

ENERGY MATTERS

Soundbite summaries of the energy news you need to know

AN OFFICIAL PUBLICATION OF



AMERICAN ENERGY SOCIETY

April 26, 2021

– The Power Read –

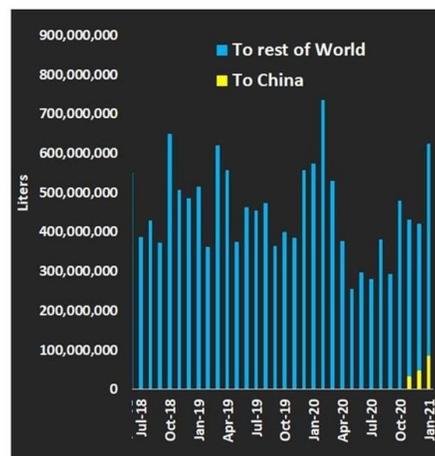
- **Funding:** It's "[FOA \(funding\) season](#)" for all US government agencies.
- **Policy:** The Australian Academy of Science says that climate change is "[virtually impossible](#)" to stop.
- **Markets:** Digital currencies are here, a signal that the [second quantum revolution](#) is coming to the energy sector.

- Fossil Fuels -

- **Oil** - Most active oil and gas companies in advanced analytics, machine learning and AI (Sources: TPCo and [Deanna Zhang](#), EY, Harvey Nash/KPMG CIO Survey:

1. Schlumberger
2. Oxy
3. Halliburton
4. Oceaneering
5. Helmerich & Payne
6. BakerHughes
7. EOG Resources
8. Pioneer
9. NOV
10. Devon

- **Gas** - In March, three ships carried about 240,000 barrels of ethanol from the US Gulf Coast to China, [more than the total amount of ethanol exported to China in all of 2019 and 2020 combined](#). *Insert:* a comparison of US ethanol exports, rest of world vs. China. (*Note:* ethanol is often blended with gasoline.)



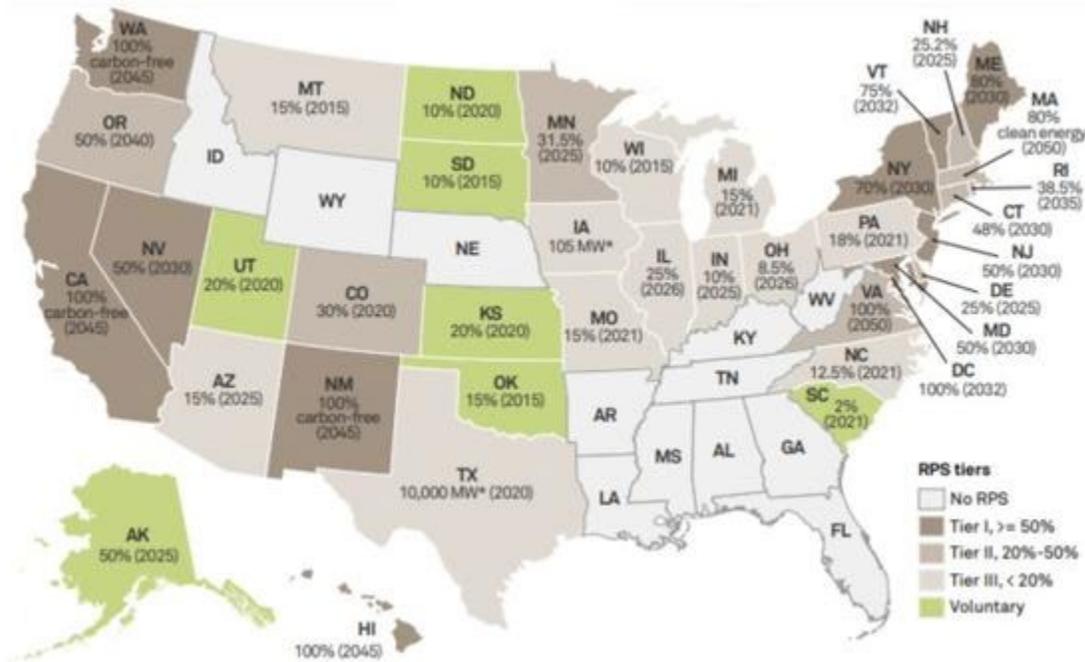
- **Coal** - Global demand for coal is [above](#) 2019 levels. More than 80% of the projected growth in coal demand will come from Asia, mainly China.

- **Carbon Capture** - Exxon is building a \$100 billion [carbon-capture project](#) along the Houston Ship Channel; at capacity (2030), it will capture 50 million tons of CO2 annually, equivalent to removing about 11 million cars from the road. (Insert: Buffalo Bayou portion of the channel.)

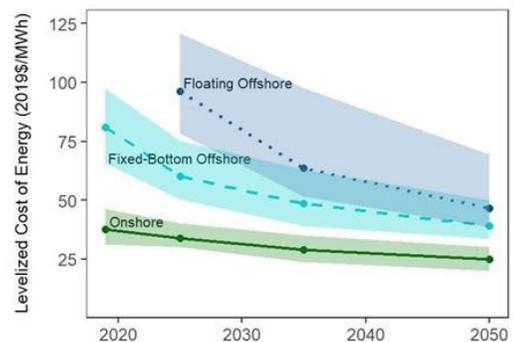


- Low-Carbon Energy -

- Insert: Renewable fuel state [targets](#), by objective and year.



- New research finds that [wind energy cost reductions](#) have accelerated in recent years — much faster than previously predicted by most forecasters and experts, and faster than historical rates of decline.



- **Top-4 biomass (wood and wood-derived fuels and pellets) generated electricity, by state** and million megawatt-hours. *Note:* Georgia is by far the top biomass state in the US on a per capita basis.

1. California (5.93)
2. Georgia (5.82)
3. Alabama (3.41)
4. Virginia (2.93)

- News from the Society -

Did you know that Members of AES have unrestricted access to *all* AES benefits, reports, publications and services? And that Organization Members (aka "sponsors") get the same benefits as well as Excel datasets?

[Join](#) AES as a Member (\$129/year) for unrestricted benefits. [Contact us](#) for information about Organization Membership. (Small business, non-profit, and individual discount rates available.)

- Policy -

- **President Biden announced on Earth Day that the US intends to [cut](#) planet-warming emissions nearly in half** by the end of the decade, a target that would require Americans to transform the way they drive, heat their homes, and manufacture goods.

- Following Biden's announcement, **European Union policymakers codified far [more ambitious reductions targets](#)** — 55% by 2030 and net-zero emissions by 2050. If passed by the Union's council and parliament, that target would carry the weight of EU law.

- Responding to President Biden's challenge, **[US Steel](#) announced that the industrial sector will achieve net-zero emissions by 2050.**

- **A landmark bill aimed at developing a new "ag-carbon market" has been rewritten to protect farmers** and give them more say in financial decisions. [AES Members](#) have access to the newest version of the bill that is in the Senate.

- **President Biden's Environmental Protection Agency [dropped](#) more than 40 external science advisors** from the Science Advisory Board (SAB) and Clean Air Scientific Advisory Committee (CASAC); all had been appointed under former president Donald Trump.

- *Featured State Spotlight:* [Texas House Bill 3576](#) authorizes the **Texas Railroad Commission to invest public funds in private geothermal ventures**, from research to deployment. (*Editor's note:* the TRC is probably the most powerful government agency in the US that you've never heard of.)

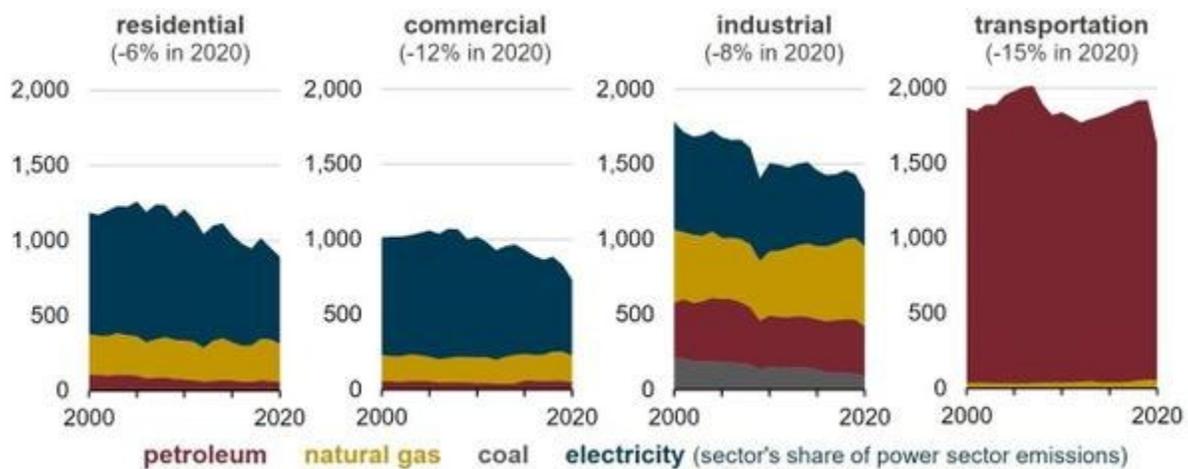
- *Featured World Spotlight:* Under the "Self-Reliant India" plan, Prime Minister Narendra Modi announced that **40 new coalfields will be opened up for commercial mining** in some of India's most ecologically sensitive forests. Among them are four mines in the [Hasdeo Arand](#) preserve (about 420,000 acres) in the central Indian state of Chattisgarh, which sits above an estimated 5 billion tons of coal.

- Climate and Sustainability -

- It is "virtually impossible" for the world to meet the Paris Agreement's target of limiting global warming to "well below" 1.5 degrees Celsius (2.7 Fahrenheit). In fact, the world is on pace for about 3 degrees Celsius (5.4 Fahrenheit) of warming. [AES Members](#) have access to the Australian Academy of Science peer-reviewed report.

- The world is [on pace to increase](#) energy consumption by 4.6% in 2021. Almost 70% of the projected rise will occur in emerging markets and developing economies while energy use in advanced economies is 3% below pre-Covid levels. **This will be the second largest annual increase in carbon emissions in history.**

- US energy-related CO2 emissions [declined](#) 11% in 2020 (by end-use sector in million metric tons):



- Research and Markets - Special Report: Digital Currencies

- **Digital currencies are trending "hot" right now, especially in the energy sector.** This is the first phase of a second quantum revolution (the transition from quantum theory to quantum engineering). A range of industries, from oil [shipping](#) to community choice aggregation, blockchain offers an efficient way to match buyers and sellers at the best price and keeps the entire supply-chain connected throughout the transaction:

- [US Federal Reserve](#) Chair Jerome Powell: "digital currencies are a more flexible and transparent global payment system than cash."
- [European Central Bank](#) President Christine Lagarde: "[we] will launch a digital currency within the next few years."
- [China](#) has proposed a set of global rules for central bank digital currencies, from how they can be used to highly sensitive issues such as monitoring and information sharing.
- [The Federal Reserve Bank of Boston and MIT](#) will unveil a prototype central bank digital currency system this year.

- *Related* ... to add digital currency to blockchain's master ledger, miners are competing in a frenzied race of trial-and-error. Every second, they are making more than 170 quintillion attempts to produce a new chain (a quintillion is 1 followed by 18 zeros). The first successful new chain gets added to the blockchain. The system is intentionally designed to be onerous, ostensibly to make it transparent, competitive, and to prevent cheating or counterfeit. Bitcoin, the largest cryptocurrency, uses this energy-intensive model.

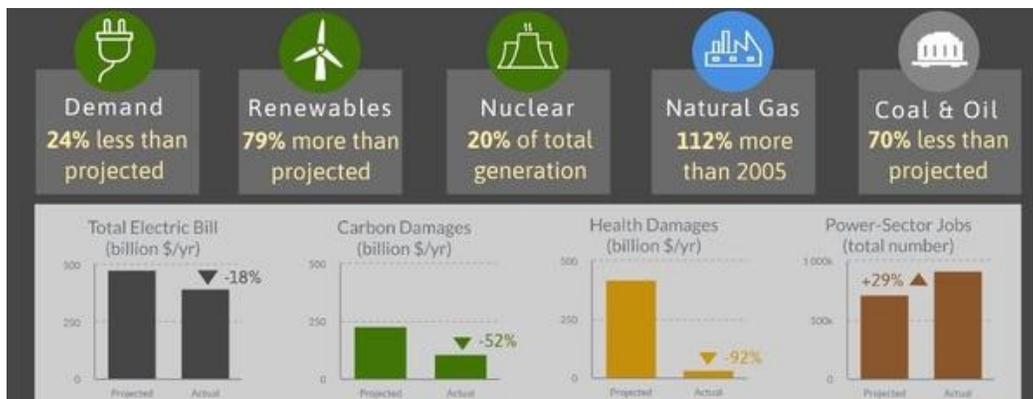
- The creation of a new blockchain token has an [environmental footprint](#) equivalent to driving 500 miles in a typical American gasoline-powered car.
- Researchers at Cambridge University have estimated that mining Bitcoin uses [more electricity](#) than entire countries like Argentina, Sweden, or Pakistan.
- If left unchecked, cryptomining in China will [undercut](#) the nation's climate goals. (AES Members have [access](#) to the peer reviewed article.)

However, some researchers have determined that 39% of crypto-asset mining is powered by renewable energy, primarily hydroelectric. [AES Members](#) have access to the peer-reviewed research.

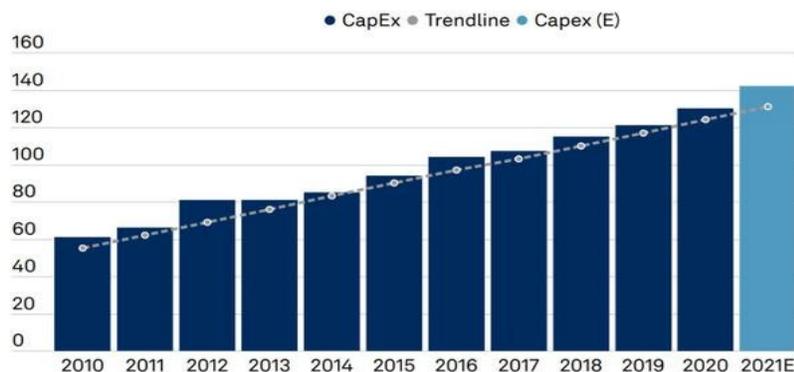
- Electricity, Power, Efficiency and the Grid -

- Last year, energy consumption in the US [declined](#) 7%, the largest annual decrease since 1949, when data was first collected.

- *Featured:* **After 15 years, the US power sector is now [halfway to zero](#) emissions.** Indeed, the US Energy Information Administration (EIA) 2005 Annual Energy Outlook projected that CO2 emissions from power supply would be 3,008 MMT in 2020. In fact, emissions in 2020 were 1,450 MMT, 52% lower than projected. (Insert: 2005 projections and 2020 actual results, by sector and categories.)



- **Capital spending by US energy utilities increased 7% in 2020** (from \$121 billion in 2019 to \$130 billion in 2020) and is expected to increase in 2021. (*Insert:* energy utility actual and estimated capital expenditures, in \$B.)



Cybersecurity Spotlight

- The FBI issued a [warning](#) that hackers are using PYSA "Mespinoza" malware to attack university networks and shared data files in research labs. Specifically, the malware is embedded into FAQ pages and then dropped into a user's folder. *Beware:* the most active domains used by the hackers are "@onionmail.org" and "@protonmail.com"



- Member Bulletin Board -

Members reach 135,000+ readers ... for free! [Contact us](#) for more information.

- *Featured event:* April 27 and 28 at 9:00 PST, **Norway will [virtually visit](#) California for the first time ever.** The Prince, the Governor, and participating delegates will explore solutions for a sustainable future.
 - C3E Webinar - Decarbonizing with Scale and Urgency on [April 29](#) at 2:00 pm ET.
 - Commercial Vehicle Cleantech Challenge; deadline to apply is [May 6](#).
 - ARPA-e *virtual* [energy innovation summit](#) is May 24 - 26.
 - **Organization spotlight:** LiSA, an Energy Innovation Hub of more than 100 scientists (with headquarters at CalTech) is devoted to advancing the science of [liquid solar fuels](#).
-

- Quotes & Comics -



"How else would I keep my solar panels in the sun all day?"

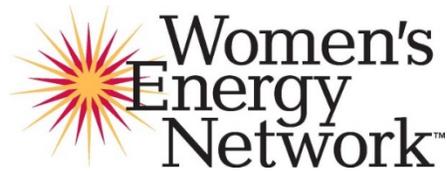
- Gratitude -

AES would like to recognize our sponsors - our catalysts for change.
For more information about the many benefits of sponsorship [contact AES](#).

**WILSON
SONSINI**



**CONSULATE GENERAL
OF DENMARK**
Silicon Valley



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**