

# ENERGY MATTERS

Soundbite summaries of the energy news you need to know

AN OFFICIAL PUBLICATION OF



AMERICAN ENERGY SOCIETY

June 21, 2021

## - The "Hot" Power Read -

- **Hot Gas:** Helium
- **Not Hot Gas:** Methane. AES recommends the methane emissions [map](#) by the JPL.
- **Coal:** Demand is "hot" in Europe.
- **Climate:** The Earth is trapping an unprecedented amount of [heat](#),
- **Electricity:** The four US states most reliant on hydropower during drought conditions: Washington, Oregon, Idaho, Montana.
- **Energy Today** - "[The Hot Energy Jobs Market](#)" special issue.
- **Members** can [post](#) a job opening or announcement on the AES bulletin board.

## - News from the Society -

- AES is co-hosting the [11th annual SISE conference](#).
- [Dr. Kimberley Miner](#) delivers the keynote address.
- Members of AES can attend the conference for [free](#).



## - Fossil Fuels -

### - Oil -

- There are many ways to watch oil markets, but two metrics are of particular importance: [production and exports](#); **the first is more commonly watched, but the latter may have more impact on the market.** Take Saudi Arabia, for example, the *de facto* leader of the OPEC oil cartel. The country has been cutting an additional 1 million bpd in production for the last few months, bringing its total production to below 10 million bpd; however, it would be a mistake to assume that 1 million bpd of Saudi oil has been removed from oversupplied global markets. Indeed, Saudi oil exports in the same period have only decreased ~200,000 bpd, and of that total, some of that crude became LPG, naphtha, kerosene or diesel.

## - Gas -

### - Helium, a primer:

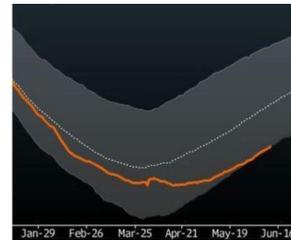
- It is an abundant element in the universe but rare on Earth.
- It has [properties](#) that make it indispensable for many industrial and manufacturing applications.



- At present, helium is extracted from natural gas in the US, Russia, Algeria, Qatar and a smaller source in Poland.
- Since the Cold War, the US federal government has been stockpiling about 40% of the world's supply at the Federal Helium Reserve (FHR) in Amarillo, Texas; however, most of that reserve has been [used up](#), and in September the reserve will be shut down and the existing price ceiling will disappear. (Note: The US government has been storing helium since 1929, but since 1996, it's been trying to get out of the business and privatize it. So far, the private sector has [not](#) stepped up to the challenge.)

## - Coal, Mining and Minerals -

- **Europe is short of natural gas, so countries are turning to coal** to meet electricity demand; coal usage on the continent has already [increased](#) 10% to 15% this year, led by Germany, Spain, the Netherlands, Poland, and the Czech Republic. (Insert: European natural gas in **storage** is 25% below the **five-year average**.)



## - Carbon Capture -

- [LEAF Coalition](#), an alliance between the US, Norway, the UK, and corporate members like Amazon, Salesforce and Unilever, has raised **\$1 billion in financing for forestry projects**.

However, there may not be enough [seedlings](#) in the world to meet ambitious tree-growing objectives.



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## - Low-Carbon Energy -

- In 2020, [consumption of renewable energy in the US](#) grew for the fifth year in a row, reaching a record high of 11.6 quadrillion British thermal units (Btu), or 12% of total US energy consumption.

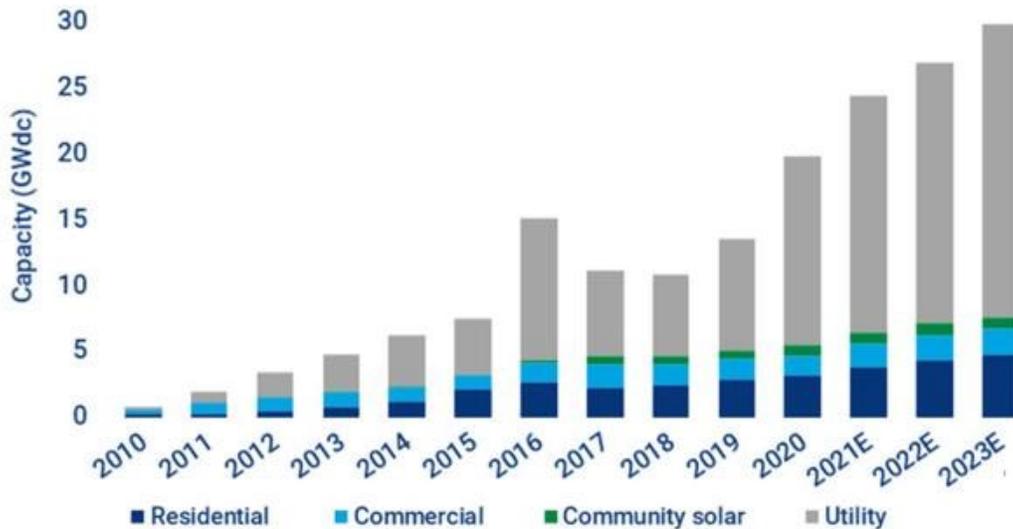
- **US nuclear power plants with the most outages** in the last two years, as a percentage of plant output:

1. Watts Bar Nuclear Plant (95%)
2. Palo Verde (99.3%)
3. Catawba (99.5%)

Note: **All other nuclear power plants (19 of 22 total) operated at 100% capacity, with essentially no outages.**

- The US solar market installed about 5 gigawatts of solar capacity in the first quarter of this year, a 46% increase over the first quarter of 2020 and the largest Q1 on record. However, the supply-chain for [solar component equipment](#), like polysilicon, steel, aluminum and semiconductor chips, has become constrained.

- Continuing, more than 100 GW of [solar](#) power capacity is now installed in the US, primarily utility-scale. *Insert: US solar PV installations and forecast estimates, 2010 - 2023E.*



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## - Policy -

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

- *Beltway buzz:* the energy sub-sector with the most bipartisan support in Congress and the White House is [carbon capture](#).

- *Beltway Buzz II:* Keep an eye on the "Energy Innovation Tax Credit" bill that has been introduced in the Senate (true and correct PDF copy of the [ESIC Act 1](#) page summary), as per AES Expert Members [ClearPath](#).

- The US will increase funding to [Egypt](#) to help it convert to solar energy.

## - G-7 Summit, Cornwall, England, June 11 - 13, 2021 -

### - A summary of the [G-7 Communiqué](#)

- #21 - adopt a green transformation that will increase productivity, create new decent and quality jobs, cut greenhouse gas emissions, improve our resilience, and protect people and the planet.
- #23 - conserve or protect at least 30 percent of our land and oceans by 2030.
- #19 - pursue strong, sustainable, balanced, inclusive, and resilient growth.



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### - Special offer -

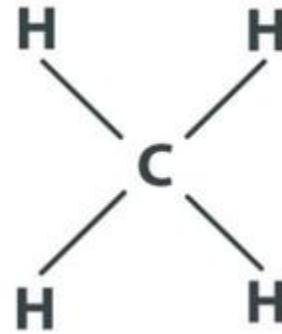
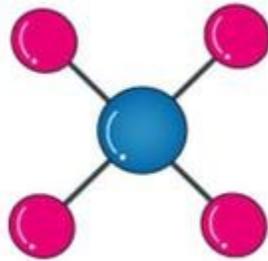
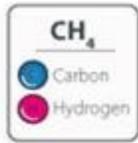
- Did you know that Organization Members (partners) receive Excel datasets for all AES reports? [Contact us](#) for information about Organization Membership.

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### - Climate and Sustainability -

- **The Earth is trapping an unprecedented amount of [heat](#)**, twice as much as it did in 2005.
- The built environment, including the construction industry, is responsible for about 38% of the world's energy-related carbon dioxide (CO2) emissions. **Concrete, the most common construction material in the world, is a top offender**; its key ingredient — [cement](#) — is the source of up to 7% of the world's CO2 emissions.

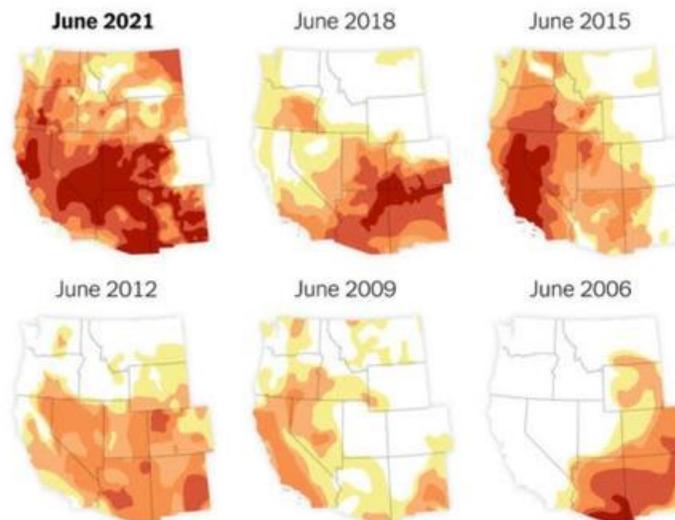
- [Methane](#), a primer:



- A ton of methane warms the planet 80 times more than a ton of CO<sub>2</sub>.
- On average, 2.3% of upstream US natural gas production is leaking, about 60% higher than official EPA estimates.
- Multiply US NG production by a 2.3% leak rate = 13+ million tons of methane emissions.
- The majority of methane emissions come from a small number of big leaks, “super-leakers,” which are typically caused by maintenance and equipment failures.
- There are 123 super-emitters in the US.
- The worst methane [leak](#) in the Permian oilfield emits about 55 tons of emissions an hour.

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- *Insert: a comparison of [drought conditions](#) in the US West, by three-year intervals.*



- Meanwhile, AES recommends a new resource, [Flood Factor](#). Enter your address for your current and future flood risk.

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## - Research and Markets -

- **Featured opportunity: The Tennessee Valley Authority is building [utility-scale solar and battery storage systems](#)**. Developers should submit proposals for projects that can be completed by the end of 2024. Proposals must be submitted by July 20, 2021.

- Global data centers [consume](#) a bit more than 200 terawatt-hours (TWh) each year, or 1% of global electricity use, [much less](#) than earlier extrapolation-based estimates that showed rapidly-rising data center energy use. Meanwhile, **data center and digital infrastructure M&A deals closing in 2020 set a new record of \$34.9 billion globally**, more than the previous 2017 record of \$24.8 billion; 2021 is showing promise for a strong year with \$13.5 billion of deals currently in the pipeline.

- [NanoGraf](#) has created the highest energy density lithium-ion cell battery in the world, providing 28% longer run time than traditional cell chemistries. *Note:* NanoGraf CEO Francis Wang spoke at the 10th annual SISE conference; stay tuned for information about our upcoming [11th annual SISE conference](#).

- **Update on Lordstown Motors, manufacturer of the electric pickup truck, *Endurance*:**

- Its prototype burned during an early test-drive.
- The company does not have enough money to start making its truck.
- The SEC is investigating the company and its claims about customer interest in its trucks.
- Steve Burns, CEO and founder of Lordstown, resigned.



*Note:* The recent struggle of Lordstown Motors competes with those of the Nikola One electric semi-truck, which deceived consumers with a marketing video of its truck driving on a two-lane desert highway - **the truck had no engine and was [rolling downhill](#)**.

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## - Electricity, Power, Efficiency and the Grid -

- **Top-4 US states most reliant on [hydropower](#)**, as a percentage of total energy (note: AES Members have access to the AES white paper, "[Water Works](#)"):

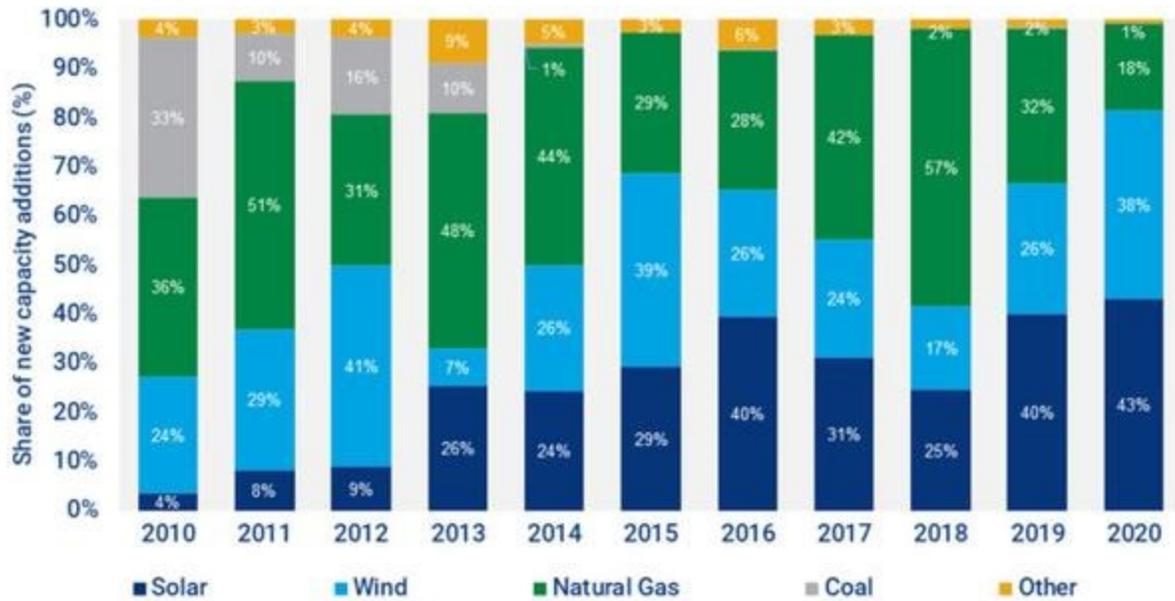
1. Washington (69%)
2. Idaho (58%)
3. Oregon (55%)
4. Montana (36%)

- Texas' power grid operator is using [Twitter](#) to **ask consumers to conserve electricity** as it faces record-setting demand and after taking 11,000 megawatts of generation offline for repairs.

- California will have more than 2,800 MW of four-hour lithium-ion battery [storage](#) facilities before September, nearly five times as much as a year before; meanwhile, Texas will have about 1,400 MW, roughly eight times more Y/Y.

- In 2019, the US electric power sector produced 1,724 million metric tons (MMmt) of CO<sub>2</sub>, **32% [less](#) than the 2,544 MMmt produced in 2005**.

- Insert: US [electricity](#)-generating capacity additions over the last decade.



### - Cybersecurity -

- Sol Oriens, a subcontractor for the US DoE that works on nuclear weapons with the National Nuclear Security Administration (NNSA), was hit by a cyberattack that came from the relentless REvil ransomware-as-a-service (RaaS) gang.

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### - Member Bulletin Board -

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

[Contact us](#) for more information.

- **June 22 - 25: H4X Labs Deep-Tech free virtual [conference](#)**
- June 23: AES recommends *TOU* ("time of use") Best Practices [webinar](#).
- Search the [OurEnergyLibrary](#) for energy information or publication from a research institute, trade association, or other organization.
- AES recommends the upcoming geothermal conference, [Pivot 2021](#), July 19 - 23.
- July 22, 2021 - C3E [webinar](#): "Financing the Clean Economy."
- [NextCorps](#) is launching a [climate-tech](#) program; [contact us](#) for more information.
- The European Union has committed €14.7 billion (USD \$17.5b) funding to [Horizon Europe](#) to support the green transition.
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## - Hot Energy Jobs -

**Members** can post a job, find qualified candidates, and fill difficult positions.

- **Blackrock** is seeking an Aladdin Sustainability Investor Lead ([VP/Director level](#)).
- **ClearPath** is seeking to hire a [Program Director](#) for their Carbon Capture Policy team, and a [Policy Analyst](#) for their Economics, Finance and Power Markets team.
- **Kairos Aerospace**, a methane detection company, is hiring for a lot of open positions:
  - Data Scientist & Science Communicator (*remote*)
  - Engineering Technician
  - Senior Scientist (*remote*)
  - Sensor Engineer/Scientist
  - Senior Software Engineer - DevOps/Systems (*remote*)
  - Senior Software Engineer - Generalist
  - Senior Software Engineer - Security Lead
- **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.
- **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.
- **Asian Infrastructure Investment Bank (AIIB)** is seeking an Environment and a Social Development Associate; located in Beijing (an undergraduate degree in environmental science or engineering and English proficiency are preferred).
- **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 G-7 Summit -

"The impact of the G-7 [this year] will be felt long after the newspapers you write for will have been used to wrap fish." (*Note: Energy Matters is a digital publication.*)

- Justin Trudeau, when asked by a reporter about the expected outcomes of the Summit

"No specific date could be named, that was not our doing."

- German Chancellor Angela Merkel, when asked "when will the G-7 reach carbon neutrality?"

"One of the greatest self-inflicted wounds in history."

- An editorial in the WSJ on Russia, Saudi Arabia, China, and Iran taking advantage of the retreat from fossil fuels.

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- Gratitude -

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