

# ENERGY MATTERS

Soundbite summaries of the energy news you need to know

AN OFFICIAL PUBLICATION OF



AMERICAN ENERGY SOCIETY

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**November 7, 2022**

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## - The Power Read -

- **Oil:** Global diesel fuel inventories are historically low.
- **Renewables:** The BOEM confirmed it will hold an OSW auction on December 6.
- **Policy I:** SCOTUS is hearing a case about race that could impact climate.
- **Policy II:** COP27 takes place November 6–18.
- **Climate:** There is evidence that global emission mitigation efforts might be working.
- **Markets:** SPAC activity is nearly non-existent.

## - News from the Society -



- *Hydrogen Influencers Watchlist:* a global directory of more than 2,000 thought leaders shaping the next energy-tech revolution is now available. Members can download the Executive Summary from the [AES homepage](#) **and** they get the directory, too. [Contact us](#) for more information. Thank you [Ambient Fuels](#) for underwriting the report and directory.

- Attention all ".edu's": **AES has launched a new "Digital Subscription" program for universities and organizations.** For a limited time, we're offering discounts. [Contact us](#) for more information.

- *Coming soon:* AES Energy Awards, including the [Energy Writer of the Year 2022](#), the premier literary award for energy.

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## - Fossil Fuels -

### - Oil -

#### - Spotlight, [diesel](#) fuel:

- In the US, diesel inventories are 20% below the five-year average for this time of year.
- The US has just 25 days of diesel supply in reserve, with some regions even tighter.
- US diesel [reserve](#) has not been this low since 1951.
- In the US, the Northeast is most exposed to the low inventories.
- Diesel prices are about 27% higher than the five-year average for this time of year.
- The world is scrambling for diesel supply ahead of the looming EU embargo on Russian fuel imports, especially eastern Europe.

### - Natural gas -



- On October 25, **natural gas from the Permian Basin, Texas, went negative**; this is the 12th time that these natural gas prices have gone negative in the last 3 years.

### - Coal and mining -

- **Top-5 mines in the world, by ore value (bn\$):**

<u>Mine</u>	<u>Region</u>	<u>Primary owner</u>	<u>Mineral (Secondary)</u>
1. Norlisk	Russia	Norlisk Nickel	Pd, Ni (Cu, Pt, Au)
2. Olympic Dam	Australia	BHP Group	Cu (Au, U308, Ag)
3. Mogalakwena	South Africa	Anglo American	Pd (Ni, Rh, Pt, Au, Cu)
4. Escondida	Chile	BHP Group/Rio Tinto	Cu (Au)
5. Grasberg	Indonesia	Inalum/Freeport	Cu (Au)

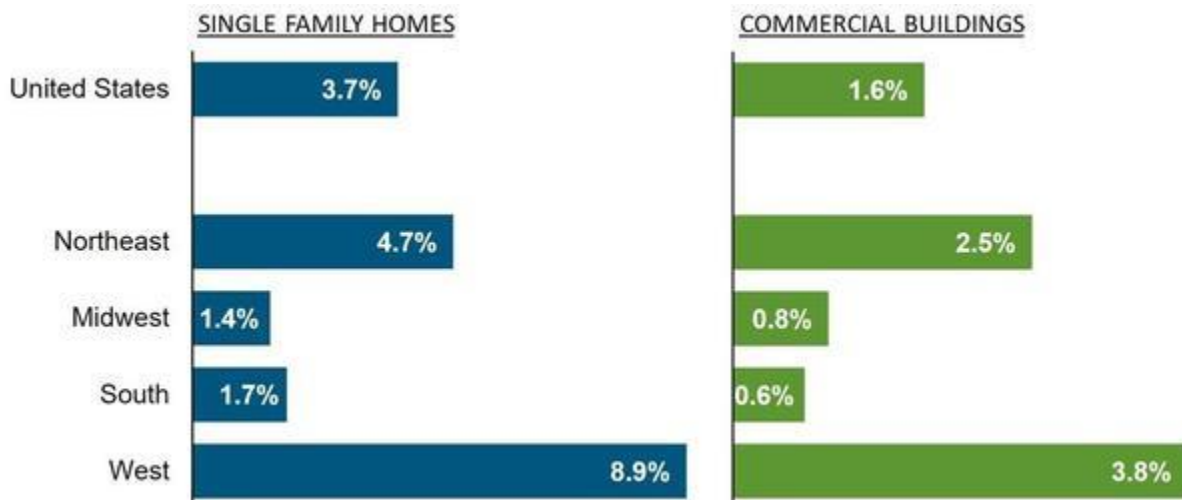
### - Carbon capture and removal -

- It could be said that **the most important component of carbon capture is "MRV"**, or monitoring, reporting and verification. At its core, MRV is a process of accounting, but it also enables accountability. (Access a [Google.doc](#) MRV matrix by Carbon180, or contact us for support).

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## No- / Low-Carbon and Renewable Energy

- **Share of US homes and buildings with small-scale (aka "rooftop") solar, as a percentage of total structures:**



- **EV charging startups have raised more than \$8B in VC/PE investment since 2010**, making EV charging one of the hottest sectors in climate-tech investing.

- Chaozhou, in Guangdong province, China, is building a 43.3-gigawatt [offshore wind](#) project in the Taiwan Strait. (For comparison, Norway has 38 gigawatts total of offshore wind installed capacity.)



- **Construction has started on NEOM, Saudi Arabia**, the futuristic city that will have no roads, cars, or emissions, and will run on 100% renewable energy. The estimated cost to build NEOM is \$500 billion, but the final total will certainly be higher.

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As a Member, you get the [Hydrogen SME Watchlist](#) by AES, a global directory of more than 2,000 thought leaders shaping the next energy-tech revolution.

[Contact us](#) for more information.

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## - Energy Policy & Geopolitics -

- Beltway Buzz -

*Note:* Congress is out of session until after the November elections.

- The most consequential climate case during this Supreme Court session is [Students for Fair Admissions Inc. v. President & Fellows of Harvard College](#), that considers whether Harvard and other universities can account for race when deciding which students to accept. The climate angle: President Joe Biden has committed to address long-standing inequities that have left Black and brown communities more exposed to the effects of rising global temperatures. But **if the Supreme Court rules against Harvard, all federal agencies may be prevented from using racial disparities to justify any/all regulatory policies.** As an AES Member, you have access to our comprehensive archives, including [Energy Today](#); The Four Most Important Energy and Environment SCOTUS Cases.

- **Wilson Sonsini has updated its Clean Energy and Climate Solutions Federal Funding database.** (Editor's note: to our knowledge, this database is the only publicly available listing of clean energy and climate related federal funding opportunities across implementing federal agencies.)

- Global energy politics -



- The 2022 UN Climate Change Conference (aka [COP27](#)) takes place Nov. 6–18, 2022, in Sharm El Sheikh, Egypt. **The US will participate in the conference with a strong negotiating position.**

Consider, for instance, the recent policies that have been passed:

- The [AIM Act](#)
- Bipartisan infrastructure legislation
- Inflation Reduction Act
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- Oil markets are strong (record profits for Chevron, Eni, Equinor...), and yet, **Venezuela finds a way to snatch defeat from sure victory.** Oil majors like Equinor, Inpex, and TotalEnergies are [abandoning](#) operations and leaving everything behind because the country is considering nationalizing the sector ... again.

- In the summer, US President Biden negotiated with and received assurances from Crown Prince Mohammed bin Salman that Saudi Arabia and OPEC+ would increase oil production by ~400K bpd; less

than two months later, the Saudi's and OPEC+ [reversed](#) their agreement and cut production by ~ 2M bpd.

- In Brazil's presidential election, former President Luiz Inácio Lula da Silva defeated President Jair Bolsonaro; **newly elected President Lula da Silva made protection of the Amazon Rainforest a key campaign issue.**

- **France's President Emmanuel Macron criticized the US for its "double standard" energy policies** in which the US has cheap domestic gas but sells it to Europe at much higher prices. (France's imports of US LNG have increased 421% during the first eight months of the year.)

- Germany has [pivoted](#) from total reliance on Russian gas in favor of alternative suppliers (notably, the US). Now, **Germany's gas storage is 97.7% full.** Nevertheless, prices are still expected to be about seven times normal levels this winter.

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## - Climate and Sustainability -

- There is early [evidence](#) that global emission mitigation efforts might be working and that worst-case temperature scenarios that seemed unavoidable are now unlikely to happen.

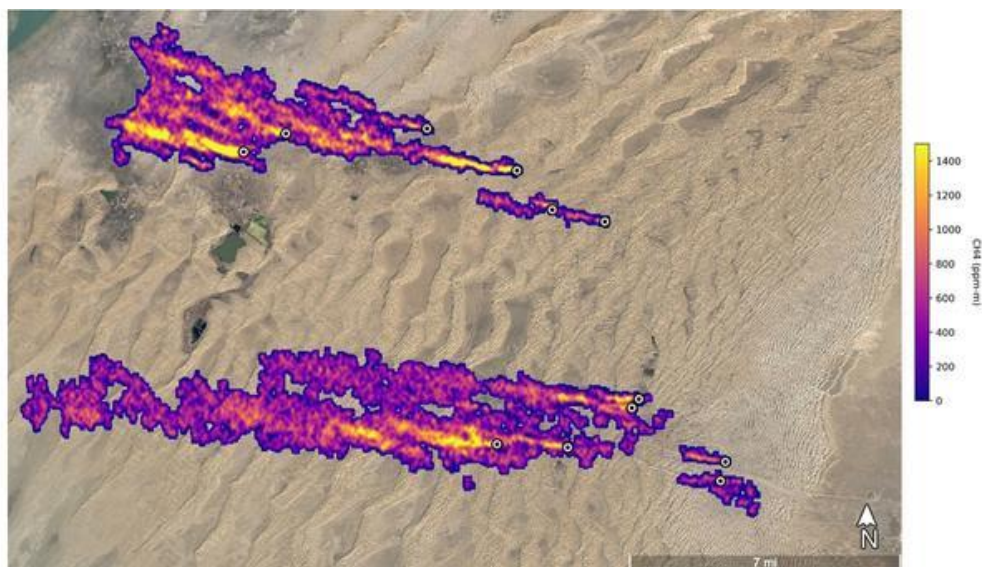
- **A thought exercise** (per Dean Arun Majumdar, Stanford Global Energy Forum, 11.2.2022):

- **The total weight of all humans on Earth in 2022: 0.5 gigatons**
- **The total weight of all carbon emissions in 2022: 40 gigatons**

- [Air pollution](#) from human-made sources (like factories and vehicles) typically have sulfates, nitrates and ammonium, which are more dangerous than air pollution from natural sources (like sea salt, soil, and wildfires), all things like PM2.5 being equal.

- As with all Conferences of the Parties, COP 27 will be a success or failure based on its "[Action Agenda](#)." **The Agenda this year will focus on climate disasters** and whether wealthy nations will offer financial aid, and by extension, assume some responsibility for their own emissions that are changing the climate.

- **A NASA satellite launched to detect dust has discovered huge methane [leaks](#)** (insert).



## - Research and Markets -

- The flood of [SPAC](#) activity in 2020 and 2021 has diminished to a trickle, especially in auto tech, but not because of the recent change in economic outlook by investors. Special acquisition companies were already falling out of favor in Q1 of this year.

- Pitchbook's top-10 most entrepreneurial universities and the AES 12 elite energy universities (unranked) from its report, [Top US Energy Universities](#) (available to Members of AES):

### [Pitchbook top-10 entrepreneurial](#)

1. Stanford University
2. UC Berkeley
3. Harvard University
4. MIT
5. University of Pennsylvania
6. Cornell University
7. University of Michigan
8. Yale University
9. UCLA
10. Columbia University

### [AES 12 energy elites](#)

- CalTech
- Carnegie Mellon University
- Colorado School of Mines
- Columbia University
- Cornell University
- Georgia Tech
- MIT
- North Carolina State University
- Pennsylvania State University
- Stanford University
- UC Berkeley
- University of Texas, Austin

- Spotlight on the oil and gas [workforce](#):

- The average oil and gas worker is 44 years old.
- The sector rehired a majority of the 15,000 workers it laid off during the 2020 crash.
- According to a recent survey, about half of the O&G workforce said they would take an equivalent job in another industry if it were offered.



- The US Bureau of Ocean Energy Management [confirmed](#) that it will hold a **leasing round for five offshore wind tracts** in California's Morro and Humboldt Bays on December 6.

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## - Electricity & Power -

- **Extreme weather has predictable outcomes on the US power grid** (AES [Members](#) have access to the research):

- Floods often cause power outages.
- Landslides cause erosion and undermine the foundations of transmission towers.
- Shifts in land mass damage heavy equipment, such as generators and transformers.
- Explosions happen when electrification equipment comes in contact with water.
- Long-term moisture causes equipment erosion.
- Space weather events affect transmission and generation equipment through geomagnetically induced currents (GICs).

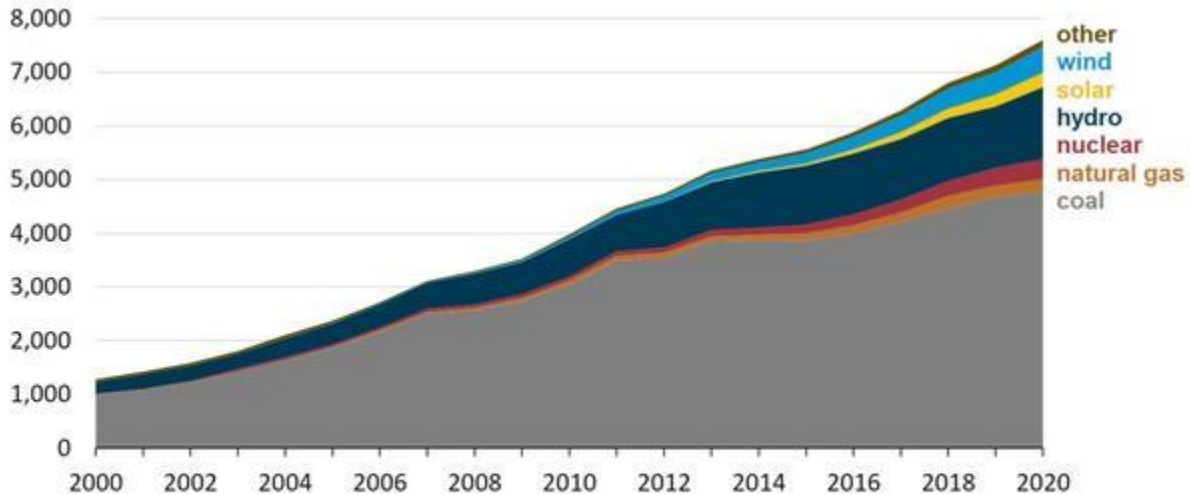
- **Spotlight on utilities:**

- **Xcel Energy will [retire](#) a 1,067-MW coal-fired power plant** in northwest Texas four years earlier than planned and replace it with about 1,900 MW of renewable energy.
- **PG&E submitted an [application](#) to the NRC to continue operating the Diablo Canyon nuclear power plant** until 2030. (Note: the nuclear plant provides about 8.5% of the state's electrical power.)

- **Tennessee Valley Authority (TVA)** is building a BWRX-300 small modular reactor (SMR) at Clinch River in Tennessee; the reactor will begin operating next year.

- Call for presentations at the **National Energy and Utility Affordability Coalition (NEUAC)** conference in San Diego, June 12–15, 2023; [deadline](#) to submit a proposal is Dec. 2, 2022.

- **Net electricity generation in China**, by fuel type (in terawatt hours):



## - Universities in the Spotlight -

- **Indiana University** Energy Justice Lab's [podcast](#) "Just Energy" is about energy justice.
- AES recognizes [new](#) fuel cell research at **Kent State**.
- Boettcher Electrochemistry and Solar Materials Laboratory at **University of Oregon** works on materials that [support](#) solar energy conversion and electrochemical energy storage.
- In case you missed it, the Center for Energy & Environmental Law at **University of Connecticut School of Law** offers a [podcast](#) on climate change and environmental justice.
- An **Auburn University** research team received a \$2.1 million [grant](#) to protect pine forests.
- **College of Charleston** alumni are working to [support](#) environmental activism.
- **Swarthmore College** has implemented its [\(To Zero By Thirty-Five \(20X35\)\)](#) energy plan.
- The Engineering Technology [Program](#) in Smart Grids, Electronics, and Mechanical Engineering at **Buffalo State University** has received accreditation.
- Researchers at **University of Houston** have [created](#) new architecture that improves the efficiency of solar energy harvesting.
- **Creighton University** students and faculty [won](#) the DoE Solar District Cup.

- **Case Western Reserve University** and the **Lawrence Livermore National Laboratory** have [signed](#) a collaborative agreement.

- [Nine Emory University](#) students will attend COP27 as delegates.

- **Kenyon College** [partnered](#) with Ever-Green Energy to develop a Carbon Neutrality Master Plan to reduce the amount of carbon emissions through its energy systems and facilities, while also utilizing soil and vegetation to increase carbon sequestration.

## - Quotes -

### COP27 off to a good start? Not!

"I urge you all to take this opportunity to ... give African nations the means to fight climate change successfully."

– Gabon's President, Ali Bongo Ondimba, asking G7 leaders to make real commitments at COP27, considering that Africa contributes less than 4% of total global emissions.

"The prime minister has been shamed into going to COP27."

– Sir Keir Rodney Starmer, head of the UK Labor Party, on why Britain's Prime Minister Rishi Sunak will attend the global event.

"I have a lot of questions [for Germany]. For starters, are they negotiating on behalf of the climate or for their own financial solidarity."

– EU Commissioner Thierry Breton (France), on what it's like to negotiate with Germany at COP27.

"We've sent ... a few messages trying to figure out how we might be able to resume talks."

– US Special Presidential Envoy for Climate John Kerry, on trying to get Beijing to show up to the scheduled climate treaty negotiations.

## - Bulletin Board -

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

- **Wood PLC** published "[Repurposing gas infrastructure for hydrogen - dream or reality?](#)"

- 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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