

ENERGY MATTERS

Soundbite summaries of the energy news you need to know

AN OFFICIAL PUBLICATION OF



AMERICAN ENERGY SOCIETY

June 7, 2021

- The Power Read -

- **May 26, 2021:** An epic date in energy history, but its significance is unclear.
- **Policy:** Carbon capture finds its way into President Biden's \$6 trillion USD budget.
- **Cleantech:** Renewables continue to surge, but birds are paying the price.
- **Geopolitics:** It's not clear how the current energy transition will affect global foreign policy, but it already has for Algeria, Russia, Libya, and Egypt.
- **Finance:** The UK leads Europe in ESG investing.
- **Utilities:** Real estate assets are for sale at PG&E.

- News from the Society -

- Check out our new "**JOIN**" page — it's now *much* easier to *sign up as a Friend of the Society for free* (which includes a subscription to this publication).
- **Do you have an open energy job to post?** Our June 14 issue of *Energy Today* will feature the 2021 Energy Jobs Market — its unprecedented.

- Fossil Fuels -

- Oil -

- **May 26, 2021, will be recorded as historically significant but inconclusive:**

- The Hague Court of Justice in the Netherlands ordered Royal Dutch [Shell](#) to cut CO2 emissions to 45% by 2030.
- [Chevron](#) shareholders voted to drastically cut the emissions its products generate.
- Activist investors at [Exxon Mobil](#) secured two seats on the board of directors and demanded strategies on behalf of climate action.

MAY / 2021						
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31						

And this also happened....

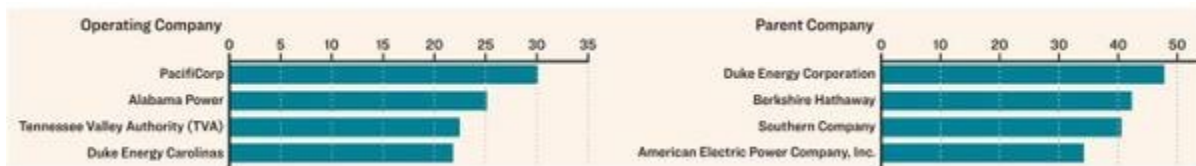
- Gazprom and Rosneft (Russia), Saudi Aramco, and Abu Dhabi National Oil Co. began increasing production, and [OPEC+](#) signaled similar intentions.
- Both the [IEA](#) and [EIA](#) announced that oil markets will be strong through 2021.
- The price of oil per barrel [increased](#) and showed upward momentum.

- Gas -

- Next year, **Germany will shut down its last six nuclear reactors and continue to phase out half its coal fleet; most of the reduced capacity will be replaced by [natural gas](#).**

- Coal, Mining and Minerals -

- **Utilities with the most coal-fired power [without](#) retirement commitments, in million MWh:**



- Carbon Capture -

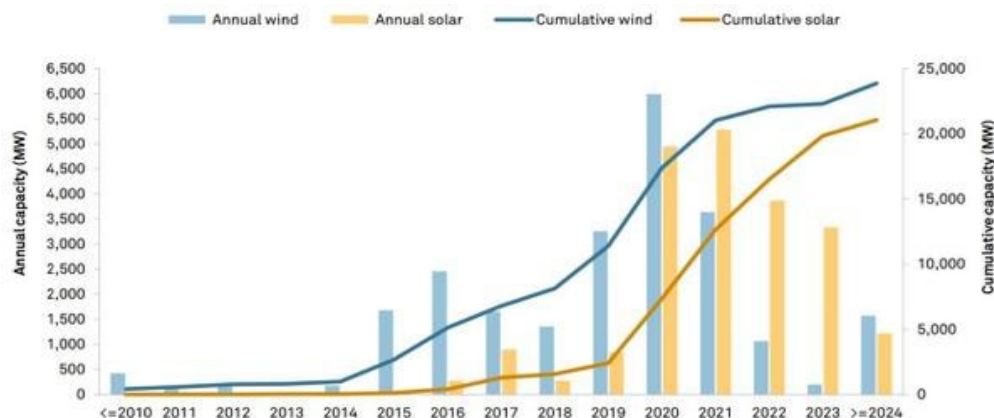
- **President Biden's \$6 trillion budget includes funding for [carbon removal](#).**

- The first-ever dedicated line-item for carbon removal
- New funding across multiple agencies
- A division of "Carbon Management" has been added to the DoE's Office of Fossil Energy

- Low-Carbon Energy -

- In 2021 to date, the total amount of natural gas-fired generation in the US has decreased about 7% from the same period in 2020 and is the first Y/Y decline since 2017. **The [decline](#) is the result of higher natural gas prices and increased competition from renewables.**

- Despite the COVID-19 pandemic, **2020 was the most active year yet for the corporate renewables market.** Wind leads as the preferred technology, but solar is quickly closing the gap. (*Insert: US corporate solar and wind capacity.*)



- In 2020, US utility-scale solar projects [underperformed](#) production estimates by about 6.3%.

- Spotlight: Birds -

- The number of birds killed by wind turbines in the US each year ranges from [140,000](#) to about [680,000](#) according to a survey of peer reviewed studies.

- Related, about 3,500 birds are incinerated annually as they fly through the Ivanpah solar farm "solar flux" field of mirrors in San Bernardino, CA. Ivanpah's tower-and-mirror setup is atypical; **about the same number of [bird deaths](#) have been caused by the other seven utility-scale solar farms together in Southern California.**



- Policy -

- *Beltway Buzz*: **The Biden administration suspended oil and gas leases in the Arctic National Wildlife Refuge.**

- *State energy policy spotlight*: **Tesla cars built in Austin, Texas, have to be [shipped out of state](#) before they can be sold in-state.** Under Texas franchise laws, which are similar to those in many other states, automakers like Tesla, Toyota, and General Motors cannot sell cars — they must sell their cars to independently owned third-party car dealerships.

- AES special: The future of geopolitics in a new energy economy -

- *Featured report*: Will the current energy transition stabilize global geopolitics? It's a [difficult question](#): some petro-states will take more risks, some regions will become more secure with greater energy independence, and still others will face new international conflicts in the form of supply-chain/trade wars (aka "shovel wars").

At risk: regions with entrenched interests that have established a "carbon lock-in" situation that resists institutional change.

1. Algeria
2. Russia
3. Libya
4. Egypt
5. Kazakhstan
6. Tie: Saudi Arabia, Kuwait, the UAE, Qatar

Well positioned for the transition: Regions and countries producing or exporting renewable energy-generation equipment, rare earth materials, or support resources (such as storage), and are also benefitting from enhanced international prestige:

1. Nordic countries (led by Iceland)
2. China
3. Democratic Republic of Congo (*if it can achieve supply-chain/trade route independence*)

- Climate and Sustainability -

- *Featured resource for Members:* **The number of [climate court cases](#) has almost doubled in the last three years**, from 884 cases in 2017 to at least 1,550 in 2020, across 38 countries from the US to South Korea. AES Members have access to the [climate change litigation database](#).

- **The top-4 urban green spaces in the US**, by number and quality of parks within the country's 100 largest cities and equity of distribution. (AES Members have access to the full [national ranking](#) of urban space in the US.)

1. Washington, DC
2. St. Paul, Minn.
3. Minneapolis, Minn.
4. Chicago, Illinois

- **Twenty-three governments, collectively comprising 90% of global public investment in clean energy innovation, are committing to the [Mission Innovation 2.0](#) initiative** in support of climate-tech and decarbonization.

- **Shopify published "How to Kick-Start the Carbon Removal Market," a [playbook](#) designed to help companies reduce carbon emissions.**

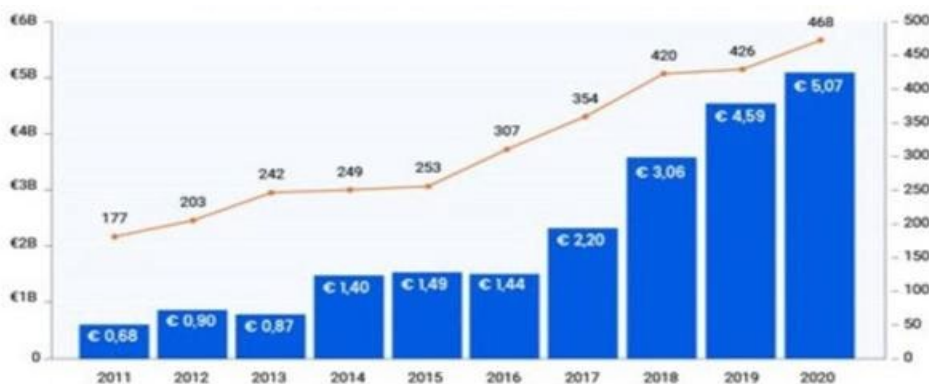
- **[Netflix](#) estimates its carbon footprint at 1.1 million metric tons:**

- 50% of which is related to the physical production of Netflix-branded films and series;
- 45% comes from its corporate offices (most of which it leases) and goods;
- 5% comes from data centers and other systems behind its content delivery network;
- Netflix does *not* account for emissions related to devices that audiences use.

- Research and Markets -

- **Climate-tech is the hottest start-up market right now.** For instance, Cervest has raised \$30+ million in venture investments to develop a platform called [EarthScan](#) that can map physical assets and assess potential exposure to climate risks.

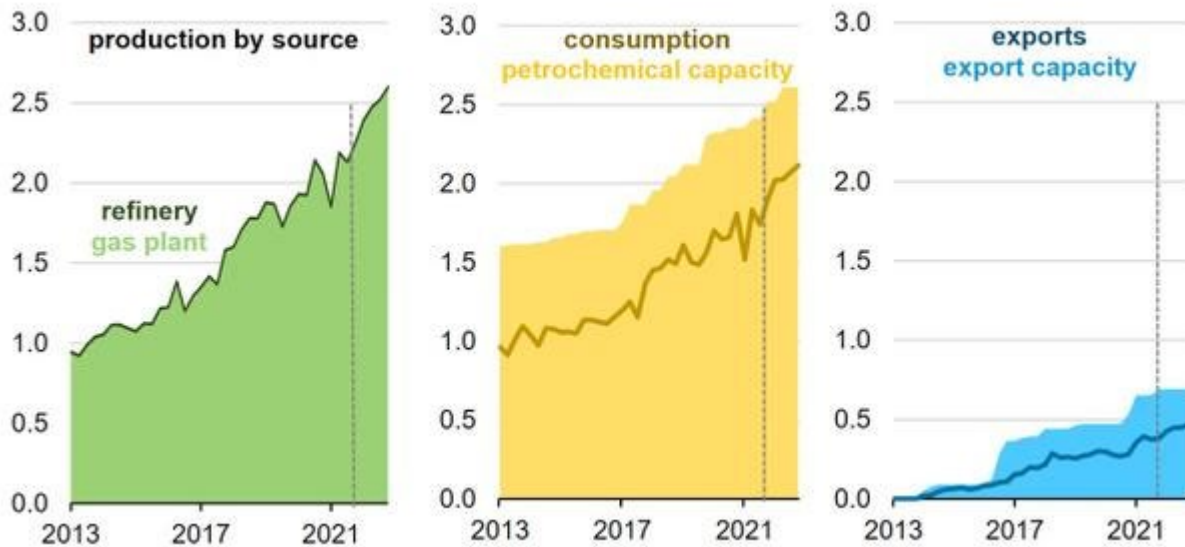
- From January 2020 through May 2021, **[the UK had more climate tech deals \(carbon capture, GHG removal, hydrogen, etc.\) than any European country](#)**, while Germany and Sweden lead in total capital invested. Even the UK government is committing £166.5 million (around \$235.4 million) into the green-tech sector. (*Insert: [EU27 Cleantech investments 2011-2020](#), by amount invested and deal volume.*)



- Lithium prices [rose](#) 11% to \$10,000 per ton — its largest monthly increase; on the other hand, cobalt prices declined sharply as supply-chain bottlenecks opened up.

- The Heifei Institutes of Physical Science of the Chinese Academy of Sciences was able to keep the plasma temperature in its Experimental Advanced Superconducting Tokamak (EAST) **fusion reactor at 120 million Celsius for 101 seconds** and 160 million Celsius for 20 seconds, both records in the race to create an "[artificial sun](#)."

- Demand for US-made ethane feedstock (used by petrochemical plants to make plastic) is [down](#) in the US but exports are surging. *Insert: a [comparison](#) of US quarterly ethane production, consumption and export, in million barrels per day.*



- Electricity, Power, Efficiency and the Grid -

- On August 15, wind resources quickly increased output during the 4:00 pm hour (+1,000 MW), then decreased rapidly the next hour. These events led to a sudden **need to shed and then add significant load to maintain system reliability**. California Public Utilities Commission and CAISO state grid operator sent a joint letter about the situation to Governor Newsom. AES Members have access to a true and correct PDF copy of that [letter](#).

- **For sale, PG&E real estate assets:**

- \$800 million - San Francisco headquarters, which includes 77 Beale Street and 245 Market Street (sold to Hines Atlas)
- \$973 million - Transmission tower wireless licenses (sold to SBA Communications Corp.)
- Price \$TBD - Satellite offices at 3401 Crow Canyon Road in San Ramon and 1850 Gateway Boulevard in Concord
- Note: PG&E will move to new headquarters at 300 Lakeside Drive in Oakland in the first half of 2022; PG&E will use a portion of the proceeds, about \$390 million to \$420 million to offset future customer rates.

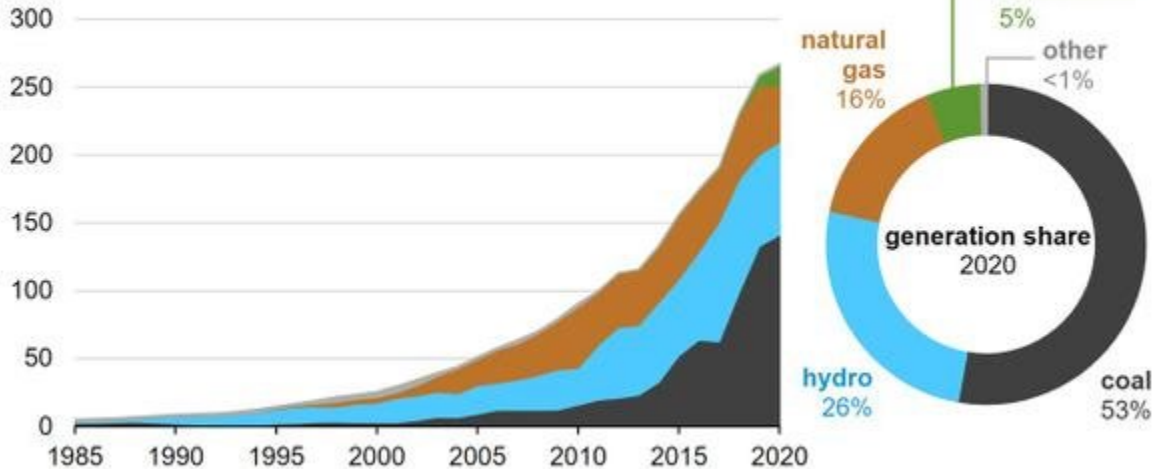
- **For auction:** The PJM Interconnection held its annual capacity generation auction for the June 2022 to May 2023 delivery year. (The 2022/2023 auction was originally scheduled to be held in May 2019, but was postponed pending FERC's approval to protect coal from being outbid by renewables.) Most of the generators in the 13-state PJM territory had significantly lower than expected demand for power.

- **Advice for those who drive gas-powered vehicles:**

- Buy gasoline at night — it's cheaper. (Gasoline becomes denser in cooler temperatures, and gas pumps measure gas by volume.)
- Close windows when driving at high speeds but don't use air conditioning — drag from open windows can reduce a car's fuel efficiency by 10%.
- *Something to think about while pumping gas:* Vapors from gas station pumps in the US account for enough gasoline to fill 50 tanker trucks every day.

- **Vietnam has one of the fastest growing electricity markets in the world.**

Vietnam annual electricity generation, by source (1985–2020)
billion kilowatthours



2021 — the year of cyber insecurity for the energy sector

- SolarWinds and Microsoft Exchange supply chain attacks, by Nobelium of the Russian Foreign Intelligence Service (SVR)
- [Colonial Pipeline ransomware attack](#), by DarkSide (the cyber terrorists received \$90 million in bitcoin ransom payments)
- [USAID email hack](#), by APT29 of the Russian Foreign Intelligence Service (SVR)

- Member Bulletin Board -

Reach 135,000+ readers with your message ... free for [Members of AES!](#)

[Contact us](#) for more information.

- June 15 - 16: [ACORE Finance Forum](#)
- June 22 - 25: H4X Labs Deep-Tech free virtual [conference](#)
- June 23: AES recommends *TOU* ("time of use") *Best Practices* [webinar](#).
- 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.
- The Brattle Group completed its study of Grid-Enhancing Technologies (GETs), with case studies drawn from the application of GETs in Kansas and Oklahoma. AES Members have access to the [summary infographics](#) or the full report, "[Unlocking the Queue](#)."

- Hot Energy Jobs -

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

The next issue of *Energy Today* (June 14) will feature jobs in the new energy economy.

[Contact us](#) to post a job announcement - *complimentary!*

- **AES is hiring a Managing Editor:** Primary focus is *Energy Today*, the e-magazine for AES; strong writing skills required; P/T with option to work remotely.
 - **ClearPath is hiring!**
 - **Program Director – Carbon Capture**
 - **Policy Analyst – Economics, Finance, and Power Markets**
 - **Research Intern**
 - **Chief Executive Officer:** The Department for Business, Energy & Industrial Strategy of the U.K. is looking for a visionary leader as the first Chief Executive Officer.
 - **Penn State University is conducting a search to fill [tenure-track faculty positions](#)** in Natural Hazards, Energy, Minerals and Materials.
 - **Opus-12**, a technology company that converts CO₂ into profitable and reusable resources, is hiring 17 scientists, engineers and lab technicians.
 - **Google for Startups** is hiring a [Global Program Operations Manager](#).
 - **ReImagine Appalachia** is hiring an [Outreach Director](#).
 - **Form Energy** in Somerville, Massachusetts, is hiring a [Senior R&D Mechanical Engineer](#) to advance RD&D in low-cost energy storage.
 - **Seeking: Consultants to oversee transformation and innovation of regional grids in Dominican Republic, Ghana, Jamaica, Nepal, and Pakistan.** Forward proposals in soft copy to [Marjorie Jean-Pierre](#), Program Director, USEA (deadline June 22, 2021).
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- Quotes from May 26 -

"[Shell's] climate policies are not concrete and are full of conditions ... that's not enough."

- The court room ruling by justices in The Hague courthouse, read by judge Larisa Alwin

"ExxonMobil shareholders sent an unmistakable signal that climate action is a financial imperative ... and that leading investors are demanding change."

- Fred Krupp, president of the Environmental Defense Fund

"Chevron's investors are waking up The sleeping giant maybe is stirring."

- Anne Simpson, managing investment director for board governance and sustainability, California Public Employees' Retirement System

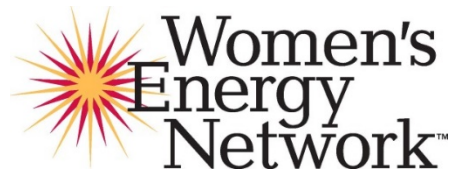
- Gratitude -

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