

2024 AMERICAN ENERGY SOCIETY

ENERGY AWARDS

Each year, the American Energy Society surveys the energy landscape and spotlights the most extraordinary contributions to energy and sustainability. The award categories are: people, STEM, markets and innovations, media, the arts, and more.

People Awards

- Energy Person of the Year: Global - Karen Clark



You probably aren't familiar with [Karen Clark](#), but it is absolutely certain that she's had an impact on your life. In 1987, Ms. Clark developed the first extreme weather insurance model and the industry has used it ever since.

Ms. Clark's mathematical models offer new ways to understand and manage risk associated with extreme weather. Her models don't just look at worse-case scenarios or historical data, but they also emphasize a probability distribution of potential outcomes. What are the chances of a \$1 billion versus a \$10 billion hurricane loss? Insurance companies need insight about probability for every asset so they can evaluate the likelihood of a solvency-impairing event and the costs and benefits of various resiliency strategies. With continued reliance on a carbon-based economy and its impact on extreme weather and environmental disaster comes added challenges. No doubt Clark's risk and resiliency formulas will become even more essential.

When Clark started out, catastrophe reinsurance was primarily written out of Lloyd's of London. "I gave my first presentation in the Lloyd's Library to 100 male underwriters. Not only was I a woman, but I was an American woman, and I was seven months pregnant," says Clark. "Along with that, I was carting a portable computer. Many underwriters had never seen a portable computer, much less used one."

Clark hasn't looked back. She's the founder of the first catastrophe modeling company (Applied Insurance Research) and is internationally recognized as the expert in the field of catastrophe risk modeling. She is the one person most responsible for revolutionizing and reinventing the way insurers, reinsurers, and financial institutions think about and manage resiliency and catastrophe risk.

**- Person of the Year: United States -
David Hochschild, Chair of the CEC**



David Hochschild's career has spanned public service, environmental advocacy, and the private sector. He first got involved in solar energy in 2001, when he launched an initiative to put solar panels on public buildings. He then cofounded Vote Solar, an advocacy organization that promoted solar policies at local, state, and federal levels. Hochschild also served as executive director of a national consortium of leading solar manufacturers, vice president at Solaria, and commissioner at the San Francisco Public Utilities Commission. Perhaps his greatest impact has been on the California Energy Commission, serving as chair for the last six years. This is [one of the most powerful institutions](#) driving the global energy transition. Hochschild's professional kryptonite? Too many people are too willing to share too many opinions about energy, but he is always as cool as the other side of the pillow.

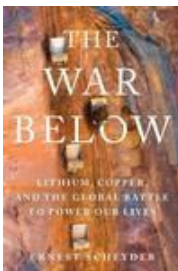
**- Energy Writer of the Year -
Rosanna Xia**



In case you missed it, AES has selected [Rosanna Xia](#) as the Energy Writer of the Year, the premier literary award for energy. Xia's work offers a unique philosophy about resiliency that can help us to think differently about our relationship with the environment.

She is the author of *California Against the Sea*, an award-winning book about the history of the Golden State's 1,200-mile coastline and inspired efforts to protect it. And, Xia just released her documentary, *Out of Plain Sight*, a story about half a million barrels of toxic waste quietly dumped into the Pacific Ocean off the coast of Los Angeles a few decades ago.

**- Energy Book of the Year -
The War Below: Lithium, Copper, and the Global Battle to Power Our Lives
by Ernest Scheyder**



To build electric vehicles, solar panels, cell phones, and millions of other devices means the world must dig more mines to extract lithium, copper, and other critical metals. But mines are unpopular, even as they have a role to play in fighting climate change and powering crucial technologies. These tensions have sparked a worldwide reckoning over the sourcing of necessary materials.

[The War Below](#) reveals the explosive brawl among industry titans, conservationists, community groups, policymakers, and many others over whether the habitats of rare plants, sensitive ecosystems, Indigenous spiritual sites, and other places should be dug up for their riches. (Note: [The War Below](#) was longlisted for the National Book Award for nonfiction and the 2024 Financial Times and Schroders' Business Book of the Year awards.)

**- Most interesting investment group -
Hassatou N'Sele
CFO, African Development Bank Group**



The African Development Bank Group (AfDB) has pioneered a new asset to distribute climate finance capital without burdening cash-strapped governments. Under the leadership of Chief Financial Officer [Hassatou N'Sele](#), the AfDB introduced a \$750 million "hybrid" bond in January 2024, the first ever issued by a development bank. Among many worthy objectives, funds from this bond are supporting efforts to double access to electricity in sub-Saharan Africa, including 30,000 megawatts (MW) of low-carbon and reliable electricity generation capacity for 60 million households by 2030.

**- Energy Thought Leader: Higher Education -
Michael Webber
University of Texas, Austin**



[Michael Webber](#) has an atypical academic career. After completing his PhD in Mechanical Engineering at Stanford University, Webber shifted into private research for about six years at the RAND Corporation (he holds six patents), and then returned to academia by joining the faculty at the University of Texas, Austin, as a professor of mechanical engineering and chair of the department. But, it's his side hustles that stand out. Professor Webber also serves as CTO of Energy Impact Partners' venture fund -- the firm that won the "AES most interesting investment group" award last year. And by the way, Webber also serves as an advisor to *Scientific American* and has written a number of AES award-winning books, like [Power Trip: The Story of Energy](#).

**- STEM Librarian of the Year: Higher Education -
Jill Powell
Cornell University Library**



There are over 3,200 search engines on the internet, and with so many choices it's not easy to determine which ones find information needed by engineers. Enter [Jill Powell](#), engineering librarian at Cornell University. From launching new outreach initiatives, to overseeing the renovation of libraries, to building best practices around the library's digital projects, publications, services, and operations, she does it all. Recognition of Powell (and her colleagues) is very well-deserved.



The STEM Awards

- Story of the year -

From "search" to "suggest"



Once upon a time not so long ago, a query entered into any website search engine would send electrons out into the cloud and then electrons would return answers. Now the bidirectional electrons have to make two roundtrips — the first as a search and the second as suggestions — so that the search engine can learn and deliver smarter results. The problem is that each search now requires twice the computational activity, which requires more electricity, and this is only the beginning. Many utility executives will privately admit that this surge of demand was totally unexpected and that the rise of AI has strained the grid. And make no mistake, quantum computing and more expansive neural networks are arriving sooner than you think!

- Word of the year -

Resilience



Resilience is the ability to adapt to stressors and maintain psychological well-being in the face of adversity. It also refers to the ability to regain mental health after experiencing adversity. Synonyms include: strength, persistence, tenacity, perseverance; antonyms include weakness, vulnerability, dependence....

With so much uncertainty in the sector — energy insecurity, extreme weather, unpredictable energy policies — the word "resilience" seems apt and sorely needed. (Note: "resilience" was also the word of the year for *Mother Runner* blog and *College Parent Central*, the most used word in global health science conferences, and the "focus" word according to *Merriam-Webster*. A search on Google yielded more than 67 million hits in 2024.

- Interesting energy startup: United States -

Cleartrace



Cleartrace

Usually, AES is not drawn to SaaS or IoT, but the [Cleartrace](#) platform is special. Its hourly load matching technology can digitally track all energy assets, GHG emissions, and certificate portfolios, identifying the source and destination of every electron or carbon molecule ... and its platform is impressively user-friendly.

Other nominees include:

- [Arculus Solutions](#) – Retrofits natural gas transmission pipelines to safely and cost-effectively transport hydrogen.
- [Aurora Solar](#) – Leading solar design software.
- [Form Energy](#) – Developing iron-air batteries for grid storage.
- [Husk Power Systems](#) – A leading rural energy services company for weak-grid and off-grid communities in Africa and Asia.
- [hydroGel](#) – An energy efficient purification system for biopharma and food industries.
- [Lyten](#) – A super-material applications company pioneering 3-D graphene.

- Interesting energy startup: Global - LIPPER K.K. (Japan)



Tires are strengthened with carbon black, a tire reinforcement material. However, carbon black is made by burning petroleum. [LIPPER K.K.](#) uses wood-derived nano-cellulose material to reinforce car tires with a stronger fiber structure.

Other nominees include:

- [CLHYNN](#) (France) – Unlike traditional fuel cells, CLHYNN combines the hydrogen fuel cell with its source to support the green hydrogen sector.
- [SunCulture](#) (Kenya) – SunCulture assembles and distributes “AgroSolar Irrigation Kits,” solar-powered water-drip irrigation systems for agriculture.
- [Bright](#) (Mexico) – Funded by Y-Combinator, Bright is a residential solar provider for the developing world (think Sunrun but with different financing mechanisms).
- [Enpal](#) (Germany) – A leading solar-as-a-service provider. Enpal keeps it simple.

- Large company of the year - Phillips 66



P66 isn't bashing California on earnings calls like Chevron and PBF Energy Inc. have been doing (Mike Wirth compared California energy policies to a "socialist state"; PBF said it was under "assault"). They're not overcommitting then shutting down biodiesel plants when the market turns (like what Chevron did). Instead, P66 continues to push forward with its Rodeo conversion, shutting the LA refinery and ultimately seeking profit from a burgeoning SAF market. Yes, they are doing the bare minimum, but they are proactive and doing more while their competitors are busy being reactive and doing less.

- Utility of the year - Southern Company



In 2005, an agreement was reached between Georgia Power, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and Dalton Utilities to build two new nuclear reactors. One year later, the owners selected Southern Company to run the power plant and quickly fast-tracked an application for an Early Site Permit to the US Nuclear Regulatory Commission (NRC). Then things got weird. State regulators took almost four years to approve the plan and then four years after that construction began. The Vogtle power plant project in Georgia was considerably over budget, with costs exceeding \$35 billion, far more than the initial estimate of \$14 billion, and significantly behind schedule, running approximately seven years late on its construction timeline. Among the many consequences, the delays and cost overruns drove Westinghouse, the company building the reactor, into bankruptcy.

Many thought Vogtle would never happen. And yet, the two Vogtle nuclear power plants began operations this year! America is very good at building small things (computer chips), virtual things (the cloud), and soft things (SaaS), but it has forgotten the art and science of building big things (like dams, bridges or infrastructure). Maybe Vogtle is the first of better things to come?

- Most interesting scientific experiment - COF-999



Chemists at the University of California, Berkeley, have developed a new type of porous absorbing material — a covalent organic framework ([COF-999](#)) — which can capture CO₂ from ambient air without degradation by water or other contaminants.

- Most interesting sector - Geothermal



The term “geothermal” is often used as a catchall phrase to describe a spectrum of energy technologies. At one end are simple heat exchangers used in the shallow subsurface of the earth (<300m) that stores “excess” heat from the sun (geoexchange). At the other end of the spectrum are large projects that tap into deeper, naturally occurring heat from the earth (geothermal).

The talent, capital, and interest in and support of all aspects of geothermal is impressive and a validation of the sector and its potential. And, oh, by the way, keep an eye on [Fervo](#).

- Looking ahead: the technology to watch in 2025 - Small modular (nuclear) reactors



A fleet of four microgrid-scale SMRs are scheduled for deployment in [Ontario](#); in the US, [Virginia](#) will probably be the first state to commit, with power purchase agreements signed by data center providers like Amazon, Microsoft, and Google.

- Looking ahead: the sector to watch in 2025 -

The bioeconomy



The bioeconomy involves natural agricultural resources that can be harvested, consumed, and regenerated to [create](#) products, services, processes, and energy. The booming non-food bioeconomy is a source of a large share of [global emissions](#). The reason to watch now? A number of states and countries are moving quickly to develop this space, including California, [Oregon](#), and [Colorado](#), as well as Norway and Sweden.

- Looking ahead: an interesting startup to watch in 2025 -

Caribou Biofuels



[Caribou Biofuels](#) has developed a revolutionary mobile technology that can use most forms of biomass feedstock — from forestry to agricultural to municipal waste — to produce valuable liquid fuels and sequestered carbon products, such as biochar (*insert*) for filters or soil supplements.

Other nominees include:

- [Ateios](#): Manufactures high energy-density batteries without toxic solvents.
- [CarbonCapture](#): Innovative direct air capture technology.
- [Dinur Soft](#): Smarter, better AI powered O&G well management.
- [Forum Mobility](#): Electrifying last-mile drayage, among other verticals.
- [Oklo](#): Developer of advanced fission-based nuclear power plants that could provide emission-free, reliable, and affordable energy.
- [SynMax](#): Smarter, faster AI powered geospatial fracking intelligence.
- [Syncriis](#): Creates stackable inverters and battery systems for microgrids.



The Best of American Energy Society

- The Best of *Energy Today* -



1. [The Energy Technology Hype Curve](#)
2. [The Advent of ResTech](#)
3. [Brandolini's Law](#) (*aka* The Bullshit Principle)
4. [Transition Turmoil](#) (Norway)
5. [Summer Reads](#), by guest editor Barbara Burger

- The Best of Energy Matters - AES editors pick the 6 most significant energy/environment stories of 2024

1. **Trump 2.0:** What will his election mean for the energy sector and the environment?
2. **Deploy. Deploy. Deploy.** The Biden administration is racing to get US Inflation Reduction Act funds out the door as quickly as possible.
3. **AI:** There is enormous pressure on electricity providers to provide energy security for ratepayers and meet surging demand from Big Tech.
4. **O&G:** The story about oil is that there is no story — the market has been unprecedentedly stable all year.
5. **Extreme weather.** 2024 was yet another year of extreme weather in the US and around the world.
6. **Solar + storage:** Battery storage capacity surged, especially if paired with solar.

- Best original publications -

Note: [AES Members](#) have archival access to all reports and offerings



1. [Digging In](#): A starter's guide to geothermal. Few topics are discussed so frequently but with so little understanding.
2. [DevCo DNA](#): While manufacturers, policymakers, energy service companies, and investors play essential roles, we believe that energy project development companies — “DevCos” — are leading the energy transition.
3. [Proceedings: The Energy Transition and Its Workforce](#): In September, 2024, AES invited 30 directors and executives from across the energy sector to participate in a private summit.



- The Energy Year in Photos -



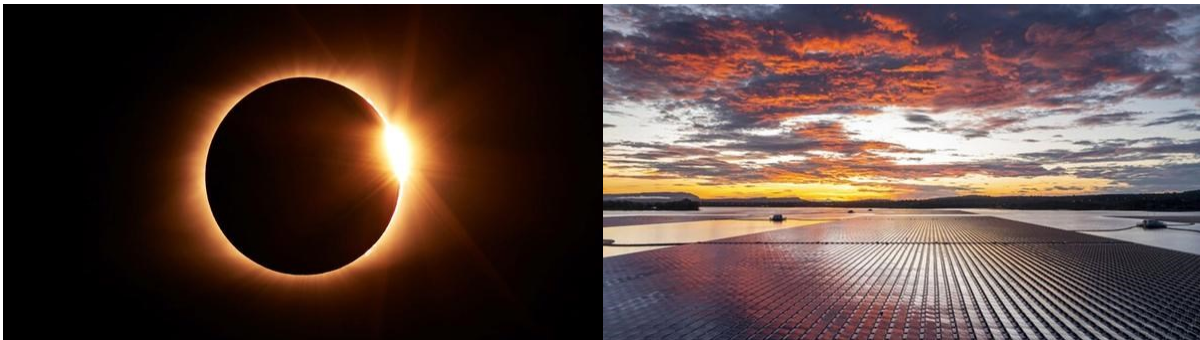
Left: The oil and gas sector was unusually stable this year. Photo by GEP.

Right: The proximity of renewables, fossil fuels, and the grid in the energy transition. Photo by NRG.



September (*left*): Helene's aftermath in Boone, North Carolina. Photo by WBTV.

February (*left*): Geopolitical conflict in the Middle East disrupts global energy systems. Photo by acled.



Left: Total solar eclipse, April 8, 2024. Photo by NASA.

Right: Solar sets US deployment records in 2024. Photo by US News.



Energy & Environment, "Art & Entertainment" Awards

- The best popular movie about energy and/or climate -

Twisters



Kate Cooper gets lured back to the open plains to test a new extreme-weather tracking system. She soon crosses paths with Tyler Owens, a charming but reckless social media influencer who thrives on posting storm chasing adventures. As [Twisters](#) intensify, Kate, Tyler and their competing teams find themselves in a fight for their lives as multiple systems converge over central Oklahoma.

- Best documentary about energy/environment -

The Grab



[The Grab](#) is a riveting documentary that chronicles a searing investigation of geopolitics. It's a vital look at how Russia, China, and Saudi Arabia have gained control of global food and water resources. This film will appeal to all political views. *Note: The Grab* will premier at the [Beach Break Film Festival](#) on December 28, 2024, in Half Moon Bay, California. [AES Members](#) can attend the screening and a private gathering with its Producer and Director. [Contact us](#) before December 23 for tickets.

- Best song with energy as the theme or sub-theme -

Electric Energy



Ariana DeBose, Boy George, and Nile Rodgers sing [Electric Energy](#) (from the movie *Argylle*), and the music video cameos from Henry Cavill, John Cena, Ariana DeBose, Dua Lipa, Bryan Cranston, Catherine O'Hara, Sofia Boutella, and the legendary Samuel L. Jackson singing about energy make this song stand apart from the other nominees.

Other nominees include:

- OMD – [Electricity](#) (a 2024 fan-made remix of the single released in 1979)
- G-DRAGON – [POWER](#) (a K-Pop song)
- D.O.D - [Sun Is Shining](#) (a British DJ summer anthem)
- Lael Neale – [Electricity](#) (written during an ice storm that caused a power outage)
- Ella Langley – [Weren't for the Wind](#)
- Liam Bailey – [Canary in the Coalmine](#)
- Brad Paisley – [The Medicine Will](#) (music video filmed in a coal mine)



Other Media Awards

- Best podcast about energy and/or sustainability - **Volts**



The energy transition has become an enormous, sprawling meta-story. It spans the entire economy, from heavy industry to tech to retail. It's unfolding on every level of government, from local zoning boards to the federal government to international treaties. It involves technology, politics, policy, psychology, even philosophy. It's a lot to track, but [Volts](#) covers it all.

- Best indie energy blog - **Energy Update, by Frank Maisano**



[Frank Maisano](#), the founding partner of the Policy Resolution Group at [Bracewell](#), has been writing Energy Updates for about 25 years, a near-weekly "must-read" for journalists, policymakers and lobbyists inside The Beltway and across the country.

- Best peer-reviewed article for a general audience -



"Interconnection Roadmap"

US Department of Energy

AES editors selected [Interconnection Roadmap](#) for several reasons:

1. This study covers a crucial topic that is, or at least should be, bipartisan.
2. It arrives at a solutions-oriented conclusion that identifies the "next steps" in interconnection reform beyond Order 2023.
3. The research is expansive, comment period exhaustive, and distribution extensive.
4. It met all the criteria: member recommendation, author verification, and editorial approval (for more, see *about the AES award process* below).

Note: Also nominated and winning many votes was "[Pathways to Commercial Liftoff: Sustainable Aviation Fuel](#)," also published by the DoE.

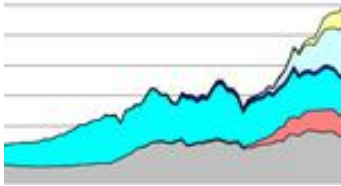
- Best article in a trade publication - **"The Exponential Growth of Solar"** *The Economist*



Solar capacity is doubling roughly every three years, leading to a tenfold increase in solar power generation every decade. This makes it the fastest growing energy source globally and potentially the largest source of electricity by the mid-2030s. Since this is *The Economist* (winner of this award category four years in a row), the data and sources are reliable, "[The exponential growth of solar power will change the world](#)" makes a compelling case that "the sun has won."

- Best op-ed -

"The Irresistible March of Energy Realism" *Wall Street Journal*, by Holman Jenkins, Jr.



Hyperbole aside, the thesis that drives "[The Irresistible March of Energy Realism](#)" is straightforward: the world has a voracious appetite for more power and electricity, which means generation has increased across all sectors, fossil and renewables included. Meanwhile, last year global emissions topped 40 billion tons for the first time.



More Book Awards

- Best book about energy technologies –

The Future of Energy, by Richard Black



In [The Future of Energy](#), Richard Black argues that there are only five technologies that are necessary to drive the transition to a clean energy future: solar power, wind power, electric vehicles, heat pumps, and energy storage systems

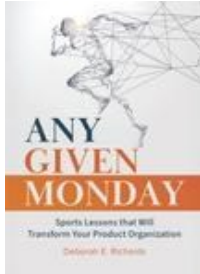
- Best edited book -

Geographies of Solar Energy Transitions edited by Siddharth Sareen, *et al.*



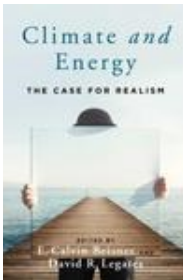
[Geographies of Solar Energy Transitions](#) (UCL Press) focuses on how solar energy governance (both state-based regulations and more market-driven modes of governance) is evolving to address these conflicts in diverse settings. Each chapter is well written (especially chapter 4 "Beyond Power" by Karla Cedeño and Ana G. Rincon-Rubio; and also chapter 10 "Governing solar supply chains," by Dustin Mulvaney).

**- Best business management book for energy companies -
Any Given Monday, by Deborah Richards**



[*Any Given Monday*](#) features inspiring stories about teamwork from some of the world's top sports coaches. Each highlights an important lesson in collaboration and teamwork. Every strategy can be easily applied in the workplace to foster better communication, greater productivity, and build a stronger, more cohesive team.

**- Best book for climate change skeptics -
Climate and Energy; The Case for Realism
edited by E. Calvin Beisner and David R. Legates**



In [*Climate and Energy*](#), Beisner and Legates determine that the attempted cures for climate change are generally worse than the disease—especially for the poor. Each chapter evaluates climate change from a Christian perspective.

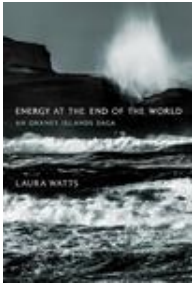
**- Best energy economics book -
Growth: A History and a Reckoning
by Daniel Susskind**



Over the past two centuries, economic growth has freed billions from the struggle for subsistence and made our lives far healthier and longer. Yet prosperity has come at a price: environmental destruction, desolation of local cultures, the rise of vast inequalities and destabilizing technologies.

[*Growth*](#) was shortlisted for the 2024 *Financial Times & Schroders* Business Book of the Year awards.

- Most original thesis about energy -
Energy at the End of the World;
An Orkney Islands Saga, by Laura Watts



[Energy at the End of the World](#) is a story about the Orkney Islands off the northern coast of Scotland. Closer to the Arctic Circle than to London, surrounded by fierce seas, shrouded by clouds and mist, the islands seem to mark the edge of the known world. And yet they are a center for energy technology innovation, from marine energy to hydrogen fuel networks. According to Watts, the Orkney Islands are playing a long game by making energy futures.



A note about the AES award process

Starting in March and continuing through the rest of the year to the Thanksgiving holiday, AES editors start gathering nominations. In all cases, Member recommendations receive the highest consideration, then Friends, and then finally AES staff. To be considered, each award must have at least one nomination and at least another seconding that nomination. Then the selection process begins. Debates are spirited. In most cases, by the end of the debate, the winner is clear; however, there are occasions when the choice is not so obvious, and then award nominees are also included in the announcement. Finally, it is important to mention that there is no compensation of any kind that is exchanged for any of these awards. Simply put, the winners this year and in years past are deserving.



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