

20 overlooked benefits of distributed solar energy

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A study released today provides the most complete list yet of the advantages of solar energy—from carbon sequestration to improvements for pollinator habitat. The paper offers a new framework for analyzing solar projects to better understand the full suite of benefits.

The study, published in *Nature Sustainability*, was conducted by researchers from the University of California, Davis; Lancaster University in the United Kingdom; the Center for Biological Diversity and 10 other organizations.

It suggests a framework for understanding more completely, and ultimately quantifying, the benefits of [solar energy](#), identifying 20 frequently overlooked advantages. For example, [solar panels](#) paired with native plant restoration can add habitat while also increasing panel efficiency.

A Wild Energy Future

The study also marks the launch of a partnership between the Center for Biological Diversity and UC Davis to advance a "Wild Energy" future, which emphasizes the potential of solar [energy](#) systems to benefit not only humans, but the entire planet.

"The first step in creating a wild-energy future is understanding the true value of solar," said lead author Rebecca R. Hernandez, assistant professor at UC Davis' John Muir Institute of the Environment. "By valuing all the benefits of [renewable energy](#), we can start to build an energy system that's beneficial for people, wildlife and wild places."

"Solar energy has way more benefits than most people imagine," said Greer Ryan, a renewable energy and research specialist at the Center for Biological Diversity and co-author of the paper. "We're hoping utilities, regulators and legislators will now have a better sense of the importance of solar energy, which will lead to the expansion of rooftop solar, more community solar development and lower prices for everyone."

Solar energy is the fastest-growing source of power worldwide. In 2019, solar is expected to provide more than 30 percent of all new U.S. electric

capacity. According to the International Energy Agency, solar energy could become the largest electricity source by 2050. Solar has many advantages beyond providing power, particularly when built to maximize social, technological and environmental benefits.

"As governments increasingly commit to 100 percent renewable energy, they should value and appropriately incentivize the synergies outlined in this study," said Alona Armstrong of Lancaster University and the paper's second author. "This would maximize solar energy generation potential while protecting our planet's climate, air quality, water, land and wildlife."

Results

In the report, the authors:

- Suggest a model for engineering solar energy systems that maximizes both technological and ecological benefits.
- Create a framework for characterizing 20 benefits of installations on different spaces, including rooftop solar; solar on contaminated land; solar over functional bodies of water like reservoirs, water treatment areas and irrigation canals; and solar co-located with agriculture and grazing.
- Make the case for understanding that as renewable energy development is ramped up to address the climate crisis, it shouldn't create unnecessary negative impacts, especially when technology and resources are available to maximize positive effects.
- Suggest how this framework might be useful in policy and regulatory decision-making in order to ensure a sustainable energy transition.

More information: Rebecca R. Hernandez et al. Techno–ecological

synergies of solar energy for global sustainability, *Nature Sustainability* (2019). [DOI: 10.1038/s41893-019-0309-z](https://doi.org/10.1038/s41893-019-0309-z)

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