

Energy Zones Mapping Tool

A map-based tool for identifying areas within the United States that may be suitable for clean power generation.

Energy Zones Mapping Tool Help Manual











Energy Zones Mapping Tool Manual

Registering for, and Launching the Mapping Tool

1) In order to use the Energy Zones Mapping Tool, you must create a login, which uses your email address and a password. Your activities within the mapping tool will be saved to your account so that your work can continue

from one session to the next. From the Home Page, clicking on *Login* or the Launch Tool icon (will bring you to a banner containing the Department of Energy terms and conditions notice. After you have read and agreed to the terms and conditions, click on the *I Agree* button to continue.

EZMT Energy Zoni Mapping To	es Jol
Login	
unauthorized) have no explicit or implicit e audited, inspected, and disclosed to author domestic and foreign. By using this system authorized site or Department of Energy p	mputer system and is the property of the United States Government. It is for authorized use only. Users (authorized or expectation of privacy. Any or all uses of this system and all files on this system may be intercepted, monitored, recorded, copied, orized site, Department of Energy, and law enforcement personnel, as well as authorized officials of other agencies, both n, the user consents to such interception, monitoring, recording, copying, auditing, inspection, and disclosure at the discretion of personnel. Unauthorized or improper use of this system may result in administrative disciplinary action and civil and criminal n you indicate your awareness of and consent to these terms and conditions of use. LOG OFF IMMEDIATELY if you do not agree

2) Clicking the *I Agree* button will lead you to the Login page. To register for the tool, click on the Register link in the bottom left-hand corner of the screen.

EZMT Energy Zo Mapping	nes Fool
Login	
Email	
Password	
Remember me	
Ŧ	Login
Need to Register? Forgot your password? Didn't receive confirmation	instructions?

egister	
Please fill out the following form	i to request access.
First name	
Last name	
Job title or function	
Organization	Please select
Other organization	
State/Province	
Email Address	
Email Confirmation	
Password	
Password confirmation	
	Do not list me on the User Community page. (Only first name, lest name, organization, and state are listed on the page.)
	Send me occasional e-mail messages when significant changes are made to this site.
	Register Clear Form

 On the Registration page, fill out the information pertaining to your name, organization, and state. Your e-mail address and password will be used as your login information. There are two options at the bottom of the page. By leaving the

box next to the User Community page option unchecked, you agree to have your first name, last name, organization, and state listed on the User Community page. If your organization is not already in the Organization list, choose "Other (Enter below)" from the bottom of the drop-down list, and enter your organization in the Other organization box. By leaving the box checked next to the e-mail notification option,

you agree that you would like to be e-mailed occasionally when significant changes are made to the site. After you have completed the registration information, click on **Register** at the bottom of the page. You will receive an e-mail confirmation message. Use the link in that message to confirm your e-mail address, and you will receive a second e-mail when your registration is complete.

4) When your registration is complete, return to the Login page, enter your e-mail and password, and click *Login*. This will lead you to the "Terms and Conditions" page of the mapping tool.



5) Either accept the terms by clicking *Accept Terms* or reject the terms by clicking *Reject terms and log out*. Clicking on *Accept Terms* will either launch the mapping Tool (if you originally clicked the Launch Tool icon) or will take you back to the home page (if you originally clicked *Login*) where you can now click the Launch Tool



6) When the mapping tool launches, a splash screen appears with links to training videos and a link to this document. The check box in the lower left corner controls whether the splash screen will be displayed in later sessions, and it can be accessed at any time by clicking **Help** at the top right of the page.



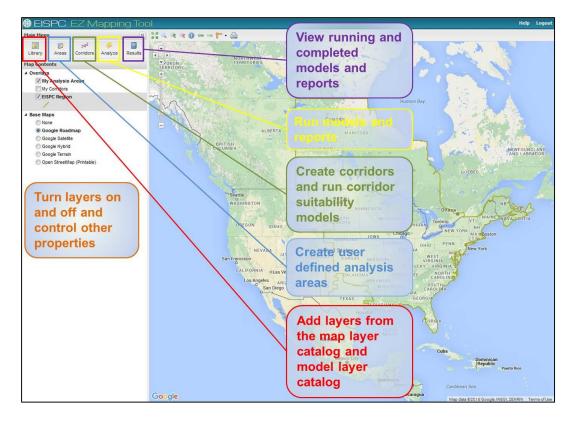
Understanding the Default Layout

Launching the mapping tool will open a new tab or browser window with the default layout of the mapping tool.

- The panel on the left side of the screen contains the Main Menu and Map Contents.
- The Main Menu contains the Library, Areas, Corridors, Analyze, and Results icons.
 - The Library icon (^{Library}) is used to add new map layers or model layers to the map Contents dialog (see <u>Adding Map Layers</u>, and <u>Adding Model Layers</u>)
 - The Areas icon (Areas) is used to create analysis areas (see Creating an Analysis Area).
 - The Corridors icon (^{Corridors}) is used to run corridor suitability models and generate corridors (see <u>Creating a Corridor</u>, and <u>Generating Corridor Routes</u>)
 - The Analyze icon (Analyze) is used to run models or reports (see <u>Running a Model</u> or <u>Running a Report</u>)
 - The Results icon (^{Results}) is used to view model and report results (see <u>Running a Model</u> or <u>Running a Report</u>)
- The *Map Contents* panel controls the layers displayed on the map.

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Layers

The default map only shows analysis area and corridor overlays and base map choices, but over 270 mapping layers are available in the tool. All other layers are added by using the icons in the *Main Menu* panel.

Adding Map Layers

1) Click the Library icon (Library) in the upper left corner of the *Main Menu*.

X

2) A dialog opens, displaying all of the layers contained in the *Map Layer Catalog*. Click on the plus (+) next to a layer name to display the abstract, publication date, and last date the layer was updated.

M	ap Layer Cat	alog	Model Layer Catalog				
	Actions	Title	*	Category	Source	Resource	
Ξ	🔀 🔑 💷		is Tracking Flat-Plate Collector		National Renewable Energy Labo		-
		rating (Date: 3	collector on a 1-axis tracker, suc 2007		tion values represent the average solar wer.	energy available	l
ŧ	🔀 🔎	100	Year Flood Zone	Hydrography	Federal Emergency Management		
*	🐰 🖊 🔍	113t	n Congressional District	Boundary	U.S. Census Bureau		
ŧ	🐰 🔎 🔍	Air R	oute Surveillance Radar (ARS)	R) Communications	MIT's Lincoln Laboratories; et al		
ŧ	🔉 🔎 🌆	Airpo	ort	Transportation	Federal Aviation Administration		
ŧ	💹 🔎 🔍	Airpo	ort Runway	Transportation	Federal Aviation Administration		
ŧ	🐰 🔎 🔍	Airpo	ort Surveillance Radar (ASR)	Communications	Compiled from Multiple Sources		
÷.			native Eucl Station	Transportation	National Renewable Energy Labo		

3) Place the cursor over a heading (*Title, Category, Source*, or *Resource*) and a down arrow appears to the right of the heading name. Click the down arrow to sort or filter the list. The *Category* and *Resource* columns list all possible options to sort by. Click the filters that you wish to use. The *Title* and *Source* columns allow you to choose a filter term. Place the cursor over *Filters* and type a word in the box that appears. You can remove the filters by unchecking the boxes at the bottom of the dialog.

ap Layer Ca	talog Model Layer Catalog			
Actions	Title 🔺	 Category 	Source	Resource
😹 🔎 🔍	Atlantic OCS Wind Energy Area	2↓ Sort Ascending	au of Ocean Energy Manage	
🔀 📈	Mean Annual Wind Speed (100m)	X↓ Sort Descending	6 Truepower, LLC	Wind
🔀 🔎	Mean Annual Wind Speed (80m)		8 Truenower LLC	Wind
🐰 🔎 💷	National Offshore Wind Resource Ass	se. Filters	▶ m wind	Wind
🐰 🖊 💷	National Wind Resource Assessment	(Climate	National Renewable Energy Labo	Wind
😹 🔎	Wind Power Density (100m)	Climate	AWS Truepower, LLC	Wind
🔀 🔎	Wind Power Density (80m)	Climate	AWS Truepower, LLC	Wind
😹 🔎	Wind Turbine Gross Capacity Factor	(1 Climate	AWS Truepower, LLC	Wind
🗶 📈	Wind Turbine Gross Capacity Factor	(8 Climate	AWS Truepower, LLC	Wind
🔀 🔎 🔍	Wind Turbine Site	Improvement	Federal Aviation Administration	

4) Click the Map icon (^{III}) to add a layer to the map. It will also be listed in the *Overlays* section of the *Map Contents* dialog.

- 5) If you would like to see the metadata for a particular layer, click on the PDF icon (^{ID}) next to the layer name. A PDF will open containing the metadata for that layer.
- 6) If you would like to download the layer for local use, click on the Download data icon ([¶]). A zip file with the GIS files for that layer will be downloaded.

Adding Model Layers

- 1) If you are interested in viewing the screening layers for a particular model, click the Library icon (^{Library}) in the upper left corner of the *Main Menu*.
- 2) In the Mapping Library dialog, click the *Model Layer Catalog* tab. Click on the plus (+) next to a layer name to display the abstract, publication date, and last date the layer was updated.

M	ap Layer Cata	og Model Layer Catalog		
ilte	er by Model:		~	
	Actions	Title 🔺	Category	Resource
3	Notroot Ar	100 Year Flood Zone	Hydrography I on the National Flood Hazard Layer (NFHL) A, A	E 44 and 40
	categories.	Date: 10 2011	i on the National Flood Nazard Layer (NFRL) A, A	ic, An, and Ao
٠	<u>×</u>	2012 Corn Stover	Flora	Biomass
	<u>×-</u>	Aquifer Area	Hydrography	
٠				
•	20 20	Bathymetry	Landform	
_		Bathymetry Coal Basin, Regions, and Fields	Landform Geology	Coal
٠				Coal Biomass
•	X	Coal Basin, Regions, and Fields	Geology	Biomass

3) There are two ways to filter the modeling layers in the Model Layer Catalog. The *Filter by Model* dropdown displays only the modeling layers for the selected model. You can also place the cursor over a heading (*Title, Category, or Resource*) and a down arrow appears to the right of the heading name. Click the down arrow to sort or filter the list. The *Category* and *Resource* columns list all possible options to sort by. Click the filters that you wish to use. The *Title* column allows you to choose a filter term. Place the cursor over *Filters* and type a word in the box that appears. You can remove the filters by unchecking the boxes at the bottom of the dialog.

Map Layer Catal	og Model Layer Catalog					
ilter by Model:		~	-			
Actions	Geopressured	•	•	Category	Resource	
Publication [Marine Tidal Hydrokinetic Land-based wind turbine (100 meter) Enhanced Geothermal Systems (EGS) High-Temperature Gas-cooled Reactor (HTGR) New Pulverized Coal (PC)	E		Hydrography d Layer (NFHL) A, AB	E, AH, and AO	
• 💦	Large Light-Water Reactor (LWR)			Flora	Biomass	
e 🔏	Land-based wind turbine (80 meter) Small Modular Reactor (SMR - iPWR)			Hydrography		
± 🔀	Compressed Air Energy Storage (CAES) Offshore wind turbine (80 meter)			Geology	Coal	
± 🔚	New Integrated Gasification Combined Cycle (IGCC) Offshore wind turbine (100 meter)			Utilities	Biomass	

Ma	ap Layer Catal	og Model Layer Catalog						
ilte	r by Model:	Model:		~				
	Actions	Title 🔺	Category	F	Resource			
ŧ	20	Habitat	Ecology	Å↓	Sort Ascending			
ŧ	2	Imperiled Species	Ecology	Z	Sort Descending			
					Filters	Þ		Boundary
								Buildings
						[Cadastre
						[Climate
						[Communications
						[Demographics
						[V 6	Ecology
						[Environmental H
of	53 layers	Filters: CATEGORY_NAME = V Ecolor	v			1		auna

- 4) Click the Map icon (\square) to add the layer to the map.
- 5) The selected layer is added to the *Map Contents* panel.

Removing Layers

- To remove a layer from the map but keep it in the *Map Contents* panel, uncheck its box.
- To remove a layer from the map <u>and</u> the *Map Contents* panel, right-click the layer name and then click Remove layer ([©] red circle with white minus sign). This does not permanently remove the layer from the application, but only from your *Map Contents* panel. To add the layer again at a later time, repeat the steps listed in the Adding Map Layers and Adding Model Layers sections above.

Using the Map Tools

The map tools are located at the top of the map and allow you to navigate the map.

6 d 4 s	Zoom to Max Extent	Click to display the map at its maximum extent (i.e., zoom out as far as possible).
۹,	Zoom by Dragging	When active, click or click-and-drag on the map to zoom to the selected area. Click the icon again to stop zooming.
	Zoom In	Click to zoom in one level on the map.
€	Zoom Out	Click to zoom out one level on the map.
	Identify	When active, click a feature on the map to retrieve more information about that specific feature. If there is more than one layer or feature at the click point, the information for each one will be listed in the results. Click the <i>Identify</i> tool icon again to stop using it.
		Important Bird Area (1046)
		Name A Value
		Accuracy 1
		GIN Identification Number 1714
		Important Bird Area Priority C Global
		Important Bird Area Site Name Grand River Grasslands-05
		Important Bird Area Status Recognized
		Important Bird Area Website http://iba.audubon.org/iba/prof
		Latitude 40.5028978466
=	Zoom to Previous Extent	Return to the previous zoom level/view.
\Rightarrow	Zoom to Next Extent	Go to the next zoom level/view (after going to Previous Extent).
1	Measure	Click the black down arrow, choose Length or Area, then click the map to draw a polygon to measure. Click once to draw each point on the line (Length) or polygon (Area). To complete the polygon, double click. Click the Measure tool again to stop measuring.
0	Print	Click the print icon to create a PDF file of the layers currently displayed on the map. (Note: Only the Open StreetMap base map option will include the base map in the PDF file.)

	Pan Controls	Use the pan controls to pan the map up and down, left and right.
+	Zoom In	Click to zoom in one level.
	Zoom Out	Click to zoom out one level.
	Zoom Slider	Click and drag the slider to zoom in (up) and out (down).

Creating an Analysis Area

- 1) Click the Areas icon (Areas) in the Main Menu panel. The Analysis Areas dialog opens.
- Click the New Analysis Area icon
 (New Analysis Area)
- 3) Add an analysis area to the map by clicking the mouse once for each point and double-clicking to complete the analysis area. Then the *Analysis Area* dialog will open to assign a name and notes for the analysis area.
- 4) Click Save. The analysis area will be listed in the Analysis Areas dialog. To display the analysis area on the map, click the box next to My Analysis Areas in the Overlays section of the Map Contents panel. A shaded region will then appear on your map. The analysis area can now be chosen in the Choose Region drop down when you run a report (See <u>Running a Report</u> for instructions).
- 5) There are several actions to choose in the *Actions* column of the *Analysis Area* dialog.
 - The Show/Hide Area icon (\mathbb{N}) controls whether individual analysis areas are shown on the map.
 - The Magnifying Glass icon (\bigcirc) zooms the map to the analysis area.
 - The Report icon (^{IIII}) runs a report on that analysis area (see <u>Running a Report</u>).

	1		
Actions	Name 🔺	Туре	Date/Time

Name:	My analysis area
Example analysis	; area for the user manual.

- The Edit icon (¹²⁷) allows the name and notes for analysis areas to be edited, and also copy and revise the copies on the map.
- The Delete icon (💙) permanently deletes the analysis area.

Corridor Routing

1) Click the Corridors icon (^{Corridors}) in the *Main Menu* panel. The *Corridor Tools* dialog opens.

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 Click on the Suitability Models tab. Corridor suitability models are used to score how suitable each location on the map is for a corridor, based on many siting factors. Each available siting factor is represented by

a screening layer in the models. You can choose an existing corridor suitability model, create one from scratch, or modify an existing model.

- 3) Click on the run model icon () to carefully inspect the default suitability models. These default models are just starting points and it's very important to tailor the siting factors to your unique situation. Model parameters can be adjusted using the steps in the <u>Running a Model</u> section.
- 4) To create your corridor, click on the New Corridor icon (^{Mew Corridor}). Select *Draw* to draw a corridor with multiple segments or *Generate from end points* to create a corridor in one segment.
- 5) Add a corridor centerline to the map by clicking the mouse once for each point and double-clicking the last point to complete the centerline. Then the *New Corridor* dialog will open to assign a width, name, suitability surface, quality, and notes for the corridor. The quality can either be Draft (low resolution, faster) or Final (high resolution, slower).
- 6) Click *Save*. View the status of your corridor run by clicking on the Results icon. The new corridor will be added to the My Corridors tab of the *Corridor Tools* dialog when complete. From this window, you can run reports if you're interested in more detailed information about the corridor.
- 7) You can repeat this same process to analyze different routing strategies by using different corridor suitability model settings. The result of this process is macro corridors which are the first step in a more detailed study of potential corridor routes.

Width (Ft.):	500				
Name:	New corridor				
Suitability Surface:	Select an existing model				
Quality:					
Notes					

- 8) There are several actions to choose in the Actions column of the Corridor Tool dialog.
 - The Show/Hide Area icon (B) controls whether individual corridors are shown on the map.
 - The Magnifying Glass icon (, zooms the map to the corridor.
 - The Report icon (¹) runs a report on that corridor (see <u>Running a Report</u>).

- The Edit icon (¹) allows the name and notes for corridors to be edited, and also copy and revise the copies on the map (see <u>Copying and Revising Corridors</u>).
- The Delete icon () permanently deletes the corridor.

Copying and Revising Analysis Areas

In some cases it is useful to copy and revise an analysis area to investigate alternate extents. For example, if a potential issue is found within an analysis area, an adjustment might avoid the issue.

- 1) Click the Areas icon (^{Areas}) in the *Main Menu* panel. The *Analysis Areas* dialog opens.
- 2) Click the Edit icon ($\stackrel{{\scriptstyle\swarrow}}{\scriptstyle\leftarrow}$) for the analysis area to be copied and revised.
- 3) The Analysis Area dialog will open, with **Copy** button added.

1

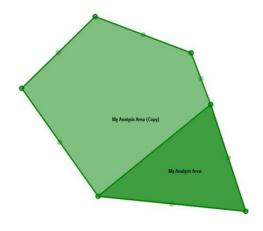
a for the user manual.

4) Clicking Copy displays the instructional dialog shown below. Click OK.



5) Until you click *Save* in the main dialog, you can change the name and notes and edit the analysis area boundary on the map. On the map, edit handles are shown at each point making up the analysis area. Click and drag these handles to move them. Midway between each point are lighter handles. Clicking and dragging these handles adds a new point to the shape. To delete a point, hold down the mouse button over a handle and hit the Delete key. Click *Save* when you are finished making changes.

The image below shows an example of an analysis area being revised.



200

Copying and Revising Corridors

In some cases it is useful to copy and revise a corridor to investigate alternate extents. For example, if a potential issue is found along a corridor route, an adjustment to the centerline or width might avoid the issue.

- 1) Click the Corridors icon (^{Corridors}) in the *Main Menu* panel. The *Corridor Tools* dialog opens.
- 2) Click the Copy and Modify icon (^{**}) for the corridor to be copied and revised. The instructional dialog shown below will appear. Click **OK**.

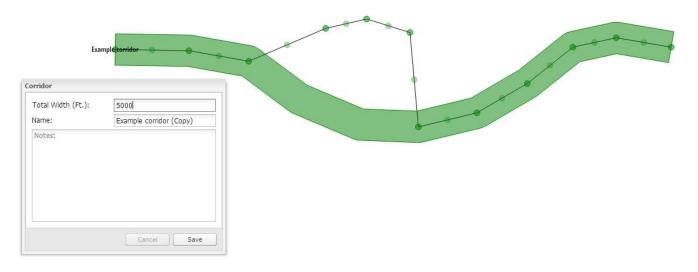


3) The New Corridor dialog will open.

w Corridor			
Width (Ft.):	500		
Name: Quality:	Example Corridor (Copy)		
	 Draft (low resolution, faster) Final (high resolution, slower) 		
example corridor	for the user manual		
example corridor	for the user manual		
example corridor	for the user manua		
example corridor	for the user manua		
example corridor	for the user manual		

4) Until you click *Save* in the main dialog, you can change the name and notes, change the width of the corridor, and edit corridor centerline on the map. On the map, edit handles are shown at each point making up the corridor centerline. Click and drag these handles to move them. Midway between each point are lighter

handles. Clicking and dragging these handles adds a new point to the shape. To delete a point, hold down the mouse button over a handle and hit the Delete key. Click *Save* when you are finished making changes.



The image below shows an example of a corridor being revised.

Running a Model

 Click the Analyze icon (^{Analyze}) in the *Main Menu* panel to open the *Analyze – Run Models and Reports* dialog. All of the available models are listed in the *Models* section of the dialog. Click on the plus (+) next to a model name to display a description of that model.

	manyze -	Run Models an	u reports		×
Mo	dels				
	Actions	Туре	Resource 🔺	Name	
3	and dedic Siting fac adequate populatio	cated energy crop tors for this mode biomass resource n density, land co	es, can be used to ge el are based on a 20 l es within 50 miles, di ver, slope, 100-year	New Biomass-fired Plant with Traditional Combustion (Lo est biomass and wood waste, agricultural biomass and waste, nerate electrical power in traditional combustion power plants. <i>IW</i> plant on a minimum of 15 acres, and include presence of stance to major roads, distance to barge ports, distance to rail, flood plain exclusion areas, distance to transmission lines of at creening layers (protected land and habitat).	•
Ð	-	Power Plant	Biomass	Biomass Co-fire with Existing Coal Plant (Barley straw)	
ŧ	124	Power Plant	Biomass	Biomass Co-fire with Existing Coal Plant (Logging Thinnin	
				Create New Mo	del
Re	ports				
	Actions	Resource *	Name		
-	344				
-	13	Biomass	Methane from A	nimal Manure Processing	
	Descript and oper Environm	tion: Lists total st ational, under con ental Protection A	ate manure biomass I struction/unknown, a	based on Bioenergy Knowledge Discovery Framework data; and shutdown anaerobic digester systems from U.S. Results are listed for the the counties and states overlapping	
E	Descript and oper Environm	tion: Lists total st ational, under con ental Protection A	ate manure biomass I struction/unknown, a gency AgStar data. I	based on Bioenergy Knowledge Discovery Framework data; and shutdown anaerobic digester systems from U.S. Results are listed for the the counties and states overlapping nces around it.	
	Descript and oper Environm the analy	tion: Lists total st ational, under con ental Protection A sis area, and two	ate manure biomass i struction/unknown, a gency AgStar data. f user-specified dista Methane from La	based on Bioenergy Knowledge Discovery Framework data; and shutdown anaerobic digester systems from U.S. Results are listed for the the counties and states overlapping nces around it.	

	LUU	nch	u	>
			Concentrating Solar Power (CSP)	
A	dd L	aye	(s) To Model Run	^
-	~			
	~			
	-			
	0		Biomass Production: Barley Straw (2012)	
15	Wei	ght	Name	
9	4	~	Concentrating Solar Direct Normal Potential	н
9	2	**	Slope	
3	1	~	Land Cover Area	
9	2	-	Distance to Rivers (>64,500 gpm)	
9	3	*	Landscan Population Density	
•	1	~	Distance to Transmission (>345 kV)	
5	2	-	Protected Lands	
3	2	^	Habitat	-
Na	me:	Co	ncentrating Solar Power (CSP) (modified)	
No				
140	100.			
Qua	iity:			uts.
			Add Model To Map After Successful Completion	
			Launch	,
	H H H H H H H H H H H H H H H H H H H	11 (2) 12 (2) 13 (2) 14 (2) 14 1 1 2 1 2 2 3 3	a) a) b) a) b) a) b) a) b) a) b) a) c) a)	Add Layer(s) To Hodel Run a 100 Year Flood Zone a Aquifer Area a Burnass Producton: Barky Straw (2012) a Burnass Producton: Barky Straw (2012) a Bornass Producton: Barky Straw (2012) a Concentrating Solar Direct Normal Potential a Sobe a Concentrating Solar Direct Normal Potential a Sobe a Concentrating Solar Direct Normal Potential a Concentrating Solar Direct Normal Potential a Concentrating Solar Power (CSP) (modified) a Data. Lower resolution Density a Data. Lower resolution run for shorter computation time and testino. Draft. Lower resolution run for shorter computation time and testino. Contell To Map. After Successful Completion

- 2) Click on the Run Model icon (¹/₂) to the left of a model name to open the *Model Launcher*.
- 3) The default screening layers and weights are displayed in the *Model Launcher* dialog. These settings are based on the recommendations of subject-matter experts familiar with the technology being modeled, but should be reviewed and revised by individual users to meet their analysis goals and assumptions. If desired, adjust the

relative weights given to each screening layer by increasing or decreasing the numbers to the left of the layer names from 1 to 10, with 1 meaning that the layer should be given the smallest possible influence on the model and 10 meaning that the layer should be given the highest possible influence on the model. You can also

remove a screening layer from the model run by clicking the Remove Layer icon (\bigcirc).

- 4) Additional screening layers can be added to the model run by clicking the down arrow next to *Add Layers(s) To Model Run* and clicking the Add layer icon (^(C)) next to the layer name.
- 5) To inspect or adjust the suitability values within a screening layer, click on the Edit Suitability Settings icon (²²) to the left of the layer name. The Suitability Adjustment dialog opens. To adjust suitability values for one of the ranges in a screening layer, type a value or use the arrows. Suitability values range from 0 (unsuitable) to 100 (most suitable). Click Save if you have made changes you want to keep, or Cancel, to return to the Model Launcher dialog.
- 6) If you would like to view a screening layer listed in the *Model Launcher* dialog on the map, you can add it using the *Model Layer Catalog* (see <u>Adding Model Layers</u>).

Suitability A (>345 kV)	djustment: Distance to Transmission 🗵							
overhead o line with at	Description: Distance in miles to nearest overhead or underground electric transmission line with at least 345kV capacity, based on Bentek Energy/Platts data.							
Suitability	Range in Miles							
100 🤤	No data							
100 🤤	0 - 5							
75 🗘	6 - 10							
50 🤤	11 - 15							
25 🗘	16 - 20							
5 🗘	21 - 50							
1 🗘	51 - 100000							
	Cancel Save							

7) Change the default name of the model and add any notes about the model run by typing in the boxes at the bottom of the *Model Launcher* dialog.

- 8) Choose to either run a draft model or a final model by selecting the quality at the bottom of the window. Draft models are run at a lower resolution and will not take as long to run. This can be used to test different models before a final, more detailed model is run.
- 9) Check the box at the bottom of the dialog to add the model to the map after the model run has completed.
- 10) When you have finished customizing the model run, click *Launch*. You can view the status of your model run by

clicking on the Results icon (^{Results}). The *Analysis Results* dialog will open. The status will be displayed as an hourglass while the model is running and a check mark when the model is complete.

The Analysis Results dialog also lists default versions of each model as System runs. You can add these model results to the map and view them without having to run the model.

	Actions	Туре	Owner	Status	Name	Extent	Created 🔺	
Ð	🔀 🛃 🎲 🥪 👄	Model	Me	v	Concentrating Solar Pow	EISPC Region	7/17/2013 1:20 PM	ļ
Ð	🔀 🛃 🍪 🔹 🛛	Model	System	V	Geopressured (default)	EISPC Region	11/14/2013 11:35 AM	í
8	🔀 🛃 🎲 o 🛛 o	Model	System	V	Marine Tidal Hydrokinetic	EISPC Region	11/14/2013 11:35 AM	í
3	🔀 🛃 🎲 o 🛛 o	Model	System	V	Land-based wind turbin	EISPC Region	11/14/2013 11:35 AM	i
3	🔀 🛃 🎲 🔹 🔹	Model	System	V	Enhanced Geothermal S	EISPC Region	11/14/2013 11:35 AM	Ī
8	🔀 🛃 🎲 o 🛛 o	Model	System	V	High-Temperature Gas-c	EISPC Region	11/14/2013 11:35 AM	Í
9	🔀 🛃 🎲 o 🛛 o	Model	System	V	New Pulverized Coal (PC	EISPC Region	11/14/2013 11:35 AM	I
9	🔀 🛃 🎲 o 🛛 o	Model	System	V	Large Light-Water React	EISPC Region	11/14/2013 11:36 AM	I
3	🔀 🛃 🎲 o 🛛 o	Model	System	V	Land-based wind turbin	EISPC Region	11/14/2013 11:36 AM	Í.
9	🔀 🛃 🎲 o 🛛 o	Model	System	V	Small Modular Reactor (EISPC Region	11/14/2013 11:36 AM	I
9	🔀 🛃 🎲 o 🛛 o	Model	System	V	Compressed Air Energy	EISPC Region	11/14/2013 11:36 AM	I
3	🔀 🛃 🎲 o 🛛 o	Model	System	~	Offshore wind turbine (8	EISPC Region	11/14/2013 11:37 AM	I
9	🔀 🛃 🎲 o 🛛 o	Model	System	~	New Integrated Gasificat	EISPC Region	11/14/2013 11:38 AM	I
E					III			

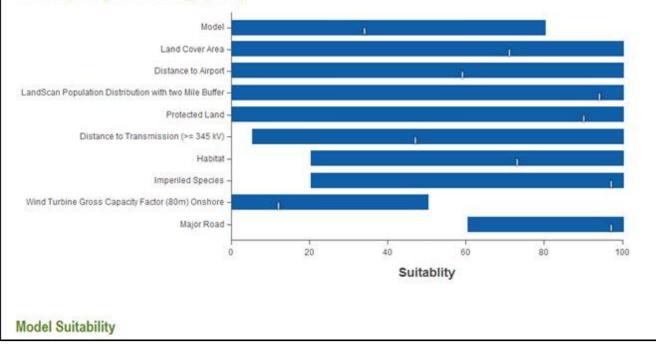
11) There are several actions to choose in the Actions column of the Analysis Results dialog.

- The Add Results icon (^{IIII}) allows you to add model results to the *Map Contents* panel, and the map.
- The Report icon (
- The Modify Model icon (^{***}) opens up the *Model Launcher* dialog with the model settings saved. The settings can be revised and run as a new model.
- The Edit icon (🔛) allows you to edit the name and notes for personal model runs.
- The Delete icon () allows you to permanently delete personal model runs.

Model Results Report Location Analyzed: Analysis Area1 The area of interest is located at 36° 20' 2.468" N, 91° 15' 34.317" W . It covers some or all of Baxter, Clay, Craighead, Fulton, Greene, Independence, Izard, Jackson, Lawrence, Marion, Mississippi, Poinsett, Randolph, Sharp, Stone, and Woodruff in Arkansas and Butler, Carter, Douglas, Dunklin, Howell, Oregon, Ozark, Reynolds, Ripley, Shannon, Texas, and Wayne in Missouri. It has an area of 11061.155 square miles . Report Parameters

Penion Tume:	Analysis Area
Region Type:	
Region:	Analysis Area1
Model:	Land-based wind turbine (80 meter) (modified)

Suitability Range With Average (Mean)

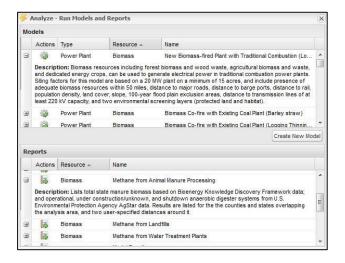


The Model Results Report is very useful for understanding the results of any suitability model for an analysis area and documenting the specific layers and settings that were used in the model. It displays results for the composite model output and each model input layer. The first graph shows the mean and total range of suitability values in the model output and each input layer for the analysis extent for which it was run. In this example, the overall output in the analysis area was not very suitable (mean of approximately 35) and ranged from unsuitable (0) to about 80. Contributions to the score of each input can be rapidly assessed. Those with higher means were generally more favorable (such as population density), and those with lower means (such as transmission proximity and wind turbine gross capacity factor) were generally less favorable. With one of the most important factors of wind turbine gross capacity factor being unsuitable to marginally suitable for this location, it is doubtful that this region would be advantageous for siting wind turbines.

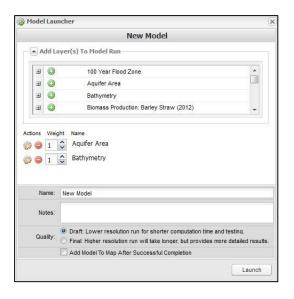
Advanced Modeling Features

Designing a Model from Scratch

1) Click the Analyze icon (^{Analyze}) in the *Main Menu* panel. The *Analyze – Run Models and Reports* dialog opens.



2) Click on Create New Model underneath the models section. The Model Launcher dialog opens.



- 3) Screening layers can be added to the model by clicking the down arrow next to Add Layers(s) To Model Run and clicking the Add layer icon (^(O)) next to the layer name.
- 4) If desired, adjust the relative weights given to each screening layer by increasing or decreasing the numbers to the left of the layer names from 1 to 10, with 1 meaning that the layer should be given the smallest possible influence on the model and 10 meaning that the layer should be given the highest possible influence on the

model. You can also remove a screening layer from the model run by clicking the Remove Layer icon (\bigcirc).

5) Change the default name of the model and add any notes about the model run by typing in the boxes at the bottom of the Model Launcher dialog.

- 6) Choose to either run a draft model or a final model by selecting the quality at the bottom of the window. Draft models are run at a lower resolution and will not take as long to run. This can be used to test different models before a final, more detailed model is run.
- 7) Check the box at the bottom of the dialog to add the model to the map after the model run has completed. Click

Launch. You can view the status of your model run by clicking on the Results icon (^{Results}). The *Analysis Results* dialog will open. The status will be displayed as an hourglass while the model is running and a check mark when the model is complete.

	Actions	Туре	Owner	Status	Name	Extent	Created -
ŧ	📉 🛃 🎲 🤛 👄	Model	Me	~	New Model	EISPC Region	12/9/2013 12:53 F 🔺
ŧ	🔀 🛃 🎲 🔹 🔹	Model	System	V	New Biomass-fired Plant wi	EISPC Region	11/14/2013 11:40
ŧ	🔀 🛃 🔅 🔹 🛛	Model	System	V	Biomass Co-fire with Existin	EISPC Region	11/14/2013 11:40 🚽
1				III	1		4

- 8) There are several actions to choose in the Actions column of the Analysis Results dialog.
 - The Add Results icon (I) allows you to add model results to the Map Contents panel, and the map.
 - The Report icon (^{IIII}) runs a model results report on that model.
 - The Modify Model icon (^{***}) opens up the Model Launcher dialog with the model settings saved. The settings can be revised and run as a new model.
 - The Edit icon (🥙) allows you to edit the name and notes for model runs.
 - The Delete icon (^(C)) allows you to permanently delete model runs.

Running a Report

 Click the Analyze icon (^{Analyze}) in the *Main Menu* panel. The *Analyze – Run Models and Reports* dialog opens. All of the available reports are listed in the *Reports* section of the dialog. Click on the plus (+) next to a report name to display a description of that report.

	dels				
	Actions	Туре	Resource 🔺	Name	
8	and dedic Siting fac adequate populatio	cated energy crop tors for this mode biomass resourc n density, land co	us, can be used to ge are based on a 20 f es within 50 miles, di ver, slope, 100-year	New Biomass-fired Plant with Traditional Combusti est biomass and wood waste, agricultural biomass and nerate electrical power in traditional combustion power Wy plant on a minimum of 15 acres, and include preser istance to major roads, distance to barge ports, distance flood plain exclusion areas, distance to transmission lin creening layers (protected land and habitat).	waste, r plants. nce of ce to rail,
ŧ		Power Plant	Biomass	Biomass Co-fire with Existing Coal Plant (Barley st	raw)
Ð	104	Power Plant	Biomass	Biomass Co-fire with Existing Coal Plant (Logging 1	Thinnin 🔻
				Create	New Model
Re	ports				
	Actions	Resource 🔺	Name		
20	d-v				
-	13	Biomass		nimal Manure Processing	^
-	Descript and oper Environm	tion: Lists total st ational, under con ental Protection A	ate manure biomass struction/unknown, a	based on Bioenergy Knowledge Discovery Framework and shutdown anaerobic digester systems from U.S. Results are listed for the the counties and states overla	data;
	Descript and oper Environm	tion: Lists total st ational, under con ental Protection A	ate manure biomass struction/unknown, a gency AgStar data. I	based on Bioenergy Knowledge Discovery Framework and shutdown anaerobic digester systems from U.S. Results are listed for the the counties and states overla nces around it.	data;

2) Select a report by clicking on the Run Report icon (

Note: The Corridor report can only be run for corridors.

- 3) In the *Region* section of the *Report Run Launcher* dialog, use the *Type* drop-down menu to choose whether to run a report on an analysis area, corridor, state, or county. Then use the subsequent drop-down menu to select the specific choice within that group that you would like to run your report on.
- Contents of the *Parameters* section vary, depending on the report. For the report shown, two buffer distances can be specified around the analysis area.
- 5) You can change the default name of the report and add any notes about the report by typing in the boxes at the bottom the *Report Run Launcher* dialog.
- When you have finished customizing your report run, click Launch Report. You can view the status of your report run by

un Launcher		×
Non-power	ed Dams	~
Analysis Are	ea	~
Analysis Are	ea1	~
ers		
	25	
ne I (mi):	25	
ne 2 (mi):	50	
Non-power	ed Dams Report	
		Launch Report
	Non-power Analysis Are Analysis Are ers ne 1 (mi): ne 2 (mi):	ne 1 (mi): 25

of

clicking on the Results icon (^{Results}). The *Analysis Results* dialog will open. The status will be displayed as an hourglass while the report is running, and a check mark when the report is complete.

- 7) There are several actions to choose in the *Actions* column of the *Analysis Results* dialog.
 - The Display Report icon (¹) allows you to view your report in a new browser tab. See the example Electrical Transmission Report below. The report can be saved or printed using standard browser functions.

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- The Edit icon (⁹²⁷) allows you to edit the name and notes for your report.
- The Delete icon ($\stackrel{\scriptsize{\scriptsize{\bigcirc}}}{=}$) allows you to permanently delete your report.

📄 An	alysis Results							×
	Actions	Туре	Owner	Status	Name	Extent	Created -	
±	• 📃 • 🔯 🖨	Report	Me	v	Non-powered Dams Report	Clarke, Mississippi	12/4/2013 2:06 PM	-
±	N 🗟 🐉 🔹 🛛	Model	System	V	New Biomass-fired Plant	EISPC Region	11/14/2013 11:40 AM	=
±	🔀 🛃 🎲 o 🛛 o	Model	System	V	Biomass Co-fire with Exi	EISPC Region	11/14/2013 11:40 AM	
±	🔀 🛃 🎲 o 🛛 o	Model	System	V	Biomass Co-fire with Exi	EISPC Region	11/14/2013 11:39 AM	-
•					III		4	
R	efresh							

EZMT | Energy Zones Mapping Tool

Electrical Transmission Report

Location Analyzed: Analysis Area1

The area of interest is located at 36° 20' 2.468" N , 91° 15' 34.317" W . It covers some or all of Baxter, Clay, Craighead, Fulton, Greene, Independence, Izard, Jackson, Lawrence, Marion, Mississippi, Poinsett, Randolph, Sharp, Stone, and Woodruff in Arkansas and Butler, Carter, Douglas, Dunklin, Howell, Oregon, Ozark, Reynolds, Ripley, Shannon, Texas, and Wayne in Missouri. It has an area of 11061.155 square miles with surrounding buffers of areas 23164.415 and 39169.183 square miles .

Existing Transmission Lines

Voltage Category	Total Length (mi) within Analysis Area	Total Length (mi) within 25 Miles of Analysis Area	Total Length (mi) within 50 Miles of Analysis Area
100kV or Lower	0.00	0.14	153.85
115kV - 161kV	958.94	1,814.07	3.212.47
220kV - 315kV	0.00	0.00	366.01
345kV - 450kV	49.09	143.15	303.20
500KV - 525KV	85.04	178.59	519.55
TOTAL	1.093.07	2,135,95	4,555.08

Exiting the Mapping Tool

To exit the mapping tool, simply close the browser window or tab, or click *Logout* in the upper right hand corner of the screen. Your layers in your *Map Contents* panel as well as your model runs and reports are saved as you work and can be accessed the next time you log in to the mapping tool.