EPA
United States
Environmental Protection
Agency

Office of Communications, Partnerships, and Analysis
Office of Land and Emergency Management
September 2017

RE-POWERING AMERICA'S LAND INITIATIVE

MAPPER TOOL USER GUIDE

Table of Contents

1. Introduction to RE-Powering Mapper 2.0

This guide accompanies the EPA RE-Powering America's Land Mapper 2017 update. Web applications are ubiquitous now and many users of the RE-Powering Mapper will have had experience using a web-based mapping application already. Still, others may not have had experience with such applications. Below are tips and reminders specific to the RE-Powering Mapper application to guide the user experience.

1.1 What is the Mapper?

The Mapper is a web-based geographic information tool that provides location data for over 80,000 contaminated lands, landfills and mine sites, collected from state and federal sources that have been pre-screened for renewable energy potential. The points are generated from the best available latitude and longitude data. Attached to each point are attributes which describe the site and its renewable energy potential. Within the Mapper, you may choose to look at sites that have pre-screened positively for solar, wind, biomass/biofuel and geothermal energy potential.

For more information on the data and the screening process, please see <Data Documentation>. All data was last updated in August 2015.

1.2 What is different from the previous RE-Powering Mapper?

Platform

The 2017 version of the Mapper is now hosted on the Internet. This means that the application can be reached directly from the RE-Powering website and does not require the user to download any additional software.

Map-Table Connection

In the 2017 version of the Mapper, all attribute data associated with the point data can be viewed and analyzed at the same time. That is, you can now sort the attribute table from the web application and immediately visualize the results in the map. [See Filter the Data below.] For those who wish to sort the spreadsheet off-line without the spatial reference you can export each data table to a .csv file and open it in Microsoft Excel. [See Export Table(s) below]

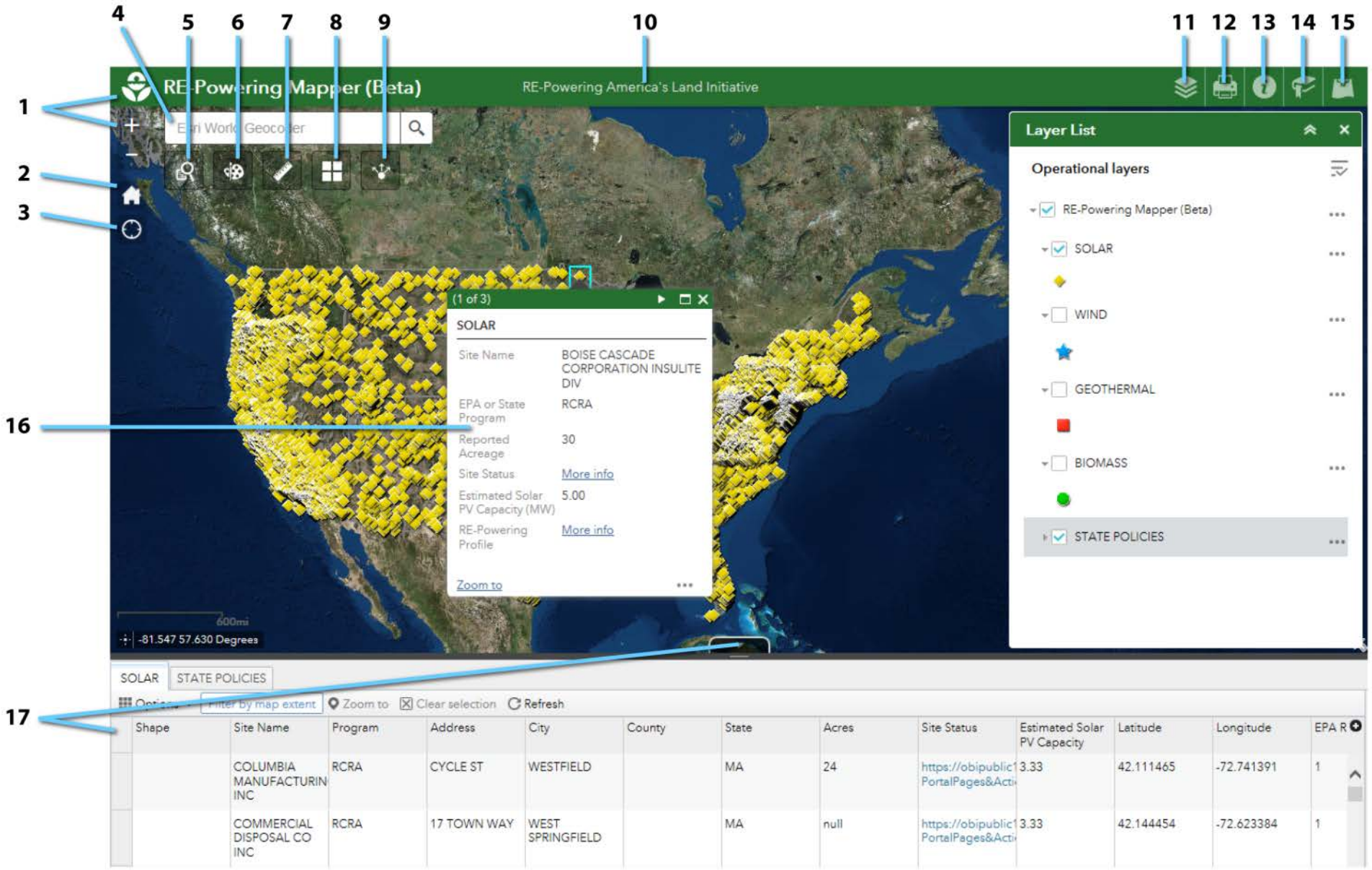
Data Organization and Access

All data is accessible through the Mapper and available for download from the website. Unlike the previous version, however, there is not one master table of sites with screening results for all renewable energy types. The information is presented in 4 tables and 4 geographic layers representing each of the renewable energy screening results (e.g., solar, wind, biomass and/or biofuel, and geothermal). This is based on the assumption that users may have expertise, or be interested, in 1 or 2 renewable energy types at a maximum. Mapper users can view one or all of four main layers. If two or more layers are selected, attribute information associated with a site that has screened positively for more than one chosen renewable type will be condensed into one pop-up with multiple pages. [See Read Pop-up Screen(s). . . below]. Users can add and search or filter the attribute table associated with each renewable energy type separately. To keep track of a single site that has screened positively for more than one renewable energy type, note the Cross-Reference Number associated with that point.

State Policy Layer

In addition to the point layers, the Mapper comes with an additional state layer with attribute information describing state policies related to renewable energy and renewable energy on contaminated lands. Please see the *Data Documentation* for more information on data types and sources.

2. Mapper Elements



1. Mapper **zoom in/out** buttons
2. **Home button** returns map to original full extent (i.e., national view)
3. **My Location** icon takes user to his/her location if this is enabled by the user's browser.
4. **Locator search box** allows user to easily find places of interest.
5. **Query** tool includes a few pre-set frequently asked questions of the data.
6. **Draw** tool - use to digitize features in the basemap, thereby creating a new layer.
7. **Measurement** tool to measure area or distance or identify the exact location of a point.
8. **Basemap** tool - use to change the background image of the map.
9. **Share** tool - use to share the Mapper with others.
10. **Attribution** (RE-Powering America's Land Initiative, Office of Communications, Partnerships and Analysis, Office of Land and Emergency Management at the US Environmental Protection Agency.) The link will take you to the RE-Powering America's Land Initiative main webpage.
11. **Layer List** shows the active and inactive layers.
12. **Print** button to capture and print an image of the current map extent.
13. **Information/About** page briefly describes the purpose of the Mapper tool and where to find more information about the data.
14. **Bookmark** tool allows user to capture a place of interest.
15. **Add Data** tool to add data from individual, organizational, or ArcGIS Online data libraries.
16. Site-associated **Pop-up** box shows attributes associated with a particular site. Information is pulled from the attribute table.
17. **Attribute table** is where all of the information is found that is connected to each site. The table may be sorted and filtered. See below for instructions.

3. Using the Mapper Functions

3.1 Open the Mapper

When you first open the Mapper tool from the RE-Powering landing page, you will see a gray box with an explanation of the Mapper and contact information for the RE-Powering America's Land Initiative. Click "OK" to access the application.

The first time you open the Mapper, it will be populated with yellow diamonds representing the sites pre-screened for solar and the State Policies layer, the active layers and their symbols will be visible in the Layer List panel and you will see attributes related to the solar screen criteria in the A*ttribute Table* [12] at the bottom of the screen. In the solar layer, you will also find sites that have specifically been identified as landfills. To filter this layer, see Filter the Data below. To add or remove data layers, see Add or Remove Data below.

Note: The time it takes to load data into the web map roughly corresponds to internet speed, plus the number of layers you want to visualize and the scale at which you are looking at the map. Thus, it may take a few more seconds to load all data for the whole United States than to load one layer for a particular community.

3.2 Add or Remove Data Layers

You may add or remove layers at any time.

1. If not already displayed, click the *Layer List* icon [11].

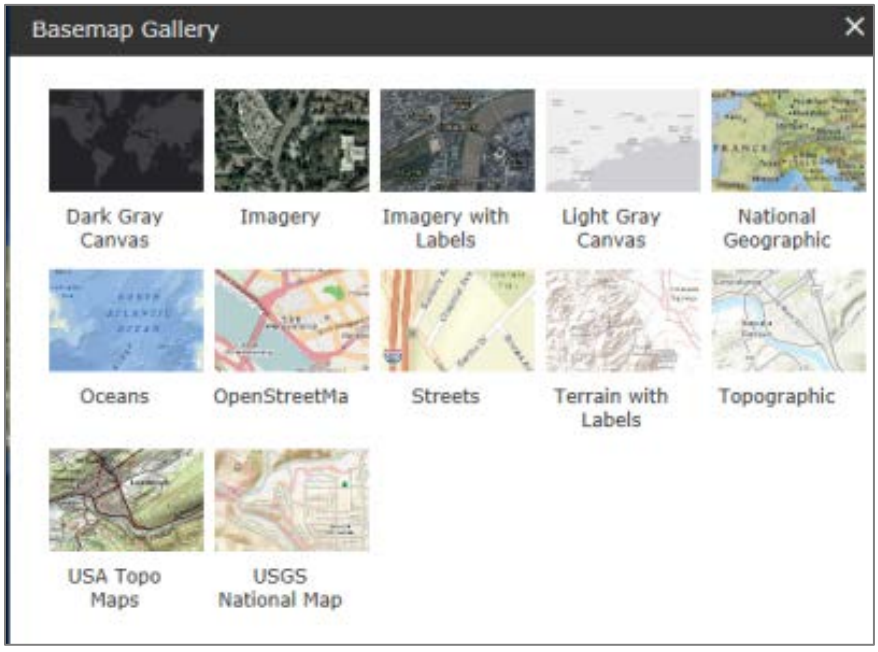
2. To add layers not visible, click the box next to the name. At the same time as the layer appears, the attribute table associated with that layer will load at the bottom of the screen. You can navigate to that tab to filter that layer by the desired attribute(s).

3. Simply uncheck the box to remove a layer and the table from the map view.

4. To restore the application default layers, refresh the map.

3.3 Change the background

The default background for the Mapper is satellite imagery. It may be useful to get a better sense of terrain or to see names of places. To change the background, click on the *Basemap* icon [8]. Choose from among the available options by clicking on the background type.



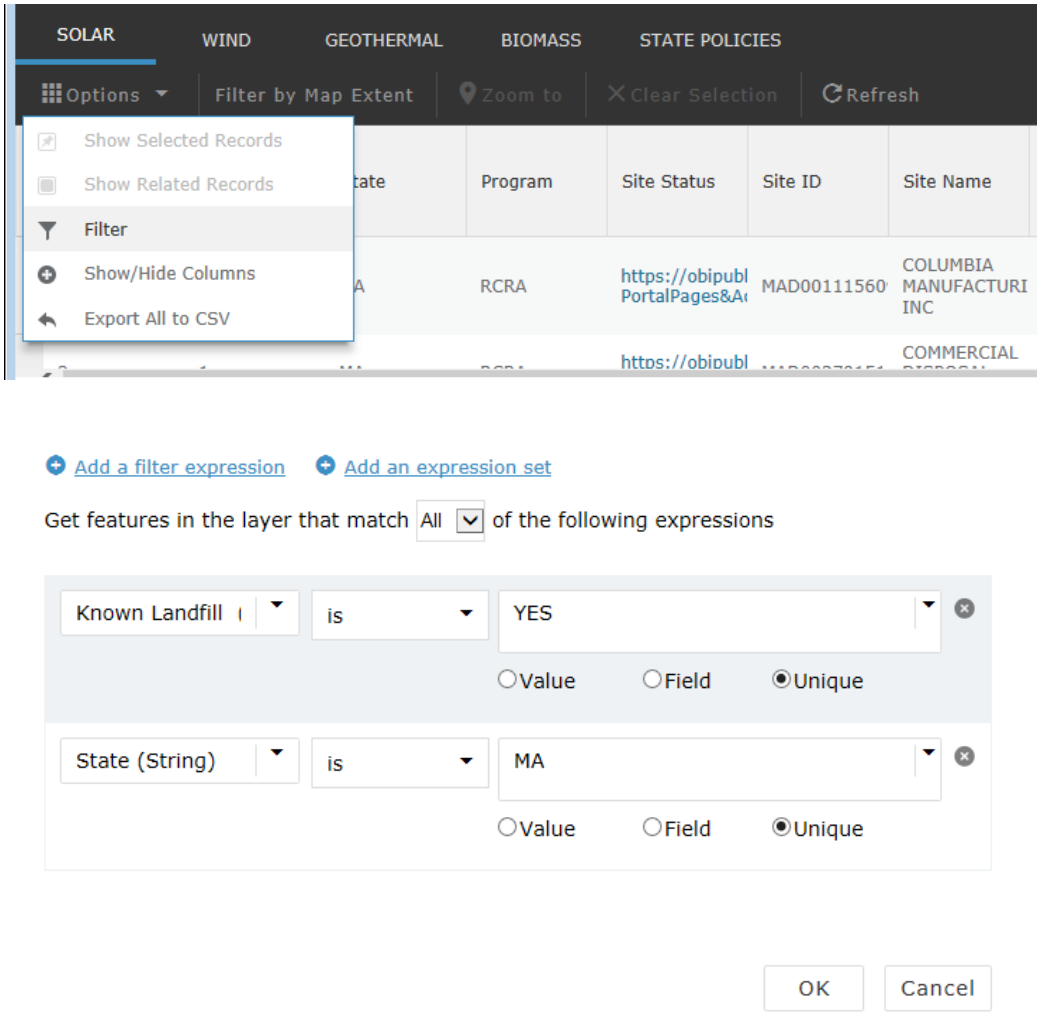
3.4 Filter the data layers

This is the most important function for finding what you need. Each table can be filtered within the application, dynamically altering the map display. Users can filter on every field in the data table. Below are some examples of how to filter the attribute table to narrow the dataset to the area(s) of interest, including the associated expressions and output. Output tables can be exported to a .csv file and opened in Microsoft Excel.

Example question 1:

Where are the landfills that have been pre-screened positively for solar in Massachusetts?

1. Click on *Attribution Table* icon [17].
2. If highlighted, unclick "Filter by Map Extent."
3. Choose "SOLAR" table on which to filter (if not there, click on *Layer List* [11] as in step 3.2 to add).
4. Click "Options" → Filter.
5. Choose to "Add a filter expression."
6. Create 2 filter expressions as shown in picture and click "OK."



Sites that fit these criteria will now be displayed. You may have to zoom or pan to find them on the map. Note: the "Unique" radial button is best for fields that have categorical data and/or have a binary answer (YES/NO). These fields/attributes are called 'strings'. If you are unsure of the possible categories or how categorical data is formatted (e.g., abbreviations, spelling conventions, etc.) you can choose "Unique" and the unique values will load. A drop-down menu will be provided.

Example question 2:

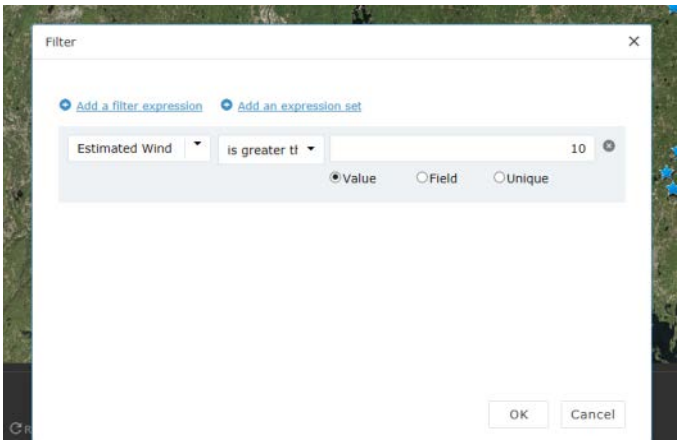
How many WIND sites have a potential capacity of greater than 10 MW?

1. Make sure WIND layer and *Attribute Table* are added to map.

2. Make sure that "Filter by Map Extent" is not highlighted.

3. Open *Attribute Table* and click Options → Filter → Add a filter expression

4. Add the expression below and click "OK". Note: The "Value" radial button is best for fields with numerical data. In this case, we are looking for a number greater than 10 MW. The filter should return 3805 potential sites. You may need to zoom out or pan to the sites.



3.5 Export table(s)

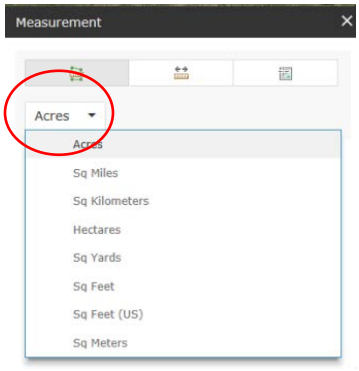
To export your lists from the above filters or any other specific search, or to capture a complete table of each renewable energy layer, click in the *Attribute Table* on Options → Export all to .csv. The file can be downloaded and opened in Microsoft Excel for additional analyses.

3.6 Take Measurements

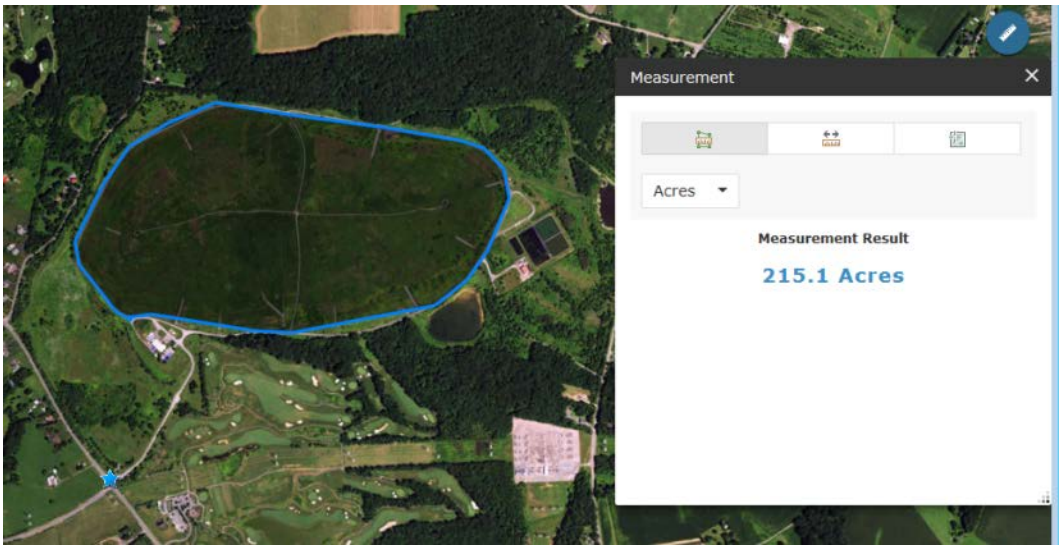
A user may know an area well and want to use his/her knowledge of a site boundary to take a measurement of an area. Or, a user may want to calculate the distance of a site to another feature on the landscape. The *Measurement* tool [7] allows a user to do both.

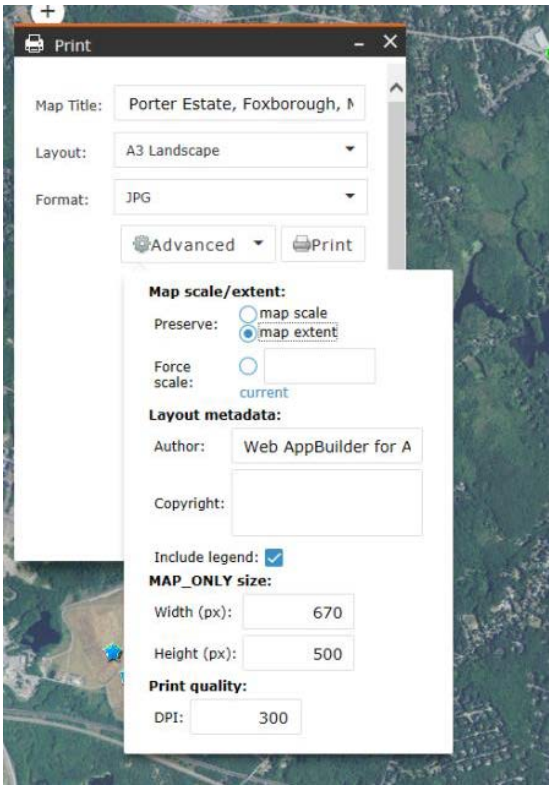
Example question:

What is the area of a landfill of interest?



1. Click icon, then chose *Area* measurement icon. Click drop-down menu to choose units.
2. Click on a point along the site boundary and draw shape, clicking once at each vertex.
3. Double-click when finished and the result will appear in the box.





3.7 Print

Images can be printed directly from the application.

1. Click on the *Print* icon [12] at the bottom of the screen.

2. There are many ways to set up the print job. Go to "Advanced" to make changes, add author information and to include a legend.

3. Change the layout as desired using drop-down menu.

4. Choose the format from the drop-down menu. Click "Print" and an image will be generated.

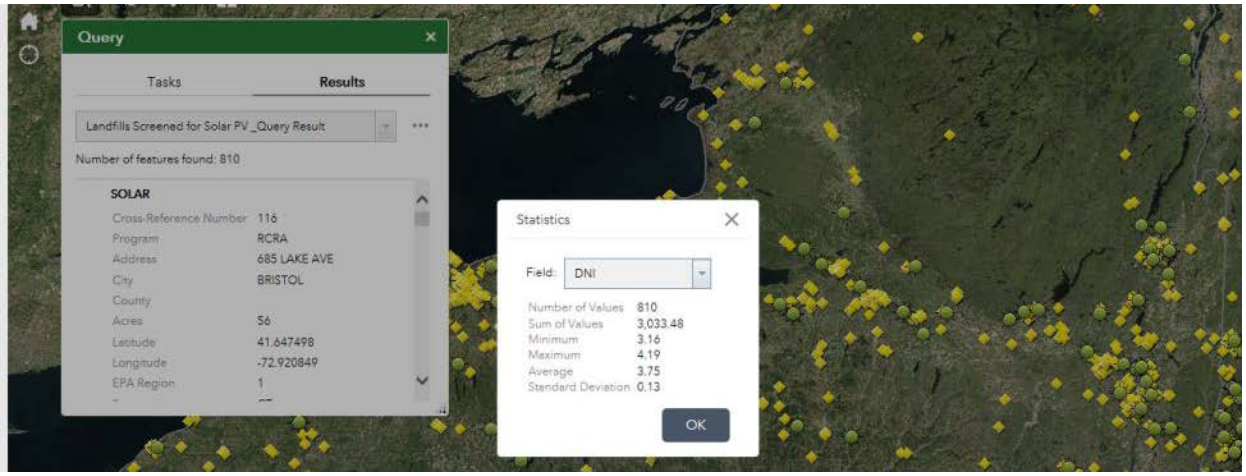
5. Click on the link and use browser tools to print the image.

The settings at the right produced the map below.

3.8 Use the Query Tool

Filtering the table directly is the best option for extracting the information you need. However, the *Query* tool [5] was developed to include a set of preset data filters. The information is no different from filtering the attribute tables yourself. This tool expedites a data request by responding to commonly expressed data needs. You can use this tool to go immediately to these data sets:

- Landfills pre-screened for Solar PV energy potential
- Utility Scale Solar
- Utility Scale Wind
- States with RE-Powering incentives (See Appendix and *Data Documentation* for more information about this category.)

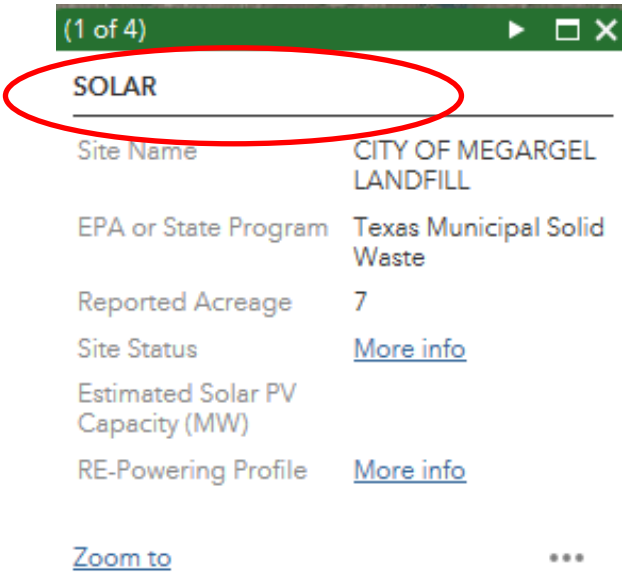


Once executed, the results of the query will display on the map as an additional layer, and the attribute table will be added at the bottom of the screen. Data from the query layer can be exported to a .csv. Click on the ". . ." at the upper right for the option to either view or export the table associated with the query results. In the case of numerical data, you can also extract summary statistics.

** Note: for best results, zoom in to an area of interest before executing a query. All results will be displayed on the map, but ***because of program limitations, only 1,000 records will display in the attribute table and only 1,000 records at a time may be exported***. Therefore, the more targeted the area of querying, the better.

3.9 Read Pop-up Box for Site Information Summary

You may wish to see a quick snap-shot of a site of interest. Pop-up boxes have information about a site, drawn directly from the attribute table. The box appears when the user clicks on the site symbol in the map.

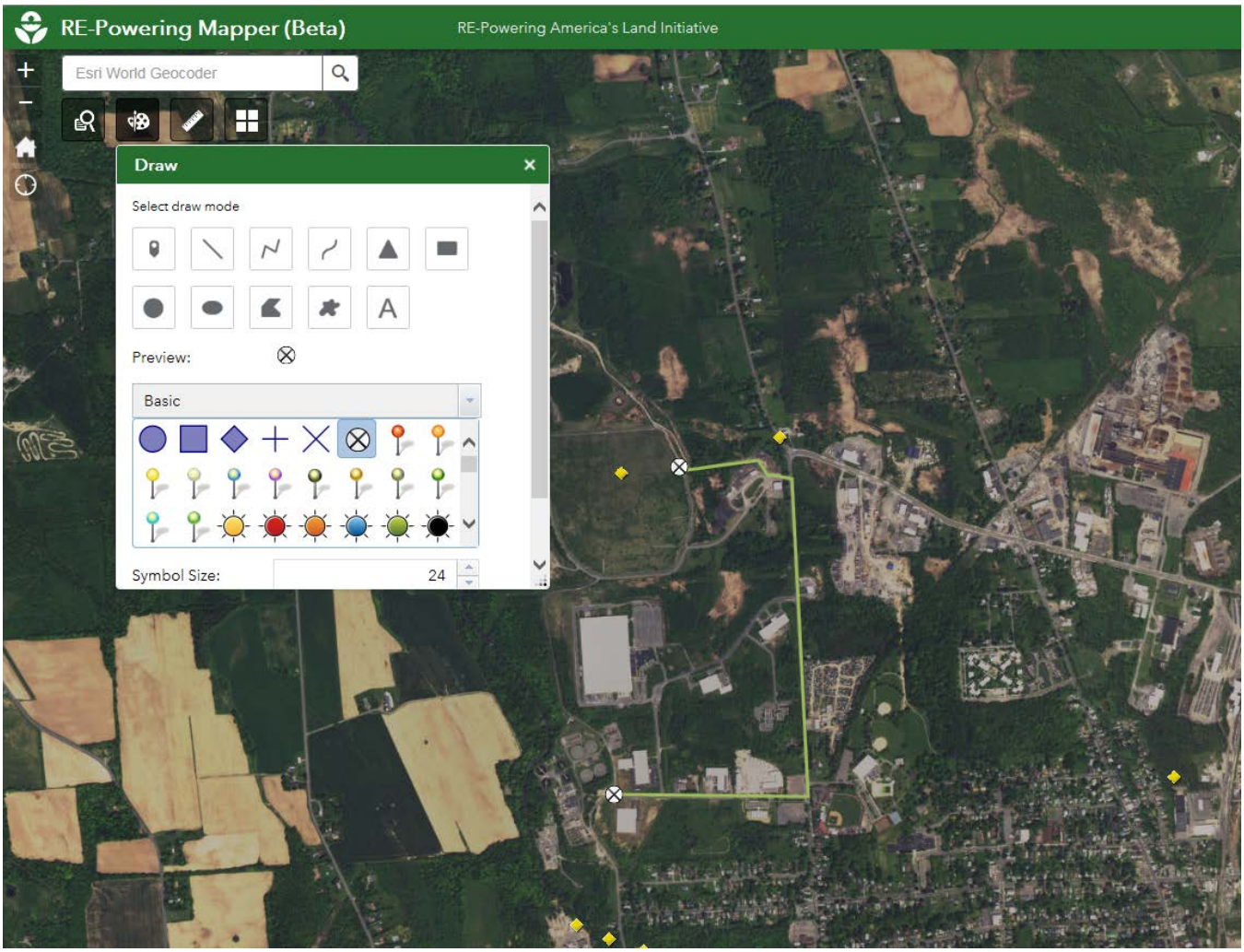


As mentioned above, sometimes a site will have pre-screened positively for more than one renewable energy type. If two or more layers are activated, you can click on a site and scroll through the pop-up boxes using the arrow at the top right. The example on the right has 3 pages. The pages can also be maximized for easier viewing.

Inside the Pop-Up box, you will see two links. One to the EPA or state program responsible for managing the site (Site Status), for more information about the site clean-up progress and status. Another link, RE-Powering Profile, will take you to a page describing the renewable energy screening results for that site.

3.10 Draw your own shapes

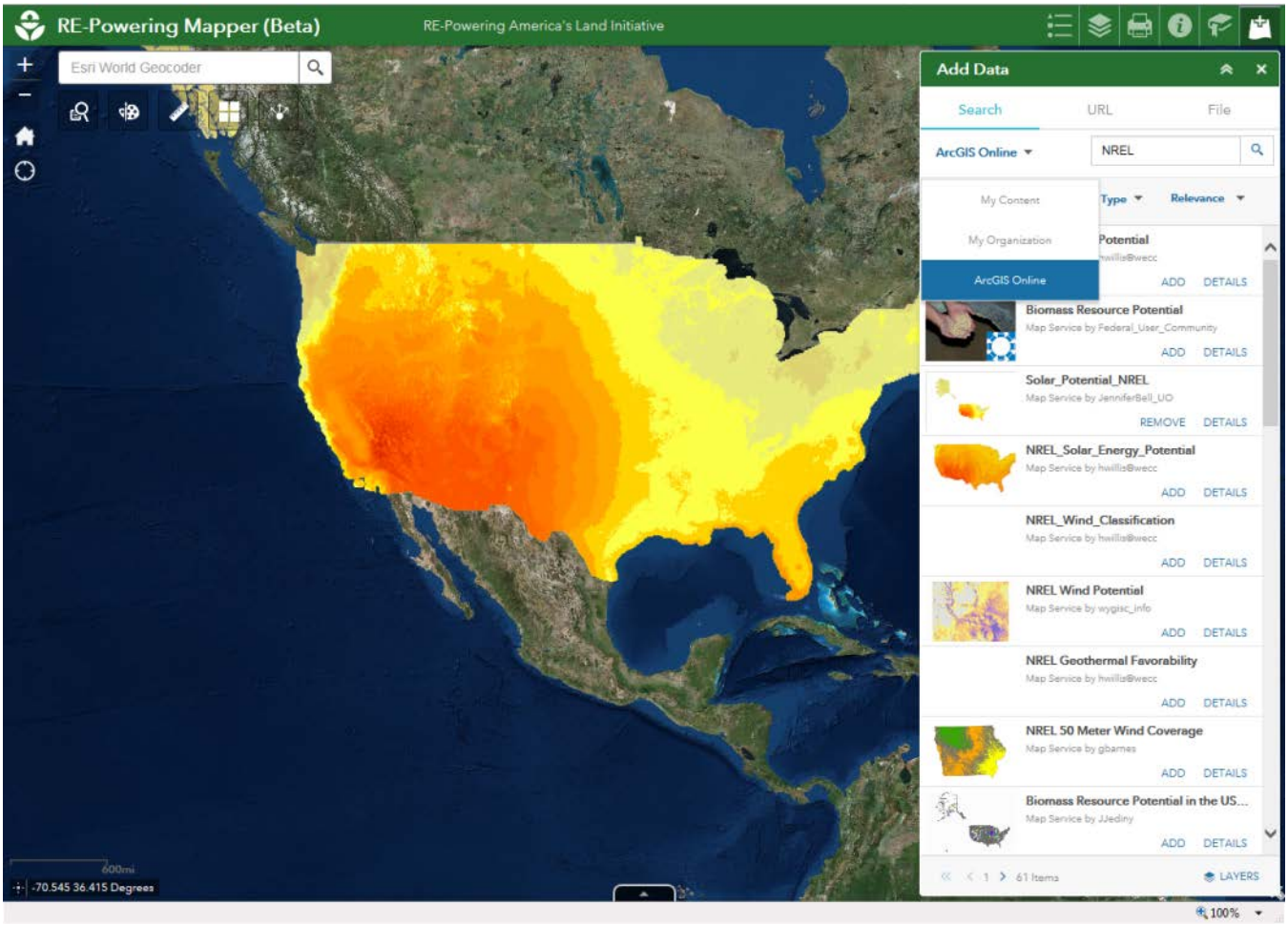
In some instances, you may wish to digitize a feature (e.g. land area, road, proposed transmission line) to create a new shape from the base map. This can be accomplished using the *Draw* tool [6].



You can create polygons, lines or points on your map. You can also get a report of the measurement (area or distance) associated with your added features. Be aware that these new features will not save to your map, but you can produce an image file or PDF using the Print option. For more advanced spatial analysis, consider downloading the RE-Powering shapefiles, found on the RE-Powering America's Land Initiative Mapper webpage to your own GIS.

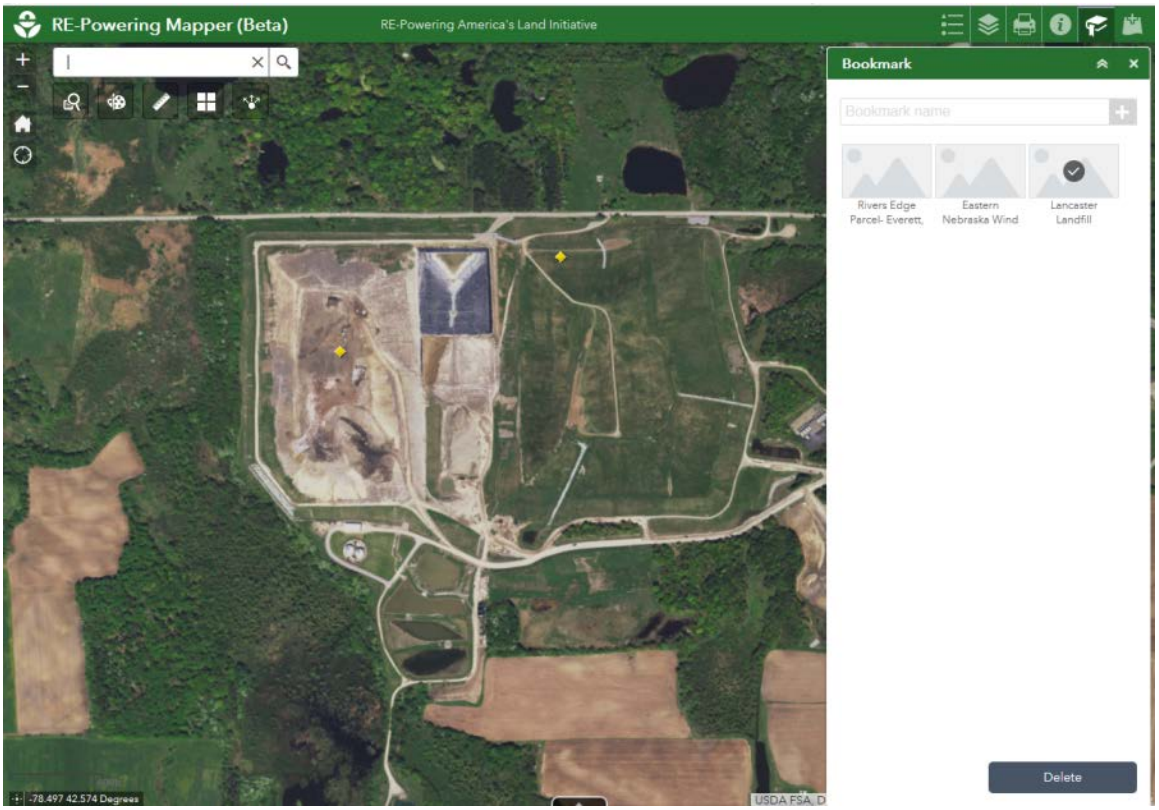
3.11 Add Data

In some instances, the user may wish to *Add Data* [15] layers to the Mapper. Data stored within the user's Esri ArcGIS Online account, organization account, or within the Esri ArcGIS Online data library may be added to the Mapper. For example, the image below shows the addition of an NREL solar resource layer from the ArcGIS Online catalog.



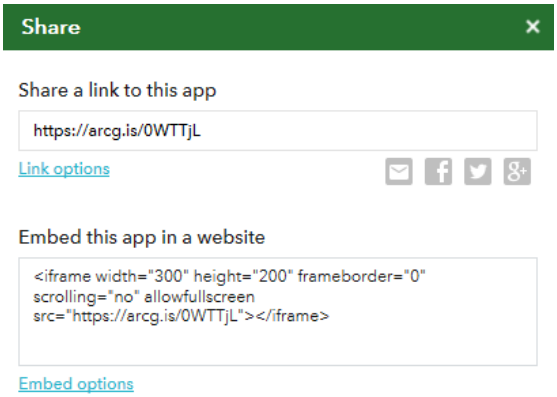
3.12 Bookmark

It may be necessary for a user to keep track of places that are meaningful or worth saving. In this case, you can use the *Bookmark* tool [14] to create custom saves at the desired location and scale. These will be available any time you open the application. Note that while the location will be bookmarked, the data you see is connected to the layers you have turned on at the time you view the book-marked spot. To add a Bookmark, zoom to the desired spot, type in the name and click the plus button.



3.13. Share

The Share tool [9] allows you to send a link to the Mapper via e-mail or social media, and/or to embed the application into a website. At this time, it is not possible to share saved or Bookmarked views. The best way to share a specific site would be to export the table and/or to generate a print view and share the image or PDF.



4. Attribute Table Details

4.1 Solar

Field Heading	Pop-Up Heading	Units	Description	Table Data Type
ObjectID	NA		ArcGIS shape identifier	Object ID
Shape	NA		ArcGIS descriptor	Geometry
Reference	Cross-Reference Number		Site identification number for cross-reference with other renewable energy type tables	Number – but is a categorical marker
EPARegion	EPA Region		EPA Region where site is located	Number – but is a categorical marker
State	State		State where site is located	String
Program	Program		EPA or state program from which data were collected. See notes about program in Data Documentation	String
SiteStatus	Site Status		Link to the federal or state program area responsible for collecting information about the site. Follow this link to find contamination and clean-up status. See notes in Data Documentation	String
SiteID	Site ID		EPA or state unique identification code	String
SiteProfile	RE-Powering Profile		This link opens up a full page HTML profile of the relevant site data and renewable energy potential. This page can be saved or printed.	String
SiteName	Site Name		Name of site/property	String
Address	Address		Address of site	String
City	City		City where site is located	String
County	County		County where site is located	String
Acres	Acres		Acreage used for analysis	Number
DNIkWHm2day	Max DNI	kWh/m2/day	Measurement of the direct normal irradiance (DNI) solar resource availability in kilowatt hour per meter squared per day	Number
EstPVCap	Estimated PV Capacity	MW	Estimated PV solar capacity potential based on land requirement of 6 acres per MW	Number
EstCSPCap	Estimated CSP Capacity	MW	Estimated CSP solar capacity potential based on land requirement of 8 acres per MW	Number
UtilityScale	Utility Scale	YES	Indicates sites with utility scale solar PV potential.	String
LargeScale	Large Scale	YES	Indicates sites with large scale solar PV potential.	String
Offgrid	Off-grid	YES	Indicates sites with off-grid solar PV potential	String
SSStatus	Substation Status	Proposed/In Service	Status of nearest substation	String
SSVoltage	Substation Voltage		Voltage of nearest substation	Number
SSDist	Distance to Substation	miles	Distance of site to nearest substation	Number
TLStatus	Transmission Line Status	Proposed/In-Service	Status of transmission line	String
TLkV	Transmission Line kV		kV capacity of nearest transmission line	Number
TransDist	Distance to Transmission	miles	Distance to nearest transmission	Number
HwyDist	Distance to Highway	miles	Distance to nearest graded road	Number

Field Heading	Pop-Up Heading	Units	Description	Table Data Type
UrbanArea	Urban Area		Indicates the closest "Urban Area" as defined by US Census Bureau. In general, this territory consists of areas of high population density and urban land use resulting in a representation of the "urban footprint." There are two types of urban areas: urbanized areas (UAs) that contain 50,000 or more people and urban clusters (UCs) that contain at least 2,500 people, but fewer than 50,000 people (except in the U.S. Virgin Islands and Guam which each contain urban clusters with populations greater than 50,000).	String
UAPop	Urban Area Population		Population of closest urban area	Number
UADist	Distance to Urban Area	miles	Distance to closed urban area	Number
Landfill	Known Landfill		Known landfill (YES). Some sites that are landfills may not be identified.	String
LStatus	Landfill Status	Open/Closed	Status of landfill if known	String
LYrClosed	Yr Landfill Closed		Year landfill closed	String
LOwner	Landfill Owner		Landfill owner	String
LOwnerType	Landfill Owner Type		Describes landfill owner	String
LGOperational	Landfill Gas Operational		The landfill gas energy project is commercially operational. Landfills can have more than one LFG energy project record. For these sites, there may be potential to leverage LFG infrastructure for co-generation with renewable energy source.	String
Latitude	Latitude			Number
Longitude	Longitude			Number

4.2 Wind

Field Heading	Pop-up Heading	Units	Description	Data Type
OBJECTID	NA		ArcGIS shape identifier	Object ID
Shape	NA		ArcGIS descriptor	Geometry
Reference	Cross-Reference Number		Site identification number for cross-reference with other renewable energy type tables	Number – but is a categorical marker
EPARegion	EPA Region		EPA Region where site is located	Number – but is a categorical marker
State	State		State where site is located	String
Program	Program		EPA or state program from which data were collected. See notes about program in Data Documentation	String
SiteStatus	Site Status		Link to the federal or state program area responsible for collecting information about the site. Follow this link to find contamination and clean-up status. See notes in Data Documentation	String
SiteID	Site ID		EPA or state unique identification code	String
SiteProfile	RE-Powering Profile		This link opens up a full page HTML profile of the relevant site data and renewable energy potential. This page can be saved or printed.	String
SiteName	Site Name		Name of site/property	String
Address	Address		Address of site	String
City	City		City where site is located	String

Field Heading	Pop-up Heading	Units	Description	Data Type
County	County		County where site is located	String
Acres	Acres		Acreage used for analysis	Number
UtilityScale	Utility Scale	YES	Indicates sites with utility-scale photovoltaic (PV) energy generation potential	String
LargeScale	Large Scale	YES	Indicates sites with large-scale solar photovoltaic energy generation potential	String
F1_2Turbines	1-2 Turbines	YES	Indicates sites with wind energy generation potential with sufficient acreage for 1-2 turbines	String
Offgrid	Off-grid	YES	Indicates sites with off-grid wind energy potential	String
EstWindCap	Estimated Wind Energy Capacity Potential	MW	Estimated potential based on land requirements calculated from wind farms installed from small- to utility-scale	Number
WS50m		Meters/second	Measurement of the wind speed measured at 50m above ground	Number
WS80m		Meters/second	Measurement of the wind speed measured at 80m above ground	Number
WS110m		Meters/second	Measurement of the wind speed measured at 110m above ground	Number
WS150m		Meters/second	Measurement of the wind speed measured at 150m above ground	Number
SSStatus	Substation Status	Proposed/In-Service	Status of nearest substation	Text
SSVoltage	Substation Voltage		Voltage of nearest substation	Number
SSDist	Distance to Substation	miles	Distance of site to nearest substation	Number
TLStatus	Transmission Line Status	Proposed/In-service	Status of transmission line	String
TLVoltage	Transmission Line kV		kV capacity of nearest transmission line	Number
TransDist	Distance to Transmission	miles	Distance to nearest transmission	Number
HwyDist	Distance to Highway	miles	Distance to nearest graded road	Number
UrbanArea	Urban Area		Indicates the closest "Urban Area" as defined by US Census Bureau. In general, this territory consists of areas of high population density and urban land use resulting in a representation of the "urban footprint." There are two types of urban areas: urbanized areas (UAs) that contain 50,000 or more people and urban clusters (UCs) that contain at least 2,500 people, but fewer than 50,000 people (except in the U.S. Virgin Islands and Guam which each contain urban clusters with populations greater than 50,000).	String
UAPop	Urban Area Population		Population of closest urban area	Number
UADist	Distance to Urban Area	miles	Distance to closed urban area	Number
Latitude	Latitude			Number
Longitude	Longitude			Number

4.3 Biomass/Biofuel

Field	Pop-up Heading	Units	Description	Data Type
OBJECT ID	NA		ArcGIS shape identifier	Object ID
Shape	NA		ArcGIS descriptor	Geometry
Reference	Cross-Reference Number		Site identification number for cross-reference with other renewable energy type tables	Number – but is a categorical marker
EPARegion	EPA Region		EPA Region where site is located	Number – but is a categorical marker
State	State		State where site is located	String
Program	Program		EPA or state program from which data were collected. See notes about program in Data Documentation	String
SiteStatus	Site Status		Link to the federal or state program area responsible for collecting information about the site. Follow this link to find contamination and clean-up status. See notes in Data Documentation	String
SiteID	Site ID		EPA or state unique identification code	String
SiteName	Site Name		Name of site/property	String
SiteProfile	RE-Powering Profile		This link opens up a full page HTML profile of the relevant site data and renewable energy potential. This page can be saved or printed.	String
Address	Address		Address of site	String
City	City		City where site is located	String
County	County		County where site is located	String
Acres	Acres		Acreage used for analysis	Number
EstBiopower	Estimated Biopower Capacity Potential	MW	Estimated based on feedstock	String
CumBioRes	Cumulative Biopower Resources	Metric tons/yr within 50 miles	Cumulative biomass resources in metric tons/year, used to determine biopower facility siting potential, including: forests; primary and secondary mills; urban wood stock	Number
BioFacPot	Biopower Facility Potential	YES	Indicates sites with biopower facility siting potential based on woody biomass or crop feedstock	String
BioRef	Biorefinery Facility Potential	YES	Indicates sites with Biorefinery facility siting potential based on woody biomass or crop feedstock	Number
CumRefRec	Cumulative Biorefinery Residues	metric tons/yr within 50 miles	Cumulative biomass resources in metric tons/year, used to determine biopower facility siting potential, includes: forests, primary and secondary mills; urban wood waste.	String
Crops	Crops	metric tons/yr within 50 miles	Crop residues (dry metric tons/year), includes residues from corn, wheat, soybeans, cotton, sorghum, barley, oats, rice, rye, canola, dry edible beans, dry edible peas, peanuts, potatoes, safflower, sunflower, sugarcane and flaxseed	Number
Forest	Forest	metric tons/yr within 50 miles	Forest residues (dry metric tons/year), includes logging residues and other removable material left after carrying out silviculture operations and site conversions	Number

Field	Pop-up Heading	Units	Description	Data Type
PrimMill	Primary Mill	metric tons/yr within 50 miles	Primary mill residues (dry metric tons/year), includes wood materials (coarse and fine) and bark generated at manufacturing plants (primary wood-using mills) when round wood products are processed into primary wood products	Number
SecMill	Secondary Mill	metric tons/yr within 50 miles	Secondary mill residues (dry metric tons/year), includes wood scraps and sawdust from woodworking shops	Number
UrbanWasteWood	Urban Waste Wood	metric tons/yr within 50 miles	Urban wood residues (dry metric tons/year), includes wood residues from wood chips, pallets, utility tree trimming and/or private tree companies, and construction and demolition sites	Number
SSStatus	Substation Status	Proposed/In-Service	Status of nearest substation	String
SSVoltage	Substation Voltage		Voltage of nearest substation	Number
SSDist	Distance to Substation	miles	Distance of site to nearest substation	Number
TLStatus	Transmission Line Status	Proposed/In-service	Status of transmission line	String
TLkV	Transmission Line kV		kV capacity of nearest transmission line	Number
TransDist	Distance to Transmission	miles	Distance to nearest transmission	Number
HwyDist	Distance to Highway	miles	Distance to nearest graded road	Number
RailDist	Distance to Rail	miles	Distance to the nearest railway	Number
UrbanArea	Urban Area		Indicates the closest "Urban Area" as defined by US Census Bureau. In general, this territory consists of areas of high population density and urban land use resulting in a representation of the "urban footprint." There are two types of urban areas: urbanized areas (UAs) that contain 50,000 or more people and urban clusters (UCs) that contain at least 2,500 people, but fewer than 50,000 people (except in the U.S. Virgin Islands and Guam which each contain urban clusters with populations greater than 50,000).	String
UAPOP	Urban Area Population		Population of closest urban area	Number
UADist	Distance to Urban Area	miles	Distance to closed urban area	Number
Latitude	Latitude			Number
Longitude	Longitude			Number

4.4 Geothermal

Field	Pop-up Heading	Units	Description	Data Type
OBJECT ID	NA		ArcGIS shape identifier	Object ID
Shape	NA		ArcGIS descriptor	Geometry
Reference	Cross-Reference Number		Site identification number for cross-reference with other renewable energy type tables	Number – but is a categorical marker
EPARegion	EPA Region		EPA Region where site is located	Number – but is a categorical marker
State	State		State where site is located	String
Program	Program		EPA or state program from which data were collected. See notes about program in Data Documentation	String
SiteStatus	Site Status		Link to the federal or state program area responsible for collecting information about the site. Follow this link to find contamination and clean-up status. See notes in Data Documentation	String
SiteID	Site ID		EPA or state unique identification code	String
SiteName	Site Name		Name of site/property	String
SiteProfile	RE-Powering Profile		This link opens up a full page HTML profile of the relevant site data and renewable energy potential. This page can be saved or printed.	String
Address	Address		Address of site	String
City	City		City where site is located	String
County	County		County where site is located	String
Acres	Acres		Acreage used for analysis	Number
GeoFav	Geothermal Favorability	[Explain]	Indicator of relative geothermal favorability of occurrence for geothermal resources in the western contiguous United States	String
HeatFlow	Heat Flow	MW/m2	Heat flow in MW per square meter	Number
SurfTemp	Surface Temperature	(˚C)	Mean ground surface temperature	Number
GeoHeatPumpPot	Geothermal Heat Pump Potential	YES	Indicates sites with geothermal heat pump potential	String
km3	3 km	(˚C)	Temperature at 3km below the surface	Number
km3_5	3.5 km	(˚C)	Temperature at 3.5 km below the surface	Number
km4_5	4.5 km	(˚C)	Temperature at 4.5 km below the surface	Number
km5_5	5.5 km	(˚C)	Temperature at 5.5 km below the surface	Number
km6_5	6.5 km	(˚C)	Temperature at 6.5 km below the surface	Number
EnGeoThermSyst	Enhanced Geothermal System Potential	YES	Indicates sites with Enhanced Geothermal System facility siting potential	String
HydroSite	Hydrothermal site	YES	Hydrothermal site name	String
HydroSiteDist	Distance to Hydrothermal site	miles	Distance to known hydrothermal site	Number
HydroFacPot	Hydrothermal Facility Potential	YES	Indicates sites with hydrothermal siting potential	String
SSStatus	Substation Status	Proposed/In-Service	Status of nearest substation	String
SSVoltage	Substation Voltage		Voltage of nearest substation	Number

Field	Pop-up Heading	Units	Description	Data Type
SSDist	Distance to Substation	miles	Distance of site to nearest substation	Number
TLStatus	Transmission Line Status	Proposed/In-service	Status of transmission line	String
TLkV	Transmission Line kV		kV capacity of nearest transmission line	Number
TransDist	Distance to Transmission	miles	Distance to nearest transmission	Number
HwyDist	Distance to Highway	miles	Distance to nearest graded road	Number
UrbanArea	Urban Area		Indicates the closest "Urban Area" as defined by US Census Bureau. In general, this territory consists of areas of high population density and urban land use resulting in a representation of the "urban footprint." There are two types of urban areas: urbanized areas (UAs) that contain 50,000 or more people and urban clusters (UCs) that contain at least 2,500 people, but fewer than 50,000 people (except in the U.S. Virgin Islands and Guam which each contain urban clusters with populations greater than 50,000).	String
UAPop	Urban Area Population		Population of closest urban area	Number
UADist	Distance to Urban Area	miles	Distance to closed urban area	Number
Latitude	Latitude			Number
Longitude	Longitude			Number

4.5 State Policies

Field Headings (Visible)	Pop-up Heading	Units	Description	Data Type
OBJECTID	NA			Object ID
Shape	NA			Geometry
GEOID	NA			GEOID
STUPS	STUPS		State abbreviation	String
NAME	Name		State name	String
StatePolicies2017_RPS	RPS	Yes/No/ Goal	States with a Renewable Portfolio Standard or goal as of March 2017	String
StatePolicies2017_RE_P_Incentive	RE-Powering Incentive	Yes/No	Describes states with specific incentives to encourage RE-powering type projects	String
StatePolicies2017_PhysNetMet	Physical Net-metering	Yes/No	Does the state have physical net-metering?	String
StatePolicies2017_VirtNetMet	Virtual Net-Metering	Yes/No	Does the state have virtual net-metering?	String
StatePolicies2017_RETaxIncentive	Renewable Energy Tax Incentive	Yes/No	Reports whether *state* has renewable energy tax incentives	String
StatePolicies2017_SharedRE	Shared Renewable Energy Program	Yes/No	Does the State have policies to specifically encourage community solar or some other form of shared renewables?	String
StatePolicies2017_InStateSharedRE	In State Shared Renewable Energy Program	Yes/No	Does the State have policies to specifically encourage community solar or some other form of shared renewables that are limited to within state territory?	String

Field Headings (Visible)	Pop-up Heading	Units	Description	Data Type
StatePolicies2017_CCA	Community Choice Aggregation	Yes/No	Does the state have authorizing legislation that specifically allows community choice aggregation? http://www.leanenergyus.org/cca-by-state/	String
StatePolicies2017_ElectRetChoice	Electricity Retail Choice	Yes/No	Whether electricity retail choice is easily available (that is, states have adopted electric retail choice programs that allow end-use customers to buy electricity from competitive retail suppliers)	String
StatePolicies2017_Green Tariff	Green Tariff	Yes/No	Does the state have a green tariff?	String
StatePolicies2017_RE_P_Sites	RE-Powering Sites		The total number of sites as of the October 2016 RE-Powering Tracking Matrix	Number
StatePolicies2017_ScreenedSites	Screened Sites		Total number of sites screened in Mapper	Number
Shape_Length	NA			Number
Shape_Area	NA			Number