

ENERGY MATTERS

Soundbite summaries of the energy news you need to know

AN OFFICIAL PUBLICATION OF



AMERICAN ENERGY SOCIETY

Week of August 16, 2021

- The Power Read –

- [Oil](#): Surging offshore.
- [Coal](#): Surging in China.
- [Low Carbon](#): Surging renewable generation.
- [Policy](#): Surging methane rule-making.
- [Climate](#): Surging emissions.
- [Markets](#): Surging ESG.
- [Wine](#): Surging consumption can reduce emissions (113 grams of CO2/cork).

- JOIN -

- As a Member of AES, you have unrestricted access to all reports, publications and services. But did you know that Organization Members (aka "sponsors") get all Excel datasets? [Contact us](#) to learn about all-access university or organization membership. (We offer special discounts to universities.)
-

- Fossil Fuels -

- Oil -

- **Offshore oil is surging.** In the first half of 2021 there were 21 financial investment decisions ([FID](#)) for \$20 billion with a potential production of 100 MMboe/d:

1. [Farzad B](#) in the Persian Gulf offshore Iran (Indian partners will help bypass US sanctions).
2. [Karish North](#) subsea tieback offshore Israel.
3. [Shenzi North](#) oil field in the Gulf of Mexico.
4. [Bacalhau](#) project offshore Brazil.
5. [Cenli](#) in Bohai Bay offshore eastern China.
6. [NOAKA Valhall](#) project in the North Sea.
7. [The Whale](#) field offshore in the Gulf of Mexico.

- Gas -

- The US is still Europe's **top supplier** of liquefied natural gas (LNG) in the first 3 months of 2021, taking market share from Russia and Qatar, the 2nd and 3rd sources.

- Mining, Minerals and Coal -

- China has committed about \$36 billion to finance 102 gigawatts of **coal-fired capacity** in 23 countries (or more than a quarter of all coal-fired capacity under development outside of China).



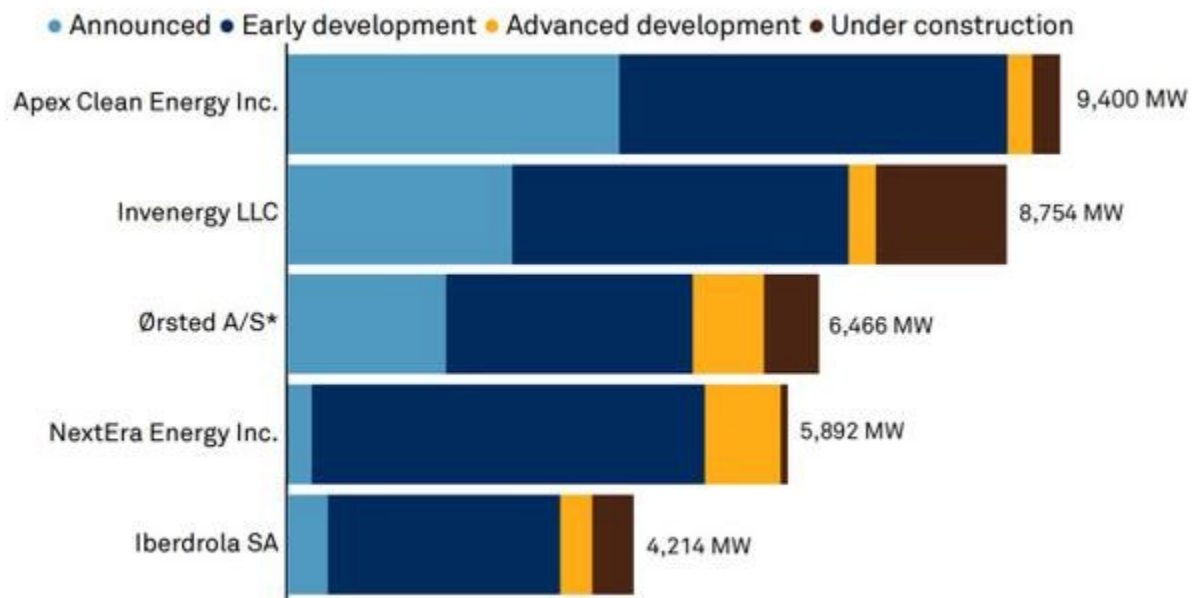
- Carbon Capture -

- Labor Energy Partnership, led by Ernie Moniz, has proposed to the US DoE a **nationwide pipeline network capable of carrying a gigaton of captured carbon dioxide (CO2)**. AES Members have access to a true and correct copy of the [policy blueprint](#) (PDF).

- Low-Carbon Energy -

- In 2020, **renewables** surpassed nuclear and coal for the first time on record.

- **Wind**: The top-5 largest current wind development projects (*insert*):



- [Solar](#): A solar cell consists of an n-type silicon crystal bonded on top of a p-type crystal (also usually silicon); the p-type crystal has a slight positive charge and the n-type crystal has a negative charge. This combination allows the current to flow as electrons excited from the sunlight move toward the oppositely charged plates. However, silicon often carries impurities like pockets of oxygen which degrades electron flow. The industry has long known that gallium would clean up some solar cell impurities, but use of gallium was restricted by a patent. **The gallium patent has expired**; however, most of the world's supply of gallium is controlled China and none by the US.

- [Nuclear](#): **Chinese government scientists are developing a molten-salt nuclear reactor** which runs on liquid thorium rather than uranium, does not need water for cooling, and may be safer than traditional reactors. Testing of the prototype reactor is expected to begin next month in the desert city of Wuwei.

- [Geothermal](#): **Kenya derives about half of its electricity from geothermal sources**; the fastest growing geothermal market is Indonesia.

- Policy -

- The Senate voted 68-29 in favor of the bipartisan infrastructure [deal](#). Here's a breakdown of how much money is related to energy and the environment:

- **Energy Committee: \$198 billion** for clean electricity; consumer rebates to weatherize and electrify homes; financing for domestic manufacturing of clean energy and auto supply chain technologies; federal procurement of energy efficient materials; climate research; hard rock mining; and Department of Interior programs.
- **Agriculture Committee: \$135 billion** for conservation, drought and forestry programs to help reduce carbon emissions and prevent wildfires; clean energy investments; agricultural climate research; Civilian Climate Corps funding; and debt relief.
- **Environment and Public Works Committee: \$67 billion** for low-income solar and climate-friendly technologies; clean water affordability and access; EPA climate and research programs; federal investments in energy efficient buildings and green materials; Appalachian Regional Commission; investments in clean vehicles; and a methane polluter fee to reduce carbon emissions.

Note: The House has to pass the infrastructure bill before President Biden can sign it into law. Meanwhile, Democrats are also trying to pass a second, larger spending plan to fill out Biden's economic agenda. Democrats have narrow majorities in Congress, and passing both bills won't be easy. Some House progressives have conditioned their support for the bipartisan bill on the Senate first passing the larger spending plan. Some House moderates want a quick vote on the bipartisan bill. And, Senators Manchin and Sinema have reservations about the spending plan's price tag.

- *Special update:* The Biden administration is finalizing rule-making for a new energy/environment bill that draws on the "Restoring Science" [Executive Order 139990](#). Though the proposed act will address many topics, its primary focus will be on methane emissions -- as opposed to the Clean Power Plan under Obama, which focused on carbon, or the Affordable Clean Energy Act under Trump, which sought to undo much of the CPP. **The Biden team will publish ambitious new rules on methane emissions in the Fall of this year**, right before COP26. (Thank you SME [Brittany Bolen](#) of Sidley Austin.)

- **The US Department of Commerce is contributing \$3 billion to coal communities**, including \$300 million in [economic redevelopment](#) projects.

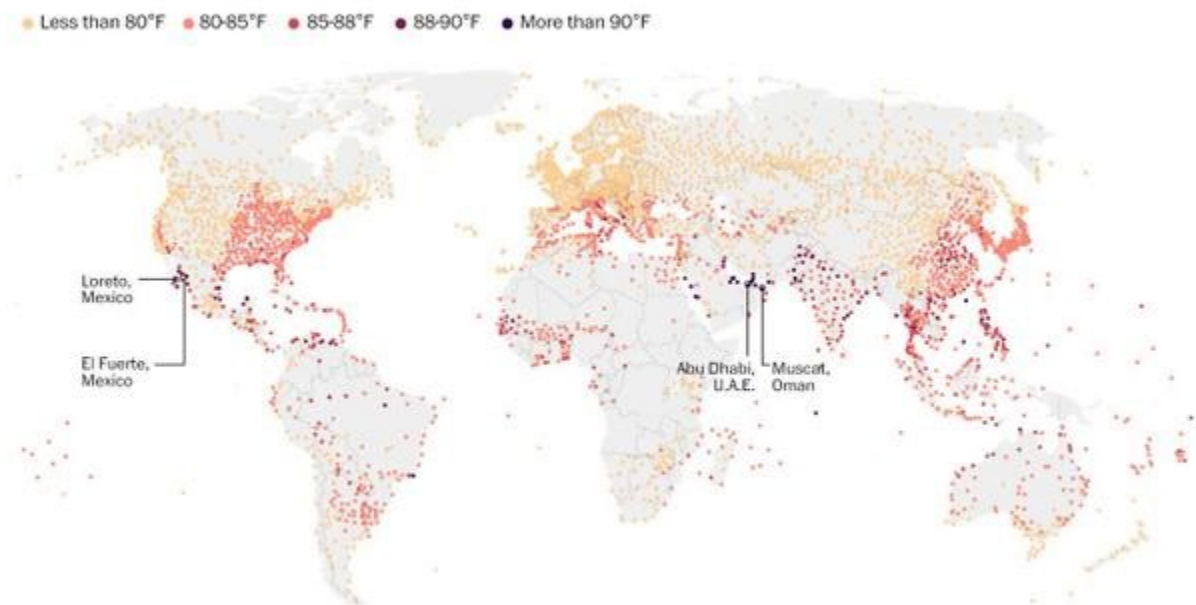
- **Prices for copper are increasing** because members of the union at BHP Escondida mine, the largest [copper mine](#) in the world, voted to reject the final labor contract offer and approved a strike. (Note: copper is used as a highly efficient conduit in a variety of energy sectors like renewable energy systems, including solar, hydro, thermal and wind energy.)

- Climate and Sustainability -

- The IPCC released its [6th Scientific Assessment](#). *Summary*: nations have delayed curbing their greenhouse gas emissions, which means that warming of 1.5 degrees Celsius over the next two decades is very probable.

- In Siberia, Russia, one of the coldest regions on Earth, a [wildfire](#) has been burning for about two months and has destroyed an area larger than France. [Other wildfires](#) include Greece, Algeria, British Columbia (Canada), Turkey, Italy, Oregon, Washington....

- A "[wet-bulb](#)" temperature: the highest "temperature + humidity" that the human body can handle. Wet-bulb temperatures have more than doubled in frequency since 1979. *Insert*: observed global extreme wet-bulb humid heat.



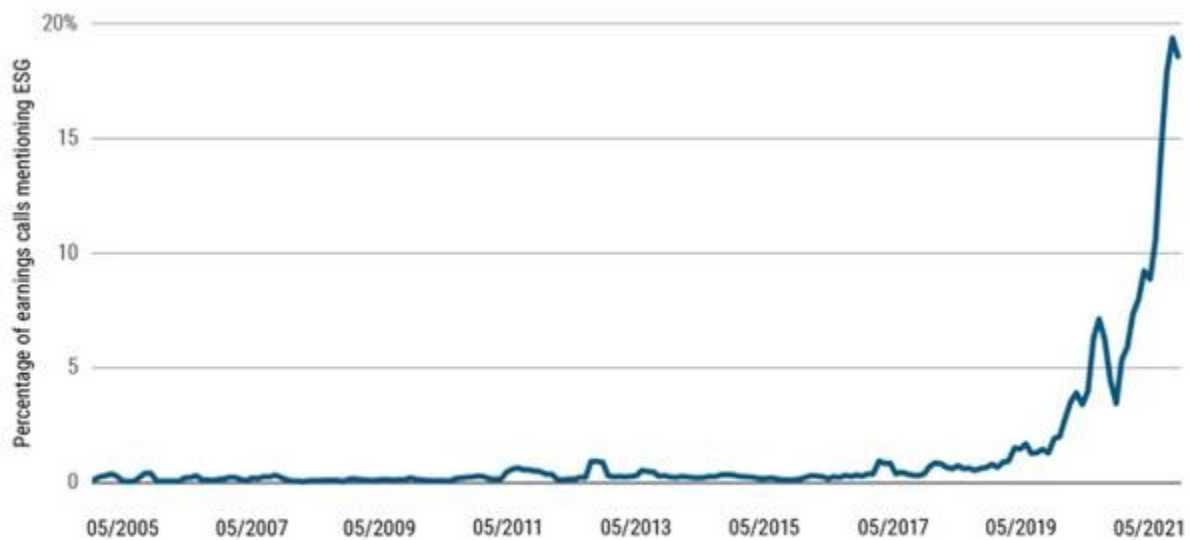
- The [Dixie Fire](#) in Northern California is now the largest single wildfire in recorded state history (the entire Gold Rush town of Greenville was destroyed). PG&E disclosed that its equipment probably caused the fire.

- As a result of years of perpetual droughts and floods, **Australia now has a [mouse](#) problem.**



- Research and Markets -

- **Mentions of environmental, social, and governance ([ESG on board calls](#))** was hovering between 0% to 1% in 2018, rose to 5% 2019, and by 2021 was 19%.

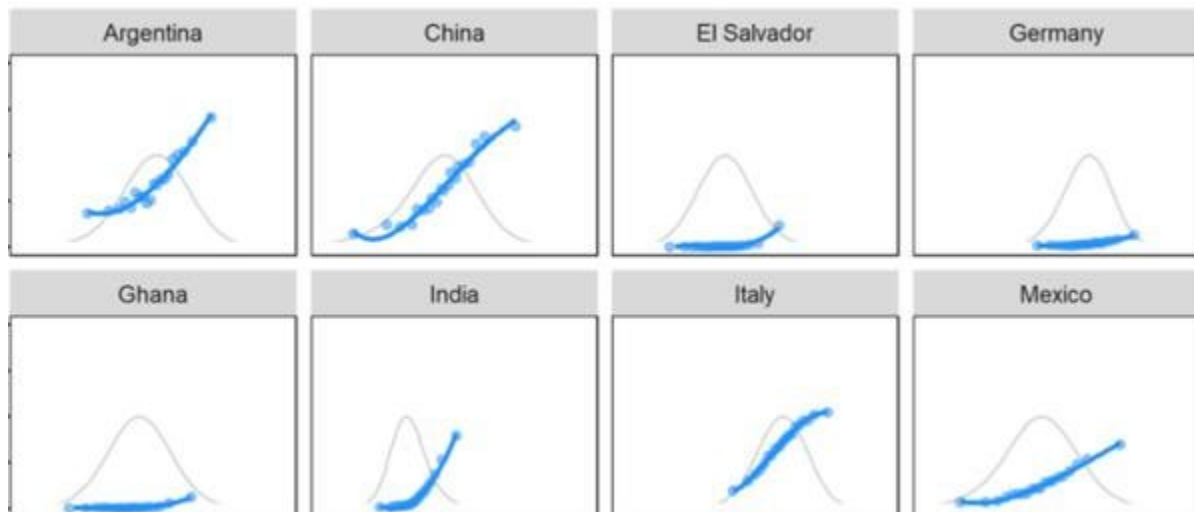


- **Each cork in a wine bottle contributes to an estimated [carbon offset](#) of 113.2 grams of CO₂/cork (or -112g net carbon emissions).** After harvesting, each natural healing of cork-bark sequesters a measurable amount of carbon, all without killing the tree. Cork is stripped for harvest in late spring or early summer and the tree heals by forming a new layer of cork.

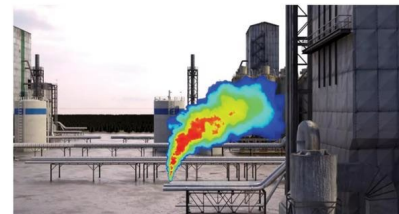
- A large plane (like a Boeing 747) uses on average [1 gallon of fuel every second](#) it is in air, or about 5 gallons per mile.

- **Spotlight** - [air conditioners](#). *Insert:* air conditioning “adoption curves” for various countries with different income levels; the horizontal axis measures annual household income and the vertical axis measures the share of households with AC units. *Note:* in almost all cases, households purchase air conditioning units when annual income reaches \$10,000 USD and then levels off at high income levels.

- Every hour, 10,000 new air conditioners are sold (or about 100 million units/year).
- A typical air conditioner uses 20 times as much electricity as a ceiling fan.
- Refrigerants used in air conditioning are the most harmful greenhouse gasses.



- [Honeywell](#) has launched four new technologies to help buildings manage and mitigate emissions and inefficiencies, including an infrared device to identify emission leaks.



- Electricity, Power, Efficiency, and the Grid -

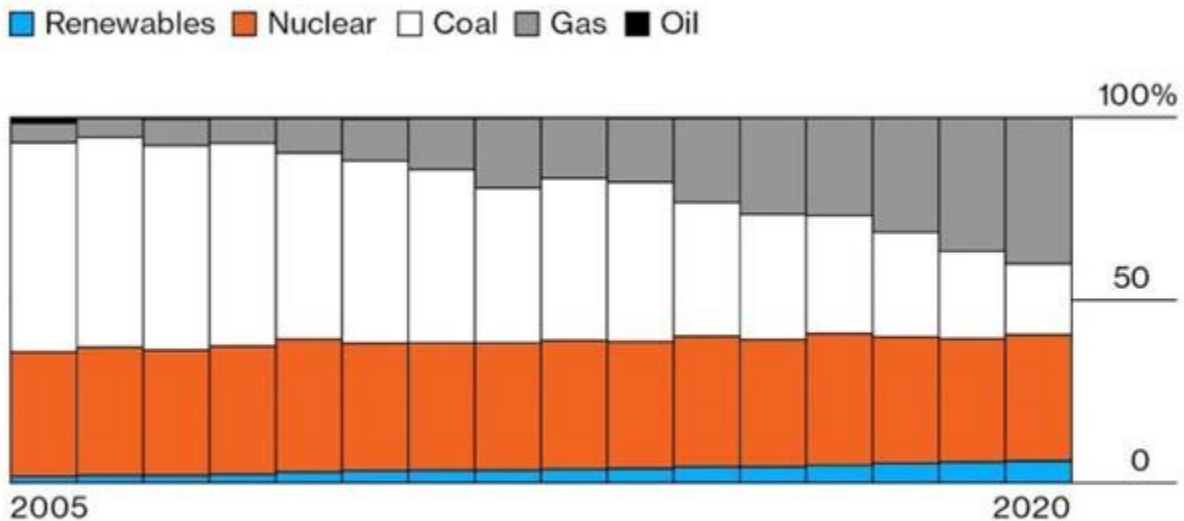
- Per capita **residential electricity use has fallen 5% in the US since 2010** due to warmer weather and energy efficiency improvements. (*Note:* From 1960 to 2010, per capita US residential electricity use increased by an average of 3% per year.)

- Continuing, **Hawaii uses the least residential electricity per capita** (~2,018 kWh per person) and Louisiana, Alabama, and Mississippi use the most (~6,663 kWh per person). Arizona's electricity use is increasing at the [fastest](#) rate of all US states (+10%/year).

- **Request for proposal:** LNG Training for the Electricity Generating Authority of Thailand. Please submit your offer to Ms. [Sarah Blanford](#).

- Spotlight PJM -

- PJM Interconnection LLC, a for-profit private corporation, runs the country's biggest electricity grid: parts of 13 states from the New Jersey Shore to the Mississippi River.
- PJM's market has 65 million people (one-fifth of the US population) and 85,100 miles of high-voltage transmission cables.
- About 1,400 generators supply the energy for the PJM grid.
- PJM headquarters are in Valley Forge, Pennsylvania.
- The organization was originally a cross-border experiment. In 1927, three utilities—one in New Jersey and two in Pennsylvania—formed a joint power pool in which each company could buy cheaper electricity from the other plants.
- In 1997, the FERC named PJM the first Independent Systems Operator (aka "grid") in the US; then, in 2002, to encourage competition in power markets, FERC identified PJM as the first regional transmission organization, or RTO.
- **PJM has the fewest outages** of all seven ISOs or RTOs in the US.
- **PJM generates 6% of its power from renewable energy sources - the least of all the system operators in the US** (as a comparison, California gets 40% from renewable sources and Texas gets 25%). *Insert - power generation mix on the PJM:*



- Cybersecurity Spotlight -

- There are about **140 competent cyber-terrorists** actively **targeting** the energy sector right now, up from 87 in 2015.

- Member Bulletin Board -

As a Member, you can reach 135,000+ readers with your message ... *free!*

[Contact us](#) to post an announcement.

- EPICenter Energy Incubator & Accelerator (EEIA) provides curriculum, coaching, mentorship, connections, and services for startups ... and is [accepting applications!](#)
- Scale For ClimateTech is recruiting - one of the few programs in the country that offers step-by-step manufacturing support, prototype to production. [Apply](#) by Sept. 13!
- [EdgeEnergy](#) announces the promotion of Greg York to the position of President.
- Check out the new Lamar University Midstream [website](#).

- Hot Energy Jobs –

[Contact us](#) to post a job, find qualified candidates, or fill difficult positions

In case you missed it, see the special *Energy Today* issue: [Hot Jobs Market](#).

- EY is looking for a Global Energy Policy, [Assistant Director](#).
- The European Bank is looking for a [Principal](#) to work in their Reconstruction and Development offices in either Cairo or Casablanca.
- Idaho National Lab is looking for a [Simulation Lead](#) for Innovative Nuclear Energy Solutions.
- Cushman & Wakefield is looking for an [Energy Manager](#) (Basking Ridge, NJ).
- San Jose State University is looking for an [Energy & Utilities Analyst](#).
- The University of Oregon is looking for a [Director of Utilities & Energy](#).
- *Featured:* The California Energy Commission is looking for an [Associate Energy Specialist](#) (Sacramento, California).
- CPI is looking for a [VP of Energy](#).
- Virginia Tech is looking for a [Director of Climate Action](#).
- Lucid Motors is looking for a [Manager of Smart Energy](#) (Newark).
- Piper Maddox is looking for a [Senior Energy Analyst](#) (Dallas, Texas; remote).
- PwC is looking for a [Director of Strategy & Energy](#) (San Francisco).
- [3Degrees](#) has a lot of job openings!

- Quotes -

A legend speaks ...

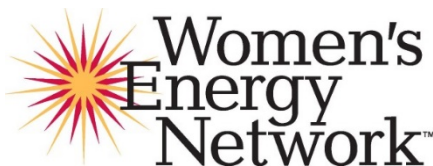
"Let's be clear: the frequent comparison of the fossil fuel and tobacco industries is nonsense. Fossil fuels are a valuable energy source that has done yeomen service for humankind. One gallon (3.7 liters) of gasoline (petrol) contains the equivalent of 400 hours of labor by a healthy adult. Fossil fuels raised living standards in much of the world."

- [James Hansen](#) (blog post June 2021), climate activist and former NASA Scientist.

- 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**



Unearth

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**