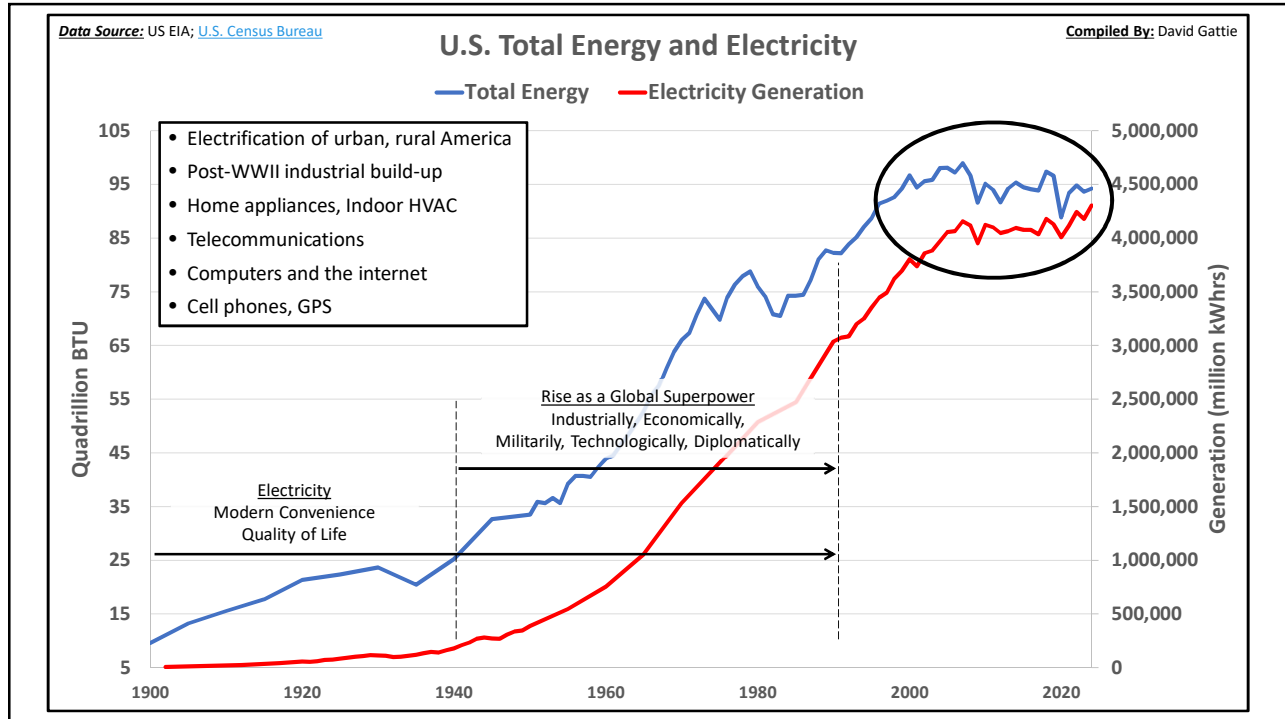
DAVID GATTIE (DGATTIE@UGA.EDU)
UNIVERSITY OF GEORGIA
COLLEGE OF ENGINEERING AND BENSON-BERTSCH CENTER FOR INTERNATIONAL TRADE & SECURITY
PALMETTO POWER CITIES ANNUAL MEETING
JUNE 8, 2026

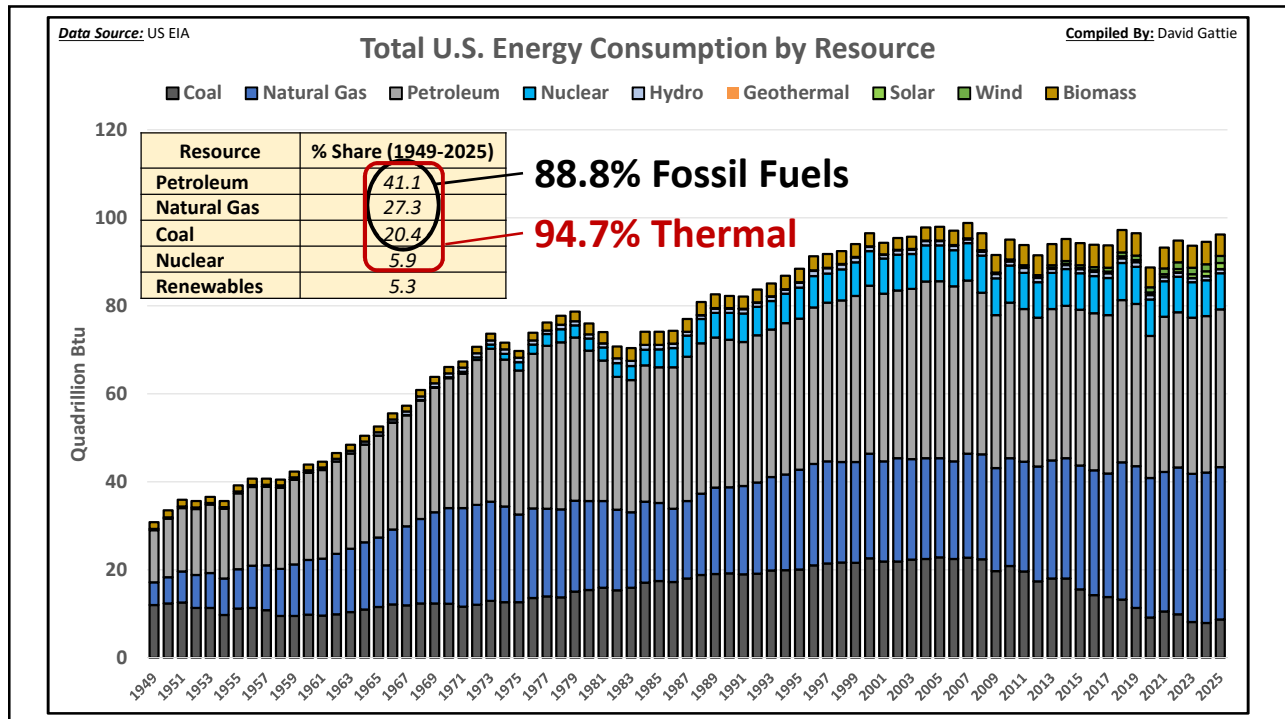
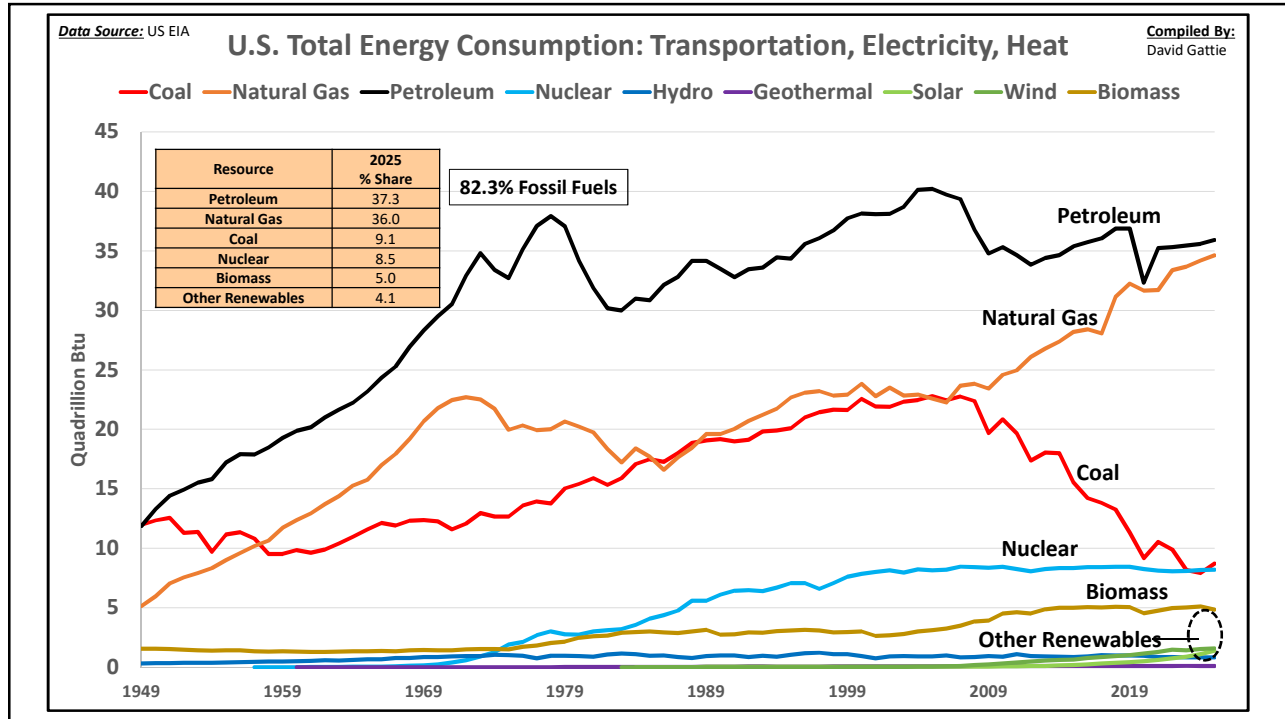
David Gattie

Topics

- Overview of U.S. energy
- U.S. natural gas
- U.S. electric power sector
 - Resource and technology diversity
- Global energy & CO₂ in context
- U.S. energy and national security

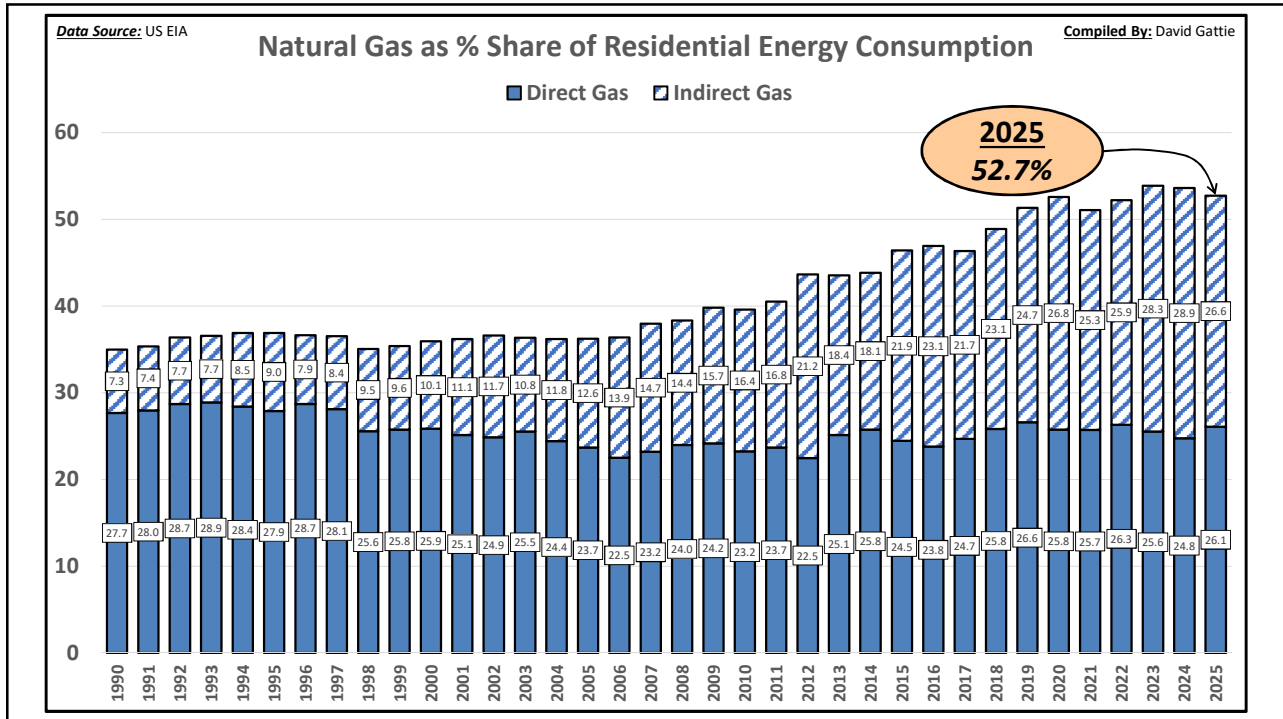
David Gattie

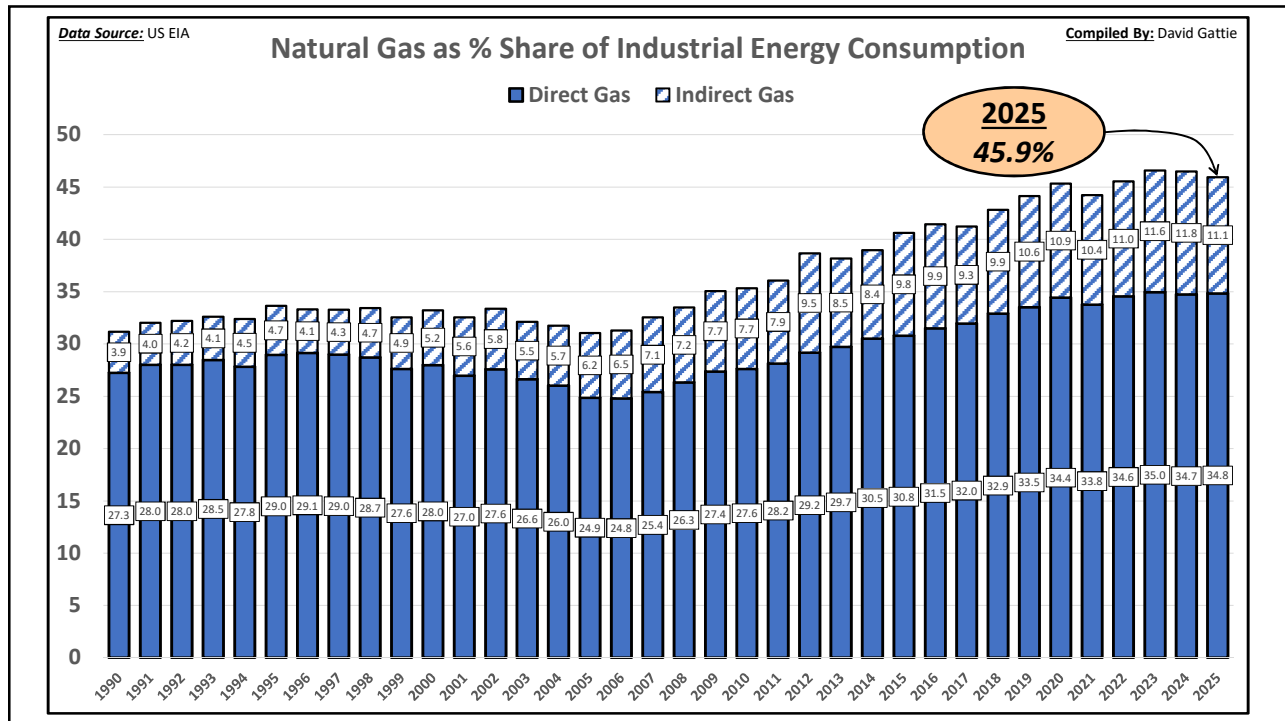
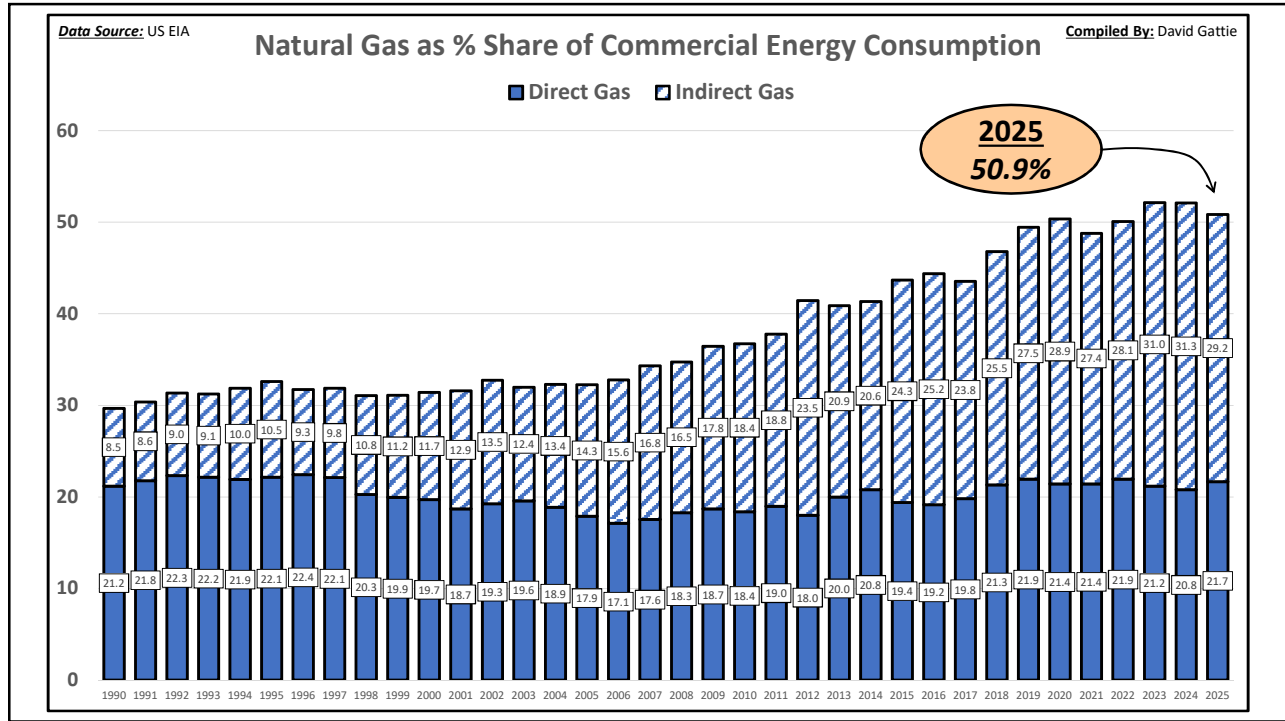


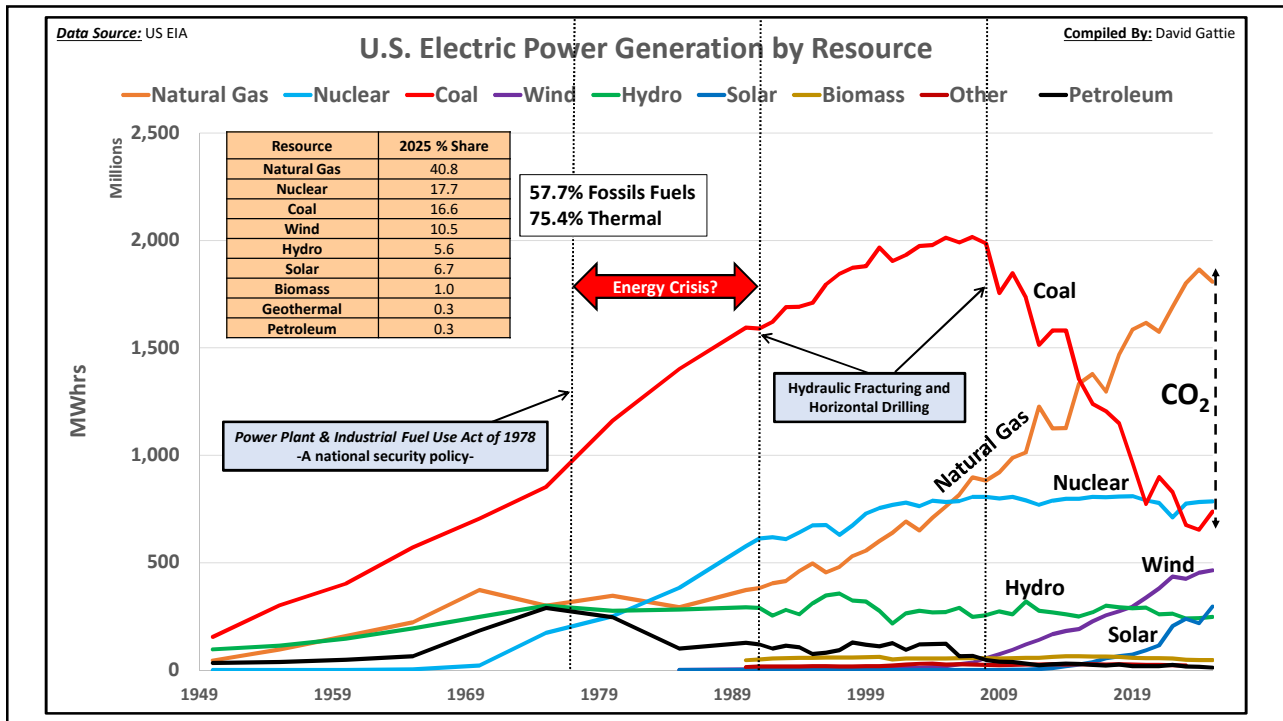
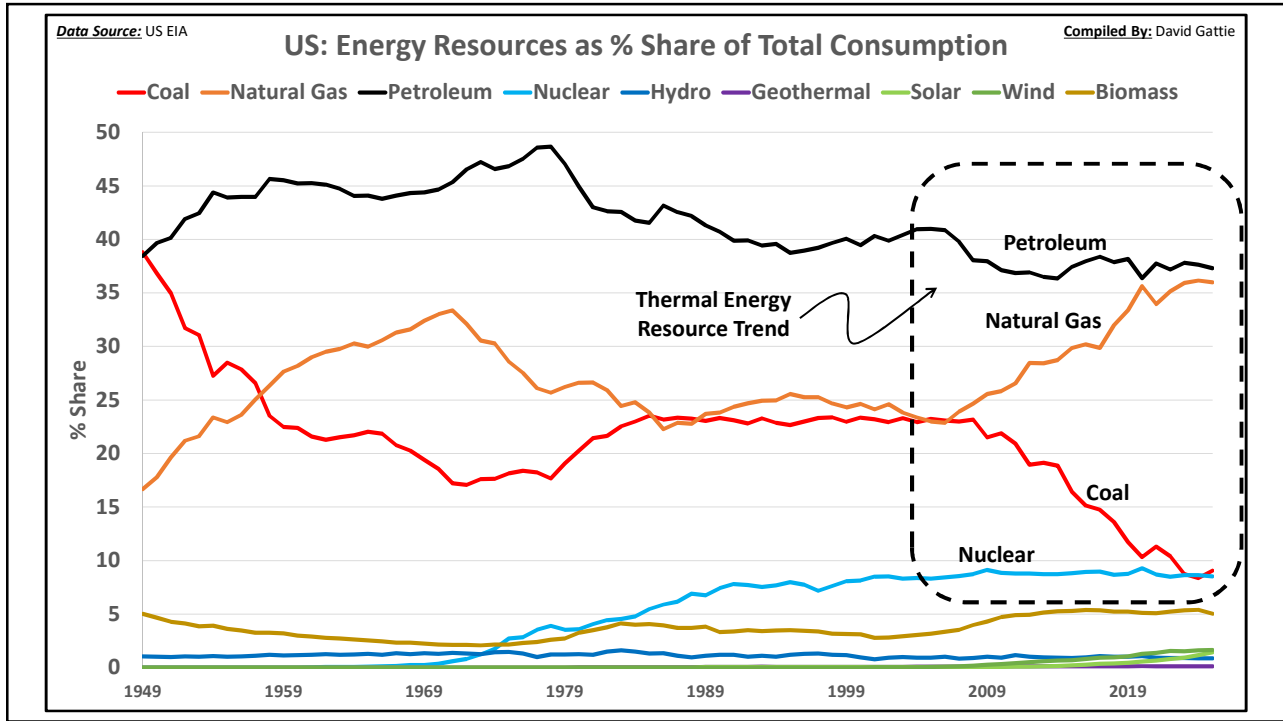


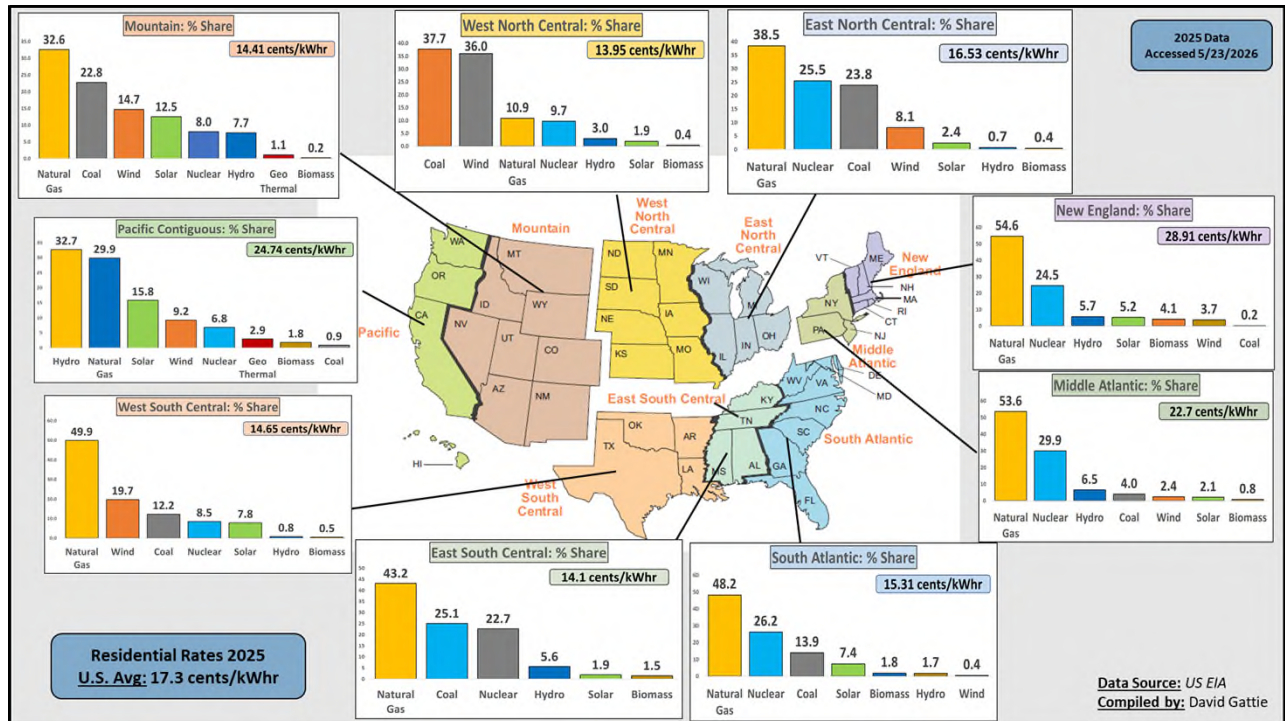
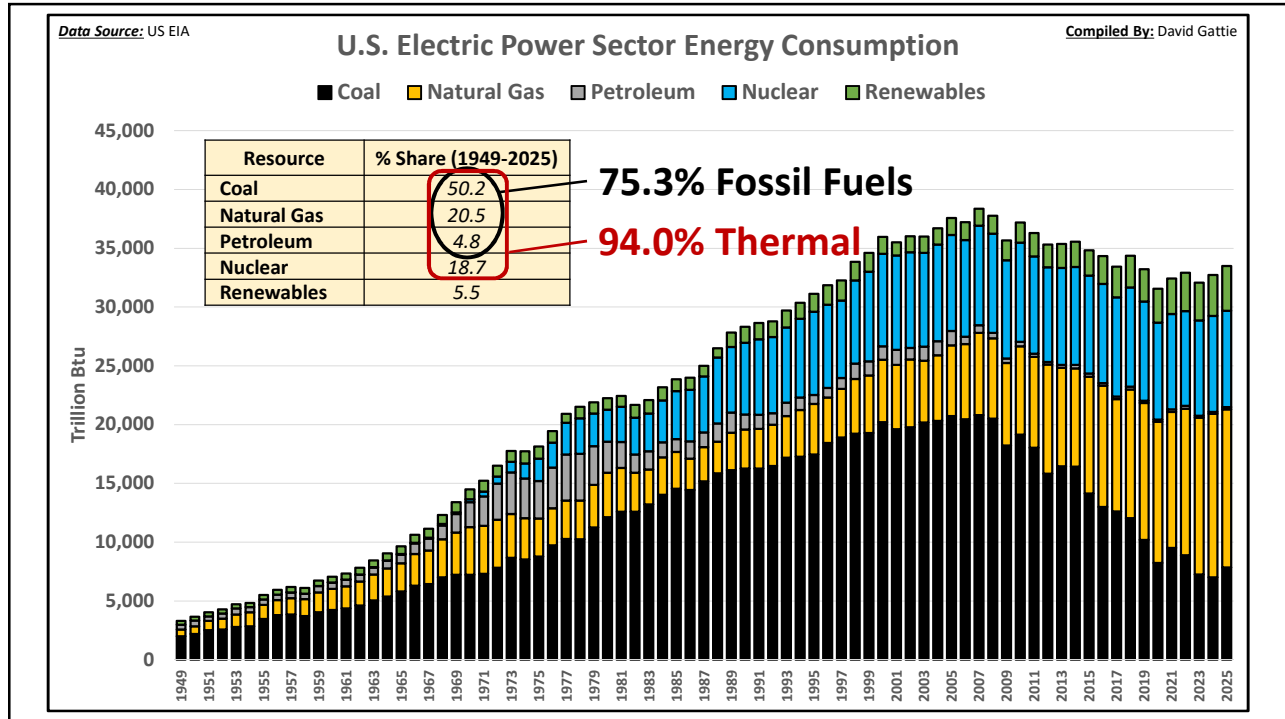
		From 1949-2025						
27.3% of U.S. primary energy consumption was natural gas		U.S. Total Energy Consumption		U.S. Industrial Sector Direct Energy Consumption			39.5% of U.S. primary energy consumed by industrial sector has been natural gas	
Resource	Quads	% Share of U.S. Total	Quads	% Share of U.S. Industrial Total	% Share of U.S. Total			
Petroleum	2,368	41.1	600	37.9	10.4			
Natural Gas	1,575	27.3	625	39.5	10.8			
Coal	1,174	20.4	237	15.0	4.1			
Nuclear	338	5.9			0.0			
Renewables	307	5.3	121	7.6	2.1			
Total	5,762	100	1,582	100	27.4			

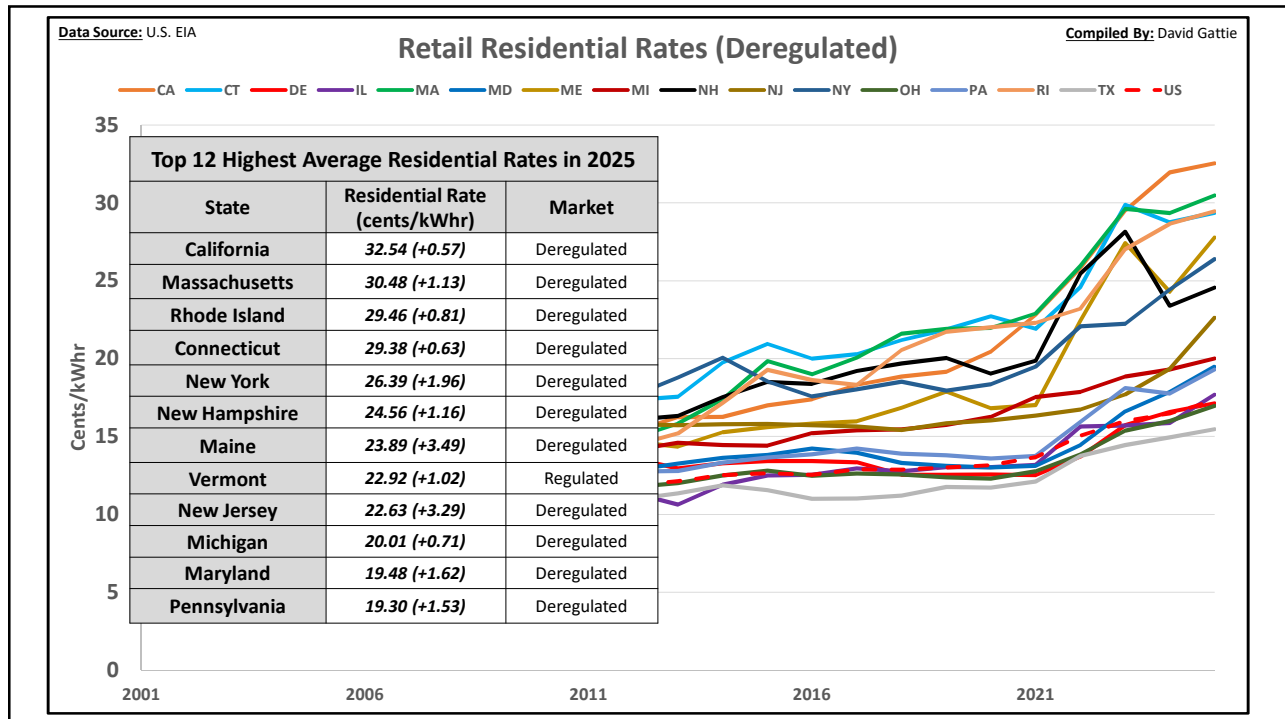
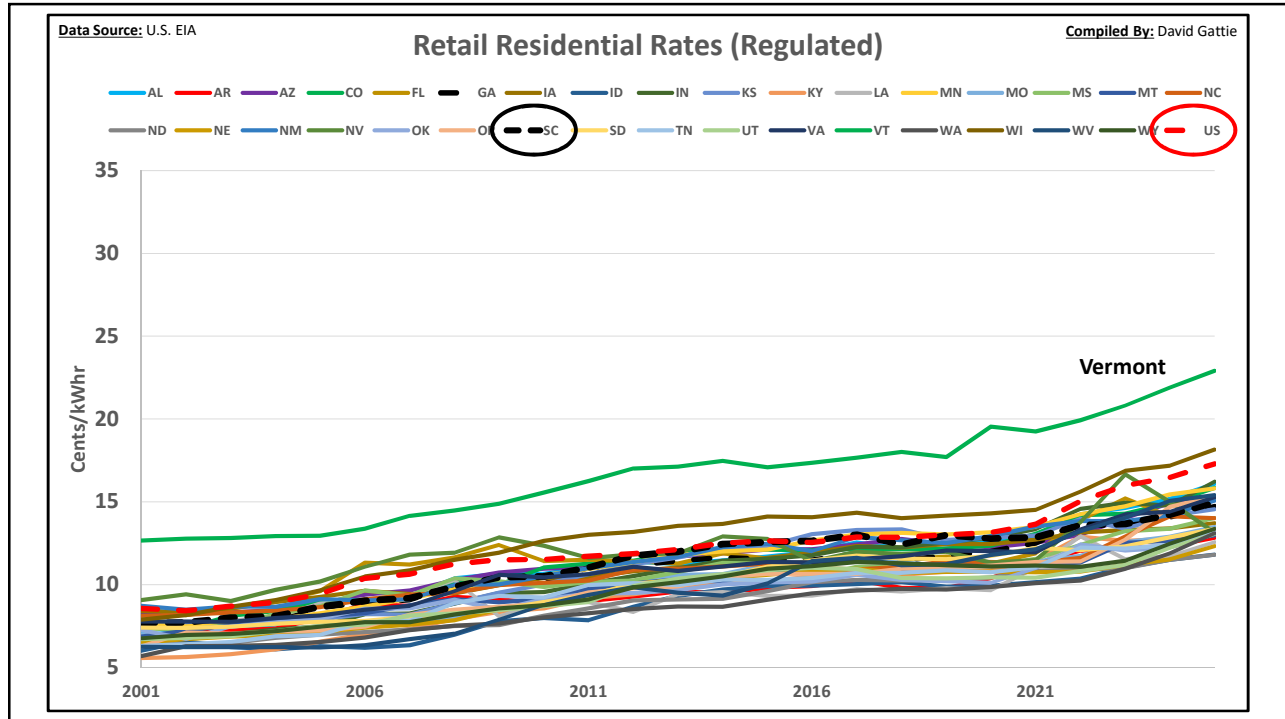
Data Source: US EIA *Compiled By:* David Gattie

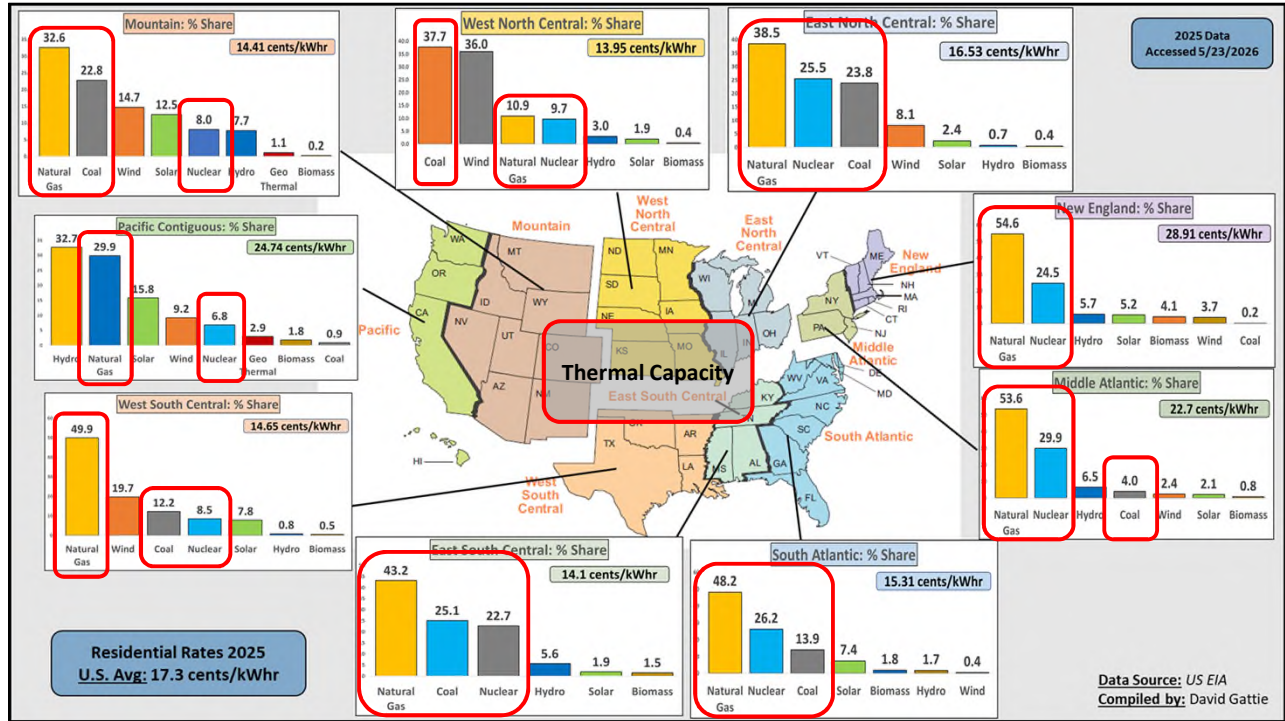
















Long-Term Reliability Assessment

January 2026



Executive Summary

The overall resource adequacy outlook for the North American BPS is worsening: In the 2025 LTRA, NERC finds that **13 of 23 assessment areas face resource adequacy challenges over the next 10 years**. Projections for resource and transmission growth lag what is needed to support new data centers and other large loads that drive escalating demand forecasts. **Most new resources in development to come on-line in the next five years consist of battery storage and solar photovoltaic (PV), which are inverter-based and weather-dependent resources that increase the complexity of planning and operating a reliable grid.** Meanwhile, **more fossil-fired generator retirements loom in the next five years, reducing the amount of generation that has fuel on site and impacting the system's ability to respond to spikes in demand.** The continuing shift in the resource mix toward weather-dependent resources and less fuel diversity increases risks of supply shortfalls during winter months. As Resource Planners, market operators, and regulators grapple with steep increases in demand and swelling resource queues, **they face more uncertainty, adding to the already-complex endeavor of planning for resource adequacy during this period of rapid grid transformation.** To ensure there are sufficient resources for supplying electricity in the future and to reliably meet the growing electricity needs for North Americans, industry, regulators, and policymakers need to be vigilant for shifting projections, keep plans for deactivating existing generators flexible, expedite system development, and perform robust adequacy assessments of future scenarios. In addition, **careful planning and broad cross-sector coordination will be needed to navigate a period of potentially strained electricity resources.**

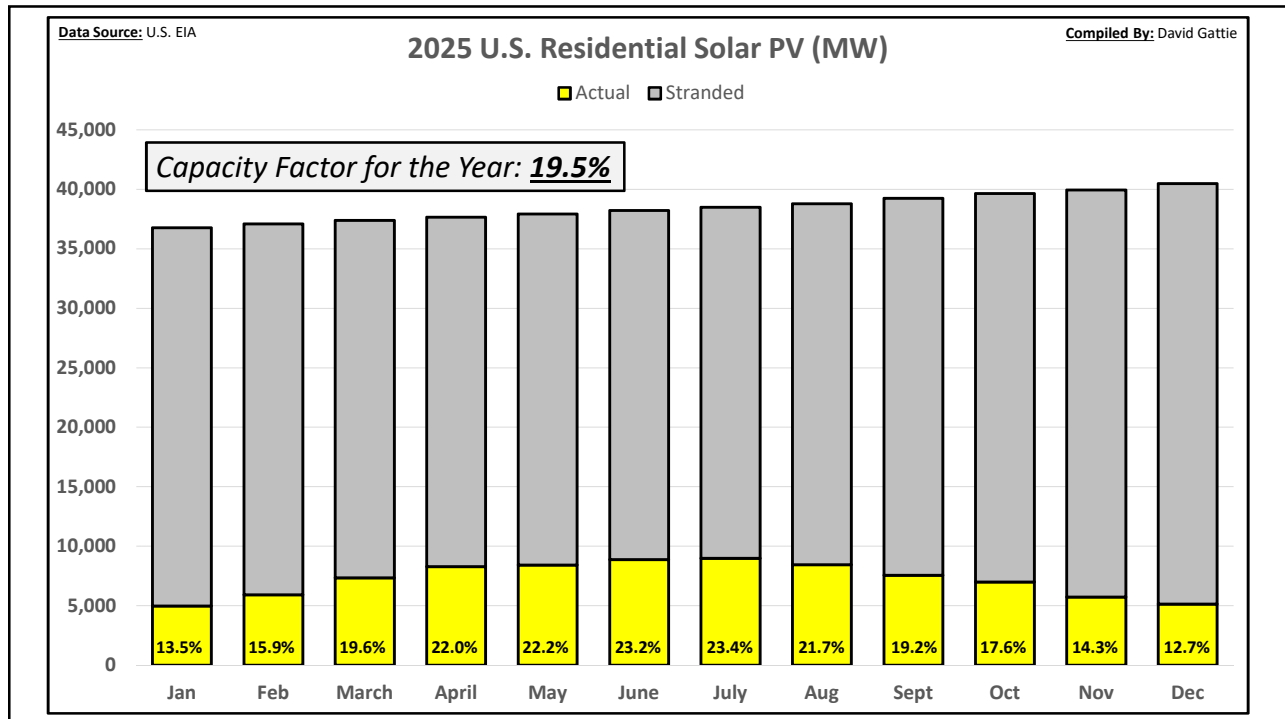
2025 Performance Comparisons

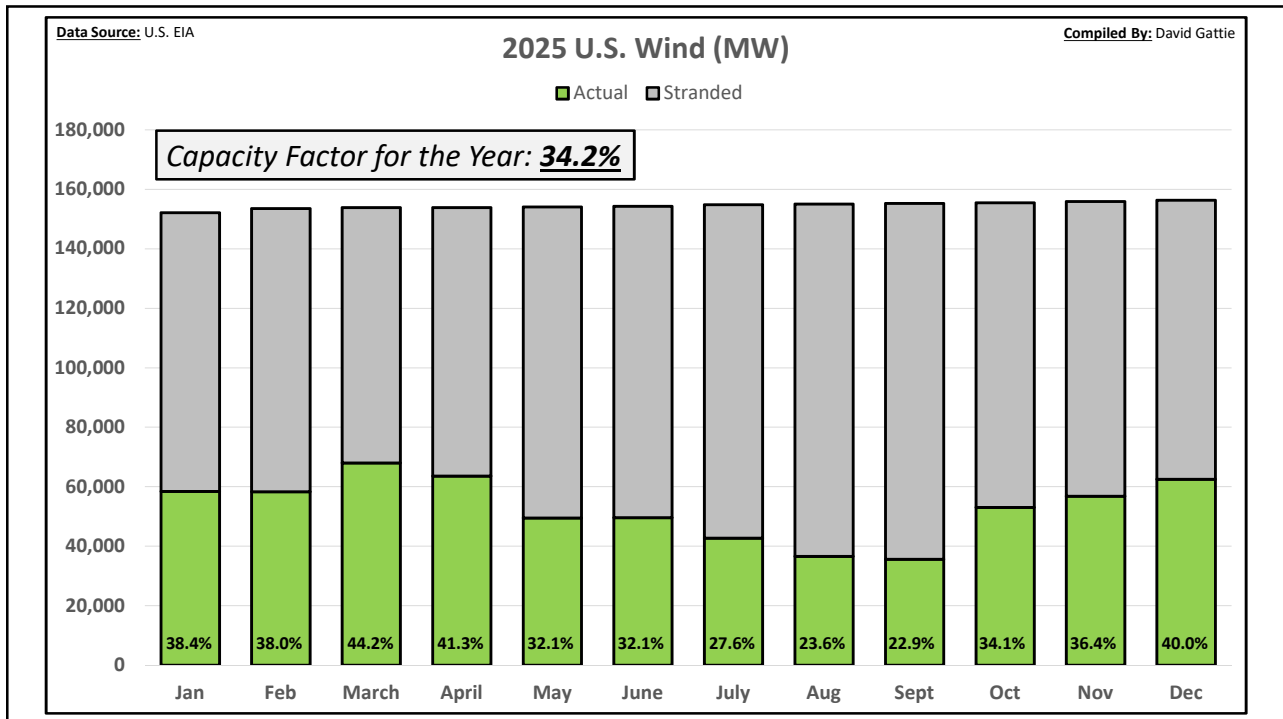
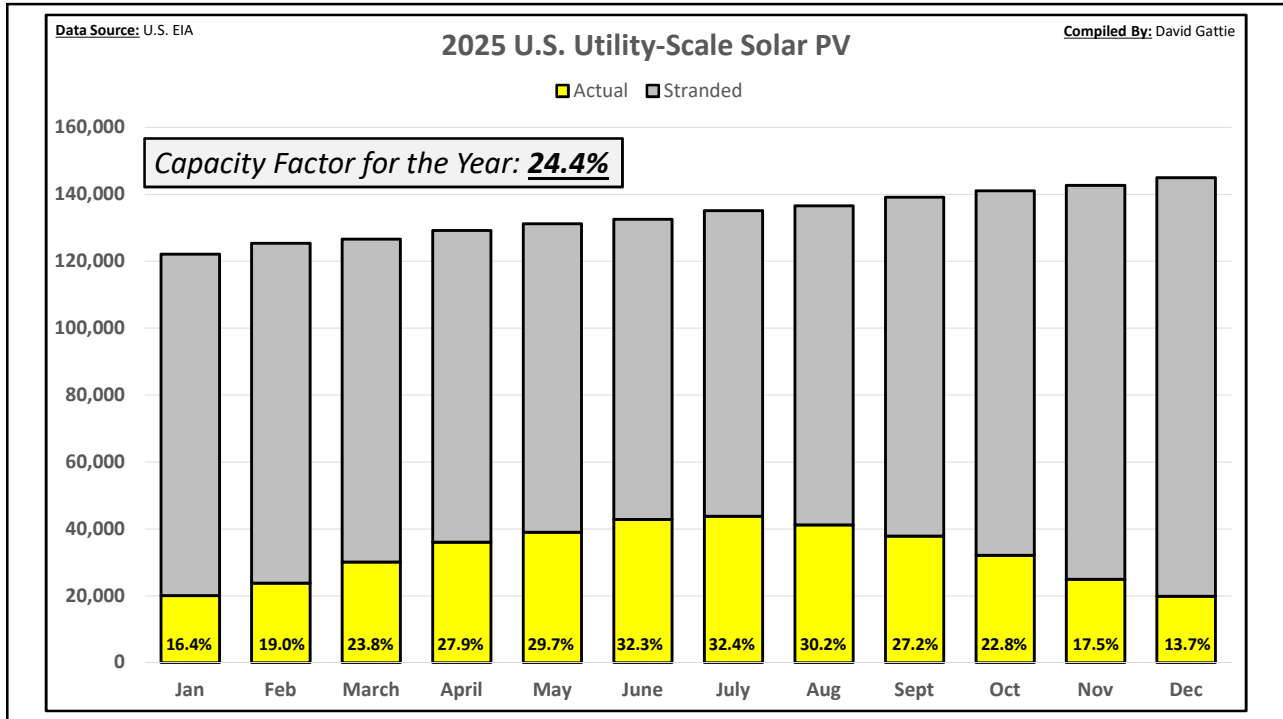
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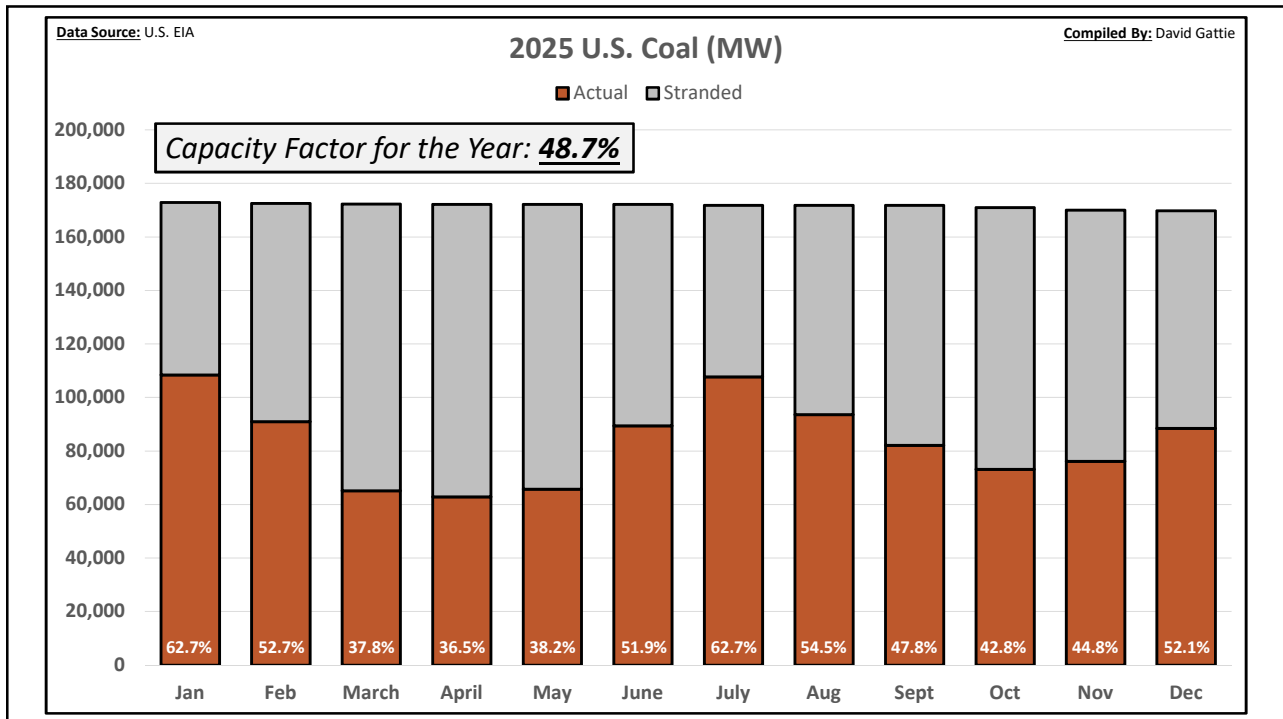
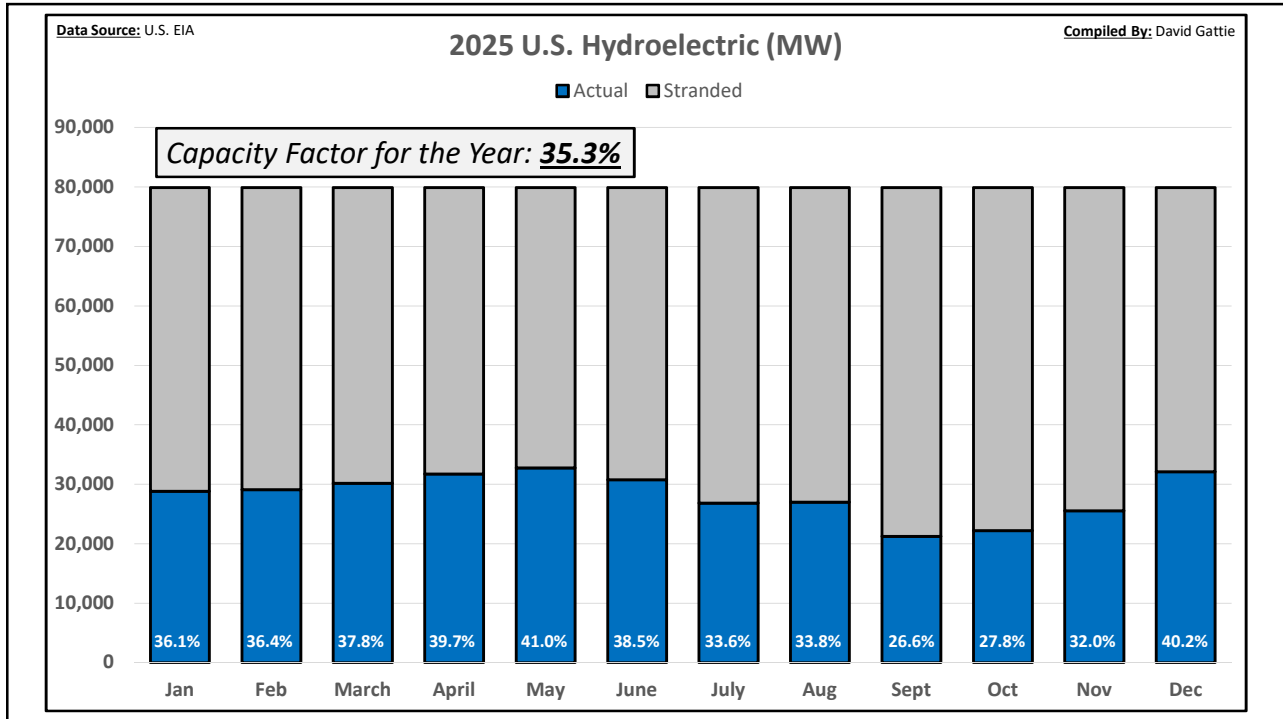
SOLAR, WIND, HYDRO COAL, NATURAL GAS, NUCLEAR

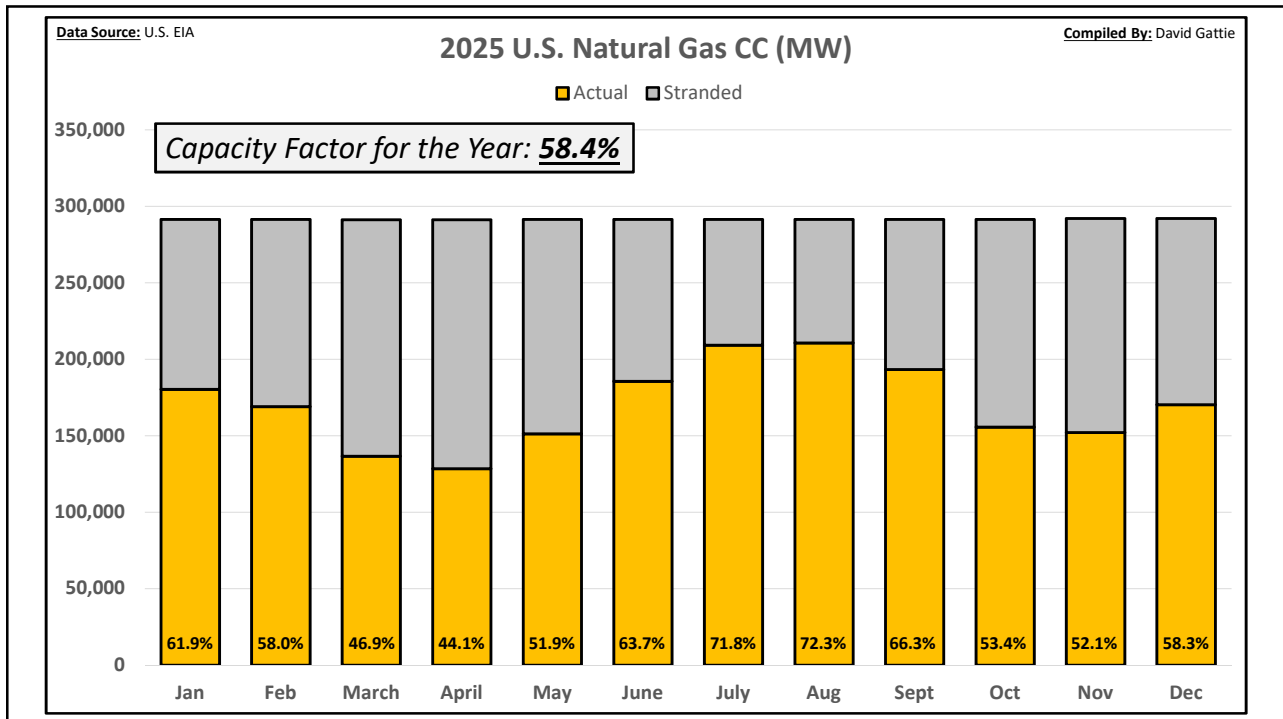
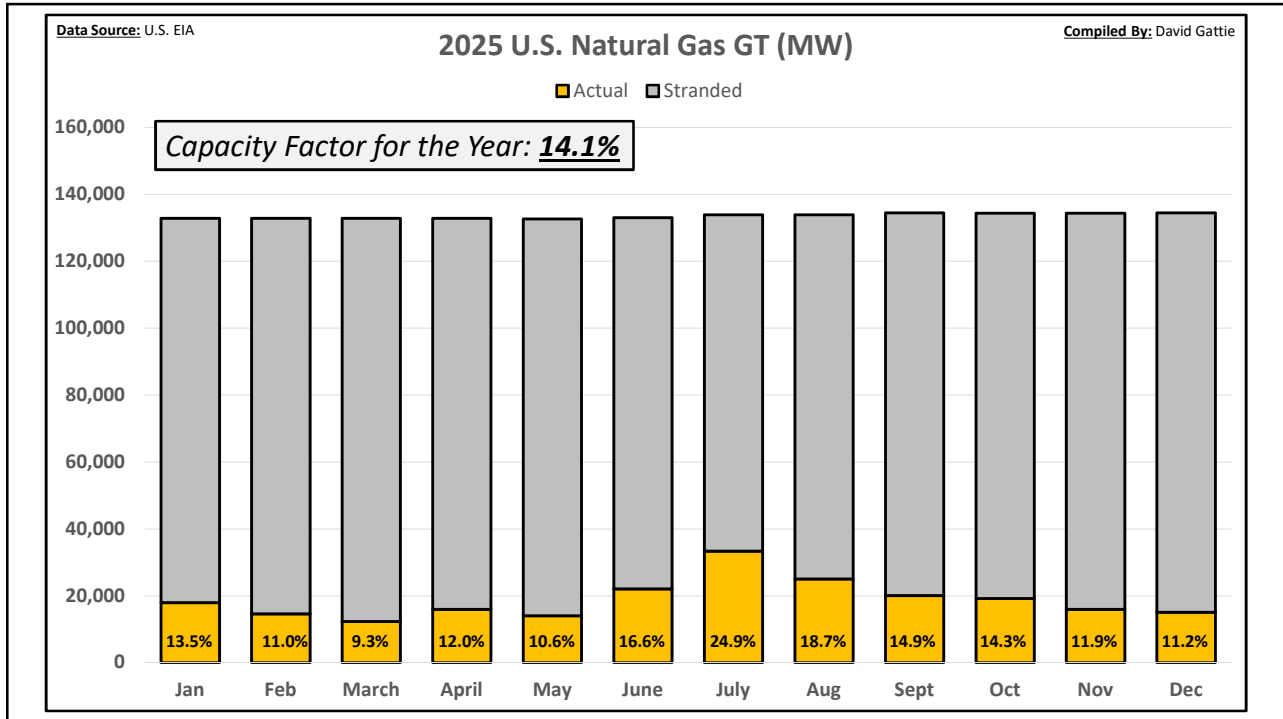


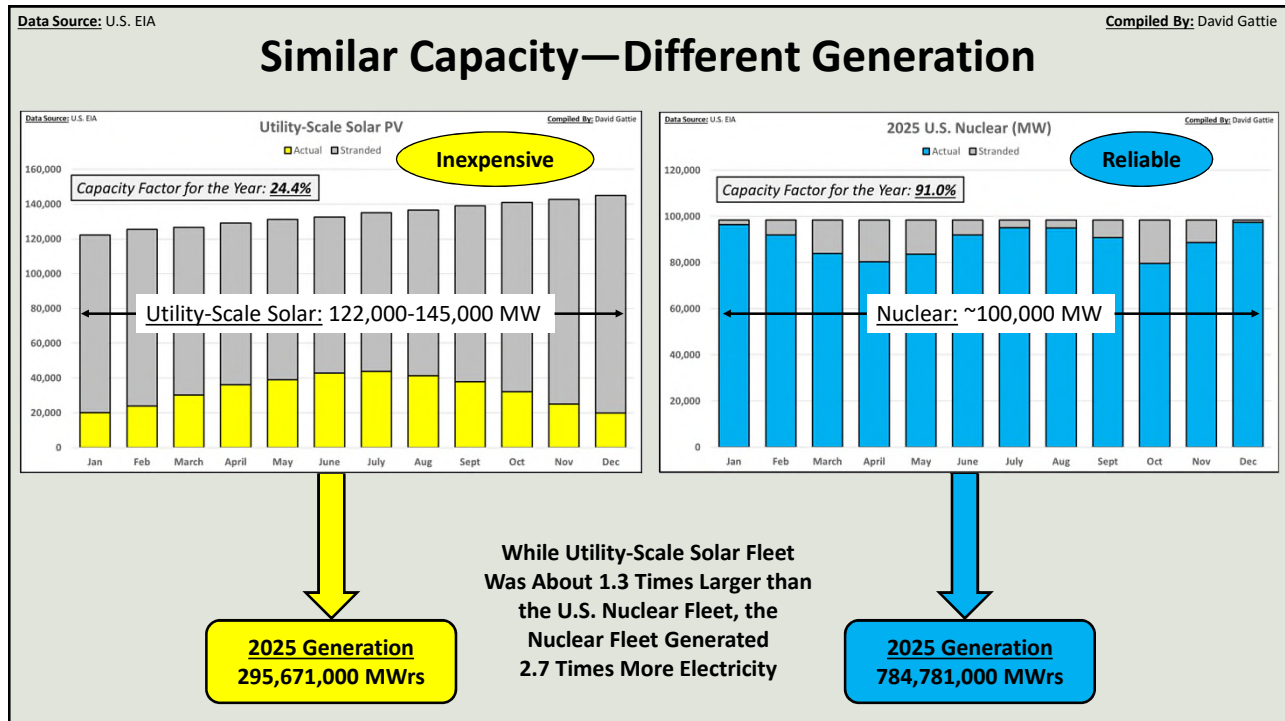
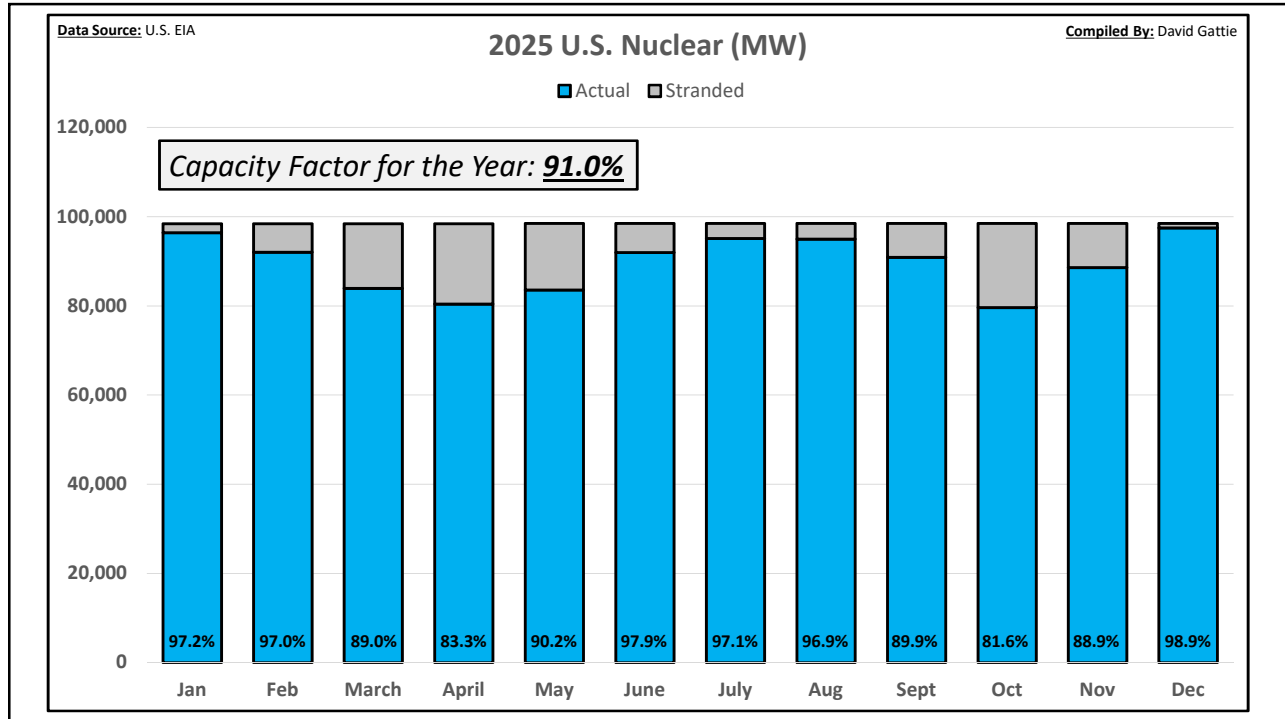
David Gattie





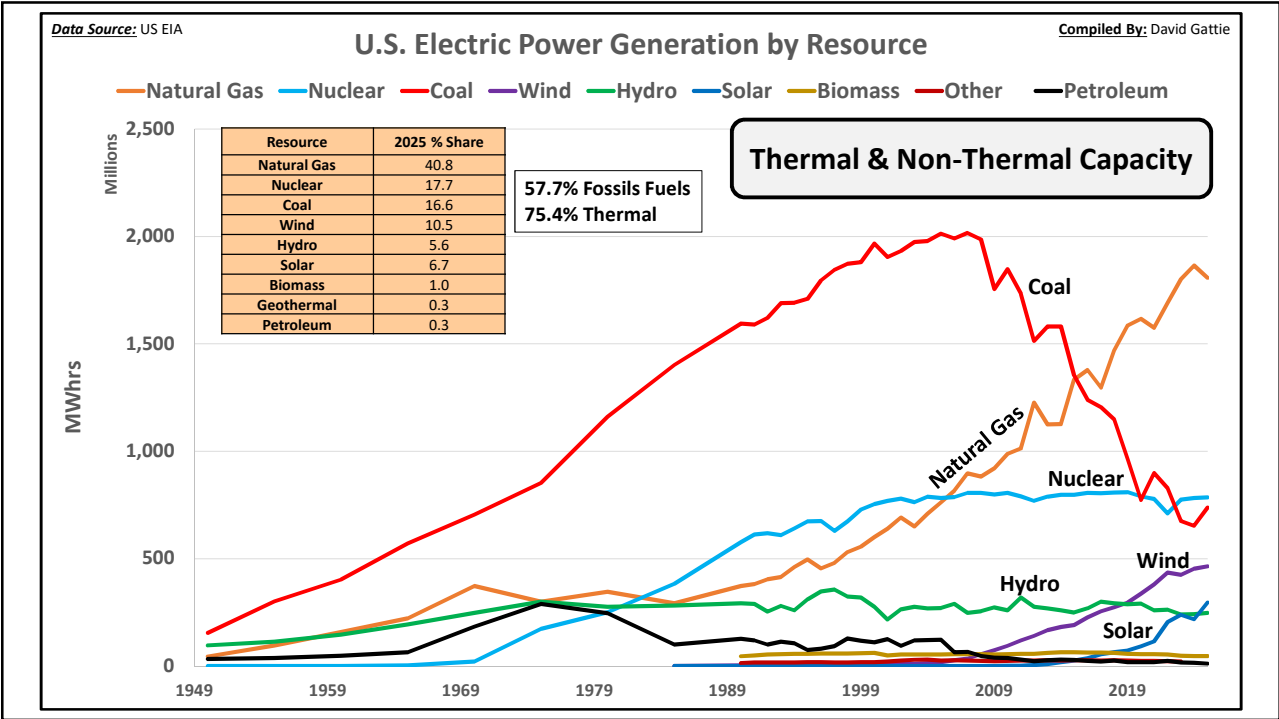


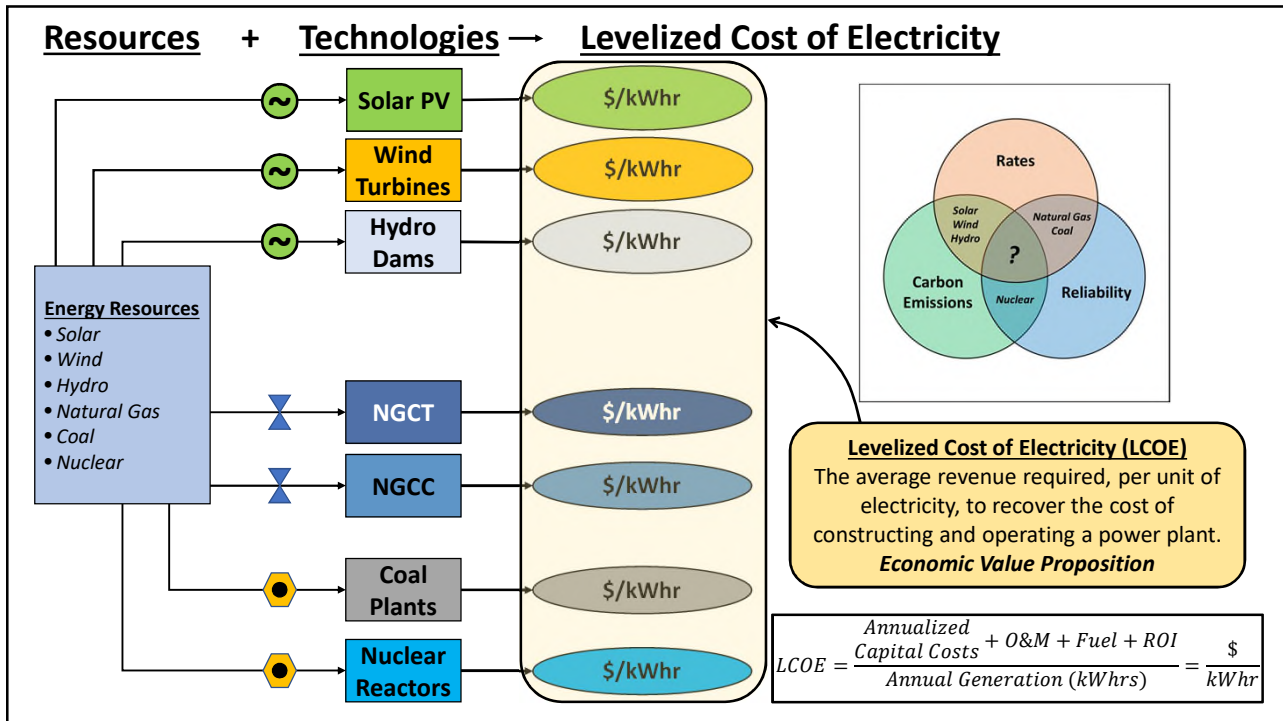
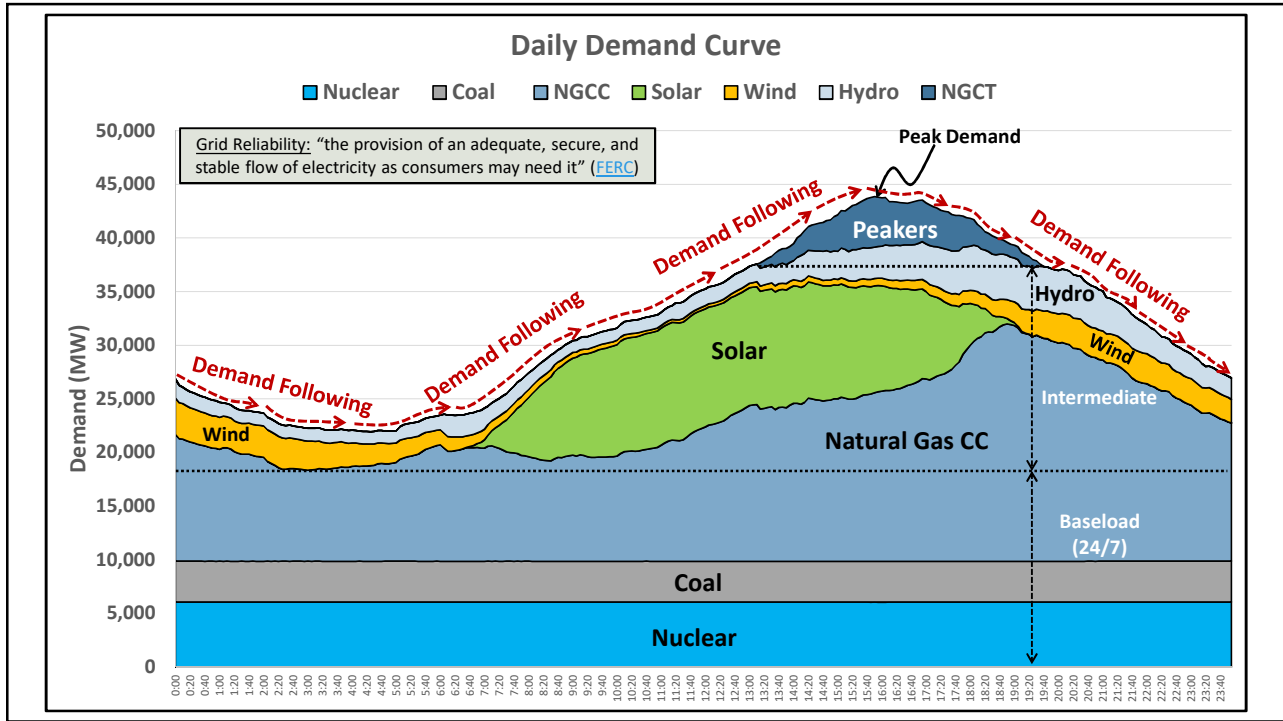




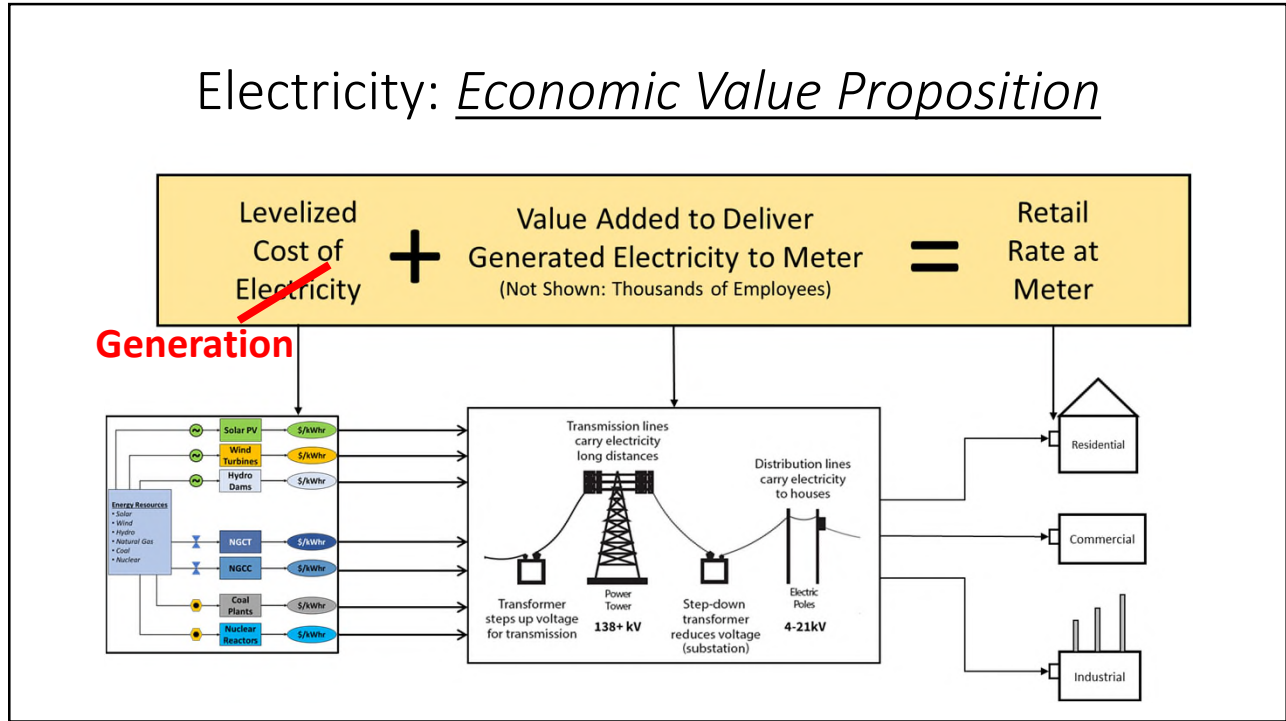
THE FUNDAMENTAL VALUE OF RESOURCE AND TECHNOLOGY DIVERSITY IN A POWER GRID

David Gattie

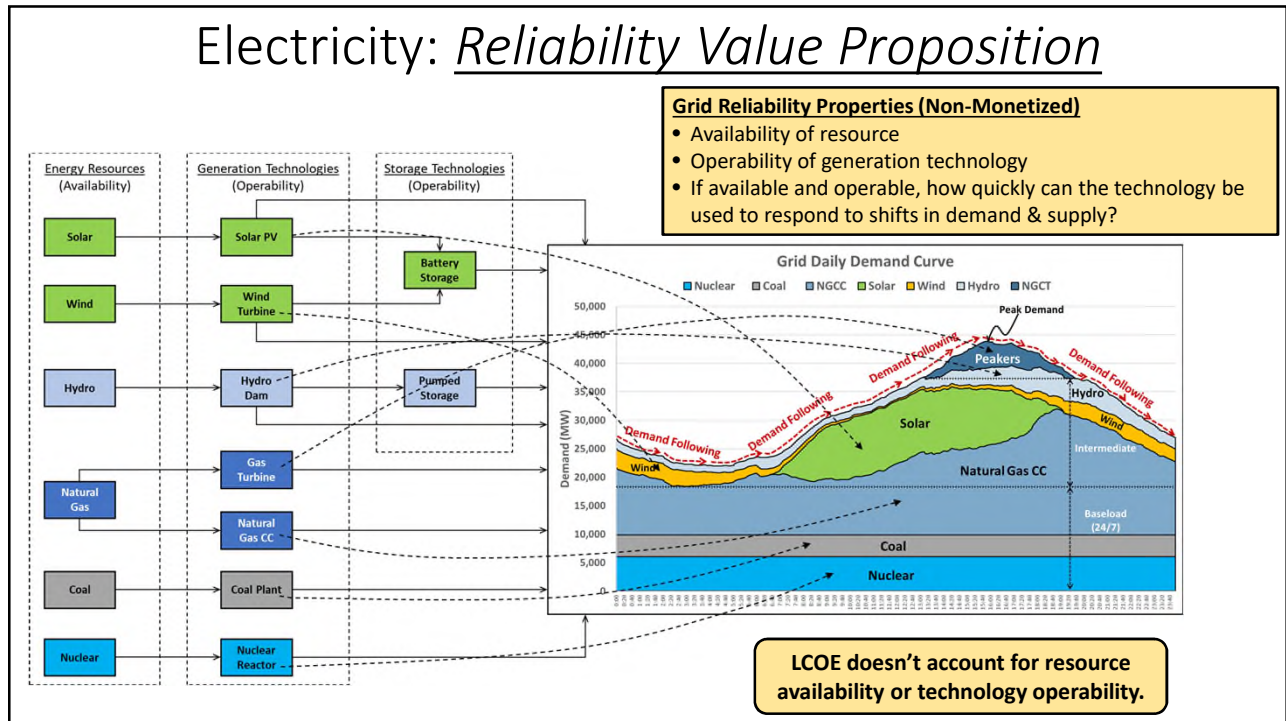


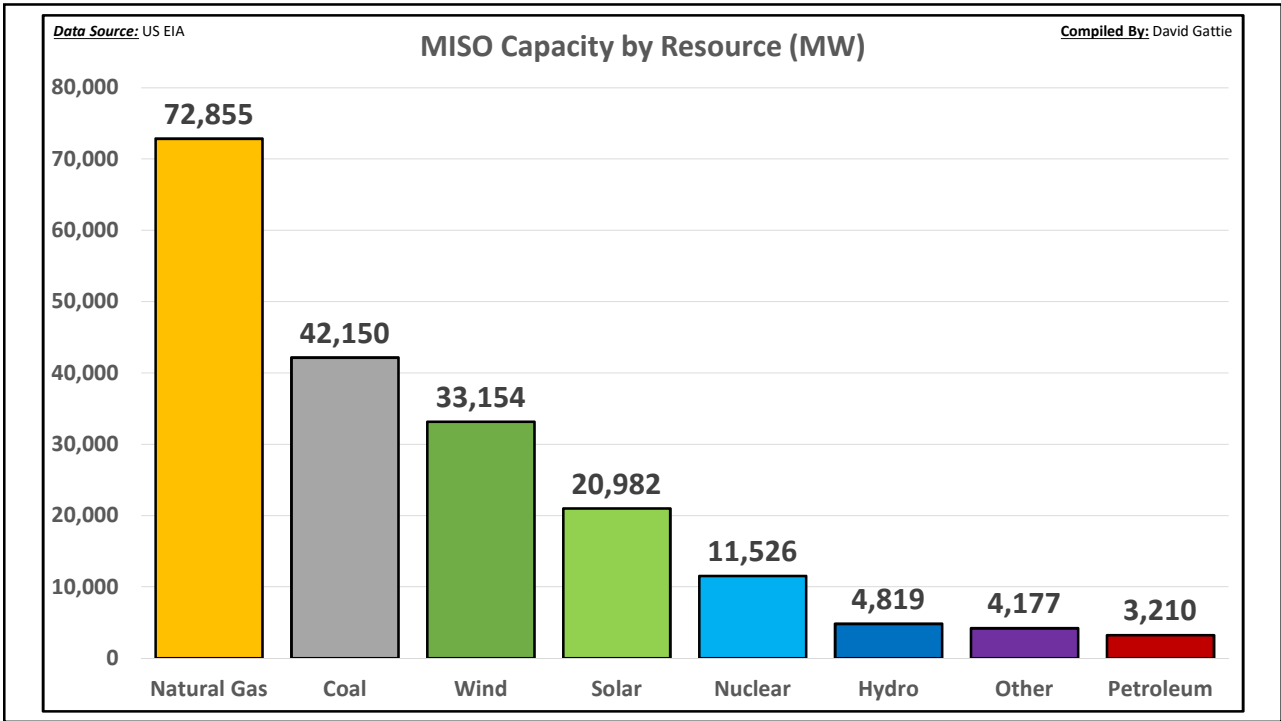
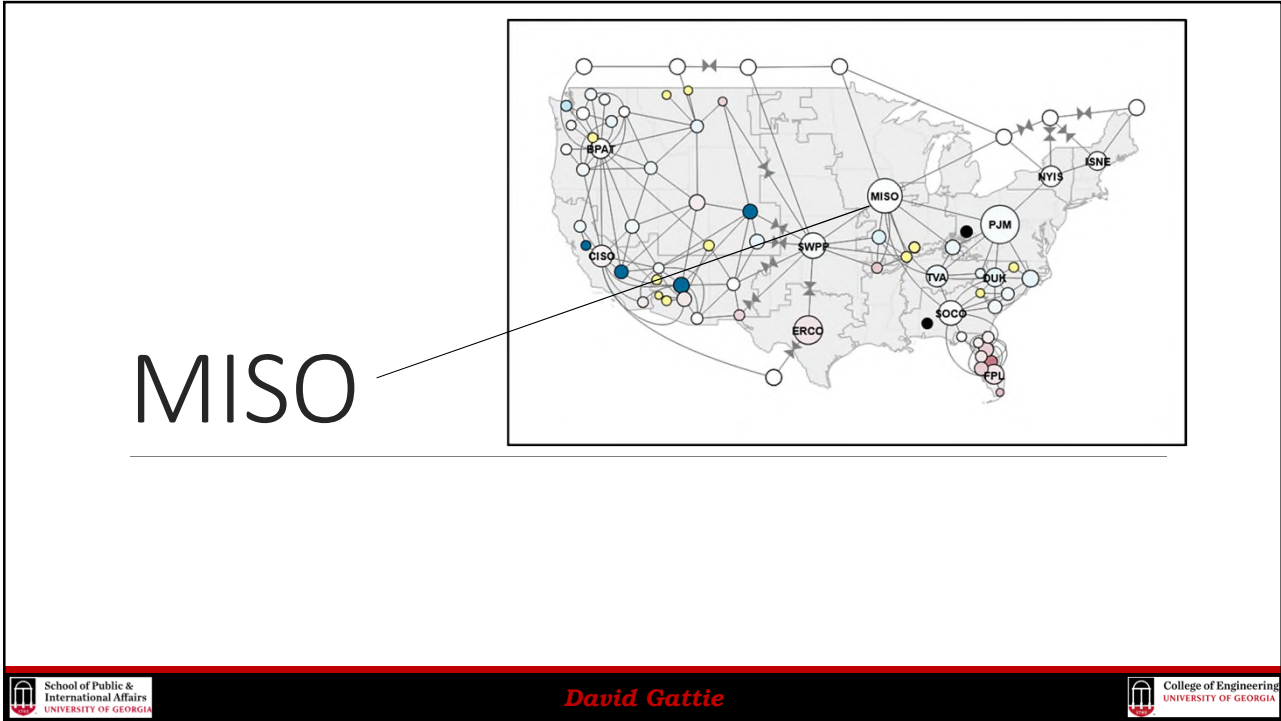


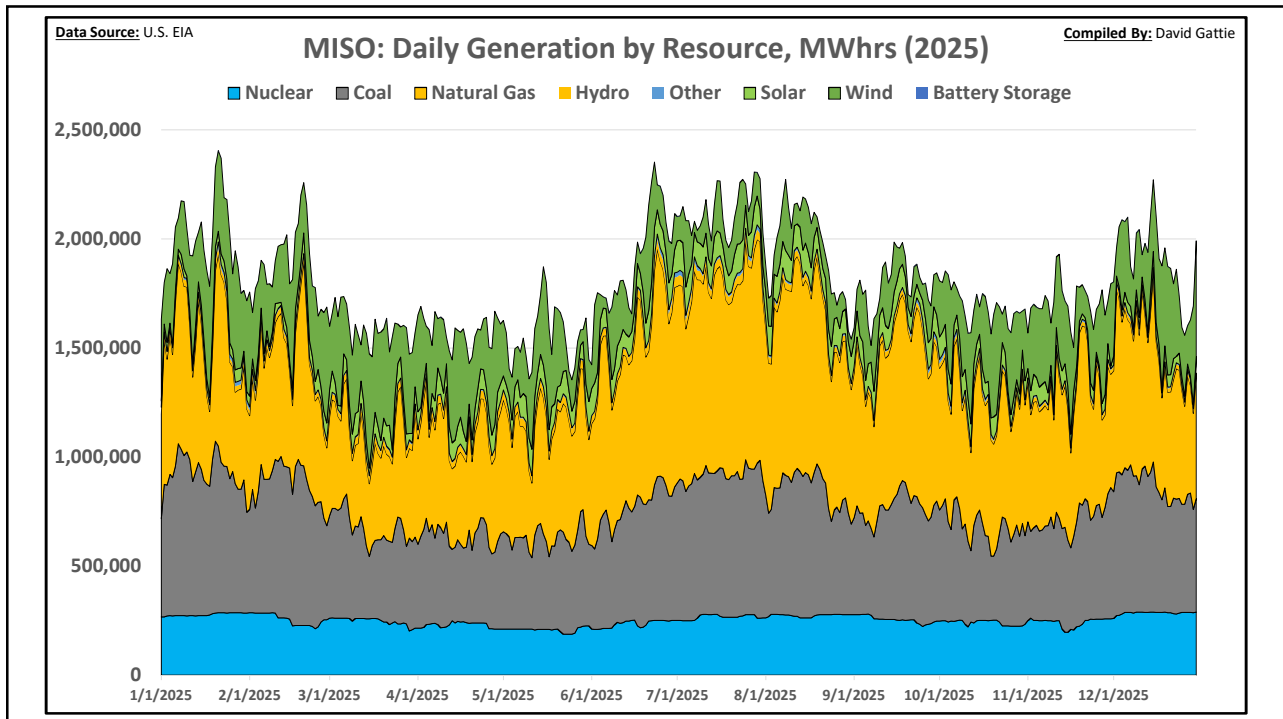
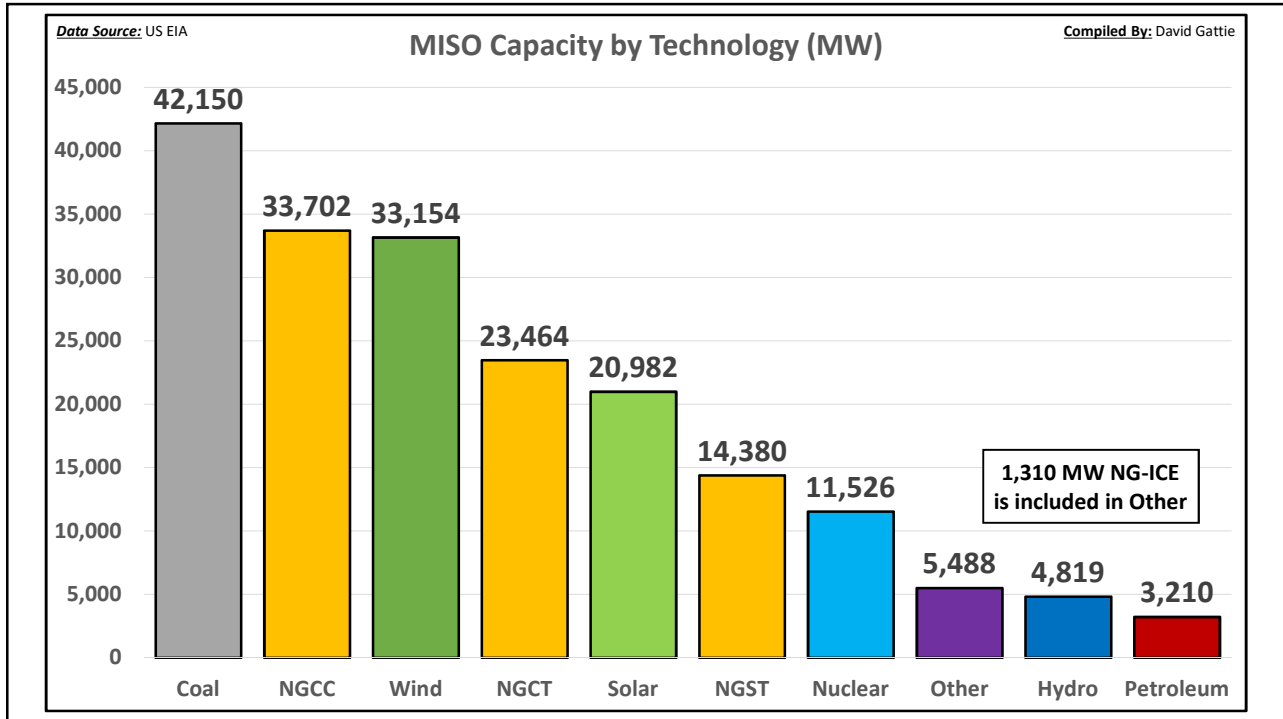
Electricity: Economic Value Proposition

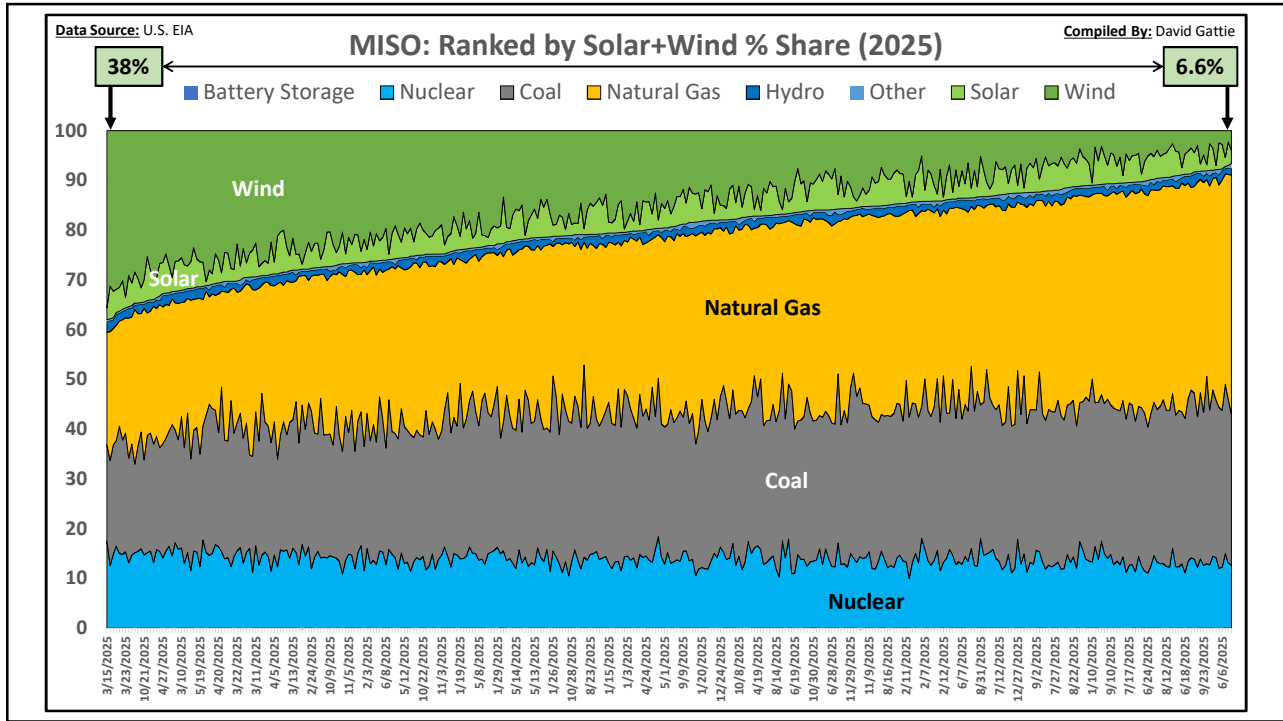


Electricity: Reliability Value Proposition







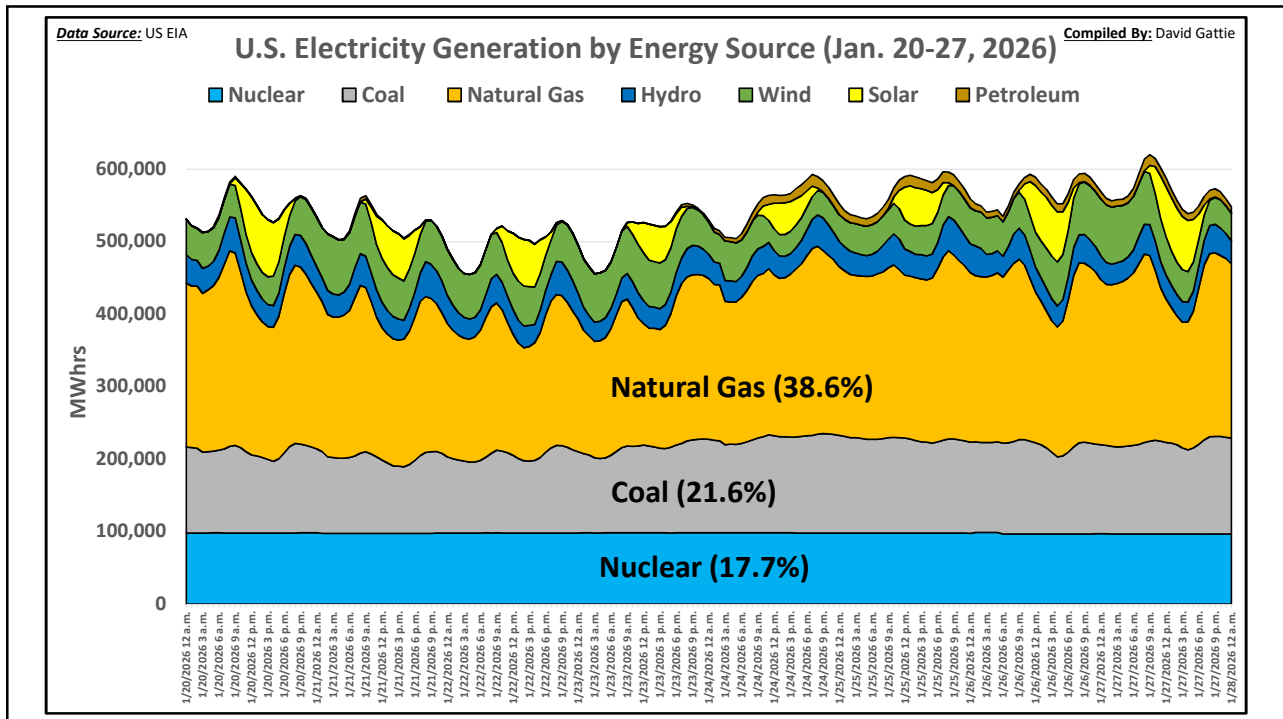


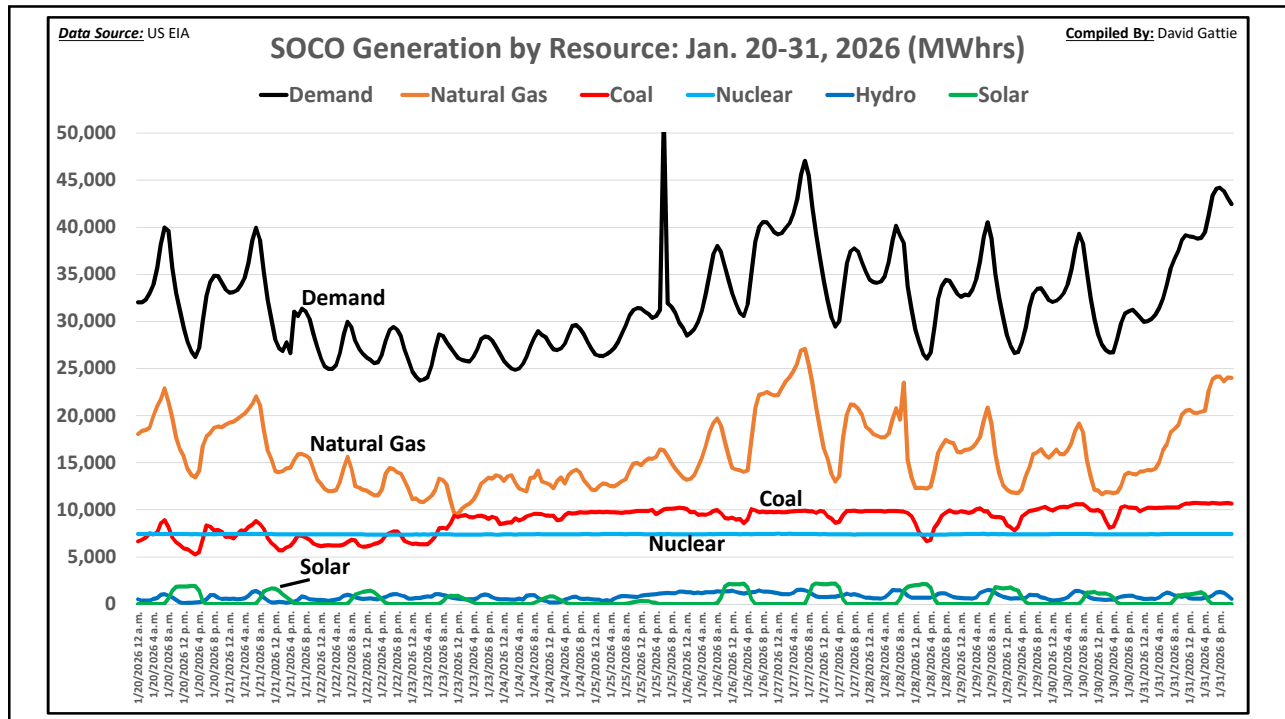
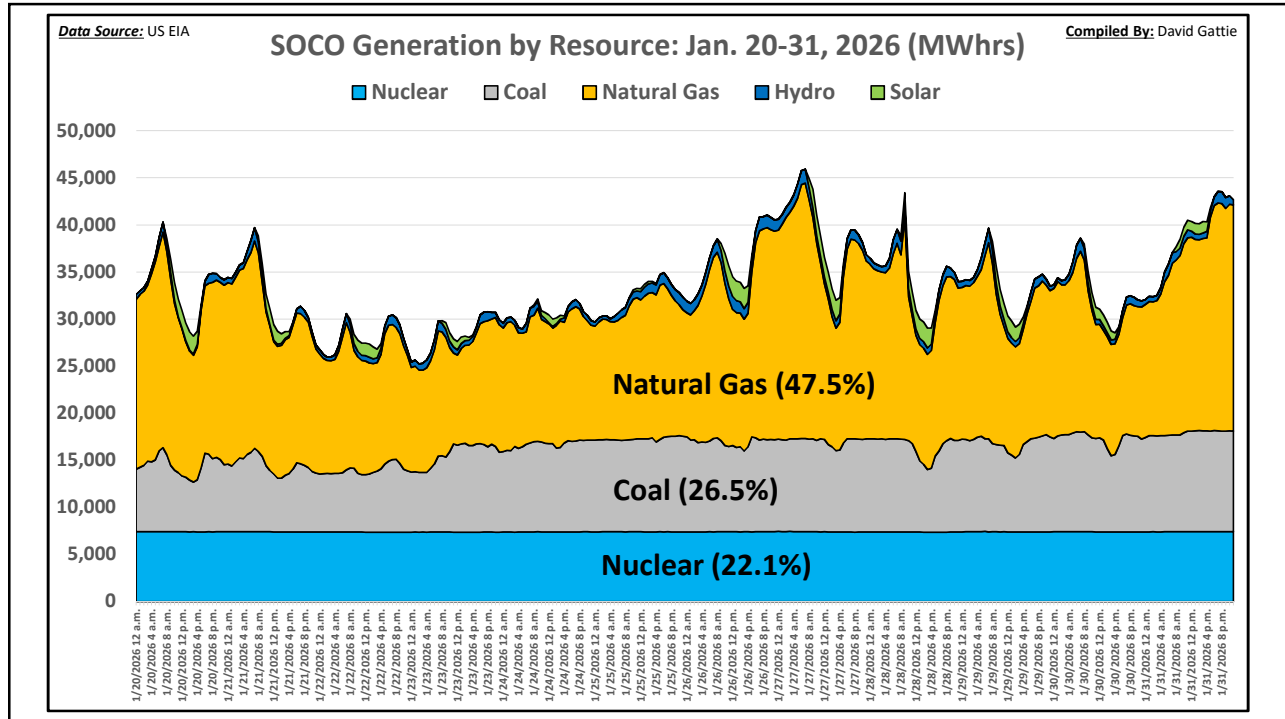
Recent Example: Winter Storm Fern

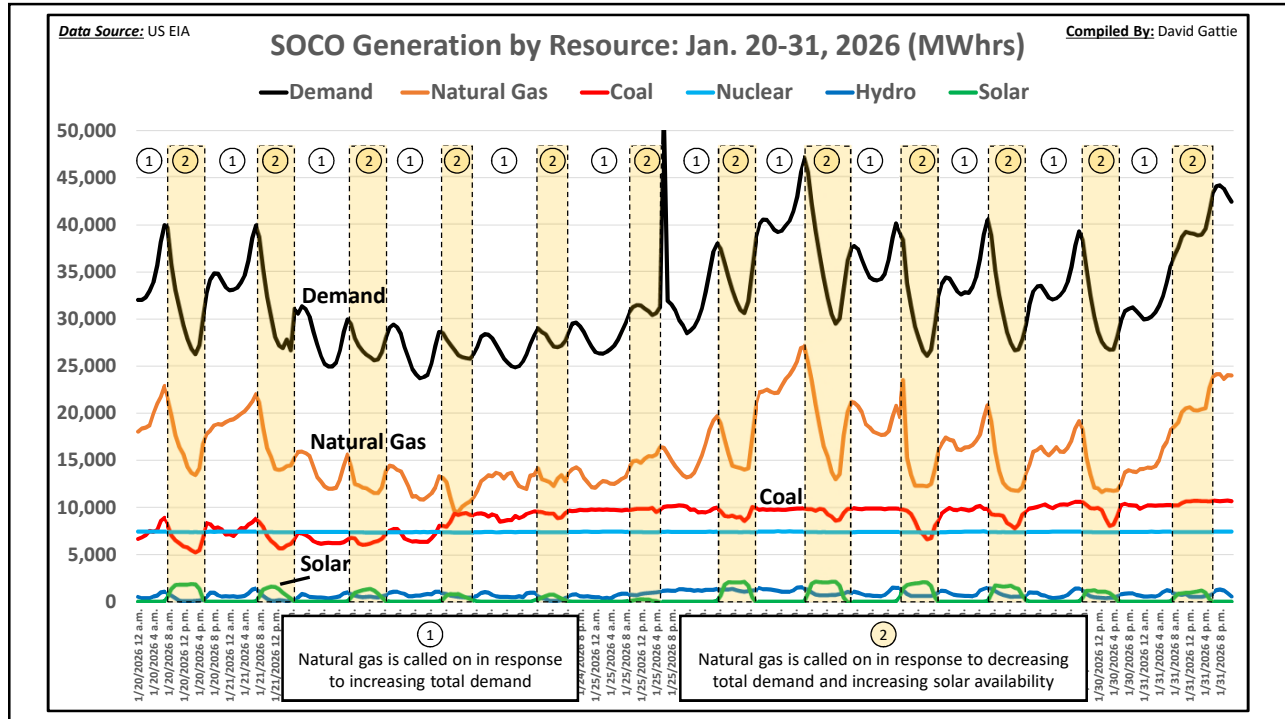
THE VALUE OF NATURAL GAS DURING EXTREME EVENTS



David Gattie

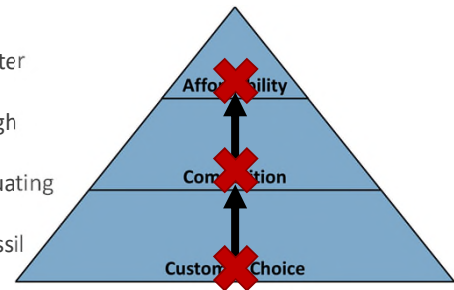






Natural Gas Policy Examples

- **New York:** Limitations on new construction (All-Electric Buildings Act)
- **California:** Aggressive building codes and phase-downs (SB 1221, SB 1359)
- **Massachusetts:** Clean Heat Standard; Restrictions on new hookups
- **Washington:** Energy code all but necessitates electric heat pumps and water heaters in new construction
- **Colorado:** SB21-246 Clean Heat Plans to reduce GHGs 22% by 2030 through "beneficial electrification"
- **Maryland:** Climate Solutions Now Act; "Future of Gas" proceeding is evaluating a managed transition away from natural gas to electrification
- **Illinois:** Climate and Equitable Jobs Act; Encourages electrification over fossil fuel equipment
- **Oregon:** Regulators are scaling back line extension allowances for new customers



Natural Gas Interim Points

- Natural gas, arguably, is America's **most versatile, flexible primary energy resource**
 - A necessary staple energy resource within **all sectors of U.S. economy**
 - Critical to electric power sector for baseload, intermediate and load-following
 - Shouldering U.S. **demand for increased thermal energy capacity**
- U.S. **reduction in CO₂ emissions** has been from natural gas plant deployment
- Natural gas is **not a bridge fuel** to a zero-carbon future
 - It's a **permanent highway system for all sectors** of the U.S. economy
- We need to remain vigilante and engaged in energy policy, elevating U.S. **natural gas as a high value national security asset**
 - Because efforts to transition away from fossil fuels, haven't ended

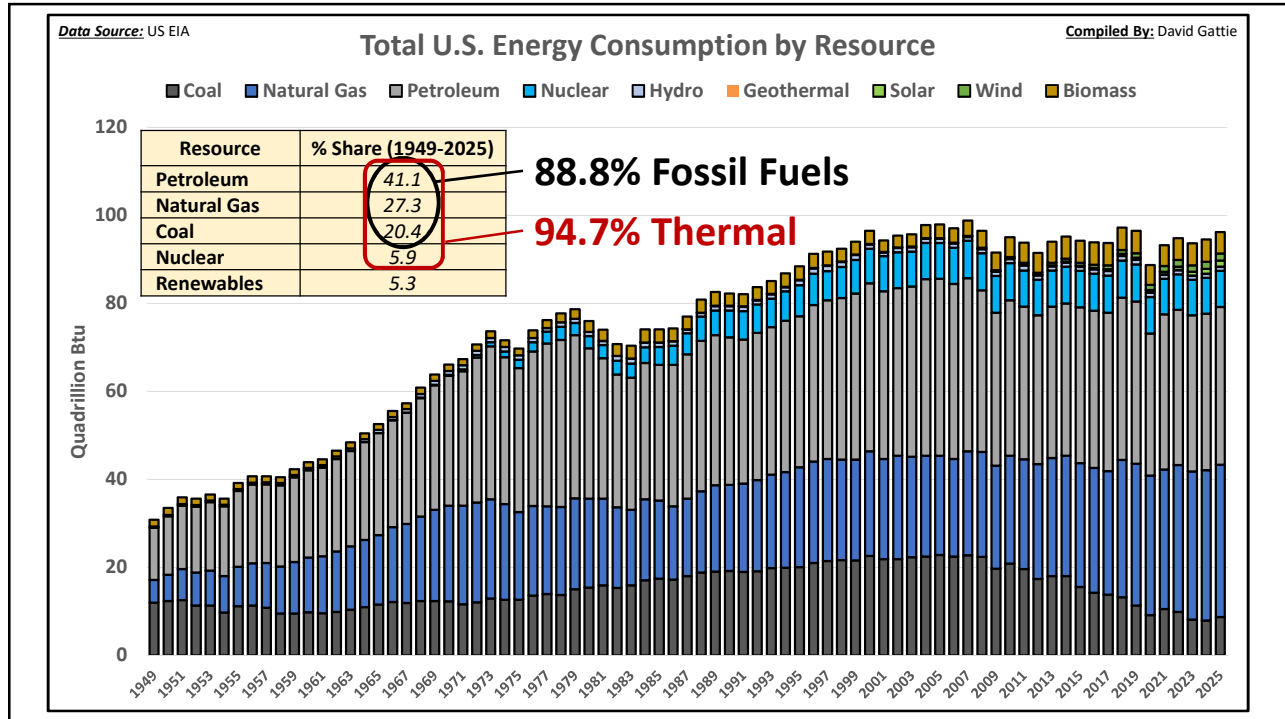
Energy & U.S. National Security



U.S. National Security

- America's capacity to **defend** against and **deter** any and all threats to its citizens, its freedoms and liberties, its economy, its institutions and its government
- A core measure of America's capacity to provide and sustain national security is **having competitive advantage relative to nations** that pose a threat—multiple advantages:
 - Economic, natural resources, **energy**, military, technological, diplomatic, geopolitical
 - A deep, diverse **industrial base**
 - A flexible, reliable, resilient **power grid**



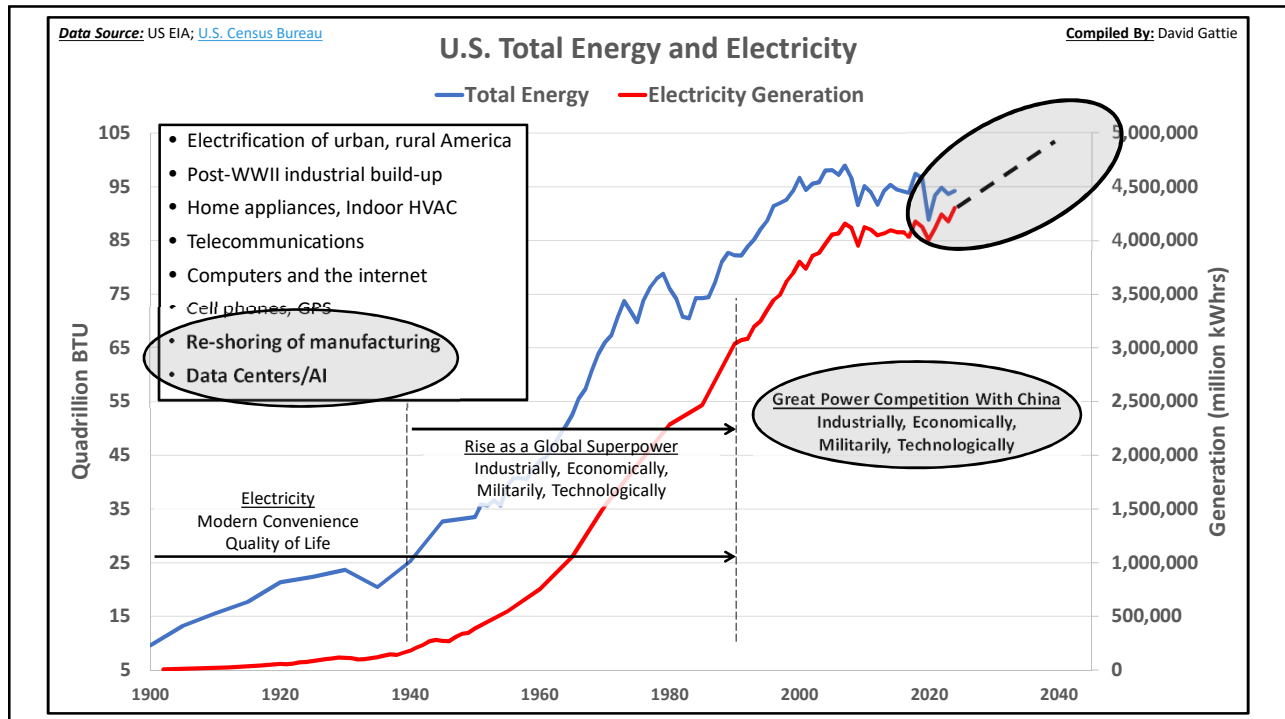


Artificial Intelligence and Power Generation

THE EVOLVING NATIONAL SECURITY IMPERATIVE



David Gattie



Full Committee: "Converting Energy into Intelligence: the Future of AI Technology, Human Discovery, and American Global Competitiveness"

"Let me clearly state my bottom line up front. Housing as many AI data centers as possible, especially cutting-edge AI training models within our country, is both an economic and national security imperative. *There is no more powerful and transformational technology facing our world. As the title of this hearing suggests, we need to quickly and affordably convert energy into intelligence.*"
(David Turk, U.S. Deputy Secretary of Energy, 2021-2025)

"Most importantly, we need the energy, and the numbers are profound. *We need energy in all forms, renewable, non-renewable, whatever it is needs to be there and it needs to be there quickly.*"
(Eric Schmidt, Former CEO & Chairman of Google)

[Link to hearing](#)

FOREIGN RELATIONS COMMITTEE ABOUT PRESS COMMITTEE EVENTS ACTIVITIES & REPORTS

SUBCOMMITTEE HEARING

COUNTERING CHINA'S CHALLENGE TO AMERICAN AI LEADERSHIP

Subcommittee on East Asia, The Pacific, and International Cybersecurity Policy

Date: Tuesday, December 2nd, 2025
Time: 02:30pm
Location: SD-419

[Link to event](#)

Deterrence by Design: Advancing AI for Competitive Advantage Over China

REAGAN NATIONAL DEFENSE FORUM
December 5-6, 2025 | #RNDF

[Link to Event](#)

					
HORACIO ROZANSKI	ADM. SAMUEL PAPARO	HON. EMIL MICHAEL	JOE LONSDALE	STEPHEN EHKIAN	GORDON LUBOLD
Chairman and CEO Booz Allen	Commander U.S. Indo-Pacific Command	U.S. Under Secretary of War for Research and Engineering	Co-Founder and Managing Partner SVC	CEO C3 AI	NBC

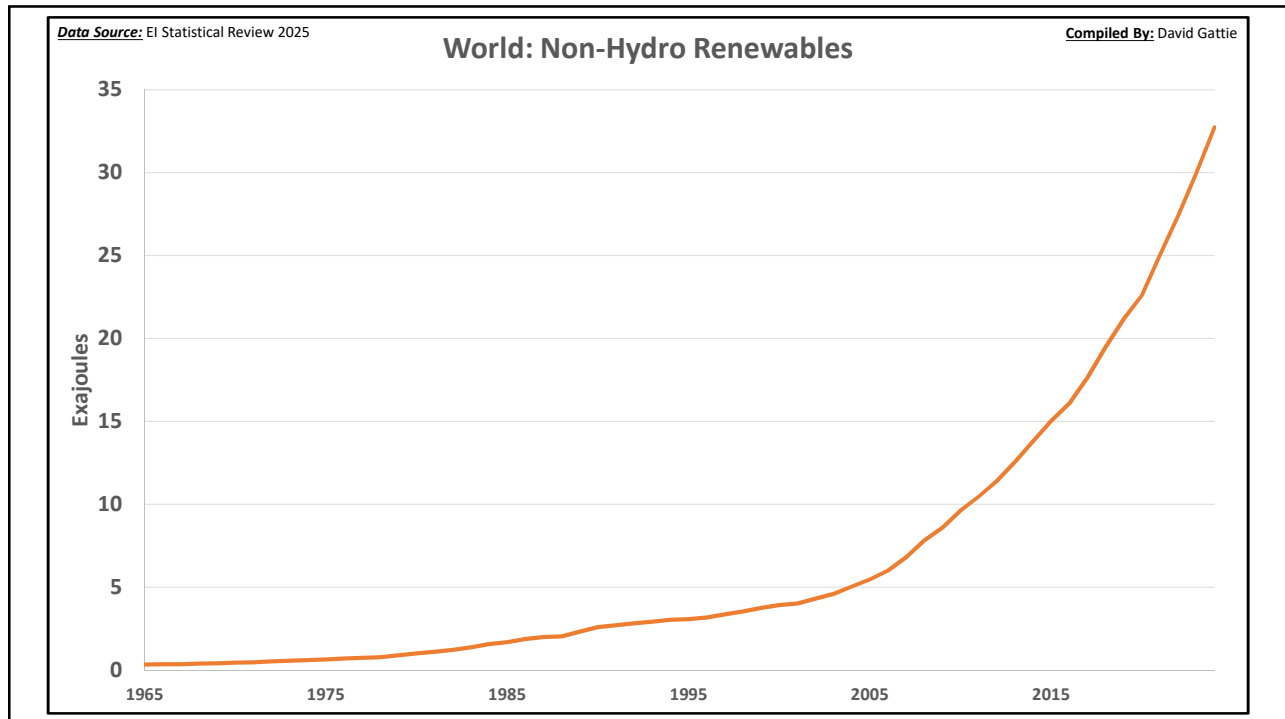


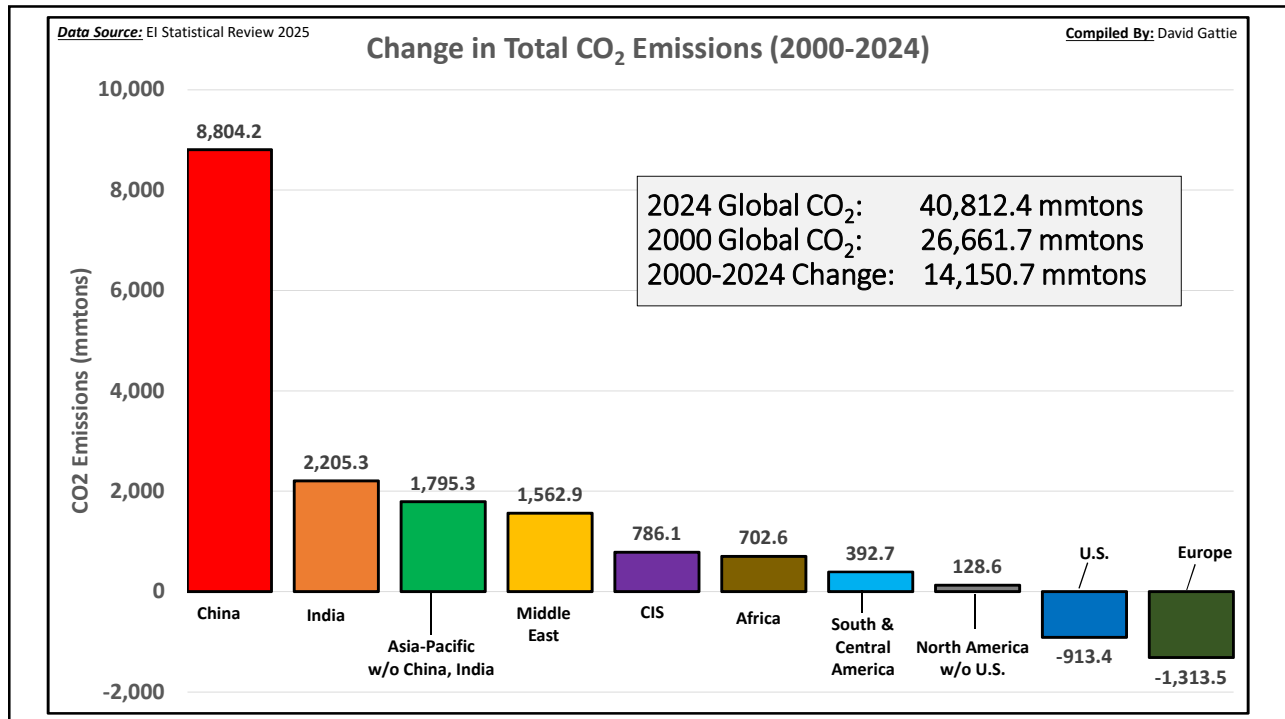
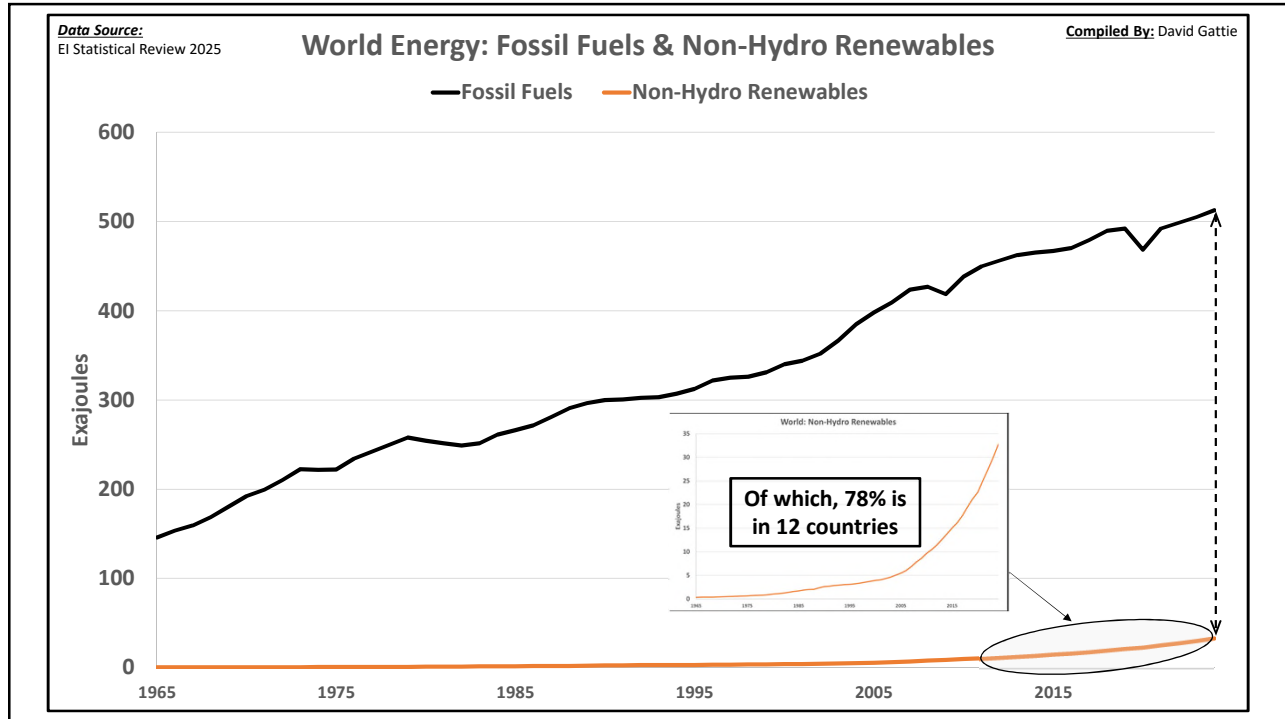
School of Public & International Affairs
UNIVERSITY OF GEORGIA

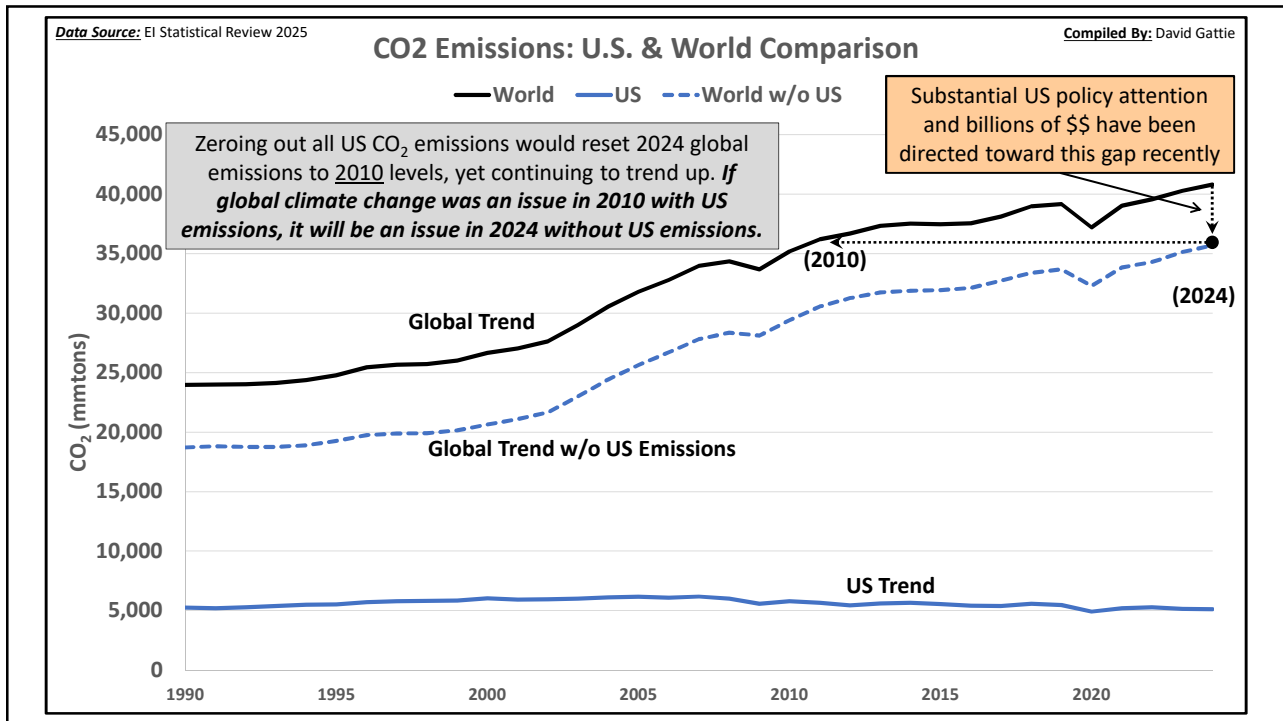
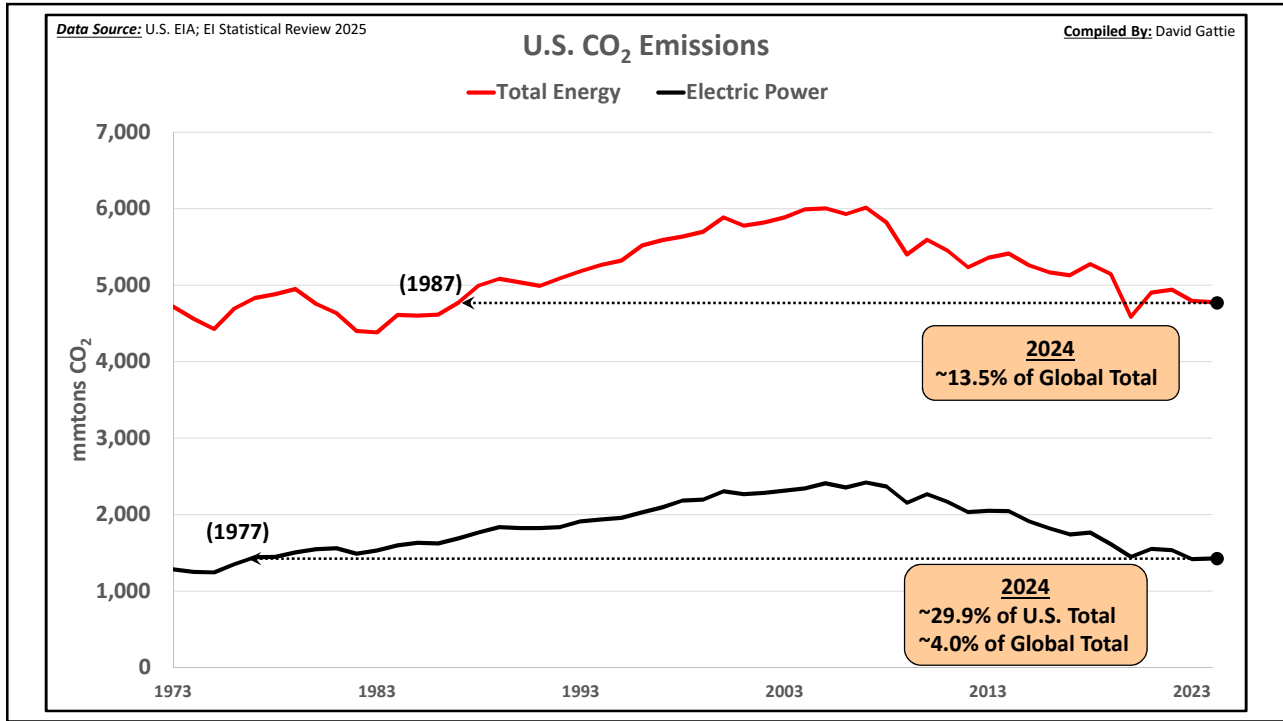
David Gattie

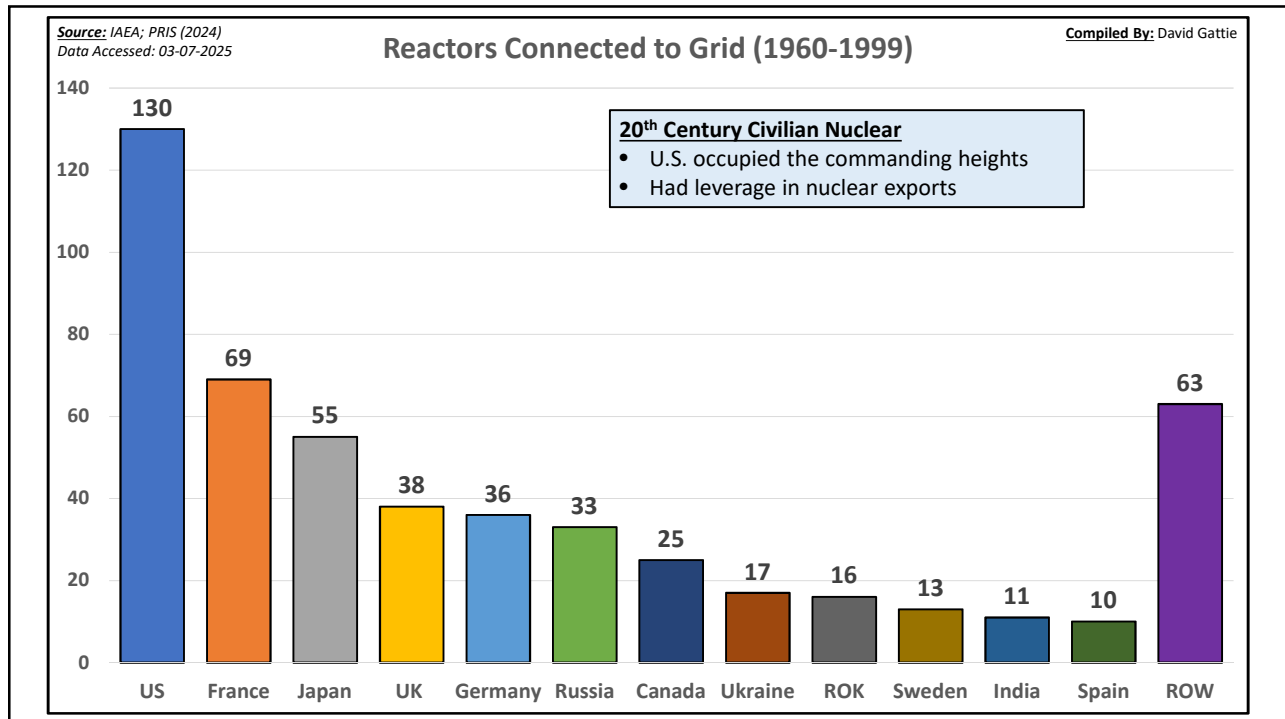
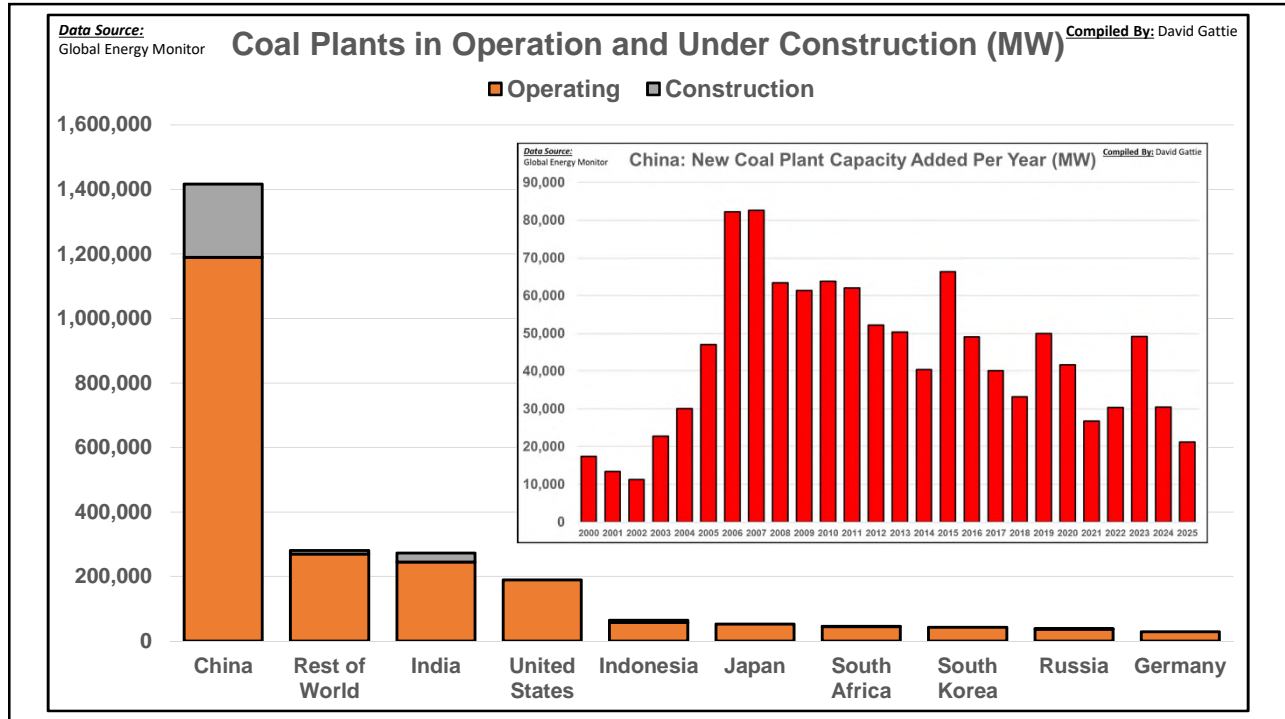


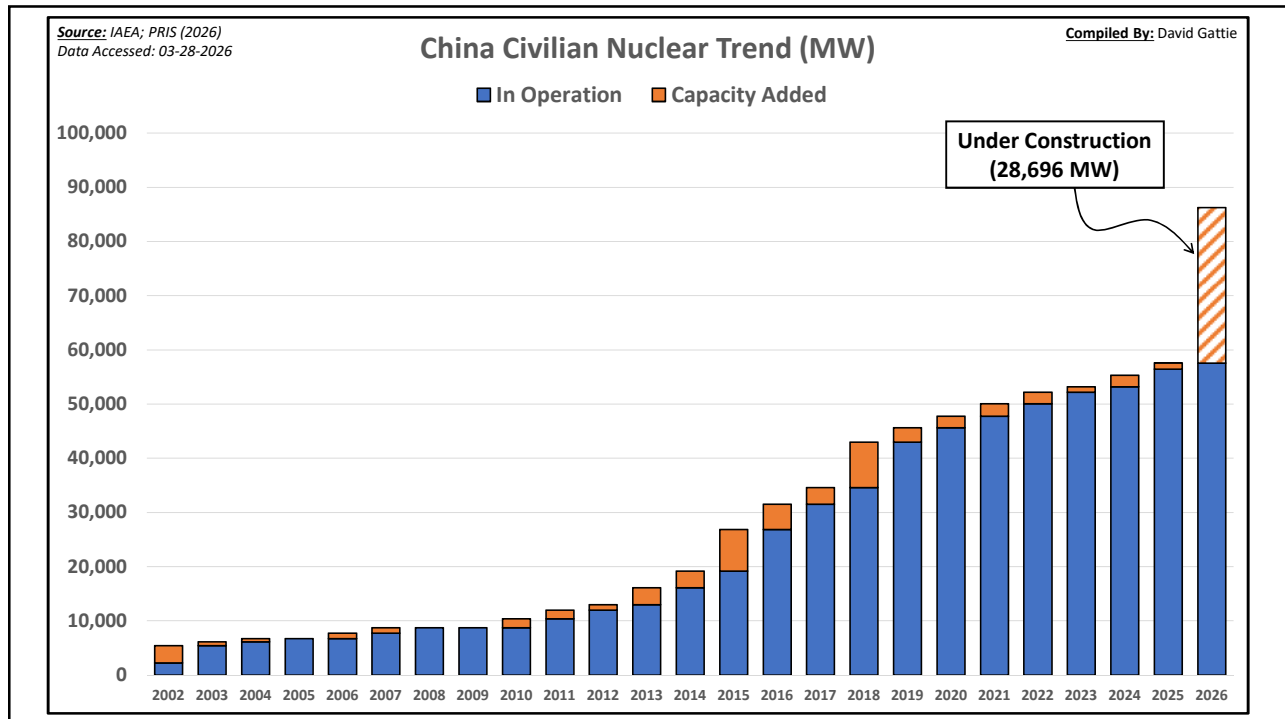
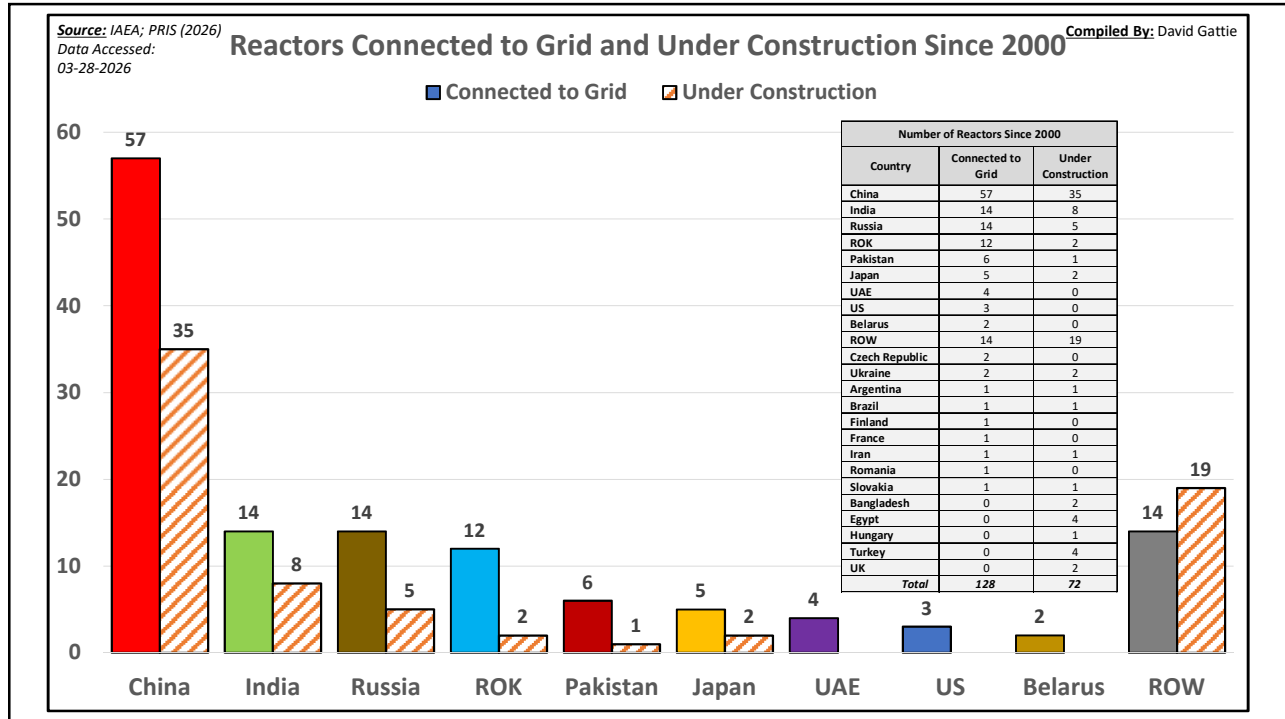
College of Engineering
UNIVERSITY OF GEORGIA

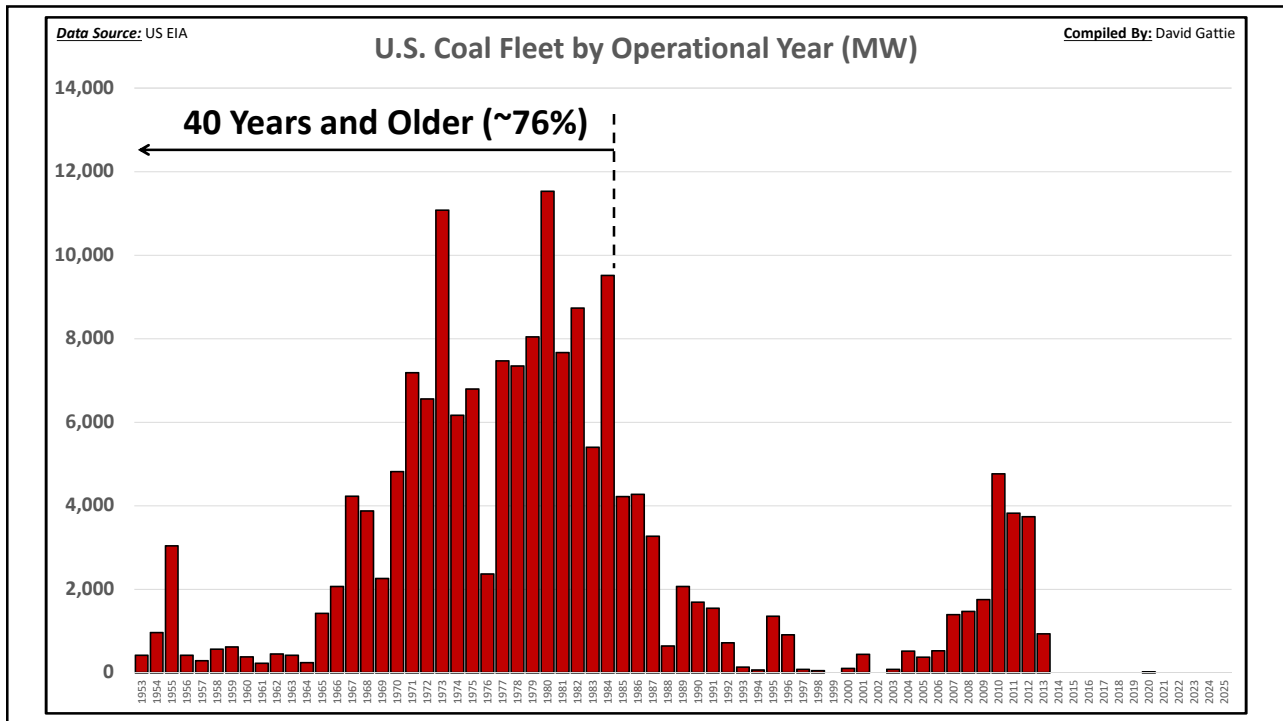
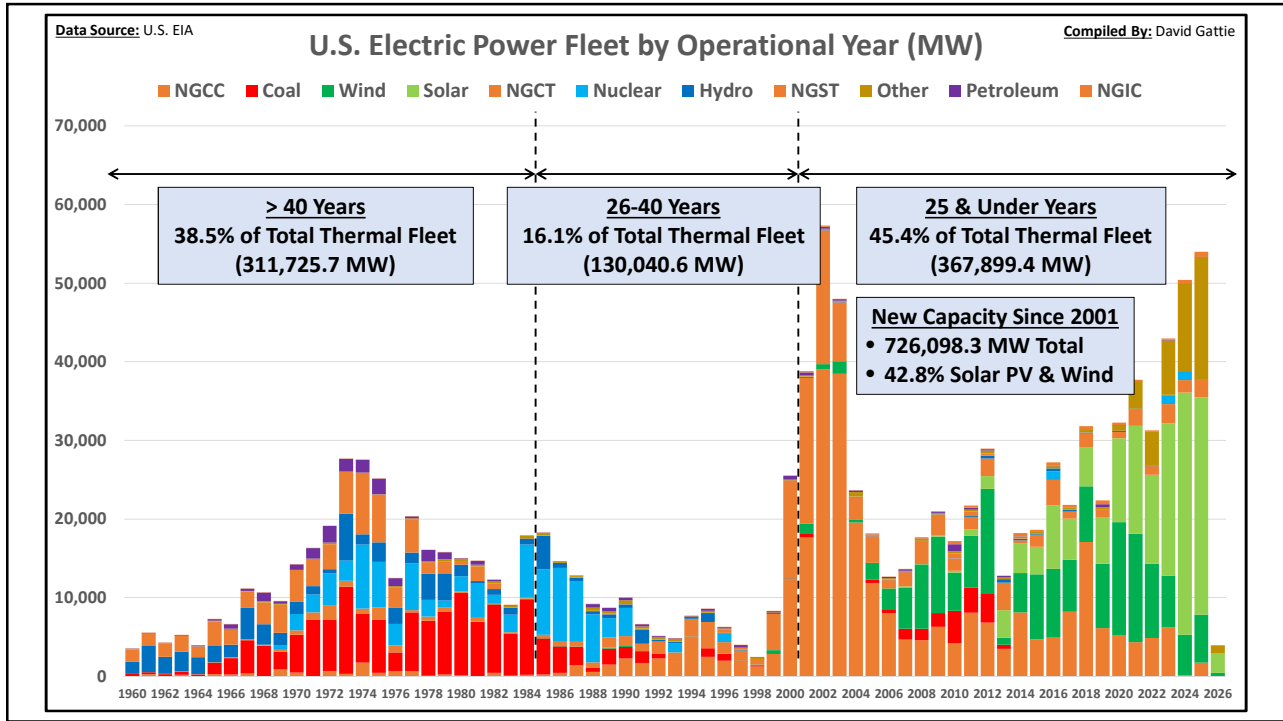


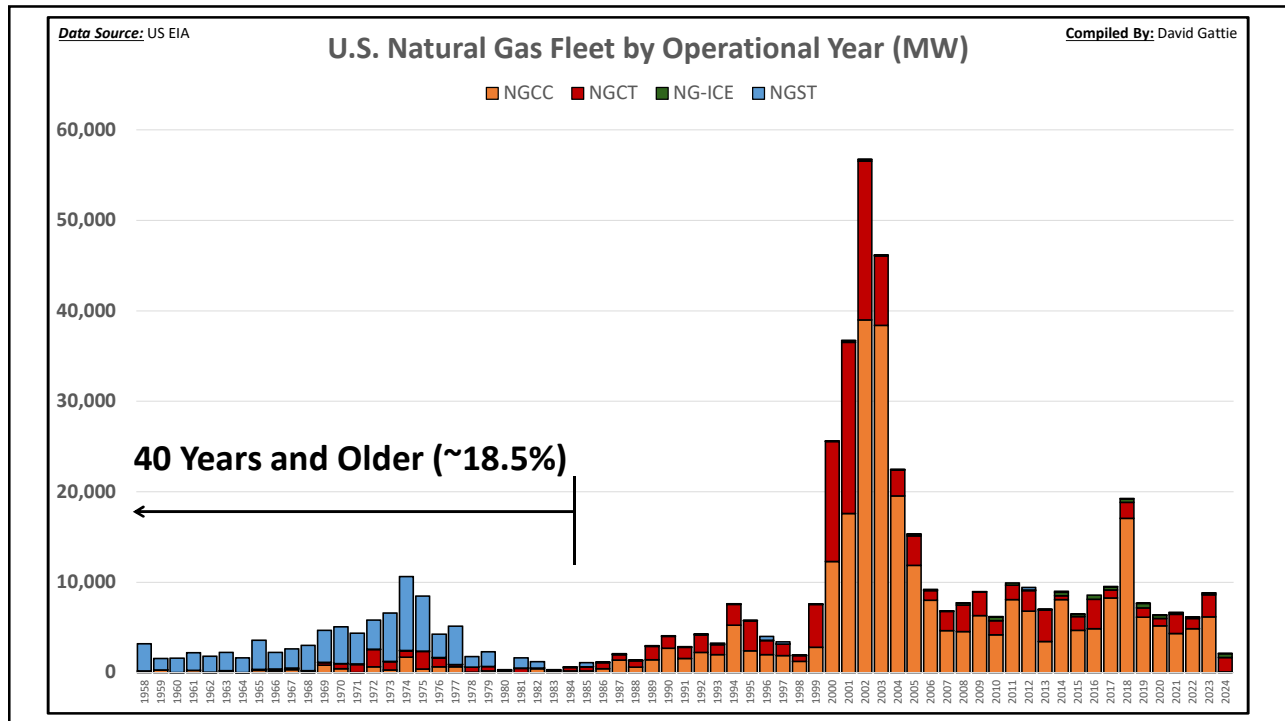
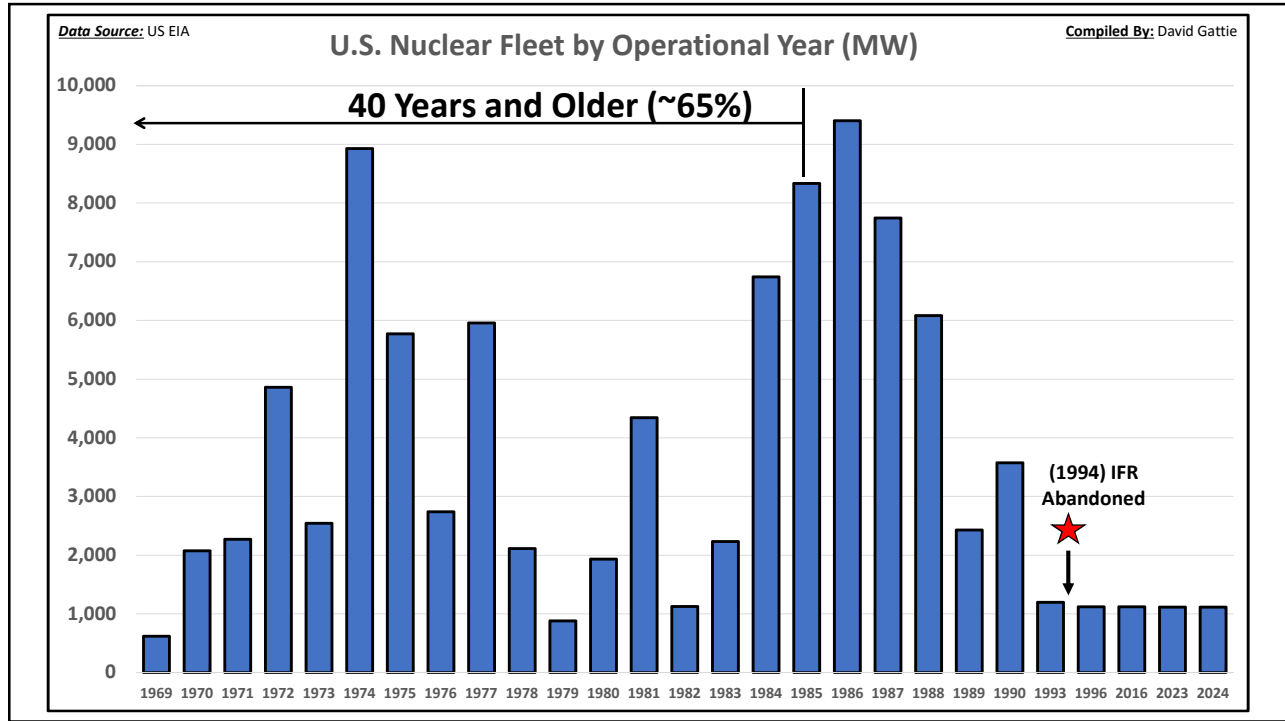


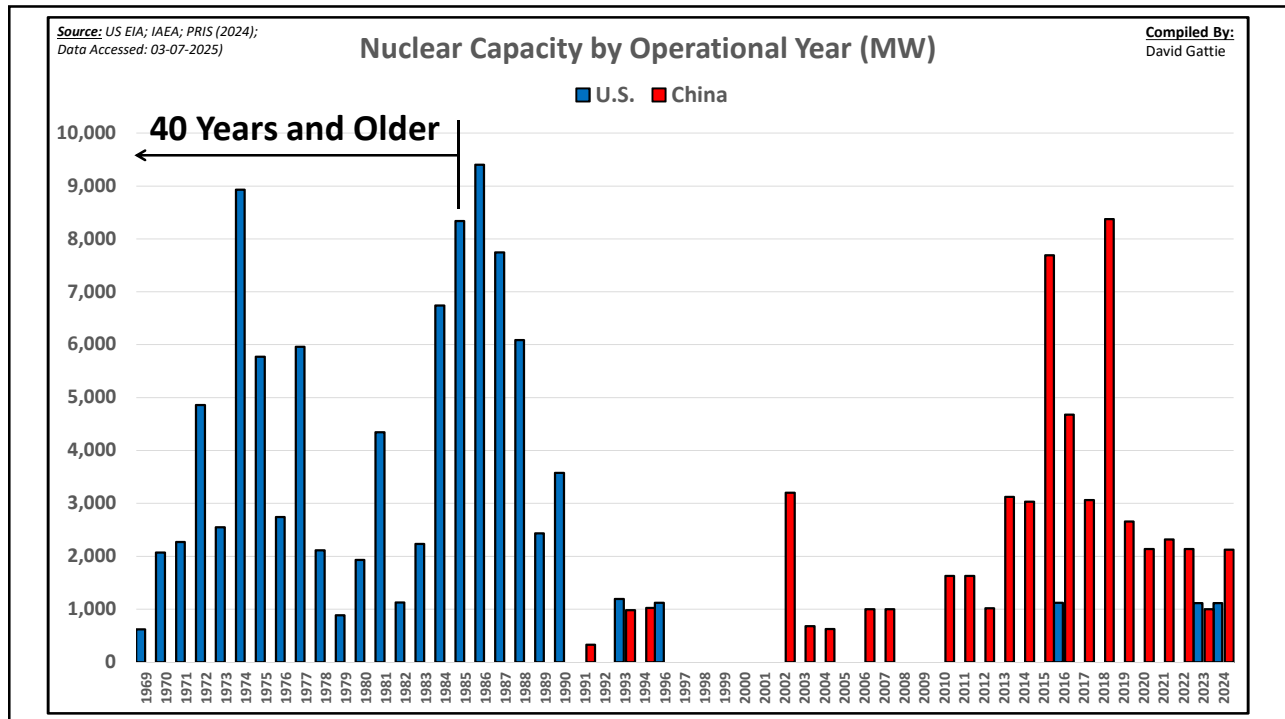
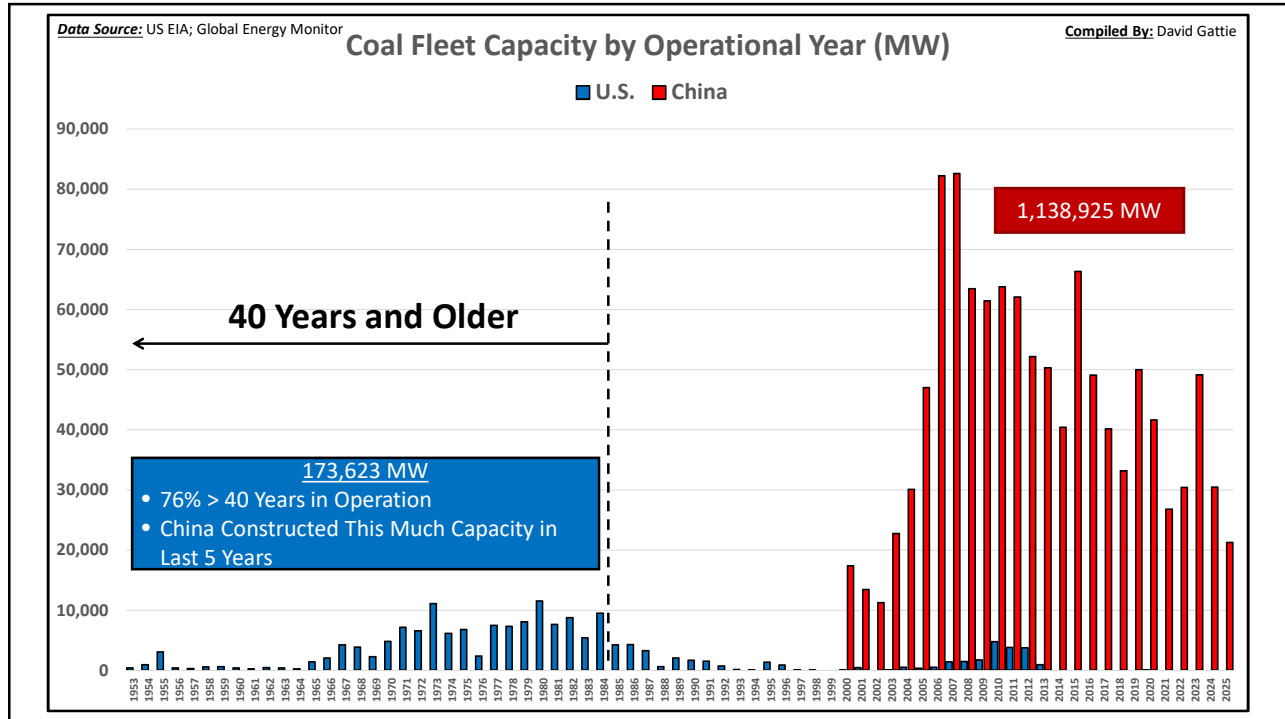


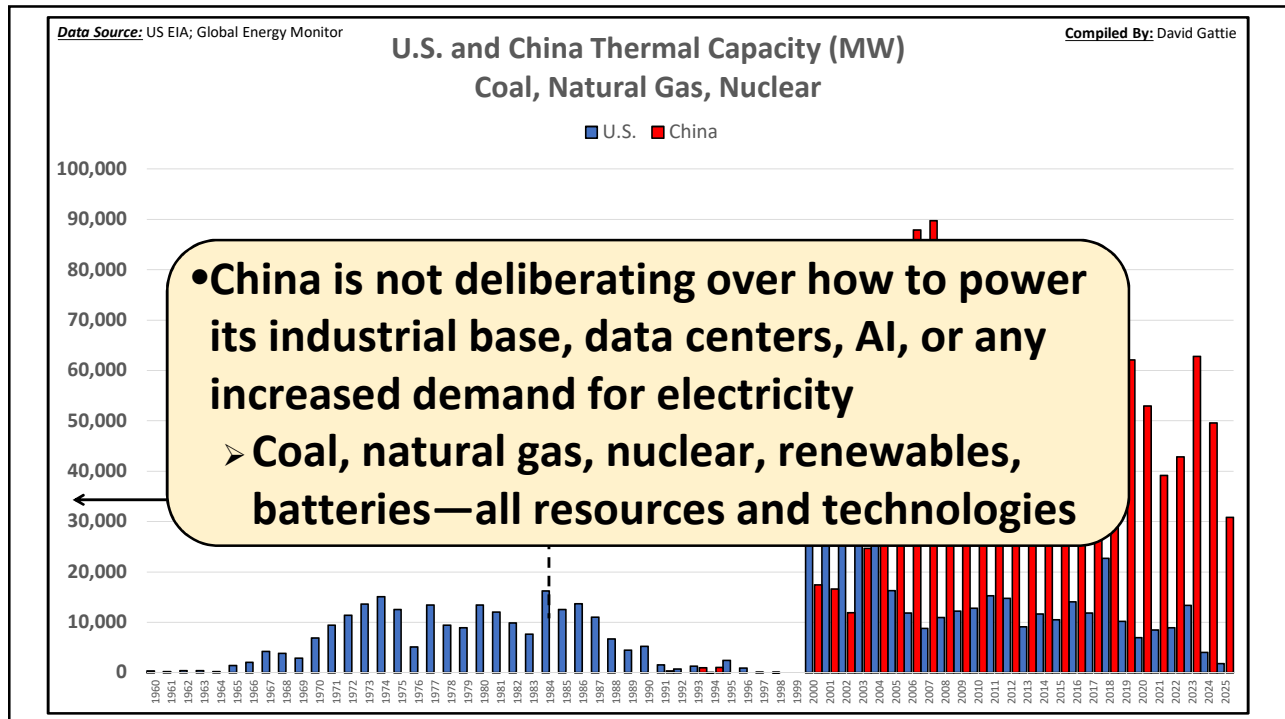
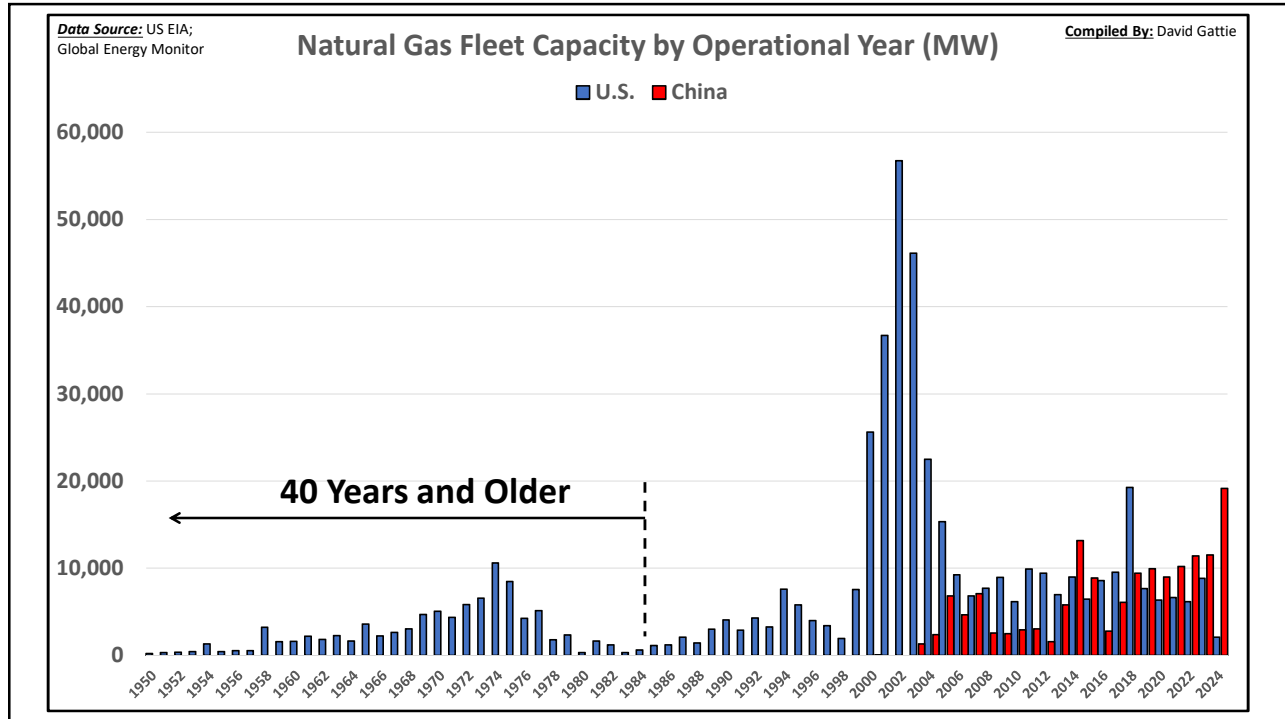












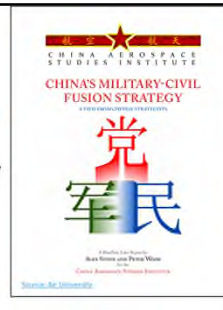
- Xi Jinping's speech to the CCP (January 24, 2022)

➢ *“Reducing emissions is not about reducing productivity, and it is not about not emitting at all, either...**the gradual withdrawal of traditional energy must be based on the safe and reliable replacement by new energy. This in practice means less restrictions on fossil fuel.**”**

- Xi Jinping's "Report to the 20th National Congress of the Communist Party of China" (October 16, 2022)

➢ *“Based on China's energy and resource endowment, we will advance **initiatives to reach peak carbon emissions in a well-planned and phased way in line with the principle of building the new before discarding the old**”.*

* Source: The Guardian



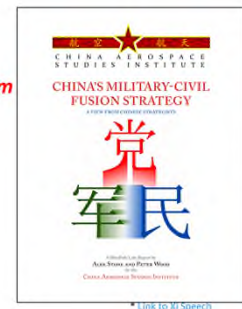
CCP Stated Energy Policy & Strategy

- Xi Jinping's "Report to the 20th National Congress of the Communist Party of China" (October 16, 2022)*

➢ ***Coal will be used in a cleaner and more efficient way, and greater efforts will be made to explore and develop petroleum and natural gas, discover more untapped reserves, and increase production.***

- Recently-released five-year plan:

- Reduce CO₂ intensity per GDP, but not total CO₂ emissions
- Focus on coal consumption peak, not phasing down of coal consumed



* Link to Xi Speech

The Recent U.S. Energy Policy Shift

Energy Transition

- Executive Order (January 27, 2021)
 - *Tackling the Climate Crisis at Home and Abroad*
 - *“Putting the **Climate Crisis at the Center of United States Foreign Policy and National Security**”*
- America's National Security Strategy (October 12, 2022)
 - *“Climate” is defined as “the greatest and potentially existential for all nations”*
 - *“Combating the climate crisis, bolstering our energy security, and **hastening the clean energy transition is integral to our industrial strategy**, economic growth, and security. Events like Russia's war of aggression against Ukraine have made clear the urgent need to **accelerate the transition away from fossil fuels**”*

Energy Dominance

- Executive Order (January 20, 2025)
 - *“Unleashing American Energy”*
 - *To **encourage energy exploration and production** on Federal lands and waters, including on the Outer Continental Shelf, in order to meet the needs of our citizens and **solidify the United States as a global energy leader long into the future***
 - *To protect the United States's **economic and national security and military preparedness by ensuring that an abundant supply of reliable energy is readily accessible** in every State and territory of the Nation*

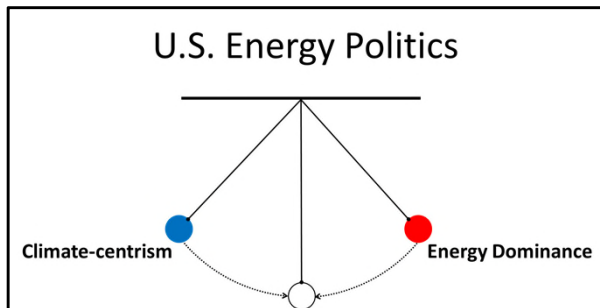
While the re-election of Donald Trump will reorient U.S. energy policy away from climate change and toward energy dominance, it won't end efforts to restructure the U.S. economy around carbon reduction

Energy Dominance

- Executive Order (January 20, 2025)
 - “Unleashing American Energy”
 - To **encourage energy exploration and production** on Federal lands and waters, including on the Outer Continental Shelf, in order to meet the needs of our citizens and solidify the United States as a **global energy leader long into the future**
 - To protect the United States’s **economic and national security and military preparedness by ensuring that an abundant supply of reliable energy is readily accessible** in every State and territory of the Nation

Energy ??????

- Executive Order (January 20, 2029)
 - Which way will the U.S. energy policy pendulum swing?



Priority National Security Questions for U.S. Energy Policy

1. *Will it create advantage, generate new sources of national power and influence, and exploit weaknesses in America’s great power competitors?*
2. *Can the U.S., with its industrial base restructured around low- and zero-carbon energy, retain and advance its 20th century economic, military, industrial and geopolitical advantage relative to 21st century strategic competitors, outcompete China and deny the CCP of its intentions to marginalize and displace the U.S. of its current position as a superpower?*

National Security Imperative for All Energy Resources & Technologies

THE NATIONAL INTEREST

U.S. Energy Strategy: Prioritizing Peace Through Strength

January 29, 2025 | By: David Gattie

TALKING POINTS

U.S. ENERGY: PRIORITIZING NATIONAL POWER AND COMPETITIVE ADVANTAGE

By David Gattie, Ph.D.
University of Georgia

ON SEPT. 3, 1782, THE AMERICAN WAR FOR INDEPENDENCE officially ended with the signing of the Treaty of Paris, acknowledging that the 13 American colonies were a free, sovereign and independent nation. A free, sovereign and independent nation that could do on its own, exposed and vulnerable to the great powers of the world and no longer under the protection and security of Great Britain — one of the more dominant world powers at the time.

The early founders were keenly aware that the world was an arena of great power competition and those great powers would inevitably challenge America's fledgling experiment in self-governance. They also understood that a strong industrial base and competitive advantage — economic, industrial and military — translated to national power and the capacity to compete in this global arena. Without it, the U.S. would remain exposed and vulnerable to external threats.

Since those early years, the U.S. has become the single most powerful nation in history as has demonstrated on a global scale when America served as the "Arsenal of Democracy" for World War II, enforced dominance at the conclusion of the Cold War with the USSR as the U.S. emerged as the new global superpower. What happened and happened America's due to this level of power? What level of U.S. military, economic and technological leadership and military leadership with nuclear power eventually incorporated for broader national security interests.

Simply stated, America's 100-plus years of accrued national power and competitive advantage in energy resources, energy technologies and industrial capacity were eroded to deliver the great powers of Europe from economic and power the spread of Soviet Communism. Yet today fossil fuel consumption is being characterized as an addiction the U.S. should wean itself off in order to battle a different opponent — global climate change. As if great power competition and a flourish in trade, freedom and democracy have ended and there are no more geopolitical threats to U.S. national security.

While the current administration has recent U.S. energy policy away from climate change to energy dominance, the proposed energy transition away from fossil fuels continues to be open to all U.S. tradeable and can't be reversed. Missing, efforts to shift the U.S. back to a

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Thank You



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Residential Rates

Residential rates are from the U.S. Energy Information Administration. These rates represent a weighted average of consumer revenue and sales for a state, and do not equal the per KWhr rate charged by the electric power industry participant to an individual consumer. They are offered here in order to provide a common metric for comparison across states.

(Reference: <https://www.eia.gov/electricity/monthly/pdf/AppendixC.pdf>)