

ENERGY MATTERS

Soundbite summaries of the energy news you need to know

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AMERICAN ENERGY SOCIETY

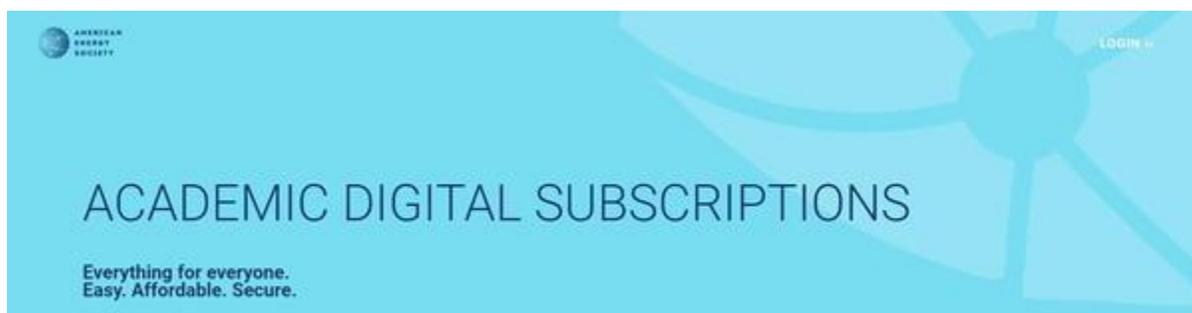
October 10, 2022

- The Power Read -

- **Oil:** India is not buying crude oil from Russia.
- **Policy:** 91% of the global economy has pledged to cut emissions to zero.
- **Renewables:** Europe has budgeted \$7.4B (USD) for geothermal RD&D.
- **Markets:** OPEC+ will reduce crude oil production by 2 million bpd.
- **Markets II:** Beer and Coke need more CO2.
- **Markets III:** AES editors recommend "A Case for FOAK."

- News from the Society -

- AES launched a "[Digital Subscription](#)" program for universities and organizations. For a limited time, we're offering discounts to universities. [Contact us](#) for more information.



- The Hydrogen Influencers



On October 17, 2022, AES will publish the *Hydrogen SME Watchlist*, a global directory of 3,000 thought leaders shaping the next energy-tech revolution. **Since you are already a Member, you will be able to access the Executive Summary and dataset (PDF) for free.**

[Contact us](#) for more information. Thank you [Ambient Fuels](#) for underwriting the report and directory.

- Fossil Fuels -

- Oil -



- Before the war in Ukraine, India bought very little crude oil from Russia. During the war, India became Russia's second biggest customer. However, recently hostilities have disrupted trade routes, and freight rates and travel time from Russia to India have increased significantly (what once took less than a week now takes more than a month.) **India is no longer buying crude from Russia.**

- Natural gas -

- **US proved reserves of natural gas have increased virtually every year since 2000, and the US sets new annual natural gas production records almost every year.** (Note: this unprecedented industrial achievement is due almost entirely to technological advancements in natural gas exploration and production.)



- Coal and mining -

- The largest mining companies in the world (BHP Group, Glencore, etc.) are actively seeking and funding new low-emission mining technologies, with special emphasis on electrolysis plants, trolley-assist haulage, regenerative braking, and hydrogen fuels.

- Carbon capture and removal -

- **There are six carbon dioxide removal (CDR) systems**, broadly conceived:

- Direct air capture
- Biomass carbon removal/storage
- Enhanced weathering
- Ocean alkalinity enhancement
- Terrestrial biomass sinking
- Ocean biomass sinking

No- / Low-Carbon and Renewable Energy

- It took a century for the US to generate about 1 terawatt of utility-scale renewable energy electricity (or about 1,144 gigawatts). Now, **about the same amount of new renewable power is waiting to connect to the grid.**

- Worried about market uncertainty, many financial markets are reluctant to invest right now. But **public funds for renewables have never been stronger**, especially for projects that require more than \$1B, such as critical minerals, transmission, battery manufacturing, wind and solar farms, hydrogen, and carbon sequestration.

- European countries have [budgeted](#) about **\$7.4 billion (USD)** to develop and deploy geothermal energy systems. Currently, Europe generates about 3.9 GWt of geothermal energy; Iceland is the leading producer.

- Six companies preparing to [expand](#) renewable energy activities with IRA funds:

1. [First Solar](#), the largest solar manufacturer, may build another factory in the US.
2. [Tesla](#) may move its planned battery manufacturing plant from Germany to the US.
3. [Piedmont Lithium](#) has plans to build a processing plant in Tennessee.
4. [Qcells North America](#) may build a solar manufacturing facility in north Texas.
5. [Toyota North America](#) may expand its electric battery facility in North Carolina.
6. Honda and LG Chem are teaming up to produce EV batteries in the US.

- Energy Policy & Geopolitics -

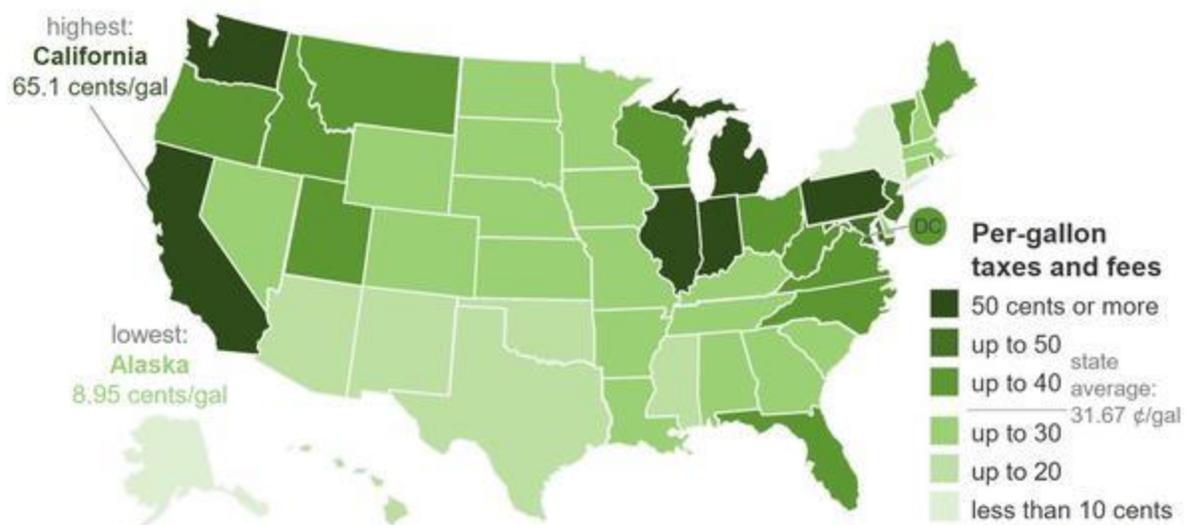
- Beltway Buzz -

(Note: Congress is out of session until after the November elections)

- The Supreme Court has opened its fall term, headlined by [Sackett v. Environmental Protection Agency](#), a case that [challenges](#) the scope of the [Clean Water Act](#). For other SCOTUS cases related to energy and the environment, AES Members have access to *Energy Today*, [Oyez Oyez](#): The Four Most Important E&E Supreme Court Cases in 2022.

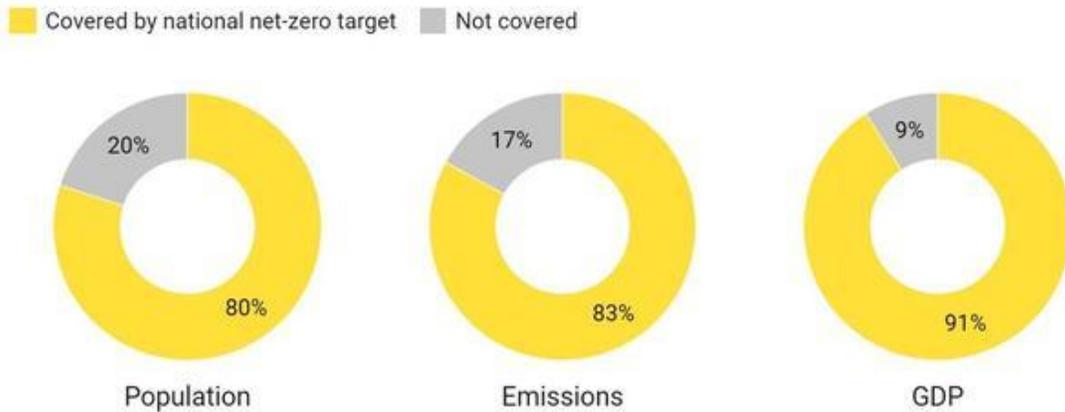
- The Biden Administration set aside an additional \$2.9 billion to combat global food insecurity in addition to the \$6.9 billion for US food security funding already committed this year. There is also **\$500 million to support American-made fertilizer production** (in anticipation of price hikes caused by the war in Ukraine). The minimum grant is \$1M and the maximum \$100M.

- State gasoline [taxes](#) range from as low as 8.95 cents per gallon in Alaska to as high as 65.1 cents per gallon in California.



- Global energy politics -

- About 91% of the global economy has [pledged](#) to cut emissions to zero, and at least 128 countries have net-zero targets. However, it is unclear what these pledges or targets mean.



- Yemen's [Houthis](#) have warned oil companies operating in Saudi Arabia and the United Arab Emirates (UAE) to leave as the warring sides in the country's conflict rejected a truce in the war that has been going for seven years. Needless to say, precarious global oil and energy markets are watching this particular geopolitical conflict very closely.

- Meanwhile, Russian President Vladimir Putin identified four Ukrainian regions that are now "part of Russia," and has [threatened](#) to use strategic nuclear weapons to defend annexation.

- Climate and Sustainability -

- In September 2021, President Xi Jinping [promised](#) that China would stop building coal power plants overseas. One year later, 26 plants were canceled, but 14 were completed and another 27 will be soon, mostly in Asia. (Note: most of the projects were in progress when Xi made the promise.)

- Three scopes of GHG emissions make up the total carbon footprint.





- In the aftermath of Hurricane Ian, the **Florida Department of Health issued a boil-before-drinking advisory in the hardest-hit places** in the state where there is no electricity (or dry wood) to boil the water.

- Research and Markets -

- **OPEC+ will reduce its production quotas by 2 million bpd**, with Saudi Arabia and Russia reducing production by 500K bpd.

- **The Loan Program Office ("LPO") at the US Department of Energy is the largest private debt fund for energy in the world** (right now it has about [\\$40 billion](#) in loans and loan guarantees available).

- "FOAK", def.: First-of-a-kind. A financing model that encourages initial investment in new (typically hard-) energy or climate technologies. In most cases, FOAK comes from philanthropic or government non-dilutive sources of capital. AES editors recommend ["A Case for FOAK."](#)

- US oil refineries have been running at 92-93% [capacity](#) throughout 2022 and will probably continue to do so through Q4.

- **Form Energy, manufacturer of long-duration batteries, just raised a [\\$450M Series E](#) round** to scale their supply chain.



- **Beer brewers need carbon dioxide, but the price has increased significantly due to a CO2 shortage.** Related, each can of [soda-pop](#) contains 2-3g of CO2 that is usually purchased from local power plants as a by-product. Meanwhile, [Air Company](#) uses captured carbon dioxide to distill vodka.

- Electricity & Power -

- **New York State and Oklahoma generate about the same amount of renewable energy (6% of total electricity).** Neither will be able to increase their renewable capacity, however. Oklahoma has virtually no renewable energy projects in the pipeline. In New York, the number of projects [waiting for approval](#) has more than tripled since 2016, but the state does not have enough staff to review the proposals.

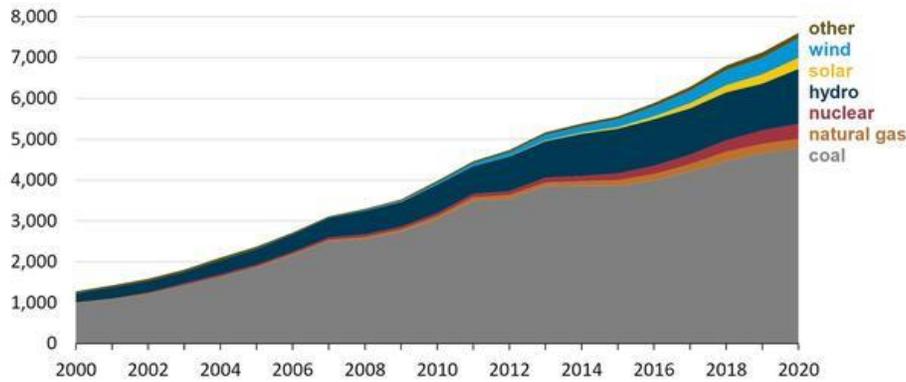
- In the aftermath of Hurricane Fiona, **LUMA Energy has restored service to 93% of customers in Puerto Rico.** Note: LUMA Energy began operating Puerto Rico's electric grid last year, managing the system through a public-private partnership while the Puerto Rico Electric Power Authority continues to own the island's grid assets.

- Last chance to help a graduate student in Environmental Psychology at Colorado State University by completing a **short online [survey](#) about household appliances.**



- On September 6, 2022, California broke its all-time demand record for electricity when it peaked above 51 GW in the early evening. Going back to 1998, load has only broken 50 GW twice, once in 2006 and again in 2017. However, **this time CAISO implemented no interruption of service.**

- **China has increased its electricity generation every year for the past 20 years** (from 1,280 terawatts in 2000, to 7,600 TWh in 2020). Despite COVID, China still expanded its electricity generation by 5% in each year of the pandemic. *Insert below: net electricity generation in China, by fuel type and terawatt hours.*



- Universities in the Spotlight -

- BEAST at the **University of Cincinnati** is prolific, especially in HVAC efficiencies, with special emphasis on the work of (but not limited to) [Nabil Nassif](#).

- Every Friday, the UC Davis Energy Efficiency Institute hosts energy-related [seminars](#).

- A collaborative paper ([PDF](#)) by **UCSD, MIT, Princeton, and Stanford** explores "How Technology Can Save the Planet."

- The North Carolina Renewable Ocean Energy [Program](#) (NCROEP), a collaboration between **East Carolina University** Coastal Studies Institute and **NCSU, UNC Charlotte and NCA&T University**, is working to harness the power of the Gulf Stream for grid-scale renewable energy.

- AES congratulates **San Jose State University** for its [NSF Award](#) to study hydrosocial dynamics and environmental justice in the water-energy transition.

- AES applauds the **Grand Valley State University** Social Science Lab's [program](#) that trains citizens how to use data to tell stories about resource needs and goals.

- In case you missed it: [The Anti-Nuclear Power Movement and Discourses of Energy Justice](#) (**Butler University**).

- The **University of Wyoming** received a DOE grant to [study](#) the reliability of clean power systems through machine learning.

- Join the **CMU** Scott Institute on October 27 for a [distinguished lecture](#) from Mary Beth Green, the Chief Innovation Officer at Sheetz.

- Quotes -

Pulling no punches

"I will not suddenly incorporate buzzwords like regenerative agriculture into the Farm Bill or overemphasize climate."

- Glenn "GT" Thompson (R-Pennsylvania), US House of Representatives Agriculture Committee Ranking Member

"I will not sit idly by and allow people to think agriculture is a blight on the landscape."

- John Boozman (R-Arkansas), US Senator and Member of the Senate Committee on Agriculture, Nutrition, and Forestry

"If you live near water, or where it rains, you should buy flood insurance."

- FEMA Administrator Deanne Criswell

"Show me where is the act of belligerence, period."

- Saudi Arabia's Energy Minister, Prince Abdulaziz bin Salman, when asked if OPEC+ was using energy as a weapon

- Bulletin Board -

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

- **Honeywell's Sustainable Building Technologies (SBT)** is hiring for a global [Senior Director Solutions Architect](#).

- On Oct. 18 and 26 and Nov. 3, **AASHE will host "The Urgency of Now,"** a global conference on sustainability solutions in higher education. [Contact us](#) for a discount code or a special rate for a full conference pass.

- Don't miss the **Climate Partnership [Playbook](#) by the State of Green (Denmark)**.

- **Clearpath** has completed a white paper that examines the development of wind power in [Iowa](#), the #2 wind state in the US. The study highlights proponents and advocates of the industry and its plans to expand in the future.

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

- **Ubiquitous Energy**, a leader in transparent solar technology, is [developing](#) energy generating windows and door products.

- **Orrick** has a recorded [webinar](#) on the Inflation Reduction Act, with emphasis on hydrogen.

- **Sunrun**, a residential solar and battery storage installer in the US, has partnered with Ford to launch a new [home electric vehicle \(EV\) charger](#) that is compatible with any EV model.

- If you have [data](#) but not the talent or staff to make it valuable, please consider the **proSkale** platform—it helps organizations manage and invest their data ... like cash.

- Gratitude -

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