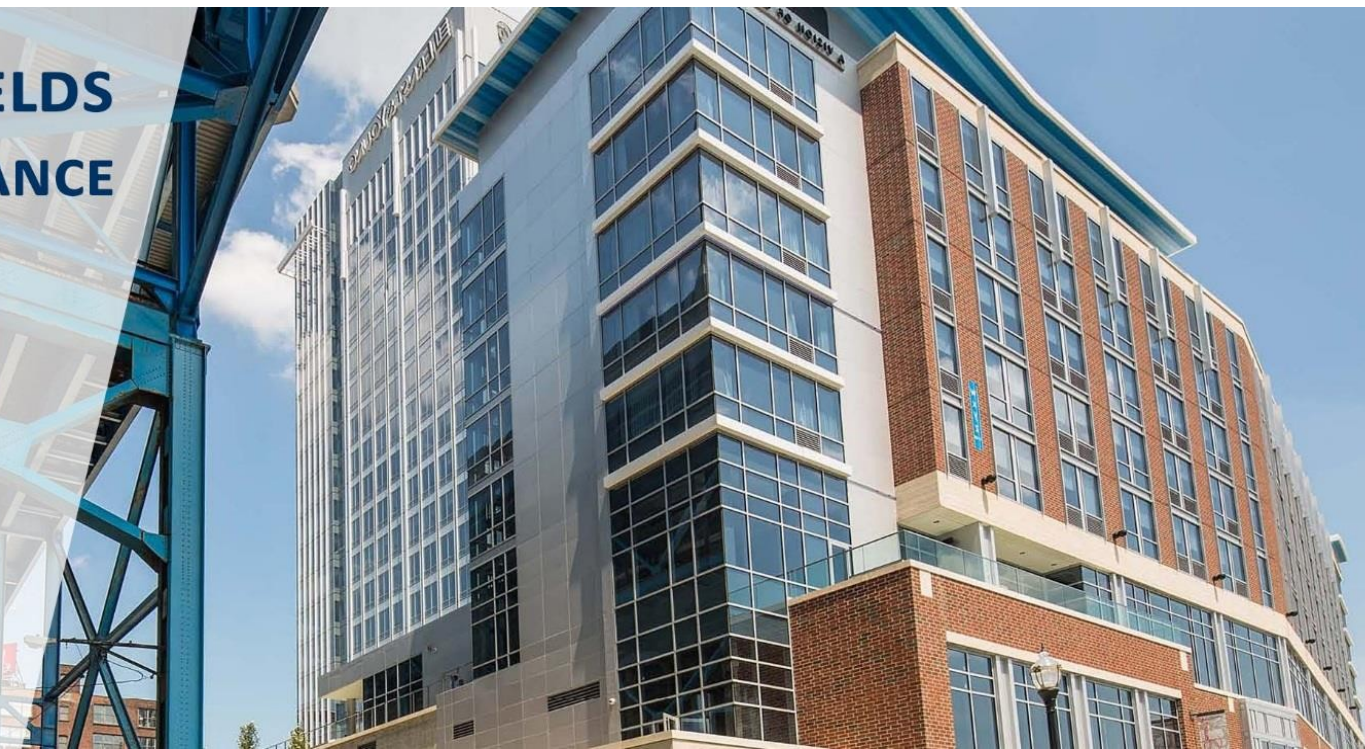


# CDFA BROWNFIELDS TECHNICAL ASSISTANCE PROGRAM

## *Brownfields Financing Webinar Series*

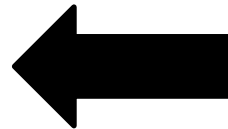
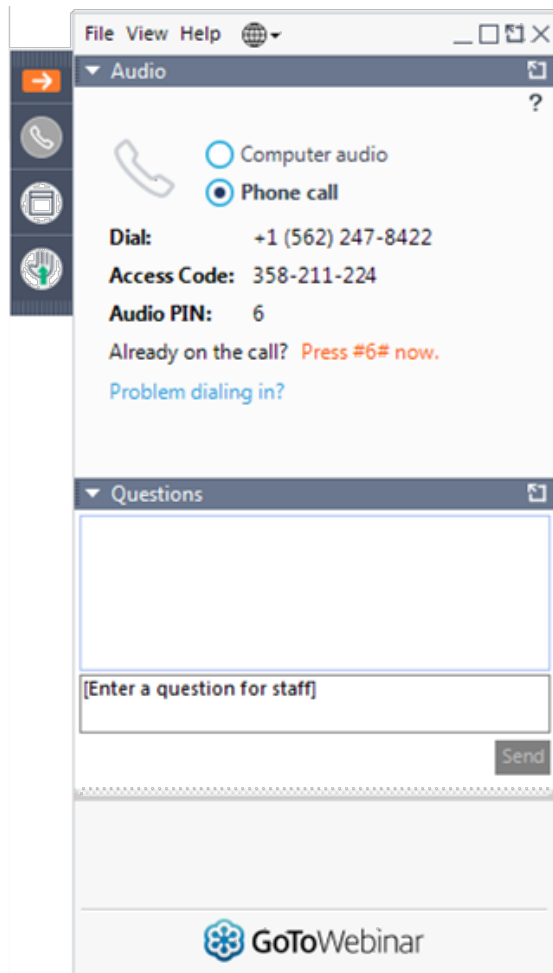


## **Brownfields Financing Webinar Series Brownfields to Brightfields - Redevelopment for a Brighter Future**

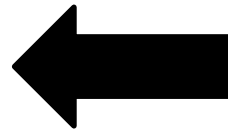
THE BROADCAST WILL BEGIN AT 2:00PM (Eastern)

- ▶ Submit your questions in advance using the GoToWebinar controlpanel
- ▶ View previous webcast recordings online at [www.cdfabrownfields.org](http://www.cdfabrownfields.org)

# Welcome & Overview



Using your telephone will give you better audio quality.



Submit your questions to the panelists here.

Join the Conversation

**Technical Questions?**

Contact CDFA at 614-705-1300

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## Panelists

**Dan French**

CEO  
Brownfield Listings

**Scott Tess**

Environmental Sustainability Manager  
City of Urbana, IL

**Ruben Fontes**

Senior Vice President  
Large Scale Distributed  
Energy Resources  
Ameresco

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# CDFA BROWNFIELDS TECHNICAL ASSISTANCE PROGRAM



**Financing  
Toolkit**



**Webinar  
Series**



**Project  
Marketplace**



**Project  
Response Teams**

# CDFA BROWNFIELDS TECHNICAL ASSISTANCE PROGRAM



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Brownfields Basics

Financing Toolkit

Newsletter

**Free Financing  
Technical Assistance to  
Local, State, and Tribal  
Brownfield Efforts**

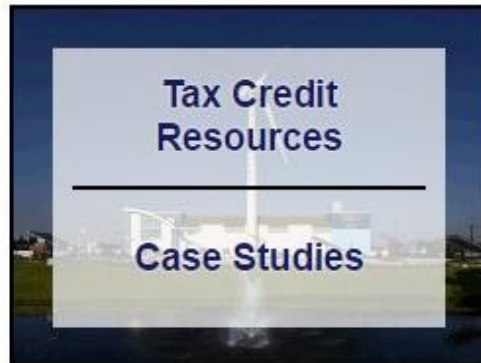
**CDFA Brownfields Technical Assistance Program**



Intro Brownfields  
Finance WebCourse



# Brownfields Financing Toolkit



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Brownfields Financing Update  
May 1, 2018

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# Brownfields Finance *UPDATE*

This Month's Highlights from the Brownfields Finance Industry

### Features

**Administrator Pruitt Announces \$54.3M in Brownfield Grants to Assess and Clean Up Contaminated Properties and Promote Economic Redevelopment Nationwide**

EPA has selected 144 communities for brownfields environmental Assessment, Revolving Loan Fund, and Cleanup grants. The 221 grants totaling \$54.3 million will provide communities with funding to assess, clean up and redevelop underutilized properties while protecting public health

### ARCHIVES

Displaying 1 - 42 of 42

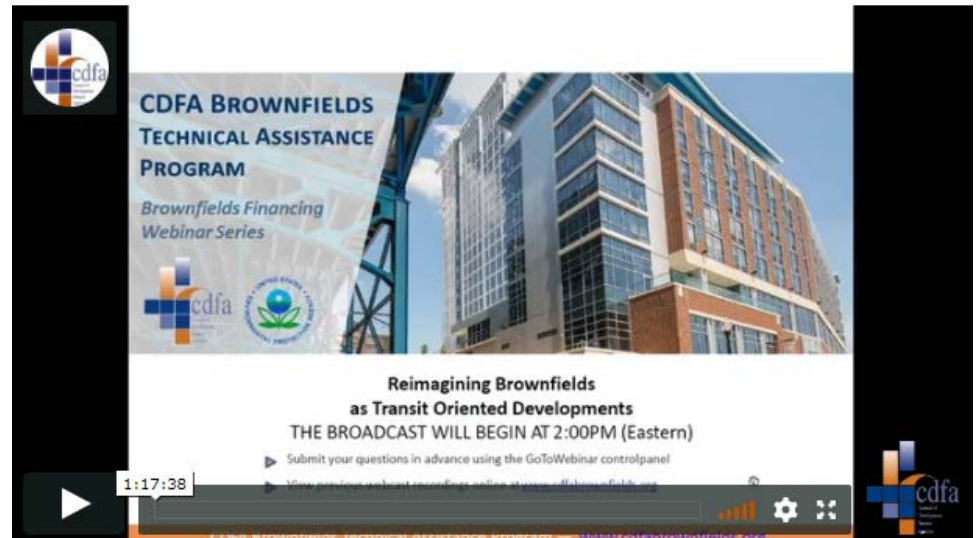
[May 1, 2018](#)  
[April 3, 2018](#)  
[March 6, 2018](#)  
[February 6, 2018](#)  
[January 2, 2018](#)  
[December 5, 2017](#)  
[November 7, 2017](#)  
[October 3, 2017](#)  
[September 5, 2017](#)  
[July 4, 2017](#)  
[June 6, 2017](#)  
[May 2, 2017](#)

CDFA Brownfields Technical Assistance Program — [www.cdfabrownfields.org](http://www.cdfabrownfields.org)





# Brownfield Financing Webinar Series



## Previous Topics Include:

The Developer's Perspective in Financing Brownfield Projects  
Digging for Cleanup Funds: Insurance Archeology  
Reimagining Brownfields as Transit Oriented Developments  
Hazardous to Healthy: Financing Solutions for Recovering Brownfields  
Financing Brownfields with Private Activity Bonds  
Reviving Economic Activity on Former Manufacturing Sites  
Strategic TIF Structuring for Brownfield Redevelopment  
Reaching Your Redevelopment Goals with Brownfields Revolving Loan Funds

[And Much More...](#)



# Brownfields Project Marketplace

## What is the Marketplace?

- Forum that connects communities looking to finance brownfield redevelopment projects with development financiers and brownfield project experts

## Community Benefits:

- Discover financial resources
- Direct access to financial advisors and brownfield experts





# Project Response Teams

## Opportunities available in 2019!

### Previous Recipients:

- Texarkana, TX
- Tulsa, OK
- Kalispell, MT
- Josephine County, OR
- Longmont, CO
- New Bern, NC
- Englewood, IL
- Bedford Heights, OH
- Lee, MA
- New Orleans, LA
- Springfield, MO
- Burlington, VT
- Bend, OR
- Pueblo, CO
- Sheridan, CO
- Texarkana, AR
- Fresno, CA
- Ponce, PR
- Pensacola, FL
- Fresno, CA
- Dellwood, MO
- Duluth, MN
- St. Marys, GA
- Oregon City, OR
- Williamsport, PA
- Greenfield, OH
- Arnaudville, LA
- Casper, WY



# CDFA BROWNFIELDS TECHNICAL ASSISTANCE PROGRAM

## *Upcoming Events*



CDFA - PFM Capital Markets Webinar Series -  
**Financing for Climate Resilience**

March 14, 2019 at 2:00 PM Eastern

[REGISTER FOR FREE!](#)

Check out our website for more exciting opportunities!



**Contact:**

Malcolm Guy  
Associate, Research &  
Technical Assistance  
614-705-1306

[mguy@cdfa.net](mailto:mguy@cdfa.net)

**Now Scheduling Interviews for Project Response Teams!**

## Dan French

CEO  
Brownfield Listings  
Chicago, IL



### What are you reading?

Your development finance toolbox isn't complete without a set of CDFA reference guides. Members save 15% on every purchase.

Order today at [www.cdfa.net](http://www.cdfa.net).

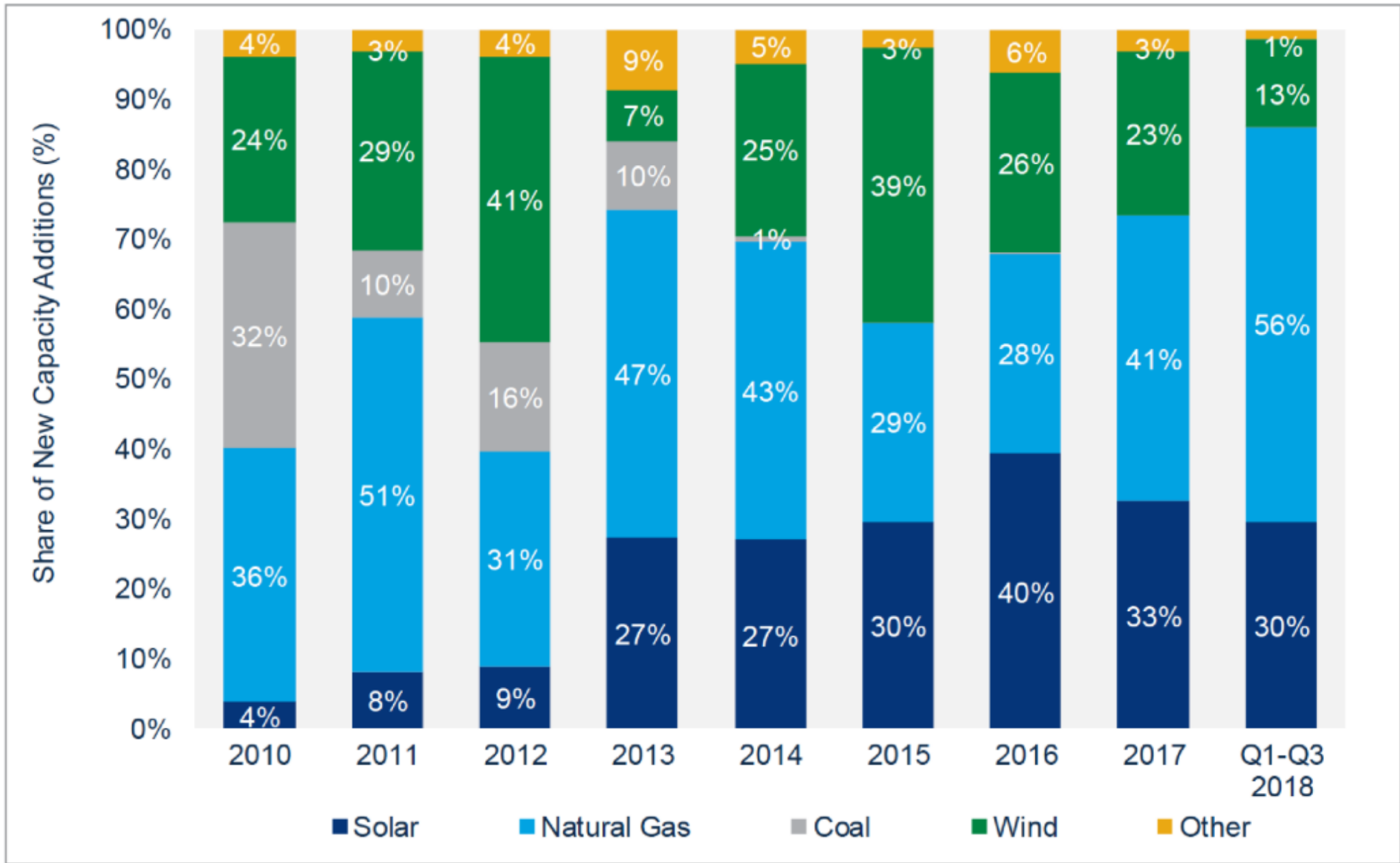


# THE REDEVELOPMENT RENAISSANCE IS RISING



[WWW.BROWNFIELDLISTINGS.COM](http://WWW.BROWNFIELDLISTINGS.COM)

## New U.S. electricity generating capacity additions, 2010-Q3 2018



Source: Wood Mackenzie Power & Renewables, FERC (All other technologies)

Year 2000



Pre-Bakken

Year 2012



Bakken

Winnipeg

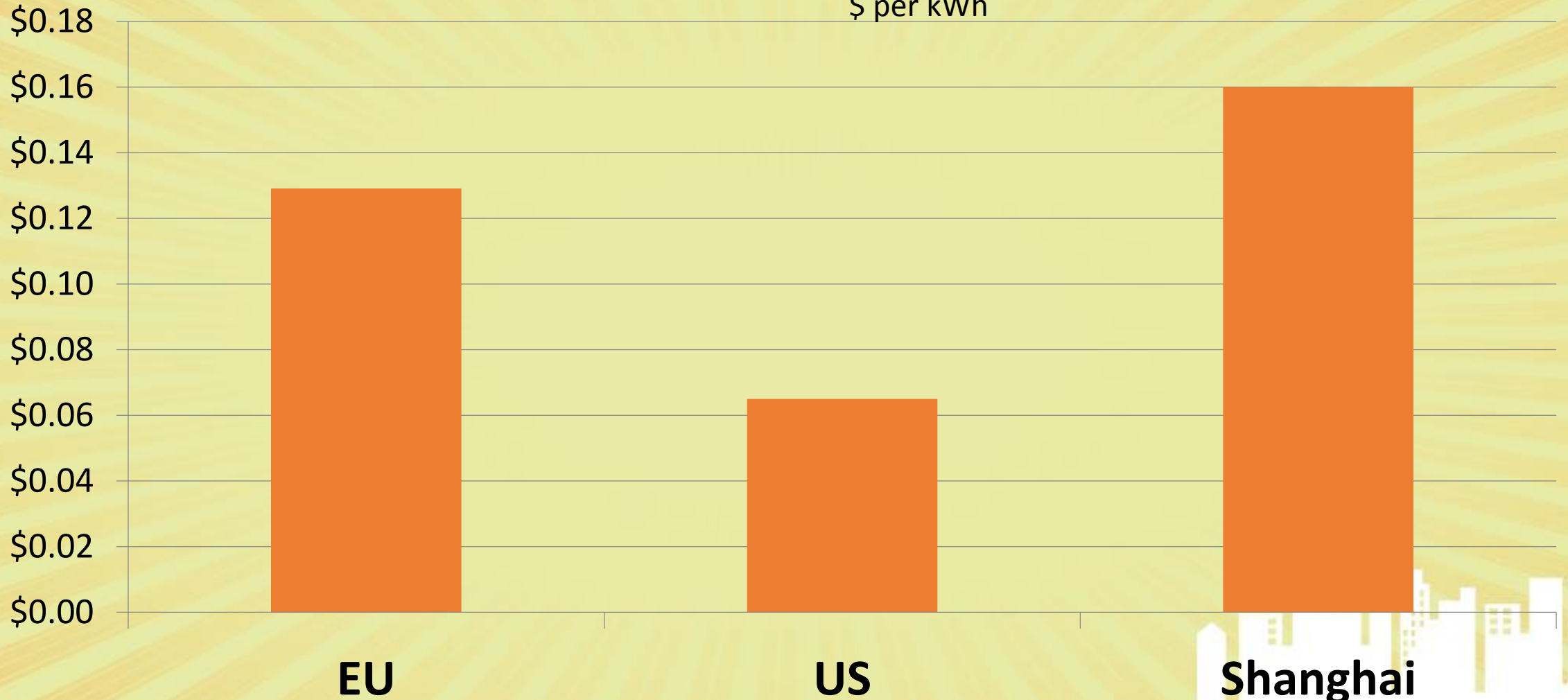
↑  
Minneapolis

Chicago

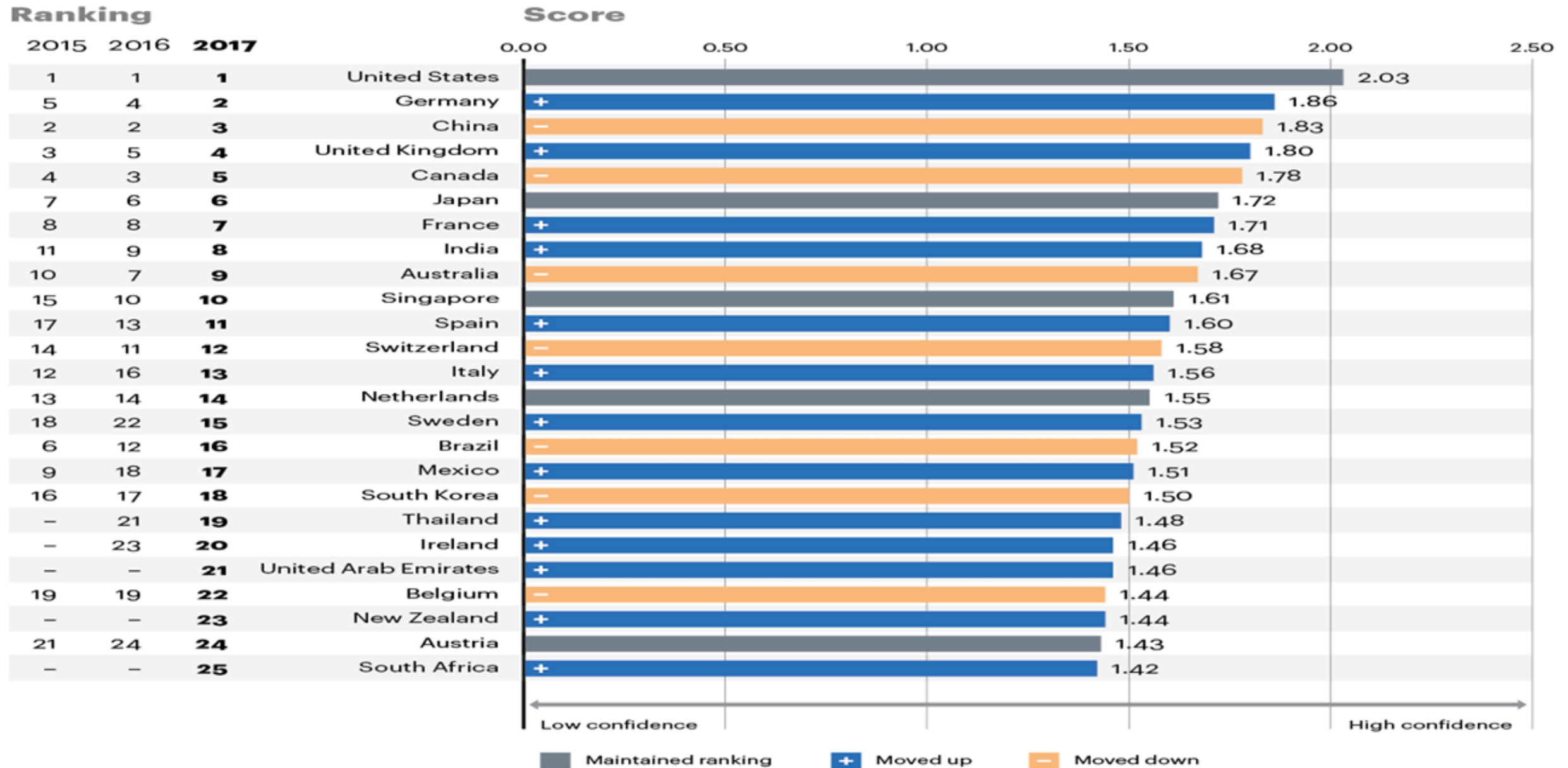


## Average International Industrial Electricity Rates

\$ per kWh



# 2017 A.T. Kearney FDI Confidence Index®

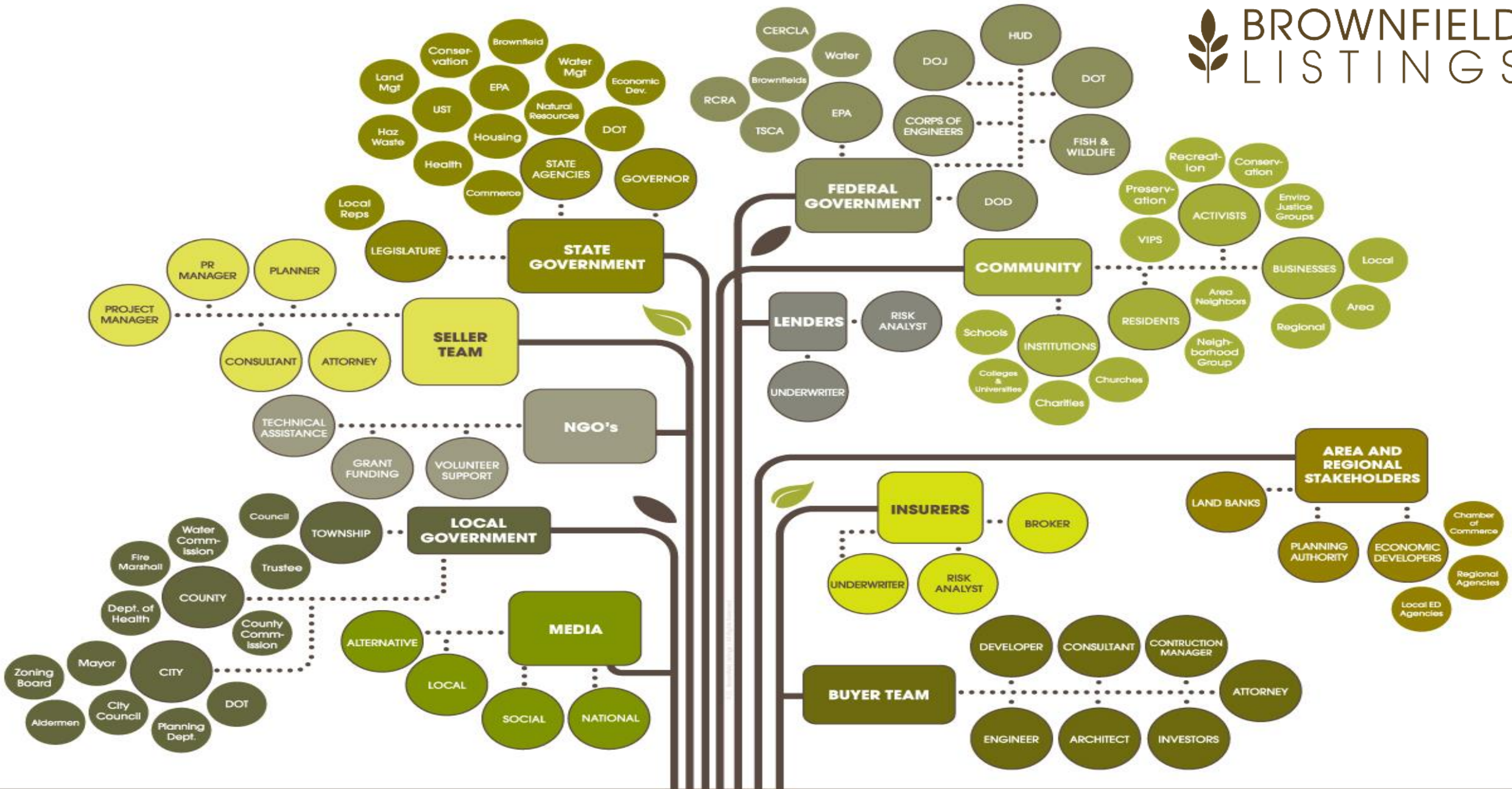




# BROWNFIELD LISTINGS



LIST PROPERTIES. POST PROJECTS. FIND PROS.



Redevelopment Stakeholders

# Due Diligence Prospectus

+ Diligence Thumbnail

+ Market

+ Financial

+ Tax & Title

+ Geotechnical

+ Zoning & other Use Restrictions

+ Facilities and Grounds

+ Individual Structures

+ Utilities

+ Transportation

+ Current Use and Use History

+ Environmental Conditions

+ Ecological and Natural Resources

+ Property Photo Gallery

# Project Dashboard

PROJECT SPOTLIGHT



DILIGENCE THUMBNAIL

DOCUMENTS

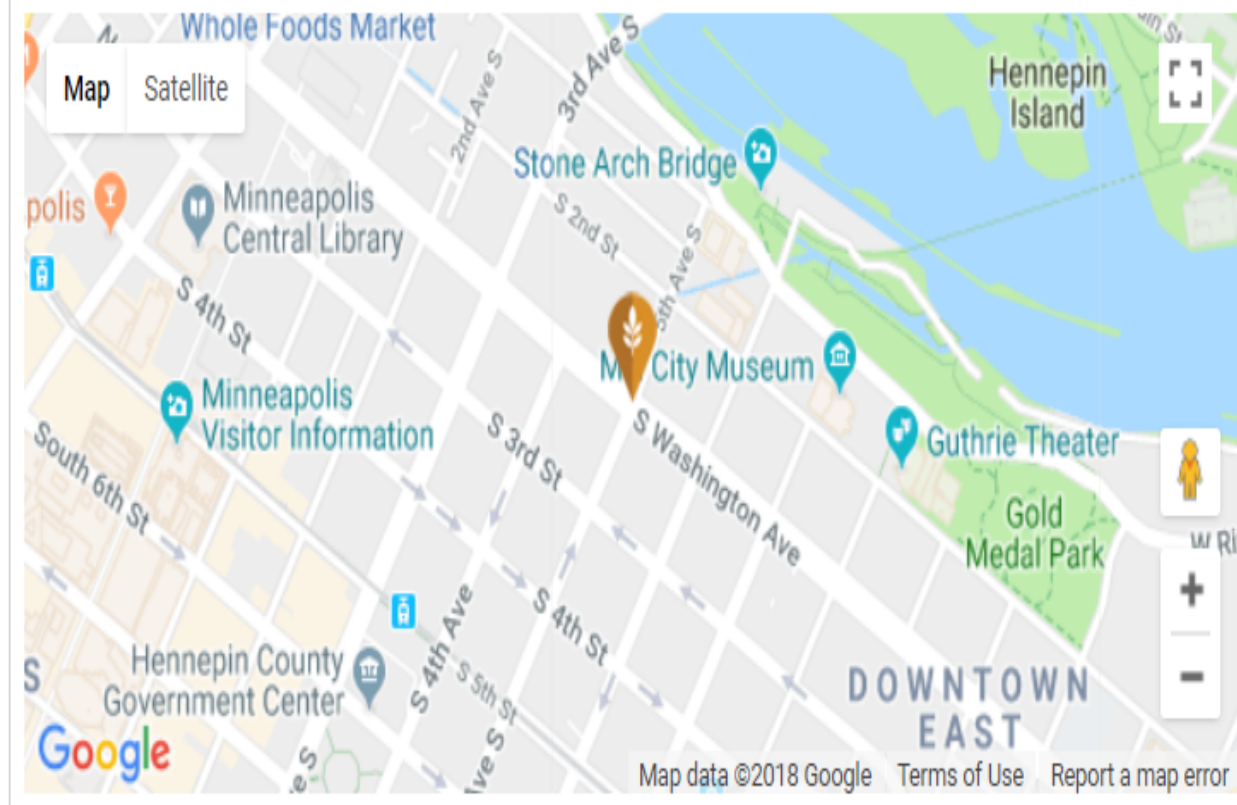
PROJECT NEWSFEED

PROJECT FORUM

## City Of Minneapolis CPED

Property Name	800 WASHINGTON AVE. S. DEVELOPMENT
Created On	04/15/2018
Last Modified	05/22/2018
Property Number	
Property Address	800 Washington Ave. S., Minneapolis, MN 55401
Listing Price	Requesting Proposals
Ownership	-
Property/Project size (acres)	0.561
Structures on site	Na
Primary Status ?	 Greyfield
Secondary Conditions ?	 Vacant

## LOCATION



[View Listing](#)

[Contact Lister](#)

[View Lister Profile](#)

[View Request for Proposal](#)

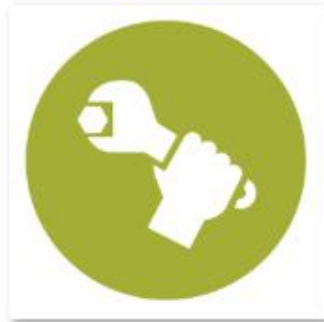
# BL Marketplace Taxonomy Tags



Bluefield



Brownfield



Redfield



Greyfield



Greenfield



In Use



Undefined



Adaptive Reuse



Airport Access



Bluefield Acres



Brownfield Acres



Decomm'd



Dev Park/Plan



Ecofield



Green Infrastructure



Greenfield Acres



Greyfield Acres



Healthfield



Heritage Site



Historic Preservation



Productive Use



Incentive Zone



Megasite



Microsite



Mineral Deposits



Mine Scarred



Multimodal



NFA



POD



Pre-Demo



PPP



Idle/Surplus



Rail Access



Redfield Acres



Seaport Access



Solar Brightfield



TOD



Under-Utilized



Vacant



Vertical Brownfield



Windfield

# Why Site Renewables on Potentially Contaminated Lands?

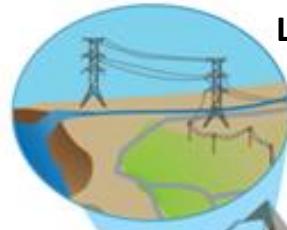


Provide low-cost, clean power to communities

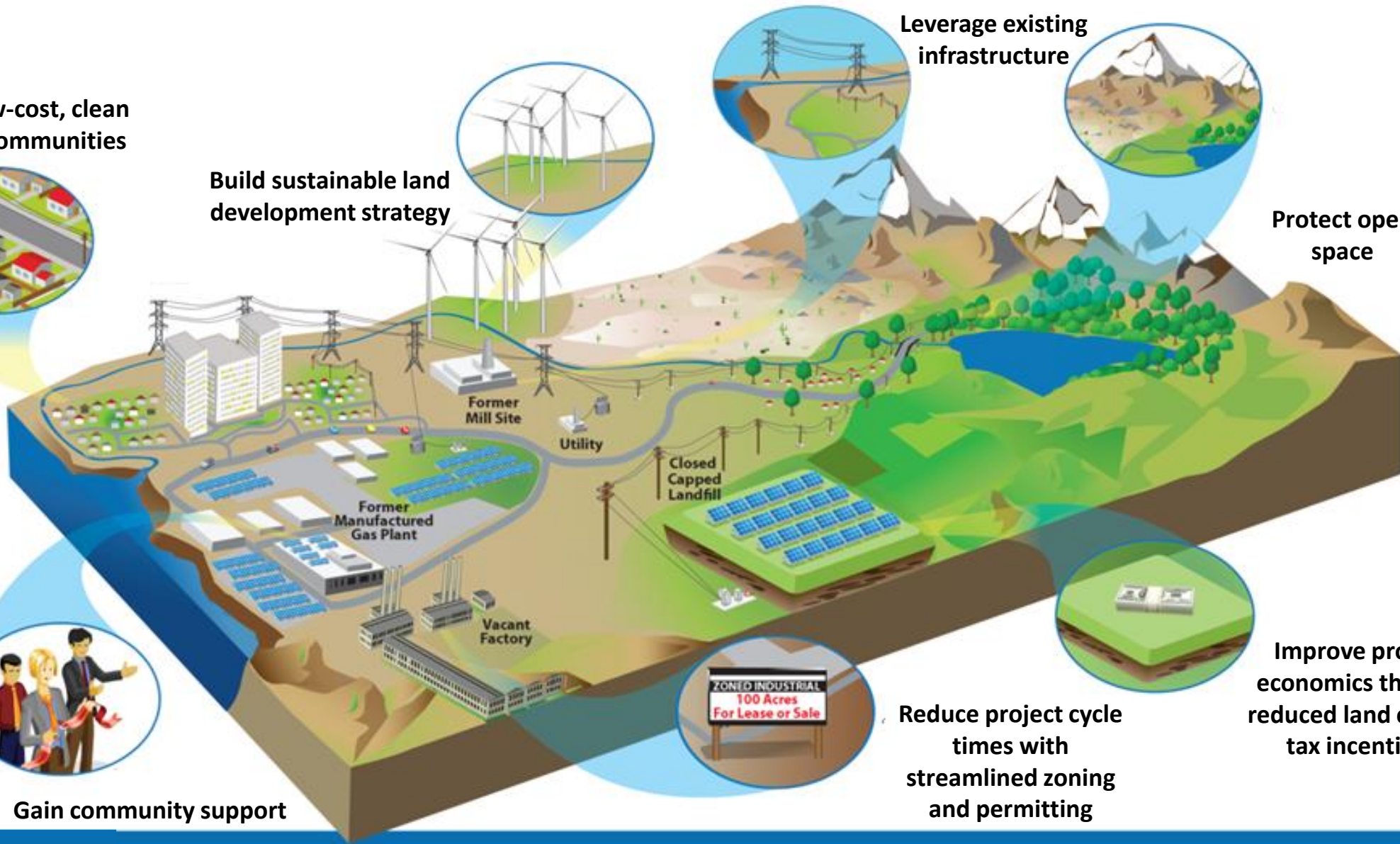


Build sustainable land development strategy

Leverage existing infrastructure



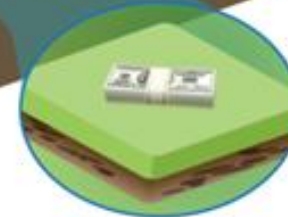
Protect open space



Gain community support



Reduce project cycle times with streamlined zoning and permitting



Improve project economics through reduced land costs & tax incentives



# BRIGHTFIELDS 2019 - VIRGINIA

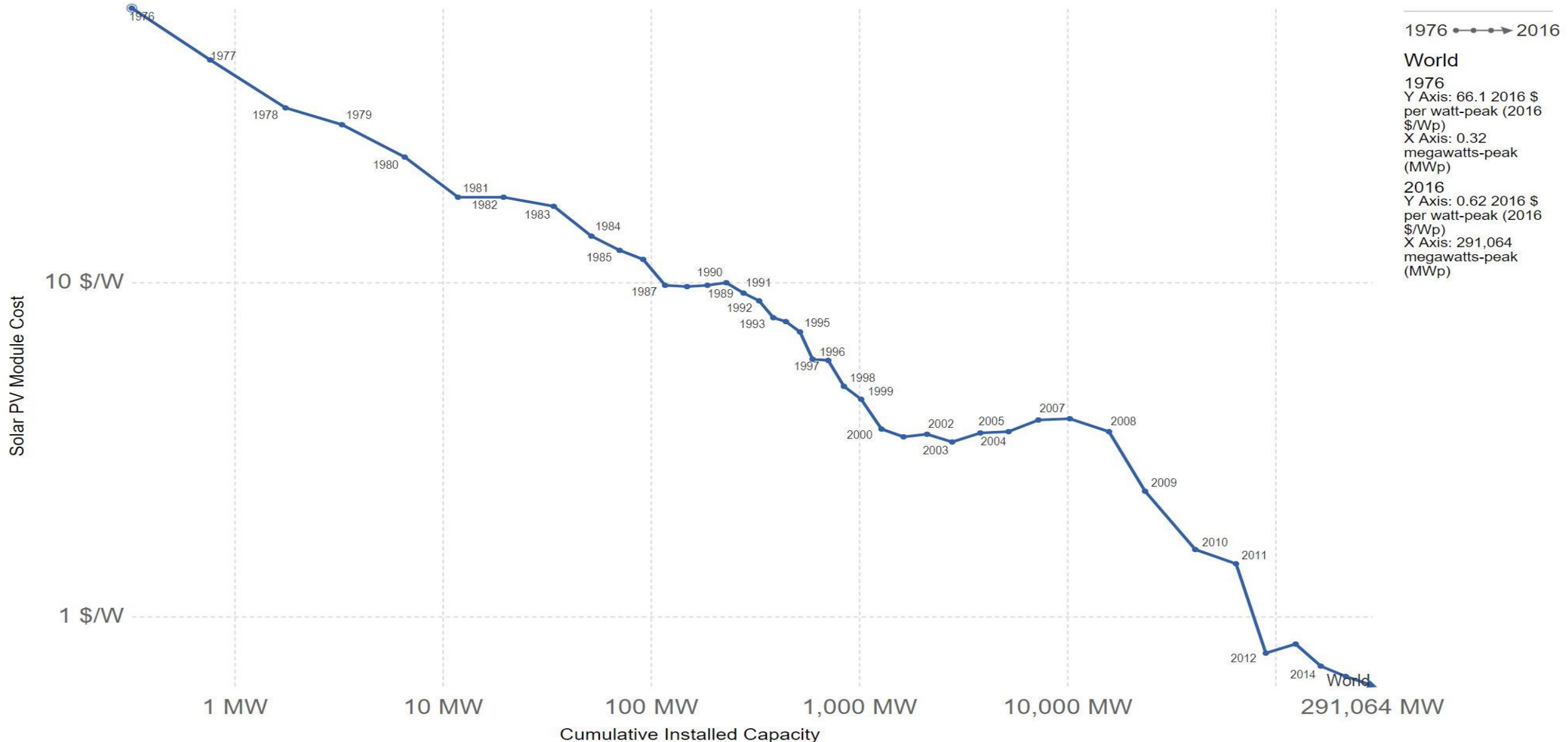


Virginia Museum of History & Culture  
Richmond, Virginia | April 9 & 10 2019

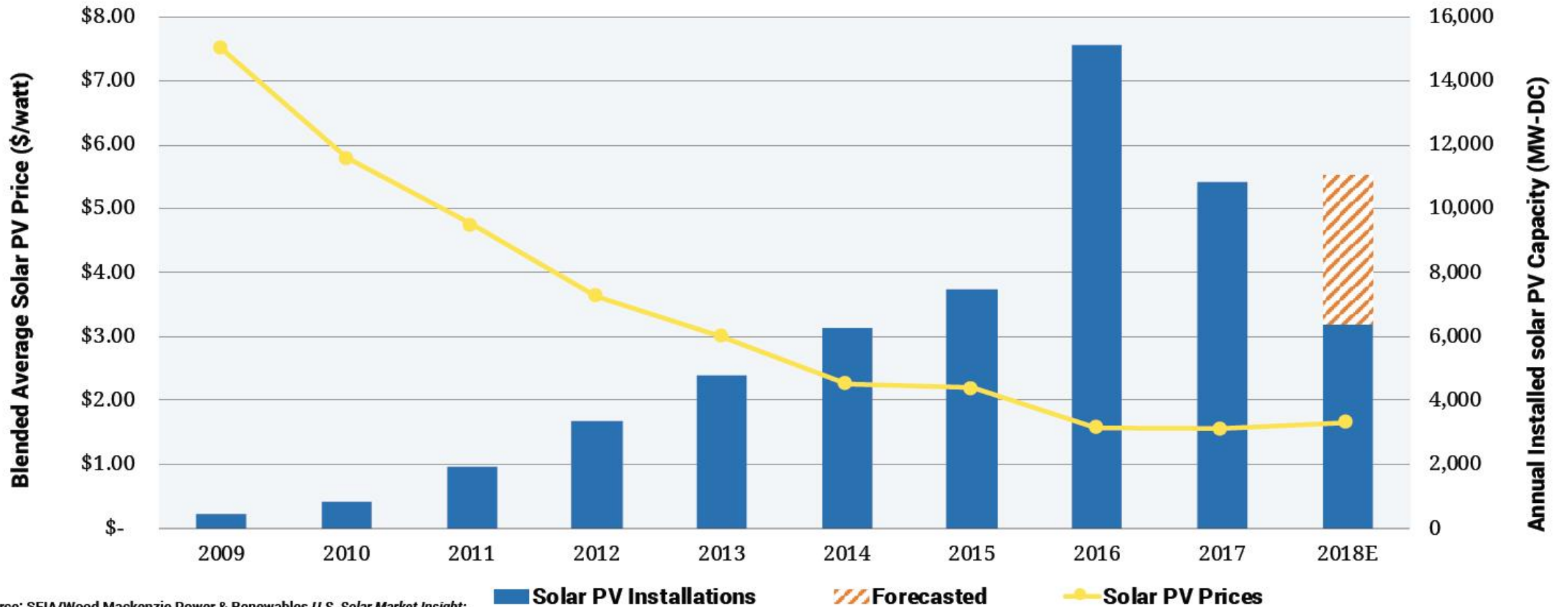


# Solar PV prices vs. cumulative capacity, 1976 to 2016

Solar photovoltaic (PV) module prices (measured in 2016 US\$ per watt-peak) versus cumulative installed capacity (measured in megawatts-peak, MWp). This represents the 'learning curve' for solar PV and approximates a 22% reduction in price for every doubling of cumulative capacity.



# Growth in Solar Led by Falling Prices



Source: SEIA/Wood Mackenzie Power & Renewables U.S. Solar Market Insight; Lawrence Berkeley National Laboratory, *Tracking the Sun*

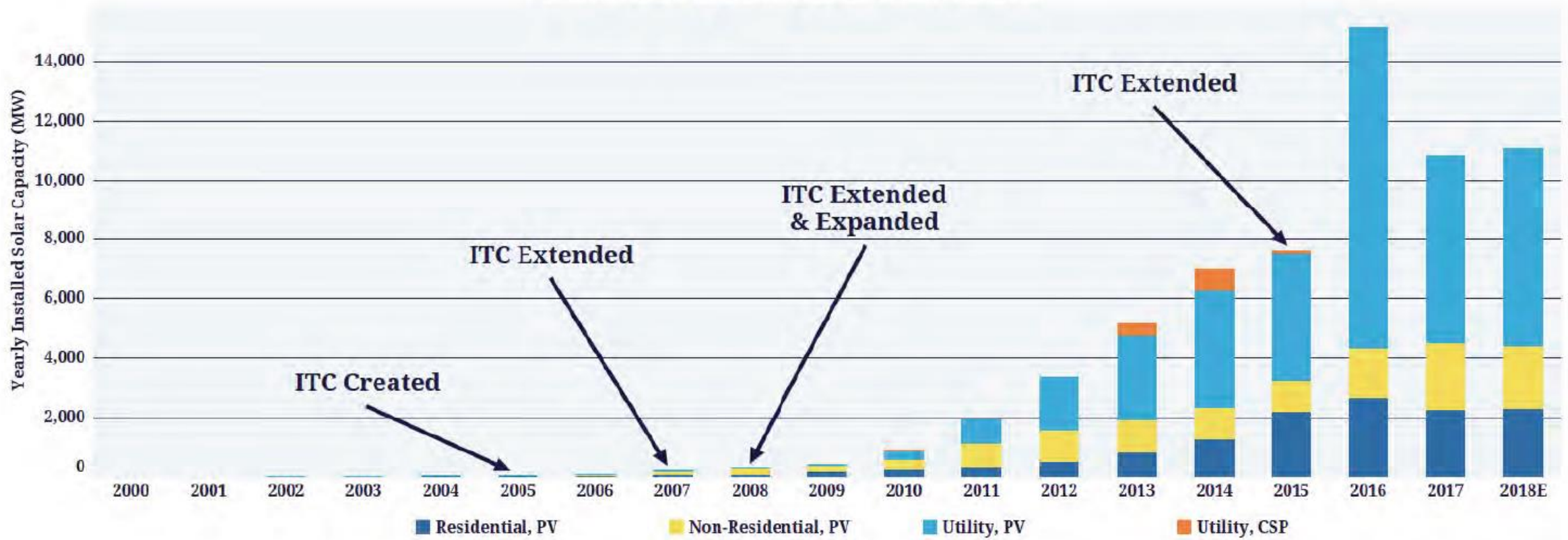
December 2018

[www.seia.org](http://www.seia.org)



# Solar Growth with the ITC

## Annual U.S. Solar Installations



Source: SEIA/Wood Mackenzie Power & Renewables U.S. Solar Market Insight

December 2018

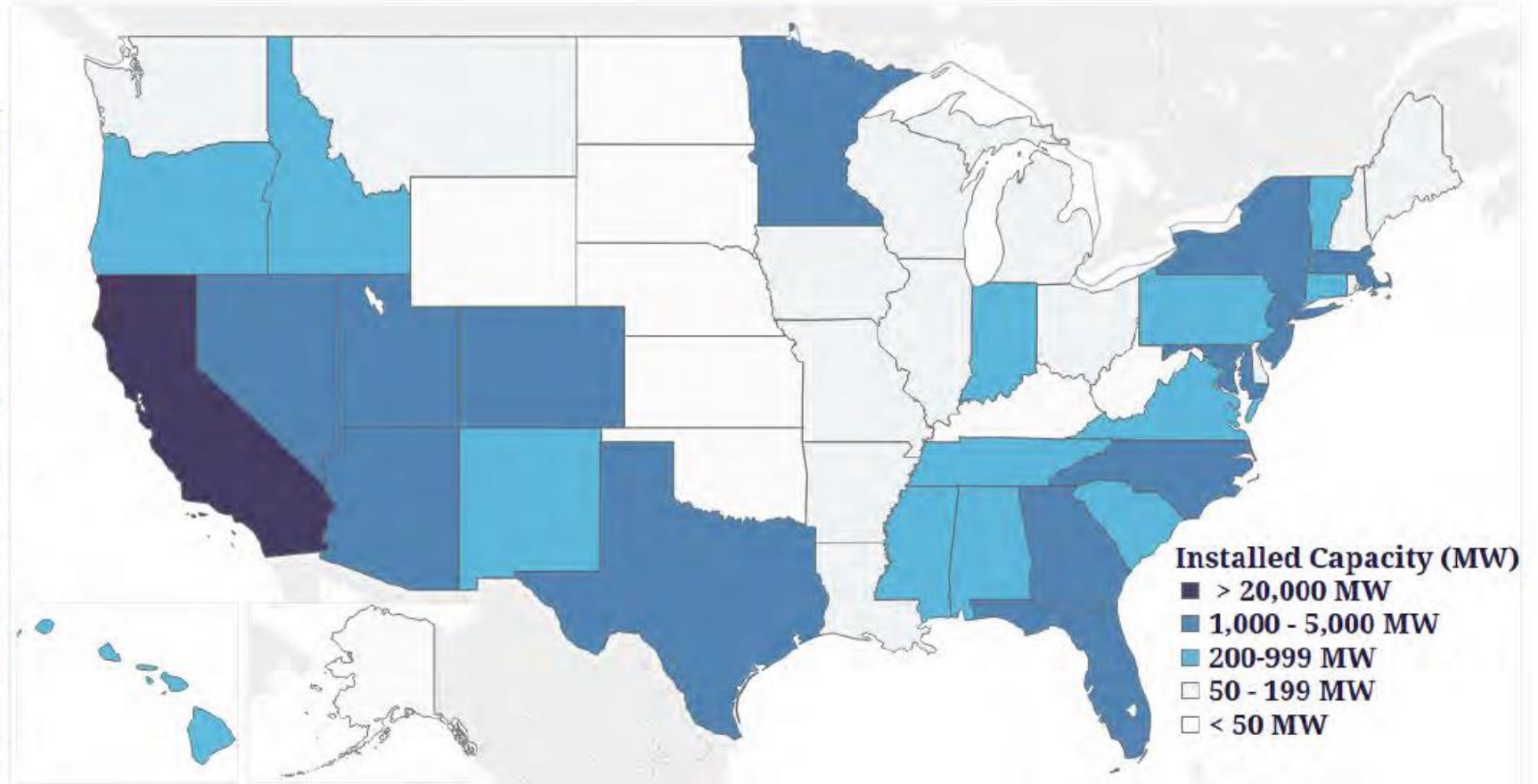
[www.seia.org](http://www.seia.org)



# U.S. Solar Industry – a 50 State Market

## Top 10 States

California	23,186 MW
North Carolina	4,671 MW
Arizona	3,664 MW
Nevada	2,707 MW
New Jersey	2,647 MW
Texas	2,466 MW
Massachusetts	2,319 MW
Florida	2,159 MW
Utah	1,636 MW
New York	1,570 MW



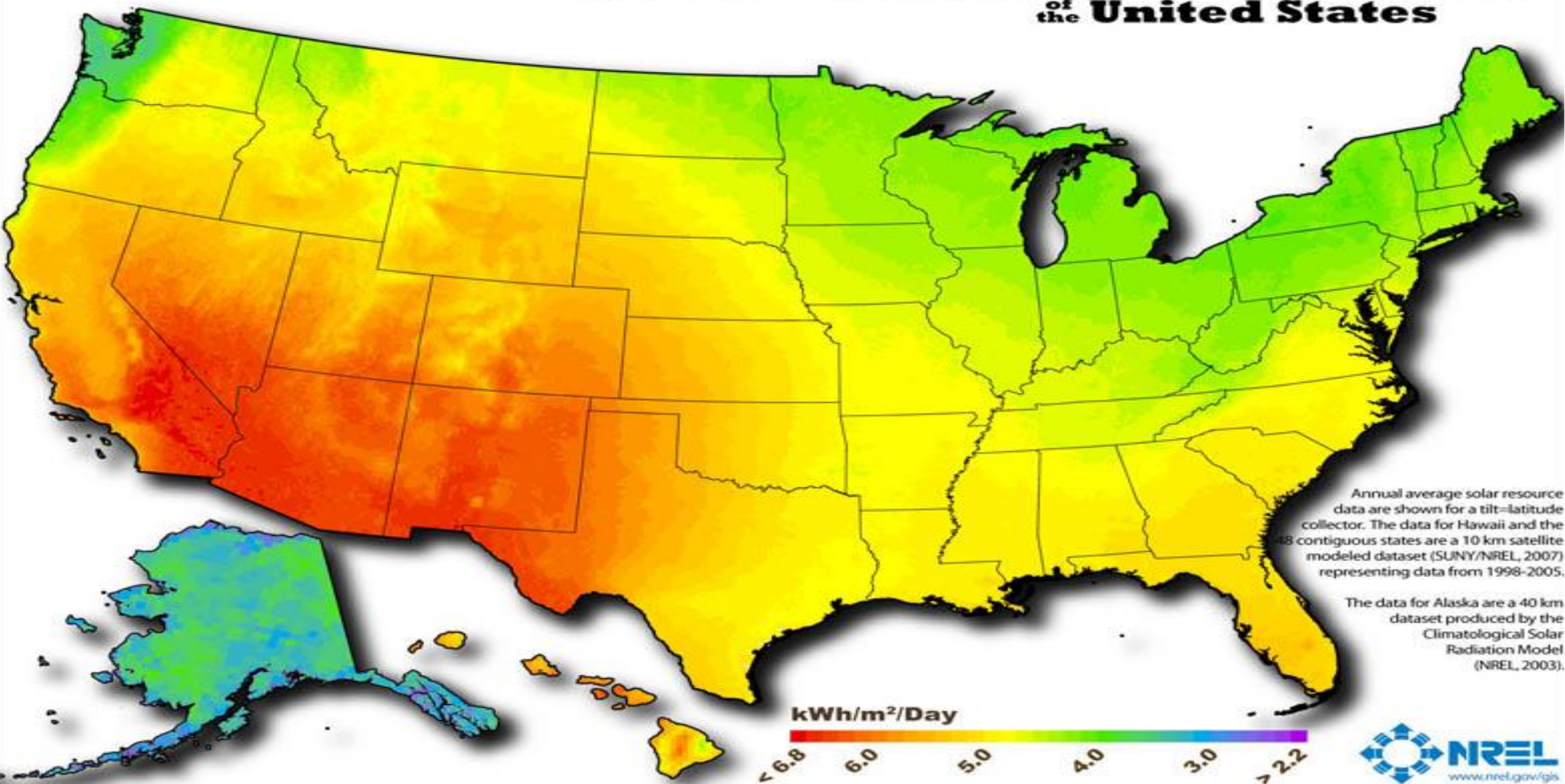
Source: SEIA/Wood Mackenzie Power & Renewables *U.S. Solar Market Insight*

December 2018

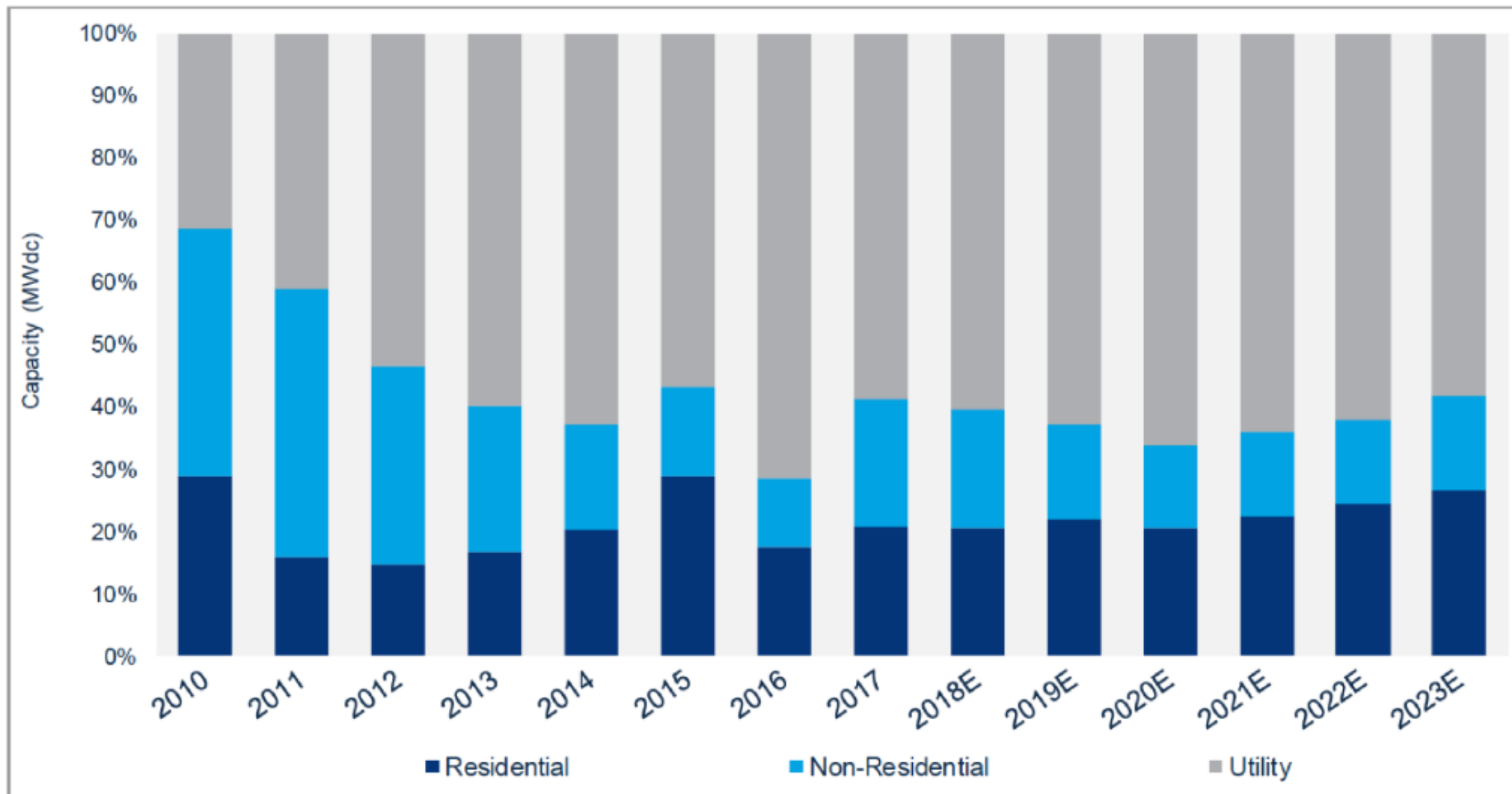
[www.seia.org](http://www.seia.org)



# Photovoltaic Solar Resource of the United States



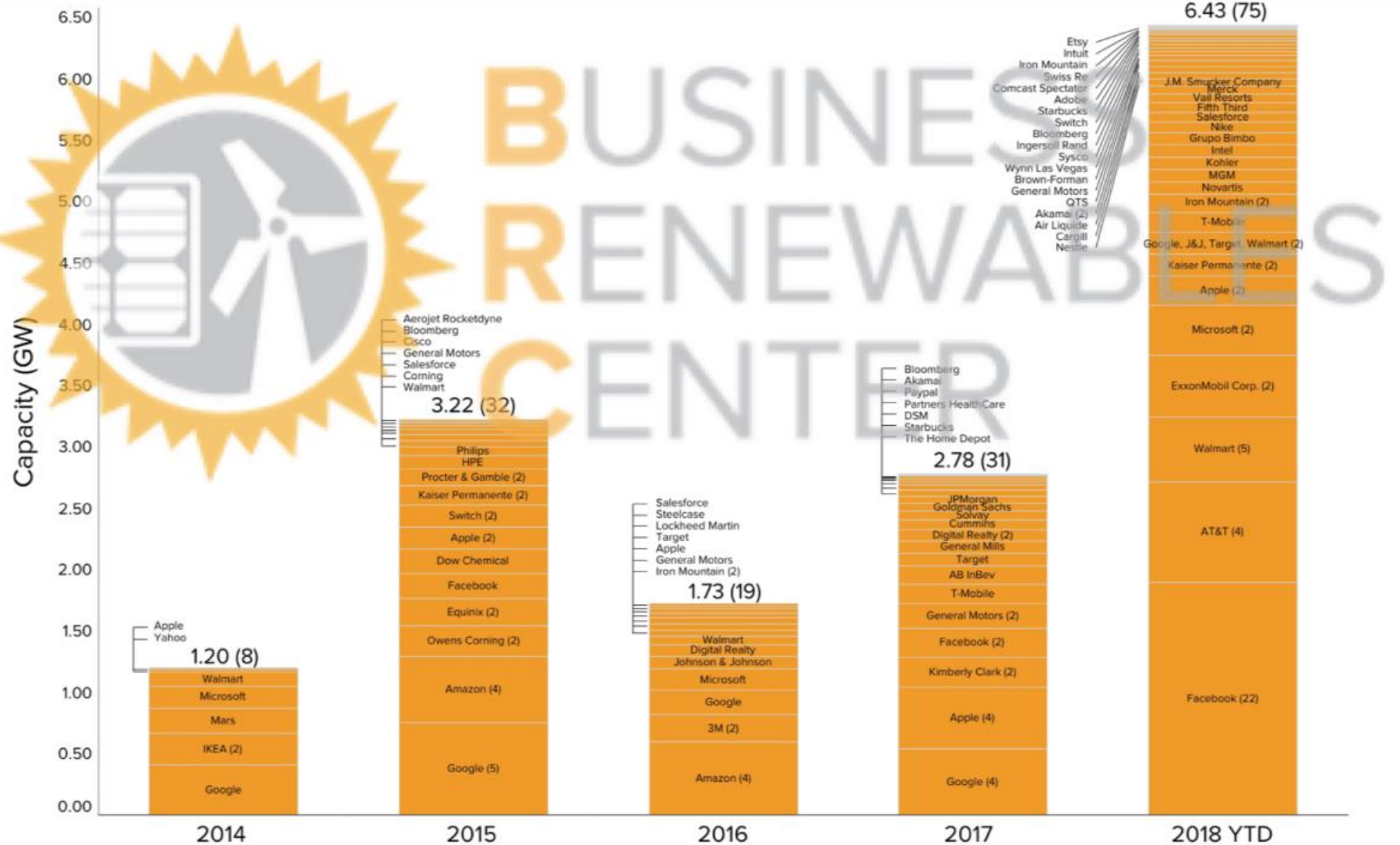
## U.S. PV installation forecast by segment, 2010-2023E



Source: Wood Mackenzie Power & Renewables

# Corporate Renewable Deals

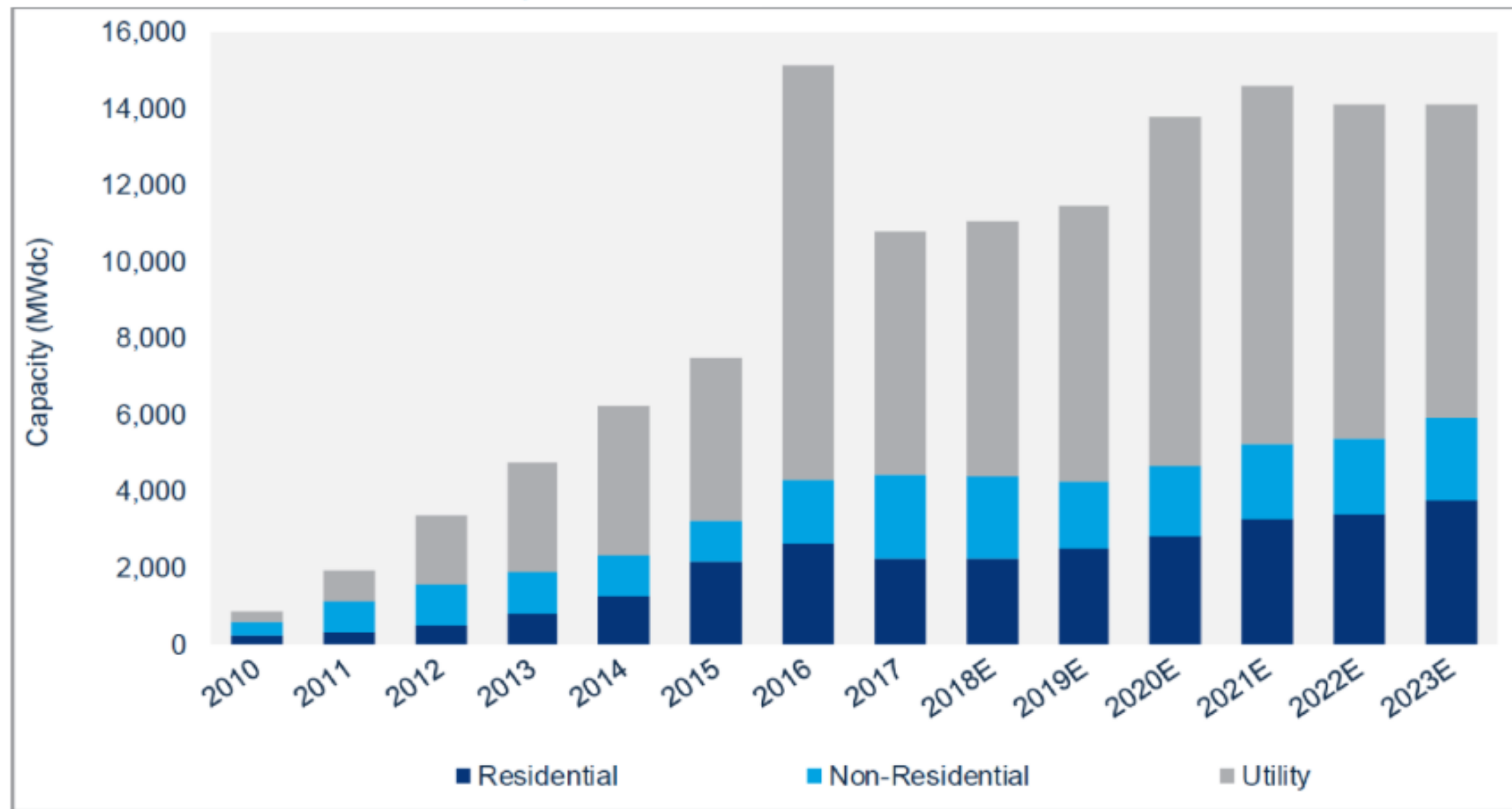
## 2014 – 2018 YTD



As of December 14, 2018. Publicly announced contracted capacity of corporate Power Purchase Agreements, Green Power Purchases, Green Tariffs, and Outright Project Ownership in the US, 2014 – 2018 YTD. Excludes on-site generation (e.g., rooftop solar PV) and deals with operating plants. (#) indicates number of deals each year by individual companies. Copyright 2018 by Rocky Mountain Institute.



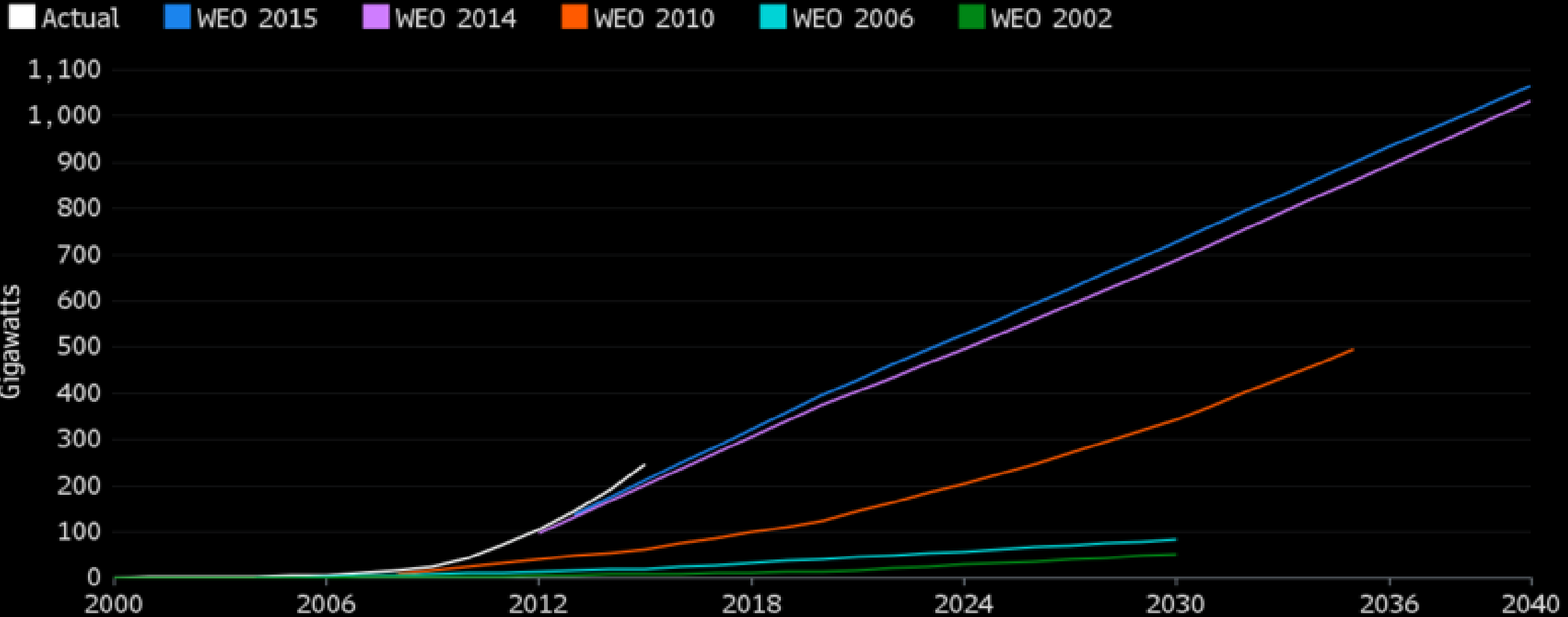
## U.S. PV installation forecast, 2010-2023E



Source: Wood Mackenzie Power & Renewables

# Solar Forecasts

IEA installed solar power forecasts have been frequently revised up

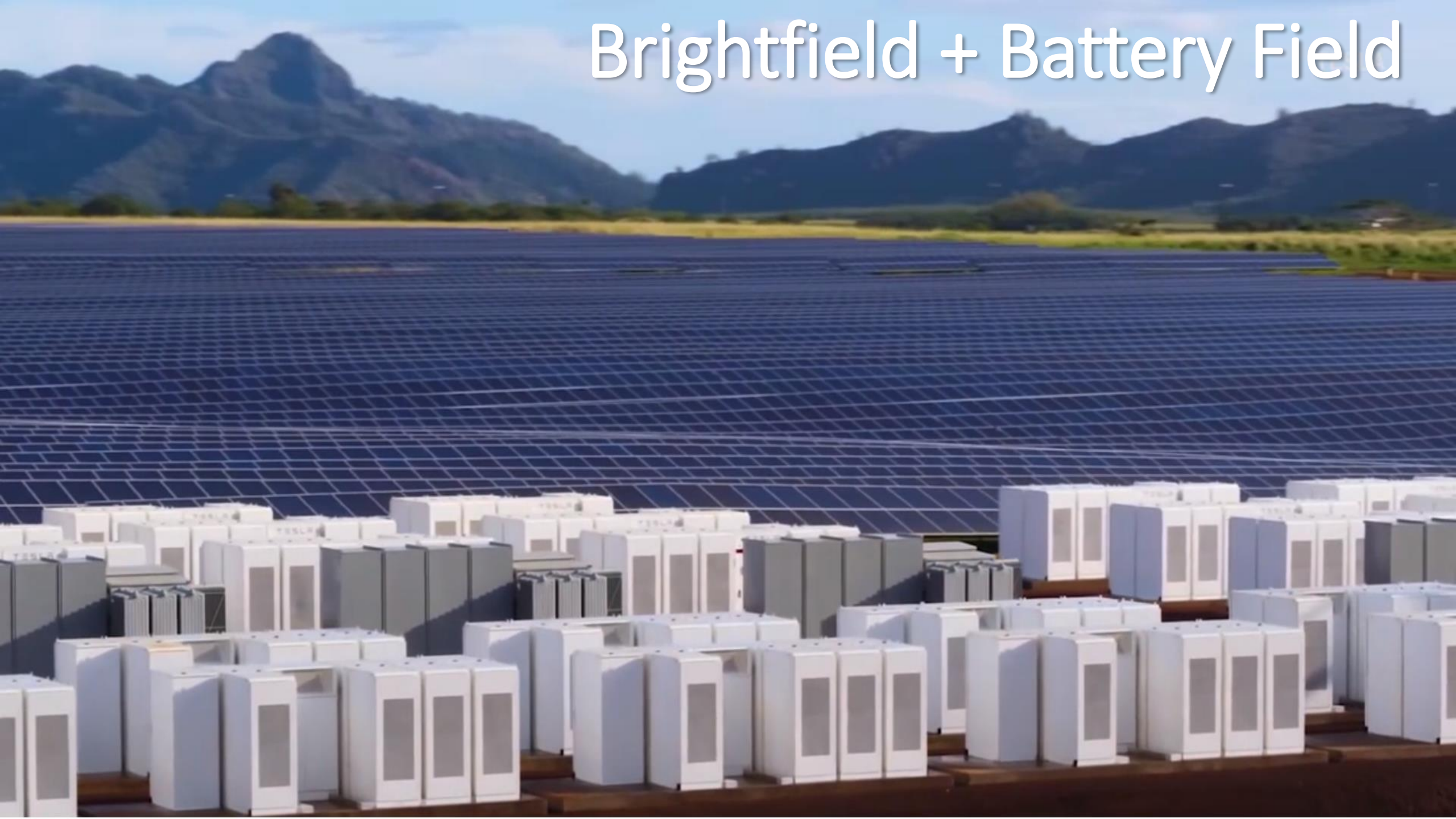


Source: Bloomberg New Energy Finance

Note: WEO 2002-2009 is Reference Scenario and WEO 2010-2015 is New Policies Scenario



# Brightfield + Battery Field

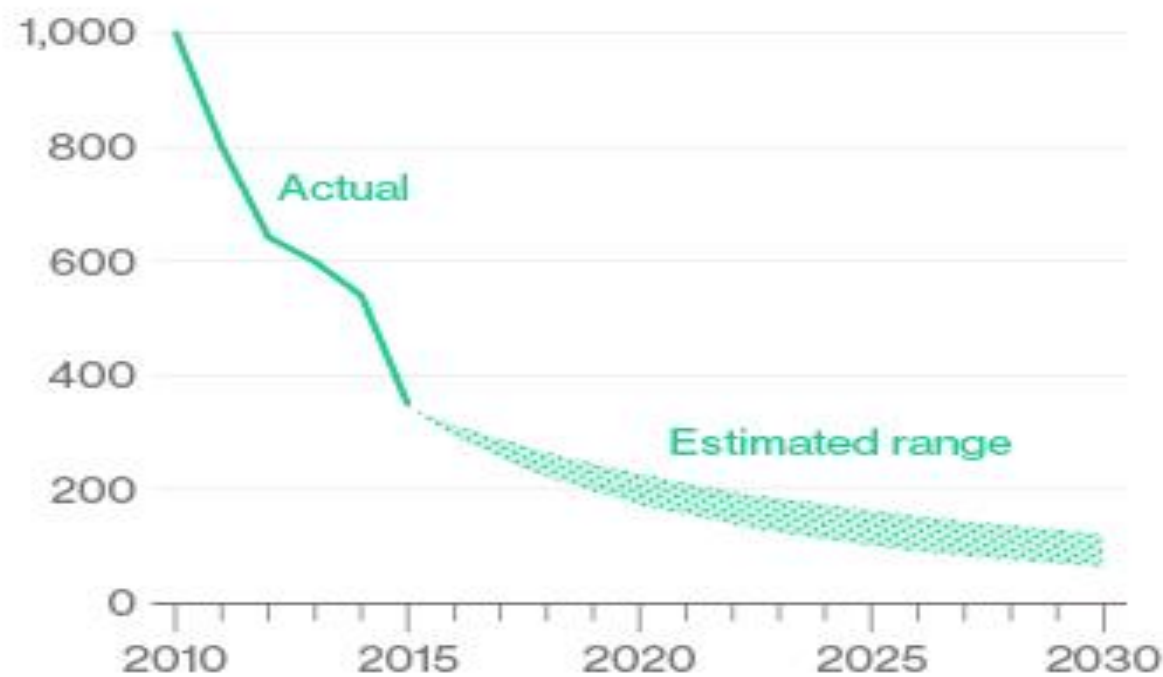


# It's All About the Batteries

Batteries make up a third of the cost of an electric vehicle. As battery costs continue to fall, demand for EVs will rise.

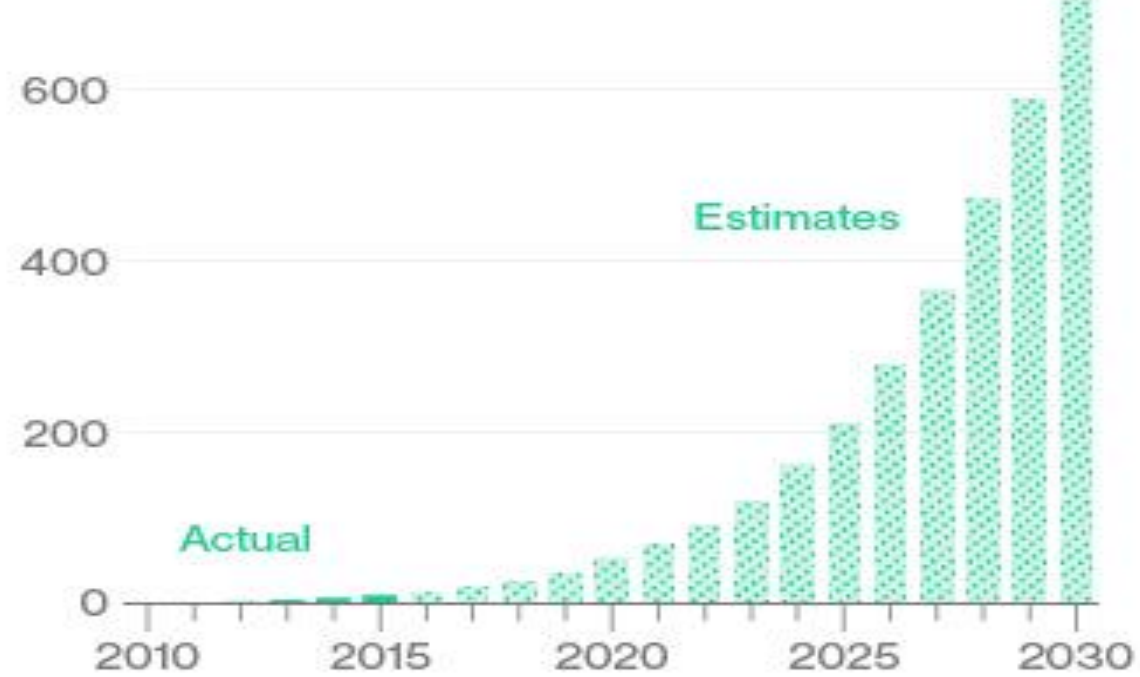
Cost for lithium-ion battery packs

\$1,200 per kilowatt hour



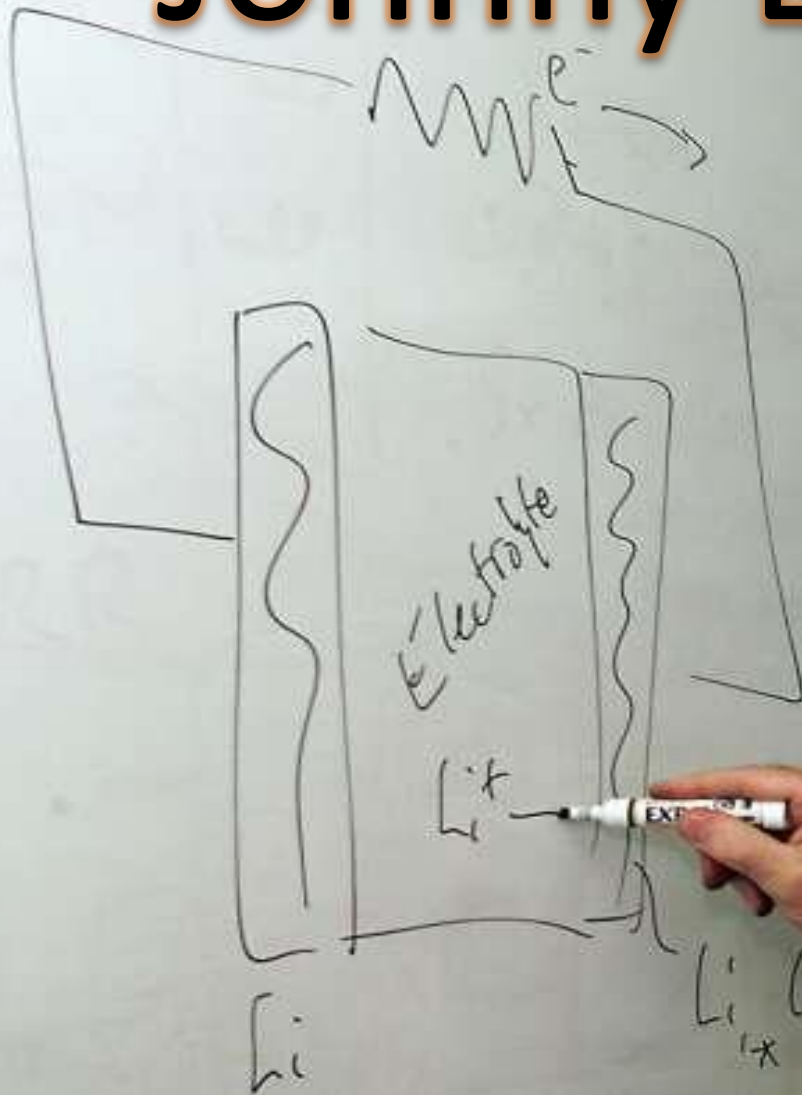
Yearly demand for EV battery power

800 gigawatt hours



Source: Data compiled by Bloomberg New Energy Finance

# Johnny B. Goodenough



96 year-old John B. Goodenough and a team at University of Texas at Austin have created a low-cost solid state battery that's safer than lithium-ion with 3X the power, a much longer lifespan and that charges in MINUTES instead of hours.



# RE-Powering America's Land

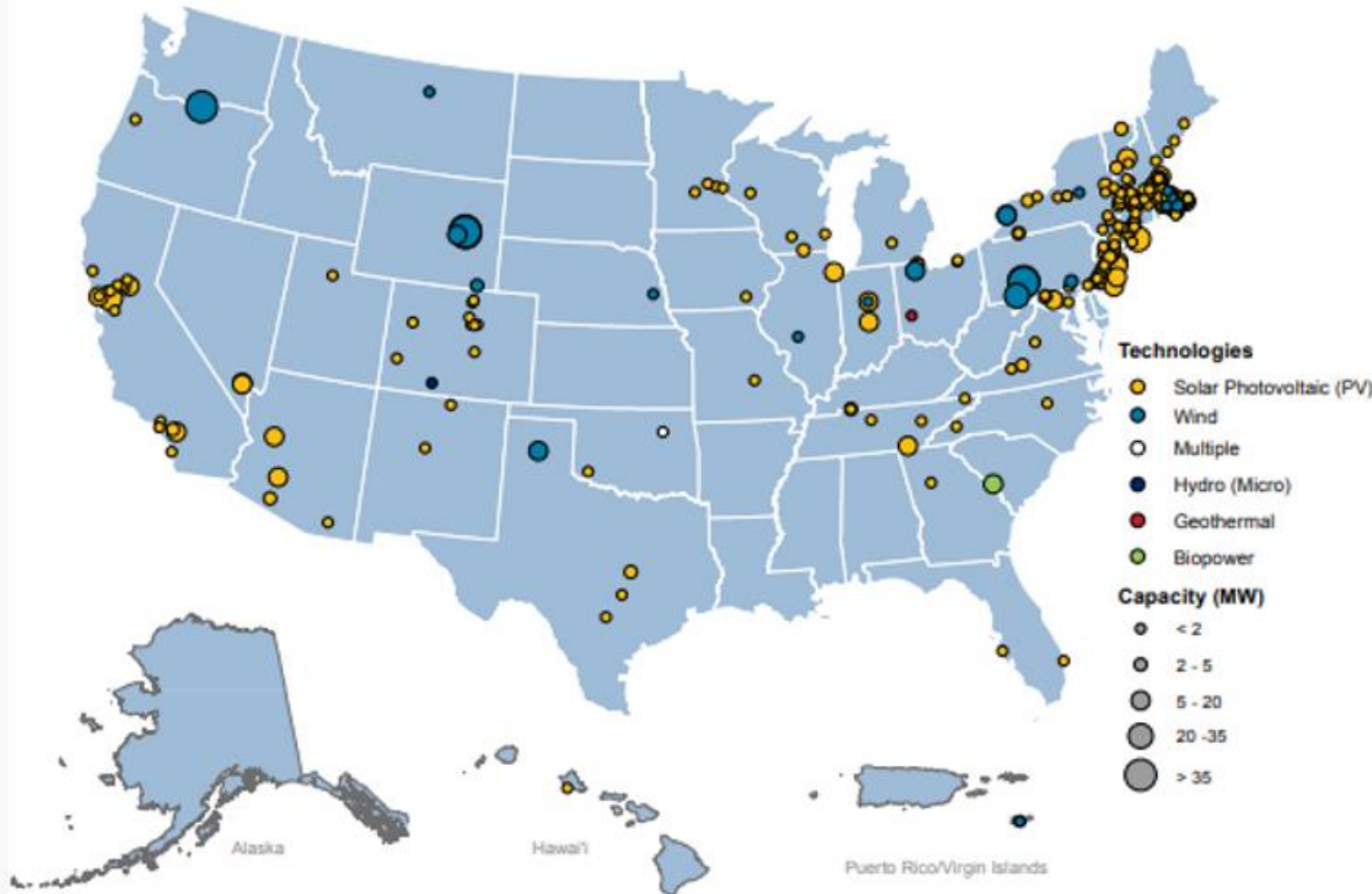
Siting Renewable Energy on Potentially Contaminated Land, Landfills and Mine Sites



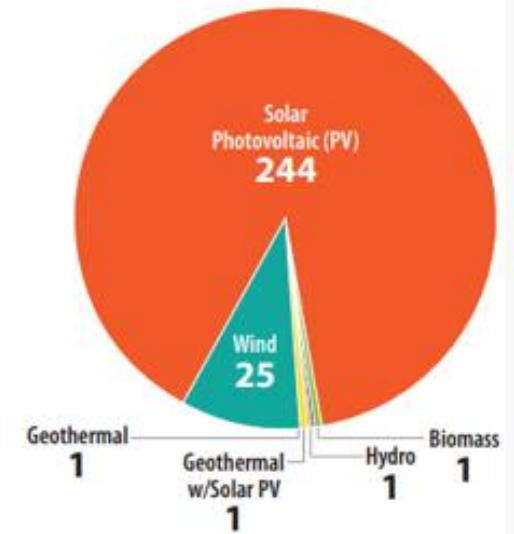
# Renewable Energy on Contaminated Lands: State of Practice



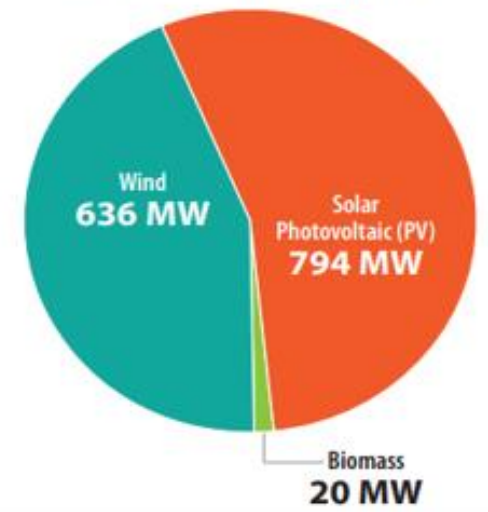
274 Renewable Energy Projects, Over 1.4 Gigawatt Installed Capacity



Total Projects by Technology



Total Capacity by Technology

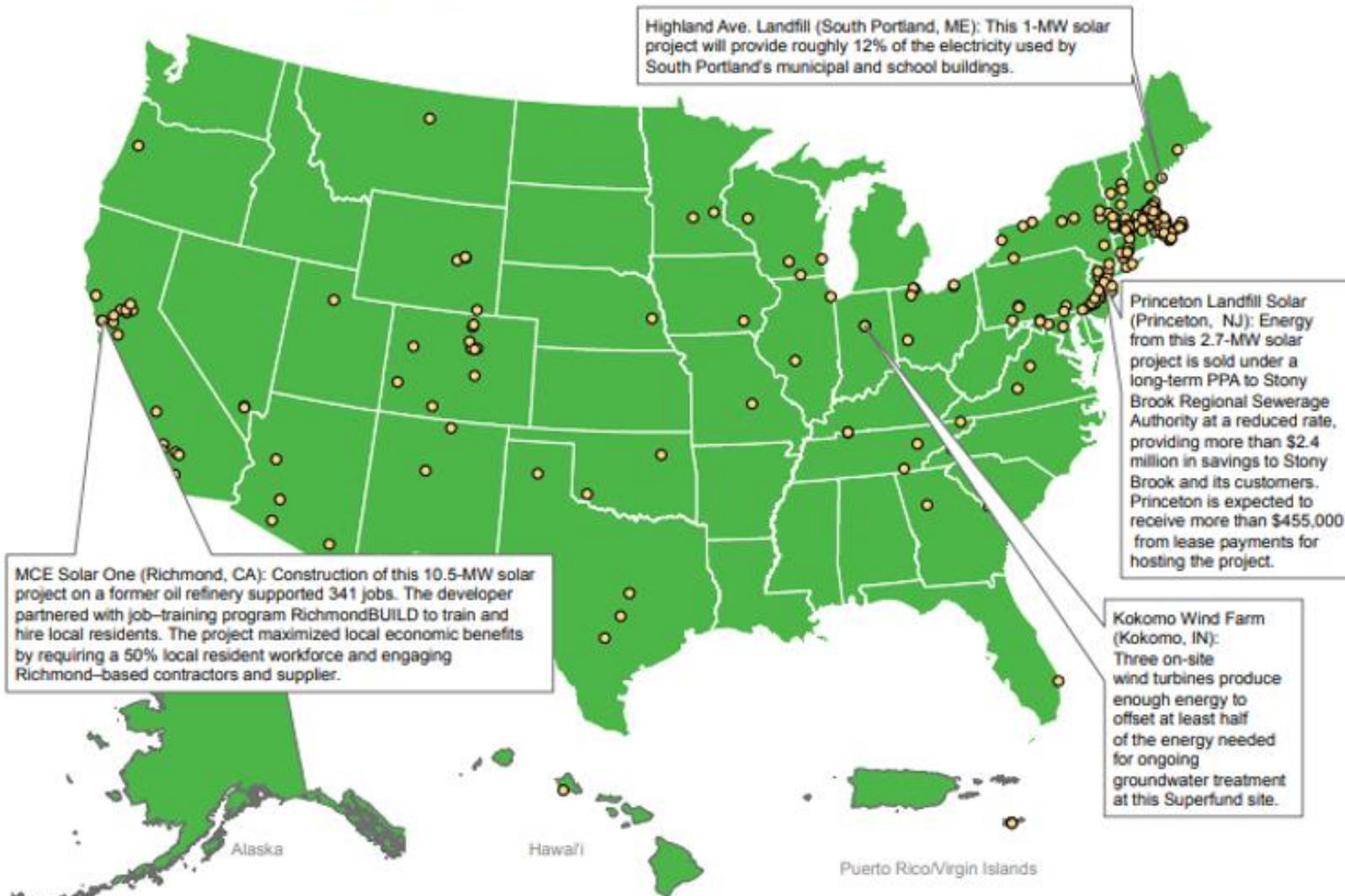




# Benefits Matrix



## 222 Renewable Energy Projects with Reported Environmental and Economic Benefits



# RE-Powering Mapper

Google Earth Overlay



EPA's RE-Powering Mapper is a web-based geographic information tool that provides location and renewable energy potential information for contaminated lands, landfills, and mine sites.

Each location includes attributes such as resource capacity potential and proximity to electric transmission lines and screening results for solar, wind, geothermal, and biomass technologies.

Site Name	Program	Address	City	County	State	Acres	Site Status	Estimated Solar PV Capacity (MW)	Site ID	Site Profile	EPA Region	Max C (kWh)
CALLAWAY GOLF BALL OPERATIONS INC	RCRA	425 MEADOW ST	CHICOPEE		MA	20	<a href="https://obipublic.PortalPages&amp;Activ">https://obipublic.PortalPages&amp;Activ</a>	3.33	MAD001113331	<a href="https://ofmpub.ej1pe/CIMC.REPOW">https://ofmpub.ej1pe/CIMC.REPOW</a>	1	3.69
COLUMBIA	RCRA	CYCLE ST	WESTFIELD		MA	24	<a href="https://obipublic.PortalPages&amp;Activ">https://obipublic.PortalPages&amp;Activ</a>	3.33	MAD001115609	<a href="https://ofmpub.ej1pe/CIMC.REPOW">https://ofmpub.ej1pe/CIMC.REPOW</a>	1	3.68

# RE-Powering Mapper

## Highlights



*Construction of Maywood Solar Farm at former Reilly Tar & Chemical Superfund site, Indianapolis, Indiana*

- 114,830 sites screen positively for renewable energy in states that have a Renewable Portfolio Standard (RPS);
- 8,445 sites screen positively for small scale utility solar or larger in states that encourage community solar or other shared renewables;
- 133,890 sites screen positively for off-grid solar and could be used on-site to reduce energy use or power green remediation;
- 2,775 landfills screen positively for small utility scale solar or larger
- 29,767 sites screen positively for 1-2 wind turbine systems.

# Online Project Development Training



Re-Powering is educating stakeholders about the various land use considerations for pursuing renewable energy projects on contaminated lands, landfills and mine sites.

Topics include:

- site control and ownership
- liability concerns
- site clean-up status and timeline
- environmental permitting requirements.

A screenshot of the EPA RE-Powering Project Development Training web application. The interface has a blue header with the title "EPA RE-Powering Project Development Training" and a "MENU" and "RESOURCES" link. Below the header is a light green navigation bar with "Land Use Considerations" and a "Progress Bar". The main content area has a light blue header with "Two Potential Sites". The central part of the screen shows a woman in a purple shirt standing in a room with blue chairs. Two speech bubbles contain text: the top one says "THE MEETING WE ARE ABOUT TO ENTER BRINGS TOGETHER THE RELEVANT STAKEHOLDERS FOR THE PROJECTS- SITE OWNERS, RENEWABLE ENERGY PROJECT DEVELOPERS, A REPRESENTATIVE FOR THE LOCAL COMMUNITY ASSOCIATION, AND OUR STATE ENVIRONMENTAL PROTECTION REPRESENTATIVE." and the bottom one says "BEFORE WE MEET THE STAKEHOLDERS, LET ME GIVE YOU A LITTLE CONTEXT ON THE MEETING. OUR TOWN HAS TWO CONTAMINATED LAND SITES THAT WE ARE CONSIDERING FOR RENEWABLE ENERGY REDEVELOPMENT." There are green double arrow navigation icons at the bottom right.

**Visit:** <https://www.epa.gov/re-powering/re-powering-mapping-and-screening-tools>

**ESTABLISH A SOLAR PROJECT DEVELOPMENT AND/OR RENEWABLE ENERGY USAGE GOAL**

Establishing a publicly available solar project development and/or renewable energy usage goal helps bring clarity and focus to the process of developing solar projects. It gives your local government direction and affirms your intent to both you and your stakeholders. This is the minimum requirement to be listed on the Portal.



**DEVELOP A PROJECT DEVELOPMENT PLAN**

One of the best indicators of project development success includes use of a solar project development plan. The plan will detail your local government's specific set of circumstances and chart a pathway. A plan is optional to be listed on the Portal.



**ASSESS YOUR SOLAR SITE OPPORTUNITIES, CATALOG SITE INFORMATION, AND COLLECT YOUR UTILITY DATA**

It is important to understand your solar site opportunities, which starts with collecting site information and utility data. This information becomes critical when seeking project proposals from developers and is the basis for conducting site assessments to identify the most suitable sites.



**BUILD AND COMMISSION YOUR PROJECT**

Once your project is built and generating solar power, EPA would be excited to share your success. Send us an email and provide us a photo of your new project. Email [EPASolarPortal@erg.com](mailto:EPASolarPortal@erg.com) to provide us with an update and photo of your new project.



**SELECT A PROJECT PROPOSAL AND SIGN A CONTRACT**

You are in the home stretch! After you identify the best project opportunity, it is time to sign a contract. Once you select a project and sign a contract, be sure to let EPA know so we can share your success with your peers.



**REVIEW AND EVALUATE YOUR PROJECT PROPOSALS**

An RFP will generally result in one or more project proposals from developers. Evaluating these project proposals objectively can be challenging, yet is critical for selecting the best project that meets your goals.



**DEVELOP AND ISSUE A SOLAR REQUEST FOR PROPOSALS (RFP)**

An RFP is a solicitation for products and services that outlines the general terms and conditions of request from market suppliers. For solar, this can involve a wide array of requirements. If you are interested in making claims about using renewable energy, be sure to retain the Renewable Energy Certificates (RECs) from your project.



# Project Development Pathway



Module 1:

Develop your goals  
and team



Module 2:

Identify Sites  
and Screen



Module 3:

Complete Detailed  
Site Evaluation



Module 4:

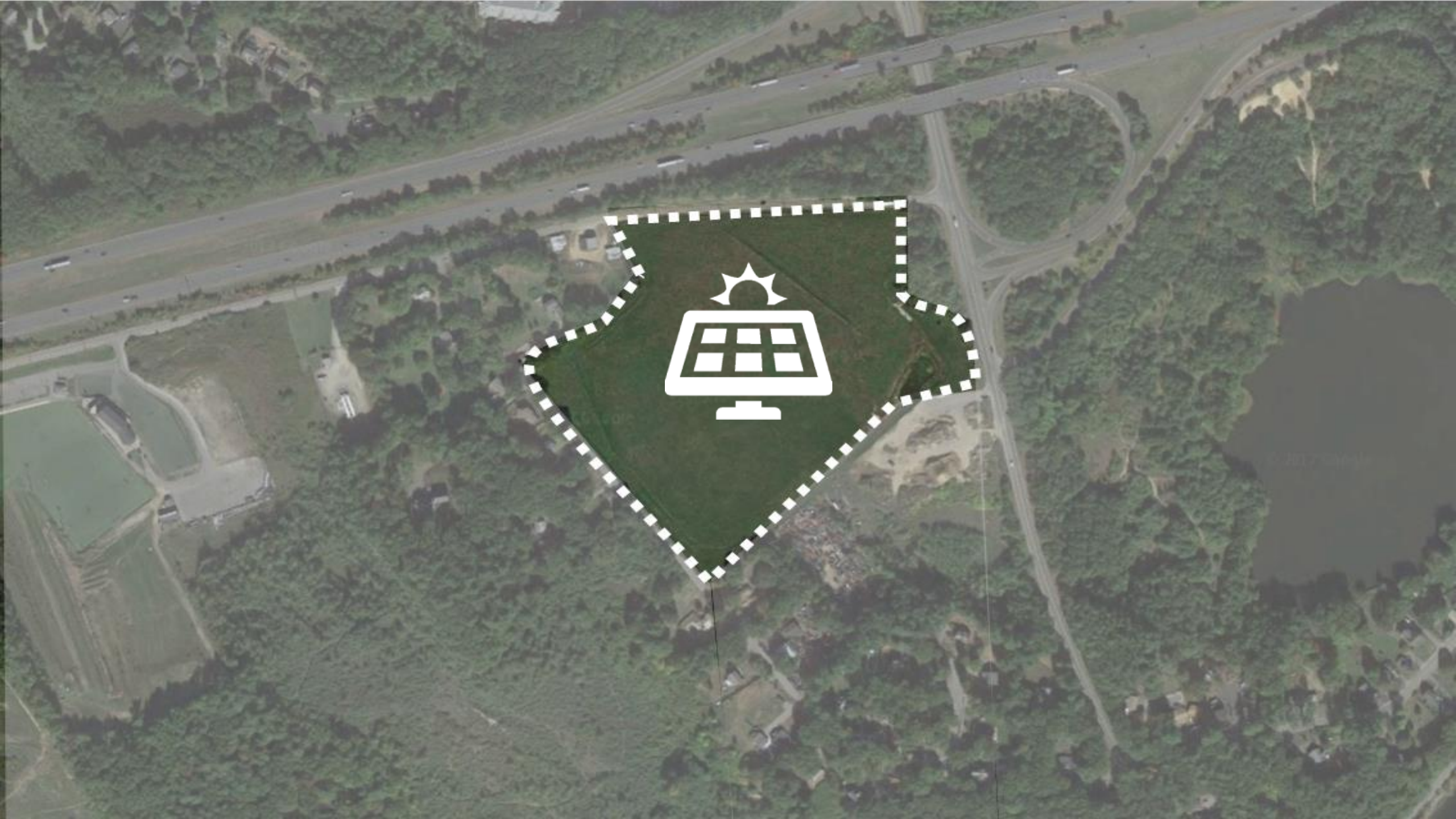
Decide on a Financial  
Model and Use all  
Available Incentives



Module 5:

Issue a  
request-for-proposals

**Visit:** <https://www.nrel.gov/state-local-tribal/data-tools.html>  
<https://www.nrel.gov/state-local-tribal/basics-solar-rfps.html>





# RFP SUCCESS!

Amesbury has its pick of able solar developers for its landfill project.

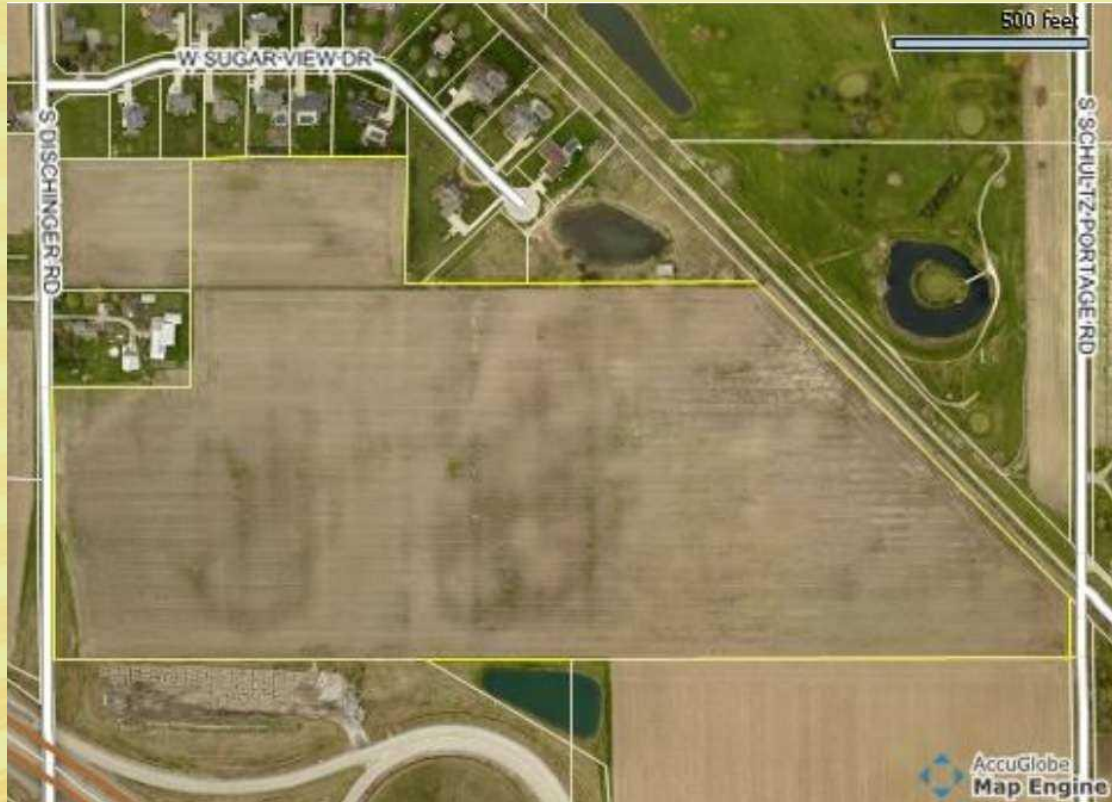


BROWNFIELD  
LISTINGS



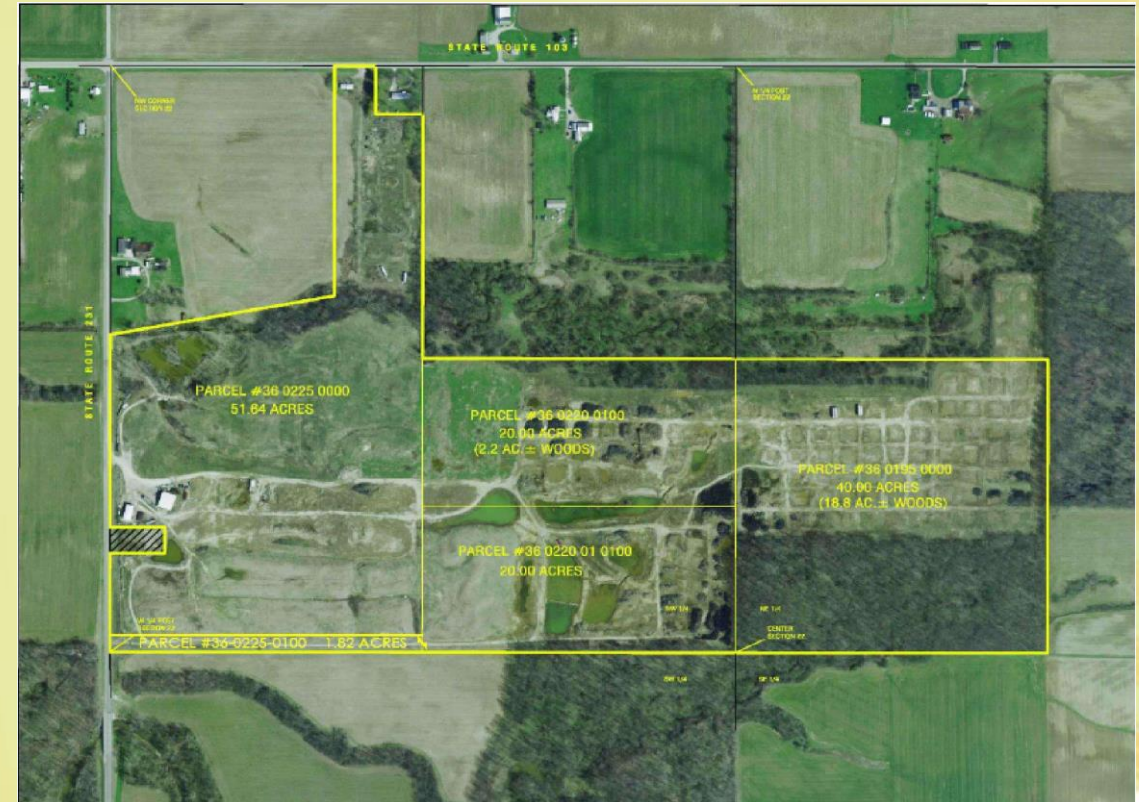
## Elmore Greenfield

- 52 acre city-owned urban greenfield site | RFP for 1 MW
- City owns & operates electric utility serving ~950
- Preference shown for proposals w/option for city to purchase the facility at a later date



## Kirby Tire Recycling

- 133 acre rural facility suffered major fire in 1999
- Remediated, covenant not to sue issued by EPA
- Multi-party MOU clears liens upon solar development



## 3-in-1 RFP published by the Connecticut Materials Innovation and Recycling Authority (MIRA)

### Waterbury Landfill

- 3 acre urban infill site
- Landfill closed in 2009
- Utility corridor adjacent to property



### Shelton Landfill

- 60 acre urban infill site
- Landfill closed in 2001
- Showcase installation at Seaside Park



### Ellington Landfill

- 38 acre rural site
- Landfill closed in 1998
- Surrounded by productive farmland



# BRIGHTFIELDS 2019 - VIRGINIA

## SOLAR MARKET MIXER

Virginia Museum of History & Culture  
Richmond, Virginia

April 9 & 10, 2019

CONNECTING  
LANDOWNERS

AND  
COMMUNITIES



WITH SOLAR  
DEVELOPERS

AND SOLAR  
PROS



# WE CAN DO IT!

REBUILD, REFIT AND RENEW AMERICA



 BROWNFIELD  
LISTINGS

[WWW.BROWNFIELDLISTINGS.COM](http://WWW.BROWNFIELDLISTINGS.COM)

<http://events.brownfieldlistings.com/brightfields-2019-virginia>

## Scott R. Tess

Environmental Sustainability Manager  
City of Urbana, IL



### What are you reading?

Your development finance toolbox isn't complete without a set of CDFA reference guides. Members save 15% on every purchase.

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# Brownfield Solar In Urbana, IL

Scott R. Tess  
Environmental Sustainability Manager  
City of Urbana, IL



[srtess@urbanaininois.us](mailto:srtess@urbanaininois.us) /  
[linkedin.com/in/scotttess/](https://www.linkedin.com/in/scotttess/)

# About Urbana



# Motivations

- City is long-standing environmental leader
- Already sustaining global warming impacts
- Sense of urgency



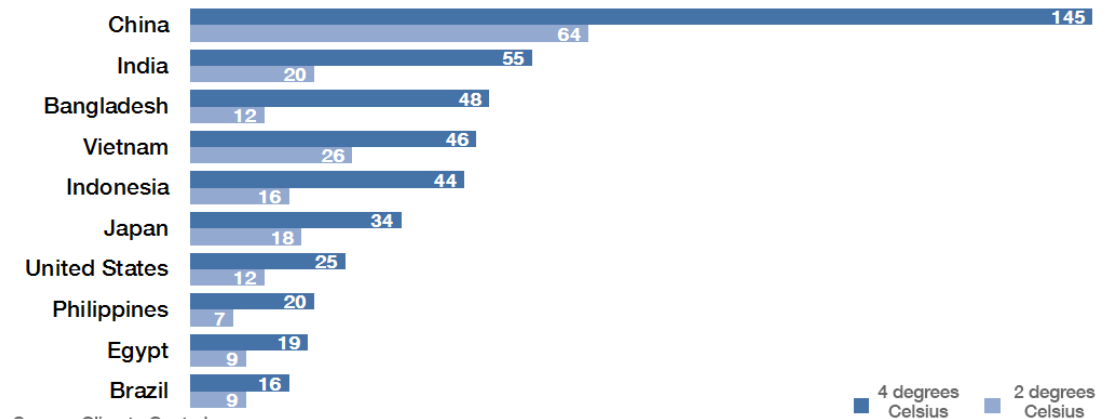
The Safer Affordable Fuel-Efficient (SAFE)  
Vehicles Rule for Model Year 2021–2026  
Passenger Cars and Light Trucks

**Draft Environmental  
Impact Statement**

July 2018  
Docket No. NHTSA-2017-0069

## Which countries are most in danger from rising sea levels?

Total 2010 population (millions) below median locked-in sea level rise, based on different warming levels



Source: Climate Central



# The Good News!



# Easy, Fast, Cheap, Popular

- Easy
  - Lower Planning/Zoning/Permitting barriers
  - Proactive, light touch
- Fast
  - Commit to short permitting time frames
  - Short cut the bid process for the public
- Cheap
  - Drive down permitting and purchase price
- Popular
  - Cultivate influential early adopters

Grow  lar

Local Government  
Solar Toolkit

PLANNING, ZONING, AND PERMITTING

Illinois

# Popular

- Prominent institutions



# City Solar Power Purchase Agreement



# Landfill Parcel In It's Entirety



# Dec. 2016 Future Energy Jobs Act passed



**Stimulate** job creation with new investments in energy efficiency, renewables, and energy innovation

**Enhance** Illinois' position as a leader in the clean energy economy, attracting investment and new companies to Illinois

**Preserve** Illinois' low energy rates for residents and businesses

# June 2017 Developing Solar on Landfills & Brownfields event

## The Sun Rises on Brownfields

TRC is Bringing Brownfield Owners and Solar Developers Together for a 2-day Conference!

[Register Now](#)

Powered by:

 BROWNFIELD LISTINGS



# Aug. 2017 Request for Qualifications published



**CITY OF URBANA, ILLINOIS**

**REQUEST FOR QUALIFICATIONS FOR A LANDFILL SOLAR DEVELOPER**

**RFP # 1718-08**

**ISSUED: August 28, 2017**

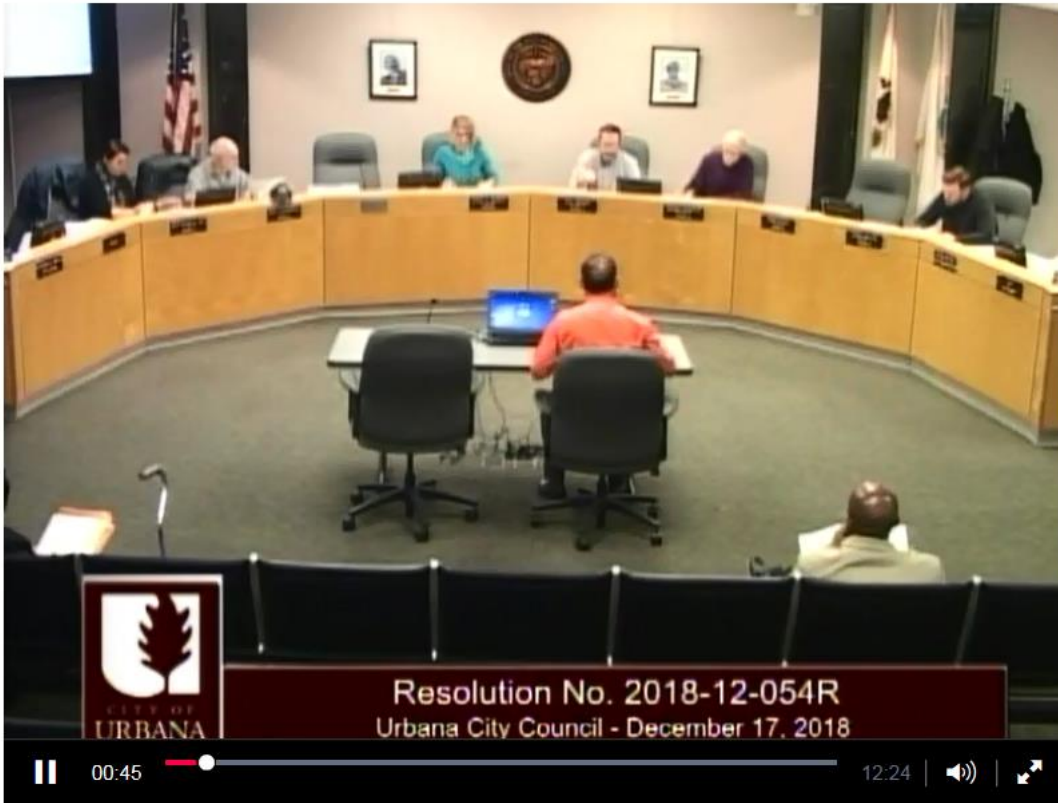
**RESPONSES DUE AT THE CITY OF URBANA:  
3:00 PM Central Time, September 7, 2017  
City of Urbana, Illinois Public Works Department  
706 Glover Avenue Urbana, IL 61802**



# Dec. 2018 Lease Option Approved by Council

 CITY OF URBANA

[Home](#) > [City Council](#) > [Meetings](#) > 20181217



## City Council Meeting on 12-17-2018

### Resolution 2018-12-054R

All Available Videos:

[Start of Meeting](#)

[Public Input](#)

[Ordinances 2018-12-079 2018-12-080 and 2018-12-081](#)

[Resolution 2018-12-054R](#)

[Ordinance 2018-12-082](#)

[Reports of Officers](#)

[Ordinance 2018-12-083](#)

[Ordinance 2018-12-084](#)

[Mayoral Appointments to Boards and Commissions](#)

[Closed Session](#)

 City of Urbana 400 South Vine Street, Urbana, IL 61801

Public Works Department 706 South Glover Street, Urbana, IL 61802

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# Jan. 2019 Special Use Permit Approved by Council



## Application for Special Use Permit

## PLAN COMMISSION

**The application fee must accompany the application when submitted for processing.** Please refer to the City's website at <http://www.urbanainllinois.us/fees> for the current fee associated with this application. **The Applicant is also responsible for paying the cost of legal publication fees.** Estimated costs for these fees usually run between \$75.00 and \$225.00. The applicant will be billed separately by the News-Gazette.

### DO NOT WRITE IN THIS SPACE - FOR OFFICE USE ONLY

Date Request Filed \_\_\_\_\_ Plan Case No. \_\_\_\_\_

Fee Paid - Check No. \_\_\_\_\_ Amount \_\_\_\_\_ Date \_\_\_\_\_

### PLEASE PRINT OR TYPE THE FOLLOWING INFORMATION

A SPECIAL USE PERMIT is requested in conformity with the powers vested in the Plan Commission to recommend to the City Council under Section \_\_\_\_\_ of the Urbana Zoning Ordinance to allow (*Insert proposed use*) \_\_\_\_\_ on the property described below.

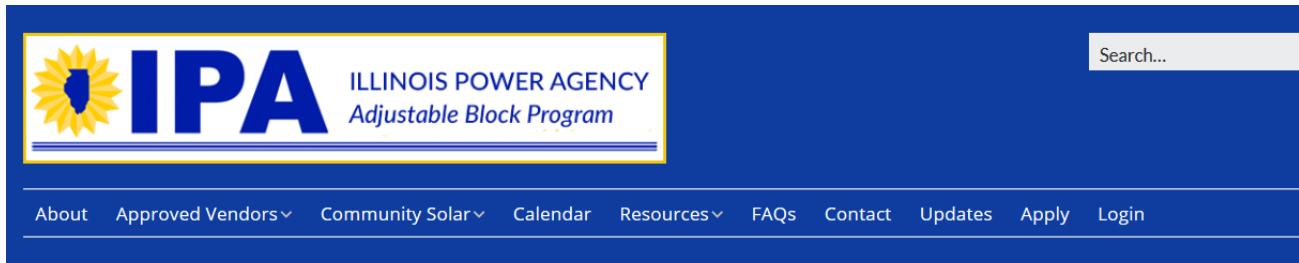
#### 1. APPLICANT CONTACT INFORMATION

Name of Applicant(s): City of Urbana, Illinois Phone: 217-384-2381

Address (street/city/state/zip code): 706 Glover Ave. Urbana, IL 61802

Email Address: [srtess@urbanainllinois.us](mailto:srtess@urbanainllinois.us)

# Mar. 2019 State Incentive Lottery



FEBRUARY 21, 2019

## Tentative Lottery Date Announced and Status Update on Block 1 Applications

The Illinois Power Agency and the Program Administrator wish to announce that based upon Part 1 project applications submitted during the first 14 days of the Adjustable Block Program, it appears that there will be lotteries for the following Group/category combinations:

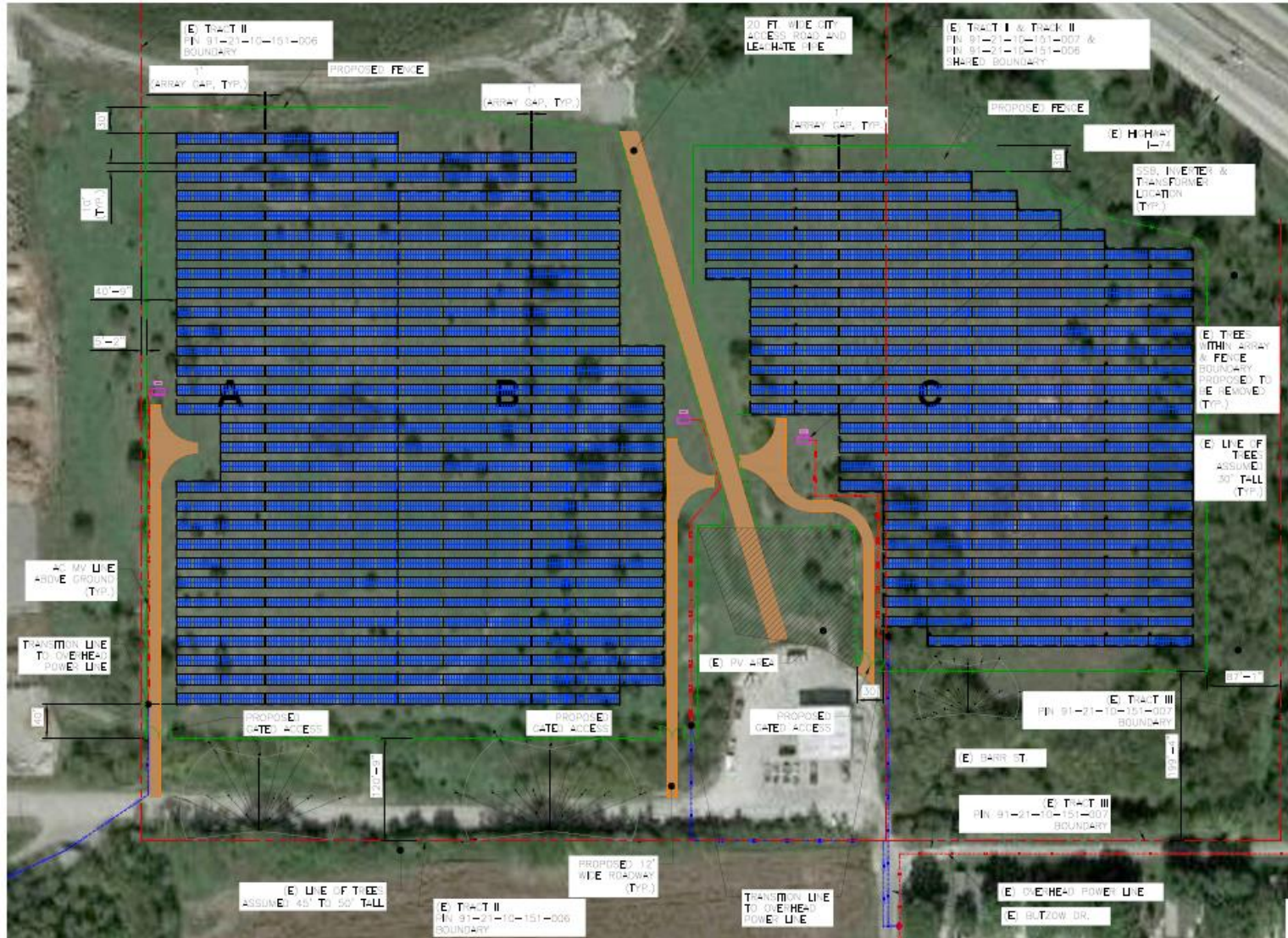
Group A – Large DG (133 MW of applications received)

Group A – Community Solar (940 MW of applications received)

Group B – Community Solar (864 MW of applications received)

According to Section A.1 of the Lottery Procedure, a lottery would be triggered in a Group/category combination if the applications during the first 14 days totaled over 200% of the size of the applicable Block 1. For Group A, Block 1 in any category is 22 MW, while for Group B, Block 1 in any category is 52 MW. Therefore, the applicable thresholds for a lottery were 44 MW of applications in a Group A category and 104 MW of applications in a Group B category.

# Month 20xx Build project



# Timeline For Brownfield to Brightfield

- Dec. 2016 Future Energy Jobs Act passed
- June 2017 Developing Solar on Landfills & Brownfields event
- Aug. 2017 Request for Qualifications published
- Dec. 2018 Lease Option Approved by Council
- Jan. 2019 Special Use Permit Approved by Council
- Mar. 2019 State Incentive Lottery
- Month 20xx Build project

# Takeaways:

- Move with a sense of urgency
- Renewable energy has very broad support
- Solar development delivers multiple benefits
- “Real artists ship” –Steve Jobs, “Learn by doing” –Aristotle,  
“Launch and iterate” –Google

# Thank You

Scott R. Tess  
Environmental Sustainability Manager  
City of Urbana, IL

[srtess@urbanaininois.us](mailto:srtess@urbanaininois.us) /  
[linkedin.com/in/scotttess/](https://www.linkedin.com/in/scotttess/)

## Ruben Fontes

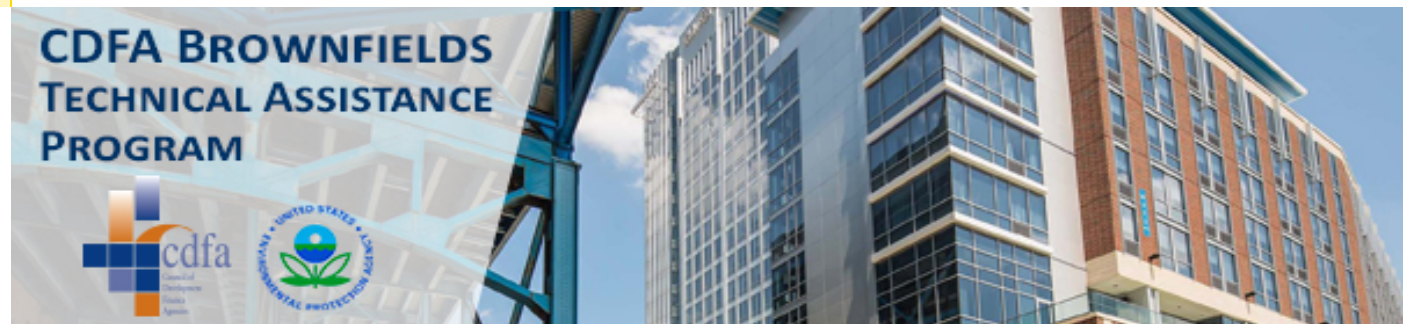
Senior Vice President  
Large Scale Distributed Energy Resources  
Ameresco



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# COUNCIL OF DEVELOPMENT FINANCE AGENCIES

Ruben R. Fontes, Ph.D.

SVP, Large Scale Distributed Energy Resources

March 7, 2019



# ABOUT AMERESCO

# ABOUT AMERESCO

---

We empower our customers with cost-effective, environmentally sustainable solutions.

## Leading Energy Services Provider

- Implement efficient, energy and money-saving solutions, including retrofits
- Design, build and even operate client-owned renewable energy sources
- Tailor services to meet specific customer needs and sustainability goals

**Trusted  
sustainability  
partner to  
public and  
private  
sectors**

**Socially  
responsible.  
Economically  
efficient.**

## Pioneering Developer of Renewable Power Projects

- Industry-leading expertise in solar and landfill gas
- Developed over 300 MW of renewable energy projects
- Over \$200 Million in renewable power projects for customers



# SAVING ENERGY, AND SUPPORTING SUSTAINABILITY GOALS

Founded in  
**2000**

OVER  
**\$5 Billion**  
in energy solutions  
delivered since inception  
(including our predecessors)

**\$2.7 Billion**  
Project financing  
sourced and raised

MORE THAN  
**1,000**  
employees

**Structured to  
Deliver  
Customer Value**

**\$1  
Billion**  
bonding capacity with a  
per project maximum  
of \$150 million

PUBLIC  
**2010**  
NYSE: AMRC

**267MWe**  
of energy and landfill gas  
generated by owned and  
operated energy plants

**\$717.2  
Million**  
annual revenue in 2017

# INDUSTRIES WE SERVE





**Energy  
Efficiency**



**Renewable  
Energy**



**Energy  
Analytics**

A central blue circle containing a white logo of three interlocking loops and the text "COMPREHENSIVE SOLUTIONS".

**COMPREHENSIVE  
SOLUTIONS**



**Energy  
Infrastructure**



**Energy Supply  
Management**



**Financial Options**



## WHY CHOOSE AMERESCO?



### **Innovative**

Creative staff with specialized knowledge drive state-of-the-art design and engineering.



### **Focused**

Energy efficiency and renewable energy is at the core of our business; it's what we do.



### **Independent**

Our designs and services are based only on customer needs.



### **Comprehensive**

A one-stop provider with solutions across lighting, power, water, HVAC and more.



### **Experienced**

Over 17 years implementing comprehensive solutions across local and national markets.



### **Effective**

Custom solutions that reduce costs and meet sustainability goals.

# THE AMERESCO ADVANTAGE

Ameresco delivers the best value to clients through:

## Independence, Flexibility and Objectivity

- No parent company
- No manufacturer/contractor affiliations
  - Competitive procurement for products and installation labor
- Flexible financing approaches
- Single-source provider



## Client-centric Solutions

## Proven Expertise

- Deep, diverse experience across industries and technologies
- In-house engineering and project management
- Fully integrated project development and implementation expertise
- Innovative solutions



## Peace of Mind

## Financially Strong and Stable

- \$717.2 million annual revenue in 2017
- \$2.7 billion project financing sourced and raised
- Over \$5 Billion in energy solutions delivered since inception
- Continued growth generated through both new business and recurring revenue streams



## Reliability

## Reputation for Excellence

- Acknowledged/Established/Well-known reputation for project performance and customer satisfaction
- Deliver immediate and long-term results
  - Energy savings
  - Financial savings
  - Carbon reduction/Sustainability goals
  - Resource conservation



## Confidence

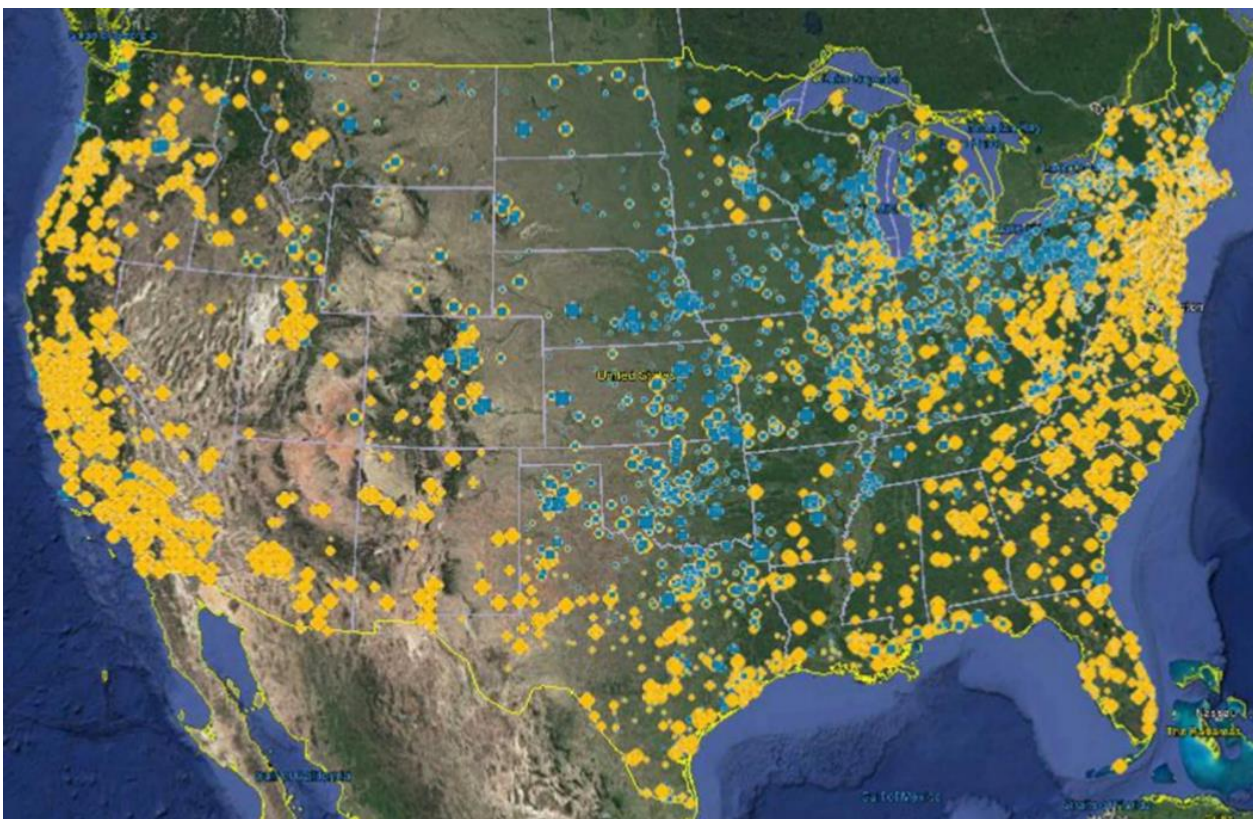




# WHY SOLAR ON BROWNFIELDS?

## WHY SOLAR ON BROWNFIELDS?

The U.S. Environmental Protection Agency estimates that there are **450,000 to 1 million brownfield sites nationwide** – the majority of which have very few alternative use options



- The EPA's RE-Powering Mapper has identified 114,830 sites with renewable energy potential, representing potential capacity of more than 178MW in Superfund sites, 103MW in Brownfields, 283MW in RCRA sites and 310MW in AML sites
- As of January 2019, the EPA's RE-Powering Initiative has identified 311 renewable energy installations on 289 contaminated lands, landfills, and mine sites with a cumulative installed capacity of 1.56 MW

Source: EPA ([https://www.epa.gov/sites/production/files/2019-02/documents/re\\_tracking\\_matrix\\_508\\_final\\_013119a.pdf](https://www.epa.gov/sites/production/files/2019-02/documents/re_tracking_matrix_508_final_013119a.pdf))

## WHY SOLAR ON BROWNFIELDS?

### Customer Solutions

We seek to develop long-term, self-sustaining solutions for our customers that align with and benefit local communities and stakeholders

### Redevelopment of Under-utilized Land

A clean energy project can be a source of income for the landowner, can offset vegetation maintenance and security costs for the site, and can support long-term environmental stewardship

### Community Uplift

A clean energy project will bring temporary and permanent construction jobs to the surrounding community, as well as revenues for local cities and counties in the way of land development and permitting costs

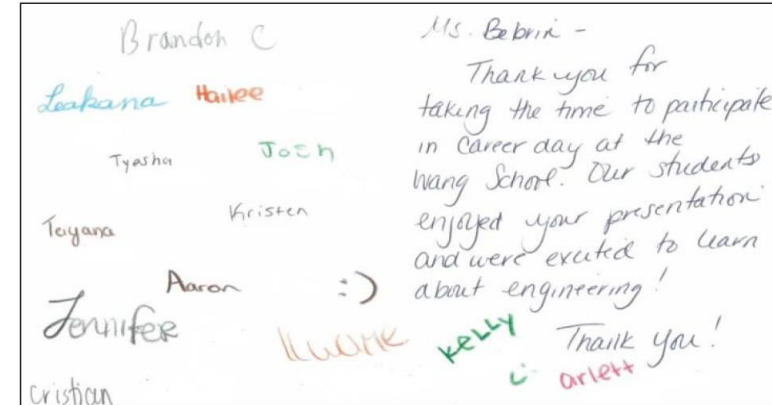


### Solar on Brownfield Advantages

- Remediated, former industrial sites often have no other viable use – **driving lower lease payment rate**
- Often in close proximity to interconnection points with high capacity – **driving lower interconnection costs**
- Federal, state and/or local governments offer specific incentives (e.g. SREC's) for solar development on brownfields – **increasing revenue**
- Brownfields commonly are close to industrial consumers with high power demands, which provides behind-the-meter potential – **identified electricity users**

# COMMUNITY EDUCATIONAL OPPORTUNITY

- Projects have included Informational Kiosks in Schools or Municipal Buildings
- Ameresco personnel have provided curriculum and information sessions to teachers and staff on a variety of renewable energy topics
- The company has also organized Career Day and Earth Day presentations
- Educational tours are offered and hosted by Ameresco for the completed projects



*Thank you letter from the students at the Wang School in Lowell, MA*



*Kiosk ribbon cutting at Braintree Town Hall*



# ASSESSMENT AND DEVELOPMENT PROCESS

# WHAT WE DO

We identify and assess environmentally-impacted sites to determine if renewable energy or another beneficial re-use alternative is both desired and feasible. We work alongside our Customer, in an open and transparent process, every step of the way

**1. Speak with Landowner to understand goals and objectives, identify optimal energy solution, generate Desktop Study and Financial Model**

**2. Negotiate and execute LOI, conduct site visit, assess environmental conditions and off-take strategy, share Financial Model**

**3. Present and negotiate lease/purchase option agreement with landowner for establishment of site control required to initiate interconnection impact studies**

**General Site / Land Use Plan**

**Land Use Area (Red):** Approximately 122 acres of land comprised of the entrance roadway circumnavigating the perimeter of the property solar development area, an existing easement, for overhead distribution line.

**Ingress/Egress (Orange):** Western End of the easement from 13144 Quincy Rd 2850 E for solar development and construction, and access to Southern entrance to open site or "Egress" (not shown, but required in Orange) for construction and maintenance of overhead distribution line.

**Maintenance responsibility:** Roadways and vegetation in Land Use area plus overhead distribution line up to Ameresco owned distribution line.

**PV Solar (Blue):** Conceptual PV Solar Layout Area (64 Acres), equivalent to approximately 1.6 MW/acre or 22.8 MW/ac.

**Transmission (Yellow):** Existing Overhead Transmission Line, will be likely upgraded to accommodate solar electricity delivery to substation.

**New Project Switchgear (Purple):** Siting to be Debossed

**Existing (34.5kV) Ameresco Substation (Green):** Existing 11.5kV line will likely require an upgrade. Cost to be determined.

Confidential



**4. After execution of site control agreement, we generate site layout and single-line diagrams and initiate interconnection application (impact study)**

**5. Assuming impact and facility study results are favorable, we post required security, update the Financial Model and proceed to negotiate PPA**

**6. We execute the interconnection agreement and PPA, proceed with finalizing all required permitting, engage potential buyers and initiate negotiations for sale at NTP**

# SUMMARY OF DESKTOP REVIEW PROCESS

## Determine Useable Acreage / Size & Scope

Generally speaking, we seek to place solar panels around existing vents and wells, allowing ample clearance for maintenance and monitoring, on flatter ground (less than 12% grade), and entirely above ground (no digging required).

- ✓ **Environmental Review**
- ✓ **Site Suitability – Slope / Grade**

## Technical Feasibility

Based on useable acreage we can size the system, determine production estimates, and scope construction timeline and costs.

- ✓ **Technical Capacity**
- ✓ **Resource MWhs per Year.**
- ✓ **Development Period**
- ✓ **Construction Duration**
- ✓ **Estimated Commercial Operation Date**

## Market & Regulatory Analysis

We then take a look at federal, state, utility local incentives, rebates, and regulations to determine if there are any benefits or hurdles to building a project.

- ✓ **Federal**
- ✓ **State**
- ✓ **Utility**
- ✓ **County, City, Town, Community**

## Project Scoping / Costing

Lastly, we build out a financial proforma to determine what lease payment (or purchase price) we can afford for the property.

- ✓ **Project Capital Expense**
  - ✓ **Development, Permitting, and Interconnection**
  - ✓ **Equipment & Construction Cost**
- ✓ **Revenue Expectation**
  - ✓ **Energy**
  - ✓ **Environmental**
- ✓ **Operating Expenses**
  - ✓ **O&M, Insurance, Property Taxes, Major Maintenance, Project Administration**



**Subject Property TBD**  
 GeoCode 99.99°, -100.100°

# PRELIMINARY FINDINGS

## Useable Acreage

A Solar Park can be the primary income source to spur ongoing uplift and re-development of the site.

- ✓ **Useable Acreage: ~500 Acres** as determined by site boundary analysis in combination with Google Earth slope review.

## Technical Overview

Technical capacity can be limited by factors such as off-take, interconnection, and major permitting processes.

- ✓ **Ideal Technology: Solar**
- ✓ **Technical Capacity: 100 MW-dc, 77 MW-ac**
- ✓ **MWhs per Year: 132,758 MWh (Irradiance 1340 kWh/kWp)**
- ✓ **Development Period: Up to 3 Years**
- ✓ **Construction Duration: Up to 12 Months**
- ✓ **Estimated Commercial Operation Date: 12/31/2020**

## Economic Proposition

Site stewardship in combination passive lease revenue from long-term tenant, can turn a liability into an asset.

- ✓ **Option Consideration: \$100 per Acre reserved per year**
- ✓ **Brownfield Lease Rate: \$2,500 per MW-ac per year (\$192,500)**
- ✓ **Electricity Purchase Price: \$0.048-\$0.05 per KWh**
- ✓ **Assumption of Cap Maintenance & Site Security: Savings of ~\$65,000 per year**

## Societal Benefit

By leaving space for continued uplift activities, the project can allow for possible future public enjoyment of other greenfield property.

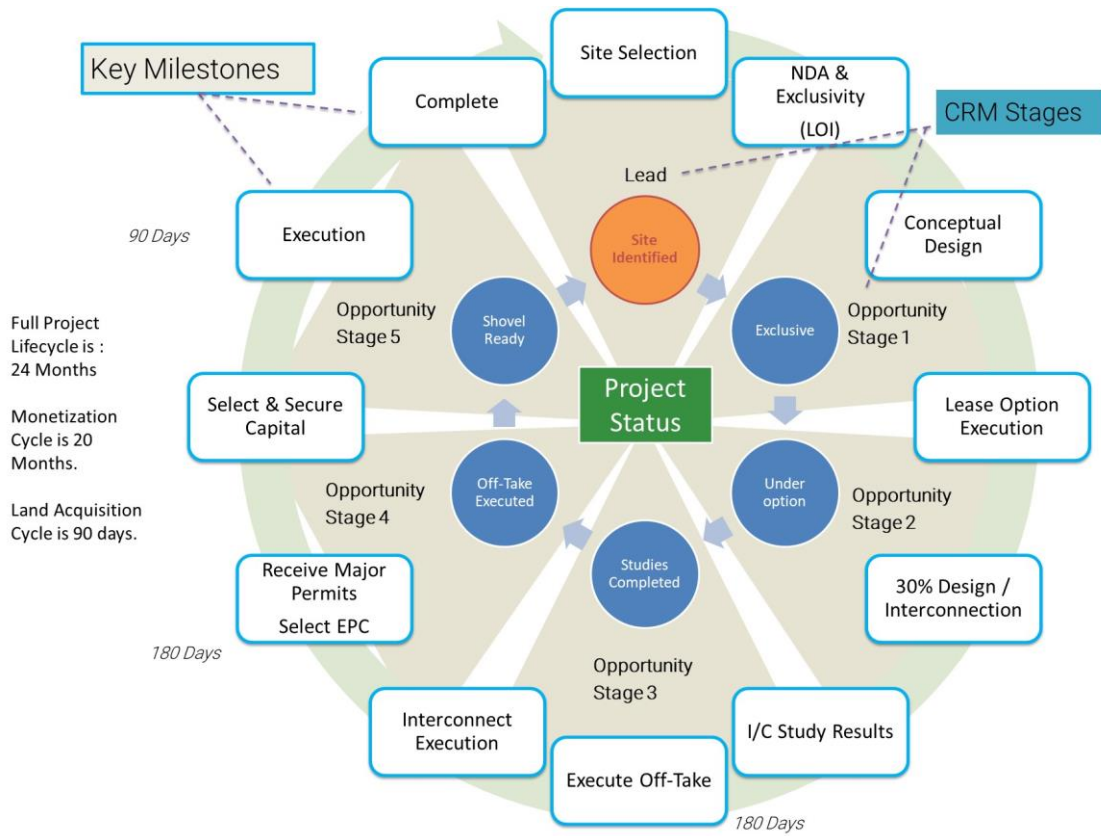
- ✓ **# of Homes Powered– Up to 11,344 Homes**
- ✓ **Economic – Creation of Construction Jobs (160-200 at peak), 1-2 Full-Time Jobs**
- ✓ **Regulatory – Supports State/Local Sustainability Initiatives**
- ✓ **Public / Community – Provides local community with clean energy**
- ✓ **Environmental – Beneficial Reuse of Contaminated or Surplus Property**

## Identified Useable Areas “Premises”





# PROJECT DEVELOPMENT PROCESS AND SCHEDULE



ID	Task Name	Duration	Start	Finish
1	Sunburst Solar Project	479 days	Fri 3/1/19	Wed 12/30/20
2	Site Control	25 days	Fri 3/1/19	Thu 4/4/19
3	Execute Letter of Intent	5 days	Fri 3/1/19	Thu 3/7/19
4	Negotiate Lease Option and Ground Lease	20 days	Fri 3/8/19	Thu 4/4/19
5	Interconnection/Prelim Engineering	133 days	Fri 4/5/19	Tue 10/8/19
6	Prepare & Submit I/C Application with PJM	5 days	Fri 4/5/19	Thu 4/11/19
7	Receive I/C Feasibility Study Results	50 days	Fri 4/12/19	Thu 6/20/19
8	Receive I/C System Impact Study Results	35 days	Fri 6/21/19	Thu 8/8/19
9	Receive I/C Facilities Study Results	30 days	Fri 8/9/19	Thu 9/19/19
10	Execute Power Purchase Agreement (PPA)	10 days	Fri 9/20/19	Thu 10/3/19
11	Execute Interconnection Agreement	3 days	Fri 10/4/19	Tue 10/8/19
12	Permitting & Environmental	75 days	Fri 8/9/19	Thu 11/21/19
13	Complete Site Assessment Reviews	30 days	Fri 8/9/19	Thu 9/19/19
14	Secure Non-Ministerial Permits	40 days	Fri 8/9/19	Thu 10/3/19
15	Secure Final Construction Permits	35 days	Fri 10/4/19	Thu 11/21/19
16	Finalization	85 days	Wed 10/9/19	Tue 2/4/20
17	Site Plan Revisions	20 days	Wed 10/9/19	Tue 11/5/19
18	Execute Key Contracts	30 days	Wed 11/6/19	Tue 12/17/19
19	Arrange Construction Financing	30 days	Wed 12/18/19	Tue 1/28/20
20	Execute Ground Lease	5 days	Wed 1/29/20	Tue 2/4/20
21	Notice to Proceed (NTP)	0 days	Tue 2/3/20	Tue 2/4/20
22	Preliminary Work	24 days	Wed 2/5/20	Mon 3/9/20
23	Complete Procurement	15 days	Wed 2/5/20	Tue 2/25/20
24	Mobilization	6 days	Wed 2/26/20	Wed 3/4/20
25	Establish Laydown Areas	3 days	Thu 3/5/20	Mon 3/9/20
26	Construction	175 days	Tue 3/10/20	Mon 11/9/20
27	Assembly of Racking Structures	45 days	Tue 3/10/20	Mon 5/11/20
28	Placement of Concrete Ballasts	45 days	Tue 3/10/20	Mon 5/11/20
29	Installation of Racking Structures	80 days	Tue 5/5/20	Mon 8/24/20
30	DC Collection System	65 days	Tue 5/12/20	Mon 8/30/20
31	AC Collection System	50 days	Tue 5/12/20	Mon 7/20/20
32	Module Installation and DC String Wiring	55 days	Tue 8/25/20	Mon 11/9/20
33	Installation of Inverters & Transformers	35 days	Tue 8/11/20	Mon 9/28/20
34	Installation of MV Switchgear & AC Tie-in	30 days	Tue 9/29/20	Mon 11/9/20
35	Testing & Commissioning	37 days	Tue 11/10/20	Wed 12/30/20
36	QA/QC	10 days	Tue 11/10/20	Mon 11/23/20
37	System Testing and Commissioning	10 days	Tue 11/24/20	Mon 12/7/20
38	Substantial Completion	4 days	Tue 12/8/20	Fri 12/11/20
39	Capacity and Performance Testing	10 days	Mon 12/14/20	Fri 12/25/20
40	Commercial Operation (CDO)	3 days	Mon 12/28/20	Wed 12/30/20



# SOLAR ON BROWNFIELDS SNAPSHOTS

## CASE STUDY: GLENDALE ROAD LANDFILL (NORTHAMPTON, MA)



- ❖ Site also includes a landfill gas to energy system
- ❖ Endangered species (Blanding's Turtle) required installation of turtle exclusion fence and avoidance of mating season

Glendale Road Landfill	Summary
Project Dates	2015-2016
Customer	City of Northampton
Size (kW)	3,168
Annual Generation (kWh)	4 million
Contract Type	PPA
Utility	National Grid

- ❖ Project included 20-year PPA with City of Northampton, which is expected to save the City more than \$8 million in energy costs over the contract life

# CASE STUDY: TOWN OF PITTSFIELD LANDFILL (PITTSFIELD, MA)



Pittsfield Landfill	Summary
Project Dates	2016 - 2017
Customer	City of Pittsfield
Size (kW)	2,909
Annual Generation (kWh)	3.81 million
Contract Type	PPA
Utility	Eversource

# CASE STUDY: TOWN OF SAUGUS LANDFILL (SAUGUS, MA)



Saugus Landfill	Summary
Project Dates	2016
Customer	Town of Saugus
Size (kW)	1,655
Annual Generation (kWh)	2.07 Million
Contract Type	PPA
Utility	National Grid

# CASE STUDY: ELECTRIC LIGHT DEPARTMENT LANDFILL (BRAINTREE, MA)



Braintree Landfill	Summary
Project Dates	2013-2015
Customer	Braintree MA Electric Light Department
Size (kW)	1,300
Annual Generation (kWh)	1.7 million
Contract Type	PPA
Utility	Braintree Electric

# CASE STUDY: TOWN OF READINGTON, NJ



Readington Solar	Summary
Project Dates	2016-2018 (exp)
Customer	Town of Readington, NJ
Size (kW)	1,069
Annual Generation (kWh)	1.34 million
Contract Type	PPA
Utility	First Energy

# CASE STUDY: TOWN OF ACTON LANDFILL (ACTON, MA)



Acton Landfill	Summary
Project Dates	2010-2014
Customer	Town of Acton
Size (kW)	1,592
Annual Generation (kWh)	2 million
Contract Type	PPA
Utility	Eversource



# CONSTRUCTION ON BROWNFIELDS



Site Preparation



Ballast Installation



Panel Installation



Inverter Installation

## Non-Cap Penetrating Racking

- Pre-Cast or Cast-in-Place Ballast Blocks
- Poured-in-Place Ballast Tubs
- Racking designed in accordance with load bearing capacity of cap
- Racking also designed in accordance with existing landfill gas collection and monitoring systems to ensure access and to facilitate OM&M requirements
- No cap damage or penetration

## Non Cap Penetrating Electrical

- String wiring typically mounted to back of racking system
- Multiple strings are typically routed through cable trays to combiner boxes, and then run above ground to inverters
- No cap damage or penetration

## Above Ground Feeders

- From combiner boxes, feeders are aggregated via a DC collection system to the inverter stations
- Feeders from the inverter stations constitute the AC collection system that connects to the medium voltage switchgear
- Both AC and DC collection systems are installed in above-ground conduits that are properly supported, identified and protected against damage



**QUESTIONS?**

## KEY CONTACTS

### **Ruben R. Fontes**

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*Tel* (415) 680-0579

### **Geri Kantor**

Director, LSDER Project Development

[gkantor@ameresco.com](mailto:gkantor@ameresco.com)

*Tel* (651) 231-9513

### **Christian F. Dick**

Sr. Director, LSDER Project Development

[cdick@ameresco.com](mailto:cdick@ameresco.com)

*Tel* (619) 549-2640

Submit your questions to the panel now by using the GoToWebinar control panel.



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**CDFA National Development Finance Summit** – November 6-8, 2019  
Tampa, FL

# CDFA BROWNFIELDS TECHNICAL ASSISTANCE PROGRAM

## *Upcoming Events*



### **CDFA - PFM Capital Markets Webinar Series - Financing for Climate Resilience**

March 14, 2019 at 2:00 PM Eastern

[REGISTER FOR FREE!](#)

CDFA has many more exciting opportunities in the works.  
Check out our website to find out what's next!

Thank you for Attending the Webinar

# CDFA BROWNFIELDS TECHNICAL ASSISTANCE PROGRAM

*Brownfields Financing  
Webinar Series*



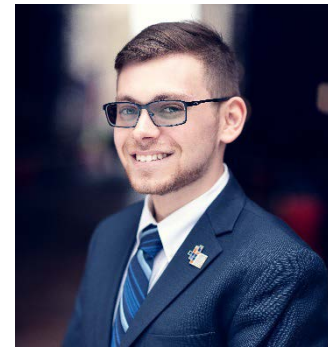
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