



WINDsite

User Guide



February 2023

Welcome

The goal of WindSite is to provide an effective solution for facilitating renewable energy growth in Virginia while mitigating impacts to military readiness. WindSite was developed as a holistic integrated tool for addressing the needs and effects associated with wind energy siting on operations, training, and research in the Commonwealth of Virginia.

WindSite is a “one-stop tool” that developers, military members, and government officials can use to quickly learn what’s been done to ensure accurate workflow for approved energy project siting as well as learn how they can engage in the process for evaluating and mitigating newly proposed energy projects.

Criteria for data included in WindSite were developed through collaborative input from military, industry, and government groups through a series of conversations. The identified areas are not intended to provide final approval on permitting but to provide prospecting insight and facilitation of dialogue with appropriate stakeholders.

WindSite has been tested and works in the following browsers:

- Google Chrome (preferred browser)
- Mozilla Firefox
- Safari

You may need to update your web browsers if some tools in WindSite do not work well for you. WindSite uses Esri ArcGIS Hub technology, and is not assured as compatible with Internet Explorer or Edge browsers.

The research team at Old Dominion University, supported by its Institute for Innovation and Entrepreneurship (IIE) and Center for Geospatial Science, Education, and Analytics (GeoSEA), maintains this application. Questions can be sent to windsite@odu.edu.

windsiteva.org

Using ArcGIS

Using Esri's ArcGIS Online interface is not always easy. Below are some diagrams and directions on how to interact with all of our maps and their layers.

Pictured below is one of two types of maps WindSite uses. This configuration includes standard features such as zooming in and out, returning to the "home" or default extent, and "my location" (left image). It also includes five features, or widgets (right image).



The first feature is the **Layer List**. Clicking the Layer List button brings up a menu listing all data layers included on the map. Clicking on each layer (see below) allows you to see the legend to interpret those layers.



The second feature is the **Legend**. Clicking the Legend button brings up guidance on how to read the colors and symbology of your chosen layers.



The third feature is the **Basemap Gallery**. Clicking the Basemap Gallery button brings up a menu of various maps views from which you can choose.



The fourth feature is the **Site Exploration Tool**. Clicking the Site Exploration Tool button allows you to generate a report of all applicable data layers to a point of interest. Full instructions are on page 6 ("Quick Check").



The fifth feature is the **Coordinate Conversion** tool. Clicking the Coordinate Conversion button brings up a form that allows you to translate a point on the map to specific geographic coordinates.



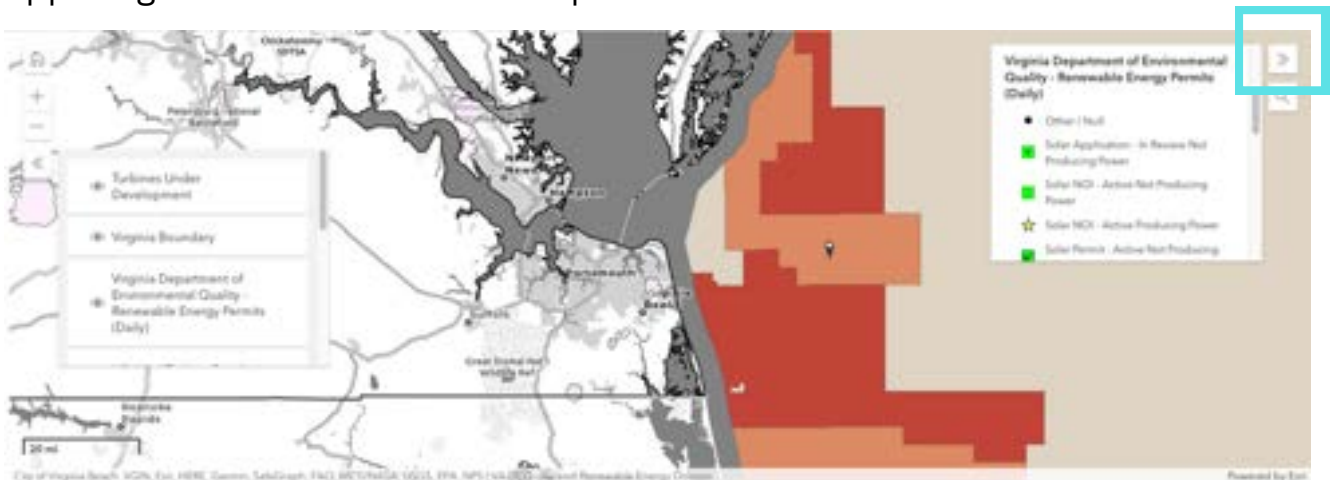
Pictured below is the other type of map WindSite uses. This configuration includes standard features such as zooming in and out, returning to the default map view, and an open/close layer list button.



To turn on a layer, click the "eye" icon. If the eye is open, the layer is on. If there is a line through the eye, the layer is off. Some layer lists have dropdown options, like the one below, while others do not.



To view the legend in this map type, use the "open/close legend" button in the upper right hand corner of the map.



Areas

WindSite is designed to meet the needs of multiple groups. We understand that users from different sectors require different types of information. Based on the needs we identified through over 25 stakeholder interviews, we have created five areas to engage—all accessible from our home page.

1

QUICK CHECK

Allows users to generate a quick report that includes all the potential conflicts to a specific location.

2

DATA CATALOG

Downloads a PDF document that outlines all our data, including their source and latest update.



What would you like to do?



UNDERSTAND
WIND PERMITTING

3

UNDERSTAND

Understand the various permitting processes and their stages. This map provides the data required during the review and permitting processes.



EXPLORE
RESOURCES

4

EXPLORE

Explore local energy ordinances across Virginia or view an aggregation of existing resources to help kickstart conversations in your own region.



LOCATE
WIND PROJECTS

5

LOCATE

Locate wind energy projects at various levels of development, from those operating to those "in the pipeline" at agencies such as PJM, DEQ, and FAA.

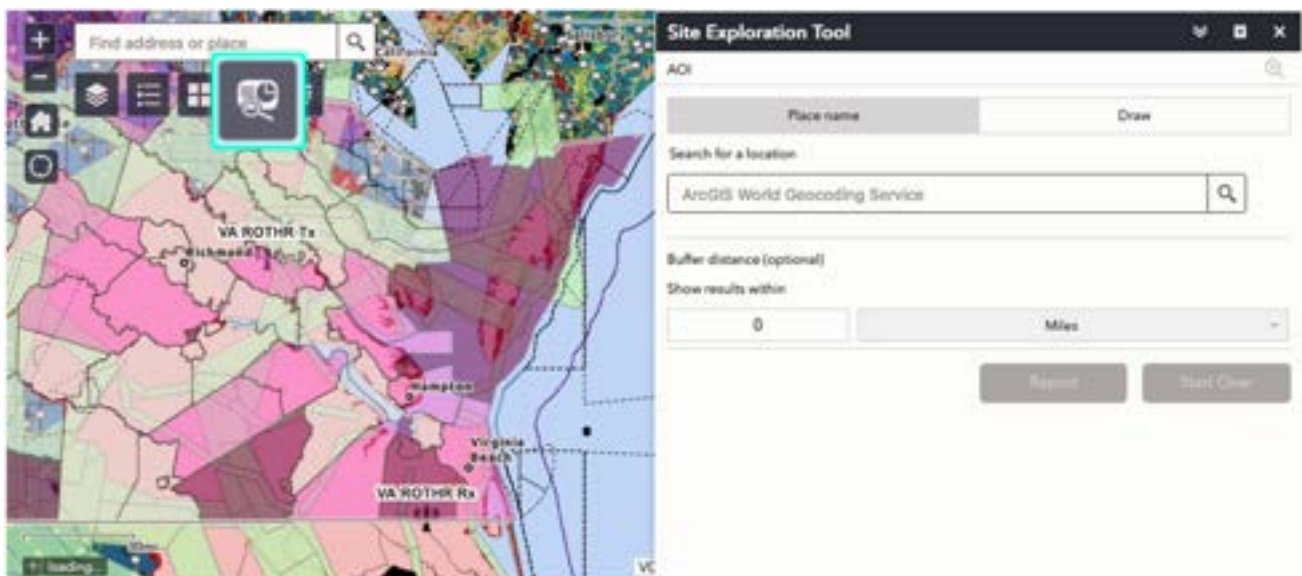
1 Quick Check

This area allows users to generate a data output—a "quick check report"—that includes all the potential conflicts to a specific location. All data layers in WindSite are included in this report. Users should ensure that all layers are "on" before running the check. For best results, users can upload a shapefile.

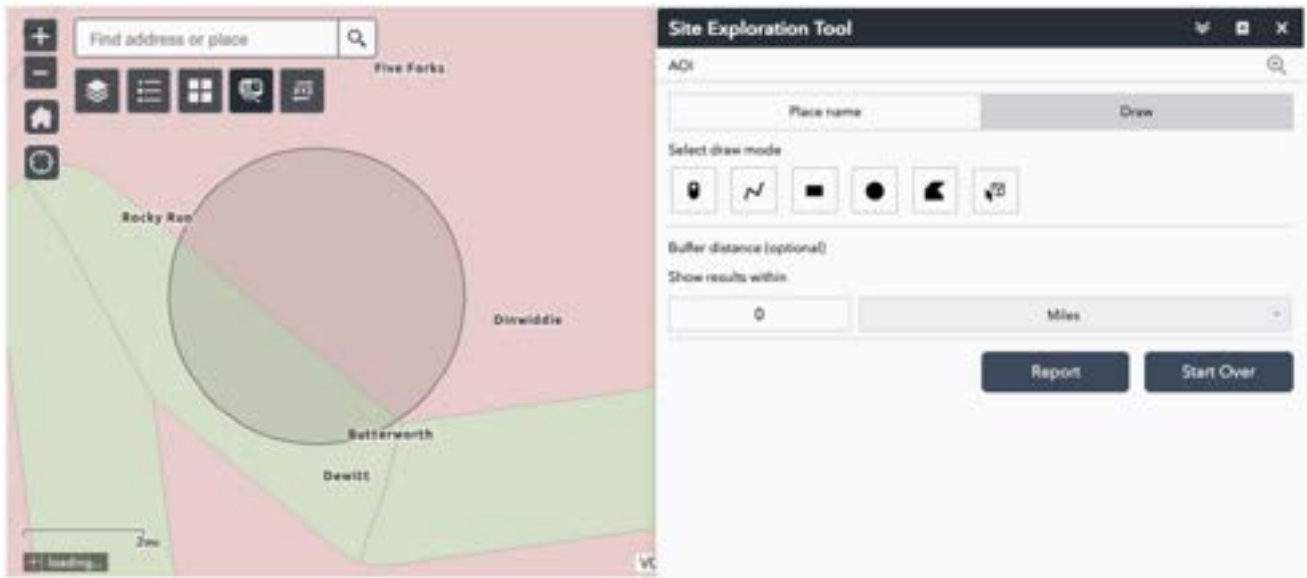
Turn all layers on, or select the ones of interest.



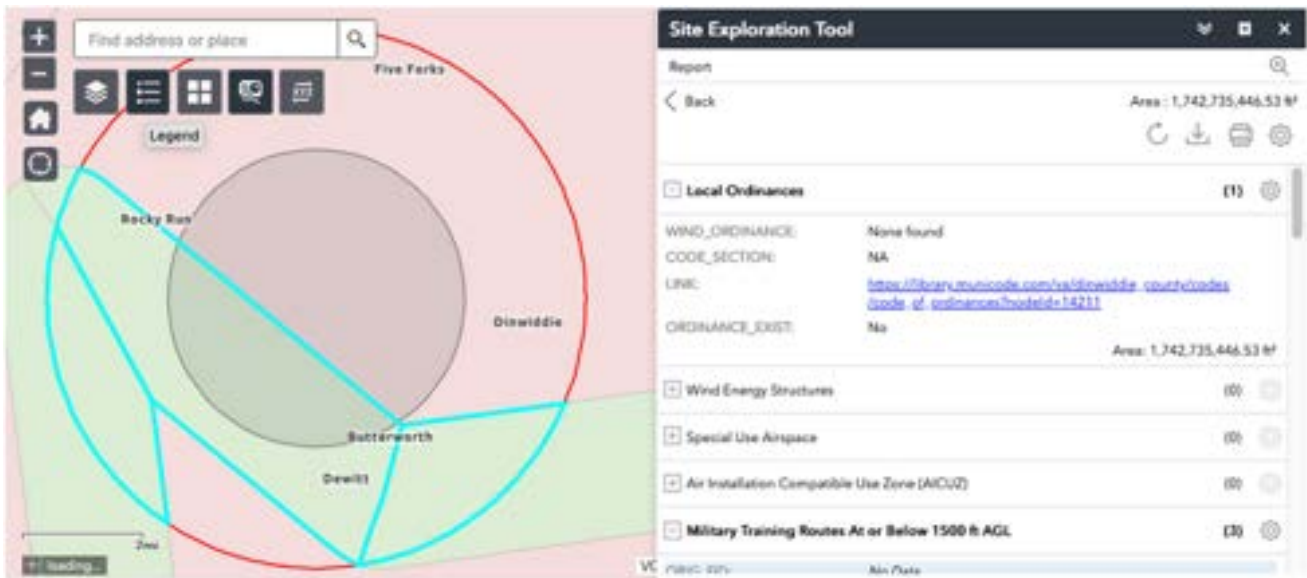
Click on the Site Exploration Tool button. Zoom into the region of interest.




Select draw mode to identify a region (or search by place name). Click "Report" to run the Quick Check.



Review the results with non-zero numbers—e.g., (3)—to explore potential conflicts.



Click the download icon.  Files will download automatically in .csv format.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	OBJECTID_1	OBJECTID	ID	NAME	CITY	STATE	ZIP	TYPE	STATUS	COUNTY	COUNTYFIPS	COUNTRY	LATITUDE	LONGITUDE
2		1773	5756	114524	UNKNOWN1	DINWIDDIE	VA	23841	SUBSTATION IN SERVICE	DINWIDDIE	51053	USA	37.11	-77.64
3		10300	46241	161136	UNKNOWN1	DINWIDDIE	VA	23841	SUBSTATION IN SERVICE	DINWIDDIE	51053	USA	37.06	-77.6

2 Data Catalog

This area allows users to download a PDF document that outlines all our data, including the layer name, description, creator, source link, date last accessed, and the refresh frequency.

This is a sample entry for the Air Installation Compatible Use Zone (AICUZ) data layer.

Layer Name: Air Installation Compatible Use Zone (AICUZ)

<https://odu->

[gis.maps.arcgis.com/home/item.html?id=275d0101a9a84901b321e528d0c8136e&sublayer=3](https://odu-gis.maps.arcgis.com/home/item.html?id=275d0101a9a84901b321e528d0c8136e&sublayer=3)

Description:

This layer represents Air Installation Compatible Use Zones (AICUZs) for the WindSiteVA project area. Military training routes are aerial corridors across the United States in which military aircraft can operate below 10,000 feet faster than the maximum safe speed of 250 knots that all other aircraft are restricted to while operating below 10,000 feet. The routes are the result of a joint venture between the Federal Aviation Administration and the Department of Defense to provide for high-speed, low-altitude military activities. Air Installations Compatible Use Zones is a program concerning people, safety, and protection through compatible land use. The foundation of an AICUZ program is an active local command effort to work with local, state, regional and other federal agencies, and community leaders to encourage compatible development of land adjacent to military airfields.

Creator/Agency: Military Aviation and Installation Assurance Siting Clearinghouse

Authoritative source link:

[https://www.acq.osd.mil/dodsc/downloads/Air%20Installation%20Compatible%20Use%20Zone%20\(AICUZ\)%20-%20PUBLIC.zip](https://www.acq.osd.mil/dodsc/downloads/Air%20Installation%20Compatible%20Use%20Zone%20(AICUZ)%20-%20PUBLIC.zip)

Date Last Accessed: September 3rd, 2021

Data Refresh: Annually

This is a sample entry for the ordinances pertaining to wind energy in the Commonwealth of Virginia.

Layer Name: VA Local Ordinances

Description:

The data layer was created to identify different statuses of ordinances within municipal codes linked to the development of wind siting activities in each of the cities and counties across Virginia. The absence of existing ordinances in certain areas does not mean those areas are restricted from wind development activities. These data reflect the most recent ordinances available during the time of data development (June 2021). Please consult the local municipal office for more information.

Creator/Agency:

Old Dominion University and the Virginia Coastal Policy Center at William & Mary Law School

Authoritative source link:

<https://services.arcgis.com/2DbqGRRQS9wbBetw/arcgis/rest/services/VALocalOrdinancesData/FeatureServer>

Date Last Accessed: June 25th, 2021

Data Refresh: Annually

3 Understand

This area allows users to learn about the various permitting processes and their different stages. There are three main permitting processes covered here: Onshore 150MW or less; Onshore more than 150MW; and Offshore Federal Lease. Each project type has its own permitting process. For example, for onshore projects 150MW or less, developers will go through the Virginia Department of Environmental Quality's (DEQ) Permit-by-Rule process.

Understand

Use our tool's public platform for exploring and learning about the various permitting processes and their different stages. The map provides any data required during the review and permitting processes.

Project Types

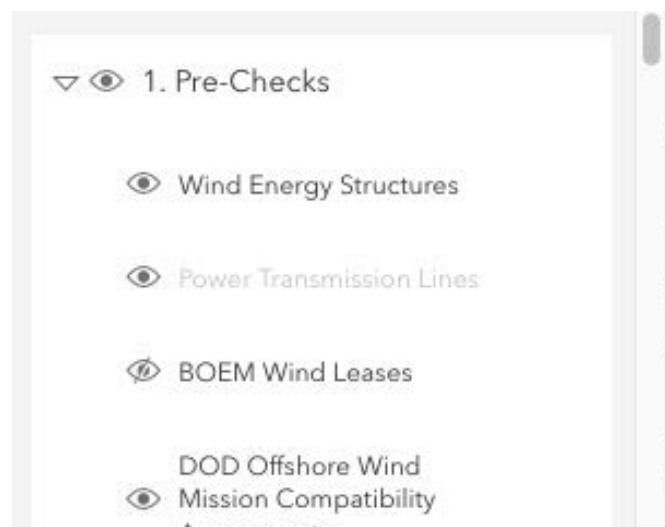
- Onshore 150MW or less
- Onshore more than 150MW
- Offshore Federal Lease



Each type takes the user through the same four-step process.

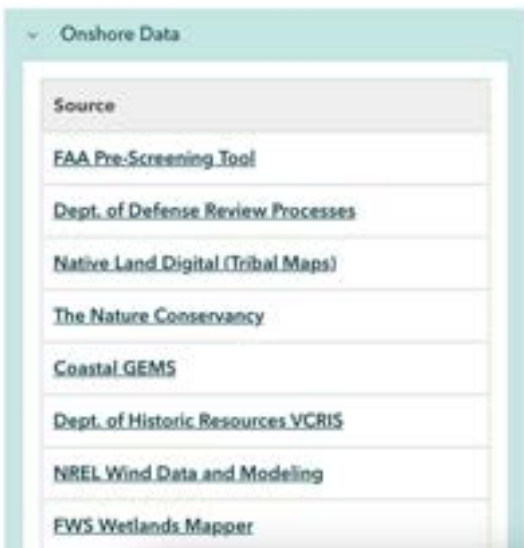
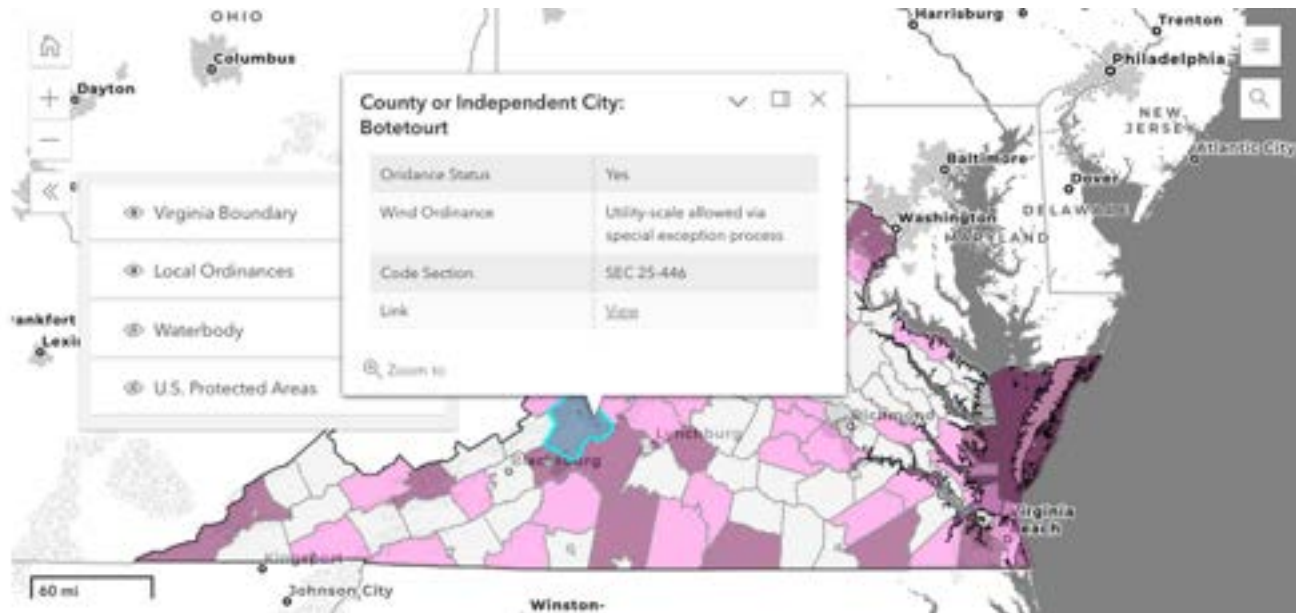
These data layers match the four-step process. All data required for pre-checks, for example, are under this menu.

Stage	Tasks
Pre-Checks	Before submitting any informal queries or reviews, we suggest conducting a few quick pre-checks. These include early rejection criteria such as radar interference or proximity to airports. To run a thorough pre-screen through the FAA, input your anticipated coordinates in the QE/AAA Pre-Screening Tool .
Informal	Before submitting formal plans, developers should send informal



4 Explore

This area is meant to be our "everything and the kitchen sink." All existing tools external to our site are included here. Our goal was to aggregate all these tools into one area. Further, users can click on our map to explore the applicable ordinances for each county or municipality in Virginia. Where available, we link to the existing ordinance for your reference.



We found that users can often be overwhelmed by the amount of existing tools out there that are instructive or required before getting a wind project up and running. We did our best to capture all these tools and aggregate them into one area here. We have also included sample ordinances under the "Ordinance Documents" menu item to help kickstart conversations.

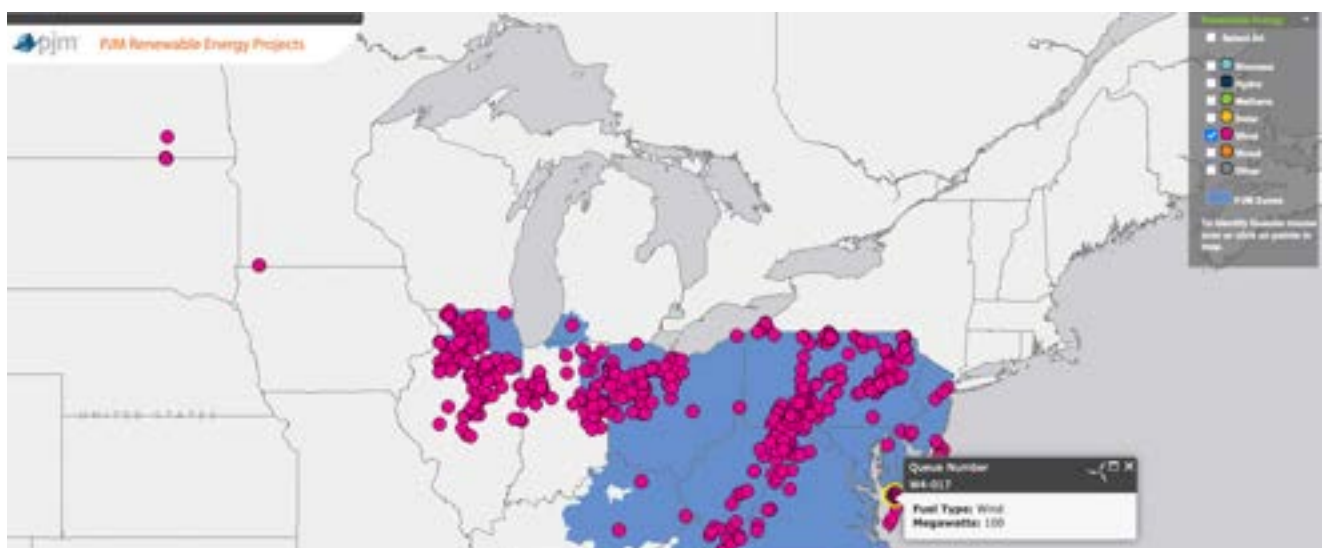
5 Locate

Users can explore our tool's public platform for locating aggregated wind energy projects at various levels of development, from those fully operating to those "in the pipeline" at agencies such as PJM, DEQ, and FAA. Our goal is to let users know not only where active turbines are but where ones being proposed will likely be located.

To explore our "pipeline," use the "Turbines Under Development" layer. Users can click on individual points to see attributes (e.g., stage of development, developer, intended transmission interconnection).



One of the sources we draw from is the PJM Renewable Energy Projects map and database. PJM is the Regional Transmission Organization (RTO) that conducts transmission studies.



Thank you to our sponsors.



Virginia Department of Energy



Commonwealth of Virginia Secretary of Veterans and Defense Affairs



Department of Defense's Office of Local Defense Community Cooperation (OLDCC)

Research Team

The research team consisted of faculty and staff from Old Dominion University, James Madison University, and William & Mary.

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