

# ENERGY MATTERS

Soundbite summaries of the energy news you need to know

AN OFFICIAL PUBLICATION OF



AMERICAN ENERGY SOCIETY

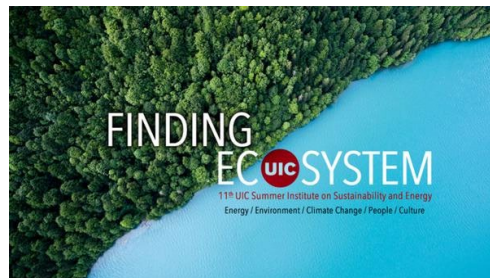
July 12, 2021

(Note: all AES publications are on an abbreviated schedule during the month of July)

## - The Power Read -

In case you missed the 11th annual [SISE conference](#), here's a very brief summary ([visit AES](#) to access the archived video recordings of each presentation):

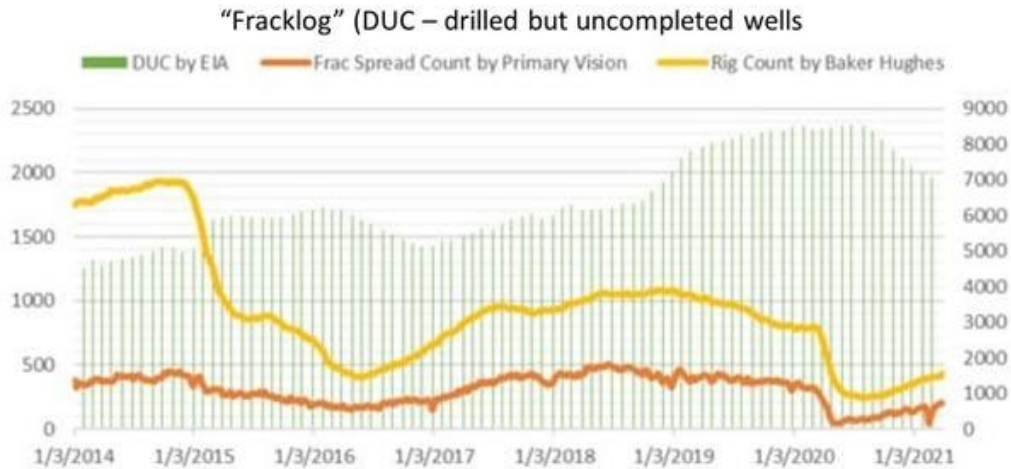
- **Dr. Kimberley Miner's keynote address** interpreted the recent record-high Arctic temperatures as a [planetary tipping point](#).
- [Marianna Grossman](#) and [Dave Johnson](#) called for more partnerships and collaboration rather than individual action.
- Amy Heart of [Sunrun](#) and James Schulte of [ComEd](#) offered a poignant reminder that good policy-making requires more "listening."
- Adam Gromis ([Uber](#)) and Mike Buff ([Electrify America](#)) says we all move beyond "business as usual."
- Speakers from [SOM](#), led by Doug Voight, emphasized the benefits of and need for holistic solutions to our many gigaton scale challenges.
- Deanna Zhang ([TPH](#)), Meghan Pasricha ([Riverstone](#)), and Chris Leary ([Orion](#)) made the case that "sustainable business is good business and a better investment."
- Youssef Mestari and Nikki Mehta of [Honeywell](#): "B to C companies are, generally, more committed to sustainability than B to B companies."
- **Denmark released its new energy ecosystem [map](#)!**
- Special thanks to the [SISE Fellows Class of 2021](#), our cohosts at UIC (including George and Thomas), [Katy](#) at AES, and especially the honorary Chair for SISE 2021, [Marianna Grossman](#)!!
- **In case you missed the *Energy Today* special issue:** [The Roaring 20's Hot Energy Jobs Market](#).



## - Fossil Fuels -

### - Oil -

- The [OPEC+ deadlock](#) continues to **push oil prices higher**, which has inspired oil producers to sell off more inventories (seven straight weeks). But prices are not high enough for producers to reduce their "[fracklog](#)" (*insert - Members have access to the Market Insider*).



### - Gas -

- *Update:* In the previous [Energy Matters \(ser. 7, vol. 12\)](#), AES editors noted that the US is closing its helium reserve. Continuing, **Gazprom of Russia has launched the first of six helium processing and storage plants** and will produce 45 to 60 million cubic metric tons. Table: [Top-4 helium producers](#), in million cubic meters of helium production, 2020.

1. United States - 74 mcm
2. Qatar - 45 mcm
3. Algeria - 14 mcm
4. Russia - 4.5 mcm



## - Coal, Mining and Minerals -

- **Coal consumption in the US peaked in 2007 at about 1.13 billion short tons and has declined in nearly every year since.** In 2020, coal consumption was about 477 million short tons, the lowest percentage share of total US energy consumption since at least 1949.

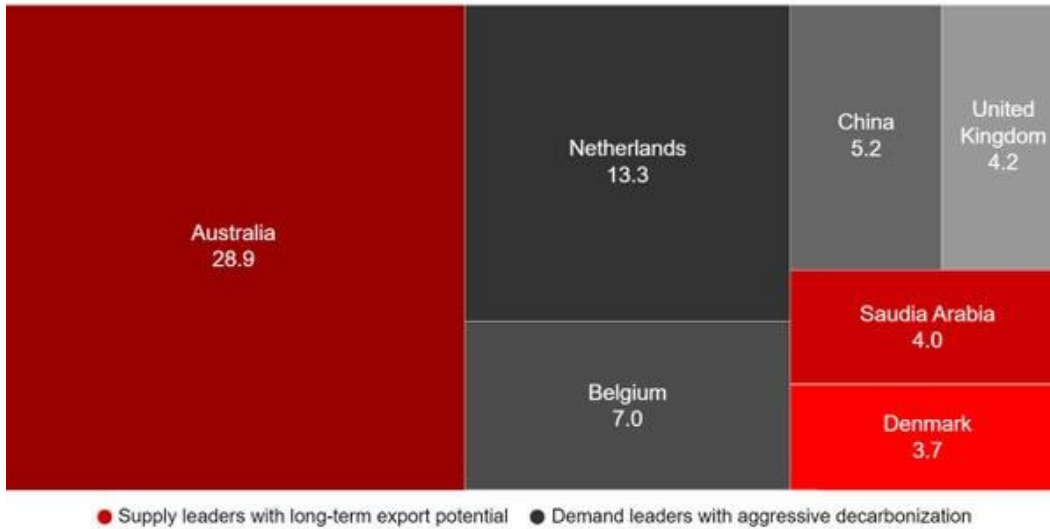
### - Carbon Capture -

- New research suggests that **carbon emissions and carbon removal might be asymmetrical.** (*Meaning, 1 ton in ≠ 1 ton out.*)

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## - Low-Carbon Energy -

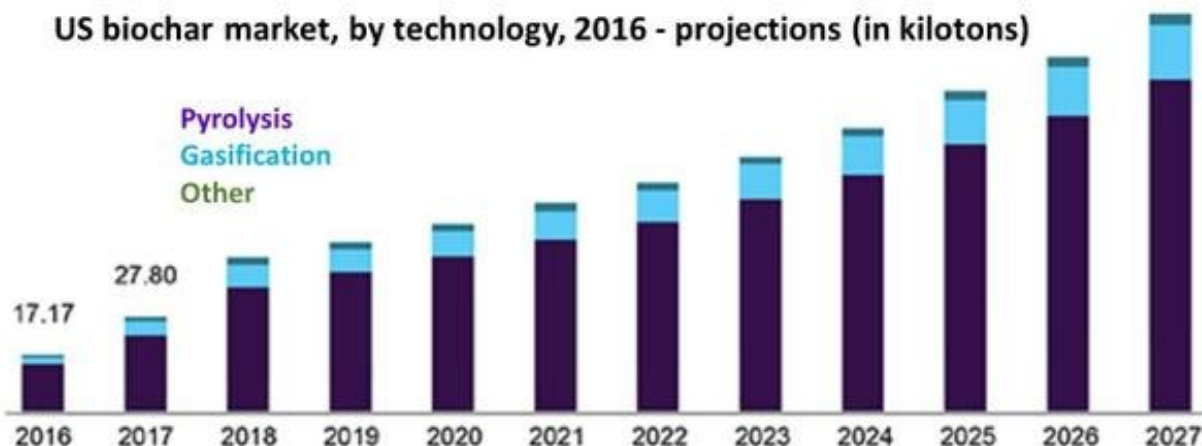
- The top-7 countries with the greatest green [hydrogen](#) capacity, in GW (insert):



- **Biochar, a primer:** Also known as charcoal, biochar is made by decomposing biomass (from agricultural or forestry waste) with very high temperatures in the absence of oxygen.

- In 2019, the US market was about \$100 million annually, but revenue is growing.
- Shopify and Microsoft have invested in the Australian firm [Echo2](#), which uses urban green waste, plantation forest residues, and wood waste from crops.
- Microsoft is also investing in a project from Germany's [Carbon Cycle](#), while Shopify is also working with [Ecoera](#), from Sweden.
- Finland's [Carbofex](#) is producing biochar using a combined heat and power system and turning it into materials for water filtration and horticulture.
- *Downside:* making biochar requires temperatures in the range of 300 to 1,000 degrees Celsius in a very controlled environment (preferably with zero oxygen).

**US biochar market, by technology, 2016 - projections (in kilotons)**



- In 2021, [hydropower](#) has generated just 7% of the power in California, while the last five years [averaged](#) 16%. Members have access to the AES hydropower white paper [Water Works](#).

- **California ZEV needs** (zero emission vehicles):

- There are about 15 million total registered vehicles in the state right now.
- About **700,000** of those are ZEVs.
- California has a goal of **5 million ZEVs** by 2030.
- The state has about 70,000 public chargers right now.
- **The state will need about 700,000 EV chargers to support 5 million ZEVs.**

- **Lithium mining**, by the numbers:

- The new **Thacker Mine** lithium facility in Nevada - projected to be the largest in the US - will produce 54.4 million kg (or, 60,000 tons) of lithium carbonate per year.
  - The battery pack for a typical EV passenger vehicle requires 8.4 kg of lithium.
  - Thacker Mine lithium production in 1 full year of operations = 6.5 million EVs.
  - There are 275 million automobiles in the US and about 12 million EVs produced annually.
  - **Therefore, the US market will need five Thacker Mines by 2030.**
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## - Policy -

- The **White House** and **Congress** agreed to the **\$1.2 trillion Bipartisan Infrastructure Framework budget deal**, including \$79 billion for construction of thousands of miles of new transmission lines and a new government Grid Authority office to oversee the power infrastructure upgrades. (*Note*: a ten-year extension of the Investment Tax Credit (ITC) for renewable energy was left out of the bill.)

- The White House announced a **ban** on imports of polysilicon products made by Hoshine Silicon Industry Co., located in Xinjiang, China, because the company uses forced labor. The Xinjiang region is the primary polysilicon producing region — about half of global production. **The ban may affect the solar module supply-chain.** (*Note*: China **condemns** the ban.)

- The Biden administration wants to create a program that allows **corporations to buy credits that pay farmers to pull carbon dioxide out of the air and into their soil**, but it will require a very complicated administrative program and the economics are difficult.

- **President Biden's Executive Order** "Put the Climate Crisis at the Center of US Foreign Policy and National Security" is now in effect.

## - Energy policy around the world -

- **Teapots**: A term used by Chinese government officials when referring to private refiners who ignore government regulations, quotas, taxes, and emission limits. China has cut crude import quotas in half to punish its teapot refineries.

- **Norway awarded four new exploration licenses** in the Arctic region to its oil and gas industry.

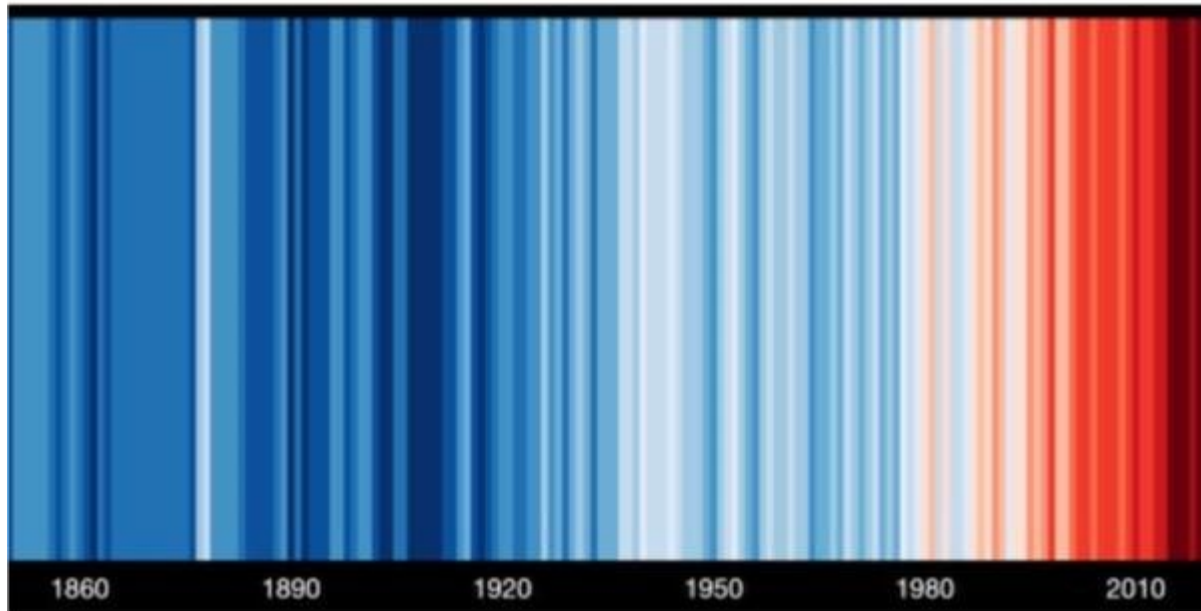
- **Canada passed the Net-Zero Emissions Accountability Act (Bill C-12)**, one of the most ambitious mandates in the world. *Context*: Canada has missed every climate target it has set, which motivated this government to act more aggressively than its predecessors.

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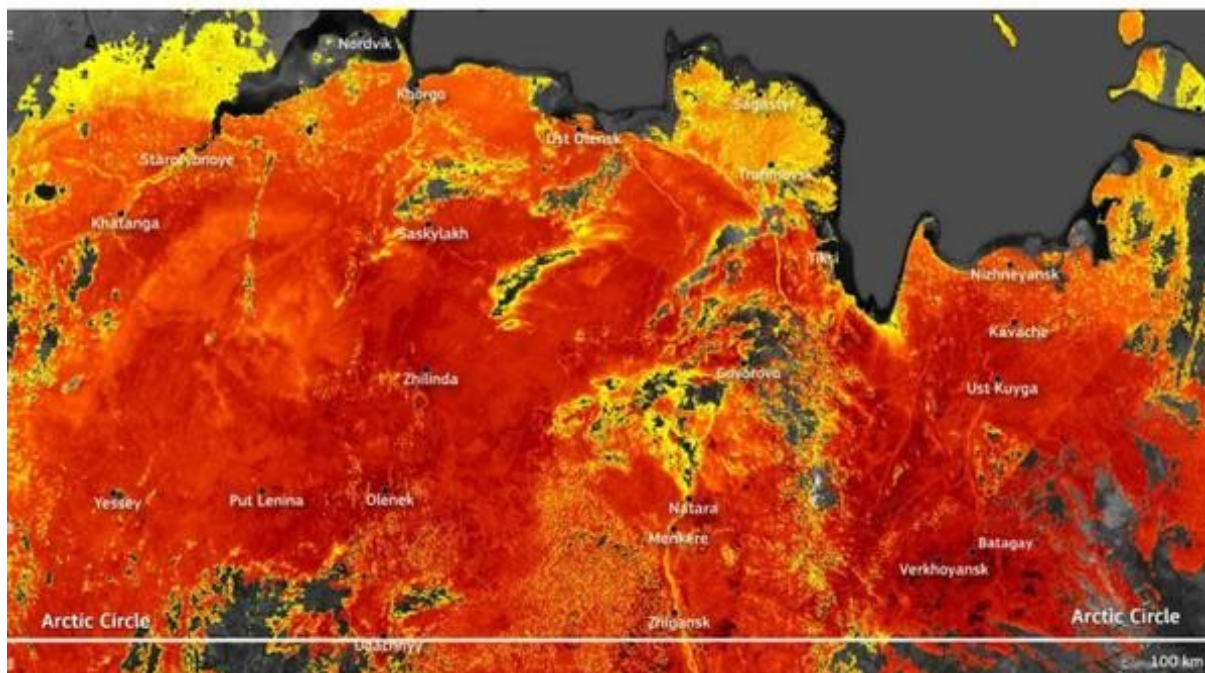
## - Climate and Sustainability -

- The Intergovernmental Panel on Climate Change (IPCC) has determined that **dangerous climate thresholds** — species extinction, widespread disease, unlivable heat, ecosystem collapse, rising seas — are [closer than once thought](#).

- *Insert: [Visualization](#) of temperature change from 1884 - 2020. (Note: each vertical line represents one year; blue is cooler than average and red is warmer than average. The interactive resource can isolate regional temperature changes, too.)*



- *Insert: Temperatures in parts of [Siberia](#) topped 118 degrees Fahrenheit (48 degrees C).*





- *Insert: Refugee vulnerabilities and displacements in a changing climate. Note: the interactive [map](#) shows the origin of refugees worldwide and individual displacements; click the map to interact with the data.*



- **The top-4 countries with the [most displacements](#) due to weather/climate-related disasters in the last two years** (Note: United States = 916,000):

1. India = 5,018,000
2. Philippines = 4,094,000
3. Bangladesh = 4,086,000
4. China = 4,034,000

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## - Research and Markets -

- **Featured: Five energy IPOs to watch in Q3 and Q4 2021** (in no particular order):

1. [Daqo New Energy](#) - a Chinese polysilicon manufacturing company well positioned in spite of President Biden's import restrictions
2. [Tamboran Resources](#) - an Australian shale company with a focus on LNG
3. [LG Energy Solutions](#) - an EV battery company spinning off from LG Chem in South Korea
4. [Raizen](#) - a Brazil-based biofuels company with financial support from Royal Dutch Shell
5. [Acciona](#) - a Spanish renewable energy giant that's Europe's biggest IPO of the year

- **Special announcement: The IRS announced that developers of new wind, solar and other renewable energy projects will have an extra one or two years to finish construction and qualify for federal tax credits.** The IRS announcement is in [Notice 2021-41](#).

- Projects on which construction started for tax purposes in 2016 through 2019 will now have six years after the year construction started to finish.
- Projects on which construction started in 2020 will have five years.
- The IRS also made it easier for developers to qualify for even more time.

- More than 400 investors, who collectively hold a third of the world's assets (\$41 trillion USD), have stated they **want world governments to [end](#) their support of fossil fuels and significantly cut carbon emissions** in the next decade. AES Members have access to a summary of the open letter and its 79 signatories.

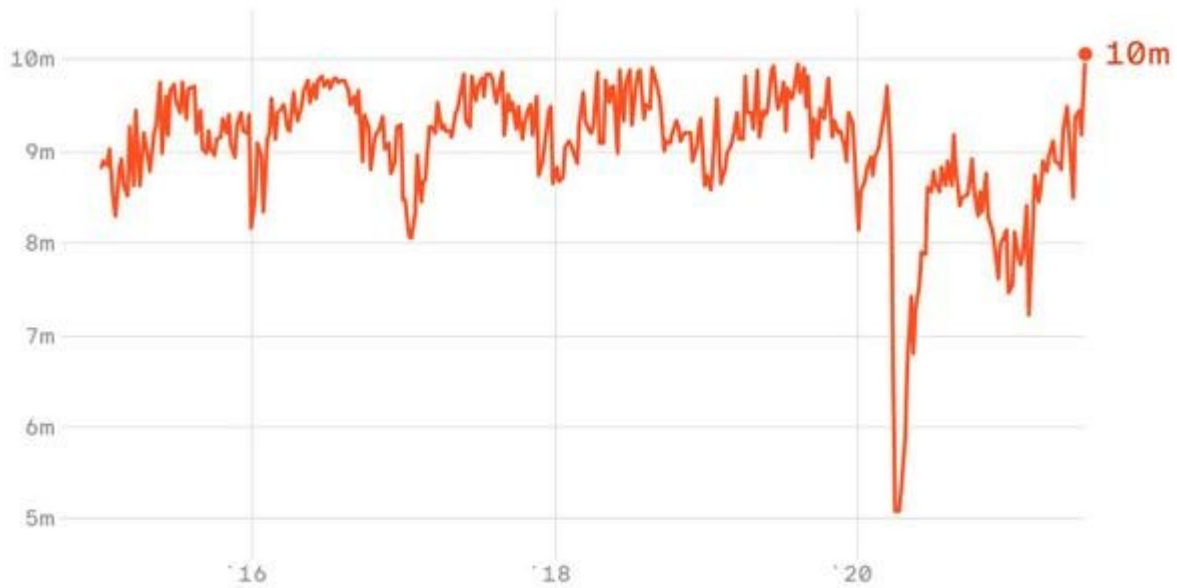
- During the COVID-19 pandemic, **the world used 129 billion face masks and 65 billion gloves each month**. AES Members have access to [research on plastic waste](#).

- [Stellantis](#) — whose brands include Dodge, Peugeot, Jeep, Citroën, and Opel — is investing more than **\$35 billion in EV production**.

- AES recommends [Neuron](#): a new platform that streamlines, automates, and digitizes the typical legal processes along a startup's journey – from incorporation to fundraising to exit.

-The [carbon-price](#) necessary to achieve global temperature targets is **US\$40–80/tCO<sub>2</sub>**.

- **Gasoline demand exceeds pre-pandemic levels**. (Insert: weekly US gasoline consumption.)



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

- **2,000,000**: the approximate minimum number of cars that are stopped at a stoplight waiting for the light to turn green in the US.

- **626,155**: estimated pounds of CO<sub>2</sub> produced by training a single deep learning model. (Source: AI expert [Kate Crawford](#))

- **7,000**: the number of computers mining cryptocurrency seized by the Iranian government because of [severe power shortages](#) during this very hot summer. Iran also [banned](#) the use of air conditioners in government and state-owned buildings.

- Summer electricity/grid reliability assessment of emergency risk areas (insert [map](#)):



- Schlumberger's New Energy closed a number of investment deals, including one for [RayGen](#), an Australian solar+ storage company.

### - Cybersecurity -

- The [Kaseya Attack](#) was a zero-day infiltration by Russian hackers, who downloaded and deleted customers' data and then demanded a ransom for the data's return. Making the hack particularly grave is that Kaseya is known as a "managed service provider."

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## - Member Bulletin Board -



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- AES recommends the upcoming geothermal conference, [Pivot 2021](#), July 19 - 23.
- AES editors recommend the report [Jobs Through a Green Hydrogen Tax Credit](#).
- AES recommends the upcoming Wood Mackenzie [Power and Renewables](#) conference.

### - JOBS -

- [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.
- [Amazon](#) is seeking a Senior EV Charging Engineer
- The Stanford Technology Ventures Program ([STVP](#)) is seeking an Executive Director.
- The [World Energy Council](#) is looking for a Chief Insights Officer and a Director of Policy and Markets, both positions in London.
- [Alphataraxia](#) in Los Angeles and D.C. is looking for an Investment Analyst.
- The [Asian Infrastructure Investment Bank](#) is seeking a Senior Environment Specialist and a Senior Social Development Specialist, both positions in Beijing.
- The [World Wildlife Fund](#) is seeking a Senior Director of Oceans Area-Based Conservation (#21075), based in Washington, D.C.
- The [University of Colorado, Boulder](#) is seeking an Assistant Director of its Energy and Climate Justice Programs.
- [Penn State University](#) has a number of tenure-track faculty positions in Natural Hazards, Energy, Minerals and Materials



## - Quotes from SISE 2021 -

"The companies that are adopting more aggressive sustainability strategies tend to be B to C rather than B to B, probably because customer-facing companies are more accountable to the public."

— Youssef Mestari, Chief Marketing Officer, Honeywell Building Technologies

"We can no longer accept 'business as usual.'" — Adam Gromis, Public Policy Manager of Sustainability & Environmental Impact at [Uber](#)

"Sustainable business is good business, and an even better investment." — Chris Leary, Orion Energy Partners

"Bring it on." — Amy Heart, Senior Director of Public Policy at [Sunrun](#) (when asked how she confronts the gigaton challenges that humanity faces every day)

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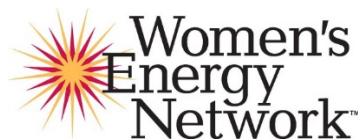
## - Gratitude -

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