

ENERGY MATTERS

Soundbite summaries of the energy news you need to know

AN OFFICIAL PUBLICATION OF



AMERICAN ENERGY SOCIETY

July 24, 2023

The Power Read

- **Fossil fuels:** "Lea and Eddy Permian" produce 1/3 of all oil from the basin.
- **Low-carbon:** Most CO2 from cement production is from the clinker stage.
- **Policy:** Deployment of renewables in Latin America is surging ... maybe.
- **Electricity:** It's hot, but so are nanogrids.

News from the Society

- There are thousands of unfilled jobs in energy. [Contact us](#) if you're curious about new professional opportunities, or [join the SE talent community](#) to find 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.
- AES recommends the ARC [podcast](#) interview with Eric Vettel, President of AES hosted by Gaven Simon.

Fossil Fuels

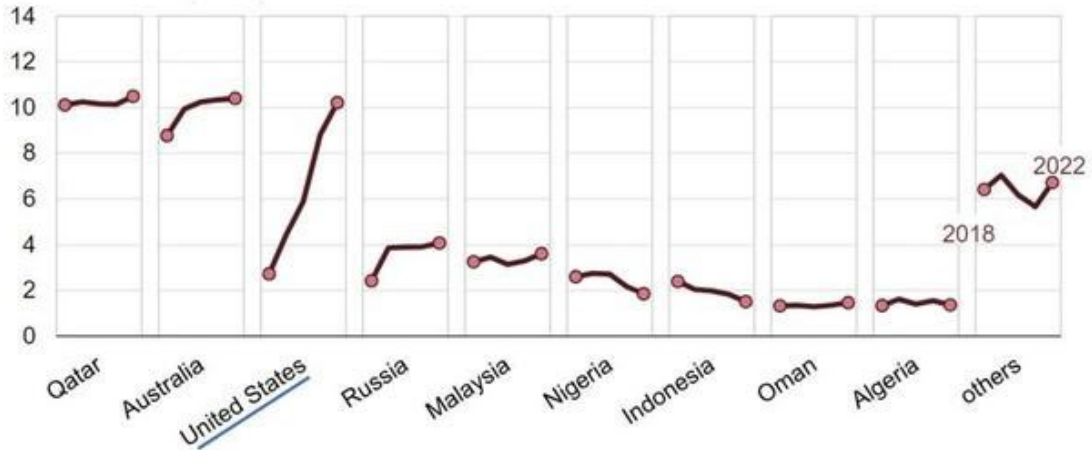
- Oil -



- Lea and Eddy counties in the Permian Basin of southeast New Mexico (*insert*) have [two horizontal wells](#) that account for almost **1/3 of total crude production in the entire Basin** (which just passed the Ghawar in Saudi Arabia as the most productive oil region in the world).

- Natural Gas -

- *Insert:* **A comparison of annual LNG exports (2018 - 2022), by country and in billion cubic feet per day:**



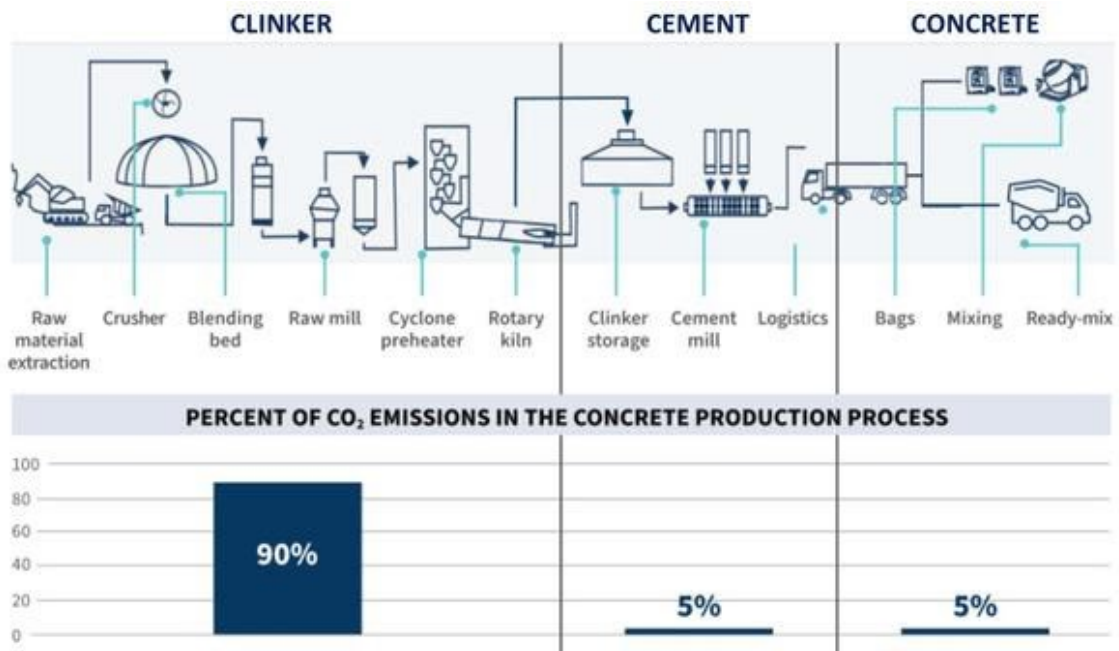
Note: Don't miss the Center for Midstream [newsletter](#) published by Lamar University.

- Coal and Mining -

- **Global coal-generated electricity is already up 8% this year and has doubled in the last 20 years.** India is the fastest growing market.

- Carbon Capture -

- The concrete and cement industry accounts for 7-8% of global CO₂ emissions, and **most of that total CO₂ comes from the first three phases of the "clinker" production process:** 1) preheating, 2) calcination, 3) clinker mineral formation.

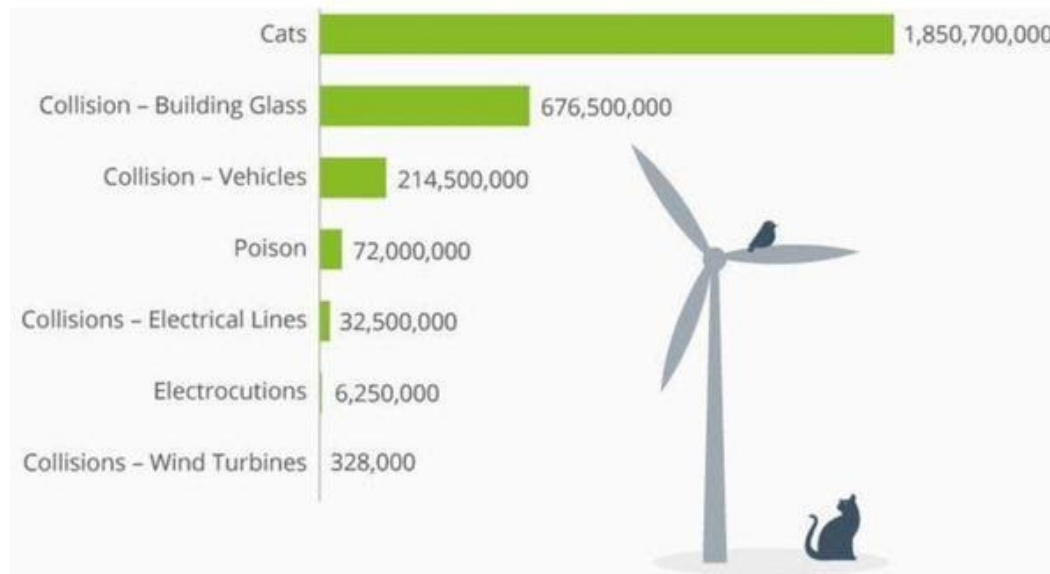


No- / Low- Carbon and Renewable Energy

- The new Ocean Wind 1 project about 15 miles off the coast of New Jersey will be developed by the Danish energy company Ørsted. As the [largest wind farm](#) in the US, 98 turbines will generate 1,100 megawatts of electricity (power for 500,000 homes).

- Biofuels are [displacing diesel on the US West Coast](#), even though fossil-based motor fuels have recovered to pre-pandemic levels. California's Low Carbon Fuel Standard ([LCFS](#)) seems to be working as designed.

- Annual estimated bird mortality from selected causes in the US:



- About 21% of US total energy consumption in 2022 came from nonfossil fuel sources (renewables and nuclear) — a tie with 2020 as the highest share since the early 1900s.

- Shipping hydrogen is much harder than shipping oil or natural gas because it has a very low volumetric energy density. Compared to one barrel of oil, the equivalent amount of gaseous hydrogen takes much more space to transport. **There are 5 available technologies that may be able to solve the H2 shipping problem, but each has its own challenges.** (Note: AES Members have access to its special [H2 Influencers](#) publication and list of the 500 H2 SMEs "you need to know"). The 5 H2 transport technologies, in no particular order:

1. Liquified hydrogen
2. E-methane (also known as synthetic methane or carbon-neutral gas)
3. Liquid organic hydrogen carriers
4. Methanol
5. Ammonia

Energy Policy & Geopolitics

- Beltway Buzz -

- Congress is back from its District work period and is very busy. For instance:

- Lawyers for Mountain Valley Pipeline filed at the SCOTUS to overturn the 4th Circuit decision that blocked construction. (Note: As we anticipated in *Energy Today*, [Oyez, Oyez!](#), this case is destined to be heard by the Supreme Court.)

- Senate Energy Chair Joe Manchin (D, WV) was able to insert two unrelated amendments into an appropriations (spending) bill: 1) stop the US Consumer Product Safety Commission from banning gas stoves; and, 2) prevent the Treasury Department from broadly interpreting the use of hydrogen production tax credits in the IRA.
- Both chambers have a full slate of hearings, including mining for critical minerals (Senate Environment) and the deployment of nuclear power (House Energy).

- **Wilson Sonsini has updated its Clean Energy and Climate Solutions Federal Funding database**, including new funding opportunity announcements (FOAs).

- Listen to *America's Path to Net Zero*, a [podcast](#) with [Eric Vettel](#) (President of the American Energy Society), by the Sustainability Team at ARC Advisory Group.

- State Spotlights -

- **Arizona:** This summer, about 80% of all emergency calls to Phoenix fire departments are related to [extreme](#) (19 continuous days of 110+°F) temperatures.

- **Alaska:** The Biden administration is providing \$37.5 million through the DOD to support [graphite mining](#) in Alaska and its processing in Washington state.

- **Pennsylvania:** Natural gas production in the Pennsylvania region of the Appalachian Basin is [declining](#).

- Global Spotlights -

- **Africa:** Power Africa, through USAID, is offering about \$89 million to support [development of power grids](#) for about 10 million people living in East and Central Africa. Since 2013, Power Africa has helped deliver electricity to about 170 million people in sub-Saharan Africa.

- **Asia:** A [fire](#) in an underground coal mine in Jkarhand, India, has been burning continuously since 1916. (Note: coal consumption in India has doubled in the last decade, provides about 70% of the power for its electricity grid, and is the source of half of India's greenhouse gas emissions.)

- **C/S America:** Throughout Latin America, about 319 gigawatts (GW) of [proposed new wind, solar, and hybrid battery projects](#) are in the development pipeline, which means it is one of the fastest growing renewable energy regions in the world ... if all of the projects come online. For comparison, in China there are about 97 GW of proposed utility scale solar and wind projects that could come online within the year.

1. Brazil (217 GW)
2. Chile (38 GW)
3. Colombia (37 GW)
4. Peru (10 GW)
5. Mexico (7 GW)

- **Europe:** On average, most economies in the EU store about two months' worth of coal, oil, or natural gas; right now, the EU is storing about half that, which is [more than anyone projected](#) after Putin invaded Ukraine.

Climate and Sustainability

- SME climate scientists forecast that we are in the first of a **five-year period of increasing temperatures**. Extreme conditions include:

- June was the warmest month ever recorded in North America, with heat waves spreading across Canada, Mexico, and especially the US South and Southeast.
- Oceans have warmed to new levels and surface temperatures have climbed significantly.
- Antarctica is experiencing a record drop in sea ice.

- "**CDHW**" *noun*, def: [compound drought and heat wave](#); a climate event combining two extreme conditions that cause greater ecological damage than either in isolation. AES Members have access to the peer reviewed research.

- **Declining greenhouse gas emissions in the US and Europe were offset by increasing emissions in China and India**, leading to a flatlining of global atmospheric pollution through the first five months of 2023.

- **Produce that has the most pesticides:**

- | | | |
|-----------------|---------------|----------------------|
| 1. Strawberries | 6. Peaches | 11. Bell/hot peppers |
| 2. Spinach | 7. Pears | 12. Cherries |
| 3. Kale | 8. Nectarines | 13. Blueberries |
| 4. Collards | 9. Apples | 14. Green beans |
| 5. Mustard | 10. Grapes | |

No-/low-pesticide produce:

- Avocados
- Sweet corn
- Pineapple
- Onions
- Papaya

Research, Development and Market Deployment

- A white paper commissioned by the National Academies of Sciences, Engineering, and Medicine (NASEM), found that **recycled plastics can be used as a polymer composite to replace some cement and concrete** to build roads and buildings.

- **Gasoline consumption on the East Coast is greater than in other regions of the US.**

- **EV sales are outperforming optimistic projections.** In January 2022, EVs represented 4% of new sales; this January, the share is 7%. Even though EV prices are near record highs, [better deals](#) may soon be at hand. Tesla is slashing prices, prompting the rest of the EV industry to follow. New federal tax subsidies are coming online and automakers are releasing a fleet of new all-electric models this year.

- Freiburger Compound Materials consumes about **10% of the world's gallium and 65% market share** of gallium wafers (used in cleantech and telecommunication industries). [Almost all](#) of Freiburger's gallium comes from China.

- **Two new summer funding opportunities:**

1. The US Department of Interior will distribute more than \$650 million to [plug abandoned oil and gas wells](#).

2. Get ready ... the DoE is preparing to launch a \$150 million grant program for states to train, test, and certify home energy efficiency and electrification contractors.

Electricity, Power, and Efficiency



- **Nanogrid**, *noun* def: a mobile station that brings power to emergency crews and displaced residents when natural disasters occur. For instance, the startup, [Sesame Solar](#), uses converted food trucks lined with solar panels that charge batteries on board. A single nanogrid (food) truck can generate between three and 20 kilowatts, enough to provide power for approximately four to six houses. Another type of nanogrid uses hydrogen fuel cells, which converts water into hydrogen.

Some nanogrids have onboard water filtration systems (500 liters) and 5G mesh networks.

- To reduce electricity consumption when demand may strain the grid, most US utilities adopt critical peak pricing ([CPP](#)). On designated CPP days, which utilities typically declare the day before, **retail electricity prices increase about 2 to 4 times during critical hours.** (aka PG&E calls its CPP "Smart Days," and prices increase from \$.53 per kilowatt-hour to \$1.13.)

- **Greenhouse gas emissions from the power sector, the largest source of the world's emissions, are expected to fall for the first time.**

- **Homes built to today's energy codes are 40% more energy efficient than those built 15 years ago.**

University Spotlight

- AES applauds the wide range of contributions by **Texas A&M** to the energy sector, including the [Smart Grid Center](#) (resiliency) and the [Berg-Hughes Center](#) (petroleum and CCUS studies).

- Researchers at the Laboratory for Laser Energetics (LLE) at the **University of Rochester** have demonstrated "[dynamic shell formation](#)," which may help achieve a fusion power plant.

- **Western Michigan University** has established the [Center](#) for Interdisciplinary Research on Secure, Efficient and Sustainable Energy Technology.

- **Kansas State University** won [first place](#) at the Collegiate Wind Competition (CWC).

Quotes

[The 2024 presidential campaign is starting to heat up.](#)

"[The Biden administration] has no authority to transform our electric sector."

- Bill Johnson (R-OH)

"I guess Republicans in Congress don't read newspapers."

- Rep. Mike Quigley (D-Ill.), on Republicans voting against investment in transmission infrastructure

"Fit that on a bumper sticker."

- Doug Heye, Republican campaign strategist, on topics that he says Democrats oppose: economic growth, energy security, relations with Russia, energy affordability....

- Bulletin Board -

Reach 135,000+ readers with your message.

[Members](#) of AES can post an announcement for free! [Contact us](#) for more information.

- 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 -

AES would like to recognize our sponsors — our catalysts for change.
For more information about the many benefits of sponsorship [contact AES](#).

**WILSON
SONSINI**



Honeywell



CLEARPATH



BHP





Contact Information

[The American Energy Society](#)

[AES LinkedIn Group](#)

[AES introductory video](#)

[Contact the editors](#) about the Society or this issue of *Energy Matters*.



**AMERICAN
ENERGY
SOCIETY**