

The background of the slide features a vibrant city skyline under a bright blue sky with scattered white clouds. In the foreground, a grid of solar panels is visible, reflecting the sky and the city buildings. A dark blue rectangular box is centered over the image, containing the Eris Webinars logo and the main text.

ERIS
WEBINARS

**THE WEBINAR WILL
BEGIN SHORTLY**

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WELCOME

Repurposing Real Estate for **Renewable Energy**: **Exploring Opportunities** in the Energy Transition

September 26, 2023

MEET THE PANEL

Repurposing Real Estate for **Renewable Energy**: Exploring Opportunities in the Energy Transition

September 26, 2023



Moderator:
Dan French

Founder & Principal, dbForesites



Panelist:
Annika Colston

Founder & CEO of AC Power



Panelist:
Betsy Mason

Associate General Counsel, Catalyze

Renewable Energy

INSTALLATIONS IN THE U.S.

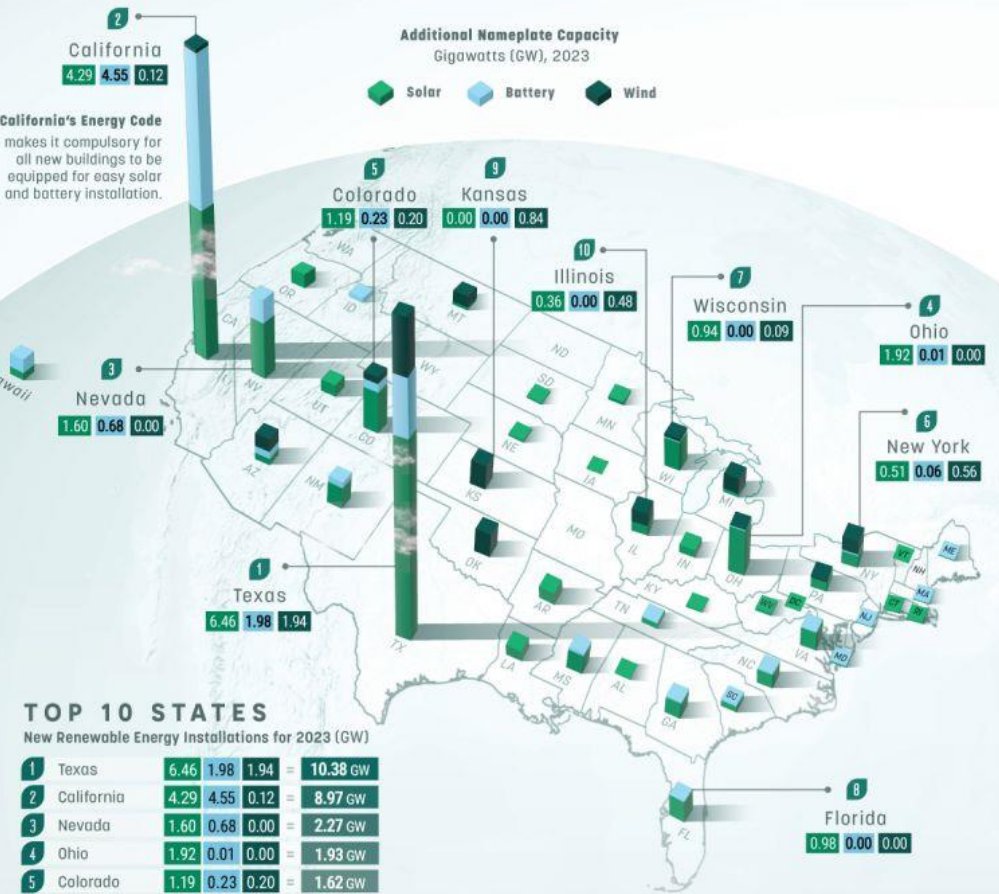
Solar power is set to shine in 2023 with 54% of all new power installations in the U.S. being solar.

Three states make up over 50% of new renewable energy installations.

Additional Nameplate Capacity
Gigawatts (GW), 2023

Solar Battery Wind

California's Energy Code makes it compulsory for all new buildings to be equipped for easy solar and battery installation.



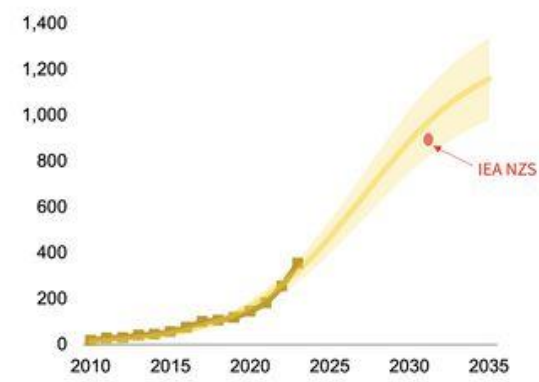
TOP 10 STATES

New Renewable Energy Installations for 2023 (GW)

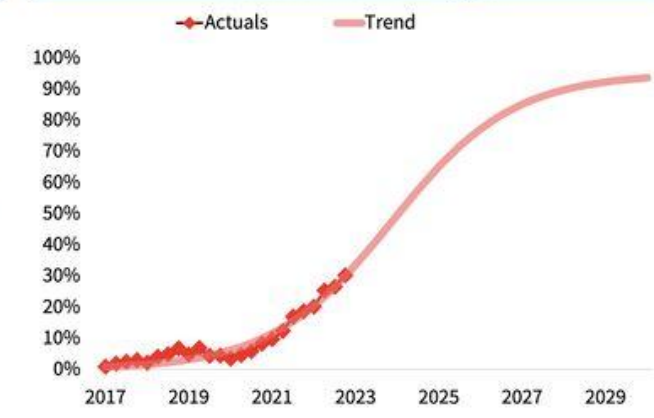
1	Texas	6.46	1.98	1.94	= 10.38 GW
2	California	4.29	4.55	0.12	= 8.97 GW
3	Nevada	1.60	0.68	0.00	= 2.27 GW
4	Ohio	1.92	0.01	0.00	= 1.93 GW
5	Colorado	1.19	0.23	0.20	= 1.62 GW
6	New York	0.51	0.06	0.56	= 1.13 GW
7	Wisconsin	0.94	0.00	0.09	= 1.03 GW
8	Florida	0.98	0.00	0.00	= 0.98 GW
9	Kansas	0.00	0.00	0.84	= 0.84 GW
10	Illinois	0.36	0.00	0.48	= 0.84 GW

This is the decade that renewables sales race up the S-curve

Solar additions, global (GW)



EV sales share in China (%)



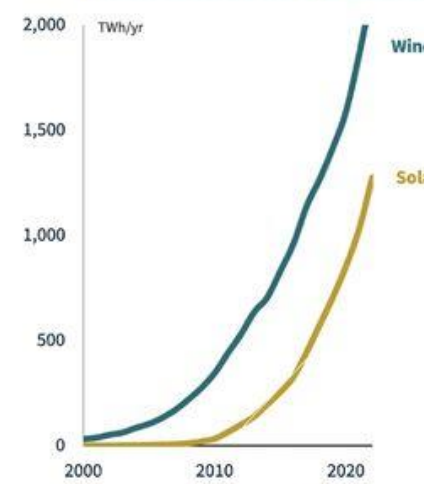
Exponential modeling of key renewable technologies has been the best way to model growth so far, and implies that they will move up the steep part of the S-curve during this decade.

RMI - Energy. Transformed.

Source: BNEF (past), RMI (exponential extrapolation)

Exponential Energy Change Is All around Us

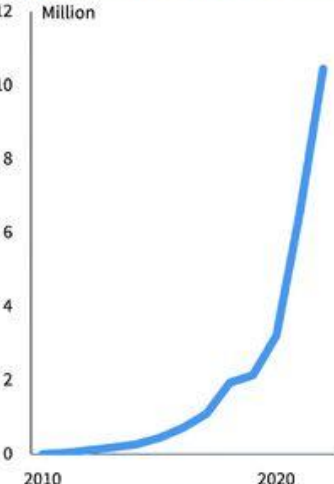
Annual solar & wind generation



CAGR 15% 29%

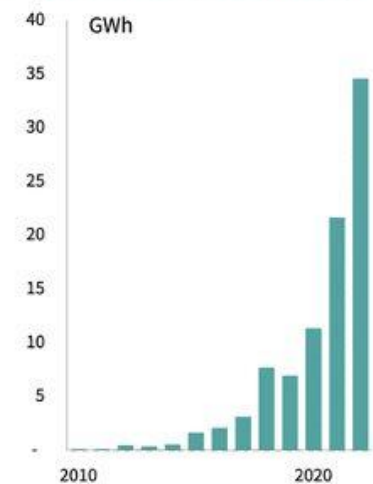
RMI - Energy. Transformed.

Annual EV sales



58%

Annual battery storage sales



54%

Source: BNEF, BP, Ember; Note: CAGR is the compound annual growth rate between 2012-2022

Inflation Reduction Act



- *Key features*

- Passed U.S Congress; signed into law & enacted in August 2022
- \$700+ Billion
- IRA made the largest federal investment (\$370 billion) in climate and energy policy in U.S. history
- ***Tax credits largely utilized to pursue clean energy policy aims***
- More than two dozen new or expanded federal tax measures relating to clean energy & emissions reduction
- Offers federal tax credits / bonuses for projects located in economically distressed communities, **energy communities** & for projects that meet requirements to pay prevailing wage & hire qualified apprentices.

Inflation Reduction Act

- **Advances Justice40 initiatives**

- Commit to deliver 40% of overall benefits of climate, clean energy, infrastructure, and other investments to disadvantaged communities, including tribes, EJ communities, rural areas, and energy communities

- Applies across federal programs & agencies

JUSTICE
40

- **Together, IRA & Bipartisan Infrastructure Law:**

- Projected to reduce U.S. economy-wide emissions to 40% below 2005 levels by 2030
- Close to Biden Administration goal of 50-52% reduction by 2030

In the last 12 months...

Over **\$270 billion** of
capital investment announced
for clean energy projects and
manufacturing facilities

This includes:

- **Nearly 83** new clean energy manufacturing facilities
- **29,780** new jobs
- **184,850 MW** of new clean energy capacity

August 2023

Clean Energy Investing In America



In the last 12 months...

Over **\$270 billion** of capital investment announced for clean energy projects and manufacturing facilities

184,850 MW of new clean energy capacity announced

83 new clean energy manufacturing facilities (or facility expansions) have been announced.

- +** 52 solar manufacturing facilities
- +** 14 utility-scale battery storage manufacturing facilities
- +** 11 wind power manufacturing facilities
- +** 6 offshore wind power manufacturing facilities

August 2023

Clean Energy Investing in America





*Light, medium, and heavy duty vehicles in passenger and commercial use.

American-Made Batteries

New U.S. Battery Manufacturing and Supply Chain Investments Announced Under President Biden



Over \$100 billion
announced so far



Over 170 new or
expanded minerals,
materials processing and
manufacturing facilities



Enough to power
10 million EVs
each year



Over
75,000 new
jobs



U.S. DEPARTMENT OF
ENERGY

American-Made Solar

New U.S. Solar Manufacturing Announcements
Under President Biden



Over \$9
billion
planned
investment



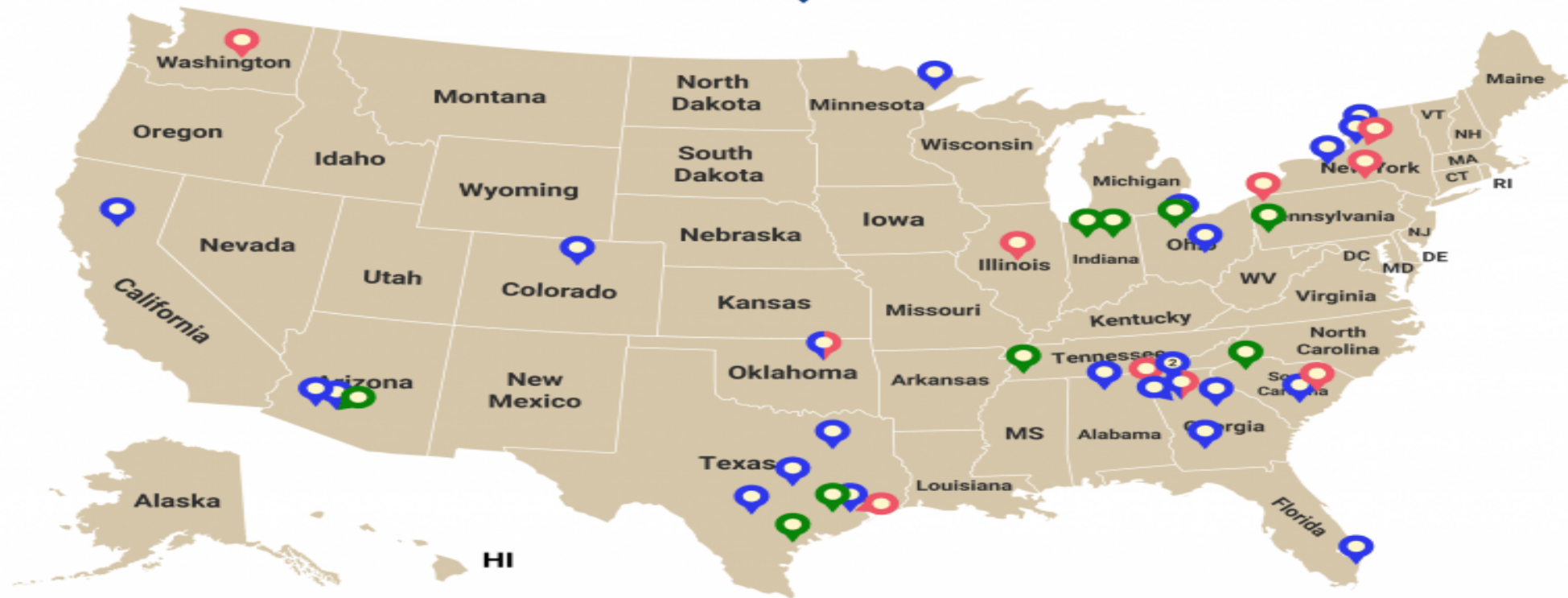
63 new and expanded
manufacturing plants
(40 in map; 23 locations TBD)



Enough to power 9 million
additional homes each year



Tens of
Thousands of
new jobs



Private Sector Investments



Solar Panels



Solar Panel Parts



Other Hardware



U.S. DEPARTMENT OF
ENERGY



We are delivering federal resources to help revitalize America's energy communities

[EXPLORE FUNDING CLEARINGHOUSE](#)

[Learn about new Inflation Reduction Act funding and tax credits](#) ↗

\$266B⁺

Open/Planned Competitive
Funding

(Last updated: 8/3/23)

\$406B⁺

Open/Planned Formula
Funding

(Last updated: 8/3/23)

146

Open/Planned
Opportunities Currently
Available

(Last updated: 8/3/23)

49

Opportunities That Don't
Require Matching Funds

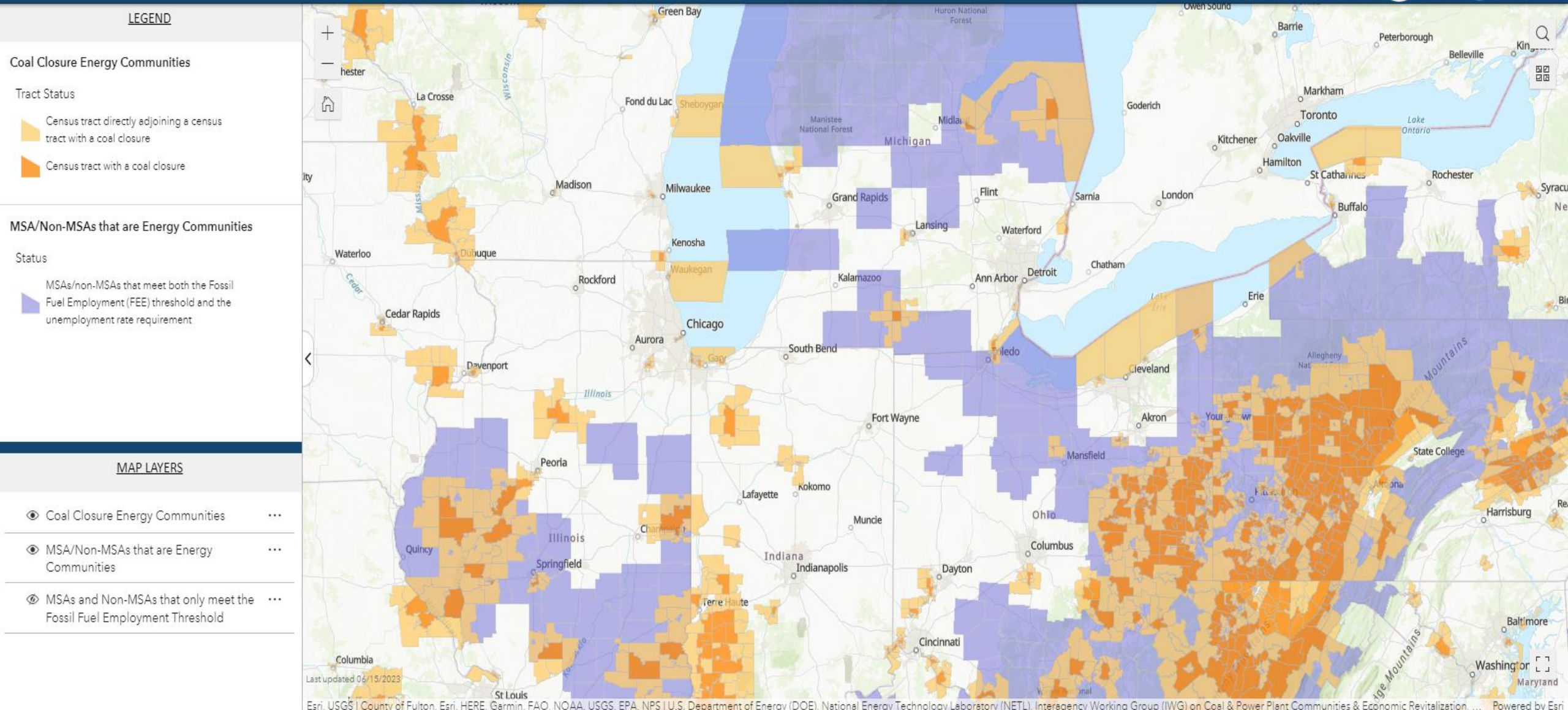
(Last updated: 8/3/23)

22

Inflation Reduction Act Tax
Credits

(Last updated: 8/3/23)

energycommunities.gov



Inflation Reduction Act

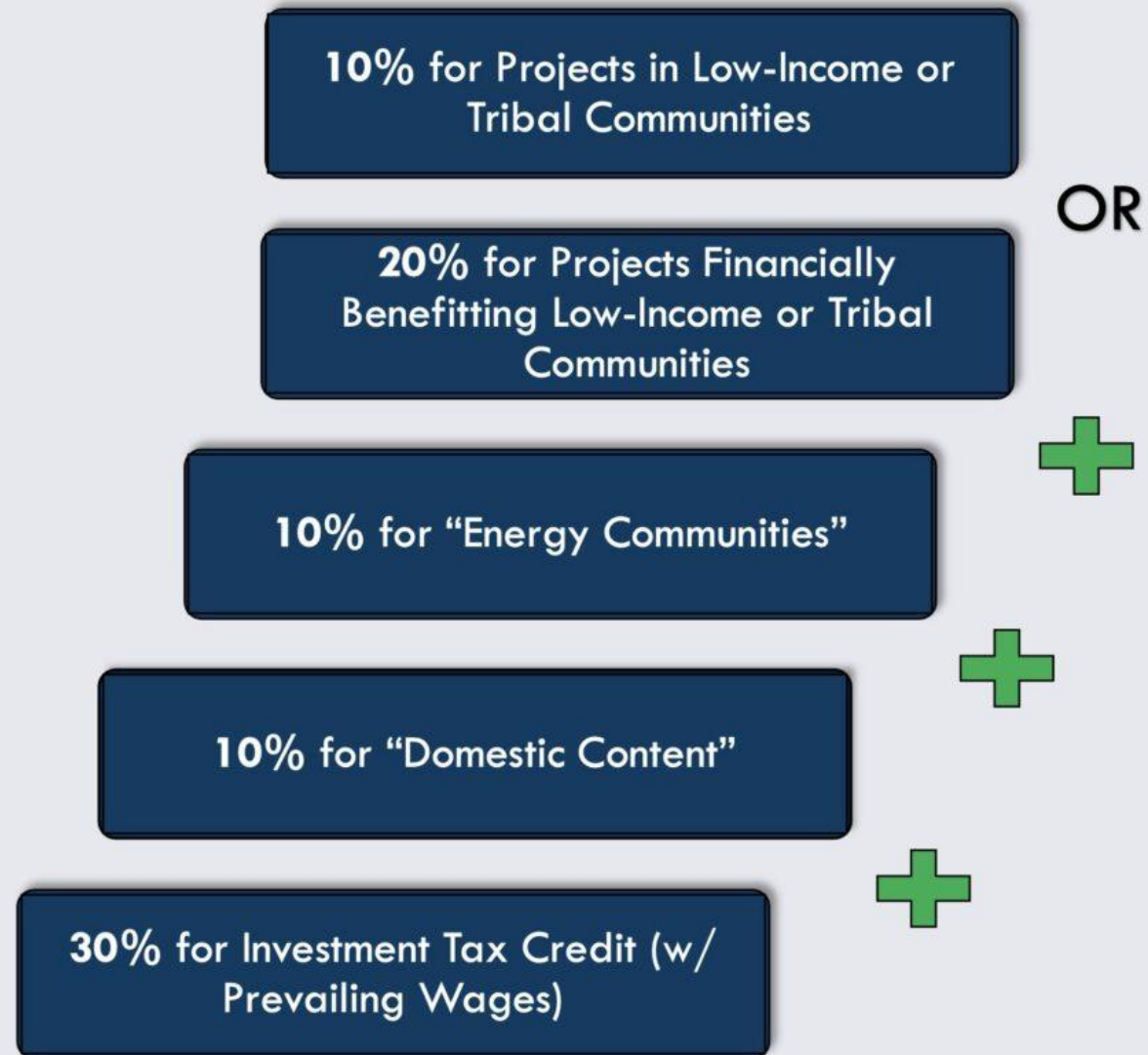
- Direct pay/refundability generally limited to tax-exempt entities
- Since enactment, IRS & U.S. Treasury Department have been issuing notices (guidance) & Frequently Asked Questions (FAQs)
 - Treasury Notice 2023-29 (4/4/23) “Safe Harbor for Brownfield Sites” provision
 - Treasury Notice 2023-45 (6/15/23) Phase I ‘Contaminated/Not’ & FAQ for Energy Communities
- Formal regulations not yet proposed in Federal Register
- IRS & Treasury notices apply in meantime
- *Our particular focus here:*
IRA’s Brownfield tax credit bonus (add-on)



IRA Brownfield tax credit bonus

- Provides 10% tax credit bonus/adder for eligible projects located in “**energy communities**.” IRA provides increased credit amounts or rates if certain requirements pertaining to energy communities are satisfied.
- “**Energy communities**” include:
 - **Brownfield category** (“Brownfield site” as defined in CERCLA § 101(39)(A), (B), & (D)(ii)(III)) ... defined in CERCLA as -- *real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant*
 - Includes certain mine-scarred land
 - Excludes certain exemptions, e.g. Petroleum sites, PCBs, TSCA, NPL, SWDA, other mandatory corrective action.

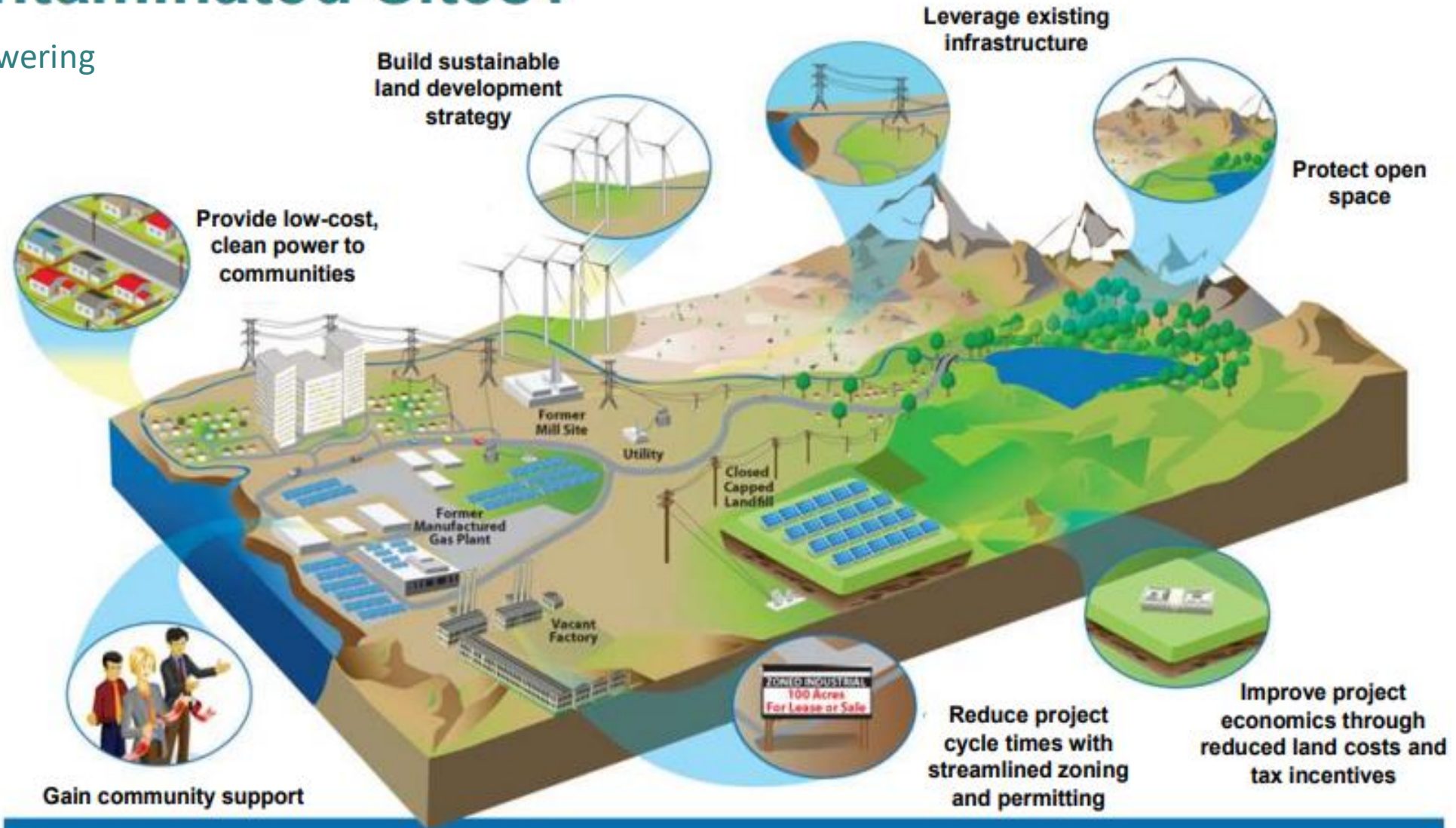
THE STACK OF IRA INCENTIVES FOR BRIGHTFIELDS



Note: While the PTC is calculated differently, the incentive ratios stack the same.

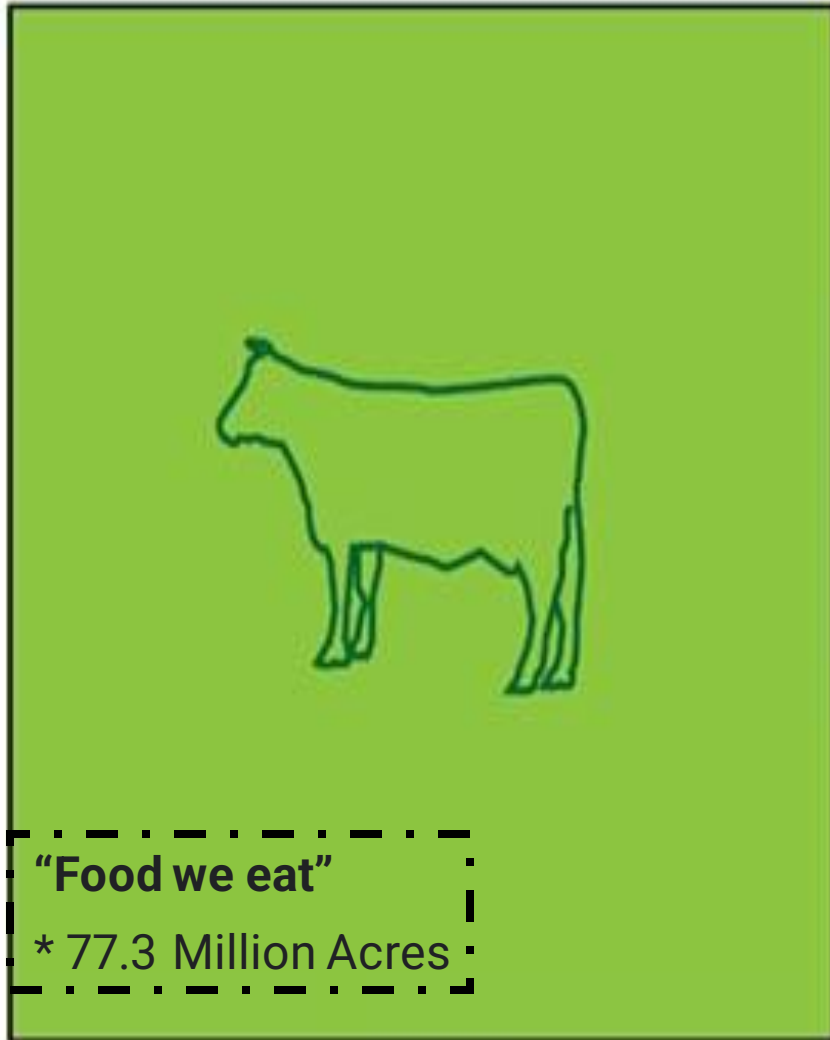
Why Renewables on Potentially Contaminated Sites?

epa.gov/re-powering

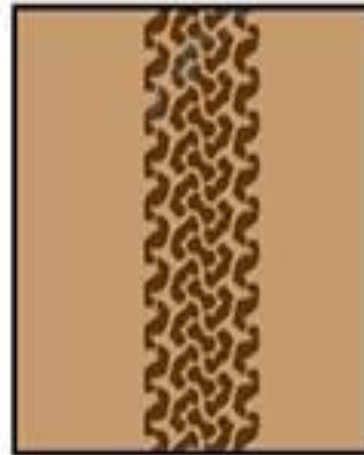


<10 Million Acres

Surface area required for
solar development by 2050:
~0.5% of U.S. surface area



Agriculture
(43% of contiguous U.S. surface area)



Disturbed
areas suitable
for solar
(8%)



Urban
areas and
paved
roadways
(5%)



Surface area
of Great
Lakes
(3%)



<10M



Contaminated land
suitable for solar
(0.4%)



Golf courses
(0.1%)

Yellowstone National Park
(0.1%)

Retail space
(0.0001%)



TAB

Technical Assistance
to Brownfields



CENTER FOR CREATIVE
LAND RECYCLING



KANSAS STATE
UNIVERSITY



UNIVERSITY OF
CONNECTICUT



INTERNATIONAL CITY/COUNTY
MANAGEMENT ASSOCIATION



NEW JERSEY INSTITUTE
OF TECHNOLOGY



WEST VIRGINIA
UNIVERSITY RESEARCH
CORPORATION

epa.gov/re-powering

RE-Powering America's Land

RE-Powering America's Land is an EPA initiative that encourages renewable energy development on current and formerly contaminated lands, landfills, and mine sites when such development is aligned with the community's vision for the site. Please explore our website, if you have questions reach out to a member on the [RE-Powering Response Team](#).

What is RE-Powering



- [What is RE-Powering?](#)
- [Why Site Renewable Energy on Contaminated Lands?](#)
- [What are the Benefits of These Projects?](#)
- [What if Cleanup Activities are Ongoing?](#)
- [Want to Learn More?](#)

How to Develop Sites

How to Identify Sites



- [Looking for a Renewable Energy Site? Find Sites in the RE-Powering Mapper.](#)
- [Want to learn how about the RE-Powering Mapper? Watch the Mapper Tutorials.](#)
- [Is a Solar or Wind Project Feasible at My Site? Use the RE-Powering Decision Tree.](#)
- [Review Sites with NREL Feasibility Studies.](#)
- [Interested in Diving Deeper? Read These Discussion Papers.](#)

Want to Learn More

Connect With Us

[Have a Question? Ask the RE-Powering Response Team.](#)

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Spotlight

- [Value of Existing Infrastructure for Renewable Energy Development](#)
- Check out the [State and Federal Data in the RE-Powering Mapper 3.0 – Webinar](#) or view the [RE-Powering Mapper Tutorials](#).

Featured

How-to Resources on Interconnection of RE-Powering Sites

Web-Based Training: *Interconnection and Electricity Sales*

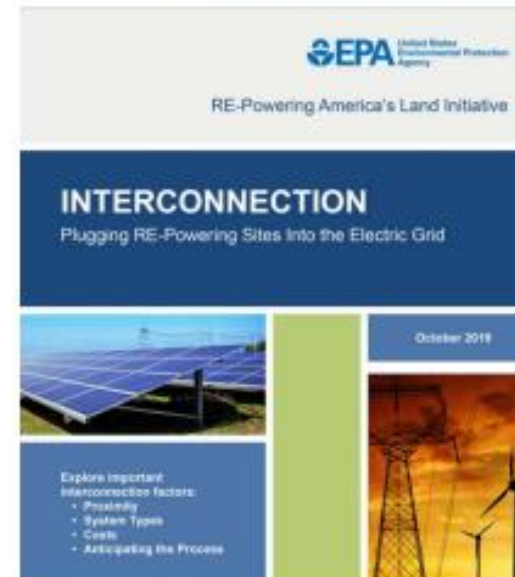
<https://www3.epa.gov/swerrims/module5/story.html>

Discussion Paper: *Interconnection: Plugging RE-Powering Sites Into the Electric Grid*

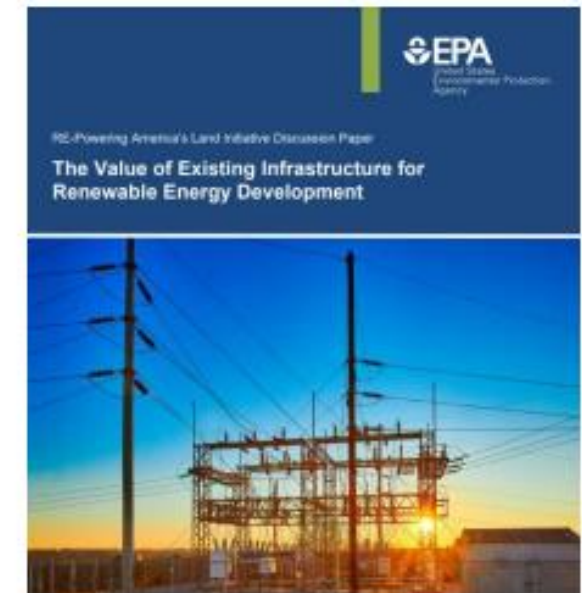
https://www.epa.gov/sites/production/files/2019-10/documents/interconnection_plugging_re_powering_sites_into_the_electric_grid_oct2019_508.pdf

Discussion Paper: *The Value of Existing Infrastructure for Renewable Energy Development*

https://www.epa.gov/sites/production/files/2020-04/documents/re-powering_existing_infrastructure_508_041420.pdf

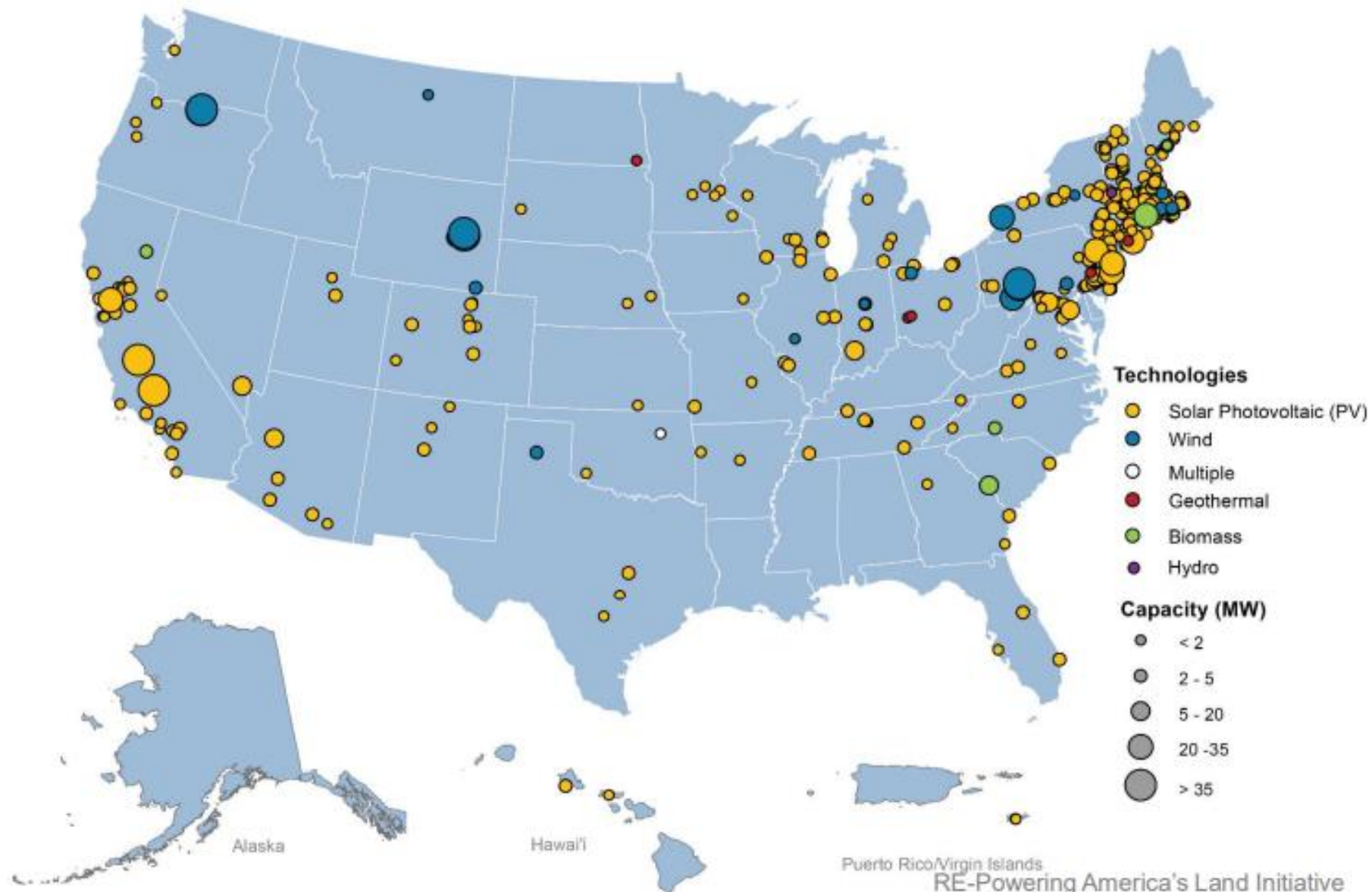


Prepared under contract to EPA by E.P. Incorporated, LLC



RE-Powering America's Land Initiative

Tracking Projects – 502 Projects with 2.4 Gigawatts



Sizes of Typical RE-Powering Projects

- There is wide variation in project sizes.
- Overall, 83% of RE-Powering projects are 5 megawatts (MW) in capacity or less.

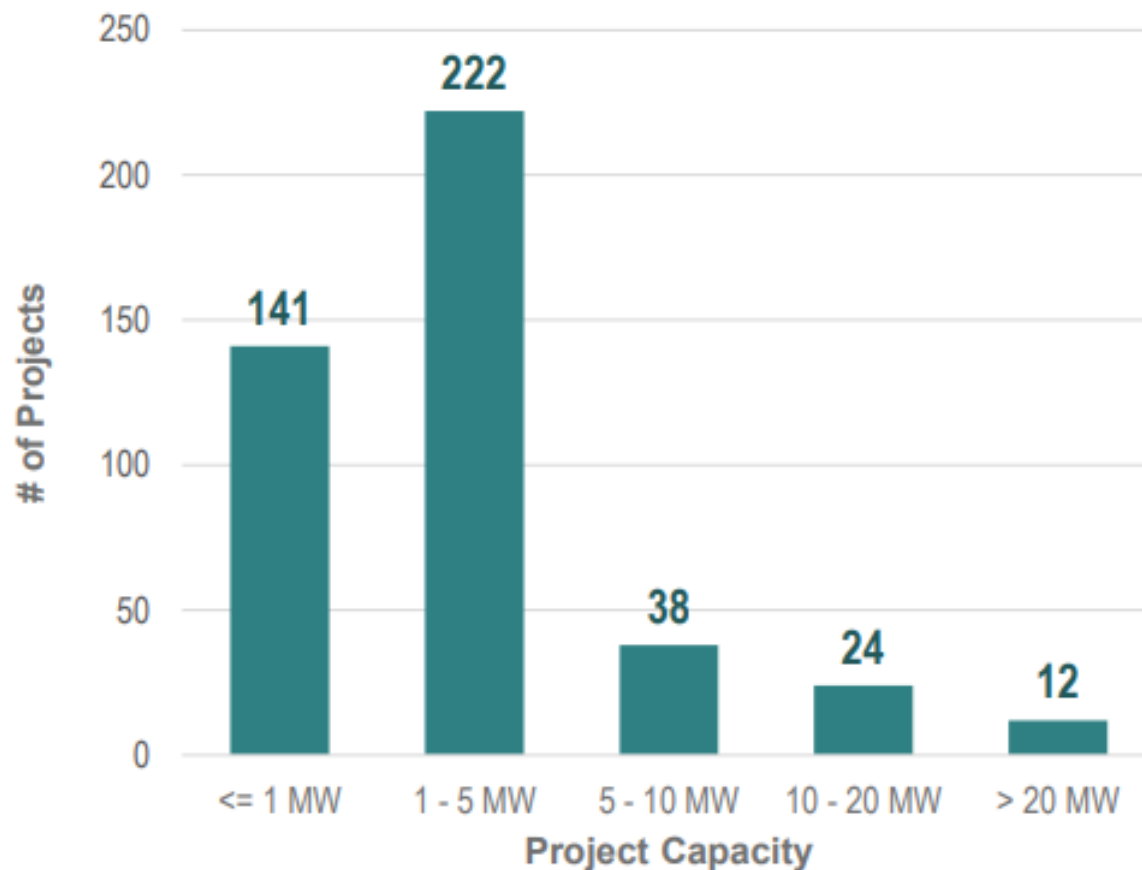
Only 3% are larger than 20 MW.

- RE-Powering wind projects tend to be much larger than solar projects.

Average wind project size is 32 MW versus 3 MW for solar.

Solar is much more common, representing 92% of all RE-Powering projects.

Installed RE-Powering
Projects by Capacity
(as of October 2021)



Data Source: EPA RE-Powering, *Tracking Matrix*,
<https://www.epa.gov/re-powering/re-powering-tracking-matrix>

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dbForesites
FORWARD GUIDANCE



Legal, Policy and Financial Incentive Considerations in Developing A Renewable Energy Project: A Quick Overview

ERIS Webinar: Repurposing Real Estate for Renewable
Energy: Exploring Opportunities in the Energy
Transition

September 26, 2023

Betsy Mason
Associate General Counsel
Catalyze

Overview

- Review legal considerations that shape siting decisions and development process
- Review available policy and financial incentives
- Review key reasons for conducting environmental due diligence to identify and mitigate potential risks

Legal Considerations

- Agreements with key parties
 - Site control agreement (e.g., lease option or lease)
 - Power Purchase Agreement (“PPA”) or Energy Services Agreement (“ESA”)
 - Important to note that community solar projects don’t have PPAs or ESAs
 - Interconnection agreement with local utility
 - Engineering, Procurement and Construction (“EPC”) agreement
- Siting and development requirements
 - Sometimes at state level; almost always at local level
 - Local-level requirements typically include:
 - Zoning codes or regulations
 - Other land use requirements, most often relating to wetlands protection

Available Policy and Financial Incentives

- Tax credits
- Renewable Energy Certificates (“RECs”)
- Net metering
 - Virtual (a.k.a. “synthetic”) PPAs
- Community solar

Community Solar: How Does It Work?

- Only in states where legislature has authorized it (e.g., NY, IL, MA, CA)
 - Currently, there are 41 states with at least one community solar project on-line
- Allows participating electricity customers that can't install solar system on their own property to subscribe to and share system benefits via credits on their utility bills
 - System does not deliver energy directly to subscribers – instead, interconnects to local utility distribution grid and delivers power to local utility
 - Subscribers pay for portion of electricity generated by project, typically in form of monthly subscription fee
 - Utility pays community solar provider for energy generated, and each subscriber receives portion of dollar value generated by its subscription as credit
 - Typically, credit is applied directly to subscriber's monthly electric bill

Why Environmental Due Diligence for A Renewable Energy Project?

- Potential statutory liability under federal and state law
 - Nature of liability: strict, joint and several, retroactive
- Elements of Liability
 - Certain classes of “responsible parties” (or “PRPs”)
 - Are liable for any “release” or threat of release (including disposal, discharge, spill or leak) of “hazardous substances” (CERCLA) or “hazardous materials” or “oil” (depending on state law) from facility or vessel
- Scope of Potential Liability
 - Investigation and cleanup of contaminated soil and groundwater (“response costs”)
 - Reimbursement of such “response costs” incurred by others
 - Natural resource damages, e.g., aquifer

Underlying Risks in Developing “Brownfield” Site?

- Remediation risks
 - New or increased remediation costs
 - Schedule impacts (e.g., impact of cleanup on “time to market”)
 - Ability to obtain timely regulatory closure
- Financing woes
 - Lender/investor resistance
 - Increased costs
- Development impacts
 - Inflexible land use restrictions
 - Budget constraints

Questions?

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Global Sanitary Landfill

Old Bridge, NJ
Superfund Site

Site History

- The site includes a 56.5-acre landfill and an inactive 1.7-acre leachate collection pond
- Operated as a municipal landfill accepting and non-hazardous industrial waste site from 1968-1984.
- April 1984 heavy rainfall triggered a catastrophic slope failure
 - The slope failure exposed waste, breached a perimeter dike, and filled a large portion of the surrounding wetlands with waste.
- The United States Environmental Protection Agency (EPA) and NJDEP conducted site investigations to evaluate the nature and extent of the contamination at the site.
 - The investigations revealed 63 buried drums containing hazardous wastes.
- As a result, the site was placed on the EPA National Priorities List (NPL) in March 1989, making it a Federally regulated site pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund)

Old Bridge Pre-Construction



How Development was made possible

- Close work with the PRP group
- Agreement to take Title
- NJ Community Solar Pilot Program



Old Bridge access road



Key Development Challenges

- Payment-in-Lieu-of-Taxes (PILOT) to address the back taxes owed on the property
- Discretionary Permitting delays and additional costs
- Clearing title encumbrances on the property
- Strict incentive deadline



Questions



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AC Power

Founder and CEO

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QUESTIONS?

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for **Renewable Energy**:
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THANK YOU

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ERIS
WEBINARS

Repurposing Real Estate
for Renewable Energy:
Exploring Opportunities
in the Energy Transition

September 26, 2023

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UPCOMING WEBINARS

Wednesday, October 25, 2023

10 AM PT | 11 AM MT | 12 PM CT | 1 PM ET



Dry-Cleaning Sites
Part III: It's time to
REMEDiate

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