



An array of solar panels at a quarry near Byron CA. © GettyImages

MINING THE SUN

An affordable path to repurposing former mine lands and brownfields into clean energy hubs

CLEAN ENERGY'S SITING DILEMMA

Researchers estimate that an area the size of Texas will be needed to generate enough clean energy to meet U.S. carbon reduction goals.¹ Siting renewables on undeveloped natural and working lands is often considered a low-cost option but can cause unwelcome impacts to local plants, wildlife, recreation, natural carbon sequestration and communities. Proposed renewable projects across the country face significant opposition in nearly every state, slowing the transition and increasing project costs.²

SMARTER SITING—A WIN-WIN SOLUTION

There is a promising solution to accelerate clean energy deployment while minimizing land use conflicts: repurposing former mines and degraded lands for clean energy projects, honoring the energy legacy in those communities. As more utilities transition from coal to electricity powered by the sun and wind, coal mines are shuttering. This opens an opportunity to repurpose these lands, along with other hard rock mining lands, landfills and brownfield sites, for clean energy projects.

There are many benefits to siting clean energy projects on mines and brownfields:

- Renewable energy developers can capitalize on new federal incentives to develop at a lower cost.
- Mines and brownfields are typically equipped with transmission lines, roads, leveled and graded land and other infrastructure that clean energy projects can leverage.
- Neighboring communities and local landowners are often eager to revitalize decommissioned mines and provide new economic benefits and revenue streams.
- Mine land and brownfield sites can accommodate different clean energy technologies beyond solar including energy storage, geothermal, carbon storage and hydrogen.
- Negative impacts on natural areas can be minimized.

¹ Larson, E., C. Greig, J. Jenkins, E. Mayfield, A. Pascale, C. Zhang, J. Drossman, R. Williams, S. Pacala, R. Socolow, E. J. Baik, R. Birdsey, R. Duke, R. Jones, B. Haley, E. Leslie, K. Paustian, and A. Swan. December 2020. "Net-Zero America: Potential Pathways, Infrastructure, and Impacts." Interim report. Princeton University, Princeton, NJ. [Net-Zero America (2020).] Slide 106: "In E+, about 300 GW of wind and 300 GW of solar are built across the U.S. by 2030; -1.5 TW each of wind and solar capacity are deployed by 2050;"

² https://scholarship.law.columbia.edu/sabin_climate_change/200/

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HONORING THE ENERGY LEGACY

FORMER MINE LANDS
Coal used to power America's economy, but many mines are shuttering as cleaner forms of energy have become more affordable, while former hard rock mines no longer provide jobs and tax revenues.

The Nature Conservancy's Mining the Sun Project shines light on how we can transform former mine lands and brownfields into hubs for clean, green and equitable energy.

AFFORDABLE POWER
Clean energy can be brought to scale, which is reliable, affordable, and better for people and nature.

COMMUNITY IMPACT
This approach can help revitalize communities historically dependent on fossil fuels, mining and heavy industry.

LAND OWNER AND ENERGY DEVELOPER BENEFITS
New federal tax credits and favorable state policies make it easier for land owners and energy developers to build clean energy projects on mine lands and brownfields.

DISTURBED LANDS
Brownfields are community liabilities unless they are reclaimed for new uses including solar and other clean energy technologies.

Active planning and early community engagement is required to turn these liabilities into assets.

Mining the Sun can bring benefits to communities, landowners, energy developers, and nature. Artwork by Next Day Animations.

The Path Forward

TNC's Mining the Sun Project is a resource for energy developers and landowners interested in building clean energy projects on mine lands, brownfields, landfills and other disturbed lands. It includes overviews of relevant state and federal policies, economic analyses, community engagement principles and maps showing viable brownfield and mine sites.

In collaboration with communities, energy developers and landowners, TNC is pursuing demonstration projects across the country to test the following strategies to facilitate clean energy on disturbed lands:

- Focusing on mines and other disturbed sites that can facilitate solar development because of size, topography, access, etc.
- Instituting research and monitoring plans to lower development costs.
- Leveraging federal incentives to lower costs, including:
 - > A new 10 percent tax credit in the Inflation Reduction Act for development on mine lands and brownfields.
 - > Tax credits for projects in low-income census tracts.
- Applications to the U.S. Department of Energy Clean Energy on Mine Lands Demonstration Grants Program established under the Infrastructure and Jobs Act.

The EPA RE-Powering America's Land initiative has identified enough mine lands, brownfields, and landfill sites to build half the solar capacity needed to achieve net-zero greenhouse gas emissions by 2050.

Learn more at [nature.org](https://www.nature.org)

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