

ENERGY MATTERS

Soundbite summaries of the energy news you need to know

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AMERICAN ENERGY SOCIETY

April 22, 2024

- News from the Society -

- **DevCo DNA: What Makes A Renewable Energy Project Development Company Great.** Our latest AES report uncovers the traits, characteristics, strategies, and approaches that are strongly linked to the most successful renewable energy DevCos. AES Members get [DevCo DNA](#) for free.

- The Power Read -

- **Oil and Gas:** Geopolitical volatility in the Middle East means non-OPEC producers in the Americas will be the source of increased oil production.
- **Coal and Mining:** One of the largest copper mines in the world is dormant.
- **Policy:** The IRS released a notice of proposed rulemaking about the Clean Hydrogen Production Tax Credit (PTC) under Section 45V.
- **Climate:** April 22, happy Earth Day!
- **Research:** "Hyperaccumulator" plants extract nickel and cobalt from the soil.
- **Electricity:** A significant percentage of electricity demand is driven by weather.

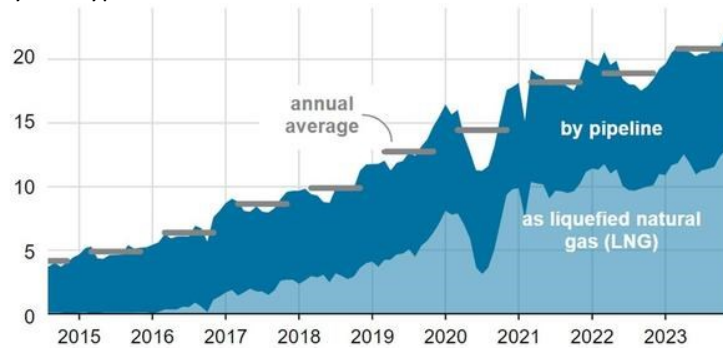
- Fossil Fuels -

- Oil -

- Geopolitical tensions in the Middle East have [increased the volatility](#) of oil markets. OPEC+, led by Saudi Arabia, continues to reduce production, driving Brent international oil prices higher. **At least for the rest of this year, non-OPEC+ producers, led almost entirely by the Americas, will be the source of oil supply growth.**

- Gas -

- **The US exported 10% more natural gas in 2023** than in 2022, a [record](#) of 20.9 billion cubic feet per day (Bcf/d). *Note:* Since 2017, the US has exported more natural gas than it has imported. Prior to 2017, the last time US natural gas exports exceeded natural gas imports was in 1956. *Insert:* US monthly gross natural gas exports by exit type.



- Coal and mining -

- *Special report:* the energy transition toward **the electrification of everything** has increased **global demand for copper** (for electrical wires, etc.) with a forecast supply [shortfall](#) of about 6.5Mt. The massive Cobre Panama copper mine provides 1.5% of the world's total global supply of copper, 4.5% of Panama's total GDP, and employs about 1 in every 50 workers in the country. [The mine is now idle](#) due to the hubris of First Quantum, the company that owns Cobre Panama: they refuse to pay taxes or settle legal issues, and they ignored warnings that Panama's government did not support the company or the mine.

- Carbon capture and removal -

- The current CO2 midstream pipeline network is large. For instance, the Permian Basin has 2,600 miles of CO2 pipelines. And yet, there is more supercritical CO2 that comes from coal-fired power plants than liquids in the oil and gas midstream. (*Source:* Lee Raymond, former ExxonMobil CEO.)

- No- / Low-Carbon and Renewable Energy -

- **The world installed 117 gigawatts of new [wind power](#) capacity in 2023**, a 50% increase from the year before, making it the best year for new wind projects. Note: AES Members have access to the report, [DevCo DNA, What Makes a Renewable Energy Project Development Company Great](#).

- **One-fifth of all public EV chargers in the US are [broken](#).**

- **From April 21 - 27, 2024, San Francisco is hosting its version of [Climate Week](#).**

- **US renewable energy investment reached a record \$88 billion in 2023.**

- *A natural experiment:* on April 8, 2024, a total solar eclipse briefly but fully obscured sunlight for utility-scale solar electric generation facilities along the eclipse's path, from Texas through Maine. Throughout the eclipse, **80% of the lost solar generation was [replaced](#) with natural gas.**

- Many utilities believe they can't reach their carbon goals without incorporating or blending hydrogen into their fuel system. **Do you understand how hydrogen works and why it's important?** AES applauds [Introduction to Hydrogen](#), a 60 minute online/on-demand course by EnerDynamics (about \$70 fee) to learn the basics. (Note: AES was not compensated in any way for this notice or any other published content; it is doubtful that EnerDynamics even knows about this notice.)

- Energy Policy & Geopolitics -

- Beltway buzz -

- The Biden administration raised the [royalty rates](#) (i.e. "rent") that fossil fuel companies pay the government in order to drill and mine on public lands, and its **the first time since 1920 that those fees have increased**. The government estimates it will generate about \$1.5 billion in fees, which will be used to fund clean energy programs.

- The Biden administration [finalized a rule](#) that prioritizes the **conservation of federal lands** through new initiatives that center on restoration and mitigation.

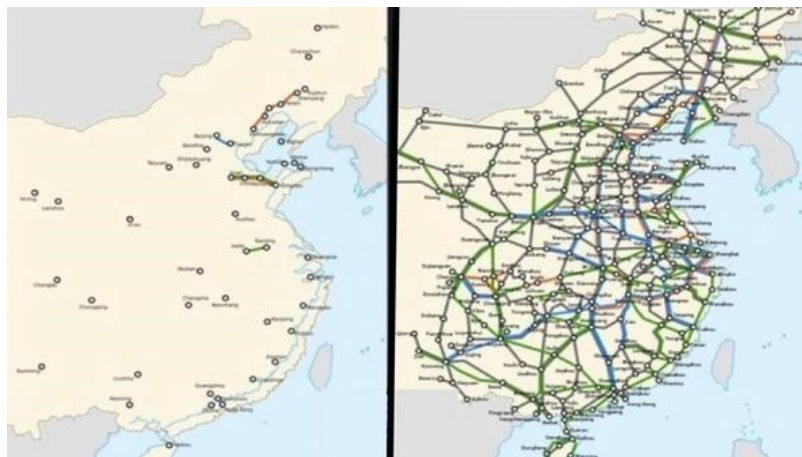
- **ARPA-e has issued an RFI (Request for Information) about the need for [Responsible Mining of Critical Minerals \(FIRM-CM\)](#)**. Responses to this RFI should be submitted in PDF format to the email address ARPA-E-RFI@hq.doe.gov by 5/14/2024.

- **The IRS released a notice of proposed rulemaking about the Clean Hydrogen Production Tax Credit (PTC) under Section 45V**, which would provide a 10-year PTC or Investment Tax Credit (ITC) for taxpayers who produce [qualifying hydrogen](#):

<u>Kg of CO2 of clean H2</u>	<u>PTC: \$0.60/kg of H2 X %</u>
2.5 to 4	1.2%
1.5 < 2.5	1.5%
0.45 < 1.5	2%
<0.45	6%

- Global Energy -

- **Asia:** A comparison of highspeed rail lines in China, 2010 (left) vs. 2020 (right):



- **Africa and Europe:** Europe must diversify energy supplies away from Russia; meanwhile, Africa needs power. There is one existing and 6 planned transmission lines that [link](#) power systems between Europe and Africa.



- Climate, Sustainability, and Resiliency -



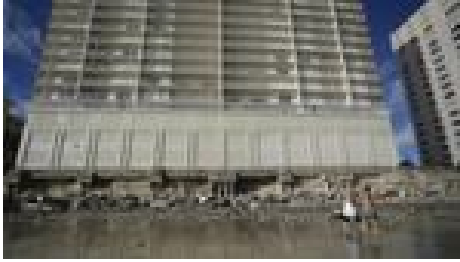
- **Earth Day Quiz** (scroll down to see the answers)

1. About half of the breathable oxygen in the world comes from...?
A. Forests
B. Oceans
C. Wind
D. Clouds
2. Which land-based ecosystem holds the most biodiversity, i.e. concentration of plants and animals?
A. Tropical forests
B. African savannah
C. South Pacific Islands
D. Coral reefs
3. On average, what is the approximate daily home water use per capita in the US?
A. 25 gallons
B. 50 gallons
C. 100 gallons
D. 200 gallons

- **The fourth global coral bleaching event is underway right now**, indicating that ocean conditions are [worsening](#).

- **In 2023, there were 26 "climate-washing" court cases in the US and Europe** (aka questionable corporate climate claims), the highest number of litigated cases.

- **High seafood diets contain significant amounts of PFAS, or "forever chemicals."** Of all seafoods tested, [shrimp and lobster](#) had the highest levels of PFAS compounds.



- **Rebuilding beaches costs more than expected.** For instance, in the last five years the federal government has spent about \$770 million for emergency beach-sand "nourishment" projects on the coasts of Florida, Georgia, and the Carolinas.

- Research and Markets -



- **Phytomining** (*noun; progressive verb*) def.: extracting Rare Earths or critical minerals from soil using "hyperaccumulator" plants. [Metalplant](#) is a startup that extracts nickel from the soil of hyperaccumulator plants; the DoE ARPA-e is committing \$10 million to study phytomining. *Insert:* the soil that grows Glochidion trees often has high amounts of nickel and cobalt.

- **The US set another annual record for ethane consumption in 2023.** *Note:* In the US, ethane is consumed almost exclusively in the petrochemical industry as a feedstock to produce a range of intermediate products, most of which are converted into plastics. Also, US ethane production rose 9% to average 2.6 million barrels per day (b/d) in 2023, driven by record natural gas production.

- In the last two years, **Amazon installed about 17,000 chargers at about 120 warehouses around the US**, making the retail giant the [largest](#) operator of private electrical vehicle charging infrastructure in the US.

- This year, consumers who purchase an EV have the [option](#) to either claim a federal tax credit (as they could in previous years) or claim an equivalent point-of sale rebate. In the first three months of this new option, **about 90% of qualifying electric vehicle buyers claimed the instant rebate option at the dealership.**



- **Tesla has lower-than-expected revenues and is laying off 10% of its workforce;** the company doesn't anticipate revenue growth until it delivers its [next vehicle](#): either the Model 2 or the "robotaxi."

- Electricity & Power -



- Wyoming, Michigan, and Virginia are considering [legislation](#) that would allow and enable matching funds to **support the development of small modular reactor SMR deployment** that can replace coal generation capacity.

- **A significant percentage of electricity demand is driven by weather.** This is the time of year when heating demand begins to decline and cooling demand, especially in the South, begins to increase. Much of the Southeast region is experiencing more than 10 degrees above normal temperatures; parts of Texas, Louisiana, and Oklahoma, as well as Atlanta, Charlotte, and Jacksonville are already experiencing daytime highs around 90 degrees.

- **In March, Texas got more electricity from solar than from coal.**

- **There are about 12,000 solar, wind, and storage projects that are ready and waiting to connect to the grid** (or about 2,500 new requests each year). The new DoE “Transmission Interconnection [Roadmap](#)” aims to speed up connection times by providing more data about existing projects, creating fast-track options for interconnection, and adopting requirements and standards for generation interconnection, among other initiatives. (Note: the PDF roadmap is 125 pages.)

- Universities in the Spotlight -

- **Boise State**, active in a wide range of energy-related work (policy, energy studies, communications, etc.) has [robust partnerships](#) throughout the region, including universities, colleges, and national laboratories.

- The Center of Excellence for Energy ([COE](#)) at **Arizona State** is funded by USAID.

- Price College of Business at **University of Oklahoma** has an [Executive MBA program](#).

- The Lighter Side of Energy -



- Quiz Answers -

1. [Answer: B.](#) More than half of all breathable oxygen comes from the ocean, the majority of which is provided by tiny plants called phytoplankton.
2. [Answer: A.](#) Tropical forests cover less than 7 percent of Earth's land mass but are home to about 50 percent of all living things on the planet.
3. [Answer: B.](#) The US consumes water at twice the rate of other industrialized nations.

- **Energy Proficiency Quizzes:** So, you think you know energy? [Pass an AES proficiency quiz](#) and get a badge for your LinkedIn "certification" profile. Did you know that 90% of recruiters use LinkedIn? Many also turn to American Energy Society to identify qualified applicants. Help them discover you!

- Bulletin Board -

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- **Orrick** has published its [2024 Offshore Wind Report](#). The report is an update on the current OSW market and trends in 20+ key jurisdictions with some forward looking analysis.

- **ClearPath** has [primer resources](#) on Ag-Tech, CCUS, Water-Tech, Industrial Fuel.... Also, **ClearPath launched its Conservative Climate Leadership Program**. Individuals interested in an energy policy internship in DC are encouraged to [apply](#).

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

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

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

- Gratitude -

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