

Energy Matters

September 14, 2020

Soundbite summaries of the energy news you need to know.

An official publication of ...



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Fossil Fuels

Oil: The carbon intensity of each barrel of oil is 23 kg carbon dioxide equivalent (CO₂e/boe). All major oil companies have pledged to [reduce](#) their average CO₂e/boe to 20 to 21 kg. **The top 5 leading the race to reduce CO₂e/boe are:**

1. Eni
2. Equinor
3. Shell
4. Repsol
5. BP

(Note: BP and Shell have urged Texas energy regulators to put a [stop](#) to routine gas flaring across the state's oil fields.)

Natural Gas: The US natural gas pipeline network includes more than 210 unique pipeline systems, 400 underground storage facilities, 300,000 miles of pipelines, 1,400 interconnection points, and 24 market hubs. In this complex system, Henry Hub in Erath, Louisiana, is considered by the industry to be the primary trading and distribution hub; it offers the most established and stable prices. However, in 2020, prices at Henry Hub have been slightly more volatile, while prices at other major hubs — Algonquin Citygate, Transco Zone, SoCal Citygate, etc. — have been more stable. In other words, **the natural gas market has reacted to external chaos (i.e. storms and pandemics) by becoming more predictable and stable, not less.**



Coal: *Spotlight, coal in California.* [Coal-fired generation](#) contributes 0.2% of California's electric load; there is only one coal-fired plant in operation in California — the 63-megawatt Argus Cogen plant in San Bernardino County. (Note: California imports about 4% of its electricity from coal-fired plants in other states.)

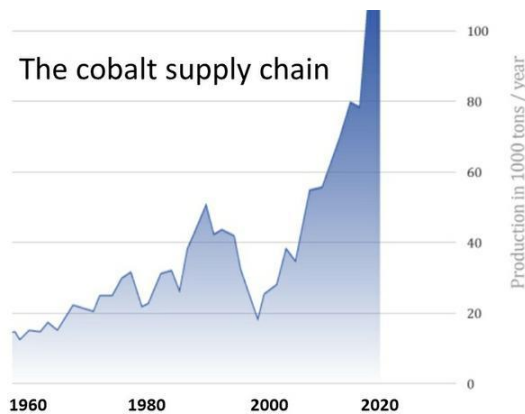
Carbon Capture: Carbon capture and storage is becoming [economical](#) in Europe. There are now 10 large CCS projects in various stages of development, all located around the North Sea in Norway, the UK, Denmark and the Netherlands; there are also CCS projects proposed in Ireland and Italy.

Low Carbon Energy

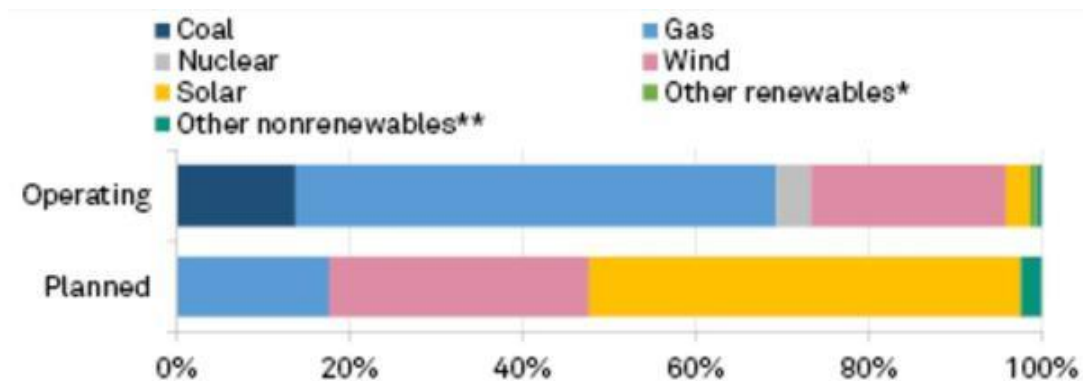
- Oil majors and renewable energy:

- In 2018, oil majors invested 1% of their combined budgets on clean energy.
- Of the \$18B that oil majors plan to invest in clean energy in the next five years, more than half will come from Norwegian state-owned energy company, Equinor.
- Total will double its gross global renewable energy capacity to 6 gigawatts (GW).
- Excluding Equinor, the total renewable investments by oil majors will decline over the next three years

- **The Democratic Republic of Congo (DRC) supplies 63% of the world's cobalt** that is used in the batteries of virtually every new technology (electric cars, stationary energy storage, cell phones, etc.). One of the largest labor markets in the DRC is "artisanal and small-scale mining" of cobalt (20% of the world's cobalt is supplied by ASM labor). Though unconfirmed, most ASM is done by children and the "desperately poor."



- **About 27,000 MW of solar capacity is planned or under construction in Texas.** (Insert: Texas capacity mix as a % of the total, operating vs. planned.)



- Number of **operating** nuclear reactor power plants in 2020, worldwide:

1. United States (95)
2. France (58)
3. China (46)
4. Russia (36)
5. South Korea (24)



Policy

- In 2005, of the 49 state science education standards then in use, 30 states required instruction about **anthropogenic climate change**, 15 discussed its causes (fossil fuel use, land use, etc.), and four did not mention it.



In 2020, 36 states require instruction about **anthropogenic climate change**. Of the remaining 14 states, five (Alabama, Florida, Georgia, Oklahoma, and Virginia) mention anthropogenic climate change as a possibility; four (Montana, Nebraska, Ohio, and Pennsylvania) do not mention it; and five (Mississippi, South Carolina, South Dakota, Texas, and West Virginia) treat it as an unproven theory.

Beltway Buzz

- **Breaking news:** Under the US Renewable Fuel Standard (RFS), oil refiners must blend billions of gallons of biofuels into their products or buy credits from those that do. But refiners may also seek an exemption from those obligations if they prove the requirements would cause them financial harm. Biofuel advocates say the waivers hurt demand for corn-based ethanol. The oil industry says the obligations are too expensive. Since 2017, the Trump administration has [not taken a position](#) on the waiver issue. **Now, for the first time, the President denied a request for a biofuel-waiver submitted by 24 oil refiners.** However, at the same time, the administration quadrupled the number of exemptions issued to individual refiners.

- **The Trump Administration is proposing a rule that would limit environmental, social, and governance (ESG) investment criteria.** Some of the world's largest asset managers, including BlackRock and Fidelity Investments, oppose the Administration's proposed regulation as burdensome and limiting a fiduciaries' ability to pick investments. Advocates of the proposed rule argue that sustainable investing is not financially material. AES Friends and Members have access to the US Department of Labor [rule](#) that the Trump Administration opposes.

- **President Trump announced plans to [extend the existing moratorium](#) on oil drilling along Florida, South Carolina and Georgia coasts.** The announcement was a surprise to White House and Congressional aides, lobbyists, and industry officials who work on this issue.



Climate and Sustainability

- In 2020, **global emissions are [17% lower](#)** relative to the same date in 2019 but are equivalent to the emission levels of 2006.

- **Emissions fell 1.5% during the global financial crisis of 2009 and then [increased](#) 5% the next year.**

- **About 20% more people who were commuting to work before the pandemic are still [working out of their homes](#).**

- **Wildfires in the West, January 1, 2020 thru September 10, 2020:**

- Oregon: 35 large-scale wildfires have burned about 900,000 acres (10% of the population has been evacuated)
- Washington: 2.5 million acres have burned (about 5% of the state)
- California: 7,694 fires of all sizes have burned 3,105,184 acres (3% of the state).



Research to Markets

- *Special "trend-spotting": SPACs. The hottest topic in energy is the "special purpose acquisition company" (SPAC)* that has no commercial operations but is formed strictly to raise capital through an initial public offering (IPO) for the purpose of acquiring an existing company, also commonly known as a "blank check company." There were 34 SPACs in 2018, and 59 in 2019; 2020 is on pace to more than double that total. SPACs are very popular in energy primarily because the sector is capital-intensive. For example, a SPAC was used for [Fisker's merger](#) with Spartan Energy and [Luminar Technologies' merger](#) with Gores Metropoulos. Electric vehicle manufacturers Nikola, Hyliion and Tortoise have either used or will use a SPAC to go public.

- The US average regular gasoline retail price on Labor Day weekend was [\\$2.22 per gallon](#), the **lowest level for this time of year since 2004.** (Note: during the peak of COVID-19 lockdowns, the US weekly average regular gasoline retail price was \$1.77/gal., on April 27.)

- **Representation of women across all energy industries** (insert):

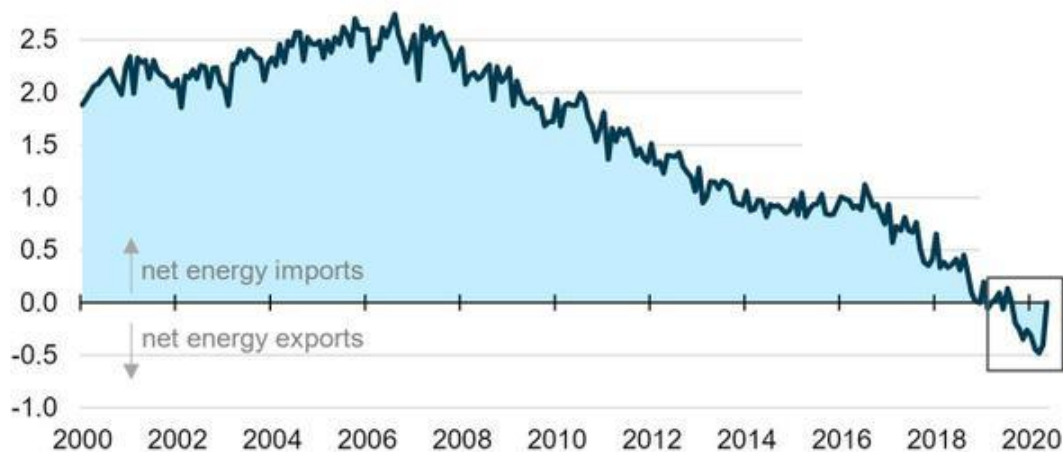


- *Recommended resource: The IEA has published [Energy Technology Perspectives 2020](#)*, which analyzes the emissions of 800 energy technologies as they relate to international sustainability goals.



Electricity, Power and Efficiency

- The historical significance of May 2020 should be noted — **the US became a net exporter of energy.** (Insert: US monthly net energy imports, in quadrillion BTUs.)



- People in geographically large states with small populations use [twice as much](#) energy for transportation than the US average (such as Alaska, Wyoming, North Dakota); conversely, states

with higher population density, such as Rhode Island and New York, used less transportation energy per capita.

- **Households that own/have an [air conditioning unit](#):**

- Nationwide: 87% of all households own/have an air conditioner
- West Coast (incl. Hawaii): 66% of all households
- Los Angeles: 69%
- US South (east and central): 95%

- *Recommended report:* "[Grid Resilience: Priorities for the Next Administration](#)," by the National Commission on Grid Resilience.



Back to school math quiz

How to invest by taking into consideration ESG
Environmental, Social, and Corporate Governance
(The math behind the strategy)

$$E(R) = E(P1) - P0 + E(X1) / P0 = k$$