

ENERGY MATTERS

Soundbite summaries of the energy news you need to know

AN OFFICIAL PUBLICATION OF



AMERICAN ENERGY SOCIETY

May 24, 2021

- The Power Read -

- **Trend-spotting markets:** Growth in oil, gas, carbon capture, and lithium.
- **Coal:** Mining comminution uses 4% of global electricity.
- **Jobs, jobs jobs:** Google, Microsoft, European Bank, Johns Hopkins ...
- **Tech-to-Market:** The National Venture Capital Association (NVCA) published a [paper](#) on "The American Jobs Plan and the energy-tech innovation ecosystem."

- News from the Society -

We're hiring! [Contact us](#) for more information - we begin interviews soon!

- **Managing Editor:** Primary focus is *Energy Today*, the e-magazine for AES; strong writing skills required; P/T with option to work remotely.
- **Community Manager(s):** Primary focus is Member acquisition, service, and retention; F/T with option to work remotely.
- Did you know that as an AES Member you have unrestricted access to *all* of the benefits, reports, publications and services that the Society has to offer?
- But did you also know that Organization Members (aka "sponsors") get all Excel datasets? [Contact us](#) for information about Organization Membership.

The American Energy Society will be taking Memorial Day as a holiday.

- Fossil Fuels -

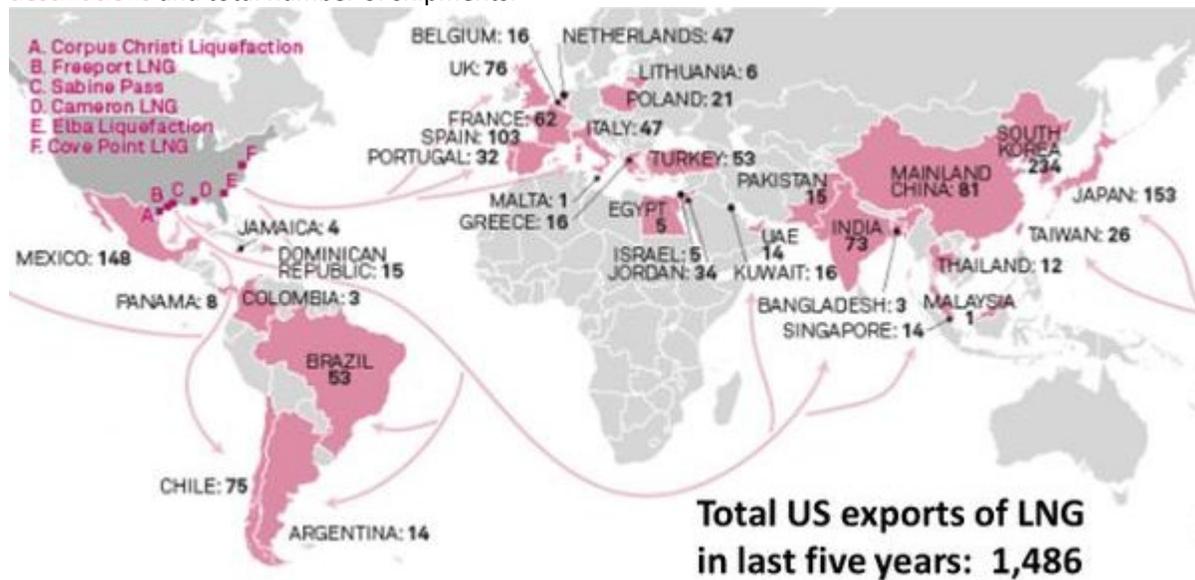
- Oil -

- Oil producers are responding to the recovering economy. *Insert:* regions with [increasing](#) upstream (production) activities.



- Gas -

- All six US LNG export facilities are currently operating at full [capacity](#). In the last five years, there have been a total of 1,486 cargo LNG [exports](#) from the six major US terminals. *Insert:* [international destinations](#) and total number of shipments.

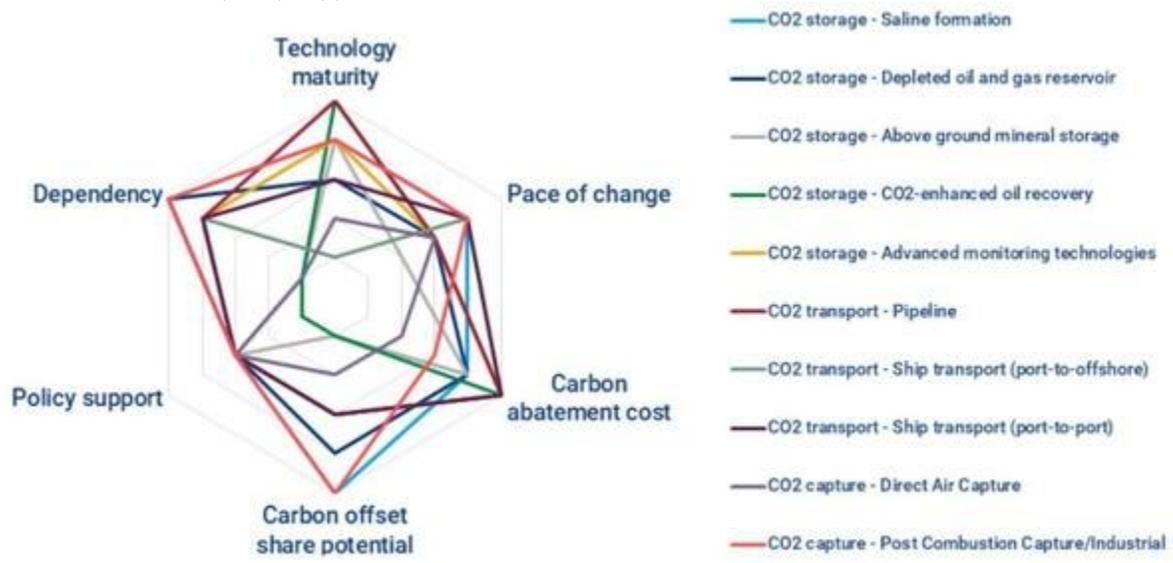


- Mining, Minerals and Coal -

- *Featured:* Every coal fired power plant in the world has a specific size requirement, and the same is true for all industries that require ore from waste rock as well as metal oxide powders. The process of crushing rock to a manageable or usable size is called comminution (def: the reduction of solid materials from one average particle size to a smaller average particle size, by crushing, grinding, cutting, vibrating, or other processes). [Mining comminution](#) (grinding) consumes about 4% of electric energy globally.

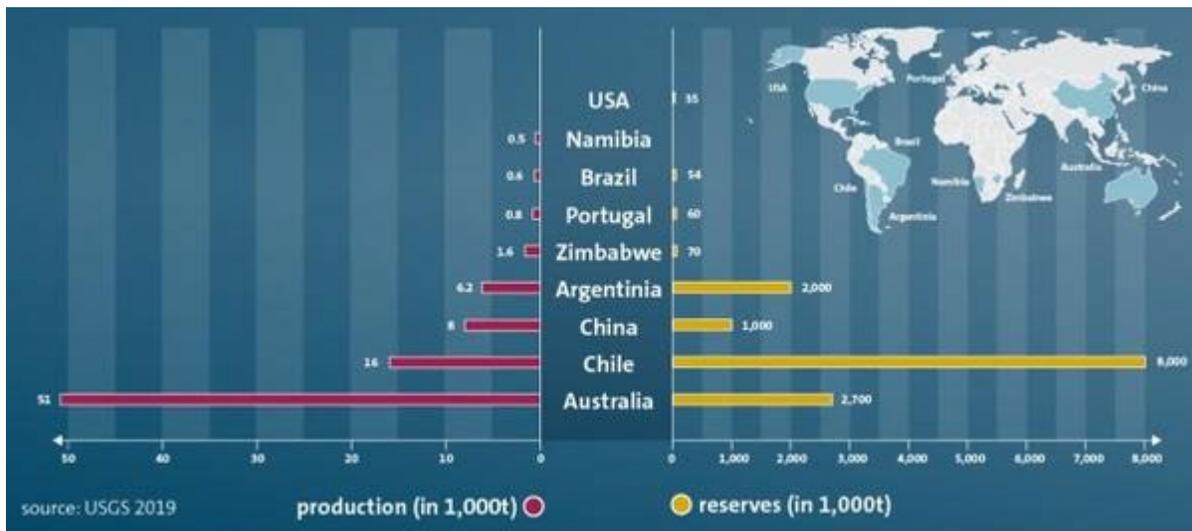
- Carbon Capture -

- A [comparison](#) of all types of carbon capture and storage, by maturity of the technologies (left side chart). Example: CO2 transport by pipeline (in red) is technologically mature (farthest from the center) even without much policy support.

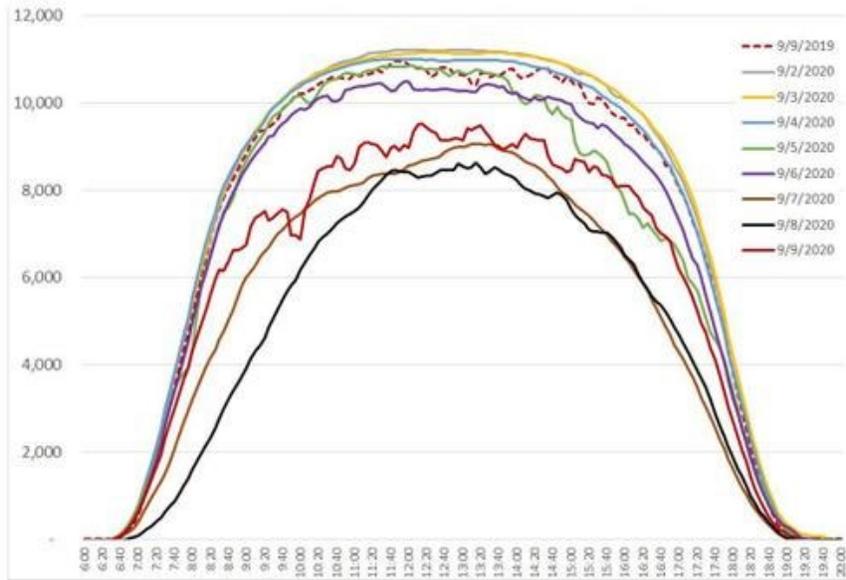


- Low-Carbon Energy -

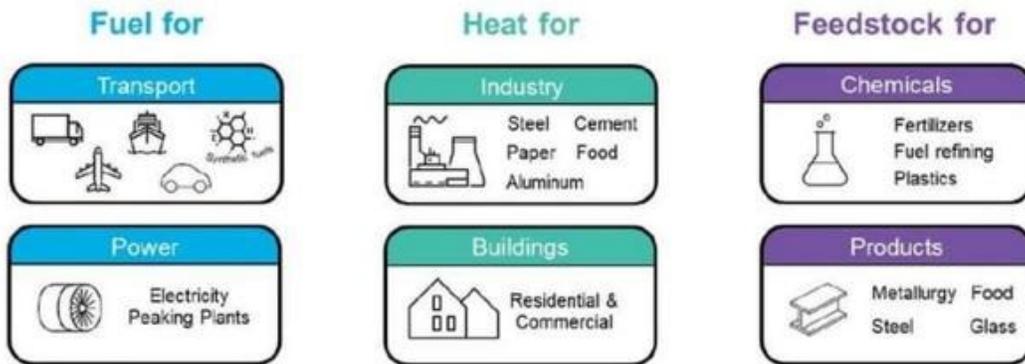
- A comparison of countries with major [lithium](#) production and reserves (insert):



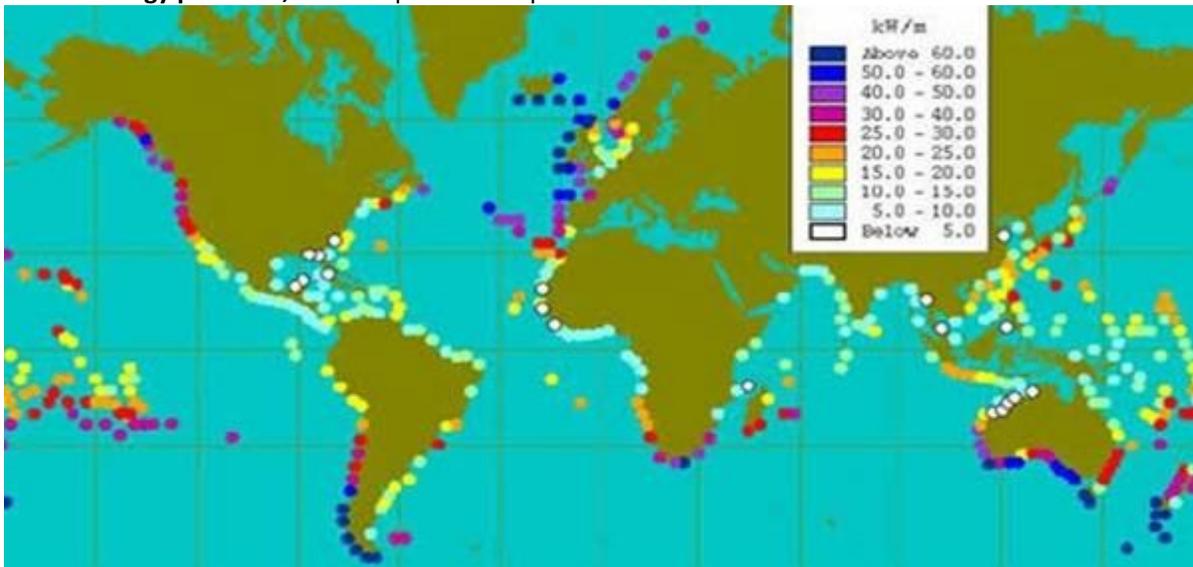
- The western US is entering wildfire season. *Insert: how smoke from wildfires affects solar supply*, as a comparison during one week in September last year. *Example:* the dotted red line ---- is the amount of solar production on 9/9/2019 - the year before the fires. However, wildfires caused solar supply to decline 39,000 MWh on 9/8/2020, or -37% (lowest black line). Source: CAISO.



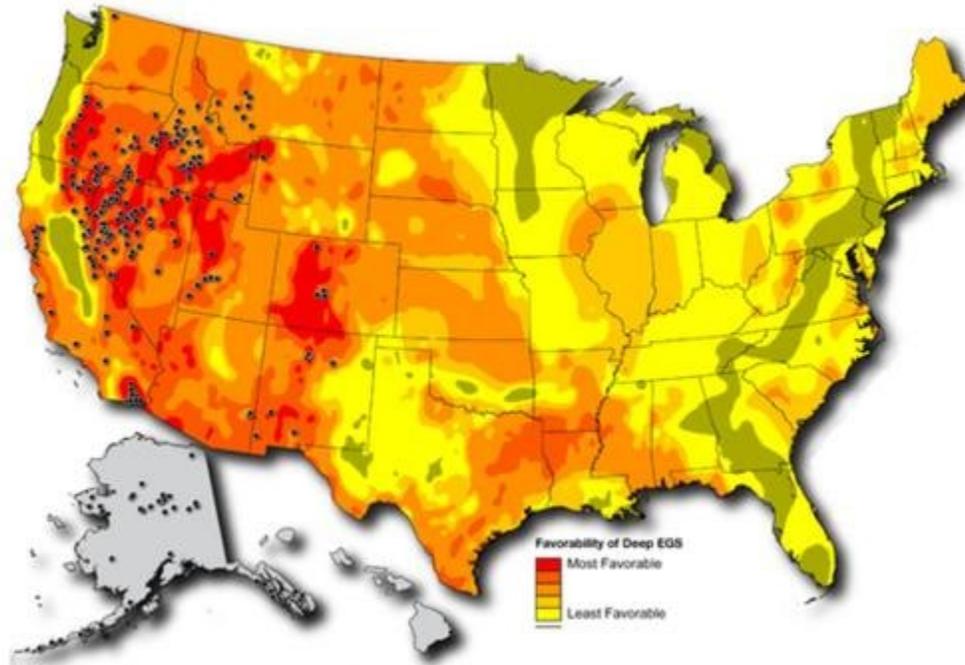
- The multiple uses of hydrogen:



- Wave energy potential, as a comparison of optimal locations:



- Geothermal potential in the US, as a comparison of **most** and **least** favorable locations:



- Policy -

- **The Biden administration will release its full budget request for FY 2022 on May 27.** Unlike the \$1.52 trillion "[skinny](#)" budget Biden released in early April, the full release will offer more details about spending categories and amounts over a longer time frame.

- In [BP v. Mayor and City Council of Baltimore](#), the city of Baltimore was seeking to hold oil and gas companies responsible for their role in climate change, arguing that the companies knew that the use of fossil fuels would lead to global warming but continued to produce and sell fossil fuel products anyway. **The Supreme Court did not weigh in on the merits of the city's case but focused on procedure.** By a [vote of 7-1](#) (Justice Samuel Alito did not participate), the justices agreed with the companies, which include BP, Chevron and Exxon Mobil, that federal appeals courts have the power to review an entire order. The city had asked the federal district court to send the case back to the state because there was a greater chance of a more sympathetic court, a procedure known as "remand." As an AES Member, you have access to the [Three Most Important Supreme Court Cases in the History of Energy](#) in *Energy Today* (vol. 5.3).

- The International Energy Agency (IEA) took a much stronger position than it has in the past when it identified [400 action items](#) that the world must complete to get to "Net-Zero" carbon emissions, including no new fossil fuel boilers after 2025 and no new gasoline powered cars after 2035. OPEC called the report "[destabilizing](#)."

- In a recent [Survey of Federal Funds for R&D](#), funding increased by about \$9 billion in FY 2020, after a \$13 billion increase in FY 2019.

- Most states and cities in the US pay for road repairs with a gas tax, a **policy that does not provide sufficient funds in regions that have a larger percentage of electric vehicles**. The Texas legislature is considering a tax on all EVs ([State Senate Bill 1728](#)) which would charge an additional tax of \$200 to \$400 for each EV as a way to make up for lost gas tax revenues.

- **China has about 20 million tons of PV panel waste**, the largest amount of solar trash worldwide, but [no regulations](#) on recycling of hazardous materials like sulfuric acid and phosphine gas as well as toxic metals like lead, chromium, and cadmium.

- Climate and Sustainability -

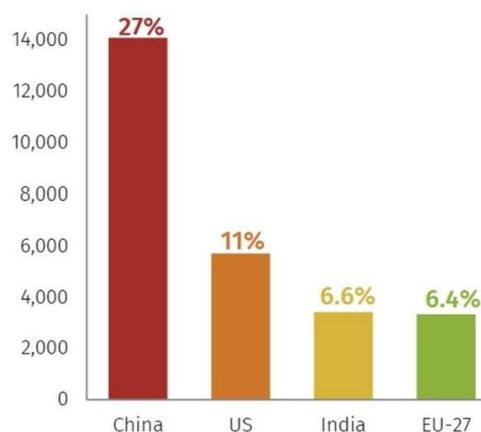
- While the Social Cost of Carbon receives a lot of attention, **the [social cost of methane](#) is a lot less understood**. AES Members have access to a new survey about [measuring SCM](#).

- **A methane reservoir below the permafrost seabed of the Laptev Sea is now [bubbling](#) at the surface**.

- **GHG (greenhouse gases) are described as a "basket" of six gases**: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and the so-called F-gases (hydrofluorocarbons and perfluorocarbons) and sulphur hexafluoride (SF₆).

- For the first time, Exxon Mobil Corp. [disclosed emissions data](#) on Scope 3 customers' use of its fuels and other products. **Emissions from petroleum-product sales were equivalent to 730 million metric tons of carbon dioxide in 2019** (about the same as Canada and the highest of all major Western oil companies). *Note*: Exxon prefers to focus on Scope 1 and 2 emissions, which are within its direct control, rather than emissions from the use of its products, which depends on demand from customers.

- Related, in the last full year prior to the pandemic, **China contributed 27% of the total global ghg emissions, exceeding the total emissions of the next three emitters, but also, for the first time, surpassed the emissions of all developed countries combined**. The US contributed 11% of the global total, India 6.6% of global emissions and the EU 6.4% (*insert*, in million metric tons of CO₂e.) AES members have access to the research [paper](#). *Editor's note*: The US is still the largest emitter of GHS on a per capita basis.



- Research and Markets -

- **Spotlight: The National Venture Capital Association (NVCA) published a paper on how President Biden's American Jobs Plan will affect the energy-tech innovation ecosystem.** AES Members and Friends have access to the [paper](#). (As an AES Member, you have access to the special report, [Empowering Impact](#), a survey of all incubators of energy-tech in the US. [Contact us](#) if you are having trouble logging into your account.)

- Clean Energy Ventures released a **calculator to compare an investment's GHG reduction potential with investment criteria.** AES Members have access to the [calculator](#).

- **Four different carbon capture technologies** developed at SRI (formerly the Stanford Research Institute), tested by NETL national laboratory, and deployed at the Technology Centre Mongstad in Norway were purchased by Baker Hughes.

- New research has found that some flaws with lithium-ion batteries can be addressed by [lithium-metal batteries](#). As an AES Member, you have access to Energy Today, "[More Storage!](#)"

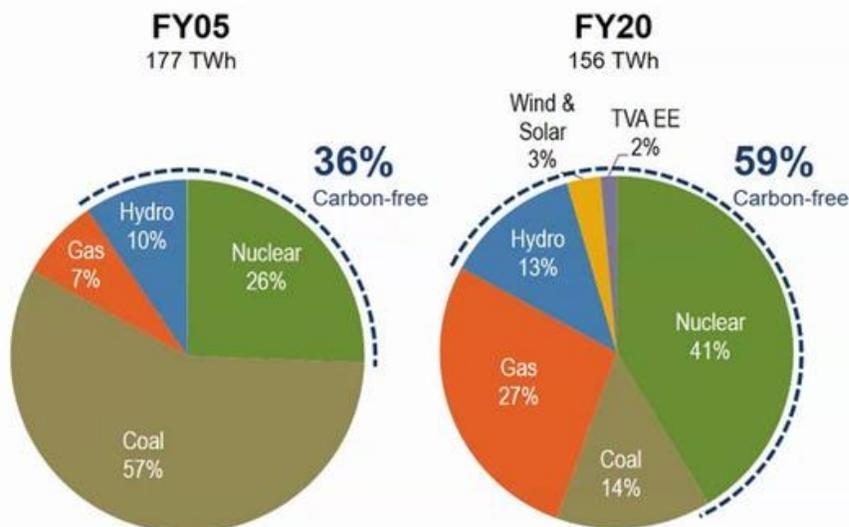
- Spotlight - emerging university-based energy programs (as an AES Member, you have access to the special report, [Top US Energy Universities](#)):

- The [Harnessing Plants Initiative](#) at the Salk Institute
- LiSA, the [Liquid Sunlight Alliance](#), co-hosted by CalTech
- [Building Bridges in a Backpack](#), at the University of Maine
- University of Wisconsin, **new flooring can convert footsteps into usable electricity.** AES Members have access to the peer reviewed [paper](#) (insert).



- Electricity, Power, Efficiency and the Grid -

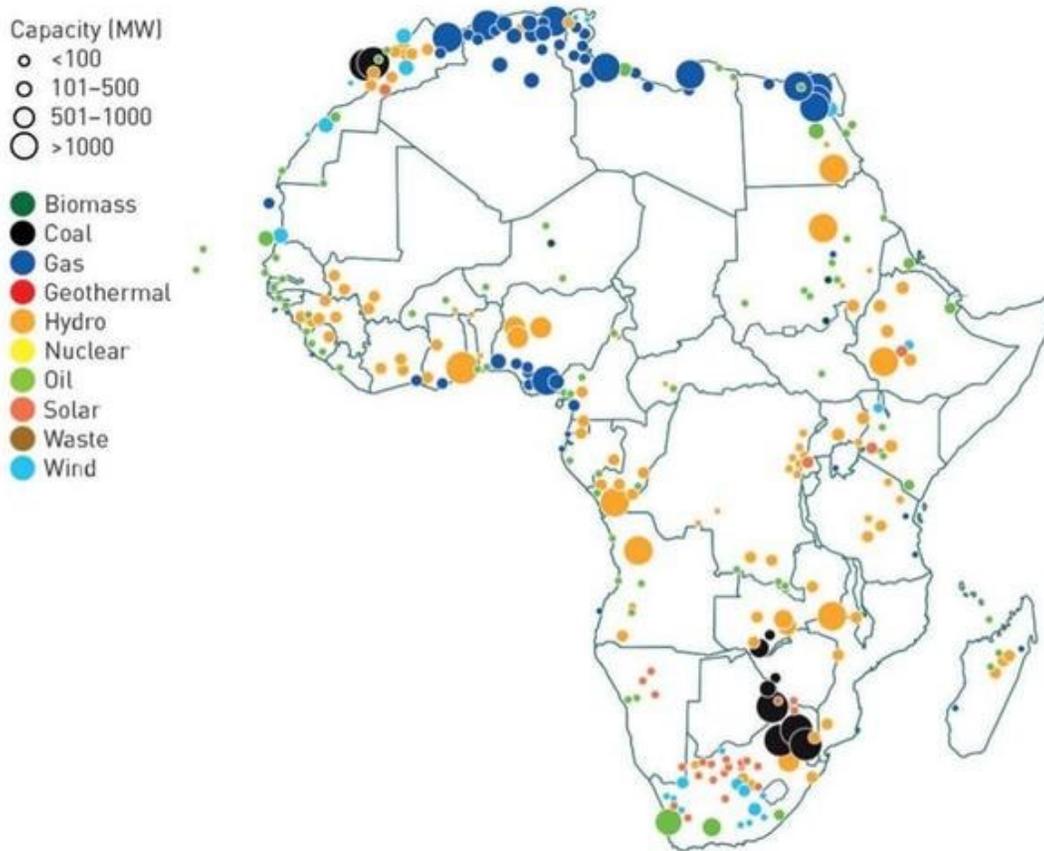
- **The Tennessee Valley Authority (TVA) energy mix, a comparison of 2005 vs. 2020:**



- Average retail electricity rates, a comparison by state:



- Power plants in Africa, by fuel type (insert):



Cybersecurity Spotlight

- The [cyberattack](#) that caused Colonial Pipeline to temporarily halt operations (May 7 - 10) disrupted the distribution of refined petroleum products such as gasoline, diesel, heating oil, and jet fuel to several East Coast markets from Houston, Texas to Linden, New Jersey (*insert*).



- Member Bulletin Board -

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- **May 24 - 26: ARPA-e virtual [Energy Innovation Summit](#)**
- In a new report, [JP Morgan](#) has identified companies that will reach their net-zero and/or negative carbon goals ahead of schedule
- June 1: Women in Cleantech & Sustainability applications for [WCS Scholarship](#) are due
- June 15 - 16: [ACORE Finance Forum](#)
- June 22 - 25: H4X Labs Deep-Tech free virtual [conference](#)
- AES Members and Friends have access to a [summary review](#) (PDF) of China's Belt & Road Initiative by IFTF
- [NextCorps](#) is going to launch a [climate-tech](#) program; [contact us](#) for more information

- Hot Energy Jobs -

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

- Google is seeking a [Sustainability Lead, Global Infrastructure](#)
 - Microsoft is seeking a [Director of Gaming Sustainability](#)
 - European Bank is seeking a [Principal Economist for the Energy Sector](#), London, UK
 - Bruegel, a Brussels-based economic think tank, is looking for a [Director of Energy Policy](#)
 - The University of Oregon is looking for a [Director of Utilities and Energy](#)
 - Johns Hopkins University has a number of openings related to energy, including [adjunct faculty](#) to teach Wind Energy, Technology and Policy
 - BMNT is seeking a [Program Manager](#) that would oversee innovation strategies that support the naval forces. Can be based in California, Washington, DC, or Austin, Texas.
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- Quotes -

History now

"This probably is the most exciting time in the power system history in the last 50 years."

- Ben Kroposki, director at the National Renewable Energy Laboratory

"There is no need for investment in new fossil fuel supply in our net zero pathway ... and no new coal mines or mine extensions are required."

- One of 400 recommendations in the recent IEA Net-Zero climate report.

"This [moment in history] is perhaps the greatest challenge humankind has ever faced."

- Fatih Birol, Executive Director, International Energy Agency

- Gratitude -

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