

ENERGY MATTERS

Soundbite summaries of the energy news you need to know

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The Power Read

- **Fossil fuels:** Money managers are avoiding long crude oil futures contracts.
- **Mining:** Of all the metal shortages, copper might be in the worst state.
- **Policy:** The distribution of IRA funds is trending toward purple states.
- **Low-carbon energy:** LCOE studies are beginning to factor in hybrid costs.
- **Climate:** June 7, 2023, a historic day for poor air quality in the US.
- **Electricity:** Investment in electricity infrastructure is at historically high levels.

News from the Society

- The energy sector is hiring! There are thousands of unfilled jobs. [Contact us](#) if you're curious about new professional opportunities, including openings at Schneider Electric. Or, [join the SE talent community](#) to hear about more job opportunities.

- Members can share this issue of *Energy Matters* with colleagues; we would appreciate it if they joined as Members too, or they can sign up as a [Friend](#) (free) of the Society.

Fossil Fuels

- Oil -

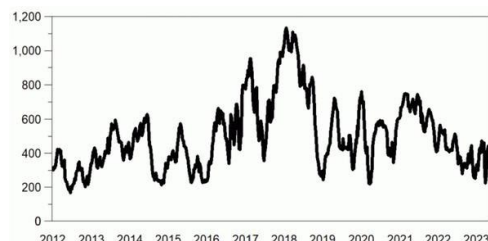
- **An interesting oil market:**

- OPEC+ announced a series of unanticipated production [cuts](#).
- Global refineries conducted their [scheduled](#) seasonal repairs.
- Total number of active drilling rigs in the US has been [declining](#).

Global supply is declining, which should suggest upward pressure on prices. Yet....

- **Traders are not buying the oil deficit story** and are focused on the [consumption side](#), expecting demand to decline in spite of [increased](#) consumption in China.

It's possible that economics do not explain this perplexing market condition. Maybe oil simply has less appeal or interest as an investment (*insert:* the net long position of money managers in three major crude oil futures contracts is now [less than half](#) of what it was two years ago, in thousand contracts of 1,000 barrels). Nevertheless, expect US producers to [take advantage](#) of these advantageous market conditions.



- Natural Gas -

- Gross natural gas production in the Permian region (West Texas / East New Mexico) has been [rising](#) steadily for over a decade, **set another annual record high in 2022**, and is on pace (+14%) to break its record again in 2023. Note: exports of [ethane](#) (feedstock to make plastic) have also been setting similar records over the same time span.

- Coal and Mining -

- **The next metal/mineral shortage to worry about is copper** (for electric vehicles, electronic devices, and energy infrastructure) followed by [other metals](#), like aluminum. (Note: it takes 10 years to go from identifying a copper deposit to a finished commercial product.)

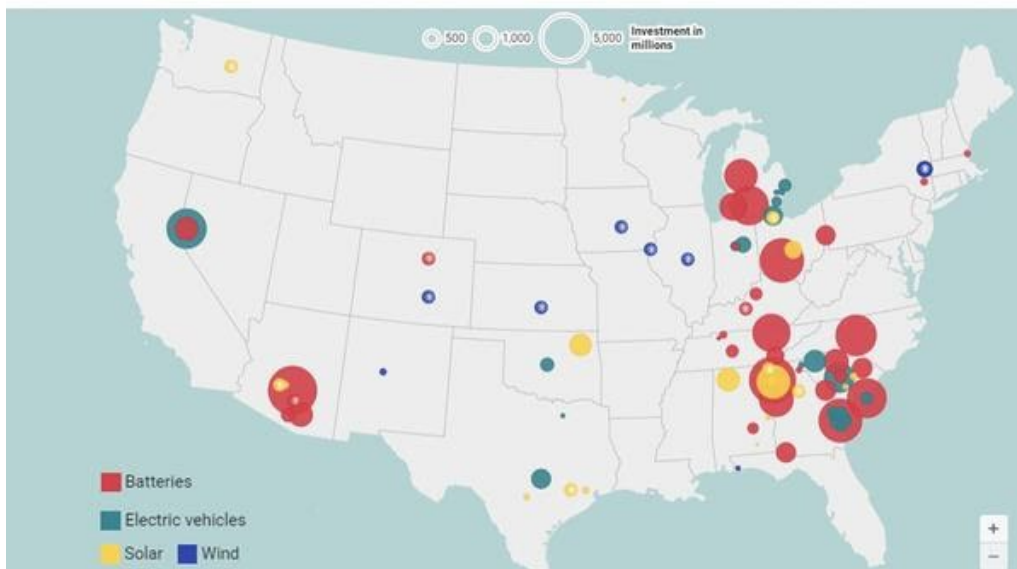
- Carbon Capture -

- **The state and status of current CCUS efforts in the US:**

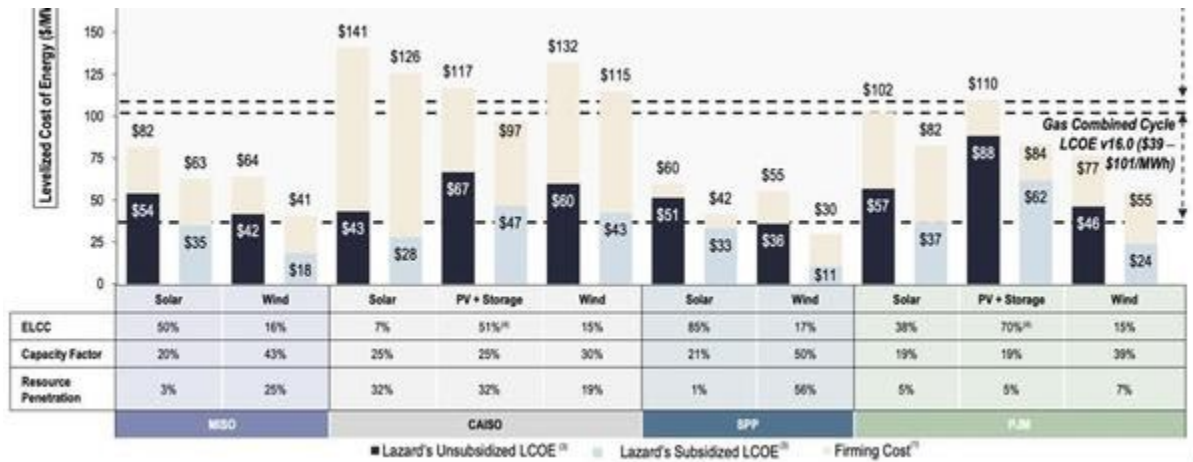
- **CO2 pipelines:** There is about \$85B in CCUS projects planned for 2023; about \$20B is planned for CO2 pipelines and piping projects, or about a 70,000 mile deficit.
- **Renewable diesel:** There is about \$40B invested in new renewable diesel development projects (led by Valero/Diamond Green Diesel, P66 Rodeo, and Marathon Martinez). Note: government subsidies for renewable diesel production via soy beans or waste oils are driving investments.
- **Hydrogen:** The oil refining industry is one of the main consumers of hydrogen. Most refineries use “grey hydrogen” (e.g., hydrogen derived from fossil fuels). If given the choice, the refinery industry prefers blue hydrogen (from CO2) than green (from renewables), led by blue hydrogen project like the ExxonMobil's Baytown in Texas and CF Industries' blue-hydrogen/ammonia project in Louisiana.

No- / Low- Carbon and Renewable Energy

- Insert below: [map](#) of investments in clean energy manufacturing facilities announced since the Inflation Reduction Act.



- *Special insight:* Levelized cost of energy (LCOE) is a commonly used metric for analyzing the cost of different types of electricity generation, calculated by dividing the total cost of building and operating electricity generating technologies over the lifetime of a project by the total amount of electricity produced. Historically, almost all LCOE studies found wind and solar costs were lower than coal and gas power plants. However, these LCOE studies did not take into account that wind and solar needs storage to smooth out intermittent peaks and valleys. **For the first time, Lazard's new 2023 LCOE report factors storage or backup power into the total cost of renewables** (as well as available IRA funds). *Note:* Lazard finds the cost of “firming renewable intermittency” (which includes the cost of storage) is still [competitive](#) with traditional fossil-fuel generators.



- **Solar panels/cells are most efficient at a benchmark temperature of 77°F** (or 25°C). For every degree rise in temperature above this level, efficiency may decline by up to 0.5%. (*Note:* temperature level refers to the solar cell temperature rather than the air temperature.)

- Related, a **heatwave in Britain has increased demand for power but reduced windspeeds have made solar panels too hot to work efficiently** (renewable energy generated electricity in the UK is about 33% lower than average YoY). *Note:* Britain temporarily switched to coal to cover the loss of renewable energy capacity.

- **Georgia Power’s Unit 3 nuclear reactor reached its full power output** of 1,100 MW of electricity at Plant Vogtle for the first time, with commercial operation beginning in July.

- **Saoradh Enterprise Partners has formed a hydrogen consortium;** SEP will [provide](#) the consortium with market data, analysis, and suggested end-use market applications.

Energy Policy & Geopolitics

- Beltway Buzz -

- **The US Congress is busy:**

- There are three gas stove bills trying to block or reverse US Consumer Product Safety Commission and DoE rules: [Save Our Gas Stoves Act](#), the [REINS Act](#), and [Separation of Powers Restoration Act](#).
- The House Republicans have proposed a new “pay-for” energy tax credit; however, most SMEs (Bracewell, etc.) do not believe the bill will succeed.
- Congress is considering a variety of legislative actions to fix the “[Chevron Deference](#)” that has been [weakened](#) with recent SCOTUS and judicial rulings.
- There are hearings in the House (on FERC and NRC commissioners, fusion, and Chinese influence) and Senate (on China, highways, infrastructure, and the IRA).

- The 2015-16 El Niño, the heat of the cyclical climate pattern combined with the extreme heat caused by global warming, drove the longest global coral die-off event ever recorded. **The next El Niño has arrived** and is beginning to alter ocean conditions again.

- **Atlantic hurricane season has officially started.** Many SMEs expect the season to be near or below normal activity. (Note: the [names](#) used for Atlantic tropical storms in 2023 have already been selected: Arlene, Bret, Cindy, Don, Emily... as well as for 2024 thru 2027.)

- **The North Atlantic mean average temperature is now 1C warmer** than the 1981-2011 average.

Research, Development and Market Deployment



- **The market for electric truck charging depots is growing rapidly,** primarily because California mandated the switch from diesel-fueled to zero-emissions trucks. EV truck depot development projects include:

- Livermore (site developed by [Forum Mobility](#) for 96 EV heavy-duty trucks)
- Port of Long Beach (Forum Mobility with 8 chargers; and, WattEV for 26 EV trucks)
- East Los Angeles (Prologis, for 38 trucks)
- El Monte, California (Schneider National, a 32-truck charging site)
- Port of Newark (a 200-vehicle charging site, developed by Power Edison)

- *Related, in order for California to meet its target of 5,000,000 EV heavy-duty trucks by 2030, 157,000 chargers have to be installed, or about 55-60/day (depending on when you start the clock).*

- **A similar push for heavy-duty EV trucking in Europe** is being led by [Einride](#).

- **Construction spending by US manufacturers has doubled,** a direct result of funding from [CHiPs](#), [Infrastructure](#), and [IRA](#). The most active sectors/regions are: electric vehicle factories in the Ohio/Appalachia valleys; and, solar panel and renewable energy factories in the South and Southeast.

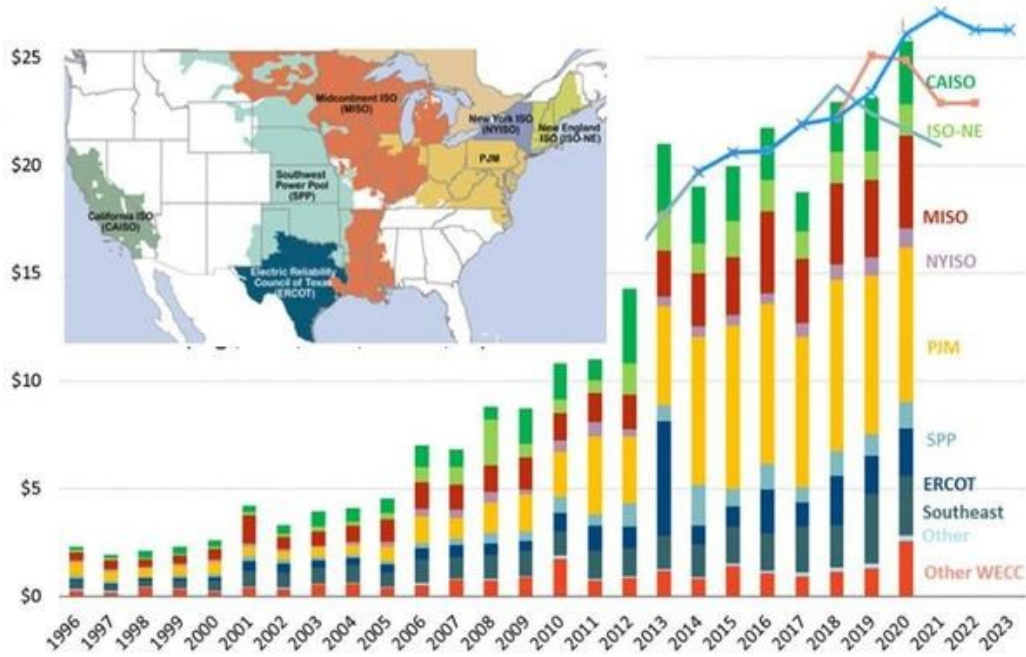
Electricity, Power and Efficiency

Spotlight: Electricity transmission infrastructure investments

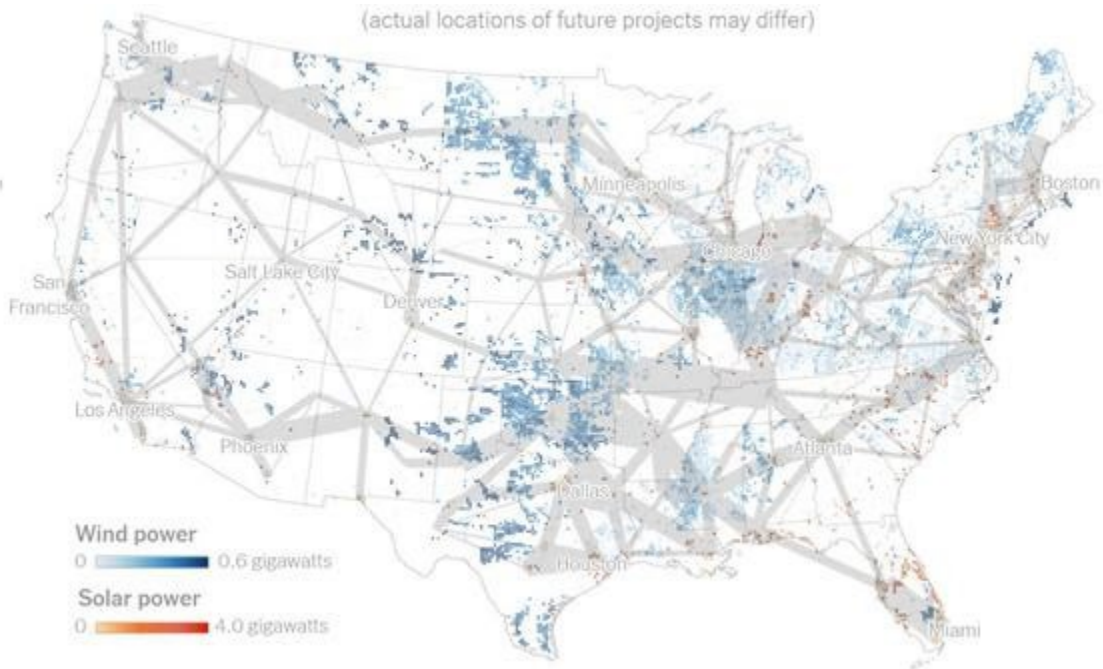
- **Featured: the US has (finally) approved development of a number of new high-voltage transmission lines,** including:

- The 732-mile-long [TransWest Express Project](#) across the Western US.
- The [Grain Belt Express](#) in the Midwest.
- [Champlain Hudson Power Express](#) from Canada into New York City (the project is opposed by a number of environmental groups).
- [Energy Gateway South](#) (416 miles) between Wyoming and Utah.
- [SunZia](#), originally assessed between 2009 and 2015, will run between central New Mexico and central Arizona.

- Investments in electricity transmission infrastructure are at historically high levels (inserts below, [map](#) of annual transmission investment, as reported to FERC; and, [graph](#) of annual transmission investments, by year and in billions USD).



- Insert below: Current **under-performing** or weak points for renewable energy in the US electricity transmission grid, identified by thickness of grey lines.



University Spotlight



- AES applauds the water research center ([MOWRRC](#)), led by **University of Missouri** and with contributions from, among others, **Missouri S&T, University of Illinois, Western Kentucky, Mississippi State, University of Montana, University of New Hampshire, and Penn State**. Also, in case you missed the recent issue of *Energy Today*, read about the "[Food, Water, Energy Nexus](#)."

- AES also applauds the contributions to the NSF Engines program (key technology areas highlighted in the CHIPS and Science Act) by Greater Houston Partnership's Houston Energy Transition Initiative ([HETI](#)) and its work with **Rice University, Texas A&M, Texas Southern, University of Houston and University of Texas, Austin**.

- AES appreciates the **University of Louisiana at Lafayette**, one of 12 entities in the country – and the [only university](#) – selected for a \$13.5 million DoE initiative to expand the solar energy workforce and create jobs in underrepresented communities.

- Researchers at the **University of Massachusetts, Amherst**, have been able to [harvest](#) electricity from humidity in the air.

Quotes

The gas stove wars

In January 2023, Richard Trumka, a US Consumer Product Safety commissioner, may have inadvertently(?) influenced the 2024 elections when he suggested the agency might ban gas stoves. The firestorm hasn't died down.

"We need to be talking about regulating gas stoves, whether it's drastically reducing emissions or banning gas stoves entirely. Any option is on the table." — Richard Trumka's original statement

"I'll NEVER give up my gas stove. If the maniacs in the White House come for my stove, they can pry it from my cold dead hands. COME AND TAKE IT!!" — Rep. Ronny Jackson of Texas

"I would counsel mass disobedience in the face of tyranny in this case." — Tucker Carlson

"Don't Tread On Me"; "My Kitchen My Choice"; "Biden Wants to Ban Gas Stoves"; "This is what a 'red line' looks like" — Signs at a protest rally in Philadelphia

"No Ban of Gas Stoves Is Planned" — Press release headline issued by US Consumer Product Safety Commission

- Bulletin Board -

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- **SPOTLIGHT**: **Schneider Electric** is hiring [Project Development Managers](#), [Senior Account Executives](#), [Automation Engineers II](#), and [Performance Assurance Consultants](#).

- #SolarAPP+, a free online [platform](#) developed in partnership between **Sunrun** and the US DoE, helps local governments navigate the solar permitting process.

- **Unearth** is a dynamic Mobile GIS that connects assets, data, and field teams for critical infrastructure providers. Start your [free](#) trial today.

- Gratitude -

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