

EISPC

EASTERN INTERCONNECTION STATES' PLANNING COUNCIL

EISPC Energy Zones Mapping Tool and Policy Inventory

Webinar hosted by
Warren Leon
CESA Deputy Director

April 22, 2013

Housekeeping

- All participants will be in listen-only mode throughout the broadcast.
- You can connect to the audio portion of the webinar using your computer's speakers or a headset. You can also connect by telephone. If by phone, please expand the Audio section of the webinar console to select "Telephone" to see and enter the PIN number shown on there onto your telephone keypad.
- You can enter questions for today's event by typing them into the "Question Box" on the webinar console. We will pose your questions, as time allows, following the presentations.

CESA and the RPS Collaborative

- CESA: a national nonprofit coalition of state and municipal clean energy funds working with federal, state, industry, and other stakeholders to implement smart clean energy policies, programs, and financing tools.
- The State-Federal RPS Collaborative was established to advance dialogue and cooperation among a broad network of state government officials and NGO experts. It is supported by the US Department of Energy and the Energy Foundation.

Today's Speakers

Donna Brunner

Argonne National Laboratory

Dbrunner@anl.gov

Kevin Hlava

Argonne National Laboratory

Khlava@anl.gov

Warren Leon

Clean Energy States Alliance

WLeon@cleanegroup.org

Heather Rhoads-Weaver

eFormative Options, LLC

heather@eformativeoptions.com

<https://eispctools.anl.gov>

EISPC Energy Zones Study

Energy Zones Mapping Tool Demonstration

April 22, 2013

**Presented (via web conference) by:
Donna Brunner and Kevin Hlava**

Argonne National Laboratory



Overview

- **Collaborative effort:**
 - **Eastern Interconnection States Planning Council (EISPC) Energy Zones (EZ) Study**
 - **Argonne, NREL, and ORNL**
 - **DOE-funded**
- **EZ Study Objectives, Clean Energy Resource Categories/Technologies**
- **EZ Mapping Tool Capabilities**
 - **EZ Mapping Tool released – March 2013**
- **Demonstration**

EISPC Energy Zones Study

Objectives:

- **Compile clean energy (low or no carbon) resource data for 9 clean energy resource categories**
- **Develop web-based GIS mapping tool that utilizes clean energy resource availability and flexible screening factors**
- **Provide policy and law information that encourages or inhibits potential clean energy resource development**
- **Enable States to collaborate on long-term transmission planning**

EISPC Energy Zones Study



Wind



Biomass



Clean Coal (with
carbon capture and storage)



Water

Nine Clean Energy Resource Categories



Geothermal



Storage



Solar



Nuclear



Natural Gas

Clean Energy Technologies

Biomass

- New biomass-fired plant with traditional combustion
- Biomass co-fire with existing coal plant
- Landfill gas extraction and plant inventory
- Methane extraction from wastewater treatment
- Methane extraction from animal manure processing

Clean Coal

- New clean pulverized coal technology
- New integrated gasification combined cycle
- New coal fluidized bed
- Retrofitted pulverized coal

Geothermal

- Enhanced geothermal system
- Geopressured geothermal

Natural Gas (planned for June 2013)

- Combined cycle
- Underground natural gas storage
- Above-ground natural gas storage

Nuclear

- Large light-water reactor
- Small modular reactor, integral pressurized-water reactor
- High-temperature gas cooled reactor/
Very high temperature gas-cooled reactor

Solar

- Concentrating solar power
- Utility-scale photovoltaic
- Rooftop photovoltaic solar

Storage

- Hydroelectric pumped storage
- Compressed air energy storage

Water

- Added output from existing hydropower dam
- New output from existing non-powered dam
- In-stream hydrokinetic energy
- Tidal hydrokinetic energy
- Wave energy

Wind

- Land-based wind turbine
- Offshore wind turbine

 Suitability model

 Report based on inventory
or basic resource

EZ Mapping Tool - Capabilities

Mapping Tool Capabilities:

- **View and query map layers (over 260 in catalog)**
- **Run models to identify areas of high suitability**
- **Run reports for user-specified analysis areas**
- **Access energy-related policy and incentive information**
- **Assist with clean energy resource development and preliminary transmission planning**



Questions and Comments

- Register for the tool here:
<http://eispctools.anl.gov>
- Questions/comments at any time to:
eispctools@anl.gov

EISPC Energy Zones Policy Inventory

Warren Leon and Heather Rhoads–Weaver
April 22, 2013



Policy Inventory Tasks

- ▶ Compile all the clean energy laws, regulations, incentives, and other policies in all the EISPC states, plus Canadian provinces, related to clean energy electricity generation
- ▶ Place these policies into an inventory that can be easily searched on the EISPC Energy Zones Mapping Tool

Populating the Inventory

- ▶ Started with the DSIRE database
 - Database for State Incentives for Renewables & Efficiency, funded by U.S. DOE and implemented by the North Carolina Solar Center and the Interstate Renewable Energy Council
- ▶ Added a wide range of other policies
 - Technologies (e.g., nuclear, natural gas, coal) and types of policies (e.g., environmental regulations, state economic development incentives, climate action plans, forestry policies) not included or covered comprehensively in DSIRE
 - Not all natural gas and Canadian policies
- ▶ All the policies are displayed equally and equally searchable in the EZ mapping tool

Policy Search Demonstration

- ▶ Go to: <https://eispctools.anl.gov>
 - Use this as your starting point
 - To enable saving work, create an account and login
 - Both DSIRE and added policies “feed” into search

Launching Policy Search

EISPC EZ Mapping Tool

Home | About the Study | Energy Resources | **Policies & Regs** | Maps | Documents | Links | Launch Tool

EISPC EZ Mapping Tool

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

Launch Tool

About the Tool

The EISPC EZ Mapping Tool is a free online mapping tool that enables users to identify potential clean energy resource areas within the Eastern Transmission Interconnection.

This web site provides information [about the study](#), background on the [energy resources](#), and details on the [data](#) layers used in the tool. There are also links to printable [maps](#), [documents](#), and related [links](#).

Features

- Eight energy resources: [Biomass](#), [Clean Coal](#), [Geothermal](#), [Nuclear](#), [Solar](#), [Storage](#), [Water](#), and [Wind](#)
- Flexible analysis of siting factors such as slope and land protections
- Analysis of potential collocation of energy technologies
- Informed analysis to reduce new transmission construction

Getting Started

The EZ Mapping Tool is an easy-to-use web-based mapping system. Click the launch button above to start. If you need help, use the Help menu at the top of the page.

We are interested in your feedback. Please complete our short [survey](#). Your input will be used to evaluate the quality and value of this web site.

News

April 05, 2013
[New Scale Limitations - Energy Infrastructure Data](#)
The energy infrastructure data within the EISPC EZ Mapping Tool now have scale...

March 29, 2013
[New Interface](#)
Version 3.0 of the mapping tool has been released with an improved user interface and...

Partners and Sponsors

The study is led by the Eastern Interconnection States' Planning Council (EISPC). The research support and technical assistance to EISPC is provided by Argonne National Laboratory, National Renewable Energy Laboratory, and Oak Ridge National Laboratory. Funding is provided by the U.S. Department of Energy. [More >](#)

Privacy/Security | News | About Us | User Community | Contact Us

Data | **Policies & Regs** | Maps

EISPC EZ Mapping Tool

Search for Policies & Regulations

Provide policy updates or edits to eispctools@anl.gov.

Country/State/Province

- Alabama
- Arkansas
- Connecticut
- Delaware
- District of Columbia
- Florida
- Georgia
- Illinois
- Indiana**

Policy Type

- mandatory utility green power option
- Net Metering
- PACE Financing
- Performance-Based Incentive
- Personal Tax Incentives
- Property Tax Incentive
- Public Benefits Fund
- Rebate Program
- Renewables Portfolio Standards and Goals**

Implementation Sector

- Federal
- Local
- Non-Profit
- State/Province**
- Utility

Affected Technologies

- Energy Storage
- Fuel Cells
- Geothermal Electric
- Hydroelectric
- Natural Gas
- Nuclear
- Solar Photovoltaics
- Tidal Energy
- Wave Energy**

Found 1 results

[Qualifying RPS State Export Markets \(Indiana\)](#)

↓ [Show the Summary](#)

Policy Type	Renewables Portfolio Standards and Goals
Affected Technologies	Biomass/Biogas, Concentrating solar power, Energy Storage, Geothermal Electric, Hydroelectric energy, Small Hydroelectric, Photovoltaics, Wave Energy, Wind energy, Coal with CCS, Nuclear, Natural Gas
Implementation Sector	State/Province
Applicable Sectors	Developer
Jurisdiction	Out-of-state RPS

Authority 1	Delaware RPS
Website	http://en.openei.org/wiki/Renewables_Portfolio_Standard_%28Delaware%29
Authority 2	District of Columbia RPS
Website	http://en.openei.org/wiki/Renewables_Portfolio_Standard_%28District_of_Columbia%29
Authority 3	Illinois RPS
Website	http://en.openei.org/wiki/Renewable_Portfolio_Standard_%28Illinois%29
Authority 4	Indiana RPS
Website	http://en.openei.org/wiki/Clean_Energy_Portfolio_Goal
Authority 5	Maryland RPS
Website	http://en.openei.org/wiki/Renewable_Energy_Portfolio_Standard_%28Maryland%29
Authority 6	Michigan RPS
Website	http://en.openei.org/wiki/Renewable_Energy_Standard_%28Michigan%29
Authority 7	Minnesota RPS
Website	http://en.openei.org/wiki/Renewables_Portfolio_Standard_%28Minnesota%29
Authority 8	Missouri RPS
Website	http://en.openei.org/wiki/Renewable_Electricity_Standard_%28Missouri%29
Authority 9	New Jersey RPS
Website	http://en.openei.org/wiki/Renewables_Portfolio_Standard_%28New_Jersey%29
Authority 10	North Carolina RPS

RPS Sales Opportunities

Generator Location	Renewable Energy Sales Targets: Where Generation Qualifies for RPS
Alabama	NC (if energy delivered to in-state utility)
Arkansas	KS (if energy delivered)
Connecticut	CT, MA, ME, NH, RI, VT; NY (if energy is delivered)
DC	DC, DE, IN (up to 50% of compliance), MD, NJ, PA, VA, WV
Delaware	DC, DE, IN (up to 50% of compliance), MD, NJ, PA, VA, WV
Florida	NC (if energy delivered to in-state utility)
Georgia	NC (if energy delivered to in-state utility)
Illinois	IL, IN, OH (if energy is deliverable); DE, MD and NJ (if delivered to PJM), PA*, WI (if delivered), MN (if participating in M-RETS)
Indiana	IN, IL, MI (if owned by a MI utility), MN (if registered in M-RETS), OH (up to 50% of compliance), PA*; DC, DE, MD, NJ, VA, WV (if energy is delivered to PJM); WI (if energy is delivered)
Iowa	MN, IL, IN, ND, SD, OH (if energy is deliverable), DE, MD, NJ (if energy is delivered to PJM)
Kansas	KS
Kentucky	IL, OH (up to 50% of compliance); DC, DE, MD, NJ (if energy is delivered to PJM); IN, VA, WV (if generator located in PJM)
Louisiana	NC (if energy delivered to in-state utility)
Maine	CT, MA, ME, NH, RI, VT (Northern ME must deliver to NEPOOL for other NE states); NY (if energy is delivered)

* Generators located in PJM may sell to any LSE in PA; generators located in MISO may sell to LSEs serving PA load in MISO.

RPS Sales Opportunities

Generator Location	Renewable Energy Sales Targets: Where Generation Qualifies for RPS
Maryland	DC, DE, MD, NJ, PA, VA, WV; IN (up to 50% of compliance)
Massachusetts	CT, MA, ME, NH, RI, VT; NY (if energy is delivered)
Michigan	MI, PA*; DE, MD, NJ (if energy delivered to PJM); OH (up to 50% of compliance, must be deliverable), WV and VA only if generator located in southwestern MI served by PJM
Minnesota	MN, IN, PA*, OH (if energy is deliverable), WI (if energy is delivered)
Mississippi	NC (if energy delivered to in-state utility)
Missouri	IL, MO; IN (up to 50% of compliance, and if generator is in MISO); KS (if energy is delivered)
Montana (eastern)	MN, WI (if energy is delivered); DC, DE, MD and NJ (if energy is delivered to PJM)
Nebraska	RPS states with no or minimal geographic limitations or energy delivery requirements include IL (if insufficient cost-effective resources in-state or in adjoining states), MO (RECs may be required to be transferred to NAR), NC (up to 25% of compliance), ND and SD
New Hampshire	CT, MA, ME, NH, RI, VT; NY (if energy is delivered)
New Jersey	DC, DE, MD, NJ, PA, VA, WV; IN (up to 50% of compliance)
New Mexico (eastern)	NM, KS (if energy is delivered)
New York	NY, DC, MD; CT, MA, ME, NH, RI (with energy delivery to NEPOOL); DE, NJ (with energy delivery to PJM)
North Carolina	NC, DC, MD; DE and NJ (if energy is delivered to PJM); WV and VA (if generator is located in PJM)
North Dakota	ND, SD, MN, WI (if energy is delivered); DE, MD, and NJ (if energy is delivered to PJM)

RPS Sales Opportunities

Generator Location	Renewable Energy Sales Targets: Where Generation Qualifies for RPS
Ohio	DC, DE, IN, MD, NJ, OH, PA*, VA, WV; NC and NY (if energy delivered); MI (if generator is in the out-of-state service area of a MI utility)
Oklahoma	OK; KS and NM (if energy is delivered)
Pennsylvania	DC, DE, IN, MD, NJ, PA, VA, WV; NC and NY (if energy delivered), OH (up to 50%, energy must be deliverable)
Rhode Island	CT, MA, ME, NH, RI, VT; NY (if energy is delivered)
South Carolina	NC (if energy delivered to in-state utility)
South Dakota (except SW)	ND, SD, MN, WI (if energy is delivered); DE, MD and NJ (if energy is delivered to PJM)
Tennessee	NC (if energy delivered to in-state utility)
Texas (panhandle)	TX; KS and NM (if energy is delivered)
Vermont	CT, MA, ME, NH, RI, VT; NY (if energy is delivered)
Virginia	DC, DE, IN, MD, NJ, PA, VA, WV; NC (if energy delivered), OH (up to 50%, energy must be deliverable)
West Virginia	DC, DE, IN, MD, NJ, PA, VA, WV; NC (if energy delivered), OH (up to 50%, energy must be deliverable)
Wisconsin	MN, WI, MI (if generator is in the out-of-state service area of a MI utility)

NOTE: Sales opportunities unrelated to RPS policies, e.g. voluntary markets, are not mentioned because geographic limitations often do not apply. IN, ND, OK, SD, VA, VT have voluntary goals; REC prices in such markets may be lower.

North Dakota Policies in DSIRE

1. Business Energy Efficiency Rebates (Offered by 5 Utilities)
2. Geothermal Tax Credit
3. Large Wind Property Tax Reduction
4. Net Metering
5. Renewable and Recycled Energy Objective
6. Renewable Energy Property Tax Exemption
7. Renewable Energy Tax Credit
8. Sales and Use Tax Exemption for Electrical Generating Facilities
9. Sales and Use Tax Exemption for Gas Processing Facilities
10. Sales Tax Exemption for Hydrogen Generation Facilities
11. Solar Easements
12. Wind Easements

North Dakota Policies Added

1. Air Pollution Control
2. Appropriation of Water
3. Business Development Loan Program
4. Coal Conversion Facility Privilege Tax Exemptions
5. Coal Mining Reclamation
6. Coal Severance Tax
7. Common Pipeline Carriers
8. Control, Prevention, and Abatement of Pollution of Surface Waters
9. Dakota CDC Intermediary Relending Program
10. Dams, Dikes, and Other Devices: Dam Safety Program
11. Dredged and Fill Material Disposal
12. Electric Companies & Electric Transmission Lines
13. Electrical Generation Facility Tax Exemptions
14. Energy Policy Commission
15. Flex PACE Program
16. Forestry Policies
17. Garrison Diversion Conservancy District
18. Ground Water Protection
19. Hazardous Waste Management
20. Interstate Mining Compact Commission
21. Interstate Oil & Gas Conservation Act Compact
22. Little Missouri State Scenic River Act
23. MATCH Program
24. Main Street Loan Program
25. Mining and Gas and Oil Production
26. Nature Preserves
27. North Dakota Energy Conversion and Transmission Facility Siting Act
28. Oil and Gas Gross Production Tax
29. Partnership in Assisting Community Expansion (PACE) Program
30. Qualifying RPS State Export Markets
31. Radiation
32. Renaissance Zones
33. Soil Conservation Districts Law
34. Solid Waste Management and Land Protection
35. Venture Capital Program
36. Water Distribution & Wastewater Systems Operators
37. Water Management Plans for Surface Coal Mining Operations
38. Water Resource Districts
39. Waters: General Provisions
40. Wetlands
41. Workforce 20/20
42. Yellowstone River Compact

Sample Entries for Wisconsin



Dam Design and Construction (Wisconsin)

From Open Energy Information

No revision has been approved for this page. It is currently under review by our subject matter experts.

Last modified on October 17, 2012.

EZFeed Policy

Place	Wisconsin
Name	Dam Design and Construction (Wisconsin)
Policy Category	Other Policy
Policy Type	Siting & Permitting
Affected Technologies	Hydroelectric, Hydroelectric (Small)
Active Policy	Yes
Implementing Sector	State/Province
Start Date	1985
Primary Website	http://dnr.wi.gov/topic/Dams/documents/nr333.pdf 
Information Source	http://dnr.wi.gov/topic/Dams/hydroElectric.html 

Summary

These regulations apply to dams that are not owned by the U.S. government and (a) have a structural height of more than 6 feet and a maximum storage capacity of 50 acre–feet or more of water, (b) have a structural height of 25 feet or more and a maximum storage capacity of more than 15 acre–feet of water, or (c) have a structural height of 6 feet or less or a maximum storage capacity of less than 50 acre–feet of water if the department determines that the dam is likely to endanger life, health or property if it is not designed, constructed or reconstructed in accordance with this chapter. Dams are exempt from the requirements of these regulations if they meet requirements which are at least as restrictive. Prior to dam construction or reconstruction, hazard ratings must be assigned to the project and estimated costs must be calculated. Additionally, a professional engineer registered in the state of Wisconsin must prepare several documents, which must be submitted to and approved by the Department of Natural Resources prior to the start of the project. These documents include plans and specifications for the dam project, as well as hydraulic, hydrologic, and stability analyses.

Energy and Utility Project Review (Wisconsin)

From Open Energy Information

No revision has been approved for this page. It is currently under review by our subject matter experts.

Last modified on October 26, 2012.

EZFeed Policy

Place	Wisconsin
Name	Energy and Utility Project Review
Policy Category	Other Policy
Policy Type	Siting & Permitting
Affected Technologies	Biomass and Biogas, Coal with CCS, Concentrating Solar Power, Energy Storage, Fuel Cells, Geothermal Electric, Hydroelectric, Hydroelectric (Small), Natural Gas, Nuclear, Solar Photovoltaics, Tidal Energy, Wave Energy, Wind energy
Active Policy	Yes
Implementing Sector	State/Province
Program Administrator	Wisconsin Department of Natural Resources
Primary Website	http://dnr.wi.gov/topic/Sectors/PowerPlants.html
Information Source	http://dnr.wi.gov/topic/Sectors/Energy.html

Summary

The DNR's Office of Energy & Environmental Analysis is responsible for coordinating the review of all proposed energy and utility projects in the state. The Office provides project management within DNR, acting as the main point of contact for project applicants, the Public Service Commission (PSC), other DNR programs and affected stakeholders. The Office provides statewide guidance and consistent application of the regulatory processes established by statutes and rules and provide a corps of experienced natural resource experts whom understand the specifics of energy and utility projects.

While the primary mission is to coordinate the regulatory review for siting utility projects, the Office also serves all DNR programs by developing guidance and information on natural resources issues as they relate to the broader planning and infrastructure development efforts for Wisconsin's energy future.

Policy Contact

Contact Name	David Siebert, Director
Department	Department of Natural Resources
Division	Office of Energy and Environmental Analysis
Phone	608-264-6048
Email	david.siebert@wisconsin.gov

For Questions and Help Using Tool

- ▶ Slides and recording from today's webinar
- ▶ Send general questions and comments on EZ Mapping tool to:
 - eispctools@anl.gov
 - Link shown under navigation bar, also in Contact Us
- ▶ For feedback or questions on policy inventory, contact Val Stori (CESA staff member) at:
 - Val@cleanegroup.org
 - 802-223-2554

State Overviews in Development

- ▶ Identified main state policies that have been and will likely be particularly significant in leading to clean energy development

Introduction to Maine

Electricity Generation

In 2012 electricity generators in Maine generated 15,049 megawatt-hours of electricity. The following energy sources were used:

Natural gas	41.1%
Biomass	26.0%
Hydroelectric	23.4%
Wind	5.9%
Petroleum	0.7%
Coal	0.3%
Other	2.6%

Policy Context for Clean Energy

- Maine encourages the development of clean energy sources through a diverse and broad array of policies including tax credits, loans, rebates, net metering, community-based renewable energy, a renewable portfolio standard, and a system benefit charge fund.
- Maine has one of the most ambitious renewable standards in the nation. It provides a credit multiplier for community ownership of projects up to 10 MW and includes a set aside for 2,000 MW of wind energy by 2015 up to 8,000 MW by 2030 with 5,000 MW consisting of offshore wind energy.
- Natural gas will remain and grow as a primary fuel source for electrical generation while Maine aggressively pursues increased use of energy efficiency and renewable energy technologies.
- The Governor's Energy Office provides leadership in the development of public and private partnerships, works in conjunction with other state agencies, the Legislature, and private and nonprofit sectors, and oversees and administrates the federal State Energy Program (SEP) funds and priorities.
- Efficiency Maine Trust was created to consolidate and integrate energy programs, acquire efficiency and alternative energy resources, and to transform Maine's energy markets. In 2012, it derived approximately half of its \$34.2 million funding from a System Benefits Charge and Regional Greenhouse Gas Initiative.
- Maine is a net exporter of electricity, as it generated approximately 30% more electricity than it consumed in 2012.

A Review of Policy Inventory

▶ Included for most states:

- Environmental regulations, including ones related to water, air, hazardous materials, solid waste, and land use
- Policies related to natural gas and forestry (often grouped)
- Generic economic development policies

▶ May or may not be included:

- Climate policies and action plans, nuclear regulations, mining policies, and policies related to permitting

For feedback or questions: Val@cleanegroup.org 802-223-2554

Warren Leon
Deputy Director
Clean Energy States Alliance
www.cleanenergystates.org
wleon@cleanegroup.org

Heather Rhoads–Weaver
Principal Consultant/Founder
eFormative Options
heather@eformativeoptions.com