

ENERGY MATTERS

Soundbite summaries of the energy news you need to know

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AMERICAN ENERGY SOCIETY

June 27, 2022

- The Power Read -

- **Policy:** In other SCOTUS news ... the Justices are expected to rule on *West Virginia vs. EPA*, one of the most consequential court decisions in recent US history.
- **Fossil:** The world is short on energy, and the fossil fuel industry is benefitting most.
- **Policy II:** Russia's invasion of Ukraine increased the price of oil by about \$30 per barrel; meanwhile, Russia is generating record O&G revenues.
- **Low-Carbon:** Congress appropriated funding for four regional DAC hubs, and the US DoE approved a \$500M guaranteed loan for a hydrogen hub in Utah.

- News from the Society -

- July 7–8, the American Energy Society co-hosts the 12th annual SISE Conference: [Celebrating the Prosumer](#), in partnership with the University of Illinois, Chicago, and Argonne National Laboratory.

- *Sneak peek:* AES will soon publish the **Hydrogen SME Watch List**, a global directory of thought leaders shaping the next energy-tech revolution. [Contact us](#) for more information.

- Fossil Fuels -

- *Special insight* - The world is short of energy right now, and the gap is affecting all sectors. The fossil fuel industry has benefited the most from this historic imbalance:

- Global **demand for oil is voracious and unrelenting**, and [China](#) is now returning to the market.
- In May 2022, the **natural gas price averaged \$8.14 MMBtu** (million British thermal units); exactly one year earlier, it was \$2.91/MMBtu ... and still [demand](#) is growing.
- In the US, **nine new oil and gas fields will come online in 2022**, eventually accounting for 5% of total natural gas production and 14% of crude oil production.
- [Petrochemicals](#) (*note:* most petrochemical products are manufactured using crude oil and natural gas):

- The petrochemical industry is growing extremely fast (+6% annual growth rate), especially construction, textile, medical, pharmaceuticals, consumer goods, automotive, and electronics industries.
 - The highest demand is for ethylene, propylene, and benzene, used for packaging, electronics, plastics, and rubber industries.
 - Asia is the fastest growing petrochemical market, primarily due to positive regulatory policies of national governments.
- **The coal industry in the US is growing, especially [metalurgical coal](#)** for the steel industry, due in part to federal infrastructure investment.

- Carbon Capture -

- *Sneak peek:* **Congress appropriated an unprecedented \$3.5B investment to build four regional DAC hubs** (as part of President Biden's infrastructure deal). The US DoE has some wiggle room in eligibility and selection requirements, and their recent [notice of intent \(NOI\)](#) to distribute these funds offers a sneak peek into the future. To begin preparing for upcoming DAC FOAs, AES Members should...

- Watch for deadlines; the US DoE will issue a standard and accelerated track
- Confirm eligibility
- Coordinate with the appropriate federal program
- And, most important of all, prepare a net-zero project plan

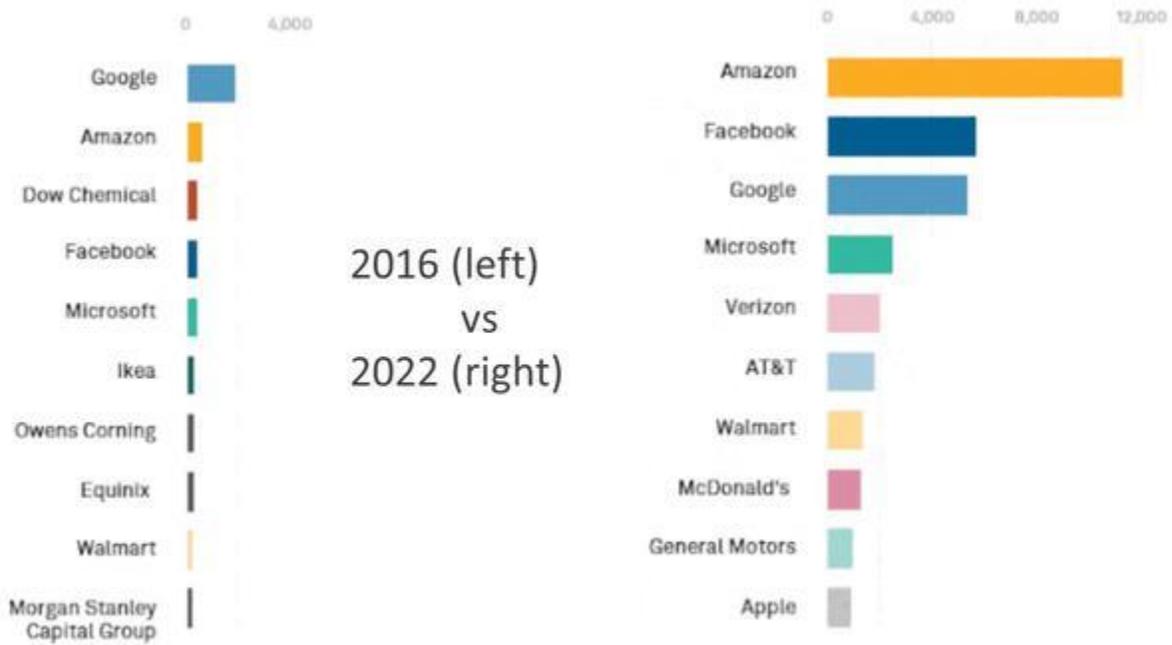
No- / Low-Carbon and Renewable Energy

- The US DoE will use the Defense Production Act (DPA) to immediately **expand manufacturing of [five](#) critical clean energy technologies:**

1. Solar panel parts like photovoltaic modules and module components;
2. Building insulation (to improve efficiencies);
3. Heat pumps for heating and cooling buildings efficiencies;
4. Equipment for making and using clean electricity-generated fuels (like electrolyzers, fuel cells, and related platinum group metals);
5. Power grid infrastructure (like transformers).

- Each year, the **world uses 70 million tons of hydrogen** as a chemical in some manufacturing processes, such as making fertilizer; nearly all that hydrogen is produced from fossil fuels. However, green hydrogen (the energy "[Swiss Army Knife](#)") could replace hydrogen from fossil fuels, which would eliminate the 1.6% of total global emissions.

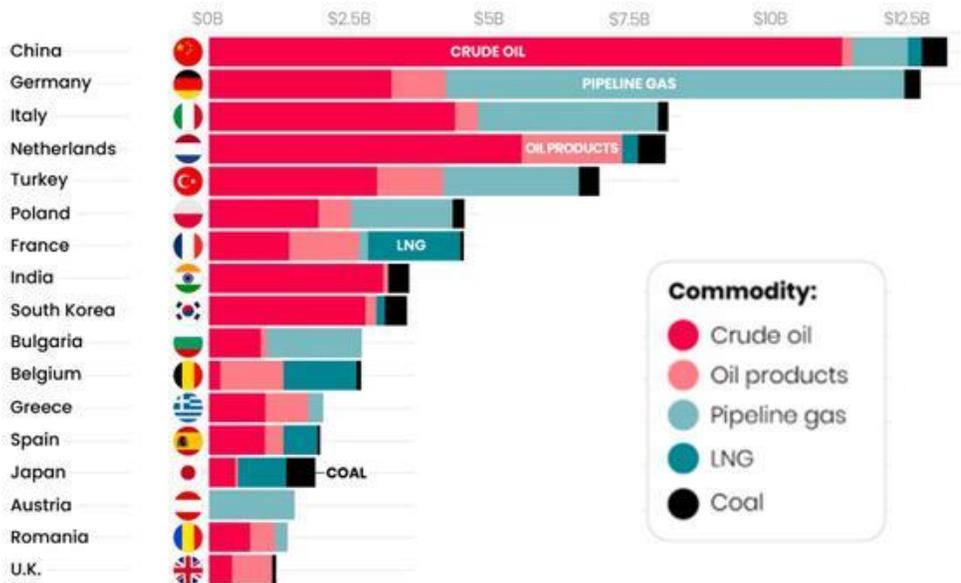
- A comparison of the top US corporations, by cumulative [contracted renewable capacity](#), in megawatthours (*note: the leading industry is Big Tech, which has about 60GW of contracted capacity*).



- Energy Policy & Geopolitics -

- *Special report:* The US Supreme Court is expected to announce its ruling in [West Virginia vs. EPA](#), a case that could prove to be one of the most consequential court decisions in recent US history. AES Members have access to *Energy Today*: [Oyez! Oyez!](#) The Four Most Important Energy and Environment US Court Cases in 2022.

- Russia's invasion of Ukraine has increased the price of oil by about [\\$30 per barrel](#) according to AES SMEs; meanwhile, Russia is generating record [revenues](#) from its oil and gas sector. The largest importers of Russian fossil fuels since the invasion of Ukraine:



- The US Highway Trust Fund gets 84% of its revenue, or about \$36B of the total \$43B, from the federal gas tax (\$.18/gallon). Additional Highway Trust Fund revenues come from a special "heavy use" tax and a small amount of interest. (Source: Congressional Budget Office, The Budget and Economic Outlook, 2020–2030.)

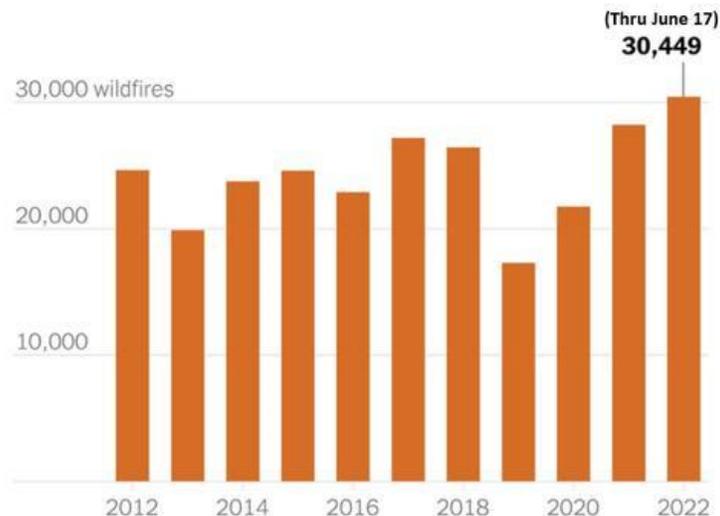
- A comparison of FY2023 funding bills under consideration by the US Congress right now, by the White House (column 2), US House (col. 3) and FY2022 (col. 1), as well how it might change from the previous budget (cols. 4 and 5); all in millions of dollars.

Program	FY22 Enacted	FY23 WH Request	FY23 House Request	FY23 House Request Change from FY22	
Department of Energy	\$ 44,900	\$ 48,200	\$ 48,200	↑ \$3,300	7.3%
Office of EE & Renewable Energy	\$ 3,200	\$ 4,019	\$ 4,000	↑ \$800	25.0%
Office of Cyber and Energy Security	\$ 185	\$ 202	\$ 205	↑ \$19	10.3%
Office of Electricity	\$ 277	\$ 297	\$ 350	↑ \$73	26.4%
Office of Fossil Energy & Carbon Mgmt.	\$ 825	\$ 893	\$ 880	↑ \$55	6.7%
Office of Science	\$ 7,475	\$ 7,799	\$ 8,000	↑ \$525	7.0%
ARPA-E	\$ 450	\$ 700	\$ 550	↑ \$100	22.2%

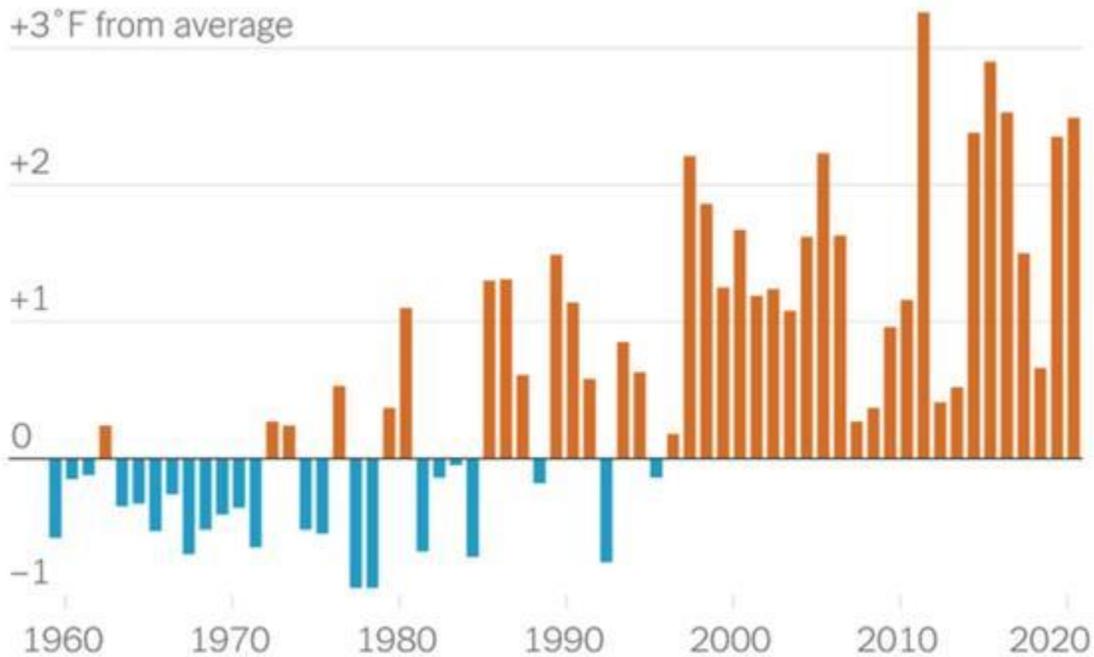
- Following the disruptions caused by Auxin Solar's tariff petition, AES (not our Society), Clearway Energy Group, Cypress Creek Renewables and DE Shaw Renewable Investments have **created the US Solar Buyer Consortium to purchase 7GW of US-made panels annually over four years** at a cost of about \$6B. The group's goal is to convince solar manufacturers to expand or establish production in the United States and ease US dependence on solar imports from China and Southeast Asia while encouraging a stable, domestic supply chain for solar modules.

- Climate and Sustainability -

- **Wildfires in the US have gotten more frequent and worse;** New Mexico has had the most acreage burned (meanwhile, Montana and Wyoming are experiencing record [flooding](#)):



- For one week in June, **96% of people in the US experienced [nighttime](#) temperatures more likely to occur during the day.**
- **Bangladesh and India are experiencing monsoons that are worse than usual**, and this storm season has displaced [millions](#) more people than usual.
- **About [226 million people](#) in eastern and southern Africa (ESA) do not have access to drinking water**; the Eastern region of South Africa is about to reach "day zero" of water.
- **Global surface temperature [anomalies](#)** (baseline is 1900–2000):



- Research and Markets -

- Last year, 75% of Russia's oil and gas exports went to Europe; this year, [50% is exported to Asia](#) (especially China and India).

- The DoD is currently seeking [prototyping proposals](#) in the following areas:

- Autonomous mobility
- Power and specialized sensors
- Advanced batteries
- Hydrogen storage technology
- Hypersonic rocket engines and fuel
- Quantum refrigeration

- The Columbia Center on Sustainable Investment (CCSI), in partnership with E3G, is conducting a **survey to better understand the economic, financial and regulatory factors that drive and/or limit the necessary domestic and foreign investments in renewable energy sectors.** (*Editor's note: please participate in this formal [survey](#) only if you are a professional in the renewable energy industry.*)

- Electricity & Power -

- Top US regional power markets most attractive for renewable investment or deployment in the next 3 years:

Investors

1. PJM
2. MISO
3. CAISO
4. ERCOT
5. NYISO

Developers

- PJM
ERCOT
MISO
CAISO
NYISO

- Top-3 coal-fired electricity, by country:

1. China
2. India
3. Indonesia ([fastest growing](#))

- A comparison of summer average [wholesale electricity prices](#) (2021 vs. 2022), by dollars per megawatthour):

<u>Wholesale ISO market</u>	<u>Summer 2021</u>	<u>Summer 2022</u>
ISOs - Northeast	\$50	\$115
ISO - New York	\$50	\$105
PJM	\$45	\$100
CAISO	\$65	\$95
ERCOT	\$55	\$90

- Federal Energy Regulatory Commission (FERC) announced a new "[first-ready, first-served](#)" review process to address the interconnection backlog.

- Grid-scale energy storage [quadrupled](#) in Q1 2022, compared to the same period in 2021 (in spite of supply-chain shortages).

- On May 4, 2022, in the Texas ERCOT, abnormal inverter behavior caused an **immediate [loss](#) of 2,365 MW of solar PV generation, the largest single day loss ever.**

- Universities in the Spotlight -

Our new friends from the ALA Conference...

- Next academic year, the Office of Sustainability at [West Chester University](#) is going to focus on plant-based eating.

- The Center for Exploration of Energy & Matter, a research center of the Office of the Vice Provost for Research, [Indiana University](#), is celebrating its original Cyclotron Facility (1976) as well as neutron radiation facilities in operation today.

- We are happy for our Friend and Member Anna Siefken and the US DoE Office of Technology Transitions (OTT) — Anna will serve as a Commercialization Executive. We will miss Anna at the [Carnegie Mellon University](#) Institute for Energy Innovation.
- AES applauds the advanced research and contributions of the [Cornell University](#) Energy Systems Institute.
- The [Rutgers University](#) Energy Institute focuses on energy technologies that address biofuels, solar and wind energy, efficient energy use and energy policy.
- The Mitigation and Adaptation Research Institute at [Old Dominion University](#) is a unique program that focuses on challenges posed by recent rapid changes to the climate.
- [Western Governors University](#) offers a number of Environmental Science and Sustainability online courses.
- The sustainability programs at [IUPUI](#) are student-centered.
- The School of Engineering at [Liberty University](#) has a program in Energy Systems.
- Barath Raghavanhttps in computer science at [USC](#) and Jennifer Switzer at [UC San Diego](#) have published a peer-reviewed [article](#) on Information Batteries that could address the challenges of intermittent renewable power.

- Quotes -

An energy recession? Hardly.

"We are at \$120 without China, so when China comes back, oil is going to go higher."

- Amrita Sen, chief oil analyst Oxford Institute for Energy Studies

"Oil and gas prices are high because people want to travel and get out. And, because governments around the world are subsidizing oil."

- Editors, BloombergNEF

"We expected OPEC+ would increase output, but the cartel has once again fallen well short of its production targets."

- Analysts, JP Morgan

- Bulletin Board -

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- Apply by June 30 to participate in the **Clean Energy Technology Showcase** of the Global Clean Energy Action [Forum](#) (GCEAF) on September 21–23.

- **Unearth** is a dynamic Mobile GIS that connects assets, data, and field teams for critical infrastructure providers. Start your [free](#) trial today.

- **ClearPath** is looking for either an upcoming graduate or undergraduate with relevant experience to join its [policy](#) team as a 2022–2023 Policy Fellow. The fellow will work to advance the entire suite of clean energy technologies.

- **Ubiquitous Energy**, a manufacturer of transparent solar products, has a new [partnership](#) with Citrine Informatics, an artificial intelligence service provider for materials development.

- 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.

- In case you missed it -

**ENERGY
TODAY**

[Energy Today](#) "The Power of the TVA"

- Gratitude -

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