

CHALLENGE STATEMENT

Environmental Justice

Natural Resources Defense Council

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CHALLENGE TOPIC

Brownfields Siting of Renewable Energy Driven by the 2022 Inflation Reduction Act

BACKGROUND

The Inflation Reduction Act (IRA) of 2022 is the nation's single largest piece of climate legislation in U.S. history, providing \$369 billion for clean energy and climate investments. This includes over \$100 billion to support power sector investments, including bonus incentives for development in low-income communities, communities historically reliant on fossil fuels production, and on brownfields (or properties where former industrial operations may mean that there is the presence or potential presence of a hazardous substance, pollutant, or contaminant).

A significant challenge to transitioning to a clean energy system is the required pace and geographic scope of clean energy project construction. New onshore wind and solar facilities will have a substantial siting footprint and potentially change the U.S. landscape. Brownfields siting of clean energy holds the potential to minimize impacts on the natural environment and ease permitting burdens and is specifically incentivized in the IRA through a stacking up of tax incentives explicitly for brownfield sites and for low-income communities and for energy communities containing these sites.

Brownfields properties can often be large, polluted, and underused land sites located in areas with the existing infrastructure needed to support development renewable energy development (e.g., transmission). Federal and state tax incentives and financing (e.g., Green Bank programs) can create significant economic advantages to brownfields siting of wind and solar energy projects. However, the redevelopment of brownfield sites can raise concerns from impacted community members and successful siting requires active community engagement and community-led processes.

Aspects of community considerations for brownfields siting of renewable energy include local control over site outcomes through agreements or contracts with developers; community labor employment for wind and solar project construction; local tax revenue, net metering credits or leasing income to host towns and that can fund social services and defray brownfields cleanup costs; and displacement of polluting by clean electricity generation. Environmental justice concerns over renewable energy siting on brownfields can involve issues of how cleanup goals may be negatively impacted, alternative community use for remediated brownfields, and local impacts of the renewable energy projects (e.g., viewshed and sound impacts of wind turbines).

CHALLENGE STATEMENT

Develop federal- and/or state-level methodologies, metrics, and policies to drive clean energy development to brownfields that maximizes environmental justice and climate benefits and incorporates community engagement and inclusion in decision making. Groups should consider the Inflation Reduction Act, and the specific incentives and provisions included around “energy communities” and brownfields in their responses.

KEY CHALLENGE QUESTIONS

- What is an estimate of the maximum capacity available from siting onshore wind and solar facilities on brownfields? How does that maximum brownfields capacity compare with the level of renewables needed for deep decarbonization and/or the potential scale of incentivized clean energy buildouts?
- What are motivating factors for communities to support renewable energy siting on brownfields? What are potential equitable and effective structures & processes to engage communities in decision making?
- How could environmental justice metrics for brownfield siting of clean energy be formulated and evaluated? This could include, as an example, metrics around: replacing or enhancing community revenues, not displacing other beneficial community uses for brownfield sites, and ensuring satisfactory site cleanup and improvements in air and water quality.
- Consider sources like [EPA's definition of Environmental Justice](#) when answering this question.
- How could federal and state governments enhance existing data, analytics, and communication to facilitate brownfields siting of renewable energy? This could include approaches that use open data hubs, data science techniques, remote sensing, or mobile computing.
- What additional state or federal policies could drive more equitable development of brownfields, including regulatory and permitting issues?

DATA SOURCES

[US EPA RE-Powering Mapper](#): geospatial data identifying contaminated lands, landfills, and mine sites for renewable energy development

[US EPA EJScreen](#): a nationally consistent data and an approach that combines environmental and demographic indicators in maps and reports

EPA "Cleanups In My Community Map:" [Cleanups in My Community | Cleaning Up Our Land, Water and Air | US EPA](#)

Vibrant Clean Energy (VCE) IRA Low-Income and Energy Communities:

- [IRA_EC+LIC_VCE-Analysis.pdf \(vibrantcleanenergy.com\)](#)
- [EC & LIC NetCDF](#)
- [EC Shapefiles](#)
- [LIC Shapefiles](#)

And see [What is an “Energy Community”? \(resources.org\)](#)

NRDC- PROVIDED, ENRICHED PRIMARY DATA

Zip archive download link:

<https://drive.google.com/file/d/1J-wqEEWXt3pDzpo5766zBQUJLADXuMHZ/view?usp=sharing>

- ArcGIS Pro 3 project
- Coal mine closures since 1999 and coal power plant closures (a component of the definition of an IRA Energy Community), from S&P Capital IQ Pro
- EPA RE-Powering American brownfields sites, enriched for each site with EPA EJScreen tract ID
- VCE IRA Low-Income Community and Energy Community shapefiles
- EPA EJScreen tracts enriched with fractional area of each tract that is an IRA Low-Income Community or Energy Community, and count of EPA brownfield sites and closed coal sites

OTHER MATERIALS (EXAMPLES)

Energy modeling of IRA Energy Provisions (for clean energy deployment):

- NRDC Analysis:
<https://www.nrdc.org/resources/clean-electricity-tax-credits-inflation-reduction-act-will-reduce-emissions-grow-jobs-and>
- REPEAT:
https://repeatproject.org/docs/REPEAT_IRA_Preliminary_Report_2022-09-21.pdf
- Rhodium Group:
<https://rhg.com/research/climate-clean-energy-inflation-reduction-act/>

Deep Decarbonization (1.5-degree) modeling of U.S. Energy System (for clean energy deployment):

- Annual Decarbonization Perspective: <https://www.evolved.energy/post/adp2022>
- Net-Zero America: <https://netzeroamerica.princeton.edu/the-report>

U.S. EPA, “Community Actions that Drive Brownfields Redevelopment,”

https://www.epa.gov/sites/default/files/2019-06/documents/final_community_actions_that_drive_brownfield_redevelopment_6-3-19_508_compliant.pdf

U.S. EPA, “Improving Public Health Requires Community Engagement,”
<https://www.epa.gov/brownfields/improving-public-health-requires-community-engagement>

U.S. HUD, “Brownfield FAQs,”
<https://www.hudexchange.info/resource/3180/brownfields-frequently-asked-questions/>

Illinois EPA, “Renewable Energy Development on Former Landfills and Cleanup Sites,” (see links to key U.S. EP RE-Powering Resources)
<https://www2.illinois.gov/epa/topics/energy/renewable-energy-development-landfills-cleanup/Pages/default.aspx>

Metropolitan Area Planning Council and Groundwork USA, “Solar Energy and Equitable Development: Turning Brownfields to Brightfields,”
<https://www.mapc.org/planning101/brownfieldstobrightfields/> (see resources and slides at the bottom of the webpage) and “Equitable Brownfields to Brightfields Projects: Research Findings Memo,”
https://www.mapc.org/wp-content/uploads/2021/05/Equitable-Brownfields-to-Brightfields-Projects_-_Research-Findings-Memo.pdf

RMI, “The Time is Ripe for Communities to Embrace Clean Energy on Brownfields,”
<https://rmi.org/time-for-communities-to-embrace-clean-energy-on-brownfields/>

Smart Growth America, “Equitable Brownfields Redevelopment,”
<https://smartgrowthamerica.org/join-the-equitable-brownfields-redevelopment-event-on-april-5th/> (see recordings and resources) and “National Brownfields Coalition participates in EPA roundtable on brownfield redevelopment and gentrification,”
<https://smartgrowthamerica.org/nbc-epa-roundtable-brownfields-gentrification/>