

ENERGY MATTERS

Soundbite summaries of the energy news you need to know

AN OFFICIAL PUBLICATION OF



AMERICAN ENERGY SOCIETY

February 6, 2023

- The Power Read -

- **Fossil:** Oil and gas are setting records.
- **Low-/no-carbon:** The energy transition index - no one is winning.
- **Climate:** Wine spotlight.
- **Electricity:** About 209 coal power plants are more expensive than solar or wind.
- **News from the Society:** Coming soon - Battery Spotlight!

- News from the Society -

- The 2023 MIT Energy [Conference](#) early-bird ticket [discount](#) will end on February 10. For climate tech startups, [apply](#) before February 12 to participate in the Energy & Climate Tech Showcase at the Conference.

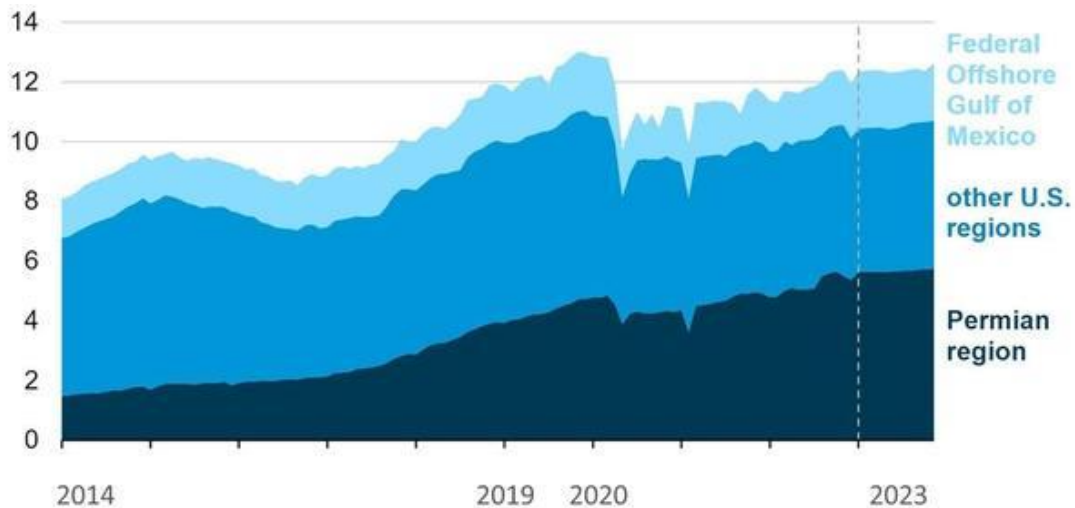
- Coming soon for members: Battery Spotlight, a survey of the state of storage by the numbers.

- Energy and sustainability are hiring! [Contact us](#) if you are curious about new professional opportunities.

- Fossil Fuels -

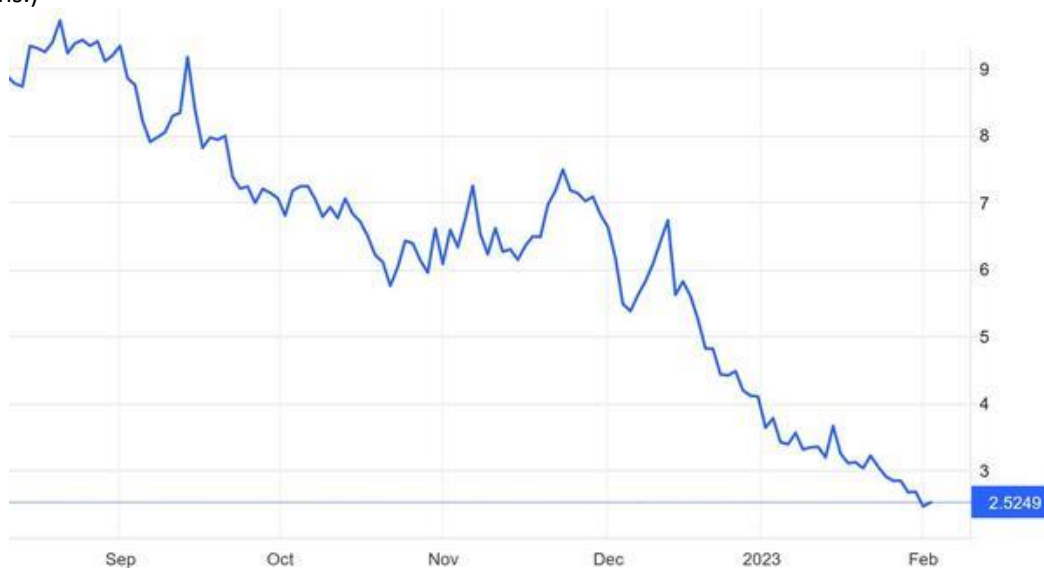
- Oil -

- If all else stays the same (a big assumption), the US is [on pace](#) to set a new oil production record **sometime in 2024** (12.4 mil. b/d to 12.8 mil. b/d, surpassing 12.3 mil. b/d in 2019).



- Natural gas -

- US natural gas prices have [fallen](#) below \$3 per million British thermal units for the first time in two years. (Note: the peak was \$9.68 on Aug. 22, 2022). Price-sensitive buyers in South Asia, once priced out of the market, are now buying; and despite early concerns, Europe has been able to meet its demand and continues to add new LNG cargoes. Related, US gas production has [grown](#) the past two years and will continue, while China's demand remains flat. (Insert: natural gas prices (USD/MMBtu) in the last six months.)



- Coal and mining -

- Demand for mined uranium will increase about 10 to 12 million pounds in the next two or three years because Japan, France, South Korea, India, the UK, US, and Germany have announced plans to extend the life of their existing nuclear power plants or expand their fleets. (Note: spot uranium prices have increased from \$48.66 to over \$50/lb in 2023; for context, mined uranium from Kazakhstan is [economical](#) at a market price of \$70/pound.)

- Carbon capture and removal -

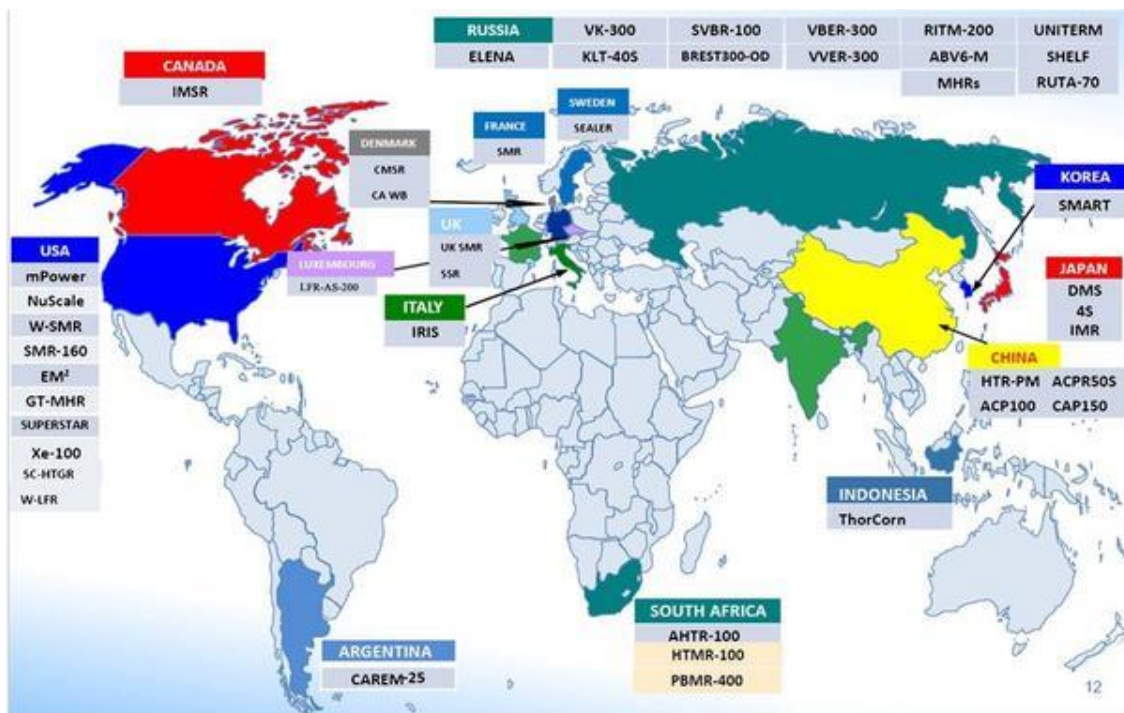
- Measuring the carbon in soil is an inexact science. The most accurate are conducted in the field. Remote methods (like satellites and models) are cheaper and cover more territory but are not as accurate as on-site samples. **A combination of the two methods is perhaps the best, with less than a 5% error rate.** (Note: accurate soil carbon data helps farmers make better decisions about land use and productivity.) AES [Members](#) have access to a true and correct PDF copy of a memo about carbon in soil written for the upcoming [Farm Bill](#).

- No- / Low-Carbon and Renewable Energy -

- The Energy Transition Readiness [Index](#) rates each region of the world on its progress toward net-zero energy production. Note: 100 is a perfect score, which means **no region is ready for an energy transition. The following are the top-5 scores:**

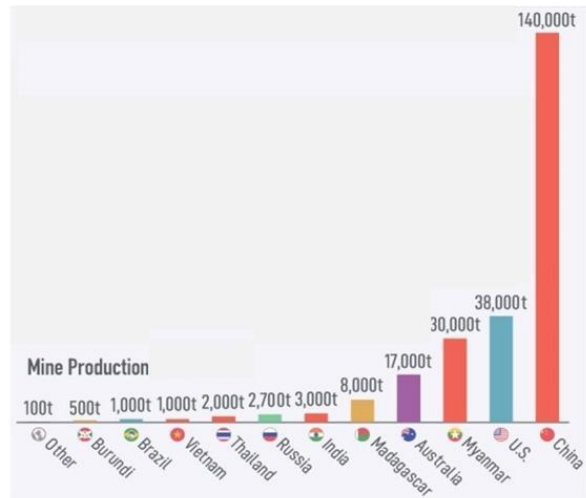
1. North America (34)
2. EU (33)
3. MENA (26)
4. Asia Pacific (25)
5. Latin America (22)

- There are only two operating small modular nuclear reactors (SMRs) in the world, one in Russia and the other in China. However, **the SMR market is poised to grow.** The US Nuclear Regulatory Commission has certified the design of what will be the nation's first SMR, and there are about 40 serious concepts in development worldwide. Note: [Centrus Energy](#) is the primary provider of nuclear fuel (High-Assay, Low-Enriched Uranium, or HALEU) for SMRs. *Insert:* regions that are operating or developing SMRs.



- A research group at the ARC Centre of Excellence has been able to create a **perovskite solar cell with 21% efficiency**, the best results ever recorded.

- **Rare earth elements (REEs)** are a group of 17 elements important to critical energy technologies, like magnets, light bulbs, screens, glass, batteries, steel alloys, etc. *Insert right:* the world's reserves of REEs, in tons.



- It does not look like the energy sector is struggling with an economic recession ... the energy and sustainability sectors are hiring! [Contact us if you're open to work](#), or explore [jobs](#) at startups funded by Breakthrough Energy Ventures.

- Energy Policy & Geopolitics -

- Beltway Buzz -

- **The Federal Trade Commission (FTC)** is in the process of updating its **Guides for the Use of Environmental Marketing Claims** (Green Guides) to assist marketers in ensuring that their claims about the environmental attributes of their products are truthful and not deceptive. The FTC is currently soliciting public comments about the efficiency, costs, benefits, and regulatory impact of its Green Guides to determine whether to retain, modify, or rescind them. The deadline to submit [comments](#) is February 21, 2023.

- **The US House of Representatives** voted in favor of [H.R. 21 \(221 to 205\)](#), with all House Republicans and just one Democrat in support. The bill is a messaging effort by Republicans aimed at discrediting President Joe Biden's use of the nation's strategic petroleum reserve (SPR) to lower gasoline prices. The Democrats control the Senate and have made clear that they will not consider the bill, and the White House has already said it would veto it.

- State Spotlights -

- **Pennsylvania** has thousands of abandoned oil and gas wells. Drillers are required by law to report and plug them; however, they usually don't, which means there are about 200,000 wells that need to be plugged, each at an average cost of \$30,000.

- **Wyoming** and the Biden administration are in a standoff over electric vehicle charging stations. The state could receive millions of federal dollars to install charging stations; however, there are only 500 EVs in Wyoming, and state officials are wondering who is going to pay for maintenance and upkeep. Wyoming [countered](#) the government's offer and asked if the charging stations could be built only on highways near the national parks (aka, roads that get used a lot more by out-of-state Teslas).

- **New York** held its third offshore wind auction ([NY3](#)); Equinor and BP submitted winning bids.

- Global Spotlights -

Europe: The European Commission has proposed a Net-Zero Industry Act to support cleantech objectives that can [compete](#) with the massive green subsidy IRA package passed by the US Congress.

Africa: The [US](#), EU, and UK offered a financial [package](#) of \$8.5 billion (USD) to support an energy transition in South Africa. (*Note: coal provides 80% of South Africa's power.*)

Asia: ten southeast Asian countries make up one of the fastest growing economic regions in the world (3%/year). More than three-quarters of its energy is being met by fossil fuels, [signaling](#) that in this region economic growth takes priority over lower emissions. (*Note: the ASEAN countries include Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam.*)

L/S America: The new government in Brazil reversed its campaign pledge and will keep the existing 10% biofuel gasoline blend rather than increase it to [15%](#).

- Climate and Sustainability -



- *Special report:* **On average, a bottle of wine has an overall carbon footprint of 1.01 to 1.32 kg CO₂ equivalent** (about the equivalent of driving a typical ICE automobile about 3 miles). However, some wine makers are more sustainable than others. [Benziger](#), for instance, uses biodynamic farming methods to make great wine. Glass bottle production is the primary driver of emissions, while transportation is also a key contributor. An

alternative to cargo or airline shipping, [The Wine Check](#) allows individuals to carry their own wine. AES recommends the *State of the Wine Industry* report, by Silicon Valley Bank. AES [Members](#) have access to peer reviewed research on the carbon footprint of the wine industry.

- Most global activity slowed down in 2020 due to COVID-19; lockdown measures temporarily caused a global decline in greenhouse gas emissions. However, in spite of the slowdowns, methane emissions mysteriously climbed. New research suggests that the **increase in methane emissions was caused, in part, by chemical changes in the atmosphere due to reduced air pollution**. AES [Members](#) have access to the peer-reviewed research.

- Just 10% of the world's population is responsible for half of global warming emissions. However, because many developing regions are adopting more affordable clean energy solutions, **the biggest emissions gap is no longer between rich and poor nations, but between the rich and poor within countries**. AES [Members](#) have access to the non-peer reviewed study.

- **NATO hosted its first "Symposium on Climate Change and Capabilities."** [Summary:](#)

- Climate change is a threat multiplier, affecting NATO's security and missions.
 - The single most difficult geopolitical obstacle is multinational capability cooperation.
 - Most countries do not have adequate military capabilities to combat new threats.
-

- Research and Markets -

- **The fastest growing job categories in the energy sector, from 2017 - 2022**, by title (compound annual growth rate). Note: data and report by [LinkedIn](#); see also *Energy Today*, "Roaring 20s," when AES forecasted a decade of job growth in the energy sector, regardless of economic conditions.

1. Environmental Health Safety Engineer
2. Sustainability Manager
3. Energy Manager

- **South Pole**, the world's leading climate consultant, is selling fake carbon credits to customers like Gucci, Volkswagen, and Greenchoice. The Swiss carbon credit company has generated more than \$10 million euros from the [scam](#).

- **Exxon announced that it has [stopped](#) routine flaring of natural gas from production in the Permian Basin.**

- **The world does [not](#) have spare oil capacity right now.** The next phase of global energy insecurity will happen if:

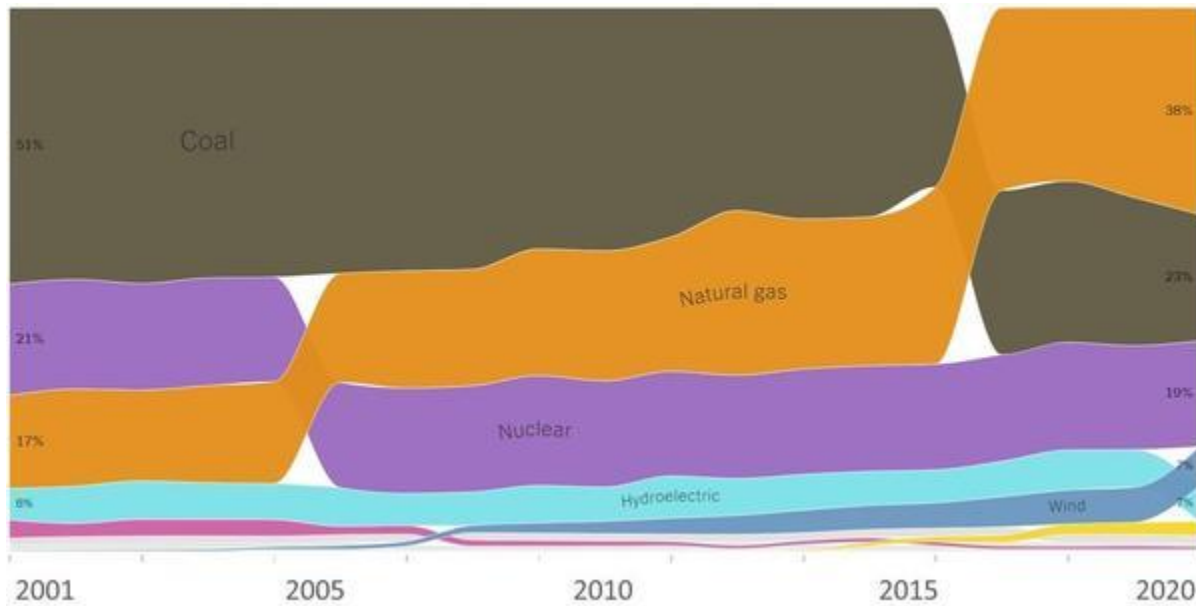
1. China gets control of its COVID pandemic.
2. The US economy stabilizes (editor's note: this is the strangest recession in US economic history and may turn out to be entirely sector focused, like when the tech bubble burst in 2000).
3. Transportation recovers, especially airlines and shipping.

- Electricity & Power -

- **Approximately 209 coal-fired power plants in the US are [more expensive](#) to run than solar or wind generated resources**, excluding capital/construction costs. (Note: an email address is required to download the report.)



- In the US, coal's decline has accelerated in recent years while wind and solar sectors are growing, but **natural gas is the dominant source for generating electricity.**



- Xcel Energy will deploy an **iron-air battery storage system** by Form Energy that will store about 10 MW / 1,000 MWh of power, or about what the utility would need to supply its customers with two full days' worth of power. Next Monday, look for the special AES spotlight on energy storage.

- **Enphase developed a bi-directional EV charger** that **also** allows EVs to provide some power for homes during an outage. (Thank you AES Member Wayne Herr for the insight.)

- University spotlight -



- The ESM program at **USF** hosted David Hochschild, Chair of the California Energy Commission (CEC). In his remarks, the Commissioner noted the correlation (and causation perhaps?) between California's ambitious and aggressive commitment to decarbonization and its growing economy, passing Brazil as the 6th largest economy in the world and France as the 5th. The state is projected to pass 4th-place Germany.

- AES recommends a survey ([PDF](#)) of how IRA funds support sustainability efforts at universities and colleges.

- **Ames Laboratory** at **Iowa State University** developed a **new hybrid catalyst** that uses electricity to convert carbon dioxide into ethylene (used to make plastic, antifreeze, pesticides, etc). Scientists at the **University of Virginia** and **Columbia University** also contributed.

- Quotes -

On the bullish rare earth market...

"I am incredibly bullish about every single metal on the periodic table."

- Gavin Thompson, Vice-Chairman Energy, Asia-Pacific, WoodMac

"I don't think there's been a more interesting time than right now for mining, and mining metals, in my entire career."

- Ross Beaty, founder of both Equinox Gold and Pan American Silver

"There are synchronous bullish conditions for virtually all metals."

- Gwen Preston, publisher of *Resource Maven*

- Bulletin Board -

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- **Honeywell Building Technologies** is hiring a [Solution Consultant Manager](#) and a [Sustainability Break Through Initiative Leader](#) (GM).

- The **CCIA** 7th annual [Mining Cleantech Challenge](#) is coming up in April, 2023. The application is now open and will close on March 6, 2023.

- The 2023 [Spring Coal Forum](#), hosted by the **ACC**, takes place March 7 - 9, 2023, at the Hyatt Regency Clearwater Beach, Florida.

- **OurEnergyPolicy** hosts many [forums](#), including one on oil and gas (Hilton, Houston).

- **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.

- Gratitude -

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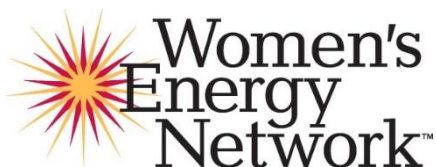
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