Abundant, Reliable, Clean Energy: Challenges and Opportunities

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A Big Challenge: Electricity Demand Is Growing

Electricity demand is growing, and will continue to grow, especially with the boom in computing data centers and server farms for technologies like artificial intelligence and quantum computing.

Electricity Demand Is Growing

Grid Strategies Report, 2024

- “The era of flat power demand is behind us.”
- “Nationwide electric demand is forecast to increase by 15.8% by 2029.”

ICF Global Consulting and Technologies Company

- “Electricity demand expected to grow 25% by 2030

Imminent Threat of Electric Grid Failure

Department of Energy report, "Evaluating U.S. Grid Reliability and Security," July 2025:

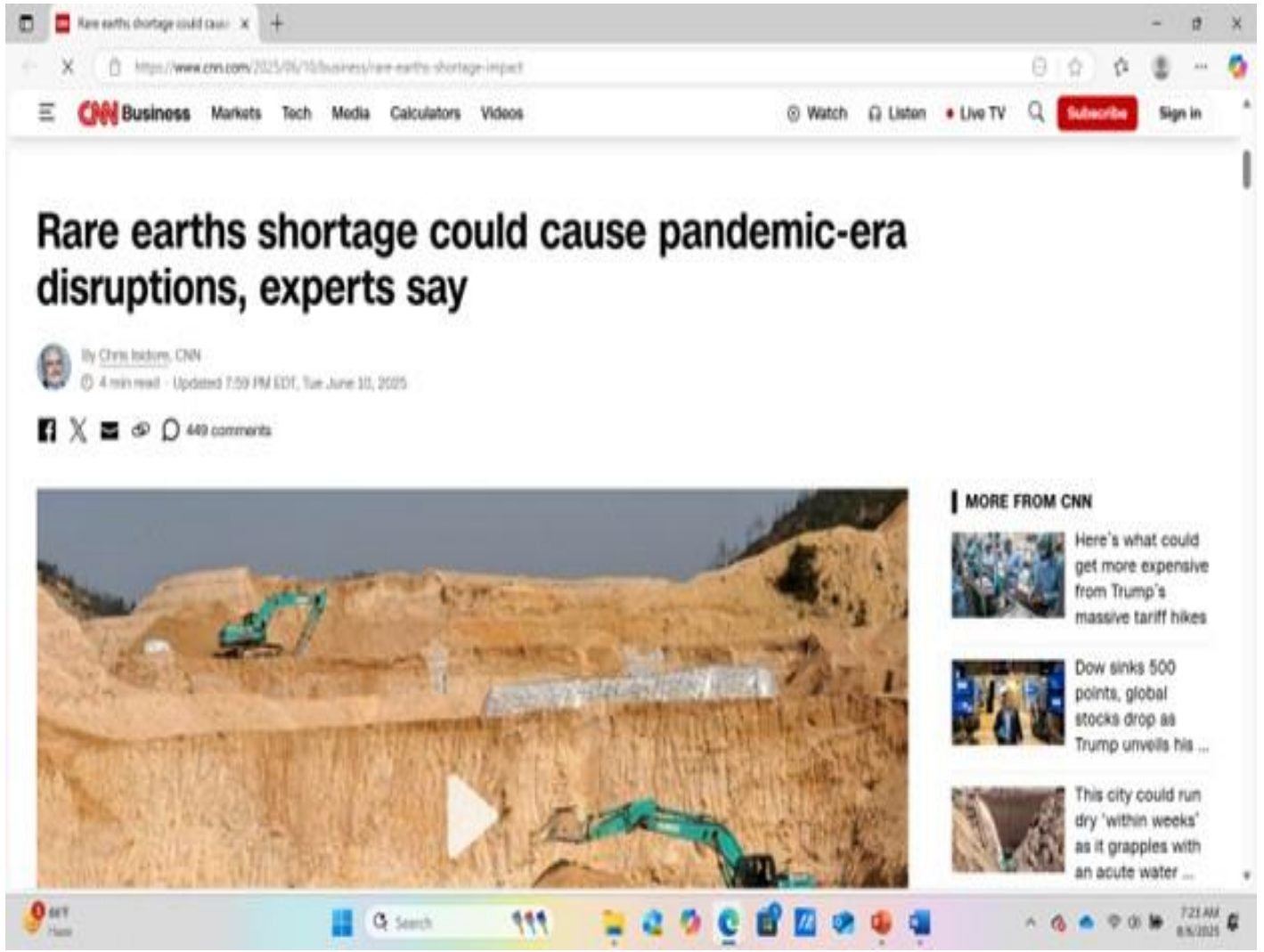
- "if current retirement schedules and incremental additions remain unchanged, most regions will face unacceptable reliability risks within five years and the Nation's electrical power grid will be unable to meet expected demand for AI, data centers, manufacturing and industrialization while keeping the cost of living low for all Americans."
- "Retirements plus load growth increase risk of power outages 100 times in 2030. Allowing 104 GW of firm generation to retire by 2030—without timely replacement—could lead to significant outages when weather conditions do not accommodate wind and solar generation. Modeling shows annual outage hours could increase from single digits today to more than 800 hours per year."

Another Huge Threat: Rare Earth Shortages

Wind and solar power require vast amounts of rare earth minerals. However, China – for purely political reasons – is restricting rare earth exports.

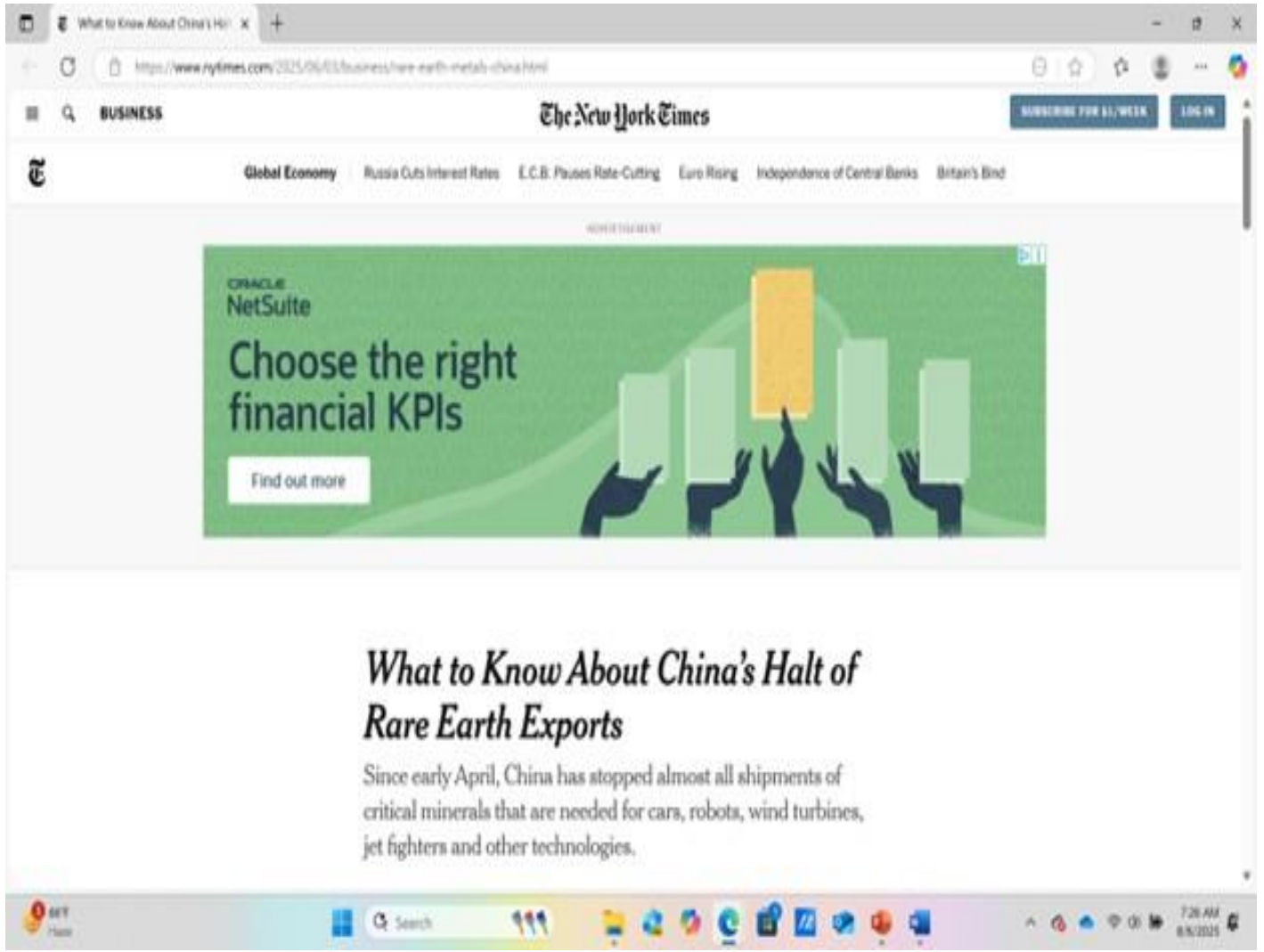
Another Huge Threat: Rare Earth Shortages

Source: CNN, June 2025



Another Huge Threat: Rare Earth Shortages

Source: New York Times, June 2025



Another Huge Threat: Rare Earth Shortages

Source: WION News, July 2025

The WRONG Solution: Utilities and Regulators Are Enacting Net Zero

- Despite accelerating electricity demand and a shortage of rare earth minerals, utilities are enacting net-zero carbon dioxide plans that are **removing** crucial on-demand baseload power and requiring more rare earth minerals.

Utilities Are Eliminating Baseload Coal Power

- In 2020, coal power provided 773,000 gigawatt hours of U.S. electricity.
- In 2024, coal power fell to approximately 650,000 gigawatt hours.
- That is a drop of 15% in just the past four years.

What Happens When You Replace Affordable Baseload Power with Wind and Solar?

Net Zero’s Higher Costs by the Numbers

- From 2020 through 2024, coal power generation fell from 19% to 15% of the national electricity mix.
- From 2020 through 2024, U.S. wind and solar power generation grew from 10% to 15% of the national electricity mix.

Electricity Prices Are Skyrocketing

- From 2010 through 2020, U.S. electricity prices rose at less than 1% per year.
- From 2020 through 2024, U.S. electricity prices rose 22%.

Electricity Prices Are Skyrocketing

During the past four years, American electricity costs have skyrocketed by a whopping 22 percent. **This has added more than $300 per year** to the average household's direct electricity bills, plus additional higher costs for goods and services that reflect higher energy costs.

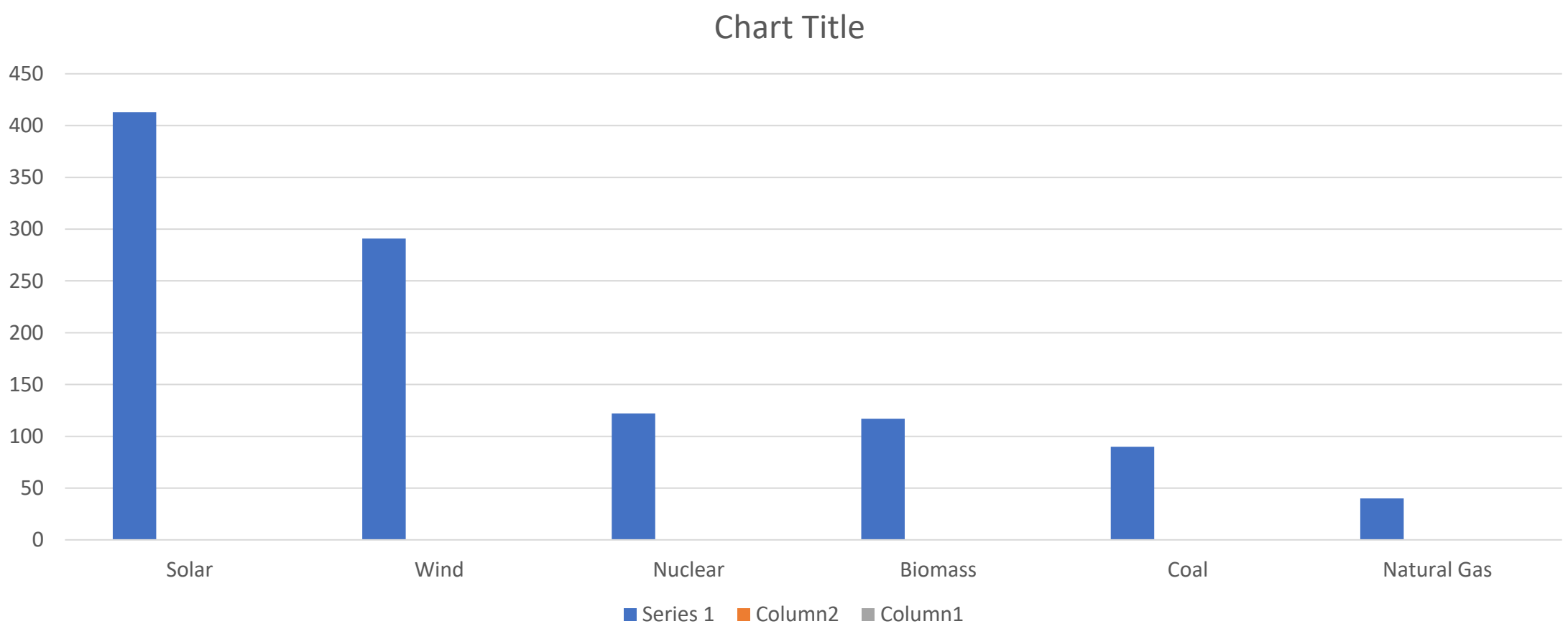
Why the Higher Costs?
Wind and Solar Raise Electricity Costs

- In the peer-reviewed science publication Journal of Energy, economists examined the levelized **full system** cost of electricity (Idel, R., "Levelized Full System Costs of Electricity," *Energy*, 259 (2022) 124905). The "full-system" component accounts for real-world added costs imposed by intermittency, extended transmission line requirements, and other factors that are often left out of generic so-called levelized electricity costs.

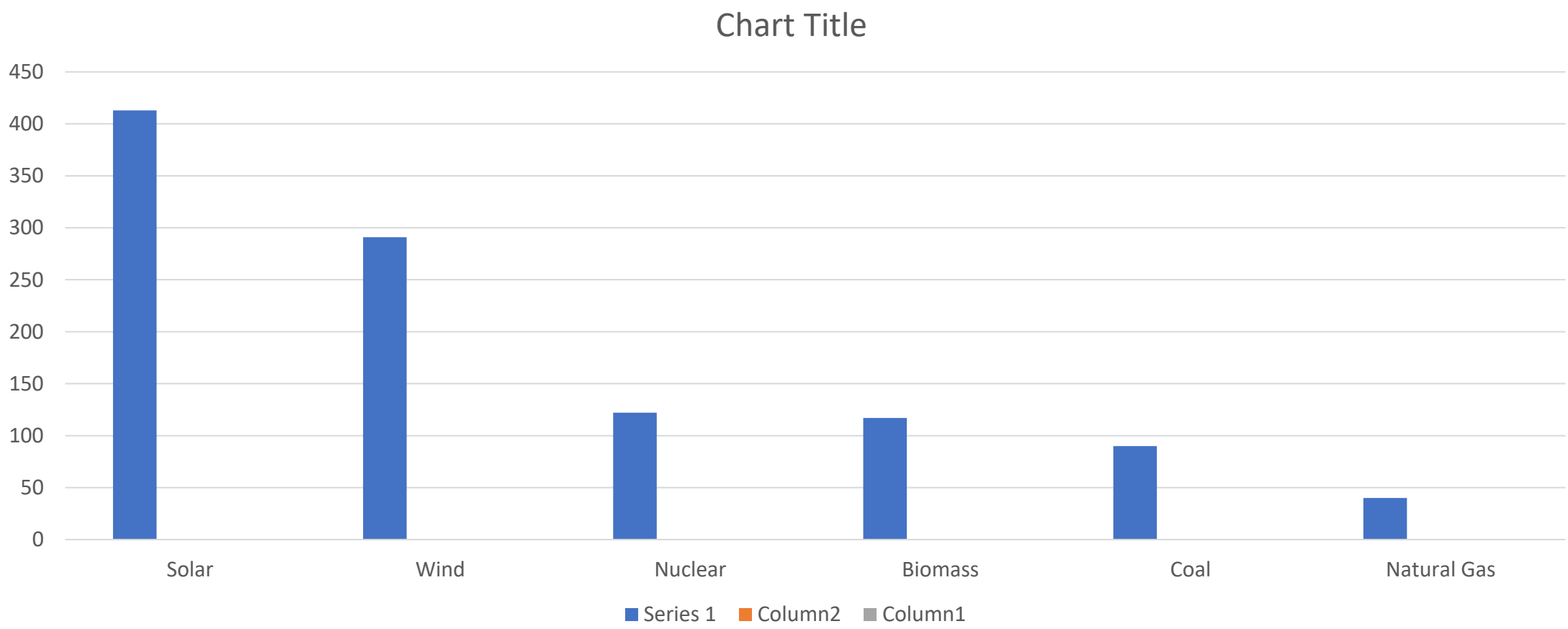
Full-System Levelized Cost of Electricity in Dollars per Megawatt Hour

- Solar $413
- Wind $291
- Nuclear $122
- Biomass $117
- Coal $ 90
- Natural Gas $ 40

Cost of Power Per Source



Cost of Power Source:
Why Would We Want “All of the Above?”



Policy Study: Affordable, Reliable, Clean Scorecard

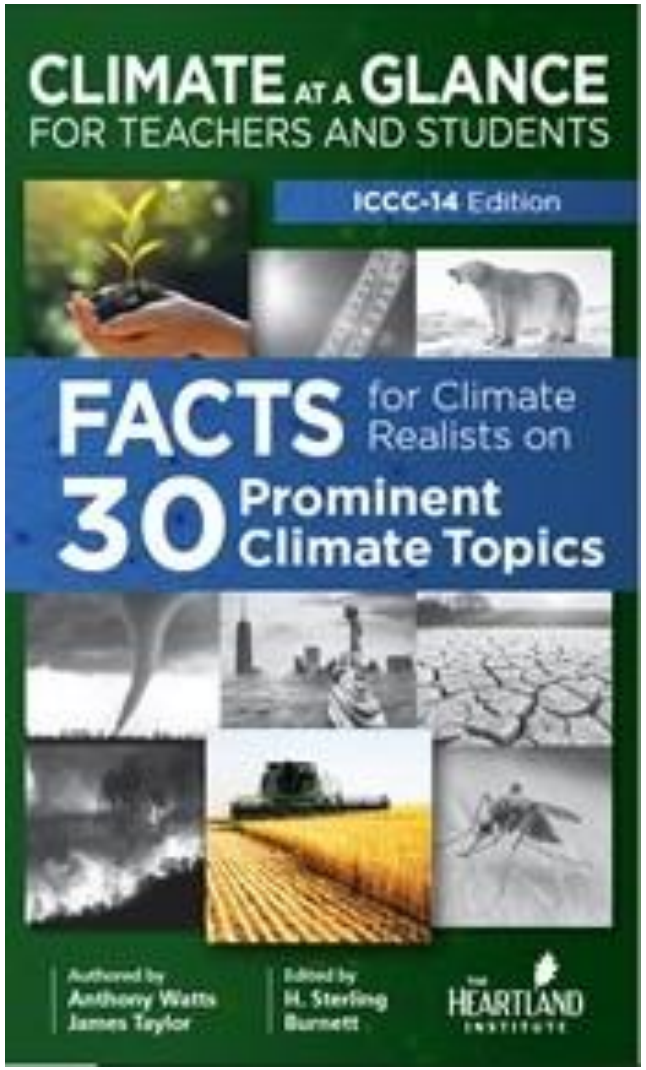
Policy Study: Affordable, Reliable, Clean Scorecard

- Affordability
  - Natural gas is best, then coal and hydro
- Reliability
  - Natural gas, coal, and nuclear are best
- Environmental Impact (“Clean”)
  - Natural gas is best, then nuclear, hydro, and coal

Policy Study: Affordable, Reliable, Clean Scorecard

- WHY do wind and solar fail the “Clean” test?
  - Yes, like nuclear and hydro power, wind and solar do not directly produce airborne emissions
  - However, wind and solar score TERRIBLY regarding:
    - Land conservation
    - Direct animal kills
    - Soil and water pollution

ClimateAtAGlance.com



Utilities Ignore Affordable, Reliable, Clean in Favor of Net Zero

- Utility proposals to shut down existing baseload coal and replace it with new wind and solar projects always come with requests for rate increases and special charges.
- These rate hikes occur **despite** the utilities claiming wind and solar power are cheaper than traditional power sources and will reduce power bills.

WHY Do Utilities Push for Net Zero?

Monopoly utilities love shutting down existing and perfectly operational baseload power plants because they are guaranteed an approximately 10-percent profit on the money they spend, including the cost of building new wind and solar projects.

Policy Study: Utilities Are Going All-In on Net Zero

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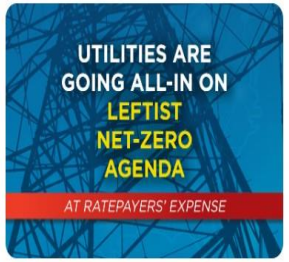

Tagged: Net Zero, utilities

ENVIRONMENT & ENERGY

Utilities Are Going All-In on Leftist Net-Zero Agenda at Ratepayers' Expense

By James Taylor, H. Sterling Burnett, Linnea Lueken

Published November 1, 2024

Big utilities are undertaking electric power supply plans that will make supply less reliable as demand increases

Read the report

RELATED CONTENT

July 15, 2025

California continues to devastate its economy for a net-zero dream world

Conclusion

- Rapidly rising electricity demand threatens the smooth operation of the electrical grid.
- Wind and solar power are intermittent and cannot be counted on during peak electricity demand.
- Wind and solar power are much more expensive for consumers than baseload power.
- When utilities seek approval for new wind and solar projects, they do so for their own financial self-interest and the projects always come with rate hikes for consumers.
- We need MORE conventional energy and LESS wind and solar – not the other way around!

Thank You!

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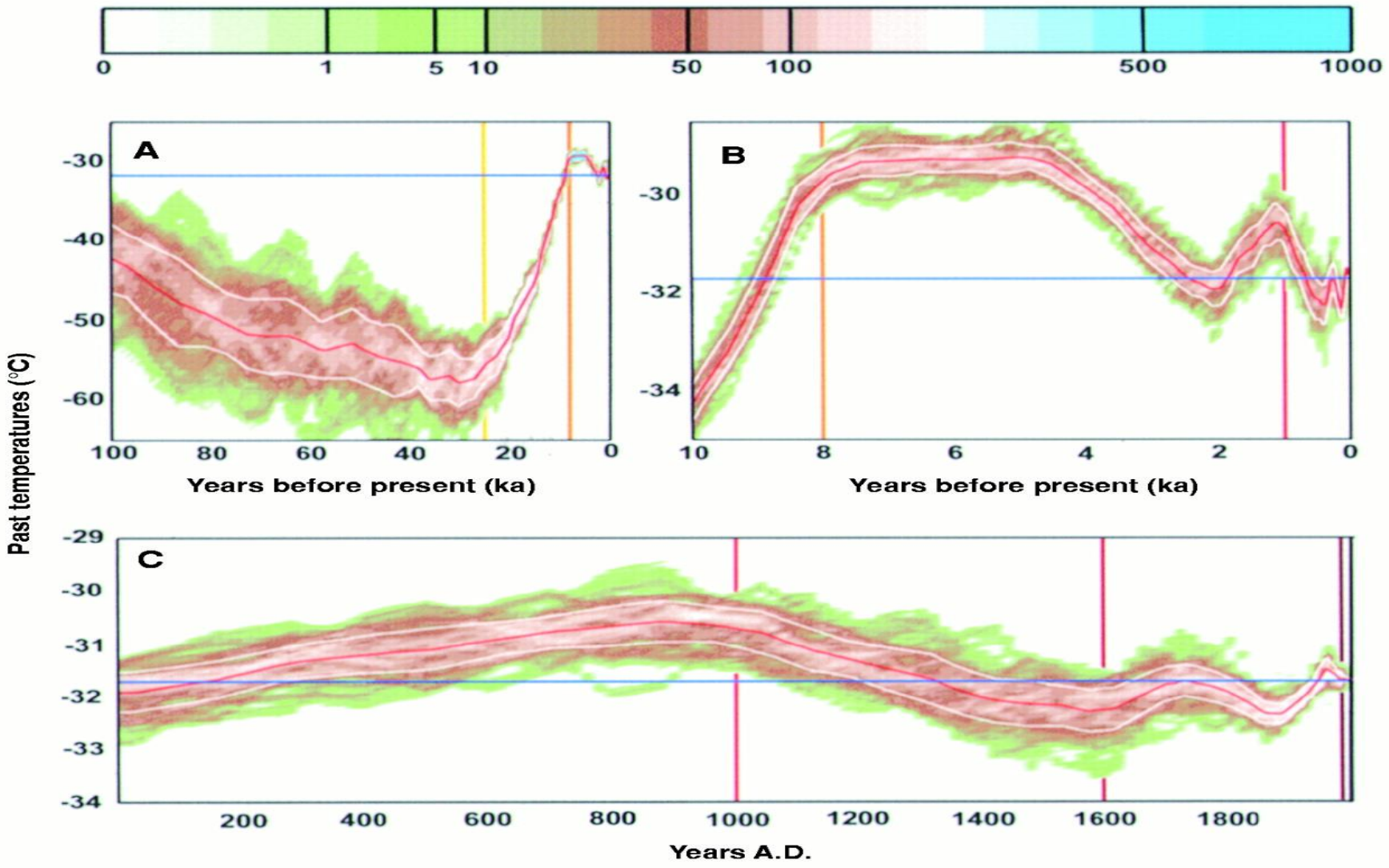
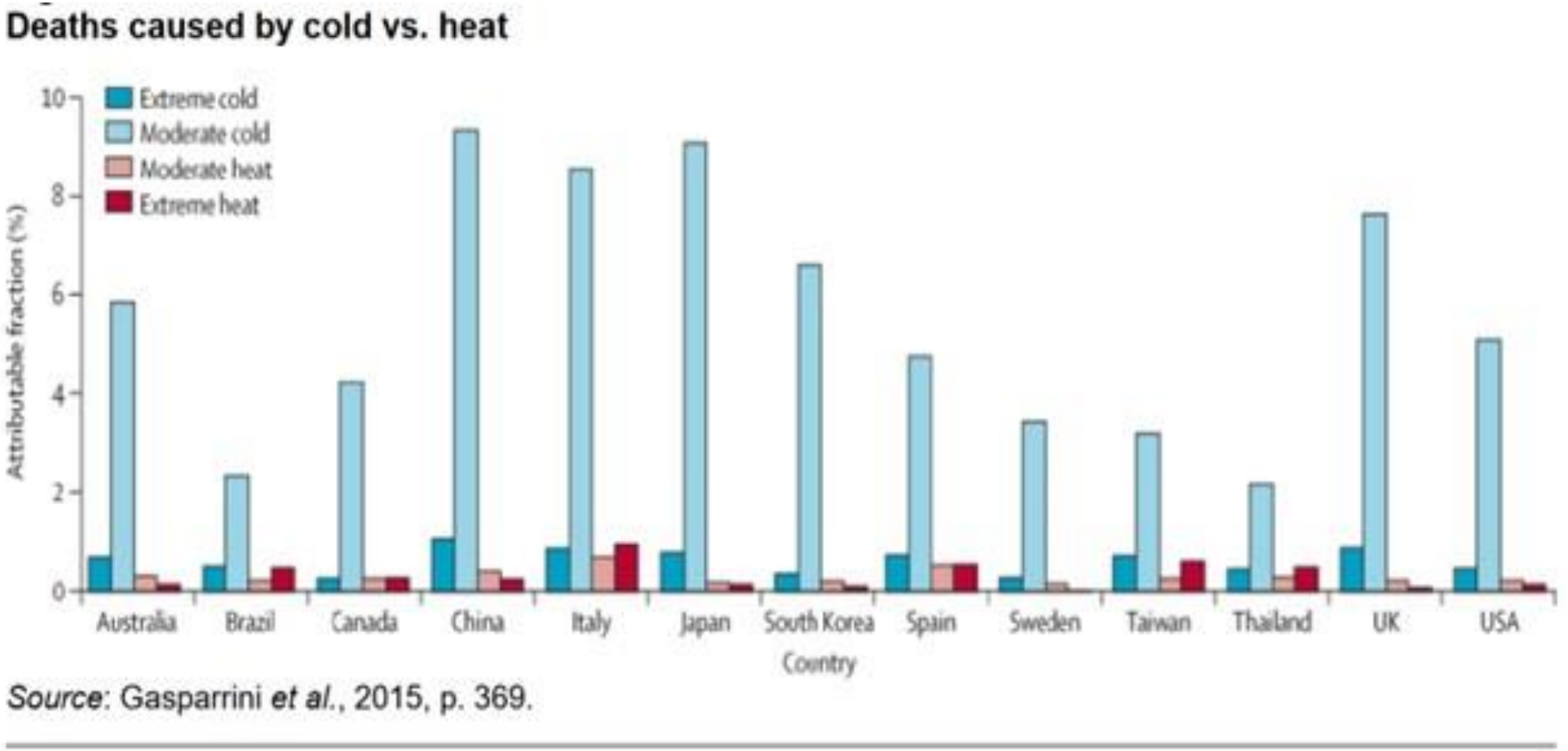
The Most Important Point:
Temperatures Are Unusually Cool, Not Hot

Source: European Science Foundation, Greenland Ice Core Project, data and chart reported in *Science*, Vol. 282, pp 268-271



Human Mortality:
20 Times More People Die from Cold than Heat!

Source: The Lancet, 2015



CO2 Can Cause No Further Warming

Source: Drs. Will Happer and Richard Lindzen, testimony in U.S. Congress